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Abstract Book

Posters

Abstract no.: 42460

INCIDENCE AND OUTCOME OF ACUTE KIDNEY INJURY(AKI) IN TOTAL JOINT ARTHROPLASTY(TJA) POST INTRODUCTION OF ENHANCED RECOVERY PROTOCOL: A GRANTHAM EXPERIENCE.

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Aim: The aim of our study is to retrospectively review the elective, primary TJA performed, to ascertain the incidence of post-operative AKI and determine the outcome associated with this complication in our population, which may be amenable to pre-operative identification and targeted intervention. **Methodology:** Retrospective medical record review of consecutive primary, elective TJA procedures using enhanced recovery protocol was undertaken. Period of study was 6 months, from September 2014 till March 2015. Demographic, peri-operative and post-operative data were recorded. **Results:** Total number of patients, n=186. 54% were total hip and 46% were total knee arthroplasty. 15 out of 186 patients had AKI postoperatively, giving us an incidence of 8%. Fourteen of these patients were above the age of 65. 60% of these were male patients. 40% of these patients had a baseline e-GFR of <60% preoperatively. 80% had Stage I, 13% had Stage II and 6% had Stage III AKI. Following the appropriate medical management the creatinine level came back to baseline levels in 3 to 8 days in all the patients. **Conclusion:** This study showed a rate of AKI of 8% in our total joint arthroplasty population, substantially higher than previously reported. Given that AKI and long-term complications are associated, prospective research is needed to further understand the associated factors and predict those at risk of AKI. NHS Kidney Care has estimated that the cost to the NHS per annum is £500 million. There may be opportunities to maximize the pre-operative medical management and mitigate risk.

Abstract no.: 42463

CLINIC AND SURGICAL TREATMENT OF AVASCULAR NECROSIS OF THE FEMORAL HEAD IN CHILDREN

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The aim of the study is to determine the optimal timing for surgical treatment of children with avascular necrosis of the femoral head by analyzing the clinical manifestations of the disease in different age groups of patients. Materials and methods : 98 children were observed with avascular necrosis of the femoral head (1-5 stages). At the III and IV stages of avascular necrosis of the femoral head derotation-varying osteotomy of the hip attaching Γ -shaped plate was made and the stimulation of reparative processes with the use of bone and muscle pedicle graft was taken from the anterior superior spine to the leg muscle m.sartorius, which is sutured in the greater trochanter. Conclusions: the study of long-term results of surgical treatment showed that using the procedure with the use of bone and muscle autotransplantation give good results in 56%, satisfactory - in 33% and unsatisfactory in 11% of patients.

Abstract no.: 42465

THERE IS NO DIFFERENCE IN WALKING ECONOMY BETWEEN HAMSTRINGS AND PATELLAR TENDON GRAFTS AFTER ACL RECONSTRUCTION

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Introduction: The outcomes of anterior cruciate ligament reconstruction and in what extend the patients manage to get back in normal function and efficiency is widely discussed. There is still a controversy about the graft selection. In the present study we have investigated the effect that ACL reconstruction has on the walking economy and compared the two most widely used grafts. **Materials-Methods:** Twenty male patients with unilateral isolated ACL injury and ten healthy male controls were included to the study. The participants were randomly assigned into two groups and underwent an anatomic single bundle ACL reconstruction using patellar or hamstrings tendon graft. Walking energy cost was assessed by measuring the oxygen consumption (VO₂) prior and eight to ten months (mean 9.3) after the ACL reconstruction during 8-min walking tasks at level, 10% uphill and 10% downhill walking. Heart rate (HR), ventilation (VE) and respiratory exchange ratio (RER) were also recorded. **Results:** ACL deficient patients had higher VO₂, HR and VE during all tasks (p<0.01) comparing to controls. Nine months after surgery, all the measurements were significantly improved. VO₂ post-surgery reached approximately 92% (90-94%) of the healthy standard during all tasks. HR and VE in the contrary reached the healthy baseline for almost all of the post-operative measurement in both test groups. There was no difference between the two test groups in all the measurements. **Conclusions:** Patients after ACL reconstruction are improving their walking economy. Nine months post-surgery they manage to return to 92% of oxygen expenditure, regardless the graft used.

Abstract no.: 42466

TREATMENT OF HOFFA FRACTURE WITH IPSILATERAL INTERCONDYLAR AND SUPRACONDYLAR FEMUR FRACTURE AND ACL AVULSION FRACTURE USING-CONDYLAR LOCKING PLATE AND CC SCREWS

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Introduction:Distal femur fractures make up 6% of all femur fractures. Hoffa fractures are isolated intra-articular distal femur fractures characterized by a fracture in the coronal plane and are unusual. ACL femoral avulsion fracture is more common from its tibial attachment. **Objectives:**We present a rare case of ipsilateral supracondylar and intercondylar femur fracture(AO33C1)with Hoffa fracture(bicondylar)(AO33B3) and ACL avulsion fracture(femoral) treated using Condylar locking plate and CC Screws **Methods:** A 15 year old male came to Padmashree DR.D.Y. Patil Hospital in 2011 with chief complaints of pain and swelling in the left knee since 1 day. Anteroposterior and lateral x-rays of left lower limb revealed a Hoffa fracture(bicondylar) with ipsilateral Supracondylar and Intercondylar femur fracture.The fracture was fixed with a 5 hole condylar locking plate for supracondylar and intercondylar fracture and CC screws for bicondylar Hoffa fracture. On table,ACL was found to be avulsed from its femoral attachment which was fixed with CC Screw with washer. In immediate post operative care, a posterior POP slab was applied. The posterior slab was discarded after 6 weeks and gradually partial weight bearing was started after 12 weeks to full weight bearing after 4 months. **Results:**Follow up after 1 year, showed the patient had a complete Range Of Movement of affected knee. **Conclusions:**We conclude that condylar locking plate is an effective modality in treating challenging distal femur fracture cases like these.

Abstract no.: 42467

COMPARATIVE EVALUATION IN THE MEASUREMENT OF THE RADIAL HEIGHT, RADIAL INCLINATION AND ULNAR VARIANCE IN FRACTURE DISTAL END RADIUS TREATED CONSERVATIVELY BY CLOSED REDUCTION AND CAST AND CLOSED REDUCTION, K-WIRE AND CAST

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Introduction:Distal radius fractures represent approximately one-sixth of all fractures treated in emergency departments.Bimodal distribution of distal radial fractures, in young individuals it is mainly due to high energy trauma because of RTA while in elderly people it is because of fall on out stretched hand. Objectives:To study the mechanism of injury in fracture distal end radius.To evaluate RU joint collapse after distal end radius fracture by measuring radial height, radial inclination and ulnar variance. Methods:30 patients of lower end radius fracture admitted and treated in Dr D Y Patil Medical College and Hospital,Pune by closed reduction casting and closed reduction ,k-wire with casting. Results:As measured by Mayo functional score, the Group 1 (closed reduction and cast) we had 14 satisfactory and 1 poor result (out of 15). While in Group 2 (closed reduction, kirschner wire and cast) 8 excellent results and 7 good results (out of 15). Also measured with the modified demerit point system of Saito. Conclusions:Results obtained in the post operative radiological as well as functional parameters of both the groups were acceptable.Group 2 patients with closed reduction, k- wire and cast had an upper hand over the closed reduction and cast alone for the fractures of the distal end of the radius with respect to the near anatomical restoration of the radial height, radial inclination and ulnar variance as proved with Mayo score and demerit score of Saito.

Abstract no.: 42468

**MANAGEMENT OF CONGENITAL TALIPES EQUINO VARUS BY
PONSETI TECHNIQUE (A PROSPECTIVE STUDY OF 30 PATIENTS)**

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Introduction:In the clubfoot, the heel is in varus, and the first metatarsal is in severe plantar flexion, while the fifth metatarsal is normally aligned with the cuboid and calcaneus. Cavus is caused by eversion of the forefoot in relation to the hindfoot. Surgical management was in focus for many years. But extensive corrective surgeries were associated with disturbing failures and complications. Non-operative management did not become very popular as more and more orthopaedists started leaning towards surgical treatment. Late Dr. Ignacio Ponseti developed a method of clubfoot correction based on the fundamentals of kinematics and pathoanatomy of the deformity which successfully realigns clubfoot in infants without extensive and major surgeries. **Objectives:**To study the severity of CTEV deformity clinically using Pirani score. To assess the Functional and Cosmetic Outcome of CTEV Management by Ponseti technique. **Methods:**We studied a total of 30 cases(44 feet) of CTEV during the period of April 2012 to September 2014. All the subjects of the study were treated by Ponseti method. Parents were educated about the condition, various methods of management and more importantly the course of ponseti method. **Results:**Mean Age 4.03 months, 46.67% had bilateral clubfoot, 77% required tenotomy, mean total no. of casts 6.91, 95.45% of cases had a good functional outcome at last follow up evaluated on the basis of modified hospital for joint diseases. **Conclusions:**Management of CTEV by Ponseti technique gives good functional and cosmetic outcome when treated by strict adherence to the guidelines given by Ponseti which includes serial casting, maintenance by bracing and parental education which can be started as soon as the child is born.

Abstract no.: 42469

COMPARISON OF PLATING TO INTRAMEDULLARY NAILING IN TREATMENT OF DIAPHYSEAL FRACTURES OF THE FOREARM IN ADULTS(A PROSPECTIVE STUDY OF 45 PATIENTS).

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Introduction:Fractures of both radius and ulna are one of the commonest fractures in adults in upper extremity.It is difficult to reduce two bones simultaneously in presence of pronating and supinating muscles which exert angular as well as rotatory forces, which frequently displace the fracture after a satisfactory reduction leading to malunion, non union and cross union.To obtain and hold an accurate reduction usually neccesities internal fixation of the fracture.Objectives:To study fracture pattern.Decision of modalities of surgical management.Observe the period of fracture healing clinically, radiologically and rehabilitation of the patient.Methods:A total of 45 patients with mean age of 33.4 years had treated either by open reduction,internal fixation with plating or closed reduction,internal fixation with intramedullary nailing and evaluated radiologically ,clinically by using Anderson's criteria.Results:There were 20 patients in group A and 25 patients in group B.Group A patients were treated by plating, we observed 100% radiological union and functionally with excellent results in 87 %,satisfactory in 13% with no failures.Group B patients were treated by nailing,we observed 86 % radiological union ,with excellent results in 68%,satisfactory 13.6% ,unsatisfactory 9%, failure 9% and complicatons are malunion,delayed union and non union. Conclusions:We conclude that open reduction and internal fixation with compression plates with strict adherence to surgical technique is the gold standard method of treatment in both bones forearm fractures with excellent results than closed reduction,internal fixation with Talwarkar square nails which is also again a simple method with better results than conservative methods.

Abstract no.: 42474

CONSERVATIVE MANAGEMENT OF MULTIPLE LEVEL UNSTABLE FRACTURES IN CERVICAL SPINE IN A CASE OF OSTEOPETROSIS

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INTRODUCTION---16yr old boy came with acute pain in the neck following a hyperflexion injury to the cervical spine On examination--- no neurodeficit Xrays--- C3-C7 body fracture with laminae fracture from C2 to T1 and C5-C6 bifacetal dislocation and C6-C7 unifacetal dislocation.Incidental finding on xrays—osteopetrosis(confirmed later through radiologist's report)**MATERIALS AND METHODS---**The patient was put on cervical skeletal traction with the help of tongs in slight extension.Weekly xrays were done to look for the maintenance of reduction.6 weeks later---traction was removed and patient was put on hard cervical collar..**RESULTS---**Flexion-extension of the cervical spine with collar in situ showed a stable spine.Two and half months post trauma---repeat xrays without collar showed signs of fracture healing and stability on flexion and extension **CONCLUSION---**multiple level unstable cervical spine fractures without neurodeficit and minimal displacement can be managed conservatively with skeletal traction avoiding the morbidity of extensive surgery and even if surgery is required later;would be with minimum levels of fixation.

Abstract no.: 42475

CORRECTION OF RECURRENT KYPHOSCOLIOTIC DEFORMITY IN A CASE OF SPINAL MUSCULAR ATROPHY

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INTRODUCTION---23 yr old female,a known case of spinal muscular atrophy with kyphoscoliosis,treated 15 yr ago for deformity correction,came with recurrence of deformity Spinal muscular atrophy is a condition that affects the spinal cord motor neurons such that they undergo atrophy,shrink and eventually die resulting in increasing muscular weakness.Weakness is more in the proximal musculature as compared to the distal.One feature of the varied clinical picture is Scoliosis.On examination---Patient had a thoracolumbar kyphoscoliosis along with b/l lower limb proximal muscle weakness.Xrays and CT scan showed a main thoracolumbar curve with a upper thoracic and a lower lumbar compensatory curves.A posterior fusion mass from the previous operative procedure extended from D7 to L5.Thoracolumbar Cobbs angle was 77 degree while the kyphos angle was 112 degree.L1 was the apical vertebra**MATERIALS AND METHODS**---The case was managed by instrumented correction of deformity using pedicular screws and bipedicle subtraction osteotomy and transdiscal trapezoidal resection of L1 with 3 level laminectomy from D12 to L2. Very less amount of the posterior fusion mass was disturbed**RESULTS**---Patient had excellent cosmetic result post operatively(both clinically and radiologically).The thoracolumbar Cobbs angle improved to 34 degree and kyphosis improved to 45 degree **CONCLUSION**---Post operative severe deformities with a large fusion mass can be corrected with excellent results with minimal disturbance to the fusion mass using vertebral subtraction osteotomy

Abstract no.: 42477

EFFECT OF DIABETES MELLITUS ON APOPTOSIS, MATRIX DEGRADING ENZYMES AND INFLAMMATORY CYTOKINES OF INTERVERTEBRAL DISC CELLS IN GENETICALLY ENGINEERED DIABETIC RATS

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Introduction: Diabetes mellitus is thought to be an important etiologic factor in intervertebral disc degeneration. The purpose of our study was to investigate the effect of diabetes mellitus on apoptosis, matrix degrading enzymes and inflammatory cytokines of annulus fibrosus (AF) cells in genetically engineered OLETF (diabetic) and LETO (control) rats. Methods: Lumbar disc tissues were obtained from 6-month old 10 OLETF and 10 LETO rats. We examined AF tissues using Masson trichrome stain, TUNEL, Western blot, and reverse transcription polymerase chain reaction. The apoptosis index and the degree of expression of matrix degrading enzymes and inflammatory cytokines of AF cells were evaluated. Results: OLETF rats showed increased body weight and abnormal 2-hour glucose tolerance tests compared to LETO rats. Masson trichrome stain showed more severe fibrosis and degeneration in AF tissues of OLETF rats. The apoptosis index was statistically higher in the OLETF rats. The expression of matrix metalloproteinase (MMP)-1, -2, -3 and -13, tissue inhibitor of metalloproteinase (TIMP)-1 and -2, and Fas (apoptosis-related protein) was statistically higher in the OLETF rats. The expression of interleukin (IL)-1 and -6 and tumor necrosis factor-alpha was statistically higher in the OLETF rats. Conclusion: Our findings demonstrate that diabetes mellitus is associated with increased apoptosis, expression of matrix degrading enzymes and inflammatory cytokines in AF cells. This results in more severe fibrosis of AF, which leads to intervertebral disc degeneration. These results suggest that strict blood glucose control could be important to delay intervertebral disc degeneration in patients with diabetes mellitus.

Abstract no.: 42478

SHORT NOTICE CANCELLATIONS OF ELECTIVE ORTHOPAEDIC SURGERIES – IMPACT ON PATIENTS' LIVES.

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Introduction: Elective orthopaedic surgeries can be cancelled with short notice both of pure medical- but also of administrative reasons. Sometimes it is even cancelled the same day as it is supposed to occur. The patients are notified when lying in the ward prepared and waiting for surgery. The goal of this study was to perform an assessment and analysis on whether the cancellations have a psychological impact and effect on the patients' lives. Methods: Using qualitative interpretative description, we conducted semi-structured interviews with 12 patients from Karolinska Sjukhuset Solna, who's hip- or knee replacement surgery has been cancelled with short notice. The interviews were taken place in Stockholm, Sweden, from April 2014- February 2015. The data were analyzed using qualitative content analysis to identify categories and themes. Results: The analysis show that this group of patients experiences the situation they are in, as psychologically challenging. Six major themes emerged. Stress, insomnia, pain, depression, lack of faith and apathy. Discussion: There are yet no comparative studies published. The socio-economic effects the short cancellations have, are widely researched, but until now we have known little about the effect it has on the patients and how they experience the situation they are put in. Conclusions: Our study reveals the suffering, this group of patients experience. It should be measured against the socio-economic factors that determine the administrative surgical system.

Abstract no.: 42486

COMPLICATIONS FOLLOWING IMPLANT REMOVAL IN PATIENTS WITH PROXIMAL HIP FRACTURES OVER SIXTEEN YEARS

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Introduction: Although 58% of orthopaedic surgeons do not consider general hardware removal as a necessary routine, it is accounting for approximately 5% of all orthopaedic procedures. Indications and time interval for hardware removal in this special selected patient group is still discussed controversial. Methods: A total of 371 consecutive patients with 424 hardware removal procedures after a proximal femur fracture, between 08/1992 and 11/2008, have been collected prospectively and statistical evaluation was performed retrospectively. Study population was divided into two subgroups: Medical indication subgroup (MIR) consisted of 299 patients (80.59%) and 72 patients (19.41%) were assigned in the non-medical indication (NMIR) subgroup. Results: Mean age was 66.8 (range 18 to 100) with 65.9% females, and 34.1% males. In 85.18% (n=316) of patients, primary surgery was performed within 24 hours. Mean time interval from hardware implantation until removal was 64 weeks (SD: 99 weeks), range from 1 day to 17 years. In the NMIR subgroup 79.17% (n=57) of implant removals were performed within 2 to 3.5 years. In the NMIR subgroup a total of 28% (n=21) complications occurred compared to 11.46% in the MIR subgroup. (p<0.005) Conclusion: Non-medical indicated implant removal should be avoided due to the high complication rate of 28%.

Abstract no.: 42488

BASAL HEMOGLOBIN LEVELS AS PROGNOSTIC FACTOR FOR EARLY DEATH IN ELDERLY PATIENTS WITH HIP FRACTURE - A TWENTY YEAR OBSERVATION STUDY

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Introduction: Hip fractures are a significant cause of mortality and morbidity in the elderly. This study investigated the relationship between initial haemoglobin (Hb) levels and a prognostic parameter for outcome in those patients. Material and Methods: A total of 3.595 consecutive patients with diagnosed hip fractures were studied with 72,2% being female. Follow up was $11,2 \pm 0,3$ months and age group was divided in ≤ 84 years (60,1%) and ≥ 85 years (39,9%). Mortality < 12 months was $n=439$, (12,2%). Anaemia was defined according to WHO criteria, with subgroups mild, moderate and severe anaemia. Data collection was performed prospectively and statistical evaluation was performed retrospectively. Results: In our study population Hb levels at admission showed a statistically significant direct correlation to short term mortality. Lower Hb levels at admission were associated with higher short term mortality. Mild anaemia at admission caused a 1,5 (CI: 1,1-1,9), moderate anaemia a 2,6 (95 CI: 2,0-3,4), and severe anaemia a 3,6 (CI:1,8-6,9) increase in three months mortality. Total lymphocyte count ($1,2 \pm 0$) did not show any differences between the subgroups. Conclusion: Those findings in our study population with 3.595 patients over a period of twenty years, have proven that initial Hb levels are a useful and cost effective parameter to predict mortality in elderly patients with a hip fracture. This prognostic factor may help to increase the outcome of elderly patients treated with a hip fracture.

Abstract no.: 42503

CLINICAL RESULTS OF HYBRID MENISCAL REPAIR WITH THE FAST-FIX MENISCAL REPAIR SYSTEM

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Introduction: Hybrid repairs have mostly consisted of a combination of an inside-out technique with all-inside devices, particularly in areas such as the very posterior horn. Purpose: The purpose of this study was to evaluate the clinical results of arthroscopic hybrid meniscal repair. Material and Methods: Thirty-six hybrid meniscal repairs that was a combination of an inside-out technique with the FasT-Fix were performed. Mean age was 21 years. Site of the tear, type of the tear, Lysholm score, rate of the return to sports activity, clinical success by Barret's criteria (absence of joint-line tenderness, absence of joint effusion and a negative McMurray test) and complications were evaluated. Results: In the results of site of the meniscal tear, 27 knees were located on the medial-posterior horn of medial meniscus (included 1 discoid meniscus), 2 knees were located on the anterior-medial-posterior horn of medial meniscus and 7 knees were located on the medial-posterior horn of lateral meniscus (included 2 discoid meniscus). In the results of type of the meniscal tear, longitudinal tear was observed in 32 knees and complex tear was observed in 4 knees. The mean Lysholm score was improved from 55 pre-operatively to 98 post-operatively. Clinical success rate was 67%. Thirty-three knees (92%) returned to pre-injury sports activity. There was no complication. Conclusion: This study showed that hybrid meniscal repair with the FasT-Fix provided a high rate of return to sport activity. This hybrid method is one of the good options for repair of meniscus tear involve the posterior horn.

Abstract no.: 42504

EFFECT OF SMALL INTERFERING RNA-MEDIATED SUPPRESSION OF FAS GENE ON APOPTOSIS AND PROLIFERATION OF RAT NOTOCHORDAL CELLS

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Purpose: We investigated the effect of small interfering RNA (siRNA) on the expression of Fas gene, apoptosis, and proliferation in rat notochordal cells treated with serum deprivation. **Methods:** Notochordal cells were isolated from 4-week old rats, cultured, and placed in either 10% (normal control) or 0% (apoptosis-promoting condition) fetal bovine serum (FBS) for 48 hours. The expression of Fas, apoptosis, and proliferation of the cells were identified and quantified. To suppress the expression of Fas, siRNA targeting against Fas (Fas siRNA) was synthesized and transfected into the cells by oligonucleotides. The degree of suppression of Fas expression was investigated at mRNA level. Finally, the effect of siRNA-mediated suppression of Fas on apoptosis and proliferation of the cells was identified and quantified. **Results:** Serum deprivation (0% FBS) increased apoptosis by 40.3% and decreased proliferation by 45.3% in notochordal cells (both, $p < 0.001$), along with upregulation of Fas. However, Fas siRNA efficiently suppressed the expression of Fas on the cells. The suppression rate by Fas siRNA was 68.5% at mRNA level ($p < 0.001$). Suppression of Fas gene by siRNA significantly inhibited apoptosis by 9.3% and increased proliferation by 21% in the cells (both, $p < 0.05$). **Conclusions:** SiRNA-mediated suppression of Fas gene results in significant inhibition of apoptosis and increased proliferation of notochordal cells in serum deprivation. These results suggest that the use of siRNA technology deserves a novel therapeutic approach for disc degeneration due to failures of apoptosis and proliferation of disc cells.

Abstract no.: 42505

EFFICACY OF CAUDAL EPIDURAL CORTICOSTEROID INJECTION IN LUMBOSACRAL RADICULOPATHY

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Background: Radicular pain has been attributed to both mechanical deformations as well as to the action of inflammatory cytokines on the dorsal root ganglion. Epidural steroids injections can be used as adjunct in the treatment of spinal radiculopathy, Objectives: To determine the efficacy of caudal administration of epidural corticosteroids for management of lumbosacral radiculopathy. Material and Methods: This descriptive case series study was conducted in Department of Orthopedic Surgery and traumatology from November 2013 to April 2014. 160 cases were included in the study. Informed consent and demographic details were obtained. Then baseline Denis Pain Score (DPS) was noted. Each patient received caudal epidural steroid injection. Each patient was followed-up in OPD and DPS was calculated at 2nd week, 3rd week and 4th week. Efficacy of treatment was labeled at 4th week. Results: The mean age of the patients was noted as 46.46 ± 7.37 years. Out of 160 patients the mean DPS at baseline of the patients was noted as 4.51 ± 0.50 whereas the mean DPS at week 4 was noted as 2.02 ± 0.61 . There was significant improvement in DPS at 4 week with p-value being less than 0.0001. The study results showed that 88.8% patients had achieved efficacy at 4th week whereas 11.2% did not. Conclusion: Thus it was concluded through results of our study that epidural steroid injection is effective in achieving efficacy in terms of reduction in pain score within one month. Key words: Lumbosacral radiculopathy, Radicular pain, Epidural Steroids Injections, Denis pain scale.

Abstract no.: 42508

POSTOPERATIVE EPIDURAL HEMATOMA AFTER POSTERIOR CERVICAL LAMINOPLASTY

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Purpose: The purpose of this study is to clarify the real prevalence and the degree of the epidural hematoma which occurs after cervical laminoplasty operation. **Methods:** The consecutive 94 patients with cervical myelopathy consisted of 61 males and 33 females (mean age 65 years, range 33 to 86) were studied prospectively. French-door laminoplasty were done for all patients and postoperative MRI scans were performed at 3 days after surgery. The degree of epidural hematoma was classified into four groups as follows: Severe; the epidural hematoma compressed the dural tube excessively but also the spinal cord. Moderate; the dural tube was compressed by epidural hematoma and the subarachnoid space was not seen but the spinal cord escaped compression. Slightly; the dural tube was slightly compressed but the subarachnoid space was visible. None; the dural tube was not compressed and the subarachnoid space was good enough visible. **Results:** Only 2 patients showed severe epidural hematoma and 7 patients showed moderate. 23 patients showed slightly and 62 patients revealed none. All patients had not experienced neurological deficit and reoperation. There were no correlation between age at operation, areas of decompression, postoperative bleeding, presence of hypertension and the degree of postoperative hematoma. However, the epidural hematoma was recognized more often in the patients with diabetes mellitus than in the other. **Conclusion:** The postoperative hematoma after cervical laminoplasty was recognized in 34% of patients and 2% showed severe degree. The patients with diabetes showed more frequently, and they should be given more attention after operation.

Abstract no.: 42511

OSTEO-NECROSIS OF FEMORAL HEAD IN INDIA: RISK FACTORS AND CLINICO-RADIOLOGICAL CORRELATION

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Introduction: Osteonecrosis of femoral head (ONFH) is a common indication of total hip replacement in India and other Asian countries. Data on risk factors for avascular necrosis and their relation to clinical and radiological outcomes is scarce. The aim of this study is to study relative prevalence of various risk factors of ONFH. Correlation between clinical and radiological severity of the disease will also be studied. Material and Methods: 100 patients diagnosed to have ONFH and 100 matched controls were included in this prospective study. Details regarding alcohol consumption and steroid use were taken. Association between Harris hip score & Visual analogue scale for pain and Ficat staging and area of femoral head involvement on MRI was studied. Association between amounts of alcohol and steroid consumed (average and cumulative doses) and clinical and radiological variables was also studied. Results: Corticosteroid exposure was present in 44%, alcohol in 30% patients and 22% cases were idiopathic. There was a statistically significant difference between average weekly alcohol consumption, drink-years, average daily dose of steroid and cumulative doses of steroids between the cases and the controls. There was a positive correlation between the amount of alcohol and steroid consumption and clinico-radiological parameters. There was a strong positive correlation between clinical and radiological parameters. Conclusion: Risk factors such as steroid intake and alcohol intake are important and accounts for majority of the cases of ONFH. The quantity of these exposures is directly related to the severity of disease on clinic-radiological scales.

Abstract no.: 42515

INTER-OBSERVER & INTRA-OBSERVER RELIABILITY FOR A NEW METHOD OF MEASURING CORRECTION FOLLOWING AKIN'S OSTEOTOMY IN HALLUX INTERPHALANGEUS

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INTRODUCTION: Hallux Interpphalangeus is found commonly with Hallux Valgus and is measured pre-operatively by drawing lines passing through mid-axis of first metatarsal and proximal phalanx. However when first metatarsal osteotomy is carried out along with Akin's Osteotomy (a closing wedge osteotomy of proximal phalanx to correct deformity) it becomes difficult to assess the degree of correction achieved by Akin's osteotomy. **METHODS:** we propose a new way of measuring the correction achieved by Akin's osteotomy by measuring the angle between the proximal and distal articulating surfaces of proximal phalanx. We validated this for inter-observer and intra-observer reliability by analyzing results by Cohen's Kappa statistics. **RESULTS:**We measured 20 x-rays pre and post-operatively and measured the degree of correction achieved. This was then reanalyzed by a independent observer to establish if there was inter-observer agreement. The first observer also re-measured all the angles again after a period of 2 weeks to establish if intra-observer reliability existed or not. Our results showed a strong intra and inter-observer agreement in measurements which is confirmed statistically by Kappa coefficient. **CONCLUSION:** This new method of measuring the degree of correction is a reliable method and helps to quantify the degree of correction achieved objectively rather than subjectively.

Abstract no.: 42522

ARTHROSCOPIC TREATMENT OF ANKLE IMPINGEMENT SYNDROME

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Ankle impingement is defined as a painful limitation of full ankle range of motion secondary to an osseous or soft tissue abnormality. The purpose of the study was to evaluate the functional outcome of arthroscopic treatment of ankle impingement syndromes . in this case series study , 15 patient of ankle impingement syndrome underwent arthroscopic debridement and drilling if there there was osteochondritis dissecans of the talus. four different types of impingement lesions were found intra-operatively , synovial hypertrophy was found in 8 cases (53.3%), fibro-fatty scarred tissue was found in 4 patients (26.7%) ,anterior tibial spur was found in 2 cases and meniscoid lesion was found in one case (6.7%). simple radiography and magnetic resonance imaging were applied for all the patients. All the patients were evaluated pre-operatively and at the interval visit of 3 and 6 months post- operatively according to Meislin s criteria and ankle society (aofas) hind foot scale . the mean aofas score increased from 56.93 ± 9.60 (range, 42 -77) before surgery to 86.73 ± 6.32 (range,73-97),and to 90.60 ± 7.48 (range,73-98) at 3 and 6 months follow-up respectively (p<.003). arthroscopic treatment of ankle impingement syndrome is recommended as the treatment of choice.

Abstract no.: 42525

TOTAL KNEE ARTHROPLASTY AFTER PROXIMAL TIBIA FRACTURE

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We have analyzed the results of 32 TKA of 32 patients after fractures of the proximal tibia, which were operated in the period from 2011 to 2014. We have used intramedullary stems for tibial component in 28% of cases, CCK implants in 15.6% of cases, metal augments for bone defects in 25%, in 59.4% of cases autologous bone, cementation for minor defects was performed in 68.8% of patients. 12 of 32 (37.5%) operations were performed under the control of computer navigation (Orthopilot). Average KOOS score one year after the operation in subscales was as follows: "pain" - 86.1 (69,4-97,2), "daily physical activity" - 80,8 (57,4-92,6), "symptoms and stiffness" - 67,8 (57,1-85,7), "physical activity in sports" - 30,0 (5,0-70,0), "quality of life" - 50.0 (37,5- 81.3). The average ROM after the operation was as follows: flexion 100 degrees (90-120), extension 0 degrees (0-5), which corresponds to good and excellent results. There was only one case (3.1%) of septic instability, requiring a two-stage revisional surgery by articulating spacer. All the patients after surgery had a significant improvement of joint function and reduction of pain. However, these patients are at risk for perioperative complications and require a special approach when performing arthroplasty. Treatment outcomes are due to the restoration of axial and rotational alignment, normalization of the joint line by the use of augments, elimination of instability in the joint by application of CCK implants.

Abstract no.: 42531

**SOLITARY BONE PLASMACYTOMA OF THE PELVIS, A RARE TUMOUR:
CASE REPORT AND LITERATURE REVIEW**

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Introduction: Solitary bone plasmacytomas (SBP) are rare tumors of the B-cell lineage. A single bone lesion is found, having no evidence of other systemic involvement. **Objectives:** Report a case of SBP. **Methods:** A 54-year-old woman presented to the emergency department with bilateral hip pain following minor trauma. X-ray showed no bone lesions. One week later, after having sustained a fall from her own height, the patient was admitted again. X-rays showed fracture of the right ischiopubic and iliopubic rami, as well as a large osteolytic lesion on the left ilium ala. CT confirmed these findings. MRI showed a solid large mass extending from the left ilium to the left sacroiliac joint, 13.4 x 13 x 8.9 centimeters wide, with necrotic areas. Bone scintigraphy excluded other bone lesions. The fractures were treated conservatively. Histopathologic studies confirmed the diagnosis of SBP and radiotherapy was initiated. **Results:** SBP's occur in 3–5% of patients with plasma cell neoplasms. Males are twice likely to be more affected and the median age of presentation is a decade younger than that of patients with MM. The most common symptom is bone pain. Involvement of the axial skeleton is more likely than the appendicular skeleton. First-line treatment consists of local radiotherapy and usually has a good response. Progression to MM can occur in 50% of patients. Ten-year survival is about 50%, being 25-40% of patients disease free at that time. Age is the most important prognostic factor. **Conclusions:** SBP are rare and their diagnosis can be challenging. Pelvic involvement has been rarely described. The presentation of this case should make awareness on the occurrence of these neoplasms for prompt diagnosis and initiation of treatment.

Abstract no.: 42533

RELATIONSHIP BETWEEN RADIOGRAPHIC INDEXES OF VARUS DEFORMITY OF THE LOWER LIMBS AND SEVERITY OF OSTEOARTHRITIS OF THE KNEE

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The purposes of this study were to measure indexes related to varus deformity of lower limbs on coronal radiographic images and to evaluate factors related to knee osteoarthritis (OA) progression. 464 volunteers (193 men, 271 women) with an average age of 72 years (range: 39-91 years) were included in this study. We evaluated the severity of knee OA using Kellgren-Lawrence (KL) classification and examined the association with varus deformity of the lower limbs in radiographic indexes. The hip-knee-ankle angle and the femorotibial angle correlated with KL grade, and showed high values, indicating severe OA. The inclination angle of the tangent to the femoral condyles from the horizontal plane (DFA) and the medial angle between the tibial functional axis and the tangent to the tibial plateau (MPTI) in subjects with KL-0 and I were significantly different from those in subjects with KL-III. Therefore, DFA and MPTI could be considered as indexes of the progression to KL-III. In addition, it was indicated that progression of knee OA to KL-III depended on the change in the femoral tangent angle of the knee and morphology of the medial proximal tibia. Although DFA and the inclination angle of the talus from the horizontal plane (AJA) in subjects with KL-III differed from those in patients with KL-0 or I, The inclination angle of the tangent to the tibial plateau from the horizontal plane (PTA) was maintained in patients with KL-III. The femur and talus may tilt to maintain a horizontal knee joint surface of the tibia.

Abstract no.: 42534

CLINICAL SIGNIFICANCE OF DIAGNOSIS FOR THE DELAMINATED ROTATOR CUFF TEAR USING MAGNETIC RESONANCE IMAGING.

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Introduction : Delaminated rotator cuff tear of shoulder is known that the prognosis is worse than non-delaminated tear without adequate treatment. But, it is rarely reported that prediction of the presence of the delaminated tear. The purpose of this study is to predict of presence of delaminated rotator cuff tear using magnetic resonance imaging(MRI).
Methods : 212 full-thickness rotator cuff tear patients were studied in this retrospective study. Detachment of 5mm between articular layer and bursal layer was defined as delaminated tear. More retraction (5mm or more) of the inner layer than the outer layer was classified as type I. Difference in less than 5mm retraction was type II, and more retraction of the outer layer than the inner layer was classified as type III. MRI was used to predict delaminated tear, and the results matched the findings with arthroscopic surgery and analyzed statistically.
Results : In a total of 212 patients with full-thickness rotator cuff tear, 138 patients (65.1%) was confirmed as delaminated tear, and 116 of 138 patients (83.9%) was predicted delaminated tear with MRI, which means sensitivity of 83.9%. Specificity, positive predictive value and negative predictive value were 94.3%, 90.7% and 75.6%. Type I delamination (61.6%) were the most common, type II were 35.5% and type III were 2.9%.
Conclusion: Prediction of the delamination of rotator cuff tear is important for preoperative plan and adequate surgical treatment. In this study, MRI could predict high probability of the delamination of rotator cuff tear.

Abstract no.: 42535

THE ANALYSIS OF THE RELATIONSHIP BETWEEN SUBSCAPULARIS TENDON TEAR AND CORACOHUMERAL DISTANCE.

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Introduction : It has been controversial for a long time whether subcoracoid impingement syndrome is the cause of subscapularis tear. So, this study aimed to determine and evaluate the relationship between the coracohumeral distance and subscapularis tendon tear. Methods : We performed 164 arthroscopic shoulder surgical procedures between January 2007 and November 2013. 4 groups were classified in this study. Control group was 61 case, complete subscapularis tear group was 32 case, partial complete subscapularis tear group was 40 case, supraspinatus tear group was 31 case. The coracohumeral distance was measured from the tip of the coracoid to the cortex of the proximal humerus on an axial cut of preoperative magnetic resonance imaging. Results : The average coracohumeral distance in the complete subscapularis tear group was 8.95 ± 2.56 mm and the average coracohumeral distance in the partial subscapularis tear group was 8.66 ± 2.63 mm. The average coracohumeral distance in the supraspinatus tear group was 9.28 ± 2.45 mm. The control group was 9.53 ± 2.65 mm. There was no statistically significant difference between the control group and patient group. Conclusion : Statistical analysis showed that the coracohumeral distance was not significantly narrowed in the group of subscapularis tear patients. These results show that narrowing of coracohumeral distance is not a main cause of subscapularis tear. So, further studies are required for etiology of subscapularis tear.

Abstract no.: 42536

GLENOHUMERAL IMPINGEMENT DUE TO SUBSCAPULARIS TENDON REPAIR MEDIALIZATION

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Introduction: Glenohumeral impingement of the subscapularis to glenoid can occur with medialization of the subscapularis tendon repair. Also, repair of the subscapularis is sometimes done at the articular margin. Therefore, the purpose of this study was to quantify the potential glenohumeral impingement resulting from medialization of subscapularis tendon repair and to compare that to medialization to the articular margin. **Methods:** Eight human cadaveric shoulders were tested at 0, 30, and 60 degrees of glenohumeral abduction. The humeral head position relative to the glenoid was digitized at 0, 15, 30, 45 and 60 degrees of internal rotation with a MicroScribe. Following testing, four points along the subscapularis footprint border were marked followed by points at 5, 10 and 15 mm medial to simulate subscapularis medialization. Four points along the articular margin in line with the subscapularis and 5 and 10 mm medial to these points were also digitized. A repeated-measures analysis of variance with a Tukey post hoc test was used for statistical analysis. **Results:** Subscapularis medialization from the footprint significantly increased the glenohumeral impingement area in positions of internal rotation greater than 45 degrees ($P < 0.05$). Repair at the articular margin has a similar amount of impingement as 10mm medialization from the subscapularis footprint ($P > 0.57$ for each angle). **Conclusion:** Medializing the subscapularis repair can result in glenohumeral impingement especially in positions of internal rotation. Repair at the articular margin results in impingement similar to that of 10mm medialization from the subscapularis footprint.

Abstract no.: 42539

IS TOPICAL APPLICATION OF EPSILON-AMINOCAPROIC ACID EFFECTIVE IN REDUCING BLOOD-LOSS IN TOTAL HIP ARTHROPLASTY?

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Purpose: Perioperative blood loss after total hip arthroplasty (THA) can be substantial and often requires allogeneic blood transfusion. Tranexamic acid has been proven to be efficient in reducing blood loss and safe by not increasing thromboembolic events. Epsilon-aminocaproic acid (ϵ -ACA) is less expensive than and as safe as tranexamic acid. However, its efficiency in reducing blood loss in THA has not yet been well documented in our literature. The purpose of the study was to evaluate the perioperative blood loss with the use of ϵ -ACA in THA. **Methods:** We retrospectively followed 160 patients treated with a THA from January 2012 to July 2014 by one surgeon. In January 2013 we started to apply topically 5 g ϵ -ACA diluted in 100 ml normal saline intraoperatively to the open wound before closure. The last 80 patients not receiving epsilon-aminocaproic acid (non ϵ -ACA group) and the first 80 patients receiving epsilon-aminocaproic acid (ϵ -ACA group) were compared regarding blood loss, need of transfusion and thromboembolic complications. **Results:** The calculated blood loss (mean \pm SD) for the non ϵ -ACA group was 1,678 \pm 515ml and for the ϵ -ACA group 1,403 \pm 417ml ($p < 0.05$). In the non ϵ -ACA group 23 patients needed blood transfusion, whereas only 10 patient in the ϵ -ACA group needed blood transfusion ($p < 0.05$). No patient in either group developed a thromboembolic complication. **Conclusions:** Epsilon-aminocaproic acid is safe, effective, and cost-efficient in reducing blood loss and the need of allogeneic blood transfusion in the setting of THA.

Abstract no.: 42541

OUR EXPERIENCE IN THE TREATMENT OF TROCHANTERIC FRACTURES

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This paper presents the results of treatment of 380 patients with trochanteric fractures of the femur. There were 210(55.3%) men, 170(44.7%) women. The age was from 15 to 90. Operative measure were made in following time period: 30(7,9%) patients had on 1st day, 220(57,9%) had on the 2nd and 4th day, 110(28,9%) had on the 5th and 10th day, 20(5,3%) had later than 10th day. Osteosynthesis was made to 285(75%) senium patients. 98(25,8%) needed the correction of vital organs functions in the preoperative period. 355(93,4%) had proximal femoral nail with blocking, are from different manufacturers («Ch-M», «Osteomed»), 15(3.9%) had dynamic hip screw, 10(2.6%) had dynamic condylar screw as anchor. Long-term results of treatment of 80 patients from 1 to 3 years were observed. We did not observe signs of nonunion, pseudoarthrosis. There were no fatal cases. 72(90%) patients achieved good and satisfactory results. Only 8(10%) patients were observed unsatisfactory result. Consequently, the usage of new technology in the surgical treatment of patients with trochanteric fractures of the femoral bone depends on age, general condition of patients, concomitant diseases, from period after injury and nature of fracture, allows to make stable fixation of bone fragments, make early rehabilitation and to achieve good and satisfactory results in 90% of cases.

Abstract no.: 42543

MINIMUM 5-YEAR OUTCOME AFTER TUBULAR SURGERY WITH ASSISTANCE OF ENDOSCOPIC TECHNIQUE FOR LUMBAR SPINAL STENOSIS

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Introduction: Recently, a tubular surgery with assistance with endoscopic technique (TSwE) has been an established minimally invasive decompression procedure for degenerative spinal disorders. However, there has been only a few reports of its mid- or long-term outcomes. Objectives: The aim of this study was to evaluate a minimum 5-year outcome after TSwE for lumbar spinal stenosis (LSS). Methods: A total of 47 patients (71 ± 7.8 years, M/F: 30/17), who underwent the TSwE for LSS and also could be followed for minimum 5-year after surgery, were enrolled in this study (FU rate: 75%). Grade I degenerative spondylolisthesis was demonstrated in 25 patients and degenerative scoliosis was revealed in three. The TSwE was performed at single level in 36 patients and at two levels in eleven. The clinical and radiological outcomes were evaluated. The mean FU duration after surgery was 70 months. Results: The JOA score was 14.5 ± 3.2 before surgery and increased up to 22.3 ± 4.6 at the latest FU ($p<0.001$). The NRS on LBP, leg pain and leg numbness were significantly decreased, and the ODI score was $24.5\pm 20.1\%$ at the latest FU. On MR imaging study, the sufficient decompression was preserved in 91% of the patients during the time. During the FU, an additional lumbar surgery was performed in 3 patients (6.4%). Conclusion: Minimum 5-year outcome after TSwE for LSS was satisfactory, as well as previous reported outcomes of conventional decompressions. Considering the fact that the TSwE is a less invasive surgery, the TSwE would be a preferable procedure for LSS patients.

Abstract no.: 42544

FACTORS ASSOCIATED WITH THE RETORO-ODONTOID SOFT TISSUE ENLARGEMENT AFTER MIDDLE AND LOWER CERVICAL SPINE SURGERY IN NON- RHEUMATOID ARTHRITIS PATIENTS

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Aim: The aim of this study was to measure the thickness of ROST before and after cervical surgery at mid-lower level in non-RA patients, and examine the factors associated with enlargement of ROST after surgery. **Methods:** The study comprised 74 patients (52 men and 21 women, mean age 65.2 years) underwent mid-lower cervical surgery in non-RA patients. ROST thickness was evaluated on mid-sagittal T1-weighted MRI. The cervical angles (O-C1, C1-2, and C2-7) were measured on lateral views. The correlations between the enlargement of ROST after surgery and radiographic changes were examined. The independent factors related to the enlargement of ROST were analyzed using stepwise multiple regression analysis. **Results:** The thickness of ROST increased more than 1mm was observed in 21 of 74 patients (28.4%). At latest follow-up, the number of the patients with ROST with high intensity area on T2 image were significantly larger than those without high intensity area ($p=0.03$). On stepwise multiple regression analysis, age ($\beta = 0.273$, $p < 0.01$) and restriction of cervical flexion after surgery ($\beta = 0.235$, $p < 0.01$) were independently associated with enlargement of ROST. **Conclusion:** The enlargement of ROST in non-RA patients after middle and lower cervical surgery was correlated with age and restriction of cervical flexion. It is necessary to pay attention to the ROST enlargement after surgery in the elderly patients with high intensity area in ROST on T2-weighted MRI.

Abstract no.: 42545

COMPARISON OF SUTURE BRIDGE TECHNIQUE VERSUS LAYERED SUTURE BRIDGE TECHNIQUE FOR DELAMINATED TEAR OF SUPRASPINATUS TENDON

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Introduction: The delaminated tear of supraspinatus tendon(SST) was a negative prognostic factor for arthroscopic rotator cuff repair. For good results, we have to choose the appropriate surgical technique. The purpose of this study was to compare outcomes between suture bridge technique and layered suture bridge technique for delaminated tear of SST. **Methods:** In a pro-spective, randomized controlled study, 61 patients with delaminated tear of SST were selected and 31 patients were allocated to suture bridge technique group(Group I) and 30 patients were allocated to layered suture bridge technique group(Group II). The functional results were evaluated with ASES, KSS scoring scale at the 2 years follow-up, and the repair integrity was evaluated with magnetic resonance imaging at an average of 6 months postoperatively. **Results:** The average clinical outcome scores all improved significantly at the time of the final follow-up($P<0.05$). There was no statistical difference between the groups regarding functional results($P>0.05$). At a mean of six months postoperatively, magnetic resonance imaging revealed that there was a recurrent tear in 9 patients repaired by suture bridge technique(Group I), and 4 patients repaired by layered suture bridge technique (Group II). **Conclusion:** Layered suture bridge technique was better outcomes than suture bridge technique in radiologic results.

Abstract no.: 42546

THE RELATIONSHIPS OF ACROMION INDEX AND CRITICAL SHOULDER ANGLE IN KOREAN PATIENTS WITH ROTATOR CUFF TEAR.

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Introduction: There are some reports that rotator cuff tears have relationship with acromion index (AI) and critical shoulder angle (CSA). But some authors report that they don't have relationship. So we want to know the relationships of AI and CSA in Korean patients with rotator cuff tear(RCT). Methods: Total 279 cases confirmed by magnetic resonance imaging (MRI) were divided into 4 groups including 99 normal cases without RCT, 50 cases with partial RCT, 100 cases with full-thickness RCT, and 30 cases with cuff tear arthropathy(CTA). In true anterior-posterior X-rays, AI and CSA were measured respectively, and their interrelationship was compared and statistically analyzed with ANOVA. Results : The average AI were normal group 0.65(0.38-0.85, ± 0.09), partial RCT group 0.68(0.54-0.86, ± 0.08), full-thickness RCT group 0.68(0.46-0.88, ± 0.08), and CTA group 0.72(0.55-0.91, ± 0.09), and averages of each CSA were normal group 33.27(16.40-44.50, ± 4.93), partial RCT group 34.46(24.10-48.50, ± 5.05), full-thickness RCT group 34.05(23.30-45.40, ± 4.65), and cuff CTA group 35.84(27.10-48.30, ± 4.87). AI were significantly different in the normal, partial, full-thickness RCT, and CTA groups ($P < 0.015$, $P < 0.025$, and $P < 0.015$). CSA was not significantly different in the normal, partial RCT, and full-thickness RCT groups ($P > 0.172$ and $P > 0.250$), but significantly different in the CTA group ($P < 0.012$). Conclusion : AI showed significant correlations with RCT in the full-thickness RCT and CTA groups. CSA has no correlation with full-thickness RCT but correlation with CTA. Additional studies could be needed in the future.

Abstract no.: 42547

MINIMALLY INVASIVE PLATE OSTEOSYNTHESIS USING 3D PRINTING FOR SHAFT FRACTURES OF CLAVICLES

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Introduction: Recently clavicle shaft fracture has been reported that operative treatment is better in functional status. When we performed MIPO(Minimally invasive plate osteosynthesis) technique with existing anatomical plate, we experienced difficulty due to various type of shape of patient's clavicle. We made operation easier way by making pre-contoured anatomical plate before operation with 3D printing plastic model of the mirror image of the contralateral intact clavicle. The purpose of this study is to evaluate treatment result of this technique. Methods: We made 3D printing plastic model of the mirror image of the contralateral intact clavicle. And then we prepared pre-contoured anatomical plate with 3D models. From December 2013 to May 2015, 21 operations with MIPO technique were performed with pre-contoured plate. Treatment result was estimated by analyzing radiologic results(Radiologic union, average union period, complication), functional results(KSS score, Constant score), clinical results(Scar length, ROM recovery, subjective satisfaction). Results: All cases achieved radiologic union, average union period was 8.7 weeks. There were no complication include nonunion and infection. Average KSS score was 94 and average constant score was 98. Average medial scar length was 24mm, lateral scar length was 26mm. After the operation all the patients experienced pain relief, full ROM recovery same as contralateral side, subjective satisfaction was good. Conclusion: Minimally invasive plate osteosynthesis using 3D printing for displaced shaft fractures of clavicles showed excellent radiologic, functional, clinical result include less scar, relatively rapid bony union without complication.

Abstract no.: 42552

ROLE OF AMPUTATION IN TRAUMA MANAGEMENT

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Amputation is the removal of a body extremity by trauma, prolonged constriction, or surgery. As a surgical measure, it is used to control pain or a disease process in the affected limb, such as malignancy or gangrene and in some cases, it is carried out as a preventative surgery. A transplant or a prosthesis is the only options for recovering the loss. In severe traumatic injuries to the extremity, it is often a difficult decision to attempt heroic efforts aimed at limb salvage or to amputate primarily. None of the scoring systems are able to identify the majority of patients who required amputation. Factors thought to influence the decision for limb salvage include injury severity, physiologic reserve, and characteristics of the patient and their support system. Limb survival is related to interval from injury to arrival in operating room; level of arterial injury; quantitative degree of muscle, bone, skin injury. Trauma surgeon should not attempt to salvage a doomed or useless extremity and may thus permit early prosthetic rehabilitation to follow definitive primary amputation. Amputation is not a failure. Our series of cases that needed amputation are analyzed. All achieved good functional outcome. The literature to date is deficient in providing sound and defensible guidelines for primary amputation. Individual patient variables, specific extremity injury characteristics, associated injuries must all be weighed before a decision can be reached. Further prospective studies are necessary before a well-defined protocol for primary amputation can be properly developed.

Abstract no.: 42553

HAND REPLANTATION AFTER 7 HOURS OF TRANSECTION – REPORT OF 2 CASES

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The human hand is very adaptable organ of prehension, sensation, expression and communication. People use their hand to explore their environment, care for themselves and earn a living. If injured, the function is disrupted, life and livelihood is devastated. Evolution of techniques in surgery over the past few decades has enabled a great level of success in limb salvage. We have 2 cases of Hand Replantation, late presented after 7 hours of transection. Both male patients, Left side, one transected at level of distal forearm, other at mid carpal level. Both cases were reperfused by repairing both radial & ulnar arteries under GA after debridement and boney fixation. All flexor & extensor tendons, nerves repaired once the reperfusion was established. Forearm fasciotomy, carpal tunnel release was done, skin was closed loose and gaps were skin grafted, protected in splint. Survival without restoration of function is not a success. Both of our hands stayed pink since reperfusion and active flexion/extension as tolerated started from the immediate first postop day. All wounds healed, the function was improving and splint removed in 6 weeks time. The first case is 17 months with good finger & wrist function with sensation and is back to his initial job. The second hand is 5 months with healed wounds, recovered sensation, on regular physical therapy protocol. The complete return of function depends on nerve regeneration. The careful repair of the severed major peripheral nerves and postoperative hand rehabilitation program is must for better functional outcome.

Abstract no.: 42554

MEGA-EARTHQUAKE NEPAL 2015

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A strong (7.8) earthquake hit Nepal on April 25th and (6.7) on 26th. Extensive damage was caused to buildings, thousands of deaths, nearly 8000 and injuries and was even felt in Pakistan, India and Bangladesh. The quake was followed by >200 aftershocks and another huge earthquake (7.3) on May 12. During this 2015 Earthquake, most of the hospitals shifted their activities to the ground, few due to damage to their own building. Makeshift Operation Theaters (OT) & Hospital wards took care of the patients. Grande (grandehospital.com) International Hospital where I work is the only hospital approved in the country as Earthquake Resistant upto 9 scale in Richter. We, being a private hospital, treated 720 patients with 110 major surgeries – all free of cost. Even Pelvis and Spines were stabilized within 3 days. Surgeries like SIGN (signfracturecare.org) Interlocking Nails were done without C-arm, helped us treat patients faster with less resource. We at POSSIBLE (possiblehealth.org) is rebuilding health care system in Dolakha district where 86% of healthcare facilities are damaged or destroyed. We will continue to work on disaster response in preparation for future disasters by building better facilities, promoting surgical education, backup of implants and implementation of protocols. We should be prepared like the way SIGN is doing with implants, training/teaching before it happens. The Private Public Partnership where Government works with Private Hospital during disaster like Grande' free service should be practiced. Rural Sustainable Health development like POSSIBLE Health model is crucial during disaster, for future preparedness.

Abstract no.: 42558

PRELIMINARY CLINICAL OBSERVATION ON TREATMENT OF COMPLEX DISTAL FEMUR FRACTURE BY RETROGRADE INTERLOCKING INTRAMEDULLARY NAIL COMBINED WITH LOCK PLATES

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Introduction Nowadays high incidence of the later three complications was still reported in literature. Inspired by the treatment of periprosthetic femoral fracture after THA (total hip arthroplasty) we chose retrograde interlocking intramedullary nail combined with lock plate to fixate complex distal femoral fracture, expecting to overcome pitfall of single fixation by taking advantage of complementation of two fixations to form a construct like stable framework and this construct could not only disperse stress but also effectively fixate every comminuted fracture segment. **Materials and Methods** Prospectively analyzed 13 cases suffered from very complex fracture of distal femur treated by limited open reduction and fixation by retrograde interlocking intramedullary nail combined with lock plates from October 2010 to January 2013. Follow-up postoperation includes operation time, bleeding volume, fracture healing time and complication, et al. Furthermore function score of fractured knee was performed as Merchant score. **Results** The operation was performed with average operation time of 108 min and bleeding of 215 ml. No obvious complications were found post operation just except two superficial incision infections, as well as excellent and good rate of function score up to 91.3%. **Conclusions** It is as highly stable, micro-trauma and convenient that the treatment by limited open reduction and fixation by retrograde interlocking intramedullary nail combined with locking plates to complex distal femur fracture can be spread in clinic, especial in basic hospital.

Abstract no.: 42559

A NOVEL CONTROLLED RELEASE ANTI-ADHESION LOADED TETRANDRINE PDLLA FILM: EVALUATION ABOUT DRUG RELEASE AND ANTI-ADHESION EFFECTS IN VITRO AND VIVO

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Inspired by local drug release system, the novel PDLLA bio-film loaded Tetrandrine (TET) was successfully prepared by us with the method of dissolving and solvent evaporation at room temperature to improve the anti-adhesion effects of PDLLA bio-film. To systematically evaluate its biosafety, drug-release and anti-adhesion effects in vitro and in vivo of this drug loaded bio-film, drug release dynamics detects in vitro and drug toxicity test in vitro were performed, moreover, anti-adhesion effects on epidural scar after laminectomy and discectomy in vitro were also observed by animal experiments. As results, the PDLLA film loaded 10mg/g of TET was observed no damages on functions of liver and kidney, moreover during the whole testing the blood concentration of TET was monitored far below its LD50. And, TET release from loaded TET PDLLA film was observed having obvious triphase feature including fast delivery procedure during the first 48h and the second delivery peak at about day 38. the loaded TET PDLLA film was observed not only preventing posterior adhesion but also anterior fibrosis and adhesion, lessen either ratio of adhesion or epidural scar area. At every time point the preventing effects of loaded TET PDLLA film were detected significantly superior to that of PDLLA film. Additionally proliferation and collagen synthesis of fibroblasts were observed obviously inhibited in loaded TET PDLLA group, even apoptosis and death of fibroblasts, which was caused exactly by local role of TET released from the film.

Abstract no.: 42560

**BIPOLAR ARTHROPLASTY FOR THE TREATMENT OF UNSTABLE
INTERTROCHANTERIC FRACTURES, IS IT A GOOD OPTION?**

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Arthroplasty for intertrochanteric fractures in elderly patients allow early weightbearing and avoid fixation failure. Clinical results are reviewed in a consecutive group of unstable intertrochanteric fractures treated with acute cementless long stem bipolar arthroplasties performed via direct lateral approach . 54 patients from 2010 to 2015 were studied. Average age was 72.4 years. Follow-up averaged 20 months . Four hips, required subsequent surgeries: two for dislocation and one for sepsis and one for periprosthetic fracture. Dislocation is higher than in primary total hip arthroplasty utilizing the same surgical approach. There were 4 mortalities in follow up .The results do not support routine use of arthroplasty in treatment of intertrochanteric hip fractures because of high complication rates (14.5%).

Abstract no.: 42561

AUTOLOGOUS BONE PLUGS IN TOTAL KNEE ARTHROPLASTY, IS IT EFFECTIVE?

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The purpose of this study was to compare blood loss, declines in hemoglobin (Hgb) and levels, and required homologous transfusions for patients who either had the femoral intramedullary defect left open or filled with an autologous bone plug during total knee arthroplasty (TKA). **Materials and Methods:** A retrospective chart review was performed on 64 patients diagnosed with osteoarthritis (OA) who had undergone unilateral TKA. Twenty nine patients had the femoral defect filled with an autologous bone plug and 35 did not. **Results:** Mean blood loss was similar for the plugged (loss: 960.8 ± 417.3 ml) and unplugged groups (loss: 1065.9 ± 633.5 ml, $P = 0.38$). Preoperative Hgb (14.3 ± 1.4 g/dL, $P = 0.93$) were similar across plug conditions. Hgb and HcT levels declined similarly for the plugged (2.7 ± 1.2 g/dl and $7.9 \pm 4.0\%$) and unplugged groups (3.0 ± 0.9 g/dl, $P = 0.16$ and $9.0 \pm 2.6\%$, $P = 0.16$), respectively. There were 2 patients in unplugged and one person in plugged group who need transfusion. **Conclusion:** The autologous bone plug does not appear to reduce the need for homologous blood transfusions following unilateral TKA.

Abstract no.: 42562

COMPLICATIONS OF TOTAL HIP ARTHROPLASTY IN DYSPLASTIC DISORDER OF HIP JOINT, 10 YEARS EXPERIENCE

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Introduction: Total hip arthroplasty (THA) in congenital hip dislocation and dysplasia (DDH) is a challenging procedure. You have to manage a lot of problems. Deficient acetabulum, narrow medullary canal, severe anteversion of femoral neck, valgus neck, thin and weak bone, Leg length discrepancy, high riding head of femur, some muscle contractures, weak abductor muscles are potential sources of complications. Any of them can lead to complication. Materials and methods: Every patient with dysplastic disorder of hip joint which need total hip arthroplasty between 2005 to 2015 were studied. Each complication was recorded. Results: There were 104 total hip arthroplasties in DDH. There were 22 Crowe type 4, 32 Crowe type 3, 26 Crowe type 2 and 24 Crowe type 1. There were 6 peroneal nerve palsies, 2 femoral nerve palsies, 7 dislocations, 18 remaining LLD, 3 infection, 12 intraoperative periprosthetic fractures, 1 deep venous thrombosis, 1 nonunion of osteotomy site, 2 femoral artery injuries. Discussion: It is a complicated operation (52 complications in 104 THA). But fortunately, 13 of complications (arterial injury, DVT, dislocation and infection) were major and catastrophic. Most complications were in Crowe type 3 and 4 (18 LLD, 2 infection, 5 dislocation, 4 peroneal nerve palsy, 2 femoral nerve palsy, 2 femoral artery injury, 10 intraoperative femur fracture, 1 nonunion). Conclusion: THA in DDH specially Crowe type 3 and 4 may accompany high complication rates, so careful preop planning and meticulous intraoperative bone and soft tissue handling is necessary for diminishing major complications.

Abstract no.: 42567

SURGICAL TREATMENT OF FIXED EQUINUS DEFORMITY IN CHILDREN WITH CEREBRAL PALSY; NEW ONE-CUT TECHNIQUE FOR PERCUTANEOUS ELONGATION OF TENDO-ACHILLES.

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We present a new surgical percutaneous technique in elongation of tendo-Achilles for correction of equinus deformity in children with cerebral palsy. We conducted a prospective study to determine the clinical outcome of our new procedure for tendo-Achilles elongation performed at Arab Medical Centre and Amman Hospital in Jordan as a day-case surgery. Forty-nine patients (55-feet) were included with spastic C.P. were included in the study between 1996 and 2007, with a minimum follow-up of 5 years. Age of patients was 3-12 years. Some patients had associated calcaneovalgus deformity, scissoring gait, or crouching at their hips and knees. The procedure was performed using a tenotomy knife to apply the elongation of tendo-Achilles at the musculotendinous junction using a one-cut strategy in inverted V-shape pattern, avoiding neurovascular injury. Results showed that 21 out of 38 patients had hemiplegic C.P. (55.26%), while the other 17 had diplegic C.P. (44.74%). 8 patients (all diplegic) underwent percutaneous adductor hip tenotomy for scissoring gait. Correction of deformity was possible in all patients with gaining at least 5 degrees of ankle dorsiflexion. However, recurrence was recorded in 5 patients in 6 feet (10.91%). On gait gross observation, seven patients (eleven feet) showed some inadequacy of push-off and could not rise on to the toes.

Abstract no.: 42568

**ANATOMY OF PCL RETAINED IN A POSTERIOR CRUCIATE LIGAMENT
RETAINING TKR: A CADAVERIC STUDY**

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Introduction: Some evidence is coming up from radiological studies that the majority of posterior cruciate ligament (PCL) is removed while preparing from tibia and femur during total knee replacement. There is lack of cadaveric data on PCL anatomy in cruciate retaining prosthesis. Aim of this cadaveric study is to calculate how much PCL footprint is retained in a PCL retaining prosthesis after routine tibial and femoral cuts are made. **Material and Methods:** Twelve paired formalin-fixed Indian cadaveric knees were studied. Knees were disarticulated and all soft tissues were circumferentially removed from the tibia and femur. Footprints of antero-lateral and postero-medial bundles were marked on tibia and femur. Proximal tibial and distal femoral cuts were made using standard cutting jigs (Zimmer NexGen LPS). Digital photographs were taken with magnification marker before and after making the cuts. Area of PCL before and after the proximal tibial cut was measured manually using software ImageJ (National Institute of Health). **Results:** Footprints on tibial side were reduced by 9.1%, and on femoral side by 21.8%. Footprint of AL bundle was reduced by 24.3% on the tibial side and by 15.3% on the femoral side. Footprint of PM bundle on tibia was not affected by the cut but was reduced by 18.5% on the femoral side. **Discussion:** Tibial and femoral insertions of PCL are relatively well preserved after bone cuts are made in a posterior cruciate retaining TKR. There is differential sectioning of antero-lateral and postero-medial bundles of PCL on tibial and femoral sides.

Abstract no.: 42569

SURGICAL TREATMENT OF COMMINUTED PATELLA FRACTURES WITH A PERCUTANEOUS MINIMALLY INVASIVE TECHNIQUE

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Objective: We used a new method of percutaneous minimally invasive technique to fix the comminuted patella fractures. Methods: From February 2008 to June 2013, a total of 28 patients with comminuted patella fractures were included in this study. Radiographs, pain, surgery time, range of motion, functional score and complications were evaluated. Results: The mean operation time was 72.3 ± 31.9 minutes. Intraoperative fluoroscopy was 7.6 ± 2.4 times. All patients were followed up for a mean period of 34.4 months (13 ~ 53 months). Radiographic evidence of solid fracture union was observed in all cases in a mean period of 13.7 ± 2.6 weeks. The Visual Analog Scale (VAS) score for pain was 3.4 ± 1.0 at 4 weeks after surgery, and 1.2 ± 1.0 when radiographic fracture healing occurred. At the latest follow-up, the range of motion was all $139.8 \pm 5.4^\circ$. The average Bostman Score was 28.8 ± 1.0 at 1 year after surgery, and an evaluation of "excellent" was given in 26 patients at the final follow-up. We only encountered one case with broken steel wire, but the fracture had already been united. There were no other complications such as broken K-wire, fracture displacement, wound infection or non-union of bones. Conclusion: Surgical treatment of comminuted patella fractures by the percutaneous minimally invasive technique could provide satisfactory clinical results and excellent knee function. It has advantages that include small incision, fixation stability and early fracture healing. Additionally, the patients can perform early rehabilitation exercise.

Abstract no.: 42571

EVALUATION OF TENDOACHILLES FUNCTION AFTER PONSETI'S TENOTOMY IN CONGENITAL TALIPES EQUINOVARUS CHILDREN OLDER THAN 2 YEARS

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Introduction: Long term results of tenotomy and Ponseti technique are established worldwide, however, whether tenotomy can be safely done in older/ untreated/ syndromic/ complex/ relapsed clubfeet (after conservative or surgical correction) is not established. Tendoachilles regeneration after tenotomy has been confirmed on USG and MRI but only a few studies have done functional evaluation of tendoachilles. This study was done to evaluate the functional outcome of tendoachilles after tenotomy in patients older than two years presenting with CTEV. This study also assessed the influence of age and any previous treatment on tenotomy. Materials and Methods: In this study, 42 children (68 clubfeet) above 2 years of age were seen in the two year study period. Patients were divided into two groups-first according to age and second according to previous treatment. Clinical evaluation of tendoachilles regeneration was done by assessing ability to stand tip toe and their walking ability. Results: The ability to stand on tip toe after removal of the final cast was delayed maximum in the previously operated patients, lesser in patients who were previously treated conservatively and least in untreated patients. It also increased as the age increased. Untreated patients started walking earlier as compared to patients treated conservatively or operatively. Younger children started walking earlier. Conclusion: Functional evaluation of tendoachilles showed that all children who had tenotomy could walk and stand tip toe irrespective of age and previous treatment, however, older child and children having history of previous treatment, required longer time for recovery.

Abstract no.: 42573

LOCALISED MELORHEOSTOSIS: A CASE REPORT

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Melorheostosis is a sclerosing bone dysplasia characterized by linear hyperostosis along the cortex of the bone. Its etiology is unknown. Clinically there is pain, deformity and stiffness. Diagnosis is mainly a combination of clinical finding and imaging studies (plain radiographs- dripping candle wax along the cortex of bone). There is no definitive or specific treatment. Treatment is only symptomatic. We report a case of localized melorheostosis of a 14 year old male child who had pain and swelling for past 2 years and was heavily dependent on analgesics for pain relief. Diagnosis was based on clinical finding and imaging studies (dripping candle wax). Decompression of the hyperostoses and biopsy did not alleviate his symptoms and then he was given a single infusion of zoledronic acid which has relieved him of his pain completely.

Abstract no.: 42574

NEGLECTED AND RESISTANT CTEV MANAGED BY JOSHI'S EXTERNAL STABILISATION SYSTEM (JESS).

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Background: Many patients come to orthopaedic department with neglected CTEV, plaster of Paris drop out cases or failed surgical procedures. In older children with neglected and relapsed CTEV patients, soft tissue release alone is often not sufficient for full correction, so fractional differential distraction with JOSHI'S EXTERNAL STABILIZATION SYSTEM is a useful option to correct the deformities in such patients. We aimed to study a short term follow up of 48 patients with 12 bilateral cases treated with JESS at department of Orthopaedics, J.J.M. Medical College, Davangere regarding cosmetic, functional and anatomical outcome. Methods: 48 children underwent 60 JESS procedures during the period of from September 2010 to September 2014, patients were followed up regularly. Three dimensional correction was achieved by use of the distraction device. Results: Excellent results were obtained in 45 feet, good results in 6 feet and fair in 3, poor in 3. Most common complication encountered was pin-tract infection which eventually healed on treatment and dressing on out-patient basis without any residual squeal. Interpretation and conclusion : The Joshi's external stabilization system frame is ideally suited for child in whom clubfoot deformities remain uncorrected by Plaster of Paris cast and manipulations as well as recurrent / relapse club foot. The parents learn the distraction technique easily and were compliant. Once the JESS frame is removed, casting is done which protects osteopenic bone and maintains correction achieved and also allows gradual weight bearing. The procedure is less invasive and results are good irrespective of severity of deformity.

Abstract no.: 42575

SOCIO-ECONOMIC PROBLEMS IN TREATMENT OF NON-UNION BOTH BONES FRACTURE OF THE LEG.

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Management of fractures of the both bones leg poses non-ending misery ,once it gets complicated may be because of infection ,non-union, segmental loss of bones and the resultant non- functional limb after several surgeries and loss of lot of money ,operation theatre timings and confidence of the family and patient towards the future of procedure . Fracture of the shaft of both bones of leg are common and most of the time difficult to manage as well ,if associated with open wound and loss of segment of perisosteum ,bone and crushing of soft tissue lead in to painful prolonged recovery time . Cost of the hospital stay, investigations ,implants ,repeated surgeries for debridement's, sequestrectomy ,removal of dead bones, application of ring fixator ,bone grafting at several time, correction of frame disfigurement ,management of chronically draining sinuses leads to squeezing of money ,job ,family and pleasure of life itself. Material and method—we present study of 35 patients of age group 18- 68years (avg.),of which 18 were males and 17 males ,all were victim of road side accidents ,either while crossing the road. Refernces- 1.Fonda J,Bondurant ,Howards B,Cotler ,Rosemary Buckle et al ;the medical and economic impact of severely injured lower extremities. The Journal of Trauma.,28,No-8:1270-1273,1988` 1.Swiontkowski,Marc.F.Mackenzie, Ellen J.Bosse,Michael J, Alan L:Factors Influencing the Decision to Amputate or Reconstruction after High-Energy Lower Extremity Trauma. J. Trauma, Injury, infection ,and Critical Care.,52:641-649,2002 kye words-poly trauma patients,socio-economic problems,impact conflict of intrest -nil

Abstract no.: 42577

THE TREATMENT OF SPINAL SCOLIOSIS IN PATIENTS WITH RETT SYNDROME

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Introduction: Rett syndrome, a neurodevelopmental disorder identified primarily in females, is associated with a mutation in the methyl-CpG-binding protein 2 (MECP2) gene. Clinical features include growth failure, gastrointestinal and pulmonary dysfunction, ataxia, seizures and intellectual disability. Scoliosis is a common comorbidity. As Rett Syndrome is rare, clinicians usually have limited experience with the management of scoliosis. Methods: Clinical and radiographic data were collected including: MECP2 mutation type, scoliosis characteristics, preoperative treatment, surgical treatment, functional status and postoperative followup. Results: 102 patients with Rett Syndrome, 36 patients presented with scoliosis, 18 patients were treated surgically. 17 patients had a c-type neuromuscular curve and 19 had an idiopathic type curve. Scoliosis treatment onset was 8.76 years in the c-type group and 13.88 years in the idiopathic type group. The average curve at time of surgery was 52.42 degrees. the average time until surgery was 2.44 years. 17 patients underwent PSF and 1 patient underwent PSF + ASF. average correction was 40 degrees. All patients maintained their functional status. The most common mutation was in the R255X nucleotide (30% of cases). The most severe curves had mutations in the R168X and R270X nucleotides. Discussion: Followup and monitoring should be initiated early due to early and rapid progression. Attention should be given to mutations R255X, R168X and R270X. Bracing is recommended if tolerated, in order to delay surgery. Surgery should be considered in patients with a curve above 45 degrees independently of age. Physiotherapy should be aggressive to maintain functional state.

Abstract no.: 42578

CORE DECOMPRESSION AUGMENTED WITH AUTOGENOUS BONE GRAFTS FOR OSTEONECROSIS OF THE FEMORAL HEAD

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Background: Many authors have reported high rates of failure of THA in patients with AVN, there are a number of possible options for treatment other than THA in osteonecrosis of the femoral head including core decompression, rotational osteotomy, vascularized or non-vascularized bone grafting, and limited resurfacing of the femoral head. Patients and methods: We have reviewed the results of 30 operations performed on 25 patients with Ficat stage-II or stage-III osteonecrosis of the femoral head in which autogenous fibular bone grafting through a tunnel made in the femoral neck and head into the defect after core decompression. Results: At a mean of 28 months (24 to 48) 24 stage-II hips (83%) had a good or excellent result as determined by the Harris hip-scoring system. six stag-III hips (33%) had good or excellent results. Six of the eight hips which had fair or poor results were in patients who had received corticosteroids. No perioperative complications. Conclusion Our results suggest that augmentation with autogenous bone grafting can be successful in Fiat and Arlet stage-II osteonecrosis of the hip in patients with small-to medium-sized lesions. Keywords: Osteonecrosis, core decompression, hip arthroplasty. Bone grafting, osteotomies around the hip.

Abstract no.: 42581

EVALUATION OF ROTATION ALIGNMENT OF FEMORAL COMPONENT AND CLINICAL RESULTS AFTER TOTAL KNEE ARTHROPLASTY - USEFULNESS OF PREOPERATIVE PLANNING USING PLAIN RADIOGRAPHY OF EPICONDYLAR VIEW -

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Introduction: Landmark for rotation alignment of femoral component is usually used epicondylar axis, and so on in total knee arthroplasty (TKA) with measured resection technique. But recognition of these landmarks is difficult intra-operatively. Thus we decided the rotation angle of femoral component using epicondylar view of preoperative X-ray. The angle consists of clinical epicondylar axis (CEA) and posterior condyle line minus 2 degrees. We think the influence of the residual cartilage of posterior lateral femoral condyle is about 2 degrees in varus osteoarthritis (OA). The purpose is to evaluate our method and clinical results. Methods: The subjects included 43 patients (7 males, 38 females) with varus OA who underwent primary TKA. The Average age was 78.1 years (64 ~ 87). We evaluated the angle between posterior border of femoral component and CEA, surgical epicondylar axis (SEA), using postoperative CT. These angles were expressed as \angle CEA, \angle SEA. And external rotation was expressed as plus. Clinical results were range of motion (ROM) of knee, Japanese Orthopaedic Association (JOA) score. Results: The mean \angle CEA was $-1.0 (-5 \sim 1)^\circ$, \angle SEA was $0.44 (-3 \sim 3)^\circ$. \angle SEA - \angle CEA was $1.5 (0 \sim 3)^\circ$. Femoral component was placed internal rotation to CEA, and placed in parallel to SEA. The average JOA score improved from 52.6 (40 ~ 75) preoperatively to 86 (75 ~ 90) postoperatively. The mean ROM improved from extension $-11^\circ (-30 \sim 0)$, flexion $102^\circ (85 \sim 135)$ preoperatively to extension $-0.4^\circ (-5 \sim 0)$, flexion $125^\circ (105 \sim 150)$ postoperatively. There was no relationship between rotational position of femoral component and clinical results. Conclusions: Femoral component is placed in parallel to SEA. We concluded that our method is usefulness for TKA of varus OA.

Abstract no.: 42582

DO ETHNICITY AND GENDER INFLUENCE POSTERIOR TIBIAL SLOPE?

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Posterior tibial slope greatly influences the results of many knee procedures; ethnicity and gender can affect its value. The purpose of this study was to evaluate posterior tibial slope in a large group of consecutive patients with two radiographic methods, determining whether ethnicity and gender can influence its value; secondly, to evaluate intra- and inter-rater reliability in its measurement. Posterior tibial slope was calculated in lateral view x-rays of the knee according to the posterior tibial cortex (PTC) and tibial proximal anatomical axis (TPAA) methods. Data were matched with ethnicity and gender. For determination of intra- and inter-rater reliability, 50 x-rays were randomly selected, and blindly measured. A total of 581 radiographs were included (413 white and 168 black knees). Comparing white and black subjects, a statistically significant difference was found for both PTC (4.9 ± 1.2 vs. 7.1 ± 2.9 , $p < 0.0001$), and for TPAA (7.7 ± 1.1 vs. 10.2 ± 3.0 , $p < 0.0001$). In white subjects, an influence of gender was found only for TPAA (6.4 ± 1.1 in males vs. 7.6 ± 1.1 in females, $p < 0.0001$). In black subjects, an influence of gender was found only for PTC (7.4 ± 3.0 in males vs. 6.2 ± 2.9 in females, $p = 0.01$). Both methods showed good or very good ICC for intra- and inter-rater reliability. Differences in posterior tibial slope between different ethnic groups exist. Differences observed between genders are conflicting and might be too small to have implications in clinical practice. The TPAA method is recommended for the evaluation of posterior tibial slope for its higher intra- and inter-rater reliability.

Abstract no.: 42583

HYADD 4 VS. METHYLPREDNISOLONE ACETATE IN SYMPTOMATIC KNEE OSTEOARTHRITIS: A SINGLE-CENTER SINGLE BLIND PROSPECTIVE RANDOMIZED CONTROLLED CLINICAL STUDY WITH 1-YEAR FOLLOW-UP

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Intra-articular injections are frequently used in symptomatic knee osteoarthritis, with either corticosteroids (CS) or Hyaluronic Acid (HA). HA can give the same (or even better) results avoiding the side effects observed with CS. All the patients presenting for unilateral symptomatic primary knee osteoarthritis were prospectively randomly assigned to receive 2 injections of either HYADD 4 or CS, and were evaluated up to 1 year. Primary end point was WOMAC score at 26 weeks; secondary end points were WOWAC score, VAS for pain, and SF-36 score at any time point. It was determined that 75 patients per group would be sufficient for this study. There were 53 female and 22 male in HYADD 4 group (mean age 71.5±10.6 years), and 50 female and 25 male in CS group (mean age 68.6±9.9 years). The observed sided effects were mild, with similar incidences. Patients in HYADD 4 group reported significantly better WOMAC scores compared to CS group at 26 weeks (27.3±10.8 vs. 36.0±7.1, respectively). The patients improved in all considered outcomes after the injections, with a peak of therapeutic effect between 6 and 12 weeks. Patients in HYADD 4 group obtained significantly better scores than CS group up to 26 weeks. At 1-year follow-up both groups returned to their baseline scores, without differences between treatments. HYADD 4 demonstrated to be safe and provided better clinical results that were maintained up to 26 weeks, compared to CS. HYADD 4 injections can be recommended in patients with symptomatic mild to moderate knee osteoarthritis.

Abstract no.: 42595

DEMINERALIZED BONE MATRIX (DBM) ADD-ON FOR ACCELERATION OF BONE HEALING IN ATYPICAL SUBTROCHANTERIC FEMORAL FRACTURE: A CONSECUTIVE CASE-CONTROL STUDY

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Introduction:Delayed union and nonunion are common complications in atypical femoral fractures (AFFs) despite the good fracture fixation. Demineralized bone matrix (DBM) is a successfully proven method for enhancing fracture union of the long bone and should be useful for enhance bone healing in AFFs . This study aimed to compare the outcome after subtrochanteric AFFs (ST-AFFs) fixation with and without DBM. **Methods:** A prospective study was conducted on 9 ST-AFFs patients with using DBM (DBM group) during 2013-2014, and compared with a retrospective consecutive case series of ST-AFFs patients treated without DBM (2010-2012) (NDBM group, 9 patients). All patients were treated with the same standard guideline and followed until Fracture union was completely demonstrated. Postoperative outcome were then compared. **Results:** DBM group showed a significant shorter healing time than NDBM group (28.1 ± 14.4 versus 57.9 ± 36.8 weeks, $p=0.04$). Delayed union was found in 4 patients (44%) in DBM group compared with 7 patients (78%) in NDBM group ($p>0.05$). NO statistically difference of nonunion rate was demonstrated between both groups (DBM group=1, and NDBM group=2, $p>0.05$). Neither of postoperative infection nor severe local tissue reaction was found. **Conclusions:** DBM is safe and effective for accelerating the fracture healing in ST-AFFx, and possibly reduce nonunion after fracture fixation.

Abstract no.: 42597

PERCUTANEUOS REPAIR OF TENDO-ACHILLIS

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Objective:the purpose of this study is to see the functional outcomes of percutaneuos repair of tendoachillis with special tape used for Gynecology circulage and a gollow up of one year methods: Fifteen patients who underwent percutaneuos surgery for acute unilateral TA rupture between 2010_2014 were retrospectively reviewed, Results:a total of 13 male and 2 female patients met the inclusion criteria and were followed for one year. The average age was 39.3 years (range 31-56 years) they returned to almost normal daily activities at an sverage of 6 monthsafter surgery. No differnce in active or passive motion was recorded between the affected and the contralateral normal ankle joints. Sensory impairment of sural territiry was recorded in one patient , it was resolved after 4 months wound infection was recorded in one case that warants revising the wound closure after antibiotics and dressing Conclusion:short term outvomes of our series support the effectiveness of percutaneuos repair using this method in Tendo-Achillis function rehabilitation of payients with acute ruptures.

Abstract no.: 42598

MINIMAL TRANSVERSE INCISION FOR CARPAL TUNNEL SYNDROME

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Sim: to assess the outcomes of minimal transverse incision along the skin crease of the wrist for carpal tunnel syndrome. **Method:** between June 2012 and Dec. 2014, we conducted a retrospective study of the surgical technique for carpal tunnel syndrome using minimal proximal transverse incision, centred one centimeter proximal to wrist along the skin crease. Sixty-eight patients (52 females, 16 males) were treated in Hadba Khadra orthopaedic Hospital as a day case surgery, suffering from carpal tunnel syndrome (diagnosed clinically and with NCS, EMG), all of them were evaluated and operated by the author. Twelve had regional block the rest had GA. none of them had bilateral surgery in the same session but twenty-eight had it at a different setting. **Results;** there was a predominance of females and almost half of them had it bilateral, all felt improvements of the follow up second day, no infection, no superficial nerve sensory deficit nor palmaris tenon injury. **Discussion:** in this simple group study we found this technique is very safe and effective as well as less costly. P

Abstract no.: 42600

EXTENSIVE METALLOSIS WITH TITANIUM CUPS AND METAL ON POLYETHYLENE BEARING

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Background: metallosis that is associated with implant failure has widely been discussed with metal on metal bearings. However, metallosis is not unique to metal on metal implants. Material and methods: fourteen cementless THR with metal on polyethylene bearing hips in 11 patients were revised because of cup loosening. The average age of patients at time of revision was 48 years (range 37-64). Acetabular defects were classified according to Paproskey's grading system and patients were prospectively evaluated using the HHS. All revisions were performed through the posterior approach +/- sliding trochanteric osteotomy. All acetabular defects were grafted and cemented polyethylene or dual mobility cups were used. Metal cages were used in acetabular defects grade IIIA and IIIB. On the femoral side, long cementless stems were used. Results: at time of revision none of the polyethylene liners was totally worn. Titanium particles were discovered on the back of all loose cups. Extensive acetabular defects were found in all cases and ranged from IIB to IIIB. None of the cases had soft tissue necrosis, however, black stained hip capsules were discovered. At the latest follow up all cases showed incorporation of the impacted bone graft. One case had early infection that needed debridement 2 weeks from revision. The mean HHS has significantly improved from 28 preoperative to 89 postoperative ($P < 0.0001$). Conclusion: metallosis can be the result of fretting on the backside of titanium cups without catastrophic failure of the polyethylene liner. The early outcomes on these reconstructions were highly successful.

Abstract no.: 42601

AGGRESSIVE GIANT CELL TUMOR OF THE DISTAL FEMUR; THREE METHOD OF RECONSTRUCTION IN 20 YEARS

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Background:Distal femur aggressive giant cell tumor (GCT) is one of the common tumors around the knee joint and there is a challenge about its management and reconstruction after tumor resection. This article analyzes the results of three methods of treatment and its 20-years followup results.**Materials and methods:**between 1994 to 2014, thirty six patients with aggressive GCT of the distal femur with a mean age of 32 years underwent resection. All of the tumors were categorized in grade three Campanacci classification. Three types of reconstruction were used after resection. Six distal femoral allograft for knee arthrodesis ,24 endoprosthesis and 6 distal femur transepiphyseal osteotomy and segmental resection with extended curettage of remaining epiphyseal segment and reconstruction with intercalary allograft. The functional evaluation was done using the Enneking system of musculoskeletal tumor society (MSTS) score. **Results:**The mean follow up was 8.5 years. In arthrodesis group , the median MSTS score was 66.5. In the endoprosthesis group, the median MSTS score was 76.6 and in the last group, the median MSTS score was 73.3. There is one case of nonunion in the intercalary allograft group. **Conclusion:**In comparison to endoprosthesis reconstruction after tumor resection , transepiphyseal osteotomy and segmental resection with extended curettage of the epiphyseal segment and reconstruction with intercalary allograft could be an acceptable option with satisfactory results.

Abstract no.: 42602

SUBTROCHANTERIC FRACTURES: COMPARISON OF DYNAMIC COMPRESSION SCREW (DCS) AND INTRAMEDULLARY NAIL FIXATION OUTCOMES

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Introduction: Fixation of subtrochanteric fracture, even for experienced surgeons is a challenge. It is the most difficult to treat and the incidence of complications in this type of fracture are higher. This study compared surgical results of two methods, Dynamic compression screw (DCS) and intramedullary nail . Material and Methods: This is an analytic study, performed on all patients that refer to hospital with subtrochanteric fracture among 3 years. They treated with Dynamic compression screw (DCS) or intramedullary nail. The postoperative complications was evaluated and recorded. Finally, the data were analyzed by SPSS software. Results: Complications were studied in both groups. Neither treatment has not statistically significant difference in complications, onset of complications' incidence and time of full weight bearing. Although Harris Hip Score was improve in both method of treatment among patients but do not have any significant difference between two groups. Conclusion: The results of subtrochanteric fracture fixation by intramedullary nail or Dynamic compression screw were similar and had the same outcome.

Abstract no.: 42603

GENDER-SPECIFIC VERSUS STANDARD POSTERIOR CRUCIATE-SUBSTITUTING TOTAL KNEE PROSTHESIS A PROSPECTIVE RANDOMIZED CLINICAL TRIAL

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The introduction of Gender-Specific (GS) knee arthroplasty implants was suggested to offer more sizing options and is based on the anatomic gender differences. Material and methods: In the period between February 2011 and March 2013 a prospective randomized clinical trial was conducted on 64 female patients with 80 knees with a mean age of 62 years who had primary TKA for advanced knee osteoarthritis. Knees were divided into two groups , The first included 40 knees who had TKA using GS knee prosthesis (Zimmer Gender Solutions). The second group included 40 knees that received standard Posterior Stabilized (PS) knee design (Zimmer LPS Implant). Radiological and functional evaluation in form of The Oxford Knee Score (OKS), Knee Society Score (KSS) and Knee Society Score for function (KSS-F) were performed pre-operative then at 3, 12 months and annually thereafter. Results: the mean preoperative range of knee flexion were 110 and 108 degrees in the GS and PS groups. At the latest follow up, the mean postoperative knee flexion were 115 and 113 degrees. The OKS, KSS, KSS-F have all significantly improved in both groups from pre to postoperative ($P < 0.001$), but no difference was observed between the GS and PS groups. Negligible differences in patients' preference between the two prostheses was observed in the 14 patients who had GS prosthesis in one side and PS on the other. Conclusion: GS knee implants show no extra-benefit than the standard PS prosthesis, both implants achieve excellent clinical outcome at the short term.

Abstract no.: 42606

THE EFFECT OF METABOLIC SYNDROME AND OBESITY ON EARLY COMPLICATIONS AND LENGTH OF STAY AFTER TOTAL SHOULDER ARTHROPLASTY

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Introduction: Metabolic syndrome is a common confluence of medical comorbidities that can adversely affect surgical outcomes. Questions/Purpose: Our purpose was to evaluate the postoperative outcomes of metabolic syndrome after total shoulder arthroplasty (TSA). Methods: A retrospective cohort study of 4,751 TSA cases was conducted using the ACS-NSQIP database, from 2005 to 2013. Metabolic syndrome was defined as hypertension, diabetes, and BMI ≥ 30.0 kg/m². Multivariable logistic regressions were performed for the outcomes of any postoperative complication(s) and extended length of stay (LOS). Results: Obese III patients had a significantly increased risk of extended LOS ($p=0.011$) compared to non-obese patients, and a near significant increased risk of one or more complications ($p=0.075$). In the multivariable adjusted models, compared to the non-obese, obese I and II patients had significantly decreased risks of post-operative complications (OR 0.84, $p=0.020$ and 0.82, $p=0.045$, respectively), while obese I patients were less likely to have extended LOS (OR 0.79 $p=0.004$). Metabolic syndrome was not a significant predictor of postoperative complications or extended LOS. Conclusions: Morbidly obese TSA patients have an increased risk of postoperative complications and extended LOS. Obese I and II patients may have a decreased risk of postoperative complications and shorter length of stay. Despite the hypothesized negative effect of metabolic syndrome on outcomes the overall effect of metabolic syndrome was insignificant. These results are consistent with previous studies on obesity in TSA patients, and may explain why recent studies have failed to demonstrate differences in postoperative complications in obese TSA patients with a BMI between 30-40mg/kg².

Abstract no.: 42614

THE ROLE OF ROUTINE MAGNETIC RESONANCE IMAGING FOR EXTREMITY FRACTURES IN PATIENTS WITH ONCOLOGICAL HISTORY.

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Introduction: Magnetic Resonance Imaging (MRI) is often used for investigating suspected pathological fractures. However, the routine use of MRI has drawbacks including high cost and potential delay to surgery. The study objective was to determine the predictive value of MRI scans in detecting pathological fractures in patients with an oncological history and factors that predict for a positive MRI. Method: A 3 year retrospective study was conducted reviewing all extremity MRI scans performed for suspected pathological fractures. All subjects included in this study presented with an extremity fracture, a known diagnosis of solid organ cancer and an MRI to determine if the fracture was pathological. Demographic data, cancer type, remission status, a history of trauma preceding fracture, x-ray and MRI findings were analysed. Results: 84 subjects were recruited. 24 subjects had pathological fractures and 60 subjects had non-pathological fractures on MRI. 70% of subjects with active cancer and without a history of trauma had pathological fractures. Comparing X-rays alone with MRI scans revealed a 92% sensitivity and 98% specificity in detecting pathological fractures. Using X-rays in combination with an absent history of trauma increases the sensitivity to 100% but reduced the specificity to 91%. 95% (19/20) of subjects in cancer remission did not have pathological fractures. Conclusion: The routine use of MRI to evaluate for pathological fractures in patients with a cancer history is debatable. The history of significant trauma, solid cancers in remission, and lack of suspicious features on plain radiographs, effectively predict for the absence of pathological fractures.

Abstract no.: 42615

ANTERIOR ANKLE IMPINGEMENT – OUTCOME AFTER ARTHROSCOPIC MANAGEMENT AND COMPARISON OF RESULTS BETWEEN OSSEOUS AND SOFT TISSUE TYPES

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Background: Arthroscopic debridement has been a gold standard procedure for anterior ankle impingement, both in cases of osseous & soft tissue impingement. There is sparse literature on comparative outcome with respect to functional results between the two types of impingement post arthroscopic debridement. Methods: Our study included 14 patients diagnosed as cases of anterior ankle impingement on basis of clinical & radiological examination. They were segregated into two groups on the basis of cause of impingement [osseous (n=6) versus soft tissue (n=8)]. Both groups were treated by arthroscopic debridement. Primary outcome was patient satisfaction assessed by Likert scale & clinical outcomes were measured using AOFAS ankle-hind foot scale, VAS score, range of motion & time to return to pre injury activity level in both groups. Results: Mean follow up was of 15 months where eleven patients reported an excellent recovery, two patients had good recovery while one patient reported poor outcome. Mean AOFAS ankle hind foot scale improved from 50.5 preoperatively to 85.71 postoperatively (statistically significant; p value – 0.0001). Mean Likert scale value post operative was 4.21. VAS score showed significant improvement in patients of both the groups. Range of motion was slightly better in soft tissue impingement type with a relatively shorter time to return to sports or preinjury activity level as compared to osseous impingement group. Conclusion: The patients in both the groups had comparable outcomes with no statistically significant difference with regard to patient satisfaction and clinical outcome.

Abstract no.: 42616

A PROSPECTIVE RANDOMIZED TRIAL TO EVALUATE CLINICO-RADIOLOGICAL OUTCOME OF ARTHROSCOPIC SINGLE BUNDLE VERSUS DOUBLE BUNDLE ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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Introduction: Aim of study was to compare clinical and radiological outcomes of arthroscopic single-bundle versus double-bundle anterior cruciate ligament reconstruction. Methods: 60 patients with isolated ACL injury were randomized into single bundle (SB) (n=30) and double bundle (DB) reconstruction groups (n=30); and were operated by single surgeon between July 2009 to July 2012. Evaluation tools were GeNouRoB (GNRB) arthrometer, International Knee Documentation Committee (IKDC) and Lysholm scale. Magnetic resonance imaging was performed postoperatively to compare the orientation of the reconstructed ACL. Rotational stability was determined by pivot-shift test. Results: At final follow up, mean Lysholm score was 95.13 ± 2.67 in SB group and 93.13 ± 3.31 in DB group (P value >0.05 statistically non significant -NS). All patients in both groups were in grade A or B according to objective IKDC scores. Mean differential anterior tibial translation - 1.45 ± 0.6 mm in SB group, 1.07 ± 0.8 mm in DB group [P value 0.1632(NS)]. All had a negative pivot shift test in DB group while two patients had positive pivot shift in SB group. MRI of operated knees showed that the values of mean sagittal ACL graft-tibial angle and mean coronal ACL graft-tibial angle were comparable in both groups (P value >0.05 NS). Conclusions: There was no statistically significant difference concerning knee stability, knee scores, subjective evaluations & MRI evaluation of graft inclination angles between SB and DB ACL reconstruction groups at an average of 35 months of follow-up.

Abstract no.: 42617

RECURRENT PATELLAR INSTABILITY CULMINATING IN A VERTICALLY ROTATED AND A LOCKED PATELLAR DISLOCATION – A RARE ENTITY

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Introduction: Locked vertical patellar dislocations are rare and pose a therapeutic challenge. They are very difficult to reduce by closed means, often requiring open reduction. Case presentation: We report a case of atraumatic vertically rotated and locked patellar dislocation in a 14 year old male with previous history of recurrent lateral dislocation of patella. Open reduction was performed along with lateral patellar retinacular release with medial patellar retinaculum plication, to achieve satisfactory patellar stability and patellofemoral tracking. There are only few cases in the literature, where the vertical patellar dislocations occurred without any history of trauma. Conclusion: This case is more unusual, as the patient was a known case of recurrent patellar dislocation and presented with an atraumatic locked and vertically rotated patellar dislocation. Presentation of this type has never been reported in literature to the best of our knowledge.

Abstract no.: 42618

**FUNCTIONAL OUTCOMES FOLLOWING LатарJET RECONSTRUCTION
IN PATIENTS WITH ANTERIOR SHOULDER INSTABILITY WITH GLENO
HUMERAL BONE LOSS OR PREVIOUS FAILED BANKART REPAIR**

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Background: High recurrence rates with arthroscopic / open Bankart repairs in presence of significant glenoid bone loss or Hill–Sachs, led the march towards non-anatomic repairs with coracoid bone blocks, such as Latarjet procedure. Methods: Single centre, level 4 review of patients treated with standard Latarjet procedure, performed by a single surgeon. Study included 21 shoulders in 20 patients, 18 males & 2 females with mean age 22.4 yrs (range 18-34) and mean follow up period was 34 months (24 -48 months). Patient subtypes – Recurrent anteroinferior shoulder dislocations (n=8), failed arthroscopic Bankarts repair (n=3), antero inferior glenoid bone loss (n=10). Outcome tools - Rowe score, VAS for patient satisfaction and WOSI score. Mean number of dislocations = 12 (range 8 -24). Mean duration from first dislocation to surgery was 18 months. Results: At last FU, none had recurrent dislocation or glenohumeral osteoarthritis. One patient had reoperation for failed graft / implant. Mean time to regain nearly full ROM was 7 months (range 6-11 months) and mean time of graft union was 14 weeks. Mean Rowe score increased from 37.9 preop to 89.6 (P = 0.002). Average WOSI scores were 76.5% (range: 6.4-100%, +/- 24.4) of normal shoulder and score decreased from 1362 pre-op to 484 at follow up (p= 0.003). 85.7 % reported excellent, good results in 9.5% and poor outcome in 4.7%. VAS showed statistically significant improvement from 7.6 pre-op to 2.3. Conclusion: Latarjet procedure delivers promising results with low rate of recurrence and no major complications.

Abstract no.: 42620

COMPARATIVE STUDIES OF RADIATION IN GONARTHROSIS

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Knee joint with deforming gonarthrosis was studied among 134 women by the method of digital radiography (Flexavision) and densitometry (Stratos). Multislice computer tomography (MSCT) (GE Light Speed VCT, Toshiba Aquilion-64) were performed in 24 cases. On radiographs in all patients it was determined an uneven joint space narrowing, subchondral seal layer, boundary sprawl. In patients with 3-4 stage of gonarthrosis we defined characteristics of regional osteoporosis and cystic restructuring of epimetaphysis parts of bones. Densitometric studies have shown the highest rate of mineral density decrease in bone with knee gonarthrosis in women over 60 years. Statistical processing of the data was performed using Attestat programme, built-in Microsoft Excel, using the Student t-test. The critical level of significance when testing statistical hypothesis in this study was taken to be 0.05. The most objective data obtained with MDCT: resorption zones in the condyle of the femur and tibia with a density in the range of negative Hounsfield scale, reduced density of subchondral layer, which is due to lower overall density imaging looked like subchondral sclerosis, while its density does not exceed 260-430 HU. Degenerative changes with characteristic restructure were identified much earlier and variously. The research revealed direct dependence of the internal structures of the knee joint, depending on the stage of the disease. Also it was determined the comorbidity of osteoporotic changes in the bones of the skeleton together with degenerative changes of the knee joint.

Abstract no.: 42626

3D CT ANALYSIS AND CLINICAL RESULTS OF SHORT GRAFT ACL RECONSTRUCTION

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ACL reconstruction using only semitendinosus tendon with four/five strands enables to obtain a thicker and stronger graft with minimalized surgical invasion and loss of muscle strength. We evaluated 97 patients (101 knees, male/female: 55/46, mean age: 26.1 yrs) who undergone short graft ACL reconstruction (four/five strand semitendinosus single bundle graft with 8-10 mm diameter and length of less than 55mm). The tunnel position was analyzed by the quadrant method in intraoperative radiograph. The center of the femoral tunnel was located at a depth of 28.3 ± 4.1 % (average \pm SD) and a height of 36.0 ± 7.0 %. The center of the tibial tunnel was located at anterior-posterior 41.3 ± 4.2 % and medial-lateral 46.8 ± 2.7 %. In the 3D-CT analyses, femoral tunnel length was 31.1 ± 2.2 mm and tibial tunnel length was 33.6 ± 3.4 mm, graft length was 52.8 ± 1.6 mm, graft length within femoral socket was 10.1 ± 1.1 mm, graft length within joint space was 27.0 ± 2.1 mm, and graft length within tibial tunnel was 16.1 ± 1.9 mm. With regard to the short-term outcomes (follow-up period: 29.1 months), Tegner activity scale was 7.4 ± 1.5 , the average for return to sport participation was 8.6 ± 2.1 months, and re-rupture rate was 5.9 %. In conclusion, single-bundle short graft ACL reconstruction with tunnels positioned in the center of femoral and tibial footprints restored good clinical results and it would minimize the surgical invasion and loss of muscle strength.

Abstract no.: 42629

OPTIMAL PREOPERATIVE HAEMOGLOBIN CUTOFF VALUE FOR THE PREDICTION OF POSTOPERATIVE TRANSFUSION OUTCOME IN TOTAL KNEE ARTHROPLASTY

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Previous studies have established preoperative haemoglobin level to be a significant predictor of transfusion in total knee arthroplasty (TKA). This study aimed to determine an optimal preoperative haemoglobin cutoff value that is accurate in predicting postoperative transfusion outcome to aid surgeons in deciding whether to order a routine preoperative Type and Screen for patients undergoing TKA. A total of 1457 patients diagnosed with osteoarthritis and underwent primary TKA between January 2012 and December 2014 were included. All patients received cemented implants and intraoperative topical tranexamic acid. No drain was used and the hospital's transfusion protocol was strictly adhered to. A total of 37 patients (2.5%) were transfused postoperatively. Univariate analysis revealed preoperative haemoglobin ($p < 0.001$), age ($p < 0.001$), preoperative haematocrit ($p < 0.001$), and preoperative creatinine ($p = 0.037$) to be significant predictors. In the multivariate analysis with patients dichotomised at 70 years of age, preoperative haemoglobin level remained significant with adjusted odds ratio of 0.33. Receiver operating characteristic curve identified the optimal preoperative haemoglobin cutoff to be 12.4 g/dl (AUC = 0.86, sensitivity = 87.5%, specificity = 77.2%) and 12.1 g/dl (AUC = 0.85, sensitivity = 69.2%, specificity = 87.1%) for age above and below 70 respectively. The authors recommend a preoperative haemoglobin cutoff of 12.4 g/dl for age above 70 and 12.1 g/dl for age below 70 to be used to predict postoperative transfusion requirements in TKA. Only patients with high risk should receive routine preoperative Type and Screen.

Abstract no.: 42631

COMPARISON OF MEAN ANTERIOR KNEE PAIN AFTER TRANSPATELLAR AND MEDIAL PARA PATELLAR TENDON APPROACH IN TIBIAL INTRAMEDULLARY NAILING

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Anterior knee pain is the most common complaint after intramedullary nail of the tibia. The objective of this study is to Compare mean Anterior Knee Pain score after Transpatellar vs Medial Para patellar tendon approach in Tibial intramedullary interlocking nailing in patients presenting with closed Tibial shaft fracture. This was a randomized control trial done at Department of Orthopaedic, Ghurki trust teaching hospital, Lahore from 20th February 2015 till 19 th October 2015. Sample size was calculated as 60 patients. The patients were divided into two groups by lottery method, group A containing 30 patients operated through transpatellar tendon approach while in group B containing 30 patients operated through medial parapatellar tendon approach. Anterior Knee Pain was assessed by visual analog score after 3 months of surgery in both groups. All procedures were done by same surgical team. In Group A 27 patients were male and 3 patients were female and in Group B 28 were male patients and 2 female patients. Both Group A and Group B shows no statistical difference in terms of Gender, age, smoking, and BMI. In Group A mean anterior knee pain was 4.4(\pm 0.56) while mean anterior knee pain in Group B was 2.5(\pm 0.57) with a p value of .000. This study recommends that anterior knee pain is less in medial parapatellar tendon approach as compare to transpatellar tendon approach if other causes of anterior knee pain are avoided like prominent nail and damage to intra articular structures.

Abstract no.: 42632

THE TREATMENT OF INFECTED NONUNIONS AND SEGMENTAL DEFECTS OF THE TIBIA BY THE COMBINED ILIZAROV AND TAYLOR SPATIAL FRAME

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Introduction: The Ilizarov technique may be used to treat segmental bone defects, soft-tissue loss, and osteomyelitis. Depending on the size of bone loss, single- or double-bone transport with Ilizarov frame has been shown to be a reliable method to treat segmental bone loss. Methods: This retrospective review assesses 55 tibial nonunions with bone loss to compare union achieved with combined Ilizarov and Taylor spatial frames (I-TSF) versus a standard Ilizarov device. In this cohort of patients, all except 38 of the nonunions were infected. Thirty patients initially treated with I-TSF were compared with 25 patients treated with conventional Ilizarov. Results: In the I-TSF group, an average of 7.6 cm of bone was resected and lengthening index (treatment time in months divided by lengthening amount in centimetres) was 1.97. In the standard Ilizarov group, a mean of 6.5 cm was resected and the lengthening index was 2.10. Consolidation at the docking site and at the regenerate bone occurred in 49 of 55 cases after the first procedure. No statistical difference was shown between the two groups. Conclusion: The application of Ilizarov techniques to diaphyseal nonunions and segmental defects is very encouraging. It prove to be an excellent technique for management of resistant diaphyseal infections of bone. Superiority of one modality of treatment over the other cannot be concluded from our data. We have shown that combined use of the Ilizarov and Taylor spatial frames for bone transport is useful and encouraging for treatment of tibial nonunion with bone loss.

Abstract no.: 42639

ENHANCEMENT OF SURGICAL PLANNING THROUGH PATIENT-SPECIFIC BIOMECHANICAL MODELING AND SIMULATION

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Current surgical planning software for total endoprostheses of hip and knee joints focuses mainly on geometric arrangements in 2D or in some cases even in 3D. Since this standard process relies highly on the experience of the orthopedic surgeon, poorly adjusted planning parameters may impede the expected mobility outcome. Therefore, we propose the inclusion of a methodology for the individualization of generic musculoskeletal models based on a limited number of input parameters into the planning process. These parameters can ideally directly be taken from the standard tests in advance of the joint replacement to allow for a highly usable planning tool. For example the bones and rotational axes are adjusted using landmark distances measured in the compulsory X-ray images, joint mobility can be localized using the neutral zero method and muscular dysfunctions can be semiquantified by measuring the degree of force according to the BMRC. Also irregularities or deformities can be considered. The resulting model is eventually used for patient-specific simulations to derive useful information on how the total endoprosthesis has to be geometrically set up to yield the best biomechanical result. Sensitivity analysis is to be performed as the orthopedist can hardly reproduce the specified values exactly. He rather needs intervals in which the postoperative outcome is robust to variations in the geometric parameters to be able to choose the best parameter configuration. This analysis can also predict which parameters have to be precisely met and which play a subordinate role.

Abstract no.: 42641

RUPTURE OF THE SYNDESMOSIS FIXED BY TRANS-SYNDESMOTIC TEMPORARY SCREW AND LIGAMENT SUTURE

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Introduction: the main goal was to evaluate the results of temporary screw fixation associated with a ligament repair. The secondary goal was to identify potential factors that could influence these results. The hypothesis was that this double fixation (screw + suture) would give good results with few re-opening the syndesmosis when removing the screw. Method : this is a retrospective study (2004-2011) including 200 patients with a syndesmosis lesion and treated by a temporary screw associated with ligament suture. Postoperative non-weight-bearing and cast were prescribed for 6-8 weeks. Removal of the screws was routinely performed before weight bearing. Retrospectively we analyzed: the joint mobility, the return to sport, pain score, AOFAS and OMAS scores and radiological assessment. Results: 126 patients were reviewed after a mean of 5.9 years. The average plantar flexion was 95% relative to opposite side and the dorsiflexion 93%. The return to sport was on average at 10 weeks post-op and at the same level in 83% of cases. The pain score averaged 0.8 / 10. The mean AOFAS and OMAS scores were 90 points. The screw rupture rate was 4%. Diastasis was found in 5.6% of cases, osteoarthritis in 6.3% and ossification in 11.1%, but without any clinical repercussion. No risk factor could be identified. Discussion-Conclusion: Treatment with temporary screw fixation associated with ligament suture gives good objective results confirming our hypothesis. Few data are available in the literature and no consensus is emerging on the method of fixation or systematic removal of temporary screw.

Abstract no.: 42648

IS VEGF UNDER-EXPRESSED IN CHILDREN WITH PERTHES DISEASE?

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There is paucity of data regarding evaluation of serum levels of VEGF in children with Perthes disease. We aimed to evaluate serum levels of VEGF-A in children with Perthes disease and compare it with that of a control population of healthy children. It was a prospective controlled cohort study including 42 Perthes disease patients and 20 age-matched controls. Patients were classified radiographically, according to Waldenstrom's classification, into initial stage, stage of fragmentation, stage of re-ossification and stage of healing. For each patient, VEGF-A was estimated in the serum by sandwich ELISA technique using Raybio® Human VEGF-A ELISA kit. The mean age of the patients was 9 years (range 4-13 years). Two patients were in the initial stage, 16 in stage of fragmentation, 19 in stage of re-ossification and 5 patients were in stage of healing. The median value of serum VEGF-A was found to be 163 pg /ml in the patient group and 652 pg /ml in the control group (p value < 0.001). In the initial stage, the mean was 650 pg /ml, whereas the median values were 171 pg /ml, 122 pg /ml and 207 pg /ml in the stage of fragmentation, stage of re-ossification and stage of healing, respectively. Serum VEGF-A values were found to be very low in Perthes disease children as compared to normal healthy children. Our study postulates that the level of VEGF remains low throughout in the natural history of the disease, as against previous animal studies stating otherwise.

Abstract no.: 42649

NEGLECTED TORTICOLLIS IN ADULTS

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Torticollis is a clinical condition resulting from sternocleidomastoid muscle shortening and as a result of this face is tilted and head is rotated to the contralateral side. In neonatal period it is not rare and can be treated nonsurgically without residual deformity. Surgical treatment is recommended before 5 years and neglected torticollis causes permanent craniofacial deformities. We reviewed medical records of eight patients who had sternocleidomastoid muscle release surgery between 2012 and 2014 in early adulthood. For 7 patients release of the sternal head of the muscle was performed and for the other release of two heads of the muscle was needed. Patients were evaluated according to cervical range of motion, and radiological measurement of cervicomandibular angle. Average patient age was 23,2 and average follow up period was 9,4 months. Lateral cervical flexion deficiency decreased to 8,7° from 35,4° and cervical rotation deficiency decreased to 5,9° from 25,3°. Average cervicomandibular angle which was 22,7° before surgery became 7,8° after surgery. All patients were satisfied with the results. Although craniofacial asymmetry is irreversible in adults, release of sternocleidomastoid muscle helps to improve cervical range of motion and cosmesis. In adulthood surgical complication rate is higher and with early surgical interventions better results can be achieved.

Abstract no.: 42650

ISOLATED LEG WEAKNESS (WITHOUT OTHER NEUROLOGICAL ABNORMALITIES) DUE TO BRAIN LESIONS MIMICKING LUMBAR SPINAL LESIONS

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Introduction: Neurological symptoms such as weakness, intermittent claudication, and pain/numbness limited to a unilateral lower limb are often caused by peripheral or lumbar lesions. Unless patients have symptoms suggestive of cerebral involvement, including headache, seizures, nausea/ vomiting, impairment of vision/hearing/speech, hemiplegia etc., physicians may not examine the brain. Though isolated leg weakness stemming from brain lesions is rare, this possibility needs to be considered in the differential diagnosis of such symptoms. These patients usually present to orthopedic or spinal surgeons in Japan, which means that central causes of isolated leg weakness may be underdiagnosed. We report 5 patients encountered since 2006 who had isolated leg weakness due to cerebral lesions without other neurological abnormalities at first presentation. Patients: All 5 patients were Japanese and they had never visited a neurologist before they saw us. There were 4 women and 1man, with an age range of 51-70 years. The chief complaint was sudden onset of leg weakness in two patients, gradual onset of leg weakness and intermittent claudication in two, and gradual onset of foot drop in one. The final diagnosis was meningioma in 3 patients and small cerebral infarction in 2. Discussion: These patients ranged from the middle-aged to elderly, and degenerative lumbar disorders are common at their age. In these patients, gradual onset of isolated leg weakness was caused by parasagittal meningioma and sudden onset was due to small cerebral infarcts. As well as peripheral and spinal lesions, cerebral lesions need to be considered in the differential diagnosis.

Abstract no.: 42653

PINLESS IMAGE-FREE NAVIGATION FOR TOTAL KNEE ARTHROPLASTY

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OBJECTIVE: Image-free navigation improves the accuracy of bone resection in TKA and reduces alignment outliers. However, most systems require additional diaphyseal pinning which has been shown to cause complications such as fracture, pain, and infection at pin insertion site. We examine the usefulness of pinless image-free navigation which inserts no pins outside operative field. **METHODS:** Primary TKA was performed on 70 knees. Optetrak CR (Exactech) was used in 60 knees. 30 knees were performed using conventional technique (navi-free group), and 30 knees were operated on by the ExactechGPS system (pinless-navi group). Another 10 knees were performed as control using Scorpio NRG PS (Stryker) by standard image-free navigation (usual-navi group). **RESULTS:** There was no difference in age, sex, BMI and bleeding volume between three groups. Mean operating-time was 95.2 minutes in navi-free group, 107.7 minutes in pinless-navi group and 118 minutes in usual-navi group. There was no delayed wound healing, surgical site infection, fracture at pin insertion site. More than 3 degree outlier in coronal femur was 6.6% in navi-free group, 0% in pinless-navi group and 0% in usual-navi group. More than 3 degree outlier in coronal tibia was 3.3% in navi-free group, 0% in pinless-navi group and 0% in usual-navi group. **DISCUSSION:** While there were no significant differences noted, the elimination of the potential risk of additional incision and diaphyseal pinning is seen as beneficial. The ExactechGPS system is more compact and provides efficiencies while maintaining the accuracy and precision of the standard navigation system.

Abstract no.: 42654

PATIENT PERSPECTIVE AND OUTCOME OF SECONDARY PATELLAR OPERATION AFTER TOTAL KNEE REPLACEMENT

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Anterior knee pain after Total Knee Replacement can reduce patients' confidence in their outcomes. It can be a challenge if the patella was not resurfaced initially, as the current evidence is inconclusive of the outcomes of revision operation. We wanted to know what the patients felt about their second-operation. A retrospective review of the operations in the last 10 years was undertaken. The aim was to find how satisfied the patients were after the secondary operation and if they would recommend it. Seventeen patients with 19 revision operations were performed in our hospital since 2006 of which 10 were female with an average of 69 years at operation. All patients had a cruciate-stabilised TKR and revision was performed at an average 7 years post primary TKR. Majority of the patients underwent secondary patellar resurfacing with 2 patients opting for lateral facetectomy. One patient underwent a further revision for lateralised and over-stuffed revision with significant pain. Seven patients report good improvement, whilst 2 patients report no change and 4 patients had partial relief of pain. Two patients had superficial infections and 1 patient had a painful neuroma postoperatively. Two patients who underwent second-side operation would definitely recommend this operation whilst the rest had reservations about approving it. Our results reflect that our current practice and its outcome are similar to that reported in the literature. It was interesting to find patients opting for lateral facetectomy. We hope that long-term review of their result would aid in exploring this option.

Abstract no.: 42655

LESSER BMI ASSOCIATED WITH BETTER RESULT OF KNEE SEPTIC ARTHRITIS TREATMENT. PAIN NRS AND KOOS CAN BE USED TO DESCRIBE OUTCOME.

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This is a retrospective study of knee septic arthritis treatment results in our hospital during years 2010-2013. 42 patients were evaluated. Of those evaluated, 25 had complete convalescence, 10 underwent total knee replacement (TKR), 5 complained of residual knee pain, 1 patient used peroral antibiotics periodically and 1 had amputation. These results were first divided into 2 groups: complete convalescence (25) and others (17). Clinical evaluation by pain NRS, EQ-5D-5L and KOOS was performed during the visit in all 41 patients except 1 after the amputation. Factors that could affect treatment result and clinical evaluation data were compared using Mann Whitney U or t-test. Same comparison was done between patients with complete convalescence and TKR to check the hypothesis that TKR clinical outcome is similar to complete convalescence. All KOOS subscales and pain NRS, EQ-5D-5L self-care, pain/discomfort subscales and EQ-5D-5L index were better in patients with complete convalescence, than others ($p < 0.05$), although EQ-5D-5L mobility, usual activities, anxiety/depression subscales and EQ-VAS did not differ ($p > 0.05$). From all factors that could affect treatment result (complete convalescence or others), only BMI with a mean difference of 5.1 was significant ($p = 0.002$). Nevertheless, only EQ-5D-5L self-care scored better in patients with complete convalescence than after TKR ($p = 0.045$). Pain NRS, all KOOS and other EQ-5D-5L subscales, EQ-5D-5L index and EQ-VAS were similar ($p > 0.05$). From all factors that could affect treatment result (complete convalescence or TKR), only BMI with a mean difference of 4.5 higher in TKR group was significant ($p = 0.014$).

Abstract no.: 42657

DUAL MOBILITY CUP IN TOTAL HIP ARTHROPLASTY. SHORT TERM RESULTS.

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Introduction: Nowadays the experience with conventional hip arthroplasty is well known. Stems and cups are coated with materials that allow osseointegration and prevent hip dislocation. Dual mobility cup reduce the risk of total hip arthroplasty dislocation in patients undergoing primary total hip replacement. The aim of the study was to demonstrate how dual mobility cup prevents dislocation and improves hip mobility with good functional outcomes after hip replacement surgery. Materials and methods: 36 consecutive patients (aged between 55 and 85), 22 with femoral neck fracture and 14 with hip osteoarthritis (1 bilateral) were treated in the period between January 2012 to April 2015. Lateral approach was performed in 25 patients, posterior approach was performed in 11 patients. To evaluate clinical outcomes we used Harris Hip Score. The mean follow-up period was 24 months. Results : The Harris Hip Score was good in all patients. After hip replacement surgery patients started early physical rehabilitation program. Functional outcomes were very good and we reported no hip dislocations or infections. Conclusion: According to international scientific publications dual mobility cup presents considerable advantages comparing to conventional hip arthroplasty. The bias of our study is the short term follow-up and low number of patients. The use of dual mobility cups in younger patients (under 50 years old) could be considered. Dual mobility cup can provide a viable alternative in preventing and treating hip instability with good functional outcomes.

Abstract no.: 42659

PROBLEMS IN SURGICAL TREATMENT FOR PERIPROSTHETIC FRACTURES OF FEMUR

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With the progression of aging society, periprosthetic fracture of femur tends to increase. The purpose of this study is to evaluate treatment results of this fracture in our hospital. Eighteen consecutive cases of periprosthetic fracture were analyzed. Two men and sixteen women, and mean age at injury was 85.7 years old. With Vancouver classification, 2 cases were classified into AL, 1 case AG, 6 cases B1, 3 cases B2, 1 case B3, 5 cases C. One case was treated by stem revision with wiring, one case by stem revision with plating, and 16 cases by only osteosynthesis. Outcome measures were bone union, walking ability and complications. During follow up periods, we confirmed bone union only in 5 cases. When walking ability was classified into 1)bedridden, 2)wheel chair, 3)walker gait, 4)cane or free gait, 1) was seen in 3 cases, 2) in 4 cases, 3) in one case, 4) in 10 cases before periprosthetic fracture. At final examination, 1) was seen in 3 cases, 2) in 9 cases, 3) in one case, 4) in 4 cases and unknown was one. Implant removal was done in one case because of deep infection, and refracture occurred in 2 cases. Surgery for periprosthetic fracture is likely to be large invasion, since it requires a long-term in bone healing, reduction of post-operative walking ability can be seen in many of the cases. Since the cases lead to re-fracture is scattered, treatment strategies to prevent re-fracture not only correct surgical procedure is desired.

Abstract no.: 42660

OUTCOMES OF THE PONSETI METHOD OF CLUBFOOT MANAGEMENT IN SUB-SAHARAN AFRICA: A SYSTEMATIC REVIEW

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Background: Clubfoot is the most common congenital deformity affecting mobility. It leads to pain, physical impairment and disability if untreated. This review aims to define a reference standard for evaluation of outcomes of clubfoot treated by the Ponseti method in a low-income setting. Methods: All Ovid databases were examined for studies meeting the following inclusion criteria: (1) unilateral or bilateral idiopathic clubfoot; (2) primary treatment with the Ponseti method; (3) undertaken in sub-Saharan Africa and (4) published in English. Exclusion criteria comprised: (1) no functional evaluation of clubfoot correction and (2) full text unavailable. An integrative review method was used to incorporate results of non-randomised trials. A hierarchy of study methodologies, developed to assess intervention strategies for children with developmental disabilities, was used to categorise the scope and quality of studies. Results: 136 articles were identified. Ten articles met the inclusion criteria. The quality of evidence was low, with the majority of studies classed as level IV due to their observational nature. A high risk of bias resulted from study sampling and interpretation of results led to selective reporting of positive results. Clinical assessment was the most common outcome measure reported and included Pirani score, number of casts, tenotomy coverage, recurrence of deformity and loss to follow up. Conclusion: The primary evaluation used to measure the outcome of the Ponseti method was clinical assessment. Further studies that include patient reported outcomes in the context of healthcare systems are needed to explore and define quality of clubfoot management.

Abstract no.: 42661

CLINICAL AND RADIOLOGICAL OUTCOMES OF MODIFIED POSTERIOR CLOSING WEDGE OSTEOTOMY FOR THE TREATMENT OF POSTTRAUMATIC THORACOLUMBAR KYPHOSIS

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Introduction: The aim of this study was to assess the use of modified closing wedge osteotomy for the treatment of posttraumatic thoracolumbar kyphosis and to evaluate the radiographic findings and clinical outcomes of patients treated using this technique. **Methods:** Thirteen consecutive patients with symptomatic posttraumatic thoracolumbar kyphosis were treated using modified closing wedge osteotomy. The mean patient age was 62 years. The kyphosis apex ranged from T10 to L2. The sagittal alignment, kyphotic angle, neurological functions, Visual Analogue Scale for back pain, and Oswestry Disability Index were evaluated before surgery and at follow up. **Results:** The mean preoperative regional angle was 27.4 degrees, and the mean correction angle was 29.6 degrees. The sagittal alignment improved with a mean correction rate of 58.3%. The mean surgical time was 275 minutes, and the mean intraoperative blood loss was 1,585 mL. The intraoperative complications included two dural tears, one nerve root injury, and one superficial wound infection. The mean visual analog scale score for back pain improved from 6.6 to 2, and the Oswestry disability index score decreased from 55.4 to 22.6 at the last follow up. All patients achieved bony anterior fusion based on the presence of trabecular bone bridging at the osteotomy site. **Conclusions:** The modified posterior closing wedge osteotomy technique achieves satisfactory kyphosis correction with direct visualization of the circumferentially decompressed spinal cord, as well as good fusion with less blood loss and complications. It is an alternative method for treating patients with posttraumatic thoracolumbar kyphosis.

Abstract no.: 42663

ELBOW DYSFUNCTION.THE DIAGONAL/SPIRAL METHODS OF KABATT IN COMBINATION WITH ELASTIC RESISTANCE AFTER ELBOW SURGERY.

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The most common complication after elbow fractures is post-traumatic stiffness. The key to minimizing stiffness is early motion. Rigid fixation subsequently allows early motion to be started as part of the rehabilitation process. Some fractures may be considered stable, however early motion is essential to obtain a good result. Methods: the methods were applied to 10 patients, 6 female, 4 male, treated surgically after elbow fractures. Goniometry, VAS and Morrey Score for daily activities were used for evaluations. The physiotherapy program was included immediately after surgery. Results: The specialized program with diagonal/spiral method of KABATT in combination with elastic resistance are different ways to supporting the rapid functional recovery of the patients.

Abstract no.: 42666

DEFINING OF OPTIMAL SPINOPELVIC PARAMETERS IN ADULTS: A SYSTEMATIC REVIEW WITH META-ANALYSIS

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Introduction: The purpose of the study was development of optimal spinopelvic parameters in healthy adults. Methods: A systematic review with meta-analysis was performed, inclusion criteria: age >20 years old, absence of acute and severe chronic diseases, description of measurements; studied parameters: lumbar lordosis (LL), pelvic incidence (PI), sacral slope (SS), and pelvic tilt (PT); potential confounders: method of measurement, gender, age, ethnicity, weight, height, and body mass index (BMI). Ovid MEDLINE (1946-current) and Embase (1980-current) were used for search. The optimal range (OR) was defined as pooled mean (PM) \pm pooled standard deviation. Results: 17 studies (2926 subjects) were included, mean age ranged from 24 to 76 years. The pooled results were significant ($P < 0.0001$), but heterogeneous: LL (L1-S1) had $PM = 54^\circ [95\%CI: 51; 58]$ with OR from 43° to 67° ; LL(L1-L5), $PM = 37^\circ [95\%CI: 31; 43]$, OR from 22° to 53° ; PI had $PM = 50.6^\circ [95\%CI: 49; 52]$ and OR from 39° to 62° ; SS, $PM = 38^\circ [95\%CI: 36; 39]$ and OR from 27° to 48° ; and PT had $PM = 12.6 [95\%CI: 12; 13]$ with OR from 3° to 22° . Following confounders had significant impact: (LL) method of measurement, ethnicity, age, and BMI; (PI) ethnicity, age and BMI; (SS) ethnicity, age, and BMI; (PT) age. The optimization can be individualized by multiple regression equations which take into consideration impact of the confounders. The defined optimal ranges correspond to values in approximately 70% of healthy population, and thus can be used for planning surgical interventions and evaluation of treatment outcomes.

Abstract no.: 42668

PELVIC RING FRACTURES MALUNION , HOW TO ADDRESS PATHOLOGY

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When the tough ones get tougher ; Addressing the pelvic ring fractures malunion how to survive these ones? Understanding the anatomy and biomechanics of the pelvic ring in addition to proper classification of the fractured pelvic ring represent the key of how to manage these fractures as they happen first time and must be re visited if the malunion or nonunion happens . Most of these injuries happens for Young and high demand patients with high expectation even for such revision cases and optimization of every thing starting of doing such cases in a center familiar with such pathology and patient condition to be optimized to under go surgery together with Anticipation of the possible Spectrum of serious complication that may happen that range from wounds problems to retained hard ware in morbidity side to vascular , GI and GUS injuries where required multidisciplinary approach is by fare most important to achieve acceptable correction required to an adequate function .

Abstract no.: 42669

ACETABULAR FRACTURE PATTERN DICTATED APPROACH

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No fracture in orthopaedic trauma its outcome get dictated by its pattern like acetabular fractures . While simple ones can follow classic approaches ; complex acetabular fractures may need combined approaches or modification of one approach .Restoration of the anatomy of a complex fracture calls for an approach must allow achieving this goal . The reduction Technique , the instrumentation implants chosen to obtain solid fixation come secondary to correct approach . T-shape Acetabular fractures represent one of the challenging fractures that the surgeons has to face when planning to manage these complex types of fractures .

Abstract no.: 42674

AGGRECAN GENE VARIABLE NUMBER OF TANDEM REPEATS AND SUSCEPTIBILITY OF DISC DEGENERATION DISEASES: A CASE-CONTROL STUDY AND META-ANALYSIS

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Introduction: Several studies have examined the association between aggrecan gene variable number of tandem repeats (VNTR) polymorphism and risk of intervertebral disc degeneration (IDD). However, the results are still controversial. We performed the case-control study to investigate whether aggrecan VNTR polymorphism correlates with the susceptibility of IDD in Chinese populations, and then conducted a meta-analysis by combining the previous studies. Methods: We recruited 98 IDD patients and 94 controls from May 2011 to August 2013. All the subjects were genotyped using the PCR-based invader assay. The differences of allele distributions between IDD patients and controls were investigated in case-control study. A systematic search of all relevant studies was conducted. The observational studies that were related to an association between aggrecan VNTR polymorphism and IDD were identified. The association between aggrecan VNTR polymorphism and risk of IDD was assessed by meta-analysis. Results: The case-control study showed that aggrecan VNTR polymorphism was associated with the susceptibility of IDD in a Chinese population. Furthermore, other eight previously reported studies were included to perform meta-analysis. The meta-analysis showed that aggrecan VNTR polymorphism was associated with risk of IDD in Asian but not in Caucasians. Conclusion: This study suggested that aggrecan VNTR polymorphism with shorter allele may be associated with the increased risk of IDD in Chinese population. The further meta-analysis provides additional evidence supporting the above result in Asian. However, such association may not be statistically significant in Caucasians.

Abstract no.: 42679

MEASURING ACETABULAR CUP VERSION ON DIGITAL RADIOGRAPH USING SOFTWARE TOOL

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Purpose:- The purpose of this study is to design software tool and demonstrate its reliability and accuracy for measuring version of acetabular cup on digital radiograph after total hip arthroplasty. **Methods:** We designed a software tool based on properties of ellipse with help of free online accessible software and measured acetabular version in cemented and uncemented acetabular cups. The tool seemed reliable for measuring acetabular version with automatic inbuilt mathematical calculations. To check reliability, we designed a pelvis model with metallic ring simulating margins of acetabular cup. We measured ante versions and retroversion of ring at three different inclinations of 30° , 45° , and 60° . The values of angles measured by manual measurement were compared with angle measured by software tool. **Results:** The mean error and standard deviation of measured version at 30° , 45° , and 60° of inclination were 0.54° ($\pm.26$), 0.79° ($\pm.40$) and 0.77° ($\pm.38$) respectively. The P value of paired t-test was 0.05 for 30° inclinations, 0.03 for 45° inclination and 0.005 for 60° of inclination. **Conclusion:** This software tool can be used for measuring version of acetabular cup in cemented and Uncemented cups with greater reliability and accuracy.

Abstract no.: 42681

SINGLE STAGE REVISION FOR PERIPROSTHETIC HIP INFECTION IN PATIENTS WITH NO DRAINING SINUS

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Background: A question was proposed about the efficacy of single stage revision in patients with periprosthetic hip infection if a specific protocol for patients' selection and management was adopted. Methods: Fifty two patients with evidence of periprosthetic infection but no draining sinus had preoperative aspiration of the affected hip. The organism was identified in 33/52 and single stage revision was performed. The remaining 19 patients had two stage exchange arthroplasty. Patients in the single stage revision protocol had antibiotic loaded morselized bone grafts, cemented cups and long cementless stems. The Harris hip score (HHS) was used for evaluation and results were analyzed using the Wilcoxon Matched-Pairs Signed-Ranks test. Results: At an average of 6 (4-8) years post-operatively, only one case had persistent infection with a success rate of 97%. HHS has significantly improved from 30+/-3 pre-operatively to 87+/-4 post-operatively (mean+/-STD) ($P < 0.00001$). Incorporation and maturation of the graft within the previous defects was recorded in 29 out of the 33 patients. One patient had a single dislocation and one patient had recurrence of infection 18 months from the index procedure. Two patients had intra-operative fractures. Conclusion: Single stage revision hip arthroplasty achieves excellent success rate in patients with periprosthetic infection when the organism is identified pre-operatively and in the absence draining sinus.

Abstract no.: 42689

PAYMENT BY RESULTS IN AN ORTHOPAEDIC SETTING

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Introduction – Payment by Results (PbR) changed the way funding flowed for secondary care in NHS England, in order to increase efficiency and reward hospitals for productivity. Within the orthopaedic outpatient setting, there are certain procedures that command a separate tariff. The purpose of this study is to look at how many of these procedures were performed in an outpatient setting but were not claimed for because of poor documentation. Methods – A retrospective study was undertaken analysing 629 orthopaedic outpatient consultations over 1 week. Following each consultation, if an appropriate procedure was undertaken the clinician completed a coding proforma in order to gain a higher tariff. We identified all the consultations that were eligible to receive the higher tariff via clinic letters and compared them to the numbers that were actually coded. Results – Of the 629 consultations analysed, 46 were eligible to receive a tariff higher than the normal outpatient tariff. Seventeen (37%) of the 46 consultations not coded, resulting in a loss of £3003.46 over 1 week. Projected annually, this equates to a loss of income of £156,179.92. Conclusion – The current coding practice is inadequate leading to a substantial revenue loss and needs to be reviewed as a matter of urgency

Abstract no.: 42690

ROUTINE MEASUREMENT OF INFLAMMATORY MARKERS POST ARTHROPLASTY

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Introduction: Measurements in the level of CRP and ESR are useful in monitoring bacterial infection in arthroplasty. The CRP and ESR peaks on day 3 and 5 respectively. There are no indications to measure these on day one post arthroplasty. However, in Walsall Manor Hospital this blood test is being done routinely. Methods: We looked at how many patients, who had uncomplicated primary hips and knees, had unnecessary post op CRP and ESRs done. Results: Between Aug 2015 and Sep 2015 ninety six primary uncomplicated total hip and knee replacements were performed. Of these 33 had a CRP done and one had an ESR done. This equates to a total wastage of £101.60 and increase in work for the lab. Annually this comes to £1219.20. (CRP £3 ESR £2.60). Conclusion: We recommend staff are trained to only perform clinically necessary blood tests so resources are not wasted.

Abstract no.: 42691

EXTERNAL FIXATOR VERSUS PLASTER IMMOBILIZATION FOR UNSTABLE DISTAL RADIAL FRACTURES IN ELDERLY INDIVIDUALS

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Introduction In this retrospective study, we aimed to present radiological and clinical outcomes in patients with unstable distal radius fracture (UDRF) treated with closed reduction and external fixation (EF) or closed reduction and plaster immobilization (CRPI). **Methods** The study included 67 patients who presented to our clinic with UDRF. In all patients, clinical assessments were performed by wrist range of motion, DASH score, Gartland-Werley system, hand grip strength and palmar pinch strength, while radiological assessments were performed by radial inclination, volar tilt, radial length, ulnar variance, articular step-off and ulnar styloid fracture (USF). **Results** EF was performed in 35 patients (52.2%) whereas CRPI was performed in 32 (47.8%) of the patients included. Mean follow-up was 12.9 months in EF group and 13.6 months in CRPI group. In patients with isolated UDRF, no significant difference was detected in DASH-T and Gartland-Werley scores between groups. In the comparison with uninvolved contralateral side and intergroup comparisons, no significant differences were detected in hand grip strength and palmar pinch strength. In radiological assessments, no significant differences were detected in intragroup and intergroup comparisons. Although better radiological correction was achieved, worse DASH and Gartland & Werley scores were noted in patients with UDRF accompanied by USF when compared to those with isolated UDRF. **Conclusion** Treatment with EF and CRPI provides adequate radiological correction in the treatment of elder patients with UDRF. In elder patients with UDRF accompanied by USF, both EF and CRPI provide adequate radiological recovery; however, clinical improvement was inadequate.

Abstract no.: 42692

ARE THERE DIFFERENCES BETWEEN THE GENERATIONS OF FACET JOINT IN PATIENTS WITH LUMBAR DEGENERATIVE SPONDYLOLISTHESIS?

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(Introduction) Junghanns first described lumbar degenerative spondylolisthesis (LDS) in 1931. The shape of facet joint in sagittal orientation is considered to be one of the most significant factors of onset of LDS. However, the orientation of the facet joint in the coronal plane, were sometimes noted in elderly people with LDS. In this study, we investigated the degree of degeneration of facet joint and intervertebral disc in each generation of the case of LDS. (Material and Method) Post-operative cases of LDS were selected into four groups, each spanning a decade from 50 to 80 years of age. Each group had 30 patients (15 males and 15 females) randomly selected thereby totaling to 120 cases. The level of the LDS was limited to L4/5 spine. We investigated degree of facet angle, percentage of vertebral slip, facet degeneration, disc degeneration and shape of facet joint. (Results) Significant changes in the facet angle were observed between the 5th decade as compared to the combined 7th and 8th decade of age. The degeneration of intervertebral disc, Grade 3 was the most frequent all through the generation. Grade 4 was the most frequent about the degeneration of the facet joints. No significant relevance was observed in percentage of vertebral slip and facet joint angle. (Conclusion) In this study, the average of facet joint angle was gradually shallower chronologically. The degeneration of facet joint was severe through each age, and the degeneration of intervertebral disc was in progress with age.

Abstract no.: 42698

YOUNGER AGE HAS INFERIOR OUTCOME AFTER ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION WITH HAMSTRING AUTOGRAFT IN RUGBY PLAYER

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Purpose: To compare the clinical outcomes for anterior cruciate ligament (ACL) reconstructions using hamstring autograft in a different age population of rugby players. **Methods:** A consecutive series of 121/146 (83%) rugby players undergoing ACL reconstruction with hamstring autograft were retrospectively reviewed. 63 patients aged 20 years or older and 58 patients aged under 20 years were evaluated and compared to return to play and the graft rupture or contralateral ACL rupture after surgery. **Results:** Initially, 110/121 (91%) rugby players (58 patients in ≥ 20 year-age, 52 patients in < 20 year-age group) returned to play. At average follow up of 3.7 years, 18 (16%) patients sustained an ACL graft rupture. With respect to age, the survival rate of graft was lower (77% vs 95%, $P < .01$) and the time from surgery to graft failure was shorter (22.8 ± 13.2 months vs 35.4 ± 15.4 months, $p < .01$) in < 20 year-age group than in ≥ 20 year-age group. 8 (7%) patients had contralateral ACL rupture, 3 of 58 (5%) in ≥ 20 year-age group and 5 of 52 (10%) in < 20 year-age group ($P = .30$). The mean graft size between the patients of the non-failure group (9.3 ± 0.9 mm) and the failure group (9.3 ± 0.9 mm) had no statistical significance ($P = .77$). **Conclusions:** Rugby players are likely to return to play after ACL reconstruction with hamstring autograft. However younger players (< 20 years) had a higher ratio of graft failure compared with over age 20 years.

Abstract no.: 42699

AN EVALUATION OF THE INITIAL TWO YEARS OF THE PONSETI CLUBFOOT PROGRAMME BASED AT PARIRENYATWA HOSPITAL, HARARE.

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Objective: To evaluate the outcomes of the Ponseti manipulation and casting method for clubfoot in a tertiary hospital in Zimbabwe and explore predictors of these outcomes. **Methods:** A cohort study was established of children with idiopathic clubfoot managed from 2011 to 2013 at Parirenyatwa Hospital. Demographic data, clinical features and treatment outcomes were extracted from clinic records. The primary outcome measure was the final Pirani score (clubfoot severity measure) after manipulation and casting. Secondary outcomes included change in Pirani score (pre-treatment to end of casting), number of casts for correction, proportion receiving tenotomy and proportion lost to follow up. **Results:** 218 children (337 feet) were eligible for inclusion. The median age at treatment was eight months. 173 children (268 feet) completed casting treatment within the study period. The mean length of time for corrective treatment was 10.2 weeks (9.5 - 10.9 weeks). Of the 45 children who did not complete treatment, 28 were under treatment and 17 were lost to follow-up. A Pirani score of 1 or less was achieved in 85% of feet. Mean Pirani score at presentation was 3.80 (SD 1.15) and post treatment 0.80 (SD 0.56, p-value <0.0001). Severity of deformity and being male were associated with a higher (worse) final Pirani score. Severity and age over two were associated with an increase in the number of casts required to correct deformity. **Conclusion:** This case series demonstrates that the majority (80%+) of children with clubfoot can achieve a good outcome with the Ponseti manipulation and casting method.

Abstract no.: 42700

GLOBAL ACCESS TO PONSETI TREATMENT

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Background: Ponseti treatment is successful in more than 90% of cases of clubfoot, resulting in fully functional feet. This study aimed to assess provision of and access to services for clubfoot in low and middle-income countries (LMIC) in 2013. Methods: Data collection was by survey in 2014; data was requested from 52 national clubfoot programmes. Data collected included numbers enrolled for Ponseti treatment, numbers of Ponseti clinics, children starting first foot abduction brace (FAB) and types and sources of support for programmes. This presentation will include updated data from 2015 to be collected in 2016. Results: 22 organisations and/or individuals provided data representing 39 countries and 487 clinics, a 69% response rate. 91% reported they were part of a national network of service providers. 21,515 children were enrolled for Ponseti treatment, 86% under 2 years old and 83% of those starting treatment received their first FAB. 28% of 'expected cases' were enrolled for treatment across all countries, increased from 19% in 2011. Comparing data for 17 countries for 2009, 2011 and 2013 showed a steady increase in numbers enrolled. Qualitative data indicated that Ministries of Health provide the majority of direct resources to programmes including clinic space and staff. External support from NGOs provided funding for consumables, logistical support and staff training. Conclusions: More children born with clubfoot in LMIC are accessing Ponseti treatment each year. However the majority of children born with clubfoot do not receive treatment and more services and better access to these are needed.

Abstract no.: 42701

HYPEREXTENSION INJURIES OF THE KNEE: DO PATTERNS OF BONE BRUISING CORRELATE WITH SOFT TISSUE INJURY SEVERITY?

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Aim: to correlate patterns of bony injury with damage to soft tissue structures following knee hyperextension. **Methods:** Retrospective search of Picture Archiving and Communication System (PACS) for all knee MRIs and associated radiographs with a report containing the word 'hyperextension', from June 2008- April 2015. Clinical details were obtained from local databases. **Results:** We identified 30 patients with an MRI following knee hyperextension (19M, 11F; median age= 30 years, time from injury to MRI= 27 days). The most common abnormality was anteromedial tibial plateau (MTP) oedema (14 knees)- 3 of these had an associated tibial plateau fracture; in 8 cases there was concomitant oedema on the anteromedial femoral condyle (MFC). Of 10 knees with MFC oedema, 8 displayed a sign on the lateral radiograph (the 'double sulcus' sign) that has not been previously described. 11 out of 30 knees had ACL injury. Of 8 knees with MFC impaction visible on the radiograph, 5 had ACL injury with 2 having concomitant PCL injury. 11 out of 30 knees had anterolateral tibial plateau (LTP) oedema; 8 out of 10 with PCL injury had LTP oedema. Significant injury to the posterolateral corner was associated with 'kissing' MTP/MFC oedema. Meniscal injury was not associated with specific patterns of bony oedema. **Conclusions:** The most common pattern of bone bruising following knee hyperextension is MTP/MFC oedema. LTP oedema is associated with PCL injury. 8 out of 10 patients with MFC oedema displayed the radiographic 'double sulcus' sign, and 5 of these 8 had ACL injury.

Abstract no.: 42702

“RATE OF UNION AND COMPLICATIONS, BETWEEN MUSCLE PEDICLE BONE GRAFTING AND FREE FIBULAR GRAFTING IN FRACTURES OF NECK OF FEMUR: A COMPARATIVE STUDY”

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Fractures of the femoral neck always present a big challenge to surgeons, especially middle age group. In India they often present late with variable amount of neck absorption. Our objective is to study and compare the rate of union and complications of two procedures, namely vascularised muscle pedicle bone grafting and free fibular grafting in fractures of neck of the femur. This is a comparative retrospective and prospective study comprises of 32 patients having fracture neck of femur of more than three weeks duration. Group-A comprises of 16 patients underwent neck reconstruction by TFL or sartorius based muscle pedicle bone graft and iliac grafting when necessary followed by internal fixation through modified Smith Peterson approach. Group-B comprises of 16 patients, who underwent internal fixation along with free fibular grafting. This study uses Gupta's classification system and Harris hip score for functional outcome. Of group- A patients there was an average delay of 5 months from injury to operation; satisfactory union occurred in 14 cases (93%), delayed union in 26% cases and non union in one case (6%), with an average HHS of 75% at nine months follow up. Of group-B patients average delay was seven weeks, satisfactory union occurred in 13 cases (86%), delayed union in 14% cases and non union in two cases (13%). Average HHS at 9 month followup was 80.33%. Here in our study union rate is higher in MPBG patients than in fibular grafted ones, may be due to better neck reconstructions and revascularization whereas functional outcomes are better in fibular grafted patients.

Abstract no.: 42709

DISCOID LATERAL MENISCUS: CORRELATION BETWEEN TYPE AND TEAR PATTERN, AGE-SPECIFIC SYMPTOM ONSET

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Introduction: Discoid meniscus is a well-known congenital abnormality of the lateral meniscus, and more frequent in East Asia. This study aimed to assess the relationship between type and tear pattern, and causes of clinical symptom onset of discoid lateral meniscus retrospectively. Methods: We evaluated 92 knees in 72 patients (40 females, 32 males) underwent arthroscopic surgery at our institution from January 2001 to December 2015. The mean age at surgery was 22.5 years (range, 5 to 68 years). Type of discoid lateral meniscus was classified by Watanabe's classification. Tear patterns were classified into 6 categories, modified Bin's classification based on O'Connor's classification of meniscal tears: simple horizontal tear; complicated horizontal tear; longitudinal tear; radial tear; complex tear; and no tear. Chi square test and Fisher's exact test were used for analysis. Results: 50 knees were complete, 42 knees were incomplete and there was no Wrisberg type. Classified all patients by age, 51 knees (55.4%) were found in teens. Sports caused symptom onset significantly more often in teens, no history under 10 years, and falling down in fifties and sixties. Complicated horizontal tear was found more frequently in complete, radial tear and no tear were found more frequently in incomplete type. Conclusions: Symptomatic discoid lateral meniscus was found most frequently in teens. Causes of symptom onset of discoid lateral meniscus were characteristically by age. The findings showed relationship between the type and tear pattern of discoid lateral meniscus, which could be helpful for the surgical management.

Abstract no.: 42717

OPEN KNEE DISLOCATION

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Open knee dislocation is an unusual serious injury. We report a 55 years old man with an open knee dislocation and infection after a high energy trauma. A surgical debridement and external fixation of the knee was done urgently. One month later we made a reconstruction of the lateral collateral ligament, the anterior and posterior cruciate ligaments and the patellar ligament using tendon grafts. Two months later the patient comes back to the emergency department with a septic arthritis of the knee. We did a surgical debridement and we left in place a cement spacer with gentamycin and the patient starts an intravenous antibiotic treatment. Intraoperative cultures were positive for *S. epidermidis*, despite the fact that all previous cultures were negative. After completing antibiotic treatment and normalization of analytic parameters we decided to perform an articular replacement with a hinged prosthesis. Intraoperative cultures were once again positive for *S. Epidermidis* and we restarted antibiotic treatment with apparently satisfactory clinical and analytic evolution. Twenty months later the patient comes back to the hospital with a septic mobilization of the knee prosthesis. At this moment we decided to do a two stages revision with a good evolution and negative cultures after five years of follow-up. Conclusion: in patients following prophylactic antibiotic treatment in the intensive care unit, it is important to be aware of false negative cultures. In addition, aspiration of the knee with white blood cells count before surgery should be performed in patients with previous infections in the surgical site.

Abstract no.: 42727

INFLUENCE OF ETIOLOGICAL FACTORS BY MANAGEMENT OF CONGENITAL PSEUDARTHROSIS OF THE TIBIA WITH THE ILIZAROV METHOD IN PEDIATRIC POPULATION

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Purpose: Our study compared the rates of union achieved with the Ilizarov method in congenital pseudarthrosis of the tibia (CPT) in paediatric patients in regard to its aetiology. **Methods:** We studied the outcomes of 28 children that were treated for CPT between 2005 and 2013. Group 1 included children (n=14, mean age=9.7 years) with CPT associated with NF1 while group 2 were CPT cases with radiographic confirmation of dysplastic lesions in the tibia but lacked clinical NF1 manifestations (n=14, mean age=8.6 years). There was no statistical difference between the groups regarding their age and number of previous operations per patient. The main technical solution was open coaptation of fragments and autologous local tissue grafting to achieve a greater bone thickness and contact area at the pseudarthrosis level. Refracture-free rate (RFR), number of reoperations (NR) per patient, and union rates in the groups were compared. **Results:** Bone union and weight bearing were obtained in all the cases after the first operation. RFR was 42.86 % in group 1 and 35.71% in group 2 ($p>0.05$). Mean MR was 1.07 and 0.78 respectively ($p>0.05$). Subsequent treatment for refractures gained 92.86% of union in both groups by completion of the study (follow-up range, 2–9 years). **Conclusions:** The Ilizarov method yields comparable results in the management of CPT associated with NF1 or tibial dysplasia of idiopathic origin in paediatric cases. Further research should focus on the ways to support the Ilizarov method in order to reduce the number of repetitive surgeries or eliminate them.

Abstract no.: 42735

TIMING AND PATIENT SELECTION FOR REVISION THR , IN ISOLATED ASEPTIC LOOSENING OF FEMORAL COMPONENT

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Hip arthroplasty is a successful surgery that fails at a rate of approximately 10% at ten years from surgery. Causes for failure are mainly aseptic loosening of one or both components, due to wear of articular surfaces and partially to design, weight, sex and demands of the patient. In our report we present a case of T.B. right hip diagnosed in 1995 and was put on A.K.T for a year, post infection control he underwent girdle stone arthroplasty in 1996 and due to the instability opted for a Total Hip arthroplasty (cemented) in 1999. Post surgery patient was left with a 4" shortening and compensated well with heel raise. Patient was asymptomatic for 15 years and had come to our centre in 2014 with complaints of instability while walking. Xray and bone scan revealed osteolysis around the femoral stem and extreme thinning of the lateral cortex. Patient underwent revision of the femoral component after extraction of cement mantle and reanalyzing the bony bridge after a window osteotomy over the lateral cortex, then with a long stem, oxinium head and circlage wires along with autogenous iliacbone graft . Acetabular cup did not show any signs of loosening radiologically. Post operative biopsy and cultures were negative for Koch's. **CONCLUSION:** Timing and patient selection for Total hip arthroplasty is of paramount importance, and if these factors are kept in mind along with a sound surgical technique and patient counselling, the surgery may last for more than a decade.

Abstract no.: 42738

A.L.V.A.L - AN UNEXPECTED GUEST..!!

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MATERIALS & METHODS :We present a case report of a 23 year old female, who was diagnosed to have juvenile rheumatoid arthritis, presented to us with advanced osteoarthritis of Left hip She had undergone a hip resurfacing of the right hip (DePuy ASR™) at an earlier centre in Jan 2012. She had started full weight bearing and 6 months later she underwent left total hip arthroplasty at our centre (CORAIL® DePuy Synthes) During her follow up in the 4th month, she complained of swelling and pain over her right hip, further investigation lead to a radiological diagnosis of a “? tumor like mass” over the lateral aspect of Right hip joint. Patient was counseled for a surgical removal of the lesion and a 10x 15 cm mass was excised over the antero lateral aspect of hip extending over the greater trochanter. The sac like mass contained creamy material which was negative for infection, but stained positive for metal ions. HPE of intraoperative tissue specimens revealed perivascular lymphocytic aggregates and chronic inflammation consistent with aseptic lymphocytic vasculitis-associated lesions (ALVAL) **CONCLUSION:**Hypersensitivity reactions and failure of metal-on-metal implants will become more common as more metal-on-metal implants are used. Exchange of the metal liner for a highly cross-linked polyethylene component is the need of the hour, and we recommend this as the treatment of choice in a primary arthroplasty.

Abstract no.: 42740

**AVASCULAR NECROSIS OF "DISTAL" POLE FOLLOWING FRACTURE
WAIST OF SCAPHOID**

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MATERIALS & METHODS : we present a case report of a 28 year old male with h/o road traffic accident and sustained fracture waist of right scaphoid bone. Patient came to us after 3 weeks and was treated conservatively for the same. Patient came back to us 16 weeks post injury with persisting pain and decreased range of movement in the wrists and on imagining it revealed a dense sclerotic lesion in the distal pole and non union at the waist of the bone. C.T. and MRI revealed hyperintense lesion in the distal pole of the scaphoid. A diagnosis of Avascular necrosis of “ distal pole” of scaphoid was made. Patient was planned for ORIF + muscle pedicle bone graft (pronator quadratus) and underwent the same. 8 weeks post surgery patient fracture showed signs of union and the distal pole showed signs of viability. 16 weeks post surgery fracture united and distal pole showed same intensity as proximal pole and clinically the range of movements / strength was almost on par with the contra lateral side. **CONCLUSION:** AVN of distal pole of scaphoid is a rare but expected complication of the fracture waist of scaphoid owing to the anatomy and the peculiar vasculature. Timely intervention and revascularization is of paramount importance and if done precisely , can reveal desiring results.

Abstract no.: 42741

SIMULTANEOUS BILATERAL POSTERIOR DISLOCATION OF SHOULDER

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MATERIALS & METHODS : We present a case report of 58 /m with history of an industrial accident (electrocution) and was brought to our centre with pain and restricted movements in both the shoulder joints. Examination revealed tenderness along the anterior joint line , gross restriction of movements . No special tests were attempted due to pain. All classical signs of posterior dislocation were positive Imaging and clinical observation revealed b/l posterior dislocation of shoulder and the patient was taken up for closed reduction under general anaesthesia. Reduction was achieved with ease using the classical manuevere and patient was immobilised using modified pillow splint. Immobilisation was done for a period of 6 weeks and gradually started and physical rehab which lasted for another 6 weeks. Patient is currently doing reasonable well and managing with activities of daily living with a minimal residual posterior instability of both shoulders (R>L) **CONCLUSION:** Posterior shoulder dislocations are uncommon and spontaneous bilateral posterior dislocation is practically very rare. Mechanism is usually either secondary to convulsions or electric shock, anterior dislocation has to be kept in mind , especially in post traumatic injuries. This spontaneous bilateral dislocation also presents with practical problems immobilization and day to day care of patients.A dedicated shoulder rehab programme should commence in the recovery phase and signs of posterior instability should be on the look out in view of surgical repair in future.

Abstract no.: 42743

A NOVEL TECHNIQUE TO PREVENT GUIDE WIRE RELATED COMPLICATIONS WHILE INSERTING THE 4.0 MM CANNULATED SCREWS

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A guide wire is used to define the screw trajectory while the cannulated screws is being inserted. The cannulated shaft typically accommodates a 1.25 mm guide pin. Since the guide pin is very slender and undergoes elastic deformation during insertion, there is a high probability of pin breakage. To resolve these challenges, the authors devised a novel approach. Four key steps. 1. The first step is to ensure anatomical reduction of the fracture. 2. Three 2.0 mm K-wires are then drilled across the fracture line to fix the fracture. 3. This critical step involves interchanging the 2.0 mm K-wires for the 1.25 mm guide wire. For this, it is important to slide the sleeve along the K-wire to the bone and hold it in position to prevent soft tissue impinging on the trajectory .Next, the 2.0 mm K-wire is removed and the thinner guide pin of 1.25 mm is inserted in the tract . This procedure is to be repeated for all the screw tracts. 4. The 4.0 mm cannulated screws are placed along the 1.25 mm guide pin one by one. Using the technique, over 20 patients were managed in our department without any complications. We have observed that patients treated with this method experience short operation time, combined with good clinical outcome and we recommend its use in cases where cannulated screw use is warranted.

Abstract no.: 42744

PERIPROSTHETIC SUPRACONDYLAR FRACTURE FEMUR POST TOTAL KNEE ARTHROPLASTY IN A PATIENT WITH S.L.E – CHALLENGES OF WOUND HEALING..!!

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Materials & Methods : We present a 50/f , known case of Systemic lupus erythematosus , operated for an advanced osteoarthritis of her Left knee 7 years ago in U.S.A , came to us with H/O of a domestic fall and sustained a supracondylar periprosthetic fracture (Neer's type iii, Su's Classification type ii) . Patient was a known case of S.L.E , on treatment for last 15 years with steroids. Patient was taken up for surgery and the fracture was fixed with a long distal femoral L.C.P.(synthes ®) using the standard lateral approach extending across the lateral joint line, with a liberal incision measuring 20 cms , keeping in mind the fracture line was extending above the femoral component. Patient was discharged on day 9 and came back to hospital with sudden swelling , pain around the operated site and fever on day 11 , and musculoskeletal USG revealed a haematoma measuring 10 x 5 cms. Patient underwent incision & drainage and a drain was inserted which revealed frank blood, ? haematoma. Vit A and Vit E were administered with a careful watch over the wound which was subjected to regular dressings till the wound began to dry up in the 6th week **CONCLUSION :** Periprosthetic fractures around femoral component are challenging ,and even more so in a patient undergoing steroid therapy. A holistic approach with an immunologist , regular wound dressings and liberal amounts of vitamin A , E have desirable results and promote wound healing

Abstract no.: 42745

FUNCTIONAL OUTCOME OF SUPRACONDYLAR FRACTURE FEMUR TREATED WITH LOCKING COMPRESSION PLATE VS DYNAMIC CONDYLAR SCREW

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Fractures of the distal femur present considerable challenges in management. Severe soft tissue damage, comminution, fracture extension into the knee joint, injury to the quadriceps mechanism lead to unsatisfactory results in many cases regardless of treatment. **MATERIALS AND METHODS :** The series included the treatment of 33 cases of distal femoral fractures with satisfactory follow up in all the patients. Data collection was based on patient evaluation through detailed history, clinical examination and radiographic examination. For the fracture to be included in this study, part of the fracture line has to extend distal to a horizontal line drawn on AP X-RAYS 9 cm above the distal articular surface of the femoral condyles. This was followed by surgical management of the distal femur fractures. There were 33 fractures in 33 patients involving the distal femur, which were treated surgically by the internal fixation. 17 patients were treated with dynamic condylar screw and 16 patients were treated with locking compression plate. On the basis of Neer's knee score rating. **CONCLUSION:** 1. Time taken for radiological union of fractures with LCP was less compared to DCS which was statistically significant. $P < .001$. 2. Range of knee motion was more for the fractures treated with LCP compared to DCS which was statistically significant. $P < .003$ 3. There was no difference in the overall complication rate for the fractures treated with DCS or LCP

Abstract no.: 42747

FUNCTIONAL OUTCOMES OF THE INTRAARTICULAR FRACTURES OF THE DISTAL HUMERUS USING PRECONTOURED ANATOMICAL DUAL PLATING SYSTEM.

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Introduction: Distal humerus fractures are distinctly recognized due to challenges related to poor functional outcomes, especially articular fractures. The basic treatment strategies are anatomical reconstruction and stable fixation for early mobilization yielding better outcomes. In this study, we aim to evaluate precontoured anatomical dual plating system for such complex fractures. **Methods:** Thirty patients with intraarticular distal humerus fractures were included in the study and followed-up clinico-radiographically at regular intervals for 12-months. Assessment of functional outcome was done using Mayo Elbow Performance Score (MEPS). **Results:** Primary internal fixation was done in all cases. The mean time from injury to surgery was 4 days. Posterior approach with olecranon osteotomy was used in all cases. Mean surgical time was 185 minutes. 'Good' or 'excellent' results were seen in 45% cases. Median MEPS was 82.3. Mean ROM was 95-degrees. Severely comminuted fractures had poor results. Complications included wound infections, skin necrosis, delayed union and transient ulnar neuropathy. Implant failure was seen in none of the cases. One of the fractures needed revision due to infection. **Conclusion:** Precontoured anatomical dual plating system provides stable fixation for early mobilization. It helps in complex fracture management and also in poor bone quality. The screw orientation in plates can help in fixation of coronal plane fractures. The low rate of implant failure is promising. One should be ready with full armamentarium of implants like headless screws for definitive management of such fractures.

Abstract no.: 42749

ANGULAR DEFORMITIES OF THE KNEE AMONG SCHOOL CHILDREN AND ADOLESCENTS IN ASABA NIGERIA

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Introduction: The study was on the angular deformities among school children and adolescents in Asaba Nigeria. It was aimed at determining the normal knee angle or tibiofemoral angle (TFA) in the children and adolescent population in Asaba Nigeria. It studied the relationship between body mass index (BMI) and angular knee deformity. The prevalence of angular deformity among the target population was determined from the data analysed. **Methods:** The research was a survey designed cross-sectional stratified random study conducted in some kindergarten, primary and post-primary schools in Asaba Nigeria. Clinical measurements of the TFA of both knees, weight, height, intermalleolar, and intercondylar distances of children and adolescents 3-17 years were taken. A total of 1775 subjects including 895 females and 880 males were assessed. The data was analysed using IBM SPSS Version 21. **Results:** The normal values of TFA in the studied population was in the range of 5.46° of varus to 5.14° of valgus. The prevalence of angular deformity was 4.5%. 78.7% of the deformity was varus while 21.3% was valgus. The prevalence of the deformity in the male population was 6.3% while that of the female was 2.8%. Angular deformity did not correlate with BMI. **Conclusion:** The prevalence of angular knee deformity in school children and adolescent in Asaba Nigeria is 4.5%. Males are more affected than the females and there is preponderance of varus deformity compared to valgus deformity.

Abstract no.: 42750

DISTAL CLAVICLE FRACTURES

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Introduction: Distal clavicle fractures represent 10-15% of clavicle fractures. High percentages produce nonunion or chronic pain, so many of them need surgery. Our goal is to analyze the outcomes after the surgical treatment of these fractures. Material and methods: We perform a retrospective study on patients who underwent surgical treatment for distal clavicle fractures between 2003 and 2012. We collected the epidemiological data, the immobilization period of time after surgery, the intervention, the functional results measured by the Constant and DASH scores, the need for osteosynthesis material removal, the complications and the final satisfaction. Results: We reviewed a total of 53 distal clavicle fractures. The mean age was 38, 8 years old [12-82]; the percentage of men was 73.3% and 26.7% of women. The average immobilization time was 3.6 weeks [1-6]. Cerclage was used in 5 cases, Kirschner wire in 4, Kirschner wire plus cerclage in 11, screws plus Kirschner wires in 1 case, plate in 23 cases and plate with cerclage in 1 case. The mean Constant score was 87.6% [0 -100] and DASH score was 44.6 [0-300]. Relating to complications, we picked 4 nonunion (11.4%), and 43.9% of the patients underwent a removal of the osteosynthesis material. 84.6% of patients had a satisfactory assessment at the end of the follow-up. Conclusions: After surgical treatment, the functional outcomes and the patient satisfaction are good. There is however a considerable percentage of nonunion in spite of the changes on the implants used, and the hardware removal is still high.

Abstract no.: 42751

MISSED ORTHOPEDIC INJURIES IN INTENSIVE CARE UNIT OF A TERTIARY LEVEL TRAUMA FACILITY: DETECTION AND PREVENTION- A STUDY OF 100 CASES

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Background: Orthopedic injuries are the most commonly missed injuries in trauma patients. These can have serious implications both for the patient and treating facility. The current study aimed to study such injuries in patients in intensive care unit, their detection, management and prevention. Aims: To determine the incidence of unrecognized injuries in primary survey, to study the role of CT scans for detection of clinically unrecognized injuries and to analyze those missed on clinical evaluation. Material and methods: We evaluated case records of 100 patients admitted to the intensive care unit of trauma facility of our hospital from Oct 2010 to April 2011. Data was collected from medical case records of the hospital. Various parameters were recorded in the proforma prepared for the study. Special note was made if the injury was suspected prior to further radiological evaluation. Results: Out of 100 patients evaluated, six percent had injuries which escaped initial detection in casualty. There were four males and two females. Mean age was 48.4 years. CT scan evaluation decreased the incidence of missed injuries to two percent. Fractures which were missed were spine injuries-spinous process fracture(1), upper limb injuries-metacarpal fractures(2), and lower limb injuries-distal tibia fracture(1), metatarsal fracture(1) and pubic rami fracture(1). Only two percent undetected injuries were clinically suspected. Conclusions: Careful clinical examination, review by senior surgeon, CT scanning and combined orthopedic-radiology evaluation helps in reducing initially undetected injuries.

Abstract no.: 42752

MIDSHAFT CLAVICLE FRACTURES

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Introduction: The objective is to analyze the changes in the surgical treatment and results in midshaft clavicle fractures. Material and Methods: We performed a retrospective study including patients undergoing surgery between 2003 and 2012. Results: We reviewed 76 midshaft clavicle fractures. Mean age: 35.13 years old [14-77], 89.5% of men and 10.5% of women. Average shortening: 18.45 mm [4-48]. The average immobilization time was 3 weeks [1-6]. An external fixator was used in 1 case, Kirschner wires in 3 cases, DCP in 8 and LCP in 64 cases. The mean Constant was 96.86 [61-100] and DASH was 22.4 [0-150]. The complications were two nonunions (2, 8%), one malunion (1, 4%) and 1 plate loosening (1, 4%). At the end of the follow-up, 85.5% of the patients had a satisfactory assessment. To determine if there had been changes over the years; we compared different variables from 2003 to 2007 and from 2008 to 2012. Fractures: 10 (Group 1), 66 (group 2). Mean age of 28.3 years old against 36,1. Average shortening of 25.8 mm [15-46] versus 16.1mm [21-48]. Use of 2 LCP in group 1 and 62 in group 2 and an immobilization time of 3.5 weeks in group 1 and 2,7 weeks in group 2. Conclusions: Functional outcomes after surgical treatment are good. The trend in recent years has involved older patients with smaller shortening fractures, causing a large increase in the number of interventions. The immobilization time after surgery has decreased and the most used implants are LCP.

Abstract no.: 42757

STUDY OF THE MANAGEMENT OF FRACTURES OF DISTAL END RADIUS USING EXTERNAL FIXATOR IN ADULTS

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Background & Objectives: Preservation of the articular congruity is the principle prerequisite for successful recovery following distal radius fractures. The main aim of this study is to evaluate the results obtained by treatment of distal end radius intra-articular fractures by external fixation. **Methods:** In a prospective controlled study, 25 cases of unstable distal end radius fractures with intra-articular extension were treated with uniplanar bridging static type of external fixation using the principle of ligamentotaxis between May-2015 to Feb 2016. Mean age of the patients was 43.6 years, External fixator was applied for a mean duration of 6 weeks and cases were followed up for an average of 6 months post operatively. **Results:** Assessed as per modified De merit point system of Gartland and Werley for functional results at the end of 6 months of follow up. Excellent to good functional result was noted in 72%. **Conclusion:** External fixation and ligamentotaxis provides better functional and anatomical results in comminuted intra-articular distal radius fractures. The successful use of external fixator for distal end radial fractures requires careful assessment of fracture pattern, appropriate patient selecting, meticulous surgical techniques appropriate choice of fixation, judicious augmentation with internal fixation and bone grafting, careful post operative monitoring and aggressive early institution of rehabilitation.

Abstract no.: 42758

THE MANAGEMENT OF SINSHEIMER TYPE IIB AND TYPE IIIA SUBTROCHANTERIC FRACTURES WITH PROXIMAL FEMORAL NAIL (PFN) / LOCKING COMPRESSION PLATE –PROXIMAL FEMUR (LCP-PF)- A COMPARATIVE STUDY

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Introduction: Subtrochanteric fractures are devastating injuries that most commonly affect the elderly population. Conservative methods of treatment results in malunion with shortening and limitation of hip movements as well as complications of prolonged immobilization like bed sores, DVT and hypostatic pneumonia. Hence the treatments of these fractures are challenging and the goal is to achieve anatomic reduction with stable fracture fixation to allow early functional rehabilitation. Comparison study was done for these fractures with proximal femoral nailing with locking compression plate for proximal femur. Material and Methods: A prospective comparative study was done in the period of 2 years of 20 cases of subtrochanteric fractures each treated with PFN and LCP-PF randomly, for patient above 50 years. Patient with pathological fracture, type II and type III open fractures, active malignant, medically unfit for surgery were excluded from the study. Results: In this study, 20 cases underwent PFN out of which 11 were Sinsheimer type IIIA and 9 were type IIB with outcome being Good to excellent results in 88% of subtrochanteric fractures. Out of other 20 cases treated with LCP-PF, 12 were Sinsheimer type IIIA and 8 were type IIB fracture with outcome being 60% good results, according to modified harris hip score, with most common complications being implant cut through and implant failure. Conclusion: From the above study it was concluded that Proximal Femoral Nail for subtrochanteric fractures had better results compared to PF-LCP with less failure rates and restoring better hip biomechanics .

Abstract no.: 42762

EFFECT OF MINI-PLATE FIXATION ON OPEN ANGLES AND COMPLICATION IN UNILATERAL OPEN-DOOR CERVICAL EXPANSIVE LAMINOPLASTY

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Introduction Cervical laminoplasty is an effective and safe surgery for cervical canal stenosis and cervical OPLL. The Centerpiece mini-plate is an instrument used to secure the laminae and maintain cervical canal expansion. **Materials and Methods** In 2014, 60 patients received unilateral open-door cervical expansive laminoplasty at our hospital. The group included 20 females and 40 males, with mean age of 71 (41-90) years. Between July and November, Group A (30 Pts) was using the mini-plate. Between January and June, Group B (30 Pts) was using suture suspension. We compared open angles group A and B in post operative CT. **Surgical technique** In group A for the mini-plate fixed C4 and C6 laminae, the appropriately sized laminoplasty plate for each level is selected using the trials. We use the drill bit to make two screw holes on the lateral mass, and then insert two 5-mm screws to anchor the plate to the lateral mass. In group B, the laminae are fixed using Hirabayashi's classic open-door laminoplasty techniques. **Result** C5 open angle was 36 ± 0.48 degree in group A, 46 ± 1.7 in group B ($p < 0.001$). No significant differences were found between group A and B in pre- and post ope JOA scores. In C5 plasty, three in group A, two in group B. Three screws were back out. Two in group B were performed re-operation caused laminae closure. **Conclusion** The mini-plate can keep same open angle and might be possible to prevent re-operation.

Abstract no.: 42766

SHIFA HOSPITAL IN GAZA DURING THE WAR IN 2014

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BACKGROUND: The last Gaza war took place during July and August of 2014 and went on for 51 days. Shifa Hospital in Gaza City received the majority of the injured and dead victims during the wars. **METHOD:** The present study is based on data recorded during the war in all public hospitals. All dead or alive patients arriving at the emergency room were registered. **RESULTS:** During the intensive days of bombing, Shifa Hospital received 4313 injured patients. ¼ of the patients were admitted to the different wards in the hospital. 492 patients were dead on arrival. 27 of the admitted patients died in hospital. 188 patients were sent abroad after initial stabilisation. At the busiest, the Shifa hospital received 280 victims during 60 minutes. **DISCUSSION:** Two weeks before the war, the MOH stopped all elective surgeries. During the war, all doctors in the surgical departments worked 24 hours shift. The management of the emergency care and the triage was difficult due to a high number of patients arriving. Because of the embargo, the conditions were very difficult. There was a lack of medicines, instruments and all kinds of medical equipment and materials. The emergency plan was implemented but the influx of the extreme number of patients revealed several weaknesses in the emergency plan. This demonstrates the importance of that plan being regularly reviewed and updated. Our overall impression is that Shifa Hospital managed the extreme situation satisfactory, although there is a marked potential for improvements.

Abstract no.: 42768

DELAYED DEFORMATION AFTER TIBIO-CALCANEAL FUSION BY RETROGRADE INTRAMEDULLARY NAILING

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Introduction: Charcot's neuroarthropathy of ankle leads to instability, destruction of the joint with significant morbidity that may require an amputation. Aim of surgical treatment is to achieve painless stable plantigrade foot through arthrodesis. Achieving surgical arthrodesis in Charcot's neuroarthropathy has a high failure rate. We assess the outcomes of retrograde intramedullary interlocked nailing in tibio-talar arthrodesis for Charcot's neuroarthropathy. Materials and Methods: 35 patients (twenty one males and fourteen females) with a mean age of 56 year and diabetes of a mean duration of 15.4 years underwent ankle tibio-talar arthrodesis using retrograde nailing for Charcot's neuroarthropathy. The postoperative complications have been discussed in details and their management outlined. The outcomes were measured for union radiologically, development of complications and clinical follow-up. Results: 80 % patients achieved radiological union on an average follow-up of 16 weeks. At the most recent follow-up visit, all patients were independently ambulating on a braceable limb with or without the use of an assistive device. Conclusion: tibio-calcaneal arthrodesis using retrograde nailing is a reasonable option for limb salvage to produce community ambulators in the high-risk Charcot's neuroarthropathy population but the complications need to be addressed to the patient before treatment.

Abstract no.: 42771

CLINICAL EVALUATION USE OF CALCIUM SULPHATE IMPREGNATED WITH VANCOMYCIN AND TOBRAMYCIN IN THE TREATMENT OF CHRONIC OSTEOMYELITIS IN CHILDREN

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Background: In the treatment of chronic osteomyelitis, the common methods in primary stage are debriding, draining and lavaging, but the clinical outcomes are not always satisfactory¹. Despite the variety of available treatment options of chronic osteomyelitis in children, including surgical procedures and antimicrobial therapy, bone infections are still a medical challenge as they are difficult to treat and cure. Aim of the work: The goals of this treatment protocol are to eradicate infection, heal the ulceration/abscess/wound, and reduce or eliminate the need for intravenous antibiotics in the treatment of osteomyelitis and complex infections of the skin and soft tissue structures. Patients and methods: From March 2012 to October 2015 a series of 17 chronic osteomyelitis in children procedures were performed. All patients underwent surgical debridement followed by application of synthetic pure dissolvable calcium sulphate beads impregnated with antibiotics were employed. Results and conclusion: The clinical outcome after six months amounted to successful treatment assessed as eradication of infection in 17 patients over the time of observation.

Abstract no.: 42773

THE “BARI SIGN”: RADIOLOGICAL EVALUATION OF THE LESSER TROCHANTER HEALING IN PATIENTS WITH PERI-IMPLANT FRACTURE AFTER PREVIOUS INTRAMEDULLARY FEMORAL NAILING

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Aim of the study: Intramedullary nailing is currently a modality of choice for the treatment of intertrochanteric fractures. It is a minimally invasive and effective technique, that often allows an early return to the activities of daily living. If a second trauma with a peri-implant fracture occurs, it can be a matter of issue because of both the fracture itself and of the presence of a device that influences the surgical choice of treatment. In a group of patients, already treated with intramedullary nailing and with a recent history of a peri-implant fracture, we evaluated the pattern of healing of the lesser trochanter. Methods: We retrospectively analyzed 49 cases of post-traumatic peri-implant fractures, occurred between March 2013 and December 2015. At the time of the trauma all the patients underwent a standard plain film; the fracture was described according to Duncan and Masri classification. Results: By observing the healing process of intertrochanteric fractures we were able to describe three different healing patterns of the lesser trochanter that we indicated as “Bari Sign”: hypertrophic nonunion in 17 cases, reattachment with flame look in 22 cases, peripheral exuberant calcification in 10 cases. Conclusions: The “Bari Sign” was present in all the patients with a peri-implant fracture. Further studies are needed to clarify if it is only an occasional finding on follow-up radiological investigations for intertrochanteric fractures or if it can be suggestive of a biomechanical impairment that can lead to a new peri-implant fracture.

Abstract no.: 42774

A PROSPECTIVE COMPARATIVE STUDY IN THE MANAGEMENT OF SEINSHEIMER TYPE IIB AND TYPE IIIA SUBTROCHANTERIC FRACTURE WITH PROXIMAL FEMORAL NAIL (PFN) VERSUS PROXIMAL FEMUR LOCKING COMPRESSION PLATE(PF-LCP).

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Introduction: Subtrochanteric femur fractures have demanded special consideration in orthopaedic traumatology, given the high rate of complications associated with their management. 10%–34% of all hip fractures occur in the subtrochanteric region. Purpose of the study: To compare the clinical outcome of Seinsheimer type IIB and type IIIA subtrochanteric fractures treated with PFN versus LCP – PF. Materials and method: A prospective study of 40 patients with Seinsheimer type IIB and type IIIA subtrochanteric fracture among which 20 were treated with Proximal Femoral Nail and 20 with Proximal Femoral-Locking Compression Plate at two Hospitals attached to J.J.M Medical College Davangere, Karnataka, India between June 2014 to October 2015.. At final follow up results were assessed with Modified Harris Hip score Result: In the PFN group, 9 patients (45%) showed excellent outcome, 9 patients (45%) showed good outcome and 2 patients (10%) showed fair outcome. Among the PF-LCP group, 12 patients (60%) showed good outcome, 4 patients (20%) showed fair outcome and 04 patients with poor outcome. Conclusion: Proximal Femoral Nail for subtrochanteric fractures has better results compared to Locking Compression Plate-proximal femur with less failure rates and restoring better hip biomechanics

Abstract no.: 42775

LONG TERM EXPERIENCE COMPARING TWO SYSTEMS IN TIBIO-TALO-CALCANEAL ARTHRODESIS. RETROGRADE COMPRESSION INTRAMEDULLARY NAIL FIXATION VS. SCREWS TECHNIQUE

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Introduction: The aim of this study is to compare two different systems of tibio-talo-calcaneal arthrodesis. We introduce the long term results in tibio-talo-calcaneal arthrodesis using a retrograde compression intramedullary nail fixation and using screws technique. Objectives: We present a comparative study between two series. Both series were similar in number (10 each) and in pathology. The previous pathologies were: avascular necrosis of the talus, trauma or removal of prosthetic ankle. Methods: The long follow-up in each series has allowed us to achieve long-term regarding complications and biomechanic gait after these two types of fusion. Results: We've obtained similar results in both groups. Despite having an small "n", no significant differences were found between the two systems arthrodesis. The AOFAS medium increased from 24/28 to 65/64. The SF-12 average went from 35/33 to 58/62. The gait analysis studies were similiar in both groups: plantigrade, painless and ongoing support. We observed that with nail group in all cases we reached a consolidated arthrodesis while in the group where compression screws were used, we got two cases with no consolidation. These were solved by performing retrograde nailing conversion. We have not had deviations in VR / VL and vascular or nerve problems. Conclusions: We conclude that there was no difference statystical significative between the two fusion system. While both systems have shown good clinical and functional outcome, in our work no consolidations were observed only with the compression screw system and required conversion to retrograde locked as a solution.

Abstract no.: 42778

CORRELATION BETWEEN HIP ARTHROSCOPY AND MAGNETIC RESONANCE IMAGING (MRI) IN CHILDREN WITH PERTHES DISEASE

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We compared the findings of hip arthroscopy with those seen on MRI in children with active stage of Perthes disease. We conducted a prospective observational study in which MRI findings were compared with corresponding findings on hip arthroscopy in a cohort of 25 patients of active Perthes disease. The indication of doing hip arthroscopy was persistent pain after 6 months of conservative management. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) were calculated for MRI considering arthroscopy as a gold standard. The sensitivity of MRI for found to be low, ranging from 20% to 70%. Similarly, NPV was also found to be relatively low, especially for synovial effusion. The specificity and the PPV, however, were very good. The specificity for synovial effusion was 100% (95% CI- 2.50%, 100.00%), for labral tear was 100% (95% CI- 83.89%, 100.00%), for ligamentum teres pathology was 100% (95% CI- 83.89%, 100.00%), for loose bodies was 100% (95% CI- 83.16%, 100.00%), for chondral flaps was 100% (95% CI- 83.16%, 100.00%) and for groove defects was also 100% (95% CI- 78.20%, 100.00%). MRI cannot be completely relied upon for identifying all the intra-articular pathologies in children with LCPD, although it has a good complimentary role. Hip arthroscopy as a diagnostic procedure can be helpful in cases of doubt regarding the pathology and in cases of persistence of pain. Definite conclusions regarding the role of hip arthroscopy in active stage of LCPD need to be established in future with follow-up studies.

Abstract no.: 42779

MANAGEMENT OF THORACOLUMBAR SPINAL FRACTURE IN ANKYLOSED SPINE WITH MORBID OBESITY: A CASE REPORT

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The ankylosed spine is prone to fractures even after application of low energy force. Multi-level vertebral bony fusion can produce long lever arms producing an increased risk of neurological injury. These patients have high risk of perioperative complications. Morbid obesity is also associated with high complication rate in open spinal surgery making conventional surgery less appealing in these patients. We present a case of extension type three column fracture of T12 vertebra in a patient with DISH with morbid obesity. Percutaneous pedicle screw fixation extending from T10 to L2 was performed under general anaesthesia. No perioperative complications were observed and the patient was mobilized on post op day1. The post-operative recovery was uneventful and the results were satisfactory at follow up. Minimally invasive spinal surgery in these patients can achieve good outcomes, low complication rates and high rates of satisfaction.

Abstract no.: 42781

ASTRAGALUS TUBERCULOSIS: A CASE REPORT AND REVIEW OF LITERATURE

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Osteo-articular tuberculosis continues to be a major global pandemic, with its greatest impact in the third world. Among bone tuberculosis, involvement of the foot bones, particularly isolated involvement of the talus is an extremely rare event. We present the case of a 20-year-old male patient diagnosed with isolated tuberculosis of the talus without radiological involvement of the distal tibia, fibula or calcaneum. Diagnosis was made with the help of magnetic resonance imaging (MRI) and confirmed with core biopsy from the talus bone. He was treated with multi-drug anti-tubercular chemotherapy and ankle immobilisation with protected weight bearing giving good results. The uncommon osseous site, atypical clinical presentation and lack of awareness seem to contribute to delay in diagnosis and treatment in cases of tuberculosis of the talus.

Abstract no.: 42782

**CONCOMITANT POSTEROLATERAL ELBOW DISLOCATION WITH
IPSILATERAL COMMINUTED INTRA-ARTICULAR DISTAL RADIUS
FRACTURE: A RARE ORTHOPAEDIC SCENARIO**

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Fracture dislocations are common around the elbow joint. However, closed fracture of the distal radius with ipsilateral elbow dislocation is an uncommon injury pattern. We discuss the case of a middle-aged woman presenting with posterolateral elbow dislocation with concomitant ipsilateral closed intra-articular fracture of the distal radius. It was treated with closed reduction for the elbow dislocation first followed by closed reduction for the distal radius fracture. Even with conservative management, the patient had a good functional outcome at one year. The importance and incidence of such a rare injury pattern and the possible mechanism of injury has been discussed.

Abstract no.: 42784

MANAGEMENT OF OLD NEGLECTED , RECURRENT AND RESISTANT CASES OF CTEV BY JOSHI'S EXTERNAL STABILIZATION SYSTEM (JESS)

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BACKGROUND AND AIM OF STUDY : Many patients come to orthopaedic department with neglected CTEV, dropout cases of plaster of paris treatment or failed surgical treatments. In an elderly patient soft tissue release alone is not sufficient for full correction. So fractional distraction using Joshi's External Stabilization System is a useful option to correct deformities in such patients. We aimed to study a short term follow up of 16 patients with 4 bilateral cases treated with JESS at Department Of Orthopaedics, J.J.M. Medical College , Davangere, regarding the cosmetic functional and anatomical outcome. **MATERIALS AND METHODS:** 16 children underwent 20 JESS procedures at Department Of Orthopaedics, J.J.M. Medical College, Davangere, attached to Chigatteri General Hospital, Davangere and Bapuji Hospital , Davangere. During the period of from June 2015 to January 2016 patients were followed up regularly. Three dimensional correction was achieved by use of the distractor device. **RESULTS AND CONCLUSIONS :** Excellent results were obtained in 7 feet, good results in 9 feet and fair in 3, poor in 1. Most common complications encountered was pin tract infection which eventually healed on an out patient basis without any residual sequelae.

Abstract no.: 42788

MANAGEMENT OF TROCHANTERIC FRACTURES OF THE FEMUR WITH ILIZAROV IN ELDERLY HIGH-RISK PATIENTS

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Osteoporotic hip fractures of the elderly patients are serious injuries with high costs, high morbidity and high mortality. However, a significant number of elderly patients are quite frail and present a high surgical risk. For such patients, we used Ilizarov for fixation, with assessment of its outcome. The study population consisted of 25 patients with pertrochanteric fractures of the femur who underwent Ilizarov fixation, as they were unfit for major surgery. Mean follow-up was 12-month. The mean age at surgery was 76 years. The mean operation time was 35 min, the mean fluoroscopy time was 1.5 min, and the mean hospital stay was seven days. Bone union was achieved at a mean of three months. Ilizarov was removed at a mean of 12 weeks. The mean Harris hip score was 80 (range, 61 to 88) and the mean Parker-Palmer mobility score was 6.5 (range, 4 to 8). Overall long-term satisfaction was high. No blood transfusion was required, and no intraoperative complications occurred. Postoperative complications included; superficial pin tract infection in 13 patients, a shortening with a mean of 15 mm in 12 patients, bed sores in two patients, and varus deformity in two patients. Neither implant failures nor hip or knee stiffness was recorded. Fifteen out of the 23 surviving patients returned to their prefracture ambulatory status at one year. We believe that Ilizarov fixation is a valuable treatment alternative for pertrochanteric fracture of the femur in elderly high risk patients.

Abstract no.: 42789

THE INCIDENCE OF DVT AFTER KNEE ARTHROSCOPY

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Deep vein thrombosis (DVT) is generally thought to occur rarely in patients who undergo knee arthroscopy and current practice is not to administer perioperative thromboprophylaxis. In support of this practice, postoperative screening for DVT after two weeks from knee arthroscopy was done in this study using ultrasonography technique in order to detect the DVT incidence after such procedure. This study population consisted of 100 patients, 64 males and 36 females, underwent knee arthroscopy, who fulfilled the inclusion criteria which included; patients' age from 18-60 years old, isolated meniscal injury and patients not known to be high-risk for DVT. Radiographs and MRI were done for all patients preoperatively to diagnose knee injury. The medial meniscus was injured in 79 patients and the lateral meniscus in 21 patients which were managed arthroscopically. Full DVT screening with lower limbs venous ultrasonography was done for all patients within two weeks postoperatively. The mean patients' age at the time of the operation was 27.8 years (range, 18 to 43 years). The right knee was affected in 42 patients and the left in 58 patients. The tourniquet was used in 93 patients. The mean time for hospital stay was 1.24 days (range, 1-3 days). Only two patients out of the 100 developed asymptomatic silent DVT within the first two postoperative weeks. The incidence of DVT after arthroscopic knee surgery of 100 patients in this study was 2%, which is not a strong prerequisite for perioperative thromboprophylaxis in patients not known to be high-risk.

Abstract no.: 42798

MIS THR USING ANTERO- LATERAL APPROACH - IS IT ONLY THE HYPE OR DESERVES MERIT?

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Minimally invasive surgery has become a trend in the last decade in all aspects of Orthopaedic surgery, including Total Hip Replacement. The debates and the interest generated in MIS THR is considerable and several approaches have been advocated. The potential benefits include lower surgical morbidity, less pain and peri-operative blood loss, quicker rehabilitation, shorter in-patient stay and improved cosmesis. On the other hand, deficient peer-reviewed literature, a steep learning curve, increased rate of complications due to inadequate visualization, component mal-position, neurovascular injuries, dislocation and intra-operative fractures have drawn criticism. We are presenting our experiences of MIS - THR through Antero-lateral approach, using fluoroscopy, in 60 patients with an average follow-up of 2 years. The surgical technique, results and complications in our series and in available literature is discussed. We had no major complications in the form of mortality, fatal Pulmonary embolism, temporary femoral nerve neuropraxia in 1 case, proximal femur hairline fracture in 1 case, component mal-position in 3 cases and superficial infection in 1 case. Functional assessment by Harris Hip Score, pain assessment by VAS score, Radiological assay for Cup abduction angle, ante-version angle, presence of radiolucencies, stem alignment and Fit , fill and subsidence. The MIS anterolateral approach allows good exposure for component placement, with less peri-operative blood loss (avg.600ml) and pain in immediate post-op period , earlier return to function and good patient satisfaction .

Abstract no.: 42800

OPEN RELEASE TREATMENT OF POST-TRAUMATIC ELBOW STIFFNESS IN CHILDREN

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Purpose: Few reports of surgical treatment of post-traumatic elbow stiffness can be found in literatures. This study reported a consecutive case series of post-traumatic elbow stiffness only in children younger than 14 years old, in order to explore indication, surgical technique, rehabilitation, outcome and complications. Method: At a mean follow-up of 25.1 months (7-41 months), 17 patients with post-traumatic elbow stiffness after open release treatment were evaluated. Pre-operatively, the average flexion was 74.1° (30° - 110°), the average limitation of extension was 42.6° (0° to 80°), the average flexion-extension range of motion was 74.1° (range, 30 - 110°). The average 'Mayo Elbow Performance Score' (MEPS) was 59.7 points (range, 55 to 75 points). Most operations were through combined approach of both lateral and medial side. Intra-operatively, we tried our best to preserve the lateral ulnar collateral ligament (LUCL) and anterior bundle of medial collateral ligament, which are very important to the stability of the elbow. If the elbow is not stable enough intra-operatively, we applied hinged external fixator to lateral side of the elbow. Rehabilitation began on day 1 postoperatively. Results: No patient complained pain. They had an average of 115.3° (range, 60° to 130°) of flexion of elbow and 16.5° (range 0° to 40°) to full extension. The average flexion-extension range of motion was 115.3° (range, 60 - 130°). The average 'Mayo Elbow Performance Score' (MEPS) was 87.5 points (range, 55 to 95 points). Conclusion: On appropriate indication, well performed open release treatment of the elbow can achieve good result in treating post-traumatic elbow stiffness of children.

Abstract no.: 42804

PREOPERATIVE CELECOXIB AND POSTOPERATIVE ASPIRIN REDUCE THE INCIDENCE OF HETEROTOPIC OSSIFICATION AFTER TOTAL HIP ARTHROPLASTY

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Introduction: Heterotopic Ossification (HO) is a common occurrence after total hip arthroplasty. The purpose of this study is to examine the incidence and severity of HO following a multimodal pain protocol with local steroid infiltration. Methods: A retrospective study was performed on 678 consecutive primary THAs with minimum one-year follow-up. All patients underwent THA and received a multimodal pain protocol consisting of preoperative celecoxib, local cocktail infiltration intraoperatively which contained 40 mg of methylprednisolone, postoperative celebrex and ketorolac, Tylenol for breakthrough pain and aspirin or warfarin thromboprophylaxis. All patients had pre- and post-operative radiographs examined and classified for HO using the Brooker Classification Results: 98 (14.1%) patients presented with HO following THA. The incidence of mild HO was 12.3% (38 - Brooker 1; 46 - Brooker 2) and severe HO was 1.7% (11 - Brooker 3). The most effective components of this pain protocol appeared to be the use of preoperative celecoxib (400mg; OR: 0.35; 95% CI: 0.18 to 0.68; $p < 0.01$) for pain control and postoperative aspirin (325 BID; OR:0.34 ; 95% CI: 0.20 to 0.51 ; $p < 0.01$) for DVT prophylaxis. Risk factors for HO included being male and hypertrophic OA. Three patients (0.43%) required reoperation for infection. Conclusion: To our knowledge, this is one of the lowest reported incidences of HO using multimodal pain control. Celecoxib and aspirin which were used for pain control and DVT prophylaxis respectively, appear to have the most prophylactic effect at reducing the incidence of HO.

Abstract no.: 42805

**PELVIC DISCONTINUITY, AN UNSOLVED PROBLEM IN REVISION
TOTAL HIP ARTHROPLASTY**

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BACKGROUND: Pelvic discontinuity is present when the superior aspect of the pelvis is separated from the inferior aspect. The purpose of this study was to describe mid term results of treatment of pelvic discontinuity. **METHODS:** Seventeen patients with pelvic discontinuity at the time of a operation for a failed hip arthroplasty at one institution were reviewed and demographic information was collected. The preoperative radiographs and the operative notes were reviewed, and the postoperative results and complications were recorded. **RESULTS:** The mean age of the patients was fifty nine years. That was more common in women and rhumatoid patients. A number of different methods were used for reconstruction, but the results were best in patients who did not have severe segmental acetabular bone loss and poorer in those who had severe segmental or combined segmental and cavitory bone loss. Four of them needed another operation: one, because of aseptic loosening of the acetabular component; one, because of recurrent dislocation; and two, because of deep infection. Mechanically stable construct (that is, a stable socket and a possibly or definitely healed discontinuity) was obtained in thirteen of the hips. **CONCLUSIONS:** Pelvic discontinuity is uncommon, and treatment is associated with a high rate of complications. For hips in which a socket inserted without cement and can be satisfactorily supported by native bone, we prefer to use a posterior column plate to stabilize the pelvis and a porous-coated socket inserted without cement. In other cases, reconstruction rings should be used.

Abstract no.: 42806

CHONDROPROTECTIVE EFFECT OF REBAMIPIDE IN MOUSE MODELS OF POST-TRAUMATIC OSTEOARTHRITIS (PTOA) AND PRIMARY CULTURED HUMAN CHONDROCYTES

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Introduction: Osteoarthritis (OA) is the most common joint disease, but few drugs are available to effectively prevent or treat cartilage degradation. Rebamipide is a protective drug for gastric mucosal injury. In this study, we employed an in vivo and in vitro to examine the effects of Rebamipide on articular cartilage degeneration. **Materials and Methods:** BALB/c strain mice were used and surgically induced PTOA model. Mice were injected with Rebamipide into the knee every week and sacrificed at 6 weeks after operation. Chondrocytes were isolated from human OA cartilage. Cells were stimulated with recombinant human IL-1b, and then treated with or without Rebamipide for 24h. The levels of mRNA expression of COL2A, IL-1b, TNF, NF-κB, MMP3, MMP13, and ADAMTS5 were estimated using real-time PCR. **Result:** In Mankin score, average histological scores were significantly better in Rebamipide group than control, indicating chondroprotective effect of Rebamipide. The mRNA expression of IL-1b, TNF, NF-κB, MMP3, MMP13, and ADAMTS5 in chondrocytes was significantly down-regulated after treatment with Rebamipide. And the mRNA expression of COL2A was significantly up-regulated after Rebamipide treatment. **DISCUSSION:** In this study, Rebamipide downregulated the mRNA expression of IL-1b, TNF, and NF-κB, thus it was clear that Rebamipide had an anti-inflammatory effect in chondrocytes by suppressing activation of NF-κB transcription factor. Rebamipide also downregulated the mRNA expression of MMP3, MMP13 and ADAMTS5, the catabolic factors of chondrocytes, thus Rebamipide downregulated catabolic factors in chondrocytes. **Conclusions:** Rebamipide could be an important candidate for prevention of articular cartilage degeneration.

Abstract no.: 42809

THE EVALUATION OF ARTHROSCOPIC FINDINGS AND MAGNETIC RESONANCE IMAGING FOR ANKLE FRACTURES

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Introduction: The purpose of this study was to investigate the arthroscopic findings and magnetic resonance imaging (MRI) for ankle fractures. Methods: This was a prospective clinical study of 16 consecutive ankle fractures. MRI and ankle arthroscopy had been performed in all cases in order to evaluate the cartilage damage. We compared MRI and arthroscopic findings to examine diagnostic efficiency of MRI for condral lesion of the ankle fractures. Results: MRI findings showed that chondral lesions were found in 10 ankles (62.5%). At arthroscopy, chondral lesions were found in 14 ankles (87.5%). As a concordance rate, 10 cases (62.5%) had both abnormal MRI and arthroscopy finding (true positive), 4 cases (25%) had normal MRI and abnormal arthroscopy (false negative). In medial talus, 8 cases (50%) had normal MRI and abnormal arthroscopy, whereas only 3 cases (18.8%) had abnormal MRI and arthroscopy finding (sensitivity 27.3%, specificity 100%). In medial malleolar, no case had abnormal MRI and arthroscopy, and 3 cases (18.8%) had normal MRI and abnormal arthroscopy (sensitivity 0%, specificity 100%). In distal tibia and talus lateral, abnormal MRI and arthroscopy accounted for 6 and 2 cases, respectively, and normal MRI and abnormal arthroscopy for 1 and no case, respectively (sensitivity 85.7% and 100%, specificity 100% both). Conclusion: There were chondral lesions in arthroscopic all 10 cases that had abnormal MRI. The present study suggests that preoperative MRI after ankle fracture can predict whether there are chondral lesions in lateral talus and distal tibia, but not in medial talus and medial malleolar.

Abstract no.: 42811

EVALUATION OF THE ADDUCTOR CANAL BLOCK FOR POSTOPERATIVE PAIN CONTROL AND EARLY FUNCTIONAL RECOVERY IN ARTHROSCOPIC KNEE SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED TRIALS

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The purpose of this study was to evaluate the adductor canal block (ACB) in arthroscopic knee surgery and to evaluate its effect on postoperative pain score, opioid consumption, and quadriceps muscle power. Methods: Randomized controlled trials (RCTs) which compared ACB with placebo or other anesthetic techniques in arthroscopic knee surgery until 30 September 2015 were identified in the databases. Ten studies were eligible according to our selection criteria. Outcomes including pain score with rest and activity, opioid consumption and quadriceps muscle power were extracted from selected studies and it were analyzed. Results: A Total of ten RCTs with 661 patients were enrolled in this study. Systematic review and meta-analysis showed that ACB lowered the visual analogue pain score (VAS) significantly at rest and activity within 24 hours postoperatively more than placebo. However, both total opioid consumption within 24 hours postoperatively and quadriceps muscle strength showed no statistical difference between groups. Conclusion: The ACB in arthroscopic knee surgery could achieve the goals of postoperative pain control and quadriceps muscle power preservation which are essentials for early functional recovery. However, more RCTs may be needed to confirm the efficacy of the ACB and the possibility to replace the femoral nerve block for postoperative pain control in the arthroscopic knee procedures. Keywords: Adductor Canal Block; Saphenous nerve block; Subsartorial nerve block; Knee arthroscopy; Postoperative analgesia; Quadriceps muscle; Meta-analysis; Randomized controlled trials

Abstract no.: 42814

ELASTIC STABLE INTRA-MEDULLARY NAILING IN MANAGEMENT OF PEDIATRIC FEMORAL SHAFT FRACTURES VERSUS CONSERVATIVE MANAGEMENT WITH SKIN TRACTION FOLLOWED BY SPICA CAST

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Background: Pediatric femoral shaft fractures are common orthopaedic injuries. Conservative management with early spica casting or traction followed by spica casting is considered the standard treatment. Recently, light have been thrown on internal fixation especially elastic stable intra-medullary nailing (ESIN). Patients and Methods: Between May 2013 and January 2014, a randomized controlled study was conducted on 33 patients with unilateral pediatric femoral shaft fractures. The subjects were divided into 2 groups; a group managed with TEN, the other was treated conservatively. In the TEN group there was 17 patients, with a mean age of 7.5 years (4-15). In the conservative group we treated 16 patients. Their mean age was 7.7 years (4-12). At the last follow-up, patients in the operative group were 9 (60%) excellent, 3(20%) satisfactory, 3(20%) poor according to Flynn's scoring criteria. In the conservative group, 3(20%) were excellent, 4(26.7%) were satisfactory, 8(53.3%) were poor. We found statistically significant difference between both groups regarding angular deformities (p-value 0.003 for saggital angulations and 0.033 for coronal angulations), knee range of motion at 3 and 6 months follow-up (p-values 0.011 and 0.003 respectively), hospital stay (p-value 0.000) and total Flynn's score (p-value 0.03). Spica casting was significantly cheaper than ESIN (p-value 0.000). Conclusion: Conservative management is cheaper than operative management with ESIN. ESIN is a safe and efficient method of treatment that supersedes conservative management in shorter hospital stay, earlier knee range of motion, less angular deformities. Key words: Elastic, nails, femur, pediatric, fractures, spica

Abstract no.: 42820

ANALYSIS OF FACTORS INFLUENCING THE RECURRENCE OF LUMBAR DISC HERNIATION AFTER MICRO ENDOSCOPIC DISCECTOMY (MED)

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【Introduction】 Favorable results of MED for lumbar disc herniation have been reported. The problem of recurrence in early postoperative period has been indicated. The purpose of this study was to analyze risk factors for the recurrence of lumbar disc herniation after MED. **【Materials and Methods】** The subjects were 634 patients who had undergone MED for mono-segmental lumbar disc herniation who consisted of 470 men and 164 women with a mean age of 38.3 years. The JOA score improved from 13.0 ± 5.4 preoperatively to 27.5 ± 2.3 postoperatively with improvement rate of $81.8 \pm 33.7\%$. Rolland - Morris and Oswestry were also improved postoperatively. Recurrence was defined after the end of routine follow-up care after discectomy which once seemed improvement of symptoms. And when MRI detected luminance difference or instability, require the reoperation. The following six possible risk factors for recurrence were analyzed: age, gender, duration of surgery, type of herniation, if there is a luminance difference of end plate and lumbar stability. **【Result】** We performed discectomy with 43 patients (6.8%) who relapse. 22 patients (47%) relapse within one year. Multivariate logistic regression analysis identified the presence of a change in the brightness of end plates ($P < 0.03$) and stability ($P < 0.001$) as independent risk factor. **【Conclusions】** The results of statistical analysis suggest that patients who showed changes in the brightness of end plates and presence of lumbar instability are likely to have advanced disc herniation and should be carefully followed-up for recurrence. Key word) MED, Risk Factor, Postoperative Recurrence

Abstract no.: 42822

COMPARISON OF USABILITY BETWEEN ULTRASONOGRAPHY AND RADIOGRAPHY (TEAR DROP DISTANCE) IN CHILD HIP JOINT EFFUSION DIAGNOSIS

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Introduction: Difference in unaffected and affected side of tear drop distance (TDD) of hip joint frontal X-P view has been quoted as an evaluation of the effusion presence, in a transient synovitis of hip. Although it was lacking in the accuracy of the diagnosis, in addition to increase of TDD was not necessarily tied to effusion existence. As compared, ultrasonography is able to conclude easier of effusion presence. We measured TDD of the case that transient synovitis of hip with the effusion by ultrasonic, then examined about the effectiveness of difference in unaffected and affected side of TDD. Patients: 21 cases (male 11 cases, female 10 cases), that were diagnose transient synovitis of the hip. The mean age was 6.4 years (2 ~11 years). Methods: Ultrasonographic joint space (UJS) was measured. The case which existence more than 1mm of difference in unaffected and affected side was considered effusion positive. As to TDD, difference in unaffected and affected side of more than 2mm was effusion positive, and found these rates of agreement. Results and Conclusion: The mean UJS of affected side was 9.4 mm, unaffected side was 5.6mm. The mean TDD of affected side was 7.5mm, unaffected side was 6.7mm. Out of 21 cases which existence more than UJS 1mm of difference in unaffected and affected side, which recognized of meaningful difference in unaffected and affected side were 3 cases (14%). UJS is more useful in case of slight effusion. It was not able to judge the effusion presence only in TDD.

Abstract no.: 42825

**PEDIATRIC SURGICAL TREATMENT OF RESIDUAL HIP DYSPLASIA
COMPLICATED WITH AVASCULAR NECROSIS OF THE FEMORAL
HEAD**

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Introduction: Avascular necrosis of the femoral head makes reconstructive procedure difficult in residual hip dysplasia and aggravates prognosis. Purpose: review short- and mid-term results of pediatric surgical treatment of residual hip dysplasia complicated with avascular necrosis of the femoral head. Methods: Results of treatment of 18 children (20 joints) with avascular necrosis of the femoral head developed after closed reduction of DDH were studied. Mean age was 4 years (2,5-6). Distribution of AVN by Tonnis grading: III -12, IV - 8. Distribution of decentered joints: I – 3, II – 13, III –4. Ilizarov extraarticular reconstruction of articular components and drilling of the femoral head and the neck was performed in 16 cases. The above intervention was combined with open reduction of dislocation in four observations. Results were followed from 2 to 6 years. Clinical outcomes were evaluated by Mc Key: class I– 6, class II– 11, class III– 2, class IV– 1. Radiological results according to Severin: IIA type – 14, IIB type – 4, type III - 2. Degree of head restoration was evaluated according to Meyer: I – 3, II – 13, III - 4 joints. Distribution of joints according to Coleman: I – 3, II – 3, III – 12, IV – 2. Positive results were achieved in 85.7% of the cases. Conclusion: Reconstructive procedures combined with drilling of articular components and decompression with external fixation provide positive influence on reparative processes in ischemic necrosis of the femoral head.

Abstract no.: 42826

MANAGEMENT OF ADOLESCENTS WITH DYSPLASTIC COXARTHROSIS

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Introduction: The significance of pelvic and femoral osteotomies in the condition of developed arthrosis is still disputable. Early osteoarthritis and dis-congruency of the articular surfaces are evaluated by many specialists as contra-indication for the joint preserving operation. Purpose: Review middle term results of reconstructive treatment in adolescents and young adults with dysplastic coxarthrosis Materials and methods: Treatment outcomes of 20 patients with dysplastic coxarthrosis were analyzed. Mean age at intervention was 14 years (12-20). The grade of arthrosis in joints were assessed according to Tonnis: I – 10, II - 7, III - 3. The type of congruence of articulare surfaces were assessed according to Coleman: III -8, IV – 12. All subjects underwent extraarticulare hip reconstruction with the Ilizarov apparatus included pelvic and femoral osteotomies. Results: Outcomes were followed from 5 to 12 years. Functional outcomes according to Merle d'Aubigne-Postel were: Pain $4,7\pm 0,1$ points. ROM – $4,1\pm 0,2$ points. Walking ability – $4,6\pm 0,1$ points. Radiographic findings according to Severin were: IIa - 9, IIb - 7, III – 4. The grade of arthrosis was unchanged in 14 cases, progressed one grade in 2 joints, reduced in 4 cases. Considering clinical and radiological picture the positive outcomes made up 82%. Conclusions: application of reconstructive operations with Ilizarov frame allows to extend fairly the indications for extra-articular reconstructive invasions in dysplastic coxarthrosis. Improved congruence of the articular surfaces in conditions of osteoarthritis in most cases leads to a slowing of progression.

Abstract no.: 42827

**TENDON SPLITTING VERSUS TENDON SPARING APPROACH IN
FIXATION OF EXTRA-ARTICULAR PROXIMAL PHALANGEAL
FRACTURES WITH MINIPLATES AND SCREWS**

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Introduction: Unstable phalangeal fractures constitute a challenge for surgeons with many options for operative treatment. Miniplates fixation of these fractures have the advantages of stability and neutralization of bending, rotational and shear forces. Our study compared the functional results of extensor tendon splitting approach versus extensor tendon sparing approach in extra-articular proximal phalangeal fractures fixed with miniplates and screws. **Methods:** in a randomized prospective study we compared two groups of patients; group (A) of extensor tendon splitting approach (24 fractures in 21 patients with average age 31.9 years) versus a group (B) of extensor tendon sparing approach (26 fractures in 19 patients with average age 30.8 years). The final results were assessed with Total Active Range of Motion (TAM), Grade of TAM, Grip strength and Quick DASH Score. **Results:** TAM $\geq 220^{\circ}$ was achieved in 79.2% and 84.6% of fractures in group A and B respectively. There was only significant reduction in grip strength in group A as compared to group B (45.9 \pm 8.4 Kg versus 51.7 \pm 7.3 Kg) while other parameters showed slightly better results in group B compared to group A but the differences were statistically insignificant as regard time to union (5.3 \pm 1 versus 5.6 \pm 1.1 weeks), TAM (226.8 \pm 18.4 $^{\circ}$ versus 233.2 \pm 17.5 $^{\circ}$), grading of TAM (excellent score 75% versus 80.8%) and quick DASH score (12 \pm 9.2 versus 11.5 \pm 8.3). **Conclusions:** meticulous surgical dissection, anatomical closure of layers and early active mobilisation are the keys to success in fixation of phalangeal fractures regardless the approach chosen.

Abstract no.: 42830

THE EFFECTS OF TERIPARATIDE AND DENOSUMAB ON BONE METABOLISM

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Introduction: We examined the effects of teriparatide and switching from teriparatide to anti-RANKL (receptor activator of nuclear factor κ B ligand) monoclonal antibody in ovariectomized mice to compare the differences of bone mineral densities (BMD) and histological findings. **Methods:** Twelve-week-old female C57BL/6 mice were ovariectomized or sham operated (SHAM group). Four weeks after the surgeries, the ovariectomized mice were subjected to one of the following four treatment options; PBS for 8 weeks (OVX group), PTH for 4 weeks followed by PBS for the next 4 weeks (PTH4W group), PTH for 8 weeks (PTH8W group) and PTH 4 weeks followed by anti-RANKL antibody (single injection of 5mg/kg) (SWITCH group). All mice were sacrificed 12 weeks after the operation. BMD was measured at the tibia, femur and lumbar spine. Hind limbs and lumbar spines were subjected to histological and histomorphometric analysis. **Results:** BMD increased similarly in the PTH8W and the SWITCH groups, while BMD in the PTH4W group had decreased significantly after discontinuation of the treatment. In the cancellous bone, histomorphometric analysis demonstrated that both bone formation and resorption increased significantly in the PTH8W group and were suppressed significantly in the SWITCH group. In contrast, in the cortical bone, bone formation increased on the periosteal surface in the PTH8W group and the SWITCH group, while that on the endocortical surface was suppressed in the SWITCH group. **Conclusion:** Anti-RANKL antibody is a good treatment option after discontinuation of teriparatide therapy, in particular for cortical bones.

Abstract no.: 42833

SUPERFICIAL VANCOMYCIN COATING (SVC) OF BONE CEMENT IN REVISION ARTHROPLASTY

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Background: A new surgical technique has been established to further increase the local antibiotic concentration and thereby minimize the risk of reinfection. Our study aim was to investigate the safety of additional superficial vancomycin coating (SVC) by analyzing postoperative joint serum vancomycin concentrations, as well as the creatinine levels of patients with orthopedic revision surgery. Patients and Methods: We reviewed prospectively collected data of patients, who were treated by SVC during revision surgery. In total 33 cases in 27 patients were included into the study. Vancomycin levels were obtained local from drains and systemic from blood samples on postoperative days 1 to 5. Furthermore, pre- and postoperative serum creatinine levels were analyzed. Results : Highest median local vancomycin levels were documented on postoperative day 1 (538.2 µg/mL, range 44.4-1081.8). Median serum vancomycin level was 2.8 µg/mL (range <2.0-8.5) on the first postoperative day and lower than 2.0 µg/mL (range <2.0-7.2) from postoperative day 2 to 5. Neither an anaphylactic reaction nor other side effects to SVC were observed. Furthermore, no patient complained about subjective hearing loss. A creatinine increase of 0.5 mg/dL from baseline value was detected in one patient, who suffered preoperatively from a chronic kidney insufficiency. Conclusions: Our data showed that superficial vancomycin coating (SVC) of bone cement is an effective technique to enhance local concentrations of vancomycin without leading to systemic side effects. Based on these findings we conclude that SVC of bone cement is a safe method and a promising approach.

Abstract no.: 42834

MANAGEMENT OF SUPRACONDYLAR FRACTURE FEMUR NON-UNIONS WITH ALLOGRAFT - A NEW TECHNIQUE

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Introduction : Supracondylar fracture femur non unions pose a great challenge to the treating surgeon due to various factors like bone stock, age and the level of osteoporosis of the femur. We treated 8 such cases with allografts harvested from the bone bank associated with plating . Methods : 8 cases of resistant non union of the supracondylar femur fracture who were treated with surgeries before were operated using this technique . Mean follow up was 18 months . Surgical technique : Once the fracture site was exposed , the bone edges were freshened and the medial condyle region was augmented with the allograft (fibula strut in 6 cases and metatarsal in 2 cases) which was harvested and stored in the bone bank . LCP fixation and iliac crest bone grafting were also done to supplement the allograft . Results : All cases had a successful union at 8 months and had a good functional outcome at 1 year . Six cases had knee flexion upto 120 degrees and 2 cases had knee flexion upto 100 degrees . No infections were seen .Conclusion : Allograft usage is a useful modality to treat supracondylar fracture femur non unions, especially in the younger age group . Proper insertion of the graft along with LCP fixation give a very good result .

Abstract no.: 42835

INSTABILITY IN HIP ARTHROPLASTY. TREATMENT WITH CEMENTED CONSTRAINED ACETABULAR LINERS.

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Instability and in its extreme degree dislocation, represent the most serious complication of Total Hip Arthroplasty (THA). The objective of this study was to analyze the results using a cemented polyethylene model that captures the prosthetic head, preventing its dislocation. A retrospective study which reviewed 51 cemented constrained acetabular liners implanted in patients older than 75 years (75-98, average 83.1, SD: 4,8). We used a questionnaire collecting epidemiological data, original arthroplasty implanted, moment and type of dislocation, recurrence of luxation, as well as initial and final radiographic studies. The mean follow-up time was 22.8 months (limits 6-39, SD: 9,9). Of the 51 cases reviewed, 43 were women and in 42 cases more than 80 years old. In 38 patients this model was implanted in revision surgery (14 cases due to recurrent dislocation), and in the remaining because of cognitive impairment or poor muscle control. There was a single case of recurrent dislocation (1.9%). At the time of the final data collection 7 patients had died. Cemented acetabular constrained liners are a good option in senile patients with poor neuromuscular control, instability or recurrent dislocation after total hip arthroplasty.

Abstract no.: 42836

DOES THE USE OF POSTERIOR STABILIZED IN TOTAL KNEE ARTHROPLASTY CHANGES THE CLINICAL RESULTS?

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There is no agreement in the literature about the differences in clinical results of using Cruciate Retaining vs. Posterior Stabilized models in Total Knee Arthroplasty (TKA) The objective was to know the patient profile regarding the use of Postero-Stabilized (PS) or Cruciate Retain (CR) models and to analyze the results of the same TKA model. We analyzed 419 TKA of the same model in a multicenter study in 6 Spanish Hospitals. PS was used in 28.5%; No differences between groups in age, sex or Body Mass Index. The AKS, WOMAC and SF12v2 scales were used for clinical assessment. General Linear Model was used for the analyses of the results. In cases without (or less than 3°) preoperative deformity CR model were mainly used (84.6%) ($p < 0.001$). Surgical navigation was used in 38.5% of the total series. CR group was navigated in 28.1% and PS in 64.7% ($p < 0.001$). Clinical assessment at 1-year of follow up was better for the PS group in AKS, WOMAC and SF12v2 By analyzing the interactions between the CR/PS group, surgical navigation, preoperative deformity and surgeon experience, we found that CR-PS type only showed differences in the AKS Functional Scale. Preoperative deformity influences the SF12v2 and surgical navigation interacts with all scales. PS model was used in almost a third of all TKA. PS model was more used in cases with deformity and when navigation was added to the surgery. PS cases achieved better clinical results, but other factors interacted (navigation, deformity and surgeon experience)

Abstract no.: 42837

FEMORAL AND TIBIAL COMPONENT ROTATION IN NAVIGATED TOTAL KNEE ARTHROPLASTY. A CT STUDY

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There is controversy about the utility of navigation for improving the positioning of Total Knee Arthroplasty (TKA) in rotational plane. A Computer tomography (CT) was performed in a prospective study of 95 TKAs. Two groups were compared: the navigation and the mechanical guide group. A radiography of the lower limb and CTs of the femoral condylar region and the proximal end of the tibia were performed to measure rotational angulation. After TKA surgery, the radiography and the CTs were repeated to analyze the position of the prosthetic components in the rotational plane. We found a high correlation between femoral rotation measure through the epicondyle and final rotation (Cronbach's alpha 0.849) Also observed a high correlation between the tibial rotation measured at the top of the tibia and ankle (Cronbach's alpha 0.968). Navigation improved TKA femoro-tibial alignment, mostly when there were preexisting deformities $\geq 4^\circ$. The mean initial femoral rotation of the complete series was 6.7° and 2.7° at postoperative ($p < 0.001$). In the standard instrumentation group, the femoral rotation changed from 6.8° to 2.3° , whereas in the navigation group the femoral rotation changed from 6.5° to 3.1° ($p = 0.039$). Tibial rotation changed by 5.28° for the entire patient population but no differences were found when comparing navigation and standard instrumentation. Navigation improves frontal alignment in TKA, especially in the presence of preoperative deformities. In the femoral component, navigation improves the rotational position.

Abstract no.: 42839

IS SYNDESMOTIC SCREW REMOVAL NEEDED BEFORE WEIGHT-BEARING AMBULATION?

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Introduction. Syndesmosis screw should be removed prior to weight-bearing or not is still debated. The aim of this study is to compare the functional outcome between screw removal and retain group, and between diastasis and no diastasis group. Methods. Fifty-six patients had undertaken open reduction and internal fixation due to syndesmosis injury, who divided into 4 groups; (A) syndesmotoc screw removal before weight-bearing (postoperative 3 months, n=28) and (B) retained group (n=28), (C) recurrence of diastasis (n=8) and (D) no diastasis (n=20) after screw removal. Radiological diastasis, VAS, AOFAS ankle-hindfoot score, SF-12, complications (screw loosening and breakage) were evaluated between groups. Results. There is no significant difference between group A and B in AOFAS ankle-hindfoot score and SF-12 ($p=0.487$, $p=0.319$). Radiological diastasis significantly develops ($p=0.025$) in group A (8/28) compare to B (1/28), but screw loosening or breakage significantly develops ($p=0.001$) in group B (4/28) compare to group A (0/28). AOFAS ankle-hindfoot score shows 70.33 ± 6.22 in group C, 76.50 ± 10.26 in group D, and SF12 shows 49.85 ± 3.83 in group C, 47.40 ± 8.01 in group D, there is no significant difference between group C and D in AOFAS ankle-hindfoot score and SF-12 ($p=0.808$, $p=0.065$). Conclusions. Diastasis recurrence is significantly higher in removal group. But, screw retain group shows higher breakage and loosening rate. Clinical outcome is no significant different in two groups. Also, if diastasis recurred, it did not affect clinical outcome. Therefore, we couldn't conclude that syndesmotoc screw removal is needed before weight-bearing (postoperaive 3 months).

Abstract no.: 42841

EFFECTS OF THIRD FRAGMENT SIZE AND DISPLACEMENT ON NONUNION OF FEMORAL SHAFT FRACTURES AFTER LOCKING FOR INTRAMEDULLARY NAILING

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Introduction. Femoral shaft fractures with large fragments often results in non-union. The purpose is to assess: 1) the more influential factor of non-union: the degree of fragment displacement, or the fragment size? 2) the non-union rates according to different sizes and degrees of displacement. **Methods.** Fragments of 64 cases were divided into according to the length of their long axis: Group A (0-3.9 cm), (n=21); Group B (4-7.9 cm), (n=22); Group C (8 cm or more), (n=21). Fragment displacement was also assessed in the proximal (P) or distal (D) end to the nearest cortex of the femoral shaft, and divided into the following groups: Group P1 (n=44) or D1 (n=47), (0-9 mm); Group P2 (n=10) or D2 (n=11), (10-19 mm); Group P3 (n=7) or D3 (n=3), (20-29 mm); and Group P4 (n=3) or D4 (n=3), (30 mm or more). **Results.** The bone union rate was 86% in the small (less than 8 cm) fragment groups and 71% in the large (8 cm or more) fragment group ($P=0.046$). With respect to the degree of displacement, the union rate was lower ($p=0.001$) and the average union time was longer ($p=0.012$) in the 20 mm or more group for both the proximal fragment part and the distal fragment part ($p=0.002$, $p=0.014$). **Conclusion.** Nonunion develops significantly more frequently in femoral shaft fractures with fragments 8 cm or longer or when the displacement in the proximal area is 20 mm or greater and 10 mm or greater in the distal area during the intramedullary nailing procedure.

Abstract no.: 42849

CUBITAL TUNNEL SYNDROME: OUTCOMES OF SURGERY

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Aim: To assess the outcomes of surgery for patients treated for Cubital Tunnel Syndrome.
Method: The Trust Orthopaedic surgery database was searched for patients suffering from Cubital Tunnel Syndrome who underwent surgery between the period of September 2011 and September 2014. Forty-six patients were randomly selected and their clinic letters, ulnar nerve conduction studies and operative notes were reviewed. QuickDASH questionnaire was sent out via post to assess their functional outcome post-operatively.
Results: The total number of procedures done was 51. 90.2% had decompression and medical epicondylectomy whilst the remaining 9.8% had simple decompression of the ulnar nerve. Three patients were lost to follow up and were excluded. Nerve conduction studies reported 41.2% suffered from moderate to severe ulnar nerve neuropathy whilst 17.6% were reported as normal. Post-operatively, 72.7% of patients reported an improvement in pain, 58.7% had improved sensation and 78.6% reported a decrease in functional impairment. There was a 15.1% complication rate with inflammation, difficulty in elbow flexion and stiffness. Overall, 82.6% reported a general improvement at the time of clinic discharge. Of those with normal nerve conduction studies, 87.5% reported improvement. We had a 39.5% return rate for the QuickDASH questionnaire with a mean score of 29.5.
Conclusion: Outcomes comparable to literature outcomes. A normal nerve conduction study does not completely exclude a patient from suffering from cubital tunnel syndrome. An objective assessment pre- and post-op using an objective assessment tool such as the QuickDASH is recommended.

Abstract no.: 42850

COMPARISON OF KNEE FUNCTION IN SINGLE BUNDLE VERSUS DOUBLE BUNDLE ARTHROSCOPICALLY ASSISTED POSTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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Introduction:This prospective study compared the clinical results of single- and double bundle posterior cruciate ligament (PCL) reconstruction with a minimum follow-up of 18 months. **Objectives :**To evaluate and compare outcome measures of knee function , ligament laxity in single bundle vs double bundle PCL reconstruction: **Methods** There were 24 patients including 12 single- and 12 double-bundle posterior cruciate ligament reconstructions using hamstring autograft. The average age was 29:4 years versus 28:2years. The indication for surgery was functional disability of the knee due to pain and instability as the result of high-energy PCL injury. The evaluation parameters included functional assessment, ligament laxity, functional score and radiographs of the knee. **Results:** The results showed no significant difference in functional assessment, ligament laxity, functional score and radiographic changes of the knee between the two techniques. The rate of overall satisfaction with the operation was comparable from patient and surgeon perspectives. **Conclusions:** Contrary to many recent reports, the results of this study showed that single- and double-bundle PCL reconstruction using hamstring autograft produced comparable clinical results in medium-term follow-up. The difference between single and double-bundle PCL reconstruction, if any, can be concluded only with long-term results and larger number of patients

Abstract no.: 42851

EFFECT OF DRAINS ON KNEE FUNCTION AFTER ARTHROSCOPICALLY ASSISTED DOUBLE BUNDLE ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION,

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Introduction:There is a paucity of literature evaluating the use of intra-articular drains after Arthroscopically assisted Double bundle (DB) anterior cruciate ligament reconstruction (ACL) and their effects on knee function. **Objectives:** The aim of this study is to determine the effect of postoperative drain use on knee function after DB ACL reconstruction with quadrupled hamstring graft. **Methods:** In this study, 58 arthroscopic DB ACL reconstruction patients were randomized for either intra-articular suction drain group or non-drain group. Outcome Assessment was done on postoperative day 4, day 10, 1 month, 3, 6 and 12 months after the surgery in which patients were asked to complete a visual analogue pain scale. They were assessed for range of motion in flexion and extension with a universal goniometer, knee effusion and knee stability by Lachman's test. **Results:**Both treatment and control groups showed no statistical significant difference in flexion of the knee through the range of motion. ($p = 0.116$). The percentage reduction in knee effusion was found to be statistically significant at 4th ($p < 0.001$), 10th ($p < 0.001$) 16 and one month ($p = 0.012$) in between treatment and control group. The overall pain difference between the two groups was not found to be statistically significant. ($p = 0.198$). **Conclusions:** Clinically the drain group showed faster pain relief, lesser effusion and early return to motion compared to the no drain group but was not statistically significant

Abstract no.: 42852

EFFECT OF TOURNIQUET USE ON BLOOD LOSS AFTER TOTAL KNEE ARTHROPLASTY

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Introduction:The use of the pneumatic tourniquet has been advocated in total knee arthroplasty (TKA) to minimize blood loss and to improve visualization in the surgical field. However there are significant risks associated with the use of tourniquets. **Objectives:** We conducted a prospective, randomized study on primary total knee replacements to evaluate the effects of tourniquet use on total calculated blood loss and knee function. **Methods:** Twenty patients were operated on with the use of an tourniquet with pressure of 350 mmHg (group A), and 20 patients without the use of a tourniquet (group B). Total blood loss was calculated using post-operative measured blood loss, operating time, need for blood transfusion and knee function, post-operative pain, analgesia requirement and knee flexion were measured and compared in between two groups. **Results:** Total calculated blood loss was significantly increased without the use of a tourniquet. There was no significant difference in measured blood loss or operating time. The median units of blood given were similar in both groups. At 6 h post-operatively pain was significantly less in group B but was similar at 24 and 48 h. There was no significant difference in analgesia requirement. The mean change in total flexion in group B was significantly better ($P < 0.001$) at 5 days than in group A, but knee flexion was similar at 10 days and 3 months. **Conclusions:** Knee arthroplasty operations without the use of a tourniquet cause a greater blood loss but have only small benefits in the early post-operative period

Abstract no.: 42853

USE OF PLATELET RICH PLASMA TO ENHANCE OUTCOME OF UNSTABLE MENISCAL TEARS

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Introduction: Unstable meniscal tears are common injuries in skeletally mature patients. Loss of a meniscus increases the risk of subsequent development of degenerative changes in the knee **Objectives:** This study deals with the use of platelet rich plasma in assessing outcome of intraarticular meniscal repair and factors that affect healing. **Parameters of interest** were type and location of the tear and also the influence of simultaneous reconstruction of a ruptured ACL. **Methods :** We investigated the outcome of 25 patients (29 menisci) aged 28(18– 38) years who underwent surgery for full thickness meniscal tears, either as isolated lesions or in combination with ACL ruptures. Intraoperative documentation followed the IKDC 2000 standard. Outcome measurements were the Tegner score (pre- and postoperatively) and the Lysholm score (postoperatively) after an average follow-up period of 2.3 years, with postoperative arthroscopy and MRT in some cases. **Results :** 24 of the 29 meniscal lesions healed (defined as giving an asymptomatic patient) regardless of location or type. 4 patients re-ruptured their menisci (all in the pars intermedia) at an average of 15 months after surgery following a new injury. Mean Lysholm score at follow-up was 95, the Tegner score deteriorated, mean preoperative score: 7.8 (4–10); mean postoperative score: 7.2 (4–10). Patients with simultaneous ACL reconstruction had a better outcome. **Conclusions:** All recurrent meniscal tears in our patients were located in the pars intermedia; the poorer blood supply in this region may give a higher risk of re-rupture. Simultaneous ACL reconstruction appears to benefit the results

Abstract no.: 42862

COMPARISON OF NAILING (PFNA) AND PLATE OSTEOSYNTHESIS IN PATHOLOGICAL FEMORAL FRACTURE FORM METASTATIC BONE TUMORS

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Metastases to bone are the most common cause of a destructive lesion of the skeleton in an adult. Proximal femur is the most commonly affected bone with metastatic disease in the appendicular skeleton. Because of the anatomic unique position, strong mechanical construct is indicated to fix the pathologic fracture and provide immediate post operative weight bearing. 55 with proximal femur fracture which underwent ORIF due to metastatic tumor were included in our retrospective study. Among them, 39 patients received nailing and 16 received plating osteosynthesis. We compared demographic data including age, primary tumor, type of fracture were traced from charts. Outcome parameters includes post-operative MSTS score, blood loss intraoperatively, operation time, implant failure rate were compared. Better MSTS Score was found for our nailing group. Less blood loss was noted for nailing group. Higher implant failure rate (one-fourth) for plating group was noted, too. Both group have similar OP time. In our study, nailing showed better result and lesser blood loss in treating pathologic femur fracture.

Abstract no.: 42864

THE RELATIONSHIP OF THE PARTIAL MEDIAL MENISCECTOMY AND THE PROGRESS OF OSTEOARTHRITIS

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Introduction: The menisci have the important role of the absorption of the shock to the knee joint, and the total meniscectomy is most likely to introduce to osteoarthritis in the future. The aim of this study was to investigate whether the surgical meniscectomy of medial meniscus cause knee arthritis for long term. Methods: There were 30 knees 23 patients and the mean age was 36 years (range, 14 to 63). We performed partial meniscectomy arthroscopically in all patients. The average follow-up periods were about 17 years. Clinical findings were evaluated by Japanese Orthopedic Society osteoarthritis assessment (JOA) score. The radiographic assessment of osteoarthritis was used with Kellgren and Lawrence (KL) grade and of alignment was examined with Mikulicz line. At operation, grade 3 included 0 knees, grade 2 : 1 knees, grade 1 : 6 knees, grade 0 : 23 knee. Results: The average JOA score were about 78 points at follow-up. The progress of osteoarthritis with one grade was recognized in 30 % patients. There were 17 % cases of the progress with more two grades. Patients with high activity tended to proceed with varus malalignment after meniscectomy. All patients did not need the secondary operation such as high tibial osteotomy, and total or hemi-knee arthroplasty. Discussion: The meniscectomy of medial meniscus might not make great progress of osteoarthritis. We should indicate the endoscopic partial meniscectomy than unreasonable root repair not to lead degenerative change. However, there was some possibility that the activity might influence to OA progress.

Abstract no.: 42865

MINIMALLY INVASIVE THR IN A POST-TRAUMATIC ABOVE KNEE AMPUTEE-A CASE REPORT

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Introduction:Total hip replacement is a highly successful operation in alleviating pain and improving the overall function of the hip in end-stage arthritis of the hip in otherwise fit patients. But Total hip replacement as a surgical option in a post-traumatic hip arthritis in ipsilateral above knee amputation is rarely reported. **Case report:**We are presenting a case report of a 30 year old male, who had previously underwent an above knee amputation due to Road Traffic accident, presenting 24 hours after the injury with segmental fracture femur and ipsilateral popliteal artery laceration for which the limb could not be salvaged. He also had an impacted antero-inferior dislocation of the ipsilateral hip joint with significant cartilage damage of the femoral head which required open reduction. Subsequently, he developed traumatic arthritis of the involved hip which required conversion to an uncemented total hip replacement using a minimally invasive anterolateral approach. The pre-operative management, surgical technique and post-operative rehabilitation are described to highlight the technical challenges these lower limb amputees may present along with review of literature of such rare cases. **Conclusion:**Total hip replacement in an above knee amputee with post-traumatic hip arthritis using minimally invasive technique is an encouraging surgical option for early functional recovery and minimizing surgical complications.

Abstract no.: 42866

SIMILAR LEVELS OF PAIN ARE REPORTED IN FOREFOOT SURGERY AFTER MANAGEMENT AS A DAY CASE AND ADMISSION FOR 48 HOURS

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Introduction: At present, there are no specific guidelines for foot-surgery procedures that can be performed on a day-surgery basis. The present study assessed early postoperative pain after forefoot day-surgery versus conventional 48-hour admission. Hypothesis: The hypothesis was that there is no difference in the level of pain perceived between day-surgery and hospitalization. Methods: All patients operated for forefoot surgery by one senior surgeon (JLB) were included; those eligible according to SFAR (French Society of Anesthesia and Reanimation) criteria were managed by day-surgery. Four groups were distinguished according to surgical procedure. Results: 317 patients were included; 40% were operated on in day-surgery. Those hospitalized were significantly older ($p=0.0006$) and with higher ASA scores ($p=0.0024$) without difference in comorbidity. The most severe daily pain was on day 1 ($4.2/10\pm 2.5$ in day-surgery, $4.4/10\pm 2.4$ in hospitalization; $p=0.53$) without significant difference between groups. Pain was extreme ($\geq 8/10$) for 9% of day-surgery patients and 11% of those hospitalized. Only one day-surgery patient had crossover, for bleeding. Day-surgery patients described significantly more frequent disappearance of pain after day 7 ($p=0.02$). Discussion: Forefoot day-surgery is thus feasible, in collaboration with anesthetist and patient, without risk of more pain and complications.

Abstract no.: 42879

INTRAARTICULAR PLATELET-RICH PLASMA APPLICATION IN TREATMENT OF KNEE ARTICULAR CARTILAGE DEFECTS: THE EXPERIMENTAL STUDY

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Introduction: Platelet-rich plasma (PRP) application has become a popular approach to improve bone and soft tissue healing. The aim of this study was to assess the efficacy of intra-articular PRP injections for the treatment of knee articular cartilage defects in a rabbit model. Methods: Chinchilla rabbits (n=10) were subdivided into two groups. Full-thickness articular surface defect (diameter 3mm, thickness 3mm) in the load-bearing area of the left knee patellar groove was created in the first group of animals (n=5). Partial-thickness articular surface defect (diameter 3 mm, without subchondral bone perforation) was created at the same area in the second group of animals (n=5). After wound closure 0.5 ml of PRP was injected into the knee joint. In order to form control groups the same articular surface defects were created at the contralateral knee in the first and the second group of animals and 0.5 ml of 0.9% NaCl solution was injected into the joint. Healing of the defects was histologically evaluated using O'Driscoll scale at 11 weeks after defect formation. Results: The O'Driscoll Score in the full-thickness defect group treated with PRP was significantly higher in subclasses "tissue morphology", "matrix staining", "structure integrity", "thickness of neo-formed cartilage", "chondrocyte clustering", "inflammation" (p<0.05) comparing with the control group. The O'Driscoll Score in the partial-thickness defect group treated with PRP was significantly higher in subclasses "inflammation" and "hypocellularity" (p<0.05). Conclusion: Intra-articular PRP injections improve cartilage healing in both full-thickness and partial-thickness articular surface defects of the knee.

Abstract no.: 42881

OPERATIVE TREATMENT OF SUPRACONDYLAR-INTERCONDYLAR FRACTURES OF THE FEMUR – NEWER SURGICAL APPROACH

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Supracondylar-intercondylar fractures of the femur should be analyzed separately from other fractures of the distal end of the femur because of their intra-articular involvement. Main problem encountered in these fractures is adequate exposure of articular surface, particularly of medial femoral condyle and coronal plane fractures. In the case of complex intraarticular fractures, it may be necessary to increase the exposure of the articular area of the distal femur beyond what is possible with the standard lateral technique alone. Accordingly, this newer Surgical approach provides a possible solution to these problems through double plating with adequate exposure of medial, lateral, anterior and distal femoral articular surface, and allowing anatomic reduction of articular fracture fragments and rigid fixation for early mobilisation. Approach is similar to olecranon osteotomy with elevation of triceps muscle, for exposure of intraarticular fracture of distal humerus. Mid-line skin incision centering over the patella and extending proximally upto supracondylar area. Lazy 'V' shape (Chevron) osteotomy of patella done with help of saw at the junction of upper 2/3 and lower 1/3 of patella. Upper pole of patella along with Patellar tendon and Quadriceps muscle attachment (entire extensor mechanism) is retracted proximally after releasing medial and lateral retinaculum exposing the fracture fragments and distal femoral articular surface. Definitive fixation began with lateral locked distal femur plate application, and finally application of the contoured medial plate for medial column continuity. It has the advantage of complete and anatomical reconstruction of these severe injuries. Implant removal is a problem, as osteotomy of patella or, otherwise two separate medial and lateral incisions are not justified.

Abstract no.: 42883

BARRIERS TO THE USE OF VENOUS FLAPS IN THE UK: A SYSTEMATIC REVIEW AND QUALITATIVE ANALYSIS OF UK HAND SURGEONS' EXPOSURE AND USE

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INTRODUCTION: Soft tissue defects in the hand pose complex management problems not encountered in other parts of the body. The venous flap offers a pliable, high functioning alternative to conventional arterial flaps, with low donor site morbidity. **METHODS:** A systematic review was conducted using AMED (1985 to September 2014), CINAHL (1982 to September 2014), EMBASE (1950 to September 2014) and MEDLINE (1950 to September 2014). Following data analysis UK surgeons who were members of the British Society for Surgery of the Hand were surveyed to identify their understanding of venous flap application, and potential barriers to their usage in the UK. **RESULTS:** 375 search results were returned, from which 38 papers were included after exclusions. Venous congestion rates were high (60%), but 100% flap survival rates were also high (87.9%). Total flap failure occurred in 2.4%. Return to theatre occurred in 3.9% of cases. Venous congestion compromising flap viability occurred in only 0.3% of cases. UK surgeons and surgical trainees had a poor understanding of the applicability of venous flaps. Few had been involved or performed venous flaps. Interest level were high, suggesting that exposure to these procedures during training would increase the use of this low morbidity flap. **Conclusions:** Venous flaps have a high early venous congestion rate, which can almost always be managed non operatively. UK hand surgeons have poor experience of the use of venous flaps, and are rarely exposed to them during training. Further exposure would increase their use.

Abstract no.: 42884

EVIDENCE FOR IMAGING THE INJURED CHILD'S PELVIS AND A LITERATURE BASED MANAGEMENT PROTOCOL

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INTRODUCTION: Pelvic injuries have an incidence of 100,000 children per year in the UK, of which up to 10% are unstable. The most common injury is a lateral compression type with high potential for pelvic visceral injury. The most common complication is urethral stricture (23%) with long term incontinence and erectile dysfunction rates of 13%. The majority of UK trauma units managing childrens' injuries have no defined imaging protocol. The high cartilage content of the paediatric pelvis leads to a different pattern of injury, and makes management according to adult guidelines inappropriate. **METHODS:** A literature review was conducted using the databases AMED, CINAHL, EMBASE, MEDLINE as well as grey literature databases and conference proceedings. Papers describing the use of all imaging modalities for pelvic injury in children were identified. Descriptions of existing imaging protocols were searched. Royal College guidelines were identified. **RESULTS:** There was no existing evidence based protocol for the imaging of the injured pelvis. We therefore extracted relevant data from our search and compiled a novel protocol for the radiological investigations appropriate to each injury pattern. **CONCLUSIONS:** No existing protocol exists for the management of paediatric pelvic injuries in the UK. We present a novel flow-chart based protocol for their investigation.

Abstract no.: 42886

EARLY OPERATIONS ON PATIENTS WITH PROXIMAL FEMORAL FRACTURES IN JAPAN

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BACKGROUND: The number of patients with proximal femoral fractures is increasing rapidly. Previous studies on the timing of surgery for this fracture provide conflicting evidence to the effect of prolonged delay before the operation. According to the JOA's report, mean waiting period to surgery is still 4.4 days in Japan. In this report, we evaluated our operations on patients with these fractures and the current situation in Japan. **METHODS:** We included 795 consecutive patients with hip fractures who were admitted to our hospital between April 2011 and March 2015. The mean age of patients was 83 years. There were 319 patients with femoral neck fractures and 461 patients with intertrochanteric fractures. 1.9% cases with conservative treatments due to severe comorbidities were excluded. The outcomes were assessed by fracture type, the length of hospital stay and blood transfusion rate. **RESULTS:** Surgeries involved either internal fixation or hemiarthroplasty for femoral neck fractures. Those with trochanteric fractures were operated on with intramedullary nails. 80% of operations were undertaken within 48 hours. Weekday admissions were 536 cases and weekends were 244 cases. 33% of patients were treated with blood transfusion, 32% in the early operation group and 36% in the delayed operation group. There were no relationships between the two groups about fracture type and transfusion rate. Post-operative hospitalization was 15.2 days in the early operation group and 16.7 days in the delayed operation group. In conclusion, early operations on patients with proximal femoral fractures should become mainstream in super-aged society Japan.

Abstract no.: 42887

TRANSFUSION REQUIREMENTS IN SUBTROCHANTERIC FEMORAL NECK FRACTURES:

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Introduction: Hip fractures are associated with considerable morbidity and mortality in the elderly. Allogeneic blood transfusions (ABT) are associated with an increased long-term mortality in these patients. This study assesses transfusion requirements in subtrochanteric fractures, which are a complex and challenging subgroup of hip fractures. **Methods:**The National hip fracture database identified 559 hip fractures, with 34 subtrochanteric fractures in our teaching hospital over a 1 year period. Following exclusion criteria, 27 patients were left for further analysis (mean age of 81 years (59-97 years)) with 6 patients (22.2%) being male. Hospital computer systems were reviewed to determine relevant bloods and transfusion requirements. **Results:**Most patients received an intramedullary nail (26), with the mean time to theatre 27.9 hours, and 48.1% were done within 24 hours. Most patients were ASA 2 or 3 (13 each) with one ASA 4 patient, and most had a general anaesthetic (26). The mean pre-operative haemoglobin for male and female patients was 10.4g/dl and 11.1g/dl respectively. A total of 22 patients (81.5%) were transfused during admission. No patients were transfused pre-op, and 12 and 15 patients were transfused intra or post-operatively respectively (5 had both intra and post-operative transfusions). For those transfused, a total of 69 units were administered with a total cost of £8,349 (figure of £121/ unit of red blood cells from the Welsh blood service) and equated to 3.1 units per patient. **Conclusion:** ABT rate in subtrochanteric fractures is markedly higher (81.5%) than overall rates for hip fractures in other studies (40-50%).

Abstract no.: 42888

DOES DENOSUMAB ADMINISTRATION INCREASE LUMBAR VERTEBRAL STRENGTH OF BONE METASTASIS PATIENTS ?

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Purpose: The purpose of this study was to examine the usefulness of administration of denosumab (antibody to tumor necrosis factor superfamily member 11) as a preventive therapy for skeletal-related events (SREs), such as fracture or paralysis, by computed-tomography (CT)-based on the finite element method (FEM). **Methods:** Patients who had undergone treatment for vertebral metastases with denosumab administration from December 2013 to August 2015 at our Institution were reviewed. CT data of subjects for all patients were obtained with calibration phantom before treatment. We investigated patient data at the time before denosumab administration and at 1, 3 and 6 months using CT. Patient's data including gender, age, performance status (PS), cancer site, laboratory data, Katagiri's score, visceral or cerebral metastases, adjuvant treatment and Numerical Rating Scale (NRS) were also surveyed. **Result:** A total of six patients were eligible; four males and two females with ages ranging from 35 to 73 years, with a mean age of 56 years. Statistical significance of differences was evaluated with repeated measures analysis of variance (repeated ANOVA). It showed a significant increase ($p=0.0055$, $F=10.67$). In addition, NRS score improved in all cases. **Conclusions:** To our knowledge, this is the first article to substantiate the effects of the SRE-preventative drug denosumab. But we have to eliminate a lot of confounding factors and plan the new prospective study by conforming the primary lesion, staging and the adjuvant therapy in the future.

Abstract no.: 42893

OUTCOME OF MRI DETECTED FRACTURE NECK OF FEMUR.

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Aim: Hip fractures in the elderly are a major cause of morbidity and mortality. Patients' initial hip radiographs may seem normal but subsequent MRI scan can identify occult hip fracture. The present study aimed to evaluate the outcome of patients who had occult hip fractures diagnosed by MRI scan. **Methods:** Retrospective analysis of data from 70 elderly patients with occult hip fractures diagnosed by MRI, over a period of nine years was done (2005-2014). Patient characteristics such as age, gender, side of injury, time for MRI diagnosis and duration of hospitalisation, surgical procedure and discharge destination were identified using existing hospital database. Various categories of patients were defined for the purpose of statistical comparison. **Results:** The data analyses of 70 patients (27 males and 43 females) revealed that a significantly higher number of patients were discharged home as compared to NICE commissioning guides (66% vs. 45%; p=0.002). Mortality was less in patients who underwent internal fixation (n=3/31) as compared to the joint replacement cohort (n=5/12) (p=0.05). **Conclusions:** A low impact injury associated with minimal soft tissue disruption and essentially an un-displaced fracture makes this particular specified group of patients excellent candidates for surgical treatment and early mobilisation. The current study is the largest series report demographics and outcomes in this select cohort.

Abstract no.: 42897

EARLY RESULTS OF CERAMIC ON CERAMIC BEARING TOTAL HIP REPLACEMENT FOR PATIENTS UNDER 65 YEARS

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A retrospective study with 65 THR in 56 patients (22 Male, 34 female) with a minimum of 1 year follow up were included for analysis. The mean age was 54.1 years (range 35-65 years). Primary hip osteoarthritis was the indication for THR in 54 patients, while the rest had secondary arthritis due to causes like hip dysplasia, avascular necrosis, inflammatory arthritis, septic arthritis and traumatic arthritis. All patients were operated by the senior surgeon between January 2008 and March 2013 using a modified lateral hip approach. All patients received a 36 millimeter ceramic head on a titanium alloy hydroxyapatite (HA) coated femur stem and a HA coated acetabular socket. At a mean follow up of 32.3 months (range 12-66 months) none of the hips failed nor needed any revision surgery. Symptomatic trochanteric bursitis was seen in 4 patients and one patient had a deep vein thrombosis, complicated by pulmonary embolism. No other complications like infection, dislocation or squeaking were identified. Radiological assessment did not show any signs of loosening of any component. There were 13 hips showing Brooker grade 1-2 heterotopic ossification. Our results match that of current literature evidence of the early to medium term outcomes with ceramic on ceramic THR. The absence of reported squeaking probably is because the patients were not actively quizzed about this complication, and we suggest that questioning about the noise from the hip joint should be part of post-operative assessment.

Abstract no.: 42898

THE SUPERFICIAL FASCIA ACTS AS A BARRIER TO SUPERFICIAL SOFT TISSUE TUMORS.

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Introduction:Diagnostic imaging modality using magnetic resonance imaging (MRI) is one of the useful methods for diagnosis of soft tissue tumors, but soft tissue tumors mostly show non-specific findings. In this study, we focused on MRI findings of subcutaneous soft tissue tumors, to evaluate the diagnostic usefulness of the relationship between tumors and their surrounding tissues in differentiation of benign or malignant lesions. **Methods:**The data from MRI information from 150 patients (men 75 women 75) with superficial soft tissue tumors, treated from Jan 2007 to Jun 2015 in our institution was collected. The median age at the time of first visit our institution was 53.7 years (range 9-87). The following parameters were evaluated, size, margin, lobulation, Hemorrhage, edema, and relationship between tumor and superficial fascia based on Galant classification. Comparison was made with definitive histological diagnosis. Fisher test was applied as appropriate. A p-value<0.05 was taken as representing statistical significance. **Results:**The statistical significance was observed in the factors of margin (p<0.0001), edema (p<0.0001), hemorrhage (p<0.01), relationship (p<0.01), but not in size (p=0.13), lobulation (p=0.85). **Discussion and Conclusion:**In the previous studies, only 24% of soft tissue lesions had a characteristic appearance that allowed diagnosis on MRI. We studied MRI features of superficial soft tissue tumors (150 cases). Margin, hemorrhage, edema, and relationship (Galant classification) were found to be highly significant factors indicative of malignancy.

Abstract no.: 42900

**SURGICAL TREATMENT OF RECENTLY AHILE'S TENDON RUPTURE –
AUGMENTATION OF SUTURE WITH GASTROSOLEUS FLAP**

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Acute Achilles tendon ruptures occur mostly in male patients, between 30 and 50 years of age, frequently associated with sports practice. The aim of the study is to evaluate the surgical treatment of recent ruptures through Krakow suture augmented with gastrosoleus turn down flap. We revised 18 cases with acute Achilles tendon rupture who underwent surgical correction between 2010 and 2013, with a 12 months average follow-up. We performed a modification of the Lindholm technique in which the primary Krakow suture repair of the tendon was augmented by a turn-down ~2 cm x 8 cm gastrosoleus aponeurosis flap. After 6 weeks, when cast was removed,, isometric and isokinetic ankle exercises were performed for 2 weeks. The AOFAS hindfoot score were used for clinical and functional analysis. Limitations in daily living and sports activities and global patient satisfaction were reviewed. Nearly all patients fully resumed their activities of daily living (95.6%) and 73.5% denied limitations is sports practice. Presently, in the Clinic of Orthopaedic-Traumatology of Constanta, most acute Achilles tendon ruptures are treated using these technique, as seem to be associated with a lower complication rate and good functional results. In conclusion, augmented repair of acute Achilles tendon ruptures using gastrosoleus fascial flaps are strong and stable enough to allow early weightbearing ambulation with favorable clinical results in most of the patients, provides a good outcome, but is associated with similar complication rates to the previous literature.

Abstract no.: 42901

MANAGEMENT OF PSEUDARTHROSIS AND FEMORAL IMPLANT FAILURE IN TRAUMATOLOGY – CASES PRESENTATION

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Objective: Management of the femoral implant failure is one the hardest situation faced in traumatology. Our study try to understand the causes which lead to pseudarthrosis after primary osteosynthesis of femoral fracture with breakage of the implant and to establish a therapeutical protocol which can be applied to these cases. Material. Methods.: We performed a retrospective study between 2011 and 2014, analyzing all patients with femur fractures treated in our hospital or in other hospitals but which came in our Clinic with pseudarthrosis and implant failure or breakage. Results: A total of 9 cases were introduced in our study: 2 trochanteric fractures, 3 trochantero-diaphyseal fractures, 2 diaphyseal fractures, 1 distal periprosthetic fracture, 1 supracondylar fracture. Every case had own particularities and the therapeutical stages were: choice of surgical approach, method of implant ablation with minimal bone loss, more stable osteosynthesis, bone graft. The time of the operation should be as short as possible to minimise infection risk. Conclusions: Pseudarthrosis of the femoral fracture with breakage of the implant is a tough situation for any surgeon. Understanding the causes which produced the implant failure and establishing a therapeutical strategy to correct them are the goal of the treatment.

Abstract no.: 42903

FIVE-YEAR RESULTS OF A NEW POLISHED TAPERED MODULAR CEMENTED STEM

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We report the results at 5 years of 113 hips treated with a new cemented tapered Cobalt-Chrome (Co-Cr) stem with a Titanium (Ti) modular neck . Twelve patients had died with their THR in situ at the time of review. Of the remaining 101 hips, 95 were reviewed. Mean age at surgery was 67,6 years (range 44 - 89). Survivorship of the implant (stem and modular neck) at a mean of 5,5 years (min 4 - max 7) was 100% with the endpoint revision for any reason. No implant was at risk for revision or showed signs of loosening. Clinical results were excellent. Mean HHS improved from 31 (range 2 - 68) to 90 (range 44 - 100) ($p < 0,0001$). Mean WOMAC-score improved from 30 (range 3 - 58) to 91 (range 46 - 100) ($p < 0,0001$). Mean UCLA Activity Score improved from 3 (range 1 - 6) to 6 (range 3 - 8) ($p < 0,0001$). The mean Oxford score was 44 (range 21 - 48) at follow-up. No patient reported clicking or squeaking. No measurable LLD was found in 88 hips (93 %) and 99% of hips were within 5mm limit of difference. No implant showed development of radiolucent lines, either at the stem-cement or cement-bone interface. No hip showed osteolysis or calcar resorption. The mean femoral subsidence of the stem within the cement mantel was 0,31 mm, (range min 0 - max 0,6 mm) after 5,5 years, showing a similar migration and loading pattern as the Exeter stem.

Abstract no.: 42904

METAL ION LEVELS IN CERAMIC-ON-CERAMIC THR WITH COBALT-CHROME MODULAR NECKS

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Purpose: We wanted to measure the level of Cobalt (Co) and Chromium (Cr) ions in serum of patients with unilateral Total Hip Replacement (THR) containing a Cobalt-Chrome (Co-Cr) stem and a Co-Cr modular neck. Methods: Serum ion levels were measured in 23 healthy volunteers with a well-functioning ceramic on ceramic THR of a particular design. Results: Average Co in serum was 1,71 µg/l; median Co was 1,50 µg/l. No patient had Co levels higher than 3,70 µg/l. Average Cr level was 0,49 µg/l; in all but one patient Cr was below the detection limit (<0,50 µg/l). Co was higher for varus necks compared to all other subtypes: 2,14 µg/l vs 1,58 µg/l (p= 0,03). Conclusion The hybrid THR Profemur Xm – Procotyle L with a Co-Cr modular neck on a Co-Cr stem design shows very low Cr ion serum levels in a randomly selected group of well-functioning hip patients. Co ion serum levels are low, but significantly higher for 8° varus necks. Co levels are higher than those reported for a THR with Ti modular neck using the same stem and cup design.

Abstract no.: 42905

A NEW SURGICAL TECHNIQUE TO THE POSITIONING OF HIP PROSTHETIC IMPLANTS: THE MEDIAL-INGUINAL APPROACH

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Introduction: seeking full compliance with the Tissue Sparing Surgery principles, we introduced this new surgical approach to the coxa-femoral joint via the medial inguinal region. Method: we performed total hip arthroplasty on 20 patients suffering from hip arthritis while 15 cases of medial femoral fracture received hemiarthroplasty with bipolar prostheses implants. Outcome: reduced surgery times, lower blood loss, zero complications and significantly speedier recovery were observed in all the above cases. Argument: this new surgical approach we devised enables a quick, safe and easy replacement of the hip. The muscles of the hip remain totally unharmed; maximum exposure is gained, with visualization of the acetabulum, directly fronting the surgeon, at its very best, favourably comparing with any other known approach. No particular equipment is needed and no special operating table. And it does not in the least imply a steep learning curve. Dislocation risks are non-existent allowing the patient any position in bed immediately after surgery. It is aesthetically preferable, the scar remaining almost invisible in between the inguinal skin lines. The patient can at once resume a steady walk, Canadian crutches being needed only for the first few days. Conclusion: it is the authors' opinion that such a technique, thanks to its being safe, fast, economical and easy to replicate, results in undoubted benefits for the patient, not least because it requires much shorter and far easier rehabilitation; and it can be counted as a valid alternative for surgeons to the most common approaches currently in use.

Abstract no.: 42907

PERCUTANEOUS VERSUS OPEN REPAIR OF ACUTE ACHILLES TENDON RUPTURE

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Our study want to show that percutaneous surgical repair of Achilles tendon rupture will have better outcome with reduced wound healing complications using a lowcost technique. Our group of patients consist of 20 cases with Achilles tendon rupture hospitalised between 2001-2013 (14 male, 6 female) with a mean age of 37 years. We compaired percutaneous versus open repair as surgical management of this patients. All patients were diagnosed clinical and MRI. The percutaneous group included 11 patients as surgical technique we use a ring forceps instead of Achillon to guide the needle. In that manner, multiple passes of the needle can be made, at both parts of the ruptured tendon. The procedure is completed by tying the rupured ends of tendon and closing the skin. The open group included 9 patients treated by clasic surgery which consist of Krakow suture augmented in 5 cases with a gastrosoleus flap. All the patients leave the hospital with a below knee cast for 4 weeks which was then removed and starts physiotherapy. All repair healed succesfully with no rerupture of the tendon and 2 patients in open group presented superficial skin necrosis. The average American Foot and Ankle Score improved significantly in the percutaneous group (mean 96) than the open group (mean 85.4). The percutaneous method had lower skin related complications and better patient outcome than open repair and our technique is cheaper also than other methods.

Abstract no.: 42908

OUR EXPERIENCE IN THE SURGICAL TREATMENT OF LISFRANC INJURIES

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The aim of the study was to evaluate the late evolution of patients with Lisfranc injuries treated surgically. Our study is a retrospective review of 24 patients with Lisfranc injuries who have treated operatively, between 2010 and 2013. The evaluation was made in relation with operative technique, early and late complications and return to daily activities. The average follow up was 18 months. Demographic data of patients were: age between 20 and 62 years old, 18 male and 6 female, etiology dominated by car traffic accidents (16 cases), 19 injuries were closed and 5 were open, the mechanism of injury was primary high energy trauma, 7 patients were politrauma with other associated lesions. The surgical treatment consist of: ORIF K-wires 12 cases, CRIF K-wires 4 cases, ORIF screws 8 cases. The K-wires were removed after 6-8 weeks. Early complications we found were: superficial skin necrosis 6 cases, superficial infection at wire insertion point in 4 cases, in 3 cases cleared-up with local wound care and in 1 case required pin removal but with no implication on the Lisfranc lesion. Late complication in our study was posttraumatic arthrosis in 9 cases after 2 years from traumatism, but well tolerated clinically. All the patients returned to daily activities after 4 months. Stable anatomical reduction leads to good long-term outcomes. The surgical treatment must be adapted to the type of Lisfranc injury and the all three surgical methods we used seem to have satisfactory and comparable results.

Abstract no.: 42910

STUDY OF PREVALENCE OF LOWER BACK ACHE AND ASSOCIATED DISABILITY IN A FARMING VILLAGE OF INDIA.

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Background: Chronic lower back ache is a major cause of disability and loss of working hours in many countries. Prevalence of this condition is more common with jobs associated with physical strain and poor posture like agriculture and industrial labor, but these cases remain unreported or undiagnosed due to lack of proper health care facilities or ignorance. Objective: To study the prevalence of chronic lower back ache in working adult population in a farming village of India, associated disability and frequency of seeking medical attention. Study Design: A cross-sectional study design was adopted. Materials and methods: A farming village with a population of 516 in remote part of Karnataka, India was selected for the study. All persons complaining of a chronic lower back ache were subjected to the Oswestry Low Back Pain Disability Questionnaire which was translated to their native language of Kannada. Simple statistical analysis was done to study the factors. Results: 132 people complained of chronic lower back ache (25.58 %), out of which 64 patients were female and rest of them male. 33 patients were in the age group of 60-70 and 31 were in the age group of 30 – 40 years. Average Oswestry score was 33.41 (moderate disability) with maximum score of 76. Conclusion: Lower back ache has high prevalence in rural population of India contributing to a major cause of disability. More detailed experimental study and prolonged follow-up needs to be done to correctly ascertain the problem.

Abstract no.: 42913

AUGMENTATION PLATE/ALLOGRAFT WITH OR WITHOUT EXCHANGE NAILING IN THE MANAGEMENT OF LONG BONE NONUNIONS- A RETROSPECTIVE STUDY.

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Augmentation plate/Allograft with or without exchange nailing in the management of long bone Nonunions- A Retrospective Study. Varatharaj Mounasamy, MD, FACS, FRCS. VCU School of medicine/VCU health System, Richmond, Virginia, USA. Contact:orthovcu@gmail.com. Phone no: 001 804 592 8294 Objectives: Plate/allograft Augmentation of the nonunion site during repair, in addition to exchange nailing is an optimal method of management of Long bone nonunions. Materials and Methods: 10 aseptic non-unions of femoral/tibial shaft fractures following interlocking Intramedullary nailing for fractures of femoral/tibial shaft which were treated at an Level one trauma center and between 2007 and 2015 by one orthopedic traumatologist were included in this study. There were 9 males and 1 female, with age ranging from 24 years to 64 years .All but three patients had exchange nailing in addition to plate/strut allograft augmentation of the fracture site. Results: All fractures healed in approximately 20 weeks after surgery and most gained optimal range of motion. In all patients the gait improved significantly and in most pain at the fracture site was absent at the last follow-up. Conclusion: Augmentation plate/Allograft with or without exchange nailing is an excellent method in repair of long bone nonunions.

Abstract no.: 42914

MIDTERM FOLLOW UP OF FORTY PATIENTS WITH FROZEN SHOULDER MANAGED USING THE ARTHROSCOPIC CAPSULAR RELEASE.

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Purpose: To evaluate the results of midterm follow up of patients with frozen shoulder after management with the arthroscopic capsular release. Methods: This series included 40 patients with frozen shoulder .They were operated upon with the use of arthroscopy for the release of shoulder joint capsule. The group consisted of 29 women and 11 men with a mean age of 48.2 years (range 38-62). Results: Preoperatively, the mean Constant and Murly shoulder score was 36.35 (range21-51). At the end of the follow up period (Mean 3.9 years) , the mean score was 85.8 (range 62 to 98) . 22 patients (55%) had excellent results, 14 patients (35%) had good results, 4 patients (10%) had fair results and none had poor results. The 4 cases with fair results were all female, all had insulin-dependent diabetes mellitus and in the age group more than 50 years. Conclusions: Arthroscopic capsular release is an effective and safe method for treatment of refractory frozen shoulder and full capsular release is mandatory to achieve considerable range of shoulder motion in all directions. Arthroscopic capsular release achieves dramatic pain and motion improvement post-operative allowing very early postoperative rehabilitation. Key Words: Frozen shoulder, Capsular release.

Abstract no.: 42915

THE ROLE OF THE AUSTIN-MOORE HIP HEMIARTHROPLASTY IN PATIENTS WITH FRACTURED NECK OF FEMUR

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We analysed prospectively-collected data comparing uncemented Austin-Moore (AM) hemiarthroplasty in frail, poorly-mobile patients, and "standard" cemented hemiarthroplasty (CH). We analysed age, pre-operative morbidity, duration of operation, death rate and complication rate. We used ASA score as a surrogate marker for co-morbidity. Appropriate statistical analysis was performed. Results: AM patients were significantly older and had significantly higher ASA grades. They also waited significantly longer before surgery. We infer that these patients were more unwell pre-surgery. AM took significantly shorter time and therefore carried lower anaesthesia-related risk. There was no significant difference in complications requiring re-operation. Twice as many AM patients developed post-operative pneumonia despite absence of cement. This number would likely increase if those patients were put at risk of cement-induced respiratory disease. Twice as many AM patients died after surgery and a significant proportion died within the first month despite no increased risk of repeat operation, shorter operating time and no risk of cement-disease. We infer that these patients would likely have fared badly had they undergone a longer, cemented procedure. Austin-Moore prosthesis costs £190, and a modern cemented prosthesis costs £881, a difference of £691 per patient. Discussion: There exists a subset of patients within the neck of femur cohort who are significantly more unwell. Contrary to guidelines, we suggest that the cheaper, user-friendly Austin-Moore can be a reasonable prosthesis to use for this cohort. It does not seem necessary to use an expensive prosthesis with longer operating time when mortality is 65% within a year.

Abstract no.: 42916

BISPHOSPHONATE-ASSOCIATED FEMORAL FRACTURES: LESSONS LEARNT

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There has been evidence of association between femoral shaft fractures and prolonged bisphosphonate therapy. We present a case series of bisphosphonate-associated fractures and invaluable lessons we have learnt. We suggest that improved pain and radiographic changes of cortical healing may be misleading and should not be relied upon. Cephalomedullary nailing is the treatment of choice in these fractures due to higher risk of neck of femur fractures in this patient cohort. We suggest prompt prophylactic cephalomedullary nailing when radiographic incomplete fractures are identified due to a short window before progression to complete fracture, and the need to consider contralateral prophylactic nailing in patients describing bilateral symptoms. We speculate that thigh pain is a warning sign of impending fracture and fracture-progression can be prevented with appropriate screening.

Abstract no.: 42917

CLOSED PERI-TALAR DISLOCATION FOLLOWING A LOW ENERGY TRAUMA : A CASE REPORT

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Introduction: Peri-talar dislocation is a rare foot injury .In this injury both talocalcaneal and talonavicular joints are dislocated simultaneously without a fracture at the neck of the talus . These Injuries are associated with extensive ligamentous and capsular disruption that may disrupt the bone's vascular supply . Aim : presenting a case of closed peri-talar dislocation in a 31 years old woman following a simple foot eversion injury .Methods : A 31- years old female patient presented with severe ankle and foot pain and obvious deformity following simple eversion injury whilst walking . The forefoot was abducted , the skin over the medial side of the ankle was under tension and the heel was in valgus position. X-rays were done showing complete lateral subtalar dislocation plus dislocation of the talus from the navicular bone without associated talar neck or body fractures . Closed reduction under sedation was performed in the A&E . Patient was put in below knee back slab with the ankle in mild varus. CT was done post reduction to insure adequate reduction and detect any entrapped bony fragments intra-articular. Results : At 6 months follow up , X-rays didn't show any signs of arthritis. MRI done at same time didn't show signs of avascular necrosis. Conclusions :1- Peri-talar dislocation can be the result of low energy trauma. 2- Prompt reduction can evade many of the complications such as joint arthritis and avascular necrosis. 3- In acute presentation, closed reduction is successful in reducing most of these dislocations.

Abstract no.: 42919

THE HOFER CLAVICULA PIN: AN ANATOMICAL STUDY ASSESSING THE APPLICATION OF STATIC AND DYNAMIC INTRAMEDULLARY PINS FOR CLAVICULAR FIXATION

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Introduction: Intramedullary fixation for midshaft clavicular fractures is less invasive but less rotationally stable than plate fixation and pin migration has been reported. A cadaveric study was performed using a new intramedullary pin: the static and dynamic Hofer Clavicula Pins (HCP). This device is designed to reduce migration. Aims: Assess clavicular morphology and ease of intramedullary clavicular pinning using the HCP. Method: Forty Thiel embalmed cadavers were used. Pin length and distance of HCP entry point from the clavicle end was measured. Results: Mean clavicular length was 149.5mm (n=79, min=65, max=180), midpoint AP diameter was 12.5mm (min=8, max=18) and depth was 11.4 (min=8, max=19). Mean entry point of dynamic HCPs from the sternoclavicular end (medial-lateral insertion) was 32.5mm and pin length was 81.5mm. Mean entry point of static HCPs was 9 mm and pin length was 74mm. Nine pins could not pass the midpoint of the clavicle. Mean entry point of dynamic HCPs from the acromioclavicular end (lateral-medial insertion) was 20mm and pin length was 68mm. Mean entry point of static HCPs was 21mm and pin length was 75mm. Three pins could not pass the midpoint of the clavicle. Discussion: Clavicular morphology is variable however consistent point of entry using HCPs was achieved from the acromioclavicular end (lateral-medial insertion). Entry point from the sternoclavicular end (medial-lateral direction) is more variable with more pins unable to pass. This cadaveric study shows it is possible to pass intramedullary pins in the clavicle and this is easier from a lateral to medial direction.

Abstract no.: 42929

DISCUSSION FOR TRACHEOSTOMY IN PATIENTS WITH CERVICAL SPINAL CORD INJURY

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Patients with cervical spine injury sometimes need ventilation and tracheotomy because their respiratory muscle are paralysis and it is difficult to take out sputum. So we investigate to find common thing in the patients who was done tracheostomy. A retrospective review of patients with acute cervical spinal injury admitted to Tottori University Hospital from 2010 to 2014 was performed. There were 30 patients (26 male and 4 female) who had cervical injury by trauma and whose ASIA score were below C. The age was from 33 to 94 (average 69). 9 patients had a tracheostomy. Patients remained ventilator 1patients were died after injury. The result is that the stay of the patients who had tracheostomy is longer and older and patients weren't removed intubation more than 1 week after admission.

Abstract no.: 42930

CORRECTION OF RIGID SPINAL DEFORMITIES THROUGH A SINGLE-STAGE ALL-POSTERIOR APPROACH: PRELIMINARY RESULTS.

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Introduction: The management of rigid spinal deformities in the sagittal plane remains challenging and usually requires a circumferential approach or a staged procedure. This report evaluates the results of corrective procedures through an all-posterior approach in such cases. **Methods:** We treated 22 patients (mean age: 28 years) having rigid kyphosis or kyphoscoliosis using a one-stage all-posterior approach e.g. vertebral column resection (n: 9) or pedicle subtraction osteotomy (n: 4). Three-fourths of the patients (n: 17) had a thoracic deformity and in more than half the deformity was either posttraumatic (n: 8) or congenital (n: 6). The preoperative sagittal plane imbalance ranged between -13 and 50 (mean: 25) mm with a Cobb angle of 5°-90° (mean: 53°). The preoperative Oswestry score averaged 20 (15-26). **Results:** The postoperative sagittal plane imbalance ranged between -25 and 20 mm with a mean correction of 31 (8-61) mm. The mean Cobb angle at the last follow-up (mean: 16 months) was 19° (range: -20° to 40°) with a mean correction of 35° (23°-65°). The postoperative Oswestry score was 0-23 (mean 5). The neurological status improved in all cases with Frankel B, C and D. Complications included one fatal pulmonary embolism, one case of pneumothorax, two deep infections and one osteoporotic collapse of the adjacent segment. **Conclusions:** Posterior procedures offer a reliable single-stage correction of rigid sagittal plane spinal deformities. Although technically demanding, satisfactory clinical and radiographic results can be achieved in most cases. Further studies with a large number of patients are however needed.

Abstract no.: 42931

BLOOD MANAGEMENT IN REVISION TOTAL HIP ARTHROPLASTY FOR METAL-ON-METAL DEVICES: THE EFFICIENCY OF AN ORTHOPAEDIC AUTOTRANSFUSION SYSTEM

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Introduction: Blood management became the focus of attention due to the increasing numbers of joint arthroplasties and the intent to minimize costs. The aim of this series was to analyse the efficiency of an orthopaedic autotransfusion system used during revision arthroplasty of metal-on-metal (MoM) devices. Methods: Three patients underwent revision total hip arthroplasty due to wear of the polyethylene-metal sandwich inlay or local massive metallosis after an average follow-up of 187 months (range, 143-212). Perioperatively, blood was collected using an autotransfusion system OrthoPAD with an integrated percolation system. Blood was obtained from collection bag before and after filtration and analysed for Co and Cr concentrations. Results: The mean preoperative serum Co and Cr concentrations were 24.14µg/L (range, 0.04-71.70) and 17.78µg/L (range, 0.59-51.31), whereas the mean local concentrations in the aspiration fluid were 100-fold and 255-fold higher (mean: Co: 2451.26µg/L and Cr: 4542.68µg/L), respectively. Pre-filtration, the Co and Cr concentrations measured in the collected blood were 5.68µg/L (range, 0.94-11.80) and 468.61µg/L (range, 8.76-1383.0), respectively. Following filtration, the metal ion levels decreased markedly to average concentrations of 0.66µg/L and 46.09µg/L for Co and Cr, although these differences were statistically not significant (Co: p=0.127, Cr: p=0.275). Discussion: Several studies showed that intraoperative cell salvage reduces allogenic blood transfusion rates and emphasized the cost-effectiveness. The current series showed that in case of revision of MoM hip devices an autologous blood retransfusion is not recommendable due to the fact that metal ions are still contained in the collected blood after filtration and wash out.

Abstract no.: 42935

GIVING PATIENTS THE GREEN LIGHT TO DRIVE AFTER ORTHOPAEDIC SURGERY

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Introduction: No standardised guidance exists in the UK on when patients should resume driving; surgeons often advise that patients should be able to perform an emergency stop. Aims: To review current evidence on returning to driving following orthopaedic surgery with a view to informing future practice. Methods: A literature search pertaining to post-operative driving safety for common lower-limb surgeries was performed. Telephone surveys were conducted of insurance companies for their recommendations. The Driver and Vehicle Licensing Agency, British Medical Association and Medical Defence Union websites were reviewed and each contacted for their medico-legal advice. Results: Literature searches identified safe braking function at four weeks after knee arthroscopy, six weeks after total hip or knee arthroplasty and nine weeks after ankle fracture fixation. Insurance companies, the DVLA, BMA and MDU did not offer specific advice on their websites. When contacted by phone they all recommended that patients should seek advice from their surgeon and no guidance was given for clinicians. Discussion: Many neurological conditions have clear guidance on this issues, but despite a range research, there remains no definitive guidance for orthopaedic operations. The onus remains on the operating clinician to make a judgement based on the specific operation carried out. Conclusions: The law states that patients remain ultimately responsible for their decision to return to driving. Decisions should be individualised to each patient and the procedure they've undergone. Published assessments of braking distance may serve as a useful guide. Decisions should be clearly documented in the patient's notes.

Abstract no.: 42938

DO STEM TAPER MICROGROOVES INFLUENCE TAPER CORROSION IN TOTAL HIP ARTHROPLASTY? A RETRIEVAL STUDY

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Introduction: Previous studies have identified imprinting of the stem taper morphology onto the CoCr head bore, leading researchers to hypothesize that stem taper microgrooves may influence taper corrosion. However, little is known about the role of stem taper surface morphology on the magnitude of corrosion damage. Methods: We analyzed the fretting and corrosion damage for 120 femoral head-stem pairs. A matched cohort design was used in which 60 CoCr head-stem pairs with a smooth stem taper were matched with 60 CoCr head-stem pairs having a micro-grooved surface, based on implantation time, flexural rigidity, apparent length of taper engagement, and head size. A precision roundness machine (Talyrond 585) was used to measure surface morphology and material loss. Fretting and corrosion damage was characterized using a modified Goldberg score. Results: Mild to severe damage (Score ≥ 2) was observed in 75% of the 120 femoral heads (78% (47/60) of the heads mated with microgrooved stems and 72% (43/60) of the heads mated with smooth stems). Taper damage was not significantly different between the two cohorts when evaluated at the head bore ($p=0.105$) or the stem tapers ($p=0.428$). No implant or patient factors were associated with fretting corrosion ($p=0.669$). There was also no significant difference in material loss between the most damaged CoCr heads in the two cohorts ($p>0.05$). Discussion: This carefully controlled, matched cohort study focused on a specific taper design feature, microgrooves on the stem taper, and found no association with in vivo fretting and corrosion damage or material loss.

Abstract no.: 42939

FUNCTIONAL OUTCOME OF INTRA ARTICULAR DISTAL FEMUR FRACTURES MANAGED WITH LOCKED PLATE CONSTRUCT

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Introduction: Fractures of distal femur still remain a challenge for the orthopaedic community considering the need to meticulously reconstruct the articular surface and achieving good functional outcome. Methods: We evaluated the results of osteosynthesis for complex intra-articular distal femoral fractures using locking compression plating. 136 distal femoral fractures were reconstructed in 123 patients from June 2007 to Dec, 2014. There were 101 males (113 knees), 22 females (23 knees) and the mean age was 28.1 years (range = 18-71 years). The fractures were classified according to AO/ASIF classification for fractures of distal femur. All the patients were followed for a minimum of 1 year (mean = 2.7 year; range = 1-7.7 year). Results: There were 75 (58%) C3, 36 (26%) C2, 22 (16%) C1 fractures. The average operative time was 98 minutes (range = 73-156 min). 104 fractures united radiologically with a mean union period of 16 weeks (range = 8-21 weeks). 12 fractures had no attempt to union and were treated with bone grafting at the end of 16 weeks. The average range of motion was 115° (range = 40°-140°). 9 patients had deep infection that required implant removal and had decreased range of motion (ROM). All these patients were compound fractures initially. Conclusion: Treatment with locked screw plate construct gives a reliable and versatile osteosynthesis for distal femur fractures, though the problem of delayed union in these fractures is still a big challenge. Extra care is essential in cases with compound fracture.

Abstract no.: 42940

MIDDLE-AGED AND ELDERLY POPULATION WITH RECURRENT ANTERIOR SHOULDER INSTABILITY; ACCOMPANYING INJURIES AND OUTCOMES OF INSTABILITY SURGERY

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Objective: Recurrent shoulder instability among middle aged and elderly population is increasing in our practice. This study is aimed to elucidate the associated injuries in the middle-aged, elderly patients with recurrent shoulder instability and report the functional outcomes and recurrence rates after arthroscopic instability surgery. **Material and Methods:** Among 346 patients that have underwent arthroscopic instability surgery due to recurrent shoulder instability, 75 patients mean age 48 ± 6 (40–60) years were documented and evaluated retrospectively. All patients had anterior-inferior labral injuries, whereas accompanying pathologies such as rotator cuff tears, SLAP lesions, biceps injuries were documented and addressed during surgery. Postoperative clinical assessment was made using Oxford Shoulder Instability Score. **Results:** The percentage of middle-aged and elderly was 21.6 % among the overall instability patients. 31 % had isolated Bankart lesion whereas 69% revealed accompanying pathologies. Bankart + SLAP lesions were found to be in 37%, Bankart + Rotator cuff tears 32% (15 isolated supraspinatus, six supraspinatus+subscapularis, two isolated subscapularis). Recurrence rate following instability surgery was found to be 1.4 %. The overall Oxford shoulder instability score was 39 ± 4.7 (26-48). The best functional score (41.44 ± 4.7) was in patients with isolated Bankart lesions, whereas the lowest score (37.89 ± 3.4) was in Bankart + RC tears with a statistically comparable difference ($p= 0.033$). **Conclusion:** Arthroscopic instability surgery reveals good functional outcomes and low recurrence rates in the middle-aged and elderly whereas Bankart lesion accompanied by RC tears alters patient satisfaction and functional scores.

Abstract no.: 42941

**ANALYSIS OF PROXIMAL HUMERAL FRACTURE DISLOCATIONS
MANAGED WITH LOCKED PLATES**

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Introduction: Fracture-dislocation is an extreme variant of injury to the proximal humerus occurring mostly in young adults. In elderly, the management involves replacement which may not be optimal choice for the young people. The aim of this study was to evaluate the outcome and clinical results of fixation of proximal humerus fracture-dislocations with locked plates. Methods: 37 proximal humerus fracture-dislocations in 35 patients (27 men and 8 women) with a mean age of 36 years (range 19-65 years) treated by ORIF with locked plates between January 2008 and January 2014 were retrospectively reviewed. 29 cases had an anterior while 8 had a posterior fracture dislocation. Results: 16 of the 37 fracture-dislocations were on left side. The average time from injury to surgery was 6 days (range 1-35) and 35 cases were followed up for a mean of 36 months (range 24-72 months). All the fractures united at an average of 15 weeks after surgery. At the final follow-up, the mean forward flexion was 129 degrees (range 100-160 degrees), mean abduction 128 degrees (range 100-150 degrees). Mean Constant score at final followup was 78 points (range 68-88 points). 3 cases had failure due to Osteonecrosis while two cases had screw perforation which required screw removal. Conclusion: Majority of patients with high velocity proximal humerus fracture dislocation can achieve good function and get back to their normal pre injury work and activities after Open reduction internal fixation with locked plates. This is largest study of such fracture dislocation occurring in young adults.

Abstract no.: 42942

SURGICAL TREATMENT OF WRIST CONTRACTURES IN CHILDREN WITH AMC

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Multiple surgical procedures have been proposed to correct wrist contractures in children with AMC, but results were controversial because of further limit of motion and recurrence of deformity. The clinical picture of upper limb involvement was consistent with localized lesion of anterior horn cell columns of the spinal cord. The objects of the study were 207 patients (390 upper extremities) with the wrist contractures in AMC, which were examined and treated in 2009-2015. Patients were divided into 3 groups: with C6-C7, C5-C8 and C5-Th1 level of spinal cord lesion. 322 operations were performed using tendon transfers and carpal wedge osteotomy in different combinations. For objective results assessment the following criteria were taken into consideration: resting position, active extension, cosmetic appearance and functional capacity for grasps. Children with C6-C7 level of spinal cord lesion had 100% of good, with C5-C8 - 84% of good and 16% of satisfactory results. In the both groups restoration of active wrist extension and improvement of hand function were expected. In C5-Th1 group were 12% of good, 78% of satisfactory and 10% of unsatisfactory results. Such patients had significant lesion of muscles and tendons, bone deformities so we could expect only minimal improvement of hand function after surgical treatment and high risk of recurrences. Varied surgical approach to wrist contractures treatment in cooperation of determination the level of spinal cord lesion can provide predictable results and significantly improve hand function, wrist appearance and quality of life of children with AMC as much as possible.

Abstract no.: 42943

CHALLENGES OF MODIFIED STOPPA'S APPROACH IN A DEVELOPING COUNTRY: EARLY RESULTS OF A PROSPECTIVE STUDY

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Background: Anterior fixation of acetabular fractures usually involves lot of intricacies and also morbidity to the patient with ilioinguinal and iliofemoral approaches being commonly used. In the last decade, modified Stoppas approach has evolved as a better way of approaching these fractures. The prospective early results of a single surgeon managed acetabular cases with modified Stoppas approach have been evaluated in this study. Material and methods: All cases of acetabular fractures managed with modified Stoppas approach were prospectively studied from January 2013 till July 2015. Various intraoperative parameters with the early followup of these patients were evaluated and compared with a previous subset of patients operated with ilioinguinal approach by the same surgeon. Results: 32 patients with acetabular fractures were operated with modified Stoppas approach during this period. Most of them were T type, associated both column fracture, or anterior column with posterior hemitransverse fractures. 3 cases had to be converted to ilioinguinal approach, 18 patients required additional lateral window of the iliac crest for the plate application or posterior column screw fixation. Blood loss (avg 370ml) was less as compared to the ilioinguinal approach patients and so was the average duration of surgery. Lack of proper instruments and delay in presentation of patients after injury make this approach technically more challenging. Conclusion: Modified Stoppas approach is a good surgical approach for patients with complex acetabular fractures. This is the first study from our country presenting the early results of modified Stoppas approach in acetabular fractures.

Abstract no.: 42945

CERAMIC HEADS DECREASE METAL RELEASE CAUSED BY HEAD-TAPER FRETTING AND CORROSION

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Introduction: Metal release due to taper fretting and corrosion is a clinical concern. A matched cohort study design was previously used to investigate semi-quantitative visual observations of fretting and corrosion damage in ceramic vs. CoCr heads. Little is known about how visual observations correlate to volumetric material loss from the head and stem when ceramic vs. metal heads are used. Methods: A quantification method validated for new components was used to estimate volumetric material loss in previously matched cohorts of 50 ceramic and 50 CoCr head-stem retrieval pairs. The volumetric loss was compared with visual fretting-corrosion scores and taper angle clearance for correlations. Results: On average, the ceramic cohort exhibited a 92% reduction in cumulative volumetric loss from both the head and stem taper surfaces compared to the CoCr cohort ($p < 0.001$). In the CoCr cohort, there was significantly greater material loss from femoral head bore tapers as compared with stem cone tapers. Although visual scoring was effective for preliminary screening, it was not capable of discriminating within the large range of material loss observed at the taper surfaces with high fretting-corrosion scores. We observed no significant correlations between volumetric material loss and device and clinical factors. Discussion: The majority of estimated material loss from the head-neck junctions due to taper fretting and corrosion was from the CoCr head bore tapers, as opposed to the stem cone tapers. Consequently, the ceramic head cohort demonstrated reduced metal release by an order of magnitude as compared with the CoCr head cohort.

Abstract no.: 42946

MANAGEMENT, CLINICAL OUTCOME AND RETURN TO SPORTING ACTIVITIES AFTER CALCANEAL FRACTURES.

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Calcaneal fractures are severe injuries common in younger adults after a fall from a height. These fractures result, in many cases, in subtalar joint stiffness and severe disability. Management can be surgical or non-surgical; however, the optimal treatment remains controversial. It is important to evaluate the functional postoperative outcomes of calcaneal fractures treated by different open reduction and internal fixation (ORIF) techniques. One of the most common findings after surgery is subtalar arthrosis and hindfoot stiffness. In some instances, subtalar arthrodesis is necessary to reduce the symptoms. The purpose of the present study was to assess the rate and type of sport activities in patients treated by ORIF in comparison to secondary subtalar joint fusion and to correlate the clinical outcome and the level of sports activities. In 33 patients (22 males, 11 females) treated with subtalar arthrodesis, the pre- and postoperative participation in sports and recreational activities was evaluated. The American Orthopaedic Foot and Ankle Society hindfoot scale score, 36-item Short Form Health Survey, and a visual analog scale for pain were used as clinical outcome measures. The weekly session number, session time, and interval to activity recovery after surgery were registered. The results of the present study suggest that the outcomes are favorable in both approaches. Patients with ORIF reported good results in particular, when the radiographic relationships of the hindfoot have been restored. Patients undergoing subsequent subtalar arthrodesis returned to a satisfactory level of activity, even if showed a tendency to shift from high- to low-impact activities.

Abstract no.: 42948

MODULAR FEMORAL NECKS HAVE NO BIOMECHANICAL OR CLINICAL ADVANTAGE OVER NONMODULAR NECKS

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Introduction: It is not clear whether femoral neck modularity contributes to better biomechanical and clinical outcome of total hip arthroplasty (THA). We asked whether modular femoral necks enabled achievement of smaller leg length discrepancy (LLD), lower magnitudes of hip forces (shear, compressive, abductor), less self-perceived LLD and better WOMAC score after THA in comparison to nonmodular implants. Further we analyzed the impact of implant type, change in the center of rotation, femoral offset, femoral head cranialization, LLD and hip forces on clinical outcome. **Methods:** A single-surgeon series of 102 patients with unilateral uncemented primary THA (50 modular ProfemurZ vs. 52 nonmodular Zweymüller) was analyzed retrospectively with regard to radiographic changes before/after THA, LLD, WOMAC score and computed hip forces (shear, compressive, abductor) in one-legged stance with a previously validated static biomechanical model. **Results:** After THA patients with modular implants had larger LLD (10 mm vs. 7 mm; $p = 0.03$) and larger shear force (1.69 vs. 1.51; $p = 0.01$), but no significant difference in self-perceived LLD or WOMAC score. In multivariate regression (adjusted for implant type, gender, age, BMI, LLD) increase in shear force acting in the hip joint was an independent predictor of better WOMAC score while changes in the center of rotation, femoral offset and head cranialization had no significant impact. **Conclusion:** Modular femoral necks have no biomechanical or clinical advantage over nonmodular necks. Increase in shear force is an independent predictor of better mid-term clinical outcome regardless of the femoral neck modularity.

Abstract no.: 42949

CALCIBON: CLINICAL EXPERIENCE WITH A NEW ARTIFICIAL BONE GRAFT SUBSTITUTE

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Introduction: Artificial bone graft substitutes are getting more in the focus of interest due to the advantage of lacking donor site morbidity. The aim of the study was to evaluate the effectivity and complications associated with the bone graft extender Calcibon. Methods: Seventeen patients with benign and low-grade malignant bone tumours were treated with curettage and refilling the defect with Calcibon. Time to healing, local recurrence rates, and complications as well as bone healing were evaluated. Results: At a mean follow up of six months we could observe bone healing in the x-ray but no resorption of the bone graft substitute. These observations could also be made at the next follow-ups after a mean time of 13 and 18 months, respectively. There were no local recurrences. One patient developed idiopathic femoral nerve palsy and three revisions had to be done due to complications with the osteosynthetic material used for stabilization or delayed wound healing. No complications were associated with the bone graft extender. According to the classification system of Neer there were only Grade I lesions, meaning filled cysts needing no further treatment. Goslings and Gouma's surgical complications were graded as Grade I (complication meaning a temporary disadvantage without surgery, n=1) and Grade II (total recovery after revision, n=3). Discussion: Calcibon seems to be a reliable bone graft substitute with low complication rates despite longer period till resorption. Therefore, it can be recommended for application as alternative to autologous bone or allografts for correct indications.

Abstract no.: 42950

SERUM SILVER CONCENTRATIONS FOLLOWING EXTREMITY RECONSTRUCTION WITH SILVER-COATED MEGAPROSTHESES

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Introduction: Silver-coated megaprotheses have been introduced to reduce the risk of periprosthetic infections but there is less information about systemic silver exposure. **Methods:** Between 2004 and 2014, 35 patients received MUTARS megaprotheses with galvanised silver coatings (Implantcast, Germany). The mean postoperative follow-up ranged from one to 132 months. Blood was taken within the first days following surgery as well as at every six months at outpatient treatment. The serum concentrations were determined using inductively coupled plasma mass spectrometry (ICP-MS). **Results:** During the follow-up three patients died of disease, five died due to an unrelated cause and six patients were lost to follow-up. Overall, 21 patients were available for serum silver determination. The follow-up showed an increment of silver concentrations within the first six months, followed by a decrease during the first 36 months ("run-in period"). Thereafter, we found an undulation course with further peaks which might associated with cases of re-infection and massive silver ion release from prostheses' surface. Otherwise, we also observed silver increments in patients without any clinical sign of periprosthetic infection. **Discussion:** In the current series we observed an undulating course of silver concentrations in the blood which might be caused accidentally, by re-infection or implant-associated complications. We could not identify any systemic complication like polyneuropathy or toxic reactions, except of local agyria. Therefore, we can state that silver-coated implants seem to be a save solution in case of megaprosthetic reconstruction following tumour resection. Nonetheless, we recommend monitoring of silver concentrations in the blood.

Abstract no.: 42951

THE MODIFIED TECHNIQUE OF THE ANKLE ARTHRODESIS

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We analyze the results of resection arthrodesis of the ankle joint in 172 patients with severe injuries and consequences of this joint disease. In the main observation group (79 patients) used a modified procedure arthrodesis which includes resection of the lower third of the fibula and the medial malleolus, resection of the articular surfaces in a horizontal plane so as to set the foot to the shin axis at an angle of 90° in the sagittal plane, 0°-5° valgus, 5° external rotation. The essence of the modification was to shift the foot backwards by 10%-15% of the sagittal size of the talus block. In the comparison group (93 patients) used the traditional method of installing foot after resection at an angle of 95° - 100° in the sagittal plane, in other planes comply with the neutral position. The average term evaluation was 2,1±0,4 years. Evaluation of functional results was carried out by AOFAS for hindfoot and midfoot. Evaluation of bone fusion in the resection area was carried out according to X-ray and CT. Results AOFAS in the main group constituted for hindfoot 76,2±1,8 points, for midfoot 82,3±1,7, which corresponds to a good result. In the comparison group on the AOFAS results were worse and amounted to 58,4±1,2 and 57,1±1,9 points, which corresponds to a satisfactory conclusion. Maturity of bone fusion in the resection area in patients of the main group averaged 9,2±0,8 weeks in the control group - 11,6±1,2 weeks.

Abstract no.: 42952

CROSSING SCREWS, A NEW SUCCESSFUL MINI-INVASIVE TREATMENT FOR ISOLATED NON-COMMINUTED OLECRANON FRACTURES AFTER 5 YEARS

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Introduction: The need for a new mini-invasive line of treatment for olecranon fractures, encouraged us to evaluate the use of crossing screws in treating Mayo type IIA olecranon fractures. Its preliminary results were excellent, but, longer follow up may show different results. **Methods:** we evaluated the 5-year follow up results of using 2 transcortical crossing cannulated screws through a percutaneous or mini open approach in 30 patients. The patients were evaluated for operation time, quality of reduction, fracture healing, implant position, elbow range of motion, stability of fixation, and presence of complications. The functional evaluation was based on the Mayo elbow performance score (MEPS). **Results:** All the fractures united in accepted position in a mean time of 9.6 (6-13) weeks. No vascular or nerve complications were found. At the final follow-up , the elbow range of motion (ROM) and forearm rotation were comparable to the intact side except = 5° extension deficit in 3 patients, which was statistically non-significant. Using the MEPS, all the patients (100%) had a good to excellent results with a mean score of 93.8 (80-100). Two patients had implant removal. **Conclusions:** Percutaneous or mini-open transcortical crossing screws for isolated non-comminuted olecranon fractures offer a cheap, simple, and efficient mini-invasive stable fixation that allows early rehabilitation with excellent results and minimal complications. The excellent results were not deteriorated over 5 years. We started a comparative study with tension band wiring (TBW) before standardization of the technique.

Abstract no.: 42953

OUTCOME OF THE RESTORATION CONE/CONICAL MODULAR FEMORAL REVISION SYSTEM IN 67 PATIENTS.

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Introduction: Requirement for revision hip surgery is an increasing challenge despite technical advances and may be associated with proximal femoral bone loss. Modular Restoration stems rely upon a diaphyseal fit and can be used in conjunction with an extended trochanteric osteotomy (ETO) to address this. Methods: Sixty-seven patients who underwent revision hip surgery with a Restoration cone/conical modular femoral revision stem between August 2008 and October 2013 were reviewed retrospectively. Evidence of failure, both clinical and radiological, were also assessed. Oxford hip scores (OHS) were collated at latest follow-up. Thirty-seven (55.2%) patients were female. Mean age at surgery was 73.7 years (46.7-91.8 years). The most common surgical indications were aseptic loosening (n=40) followed by periprosthetic fracture (n=14). Twenty-eight (41.8%) patients underwent an ETO. Results: Mean follow-up was 4.9 years (1.7-7.4 years). Mean post-operative OHS was 39.4 (range 17-48). Subsidence was evident in eight (11.9%) patients (median 5mm, range 3-22mm). Three patients (4.5%) sustained early dislocation without requiring further revision surgery. Four (6.0%) patients sustained prosthetic infection. Two patients (7.1%) developed ETO non-union. Radiological loosening was seen in one patient. Discussion: The Restoration system offers a solution addressing proximal bone loss in the presence of aseptic loosening or periprosthetic fracture by achieving a good diaphyseal fit. Subsidence can occur without indicating failure or the need for revision, and appears to be clinically tolerated. No failure was demonstrated at the modular junction, which is a concern with other similar designs. Both clinical and radiological outcome demonstrate good short to medium term results.

Abstract no.: 42956

MIPPO MAY BE PREFERABLE TO PFNA IN TREATING UNSTABLE PERTROCHANTERIC FRACTURES.

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Background: Controversy still existing about the relative merits of the fixation device for the challenging unstable pertrochanteric fractures, its suitability for the eastern patient groups. The aim of the present study was to compare the outcomes of MIPPO using a newly designed anatomical proximal femoral plate, (Ali-plate), and proximal femoral nail antirotation (PFNA) in the treatment of these fractures. Methods: We prospectively randomized 50 patients with unstable pertrochanteric fractures in a surgeon-allocated study to either technique. Each group included 25 patients. All the operative, post-operative, and follow up variables were evaluated. Finally, functional evaluation as per the Harris Hip Score, and economic assessment were done. Results: No significant difference was found regarding blood loss, operative time, hospital stay, time to wt-bearing, time to bone union, return to pre-injury level of activity, implant failure, or deep infection. The PFNA group should difficulty in reduction of some cases, higher deterioration of the immediate post-operative alignment, and reoperation rate. It may not suit patients with small neck-shaft angles. The MIPPO group should less cost, higher Harris hip score and better achievement of structural competence especially with comminuted fractures and can be easily administrated by junior surgeons. Conclusions: PFNA and Ali-plate were useful and effective. MIPPO offered less-cost and may be preferred in patients with reduced neck-shaft angle, lateral wall break, and comminuted fractures where structural competence could not be offered by nailing. The preoperative planning is the cornerstone to determine the patient, fracture, and surgeon factors that give priority for a certain implant.

Abstract no.: 42958

ONE-STAGE ARTHRODESIS AFTER INFECTED TOTAL KNEE ARTHROPLASTY

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Background : As we know that two-stage arthrodesis for infected total knee arthroplasty (TKA) requires more treatment period and economic burden. So it's necessary to find an effective and simple way for infected TKA in strained Chinese doctor-patient environment. Methods: A retrospective analysis of 4 cases (mean 66.5 years old) with infected TKA was reviewed from October 2010 to April 2015. 4 patients were diagnosed with periprosthetic knee infection after TKA. Antibiotics were used for 2 weeks before operation. After doctor-patient communication, the patients preferred to adopt one-stage implants removed and knee joint arthrodesis rather than two-stage revision TKA. All implants were taken out and wounds were debrided thoroughly. 1 case was fixated by external fixator and 3 cases were by locking plate. The wounds of 2 cases were closed by one-stage suture, and other 2 cases were closed by gastrocnemius flap transfer. Antibiotics were continued to use for 4 weeks after operation. Results: All patients were followed up for 6 months to 5 years. All wounds healed without reinfection and knee fusions were achieved. The mean time to fusion was 6.6 months. The mean discrepancy (shortening) of lower limb length was 3.5 cm. All patients could walk at least 100 meters. Conclusions: One-stage arthrodesis for periprosthetic knee infection is a safe and effective way to eradicate infection and produce a stable, painless, and functional limb. It's suitable for patients who have extensor mechanism deficiency, soft tissue damage, poor general condition and economic difficulties.

Abstract no.: 42968

CORRECTION OF FLATFOOT DEFORMITY BY SUBTALAR ARTHRODESIS THROUGH SINGLE MEDIAL APPROACH

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Objective: To study the clinical results using isolate medial approach to correct flatfoot deformity in subtalar joint arthrodesis. Methods: 14 patients with flatfoot deformity were treated using isolated subtalar joint arthrodesis from March 2011 to March 2014. There were 3 males and 11 females with an average age of 60.81 years (ranged from 51 to 75 years). They are all cases of posterior tibial tendon dysfunctions, 9 of Myerson type III, 3 of II(b) and 2 of II(c). Results: The mean duration of surgery was 100.54 minutes (range, 91-124 minutes). 12 patients were followed up for 20.25 months in average (range from 12 to 48 months). All of the cases have healed well, and the mean time of bone union was 9.53 weeks (ranged from 8 to 17 weeks). No infection was found in any cases. A complication was observed 1 patient which is painful fixation. None of the patients experienced a nonunion or an adverse event related to the medial neurovascular structures. The mean Kitaoka score increased from 43.67 to 80.81 Conclusion: Based on our experience with the procedure, the isolate subtalar joint arthrodesis is a useful alternative to triple arthrodesis for the correction of mild and some moderate flatfoot deformity.

Abstract no.: 42969

TYPING AND OPERATIVE MANAGEMENT OF MALUNION AFTER MIDFOOT INJURY

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Objective To characterize clinical treatment of the malunion after midfoot injury . **Methods** Twenty two cases of malunion following complex midfoot injury from June 2004 through June 2012 were analyzed. They were 19 men and 3 women, mean age was 37.8. The foot deformity was categorized into 3 types and 3 subtypes respectively, with type I indicating normal foot arch (type Ia forefoot abduction, Ib forefoot adduction and Ic forefoot normal), type II Cavus deformity (subtype is same as I), and type III flatfoot deformity (subtype is same as I) . There were 2 cases of type Ia, 4 cases of type Ic, 9 cases of type IIa, 4 cases of type IIIa, 3 cases of type IIIc in our cohort. According to the malunion typing, fascio-cutaneous flap, osteotomy, joint arthrodesis, or realignment was used to correct deformity. Clinacal outcomes were evaluated by AOFAS midfoot score and VAS.All the patients were followed up for average 34.7. The mean VAS score was 2.0 points,and mean AOFAS score was 83.9 ± 2.3 points at the last follow-up, giving an excellent to good rate of 81.8%. All cases obtained favorable functional outcomes without bone nonunion, except one patient who still suffered from midfoot walking discomfort for 3 years after operation.Operative management of malunion following midfoot injury is effective and good results can only be obtained by stabilizing injured joint, realignment and recover foot arch.Our typing of the midfoot malunion is helpful in the operative treatment.

Abstract no.: 42976

SURGICAL TREATMENT FOR MÜLLER-WEISS DISEASE

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Müller-Weiss disease is an uncommon osteonecrosis of the tarsal navicular of unknown etiology. From January 2005 to September 2014, we treated 49 patients suffering from Müller-Weiss disease, using the surgical arthrodesis of the talonavicular joint and naviculocuneiform joint with tricortical autologous iliac crest block fixed by screws and plate. They were 15 males and 34 females with a median age of 52.4 years. According to the Maceira staging system, 6 feet were grade 2, 20 feet were grade 3, 19 feet were grade 4, and 4 feet were grade 5. We reviewed the medical records of the patients and took the radiological preoperative and postoperative evaluation. The preoperative and postoperative clinical functions were evaluated using the American Orthopaedic Foot and Ankle Society (AOFAS) ankle-hindfoot Scale. To treat Müller-Weiss disease, we introduced a surgical arthrodesis of the talonavicular joint and naviculocuneiform joint with tricortical autologous iliac crest bone block fixed by screws and plate. The median follow up was 26 months. All the feet fused solidly. The median time for complete fusion was 13 weeks. The median AOFAS ankle-hindfoot score improved from 45 points preoperatively to 86 points at last follow-up. In conclusion, the results of this series demonstrate the arthrodesis of the TNJ and NCJ with tricortical autologous iliac crest graft is a reasonable way for treatment of Müller-Weiss disease. Based on our experience with the patients, we believe that emphasis of the restoration of the length and alignment of the medial column could achieve a good outcome.

Abstract no.: 42977

TREATMENT OF LATE-STAGE FREIBERG DISEASE USING A DOUBLE STEMMED FLEXIBLE SILICONE PROSTHESIS

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The purpose of this study was to evaluate the clinical outcomes using a double stemmed flexible silicone prosthesis for the treatment of Freiberg disease in its late stages. The subjects consisted of 13 feet from 13 cases suffering from Freiberg disease that underwent joint replacement with a double stemmed flexible silicone prosthesis. The average age was 63.8 (range 30–88) years. The average follow up period was 17 (range 14–24) months. The investigation was carried out using Maryland MTP scoring system, visual analog scale (VAS), and American Society of the Foot and Ankle Surgery of forefoot scale (AOFAS score) in the MTP joint before surgery and at the latest follow-up. Twelve cases were followed up. One case had delayed wound healing and recovered after dress changing. Dislocation, synovectomy, implant breakage, and deep infection were not observed in any cases. The average ROM of dorsal flexion improved from $37.2\pm 5.3^\circ$ before surgery to $73.6\pm 9.9^\circ$ at latest follow-up ($p<0.0001$). The average ROM of plantar flexion improved from $16.0\pm 10.1^\circ$ before surgery to $19.5\pm 8.6^\circ$ at latest follow-up ($p=0.35$). The average VAS significantly improved from 8.1 ± 1.1 before surgery to 2.6 ± 0.5 at latest follow-up ($p<0.0001$). The average AOFAS score significantly improved from 56.3 ± 1.6 points before surgery to 89.4 ± 3.0 points at the latest follow-up ($p<0.0001$). The double stemmed flexible silicone prosthesis was carried out to treat Freiberg disease. The MTP joint function was observed in all cases with improved clinical results. Replacement using this Swanson prosthesis was considered to be useful for late stage of Freiberg disease.

Abstract no.: 42978

THORACIC TRAUMA SPINE. ABOUT 24 CASES

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Introduction: Spinal injuries are severe lesions of bone and disco-ligamentous system by their neurological consequences that involve the vital and functional prognosis of the patient. Materials and Methods: This is a retrospective study of 24 cases collected in the orthopedic service level Blida over a period of 02 years, including 20 men and 04 women, mean age was 34.5 years (15-74), the etiology is dominated by accidents in 13 cases followed by traffic accidents. The Neurosciences signs are present in 12 cases, including 07 cases with complete neurological. The most affected vertebra is T12 (08 cases), followed by T11 (03 cases) stepped trauma in 08 cases (2-3 vertebrae) .According Magerl classification: 16 cases classified A (10 cases: A3-3), 03 cases classified B and C. 5 cases classified Plain radiography and CT were performed in all cases, MRI in 02 cases. Results: The treatment is surgical posterior approach in 16 of our patients (01 dead, 07 orthopedic treatments). 16 patients had a favorable evolution, one died and 07 cases were in stable condition. Conclusion: The traumas of the thoracic spine are related serious in most cases of traffic accidents and falls from a height prerogative of younger patients and male sex. It is a real public health problem; more than 72% are unstable lesions (neurological disorders in 50% of cases). The value of Computed tomography for diagnosis. The prognosis is reserved, it depend associated injuries and spinal cord injuries and type of treatment.

Abstract no.: 42979

TIMING OF THE ORTHOPAEDIC SURGICAL INTERVENTION IN PATIENTS WITH POLY-TRAUMA: A SYSTEMATIC REVIEW

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Aim: To assess the effects of the timing of orthopaedic surgical intervention on the incidence rates of acute respiratory distress syndrome (ARDS), multiple organ dysfunction syndrome (MODS), systemic inflammatory response syndrome (SIRS), Sepsis, fat embolism, morbidity and mortality in patients admitted with poly-trauma. **Methods:** CENTRAL, MEDLINE 1950 – present, EMBASE 1980 – 2015 and AMED (1985 to 24 October 2015) were searched for the relevant papers. Studies written in English language, which compared the timing effect of the orthopaedic intervention (Early vs. Delayed) on the aforementioned complications in patients with poly-trauma, were included. **Results:** 7 studies met the inclusion criteria encompassing a total of 3,461 participants. 2 studies advocated early intervention compared to 5 studies supporting the use of damage control orthopaedics and delaying the timing of surgery for > 24 hrs (Delayed intervention). The complication rates varied across the studies for each intervention category. Nevertheless, the mortality rate was consistently higher with a delayed intervention in 6 of the 7 studies. **Conclusion:** It appears that delaying the definitive orthopaedic surgical intervention is the more popular choice with a relatively reduced complication rate compared to early interventions. Nevertheless, our findings cannot validate such approach, as the appropriate treatment may need to be case dependent with the rate of complications being determined by the nature of the trauma, severity and the affected bones.

Abstract no.: 42981

TUBERCULAR SPONDYLITIS THORACO LUMBAR CLINICAL AND THERAPEUTIC ASPECTS ABOUT 02 CASES

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Introduction: Pott sickness remains a public health problem; its diagnosis must be early. Radiology plays a considerable role in this direction and also helps to assess the disease activity and therapeutic efficacy. Materials and methods: We related cases 02 you operate within orthopedics service of BLIDA . 1^{er} case: Woman of 32, without particular history. Clinically: back pain, abscesses, weight loss, no neurological disorder. CT detected a lot of pott with psoas muscle abscess and ileo-psoas left. MRI: spondylitis L5 - S1 with a large abscess intra Root Canal. Case 2: Female, 38, no particular history. Clinically: thoracic and lumbar pain, weight loss, neurological disorders (sensory disturbances). CT: osteolytic process of vertebral body and posterior arches of Th7 Th10 has reached with epidural and soft para vertebral. MRI: spondylitis backbone Th7 Th 10 with a previous vertebral fracture Th 8 and dorsal angulation responsible for acute spinal cord compression with signs of suffering Para- vertebral abscess. The diagnosis of sore Pott was bacteriologically confirmed by surgical biopsy. The 02 patients have benefited an anterior approach with drainage of abscesses, associated with internal fixation for the second case. The two cases were under chemotherapy. Results : Disappearance of neurological signs (Case 2) .After 24 months in medium: no recurrence

Abstract no.: 42982

LIFE TIME PREVALENCE OF BACK PAIN AND MRI CHANGES IN THE THORACO-LUMBAR SPINE OF YOUNG ELITE SKIERS - A CROSS-SECTIONAL STUDY

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Introduction: The purpose of the present study was to investigate the presence of MRI changes in the thoraco-lumbar spine and the prevalence of back pain in young elite skiers compared to an age matched control group of non-athletes. Materials and Methods: The sample group (n=102) consisted of Alpine and Mogul young elite skiers (n=75) and non-athletes (n=27), age range 16-19 years. All subjects have undergone MRI examinations and answered back pain questionnaires. Results: The skiers have significantly higher rate of disc degeneration (disc signal, disc height and disc bulging) than controls, 82% compared to 54% (p=0.007). The rate of Schmorl's nodes (intraspongious disc herniation) is 46% in skiers compared to 0% in controls (p<0.001). This higher rate of radiological abnormalities in skiers is not correlated with back pain prevalence. Additionally, there is no significant difference in the life time prevalence of back pain in skiers (50%) compared to controls (44%) and no correlation of MRI abnormalities or back pain prevalence with age or sex. 78% of the skiers group subjectively perceive their health as very good to excellent compared to 48% of the controls group (P=0.026). Conclusion: Disc degeneration and Schmorl's nodes on MRI were significantly more common in young elite skiers compared to non-athletes. There was no significant difference in the life time prevalence of back pain in skiers compared to controls and back pain was not correlated with MRI abnormalities.

Abstract no.: 42983

TREATMENT OF BENNETT'S INJURIES WITH INTERMETACARPAL DOUBLE K-WIRING. A REPORT OF 22 CASES

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Introduction: Bennett fractures are common in trauma of the hand, neglected or badly treated; they can compromise the function of the thumb. Materials and methods: This is a retrospective study over a period of 02 years, 22 cases of fractures Bennett (17 men and 05 women), whose mean age was 32 years. These were 10 cases of small fragment fracture and 12 cases of large-fragment fracture. All patients were you operate according to the ISELIN technique . A cast immobilization stabilizing the wrist with opening of the first commissure is maintained for 04 weeks. Results: After 24 months of decline, the evaluation of results was based on interesting clinical criteria pain, mobility, grip strength and radiological criteria. The consolidation was obtained at the 6th week in average. In general the results were excellent and good in 19 cases. Discussion: The first column allows the opposition of the thumb with long fingers. The two main joints trapeziometacarpal (mobility) and metacarpophalangeal (stability). The trapeziometacarpal to 03 degrees of freedom for decision-digital pollici fine. Fracture dislocation Bennet will disrupt these kinetics because of the tendency to close the first commissure.

Abstract no.: 42986

EFFECT OF FIRST METATARSOPHALANGEAL JOINT ARTHRODESIS ON FOREFOOT WIDTH

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Introduction: The indications for first metatarsophalangeal (MTP) joint arthrodesis are varied. It known that there is improvement in intermetatarsal angle after the first MTP joint arthrodesis thus negating need for separate osteotomy of the first metatarsal . This paper aimed to study the effect first metatarsophalangeal joint arthrodesis on the width of the forefoot. **Methods:** This is a prospective study of 51 consecutive patients who underwent first MTP arthrodesis by standard dorsal approach. The fusion was stabilized with a low profile prebent and anatomically contoured 10 degree valgus titanium alloy plate and further secured with an inter-fragmentary screw across the joint. Weight bearing radiographs were taken 6 weeks postoperatively and assessed for hallus valgus (HV) angle, intermetatarsal (IMT) angle and radiographic width of the forefoot between the widest points across the metatarsal heads. These were then compared with the width forefoot obtained on the weight bearing preoperative radiographs to assess the change in the HV angle, IMT angle and width of the forefoot after the surgery. **Results:** Average HV preoperative and postoperative angle was 31.3 and 10.3 respectively with the average change of 21 degrees. Average IMT preoperative and postoperative angle was 13 and 8.6 respectively with average change of 4.1 degrees. Similarly, average radiographic forefoot preoperative and postoperative width was 93.8 and 86.2mm respectively with average decrease of 7.6 mm. **Conclusion:** This study confirms that first MTP arthrodesis is also associated with significant reduction in the radiographic forefoot width.

Abstract no.: 42987

A SIMPLE TECHNICAL TIP TO ACHIEVE OPTIMUM ROTATOR CUFF TENSION DURING REPAIR BY CAPSTAN SCREW.

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Mini-open Capstan screw technique for rotator cuff tears promises to provide a stronger repair, allowing rapid rehabilitation and low re-tear rates. One of the important factors determining the adequacy of the repair is appropriate tensioning of the cuff at the time of final fixation . In the Capstan screw technique this is can be achieved during the crucial step of anchoring the suture strings to the capstan screw. The method to it is largely surgeon specific with no clear guidelines. We believe the method of anchoring the suture to the screw before tightening is very crucial as it has a bearing on the final tension in the cuff. Though this can be done in various ways, we recommend winding the sutures beneath the Capstan screw head from right to left so as to further tension the cuff with the final screw turns. Winding the screw from left to right can cause laxity in the cuff as the stretch on the sutures is released during the final turns of the capstan screw. Similarly, winding half of the suture threads from either side can cause uneven tension in the cuff. We believe that the technique of securing the sutures from right to left beneath the screw achieves reliably constant tension throughout the cuff which is required for optimum healing.

Abstract no.: 42989

POSTERIOR MIPPO SOLVED THE PROBLEMS OF OPEN PLATING AND PROVED SUPERIORITY OVER NAILING IN TREATING HUMERUS SHAFT FRACTURES.

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Background: Superiority of plating over nailing in treating humeral shaft fractures still is questionable because the required extensive dissection and direct fragment reduction that may increase blood loss, infection, and nonunion. MIPPO through anterior or anterolateral approaches possess their limitations. Successful MIPPO through the new mini-invasive posterior approach overcame these problems and motivated us to compare its use against nailing. Patients and methods: Three groups, 28 patients each, could be matched as regard to age decade, gender, fracture type (open or closed), and classification (AO/OTA). Group A included patients treated by antegrade nailing, group B for retrograde nailing, and group C for posterior MIPPO. All the operative and postoperative factors were compared. Functional assessment was done using UCLA shoulder score and Mayo elbow performance. Results: The mean follow-up period was 37.2 ± 7.34 months. All the groups had insignificant differences in relation to quality of reduction, hospital stay, time to fracture healing, radial nerve palsy, and infection. Both nailing groups shower higher radiation exposure time and reoperation rate. The shoulder motion showed minimal restriction in Group A. The same was found in the elbow with group B. The operative time was highest in group C and was least in group A. Conclusions: MIPPO through the new posterior approach proved superiority by overcoming the disadvantages of open plating and avoiding nailing complications. Nailing is still preferred for open and pathological fractures, humeral shaft fractures in morbidly obese and osteopenic patients. Treatment decisions must be individualized, depending on the patient, fracture, and surgeon factors.

Abstract no.: 42992

HOW INDEPENDENT ARE OUR INTERTROCHANTERIC FRACTURE PATIENTS POST SURGICAL FIXATION -REHABILITATION EFFORTS AND CARE CONCERNS

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Introduction: In hip fracture patients, early functional recovery can reduce admissions to community hospitals and nursing homes for care concerns. Purpose of this study was to analyse extent of recovery of premorbid function at various stages of rehabilitation, in operated intertrochanteric (IT) fracture patients. Methods: In this prospective study over one year period, all IT fracture patients with age > 60 years and ambulant premorbidly with or without support were considered. They underwent a sliding screw fixation or proximal femoral nailing depending on the fracture comminution. Early and targeted rehabilitation was done as per Ortho-geriatric hip fracture pathway. Modified Barthel Index (MBI) scores reflect independence in self care for activities of daily living . Premorbid MBI scores were compared with scores at discharge, 6months and 1 year post fixation. Results: Of the total n=187 patients considered, the mean age was 81.27yrs. Their mean premorbid MBI score was 88.8. At time of discharge from hospital, the mean MBI was 60.07. Seven patients died during the study. Two patients were lost to follow up at 6 months and four more by one year. MBI score at 6 months post surgery was 78.3 and at 1 year was 83.23. Patients regained 67.6%, 88.1% and 93.7% of their premorbid MBI scores at discharge, 6 months and 1 year post surgical fixation. Conclusion: In operated IT fracture patients, rehabilitation efforts under ortho-geriatric hip fracture pathway can lead to faster and greater recovery of premorbid function thereby reducing admissions for care concerns.

Abstract no.: 42994

SURGICAL TREATMENT OF HALLUX VALGUS WITH FLEXIBLE METATARSUS ADDUCTUS BY LAPIDUS PROCEDURE

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[Objective] To review the indications, surgical techniques and clinical outcome of treating hallux valgus with severe metatarsus adductus by Lapidus arthrodesis. [Method] From Oct 2008 to Jan 2014 , 32 patients (34 feet) with hallux valgus were treated with Lapidus arthrodesis. Patients were revisited at 6 weeks, 3 months, 6 months, 1 year and 2 year after operation. The progress of fracture healing, as well as the occurrence of complications, was recorded. The hallux valgus angle(HVA)、 intermetatarsal angle(IMA) 、 proximal articular set angle(PASA) 、 metatarsus adductus angle(MAA) on weight-loading radiographs were measured. The function of the foot was evaluated by AOFAS Hallux Metatarsophalangeal-Interphalangeal Scale, VAS and SF-36 scoring. [Result] 27(28 feet) patients were followed up for 1~4 years(mean 2.8 years). The postoperative average AOFAS score was 85.9 points (95%CI, 81.5 to 90.4 points), VAS was 2.1 and SF-36 was 88.2, which were significantly higher than the preoperative assessment. Radiographs showed that HVA, IMA, PASA, MAA were recovered to a great extent. In this series, there was no nonunion or delayed union of arthrodesis, avascular necrosis of the 1st metatarsal head and hallux varus. One patient had sesamoiditis and one had metatarsalgia. [Conclusion] The Lapidus arthrodesis is a useful method for treating a hallux valgus with flexible metatarsus adductus. The current study reports a favorable union rate for this procedure, and the short to median clinical outcome was satisfied according to radiographs and physical assessment.

Abstract no.: 42997

REPAIRING CARTILAGE USING TENASCIN-C IN MURINE FULL-THICKNESS OSTEOCHONDRAL DEFECTS MODEL

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Introduction: Tenascin-C (TNC) is an extracellular matrix glycoprotein. While the expression is repressed in normal adult tissues, it reappears under pathological conditions such as wound healing, regeneration and tumorigenesis. In this study, we examined the effects of full-length TNC on joint cartilage repair and on synovial inflammation in full-thickness osteochondral defects model mice. Methods: We used 60 male BALB/c strain mice. Full-thickness osteochondral defects were created in the center of the femoral trochlea with a hand micro-drill equipped with a 0.3-mm diameter drill-bit. The defect was filled with TNC (group A: 100µg/ml, group B: 10µg/ml, group C: empty) by directly administration. Mice were sacrificed at 1, 2, 3, and 6weeks postoperatively, and whole knee joints were removed by dissection. Cartilage repair was evaluated using modified WAKITANI score. Synovitis were evaluated using synovitis score according to Krenn. Results: In safranin-O-staining, the defects in Group A were covered with hyaline-like cartilage at 3 and 6 weeks. Average modified WAKITANI scores were significantly better in group A than group B and C at 3 and 6weeks [3weeks: group A; 6.2, group B; 7.8, group C; 9.8 (p<0.05), 6weeks: group A; 6.4, group B; 7.6, group C; 8.6 (p<0.05)]. Low-grade synovitis occurred in all groups at each week. There were no significant differences in average synovitis scores among the groups at each days. Conclusion: This study demonstrated that full-thickness osteochondral defects in mice with 100µg/ml of TNC were successfully repaired with hyaline-like cartilage without exacerbating synovitis.

Abstract no.: 43003

EVALUATION OF LOCKED PLATE IN THE OSTEOSYNTHESIS OF FRACTURES IN OSTEOPOROTIC BONES

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Background: The use of conventional dynamic compression plates in osteoporotic bones has been associated with higher chances of implant backing out. The advent and use of locking combi-plates have ensured good and stable construct during osteosynthesis of fractures in osteoporotic bones. **Objectives:** The study aims to assess the outcome of use of locking combi-plates in the management of fractures in osteoporotic bones in our environment. **Methodology:** Cases of patients with non union and localised osteoporosis from January 2014 to December 2014 that were managed with locked combi-plates were reviewed. Outcome was assessed by time to healing, stability of implant construct after 6 and 12 months. **Results:** There were 8 patients with mean age of 44.25 9.17. There were 7 males and 1 female and road traffic crashes was the mechanism of injury in 87.5% (n=7) and gunshot injuries in 12.5% (n=1). Atrophic non was the commonest indication for osteosynthesis with 62.5%, followed by fibrous non-union with 25.0%. The femur was the commonest long bone involved. Locked broad DCP was used in 62.5% and the duration between initial injury and surgery was 6 and 48 months with an average of 17.5 months. The outcome was such that 87.5% healed after 12 months on follow up while 1 case was noticed have the implant backing out and delay union at 6 months. **Conclusion:** The use of locked plate in the management of non-union in the presence of osteoporosis ensures stable fixation construct and healing.

Abstract no.: 43005

SMALL WOUNDS BUT BIG BONE LOSSES. WHY THIS HAPPENS AND WHAT TO DO IN THESE UNIQUE DISTAL FEMUR FRACTURES: AN AWARENESS STUDY.

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17, Male with extruded 17cm distal Femur through a small 3cm wound anteriorly over the knee was managed successfully with reimplantation. Loss of such big bone fragment through only a small wound was puzzling. While researching this question, we came across a unique mechanism of injury which gave rise to the unique fracture pattern. The mechanism was the reason why reimplantation was successful. We believe we are describing a special cohort of distal Femur fractures because we came across 3 strikingly similar previous case reports (all had small anterior knee wound, the fracture anatomy and post op course in all were similar) and all managed by reimplantation. Then we wanted to know the awareness among Orthopaedic surgeons about this fracture. **Methods:** We conducted a survey amongst 66 Orthopaedic surgeons, showing the radiograph and anterior knee wound and asking if they found anything salient about the fracture pattern and also their ranking of preferred management options. **Results:** None of the surgeons classified the injury pattern as salient and Reimplantation was the least favored option. **Conclusion:** The fracture pattern described above is not infrequent. However, many surgeons are not aware of the unique mechanism of injury of these distal femur fractures which gives reimplantation the best chance of full rehabilitation. Also, there are definite injury characteristics which can help surgeons identify these fractures. **Implications:** This will protect many patients from lengthy and morbid procedures. Our's is a developing country and our patient wasn't very affording. Reimplantation had the extra advantage of being a single procedure, huge financial relief to patients in developing and underdeveloped nations with scarce insurance facilities.

Abstract no.: 43006

OSTEOGENESIS STIMULATION IN INFECTED NONUNIONS AND TUBULAR BONES DEFECTS.

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Introduction: Infected nonunions and long tubular bones defects in 40% lead to disability. The purpose of this work was to improve treatment outcomes of patients with given pathology by osteogenesis stimulation. Materials and methods: 172 patients with infected nonunions and long bones defects who passed the treatment in Minsk osteomyelitis treatment centre in the period from 2000 to 2015 were objects under study. Patients were divided into 2 clinical groups. The first, control group, included 121 patients whose treatment was administered according to standard practices. The second, basic group, included 51 patients whose treatment was administered according to the developed method. Osteogenesis intensity was estimated with the help of clinical, radiological, laboratory research methods. The basic surgery tactics – radical surgical debridement of osteomyelitis nidus - was applied to the patients of both groups. The developed method consists in transplantation of the mixture into a place of a bone defect or nonunion. The mixture consists of autologous bone marrow, ground demineralized bone graft, an antibiotic and inductive bone growth factors. The results: By 28th day the characteristics of the pathological nidus zones histogram and the intact bone histogram converged, which indicated osteogenesis activation in 48 patients of the basic group. By the 90th-120th days the anatomical structure of bones was restored. In the control group there remained structural discontinuity of the graft, periosteal apposition, medullary canal was not observed. Conclusions: Thus, transplantation of the developed mixture into a bone defect allows to reduce the period of patients' temporary disability.

Abstract no.: 43007

THE EFFECTS OF CONTINUOUS LOCKING SUTURE FOR FASCIA CLOSURE ON QUADRICEPS FUNCTIONS IN TOTAL KNEE REPLACEMENT, A PROSPECTIVE RANDOMIZED CONTROL TRIAL.

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Introduction: Quadriceps function recovery is the most important factor for postoperative outcome after total knee replacement. Therefore, the surgical approach through the extensor mechanism and the repairing technique would affect postoperative recovery. However, through our knowledge, no previous study had been clarified the effect of extensor mechanism repairing technique on postoperative quadriceps function. Our hypothesis is continuous locking suture, which having less surgical knot and probably better synchronization during knee motion, would result in less early postoperative knee pain and improving quadriceps power (QP). Materials and Methods: 94 patients were enrolled and randomly assigned into continuous locking suture group (Group A, n=46) and interrupted suture group (Group B, n=48). Visual analog scale (VAS), QP and its change from baseline, Modified Time Up and Go test (MTUG) and knee score were collected preoperative and during 6-months postoperative period. Results: The change of QP from baseline on 2-week postoperatively in Group B was significantly lower compared to Group A (-19.7%±35.0% versus -32.5%±25.0%, p=0.047). Group A demonstrated a significantly lower in mean postoperative VAS score during knee motion on postoperative day 3, compared to group B (3.0±1.9 versus 3.9±2, p=0.03). There was no significant difference in VAS score and QP change after 6 weeks. MTUG and postoperative knee score were non-significant difference between both groups. Conclusion: Continuous locking suture demonstrated significant lesser early postoperative pain, but lower QP during the first 2 weeks postoperatively. However, postoperative outcomes were non-significant difference after 6 weeks.

Abstract no.: 43008

THE WEEKEND EFFECT: A RETROSPECTIVE CROSS SECTIONAL STUDY REPORTING 30 DAY MORTALITY RATES OF FRACTURE NECK OF FEMUR PATIENTS, STRATIFIED BY DAY OF ADMISSION TO A LEVEL ONE TRAUMA CENTRE

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Introduction: The delivery of emergency care in the U.K. is under scrutiny following recent evidence suggesting a 'weekend effect' (Freemantle et al, BMJ, 2015. 351:h4596). Despite financially incentivised multi-disciplinary standards for care delivery, 30-day mortality rate in fracture neck of femur (NOF) patient's is 8.2%. We investigated weekday and weekend admission mortality rates. Methods: A retrospective cross-sectional study using a prospectively maintained database, included 2061 consecutive patients admitted between April 2010 and April 2015 with fracture NOF (mean age 82.5 years, 599 (29%) male and 999 (48%) intracapsular fractures). We compared 30-day mortality rates in patients treated surgically or conservatively by day of admission, adjusting for demographic data, fracture classification and comorbidities. Results: There was no significant difference in 30-day mortality of patients admitted on a weekday compared to patients admitted at the weekend (10.2 vs 9.7%; $p=0.74$). Increased mortality risk associated with male gender, older age, intracapsular fracture and increasing ASA grade. Furthermore, there was no significant difference in mean time to orthopaedic ward admission ($p=0.80$), surgery ($p=0.70$) or geriatric assessment ($p=0.91$). Conclusions: We did not observe a 'weekend effect' in hip fracture patients. There was no independent difference in weekday and weekend admission 30-day mortality, when admitted to a level one trauma centre providing on call junior doctor cover and consultant led service.

Abstract no.: 43011

ACHILLES ULTRASOUND GUIDED SURGERY

Sergio GARCIA GRANJA

., . (SPAIN)

The Achilles tendon is the most often broken one in the human body and its etiology is still poorly known. Frequently this happens to male patients between 30 and 50 years although nowadays due to increasing life expectancy, life quality and sport activity, the age range is increasing and thus also means patients with associated pathology that cause potential skin problems. The injury is often caused during a sharp effort, and the affected area is located usually 3-6 centimeters above the calcaneal tuberosity, in the tendon area where it has a narrowing and vascularization is more delicate, mainly in the posterior region. Treatment options are controversial and still unclear. We present here a percutaneous technique performed and assisted by ultrasound, which was conducted in 40 patients with acute Achilles tendon rupture, treated as outpatients, under local anesthesia, with immediate postoperative weight load allowed in walker with wedges and active mobilization exercises Achilles allowed from 3 weeks post-intervention. The results show a smaller diameter calf muscle atrophy similar to the contralateral muscle, a quick back to work and previous sports activities, without skin or infectious problem, with high AOFAS satisfaction rates, supported by MRI Control that does not show hypointense tendon areas at the breaking level.

Abstract no.: 43018

PREDICTORS OF THE CLINICAL OUTCOME AFTER ARTHROSCOPIC PARTIAL MENISCECTOMY FOR ACUTE TRAUMA-RELATED SYMPTOMATIC MEDIAL MENISCAL TEAR IN PATIENTS OVER 60 YEARS OF AGE

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The purpose of this study was to determine the predictors of the clinical outcome after arthroscopic partial meniscectomy performed for acute trauma-related medial meniscal tear leading to mechanical symptoms in patients over 60 years of age. The clinical data of 154 knees were evaluated. Body mass index (BMI), duration of symptoms, the hip-knee-ankle angle (HKA), type of the meniscal tear, presence of any chondral lesions, degenerative changes in the patellofemoral joint, the status of the cruciate ligaments and lateral meniscus, and the presence of any plica or synovitis were the independent variables. Visual Analog Scale (VAS) and Lysholm Knee Scoring Scale were the instruments used as outcome measures. Multivariate analysis was performed to determine the major predictors. The mean VAS score for 154 knees improved from 5.6 points pre-operatively to 2.3 points. The mean Lysholm score improved from 43 points to 72.7 points. VAS and Lysholm scores at the latest follow-up were significantly worse in patients with a pre-operative BMI ≥ 26 kg/m², HKA > 5 degrees, grade 3 or 4 chondral lesion according to Outerbridge classification, degenerative changes in patellofemoral joint surfaces, and an ACL which was either partially ruptured or degenerative with increased laxity. A pre-operative BMI ≥ 26 kg/m², Outerbridge grade 3 or 4 chondral lesion, degenerative changes in the patellofemoral joint surfaces, and an ACL either partially ruptured or degenerative with increased laxity should be considered as the major predictors of the clinical outcome when treating acute symptomatic medial meniscal tear in patients over 60 years of age.

Abstract no.: 43019

PURE ELBOW DISLOCATION IN PEDIATRIC AGE GROUP

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Purpose: The main purpose of the present study was to evaluate the clinical results and prognosis of pure elbow dislocations in paediatric age group following non-surgical treatment. **Methods:** Acute traumatic pure elbow dislocations treated between January 2008 and January 2013 were evaluated. The median age was 8 years. The mean follow-up time was 46 months. Active and passive range of motion, elbow stability, neurovascular status, functional status, and any early or late complications were evaluated and recorded at the latest follow-up. **Results:** The mean flexion- extension ROM was measured as 119.5 degrees. The mean pronation and supination were 67 and 79 degrees. Moderate instability was diagnosed in 4 cases. The mean MEPS score was 91.6 points; and the clinical outcome was excellent in 9 patients, good in 2, and fair in 1. **Conclusion:** Acute traumatic pure elbow dislocation in childhood is very rarely seen emergency that can be treated safely with closed reduction combined long-arm plaster splinting and physical rehabilitation.

Abstract no.: 43020

RADIATION EXPOSURE USING THE O-ARM® SURGICAL IMAGING SYSTEM

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Purpose: this study was conducted to characterize the O-arm® Surgical Imaging System in terms of patient organ doses and medical staff occupational exposure during three-dimensional thoracic spine and pelvic examinations. Methods: an anthropomorphic phantom was used to evaluate absorbed organ doses to patient during a three-dimensional thoracic spine scan and a three-dimensional pelvic scan with the O-arm. Staff occupational exposure was evaluated by constructing an ambient dose cartography of the operating theatre during a three-dimensional pelvic O-arm scan, and with an anthropomorphic phantom simulating the O-arm technician staying in the operating theatre during image acquisition. Results: Patient organ doses ranged from 34 µGy to 20 mGy and 4 µGy to 6.7 mGy for a three-dimensional thoracic spine and pelvic examination respectively. For a single three-dimensional acquisition, the maximum ambient equivalent dose 2 m away from the iso-centre was 11 µSv. Conclusion: Doses delivered to the patient during a three-dimensional thoracic spine image acquisition were found to be significant with the O-arm, but lower than those observed with a standard computed tomography examination. The detailed dose cartography allows for optimization of the medical staff positioning within the operating theatre while imaging with the O-arm.

Abstract no.: 43021

FRACTURE NECK OF FEMUR: REDUCE LENGTH OF HOSPITAL STAY

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Introduction: Neck of femur (NOF) fractures in elderly patients are the most frequent condition which an orthopaedic surgeon confronts nowadays. The incidence of these fractures is increasing as the population continues to age. These patients absorb the majority of the resources in the hospitals, as their health care demands are increased. Materials and Methods: We have included to the study all the patients who were admitted in our hospital from January until October 2015 following a neck of femur fracture. Total 336 patients were included to the study (72.3% female). We have gathered demographic and hospitalisation data from patients' files. Haemoglobin levels at admission and transfusion data were also collected. Results: Male patients appear to have higher relative risk of mortality comparing female ($p=0.01$). Patients with high ASA grade (IV-V) had higher mortality rate ($p=0.01$). Age, delay of surgery, type of surgery, AMTS and Hb at admission and type of fracture on the other hand does not have significant impact to the mortality ($p>0.05$). Patients who needed transfusion during their hospitalisation had significantly lower Hb at admission ($p=0.044$). More specifically the patients who had $Hb<110$ at admission were more likely to need transfusion ($p<0.001$). Hospitalisation of patients who needed transfusion was significantly prolonged. Conclusion: In our effort to deliver the best services to our patients, we consider transfusing the elderly patients with low Hb at admission ($Hb<110$) pre-operatively, with the view to increase their reserves for the operation and potentially speed up the rehabilitation process and decrease their hospitalisation time.

Abstract no.: 43024

A SIMPLE X-RAY APPROACH IN DETERMINING CUP ANTEVERSION AND ITS ROLE IN PREDICTING TOTAL HIP ARTHROPLASTY DISLOCATION

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Introduction: Total Hip Arthroplasty (THA) dislocation is a common complication, much depending on cup positioning. Tools have been made to read it, but these either required consistently accurate images or revealed to be too expensive. Objective: Our sought to evaluate a new inexpensive and uncomplicated method to determine cup anteversion and test its role in predicting THA dislocation. Methods: We performed a 1:1 case-control study selecting all 22 patients who suffered from primary THA dislocation between 2010 and 2014, independently from the year the primary procedure was performed. After surgical approach matching, a control group of 22 individuals was randomly built from the remaining pool of successfully treated patients. Groups and subgroups didn't differ regarding gender, age, etiology driving to THA, cementation, side and time to dislocation. Cup tilt was determined using the transischial line at anteroposterior X-rays. Cup anteversion was calculated by indexing the minor over the major elliptical diameter on anteroposterior films, later transforming it into arcdegrees. Pelvic rotation correction depended on the contralateral over ipsilateral major obturator foramen diameter index. Tests were parametric, assuming statistical significance for $p < 0.05$. Results: Corrected cup anteversion was the only measurement achieving statistical significance for THA dislocation in those approached according to Moore ($p = 0,046$), but not to Thomine ($p = 0,133$). Cup tilt played no role in either subgroups ($p = 0,407$; $p = 0,628$). Conclusions: Cup anteversion and surgical approach are pivotal in THA stability. Our corrected method for cup anteversion measurement is a simple and reliable tool in predicting THA dislocation, thus aiding in its avoidance.

Abstract no.: 43026

ROLE OF PROLENE MESH IN REDUCING DISLOCATION IN HIP TUMOR PROSTHESIS

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Introduction: The aim of the study was to determine the effectiveness of polypropylene mesh in reducing incidence of hip dislocation when used to reconstruct the hip capsule after the proximal femur resection and its influence on surgical site infection. **Material and method:** A retrospective analysis of a prospectively maintained sarcoma database identified 112 patients with a proximal femoral replacement after oncologic resection between January 2006 to May 2014. 79 patients (Group A) had adequate native capsular tissue after tumor resection and did not require any additional capsular augmentation while 33 patients (Group B) needed a polypropylene mesh to reconstruct the hip capsule due to inadequate capsule after tumor resection. Rate of dislocation and surgical site infection were analysed at a follow up of 1 year. **Result:** 101 patients were available for final analysis. Overall dislocation rate in our study was 3 % (3 out of 101). Group A had 4 % (3 out of 70) dislocation rate compared to 0% (0 out of 31) in Group B (p-0.551). Overall infection rate was 14 % (14 out of 101). 10% (7 out of 70) of Group A had infection compared to 23% (7 out of 31) in Group B (p – 0.120). **Conclusion:** Polypropylene mesh serves as an inexpensive readily available material to reconstruct the hip joint which offers immediate and long term stability in inherently unstable hips it does come with an increased risk infection (which did not reach statistical significance in our study).

Abstract no.: 43027

ROLE OF EXTENSOR HALLUCIS LONGUS IN THE ETIOLOGY AND PROGRESSION OF HALLUX VALGUS DEFORMITY

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Hallux valgus is a common deformity of foot that may often need surgical correction. Role of extensor hallucis longus (EHL) in its etiology and progression is not frequently discussed. Clinical material: During a period of 25 years (1990-2015), 226 patients of hallux valgus were seen in this hospital. Among them 93 feet in 82 patients were operated. There were 60 feet in 57 patients in whom EHL was found lateral to the axis of movement of metatarsophalangeal joint. There were 27 male and 30 females with average age of 37 years (range 15-60 years). In these feet, in addition to routine procedure of correction of deformity, EHL was relocated on dorsum of metatarsophalangeal joint. Out of these 60 feet the tendon was found contracted in 42 feet that required lengthening. In 5 feet, the insertion of EHL was lateral to the middle of the distal phalanx extending on to its lateral side which needed correction. In these 5 feet, the deformity was present since birth or early childhood (as narrated by parents). On follow up duration ranging from 6 months to 25 years, the deformity remained corrected in 57 feet. Recurrence of about 10% of deformity was observed in 3 feet.

Abstract no.: 43028

AN ANALYSIS OF PATIENTS WITH RECURRENT OR PERSISTENT BACKACHE WITH OR WITHOUT RADICULOPATHY FOLLOWING DISCECTOMY

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Introduction: We have evaluated the causes of recurrence of backache after discectomy in our hospital and followed up the effect of conservative and surgical management on them. **Methods:** Thirty one consecutive patients with recurrence or persistence of back ache ± radiculopathy following discectomy, during the period of September 2013 to September 2014 were evaluated. These patients underwent investigations, radiograph and MRI, and further treatment was done accordingly. They were followed up for 1 year and were evaluated using SLR, ODI and VAS scores. **Results:** The mean age was 45.34 years (range 28-66 years) and the male:female ratio was 1.8:1. L4-L5 was noted to be the most common operated level with recurrent symptoms. Repeat prolapse was noted to be the most common cause for recurrence followed by facet joint arthropathy. Out of 31 patients 23 responded to conservative management and 8 required exploration. The mean SLR changed from 72.05±11.39 to 80.23±6.75 ($p<0.05$) in conservative and 62.5±12.59 to 82.5±4.63 ($p<0.05$) in surgical management. VAS scores changed from 7.63±0.42 to 5.31±0.79 ($p<0.05$) in conservative and 8.06±0.82 to 4.3±0.47 ($p<0.05$) in surgical management. ODI scores changed from 39.09±2.27 to 28.50±3.49 ($p<0.05$) in conservative and 41.63±2.13 to 24.5±1.51 ($p<0.05$) in surgical management. **Conclusion:** Laminectomy and discectomy were more commonly associated with causes such as instability, repeat prolapse and facet joint arthropathy. Fenestration and microdiscectomy was associated with causes such as infection, haematoma and retained disc for recurrence. Surgical management had a higher rate of improvement in the first month and good improvement upto 1 year.

Abstract no.: 43032

COMPARISON OF TREATMENTS FOR PROXIMAL HUMERUS FRACTURE: CONSERVATIVE TREATMENT VERSUS MIPO

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(Introduction) We evaluated results of minimally invasive plate osteosynthesis (MIPO) technique for proximal humerus fracture and compare them with the results of conservative treatment. (Material and Methods) We retrospectively reviewed 115 patients with proximal humerus fracture. 50 patients were treated with conservative management ("C" group), and 65 patients underwent operation. All the operation was done with MIPO technique using NCB-PH (Zimmer). We assessed range of motion (ROM) and complications in both groups. We evaluated Japanese Orthopaedic Score (JOA score) in M group additionally. (Results) The period of follow-up averaged 13 month (3-24month). Average age was 65 years old in each groups. In C group, the range of motion(ROM) at the time of last follow-up was averaged 138 degrees of forward elevation(Elv) and 38 degrees of external rotation(ER); the internal rotation(IR) was to the thumb level of L1. There was nonunion in 1 cases, and malunion (varus deformity 20 degrees>) in 4 cases. In M group, the ROM was averaged 134 degrees for Elv and 41 degrees of ER; the IR was to the thumb level of L2. 3 cases were healed with malunion (varus deformity 20 degrees>). Peri-prosthetic fracture were occurred in 4 cases. 4 patients had subacromial impingement that successfully healed after hardware removal. There were no infections, nerve injuries, vascular injuries and avascular necrosis. (Conclusion) We achieved the equivalent outcome in both groups. But there were still some complications with this technique in M group. We report the indication of operation and limitation of MIPO.

Abstract no.: 43033

INCIDENCE AND TIME COURSE OF ASYMPTOMATIC DEEP VEIN THROMBOSIS WITH FONDAPARINUX IN PATIENTS UNDERGOING TOTAL JOINT ARTHROPLASTY

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Introduction: The aim of the present study was to define the incidence and time course of asymptomatic deep vein thrombosis (DVT) development during administration of fondaparinux, and to assess the efficacy of fondaparinux in resolving DVT after total hip arthroplasty (THA) or total knee arthroplasty (TKA). Materials and Methods: We studied consecutive 71 patients who underwent THA surgery, and 30 patients who underwent TKA surgery with fondaparinux prophylaxis. Patients received once-daily subcutaneous injections of 2.5 mg of fondaparinux for 14 days after surgery. DVT was diagnosed by ultrasonography, and it was scheduled on the day of surgery on day 1, day 4, and day 14 after surgery. Results: In patients who received fondaparinux for 14 days after THA surgery, the incidence of DVT was 0% on the day of the surgery, 13.6% at day 1, 27.1% at day 4, and 11.9% at day 14. In patients who received fondaparinux for 14 days after TKA surgery, the incidence of DVT was 4.2% on the day after surgery, 50.0% at day 1, 58.3% at day 4, and 20.8% at day 14. The incidence of DVT after THA or TKA surgery at day 14 was significantly reduced compared to that at day 4. Conclusion: The incidence of asymptomatic DVT up to day 4 was high, but with 14 days continued treatment of fondaparinux, the incidence of asymptomatic DVT occurring at postoperative day 4 was significantly reduced at day 14.

Abstract no.: 43034

STANDARD BIOCHEMICAL VARIABLES ARE PROGNOSTIC FOR SURVIVAL IN PATIENTS TREATED SURGICALLY FOR METASTATIC BONE DISEASE.

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Background and purpose: Orthopedic oncology is in search of a prediction model that can assist surgeons predicting patient's residual life expectancy prior to surgery. Several models have been proposed. We aimed to identify if standard biochemical variables are prognostic factors for survival in patients undergoing surgery due to metastatic bone disease (MBD) in the appendicular skeleton. Methods: A historical cohort of 270 consecutive patients undergoing joint replacement surgery at our tertiary referral center was identified. None was lost to follow-up. Standard biochemical variables were stated as: Hemoglobin, Leucocyte- and Neutrophil count, C-reactive protein (CRP) and Alkaline Phosphatases. They were dichotomized by the reference interval or by the median. Survival analyses were performed with Kaplan-Meier plots and Log-Rank Test for comparing groups. Furthermore, univariate and adjusted Cox-Regression analyses were performed. Results: Kaplan-Meier plots showed decreased survival in high-risk groups with p-values <0.001 for all biochemical variables. Adjusted for type of primary cancer, ASA-score, and presence of visceral metastasis Cox-Regression identified all variables as prognostic for survival with significant (p<0.001) adjusted Hazard Ratios (aHR): Hemoglobin above 8 mM aHR: 0.52 (95%C.I.: 0.36 ;0.74), Leucocyte count above 8.9 x10⁹/L aHR: 1.74 (95%C.I.: 1.30 ;2.3), Neutrophil count above 7.4 x10⁹/L aHR: 2.08 (95%C.I.: 1.53;2.82), CRP above 30 mg/L aHR: 2.08 (95%C.I.: 1.53;2.82) and Alkaline Phosphatases above 142 U/L aHR: 2.14 (95%C.I.: 1.57;2.93). Interpretation: Standard biochemical markers are prognostic for survival in patients undergoing surgery due to MBD and could be a valuable tool for the surgeon in the process of surgical planning.

Abstract no.: 43036

INCIDENCE AND TIME COURSE OF ASYMPTOMATIC DEEP VEIN THROMBOSIS WITH FONDAPARINUX IN PATIENTS FOLLOWING TOTAL JOINT ARTHROPLASTY

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Introduction: The aim of the present study was to define the incidence and time course of asymptomatic deep vein thrombosis (DVT) development during administration of fondaparinux, and to assess the efficacy of fondaparinux in resolving DVT following total hip arthroplasty (THA) or total knee arthroplasty (TKA). Materials and Methods: We studied consecutive 71 patients who underwent THA surgery, and 30 patients who underwent TKA surgery with fondaparinux prophylaxis. Patients received once-daily subcutaneous injections of 2.5 mg of fondaparinux for 14 days after surgery. DVT was diagnosed by ultrasonography, and it was scheduled on the day of surgery on day 1, day 4, and day 14 after surgery. Results: In patients who received fondaparinux for 14 days after THA surgery, the incidence of DVT was 0% on the day of the surgery, 13.6% at day 1, 27.1% at day 4, and 11.9% at day 14. In patients who received fondaparinux for 14 days after TKA surgery, the incidence of DVT was 4.2% on the day after surgery, 50.0% at day 1, 58.3% at day 4, and 20.8% at day 14. The incidence of DVT after THA or TKA surgery at day 14 was significantly reduced compared to that at day 4. Conclusion: The incidence of asymptomatic DVT up to day 4 was high, but with 14 days continued treatment of fondaparinux, the incidence of asymptomatic DVT occurring at postoperative day 4 was significantly reduced at day 14.

Abstract no.: 43037

EXPERT TIBIAL NAIL VS REGULAR INTERLOCKING NAIL FOR PROXIMAL AND DISTAL TIBIAL FRACTURES IN ADULTS

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OBJECTIVE:internal fixation with nailing is generally accepted as the best method of treatment for tibial fractures. To study the difference in the functional outcome following treatment of fractures of tibia with expert tibial nail & regular interlocking nail .To study the difference in the duration of union & complications of fractures treated with expert tibial nail & regular imil.**METHODS:**It is a prospective randomised comparative study which was carried out from june 2015 to January 2016 in Bapuji Hospital and Chigateri General Hospital attached to J.J.M. Medical College, Davangere. In this study period 40 cases of tibial fractures were treated by closed reduction and internal fixation using expert tibial nail & regular imil (20 cases in each group).**RESULTS:**The results were evaluated on the basis of fracture union, range of movements & subjective complaints according to KLEMM BORNER'S CRITERIA. The mean time of union for the tibia fixed with expert tibial nail was found to be 14.16 weeks (range 8-21 weeks) in comparison to 16.27 weeks (range 10-26 weeks) for the regular imil. (P=0.63, unpaired t test).**CONCLUSION:** Expert tibial nail group has functionally better outcome [17(85%) patients had excellent results, 3(15%) patients had good results] as compared to regular imil group [15(75%) patients had excellent results, 5(25%) patients had good results].expert tibial nailing is an effective treatment option for proximal and distal tibial fractures.

Abstract no.: 43042

FUNCTIONAL EVALUATION OF EARLY TENDON TRANSFER FOR FOOT DROP

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Introduction: Early tendon transfer has shown good outcomes in peripheral nerve injuries of upper limb. There is, however, lack of knowledge on the functional outcome of early tendon transfer for peripheral nerve palsy in lower limb. This study has been designed to study the functional outcomes of early tendon transfer for foot drop. Methods: We enrolled 15 cases of foot drop due to sciatic/common peroneal nerve (CPN) palsy between September 2012 and November 2015. We performed early tendon transfer in 12 patients. Nerve exploration and repair was done in 11 patients, 4 of which were INP. All patients were followed up for a minimum period of 6 months. Functional evaluation was done using Stanmore assessment questionnaire. Results: At the end of 6 months postoperative, the Stanmore assessment questionnaire score showed a significant improvement from a mean pre op score of 18.25 to mean postoperative score of 83.6. All patients were free of AFO. In cases with a long term follow up period of at least 12 months, there was a significant improvement in functional status of all cases, with increase in Stanmore score. Ankle dorsiflexion of operated limb was comparable to normal limb in cases where there was nerve recovery. Conclusion: Early tendon transfer in CPN/sciatic nerve palsy has a definite place in the management of the injured patient. The transfer, if appropriately carried out, acts as a helper, an internal splint, a substitute, or perhaps all of the three at varying times in the rehabilitative phase of the patient.

Abstract no.: 43043

OUTCOME OF APPLICATION OF EXTERNAL LONGITUDINAL LIGAMENTOTAXIS FOR TREATMENT OF COMMINUTED DISTAL RADIUS FRACTURES

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Introduction: Closed Reduction and Cast application for treatment for comminuted distal radius fracture have always led to disappointing results due to early redisplacement with angulation or late collapse. This study evaluates the clinical efficacy of external fixator providing ligamentotaxis across the distal radius fracture site, maintenance of fracture reduction and healing. Methods: Hospital based prospective study of 50 adult patients with displaced/comminuted distal radius fracture admitted at government hospital mysore during November 2013 to November 2014 who satisfied the inclusion criteria. Patients were assessed based on complications, duration for union and functional outcome. Patients were followed up for an average of one and a half years. Results: With external fixation and ligamentotaxis, the result in majority of cases was excellent to good as evaluated by the Modified Demerit point system of Gartland and Werley. Hence this study concludes that external fixator with ligamentotaxis is a good method of treatment in fracture distal end of radius. Keywords – distal radius, external fixator, fracture, ligamentotaxis

Abstract no.: 43045

A RETROSPECTIVE OUTCOME ANALYSIS OF FIXATION OF DISTAL TIBIAL FRACTURES WITH INTRAMEDULLARY NAIL VERSUS PLATE

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Introduction:The aim of this retrospective study was to compare the radiographic and clinical results of patients with unstable extra-articular closed or type I (Gustillo and Anderson) open fractures of the distal third of the tibial shaft, treated with ORIF with plates (mippo) to those treated with closed reduction and IM nailing. **Method::** Hospital based retrospective study of 50 adult patients with displaced/comminuted distal third tibial fracture admitted at government hospital mysore during august 2013 to februrary 2015 who satisfied the inclusion criteria. Patients were put into 2 groups of 25 cases each by double blind randomization technique. Both groups assessed based on complications, duration for union, functional outcome. Patients were followed up for an average of 1 year. **Results:**Our results suggest that especially in the distal third of tibia, control of alignment in all directions is difficult with a nail alone and a plate provides better alignment. An open reduction and plate stabilisation of the fibula should also be done to increase the rotational control. Malalignment of the tibia can cause degenerative changes in the knee and ankle joint. We found that anterior knee pain is still an important complication of IM nailing. There is no difference with regard to time to union, non-union, hardware failure or deep infections between ORIF and IM nailing. For optimal alignment we advise considering the use of ORIF for closed and type I open extra-articular fractures in the distal third of the tibia.

Abstract no.: 43048

TISSUE-ENGINEERED BONE FOR TRAUMATOLOGY AND ORTHOPEDICS: BIOTECHNOLOGY ASPECTS AND CLINICAL OUTCOMES

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The treatment of femoral head avascular necrosis (AVN), fracture nonunion and critical size bone defects is an actual problem in traumatology and orthopedics. Methods: The technique of the transcervical intracapsular transplantation of 3D tissue-engineered bone equivalent (3D-TEBE) based on autologous cells was developed for the AVN I-II/II-III therapy (26 patients). For the fracture nonunion treatment (24 total) both injection cell therapy (5 patients) and 3D-TEBE transplantation (19 patients) were used. For critical size bone defects restoration 3D-TEBE transplantation was performed for 12 civilian and 37 combat casualties. The following cultured autologous cell types were used: BM-MSCs, periosteum progenitor cells (PPCs) and peripheral blood endothelial progenitor cells (EPCs). Devitalized bone blocks or chips in fibrin hydrogel were used as a scaffold. Results: After AVN therapy we obtained bone structure recovery in 25 cases, 23 of them had the MRI signs of cartilage restoration. Twenty patients got the maximally possible joint function recovery. One patient needed total hip arthroplasty. Bone consolidation occurred in 24 fracture nonunion cases. One patient needed second cell transplantation. In 37 cases of the critical size bone defects the bone was restored over 4-8 months. The bone integrity was restored in all combat casualties. 3D-TEBE integration with host bone was observed 1.5 months after transplantation by X-ray examination. The full bone defect restoration occurred at the end of 5-6 months (two times faster comparing to the conventional treatment).

Abstract no.: 43049

PROXIMAL HUMERAL LOCKING PLATE IN PEDIATRIC FEMORAL SUBTROCHANTERIC FRACTURE

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Introduction: Pediatric subtrochanteric femoral fractures are rare. Treatment options is still controversial. The aim of this study is to present our results with open reduction internal fixation of subtrochanteric femoral fracture in older children using proximal humeral locking plate. **Methodology:** Two male patients with the age of 13 and 14 years old were admitted in our institution in 2015 and underwent open reduction, internal fixation using proximal humeral locking plate. Under general anesthesia, we placed the patient on a fracture table and the fracture were reduced after manipulation with the aid of an image intensifier. Using a lateral approach we fixed the fracture with the proximal humeral locking plate on the posterolateral aspect. We followed up the patient after 1 month, 3 months and 6 months. Radiographic healing were assessed and the functional outcome were evaluated using Harris Hip Score. **Results:** One fracture was simple and the other was comminuted. Radiographic healing were noted in both patients at 1 month post-op with good callus formation. The fractures were well united at 6 months postoperatively. Harris Hip Score yielded excellent results in both patients (96 and 98). No noted infection, implant failure, or malunion. **Conclusion:** Proximal humeral locking plate for pediatric femoral subtrochanteric fracture provides a stable and rigid fixation that can resist the deforming forces of the area. It resulted to a good bone healing and yielded an excellent functional outcome in our patients. This is our initial report and it appears to be a good treatment option for femoral subtrochanteric fracture in older children.

Abstract no.: 43051

FOUR YEAR EVALUATION OF A DEDICATED CLUBFOOT PROGRAMME USING THE PONSETI METHOD OF TREATMENT : VALUABLE LESSONS LEARNT

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Introduction: We conducted a 4-year review of all children treated at our dedicated Clubfoot Clinic, in order to study the results of treatment and to analyze the strengths & weaknesses of our programme. Methods : 616 children with clubfoot were treated from August 2011 – July 2015. 343 children (513 clubfeet) were available for final review at average follow-up of 2.5 years (3 months – 4.25 years). Mean age at treatment was 9 months (7 days – 10 years). 278 patients (81%) had idiopathic clubfoot. We studied the efficacy of our programme in relation to the success rate, age at presentation, number of casts, tenotomy rate, compliance with bracing, rate of recurrences and management of recurrences. Results : The mean Pirani score at start of treatment was 5.6 (4 to 6) and 0 – 0.5 at final review. Average number of casts was 6.17 (4 to 18) and the tenotomy rate was 83%. Compliance with foot abduction brace was good in 331 patients and success rate was 98%. Recurrences were seen in 34 patients (9.9%), mostly within the first 2 years after completion of treatment. Dropout patients (226 children) were studied to ascertain the reason for dropout. Discussion: Our review of a dedicated clubfoot programme displays several strengths that can be similarly replicated through the country. We have shown excellent clinical efficacy of the Ponseti method of clubfoot treatment, comparable with the best centres in the world (98% success rates, 96% compliance with bracing & recurrence rates of <10%).

Abstract no.: 43052

UNUSUAL COMPLICATION OF FLEXIBLE INTRAMEDULLARY NAIL IN PEDIATRIC FEMORAL SHAFT FRACTURE

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Introduction:Femoral shaft fracture is not uncommon pediatric injury. For <5 years old, non-surgical approach is recommended. For 5 - 14 years old, the most common mode of treatment is flexible intramedullary nailing with a known complication of pain at post-op site, inflammatory reaction/bursitis at the entry site, superficial and deep infection, knee synovitis, angulation or malunion, and etc.This study aims to present a rare complication of flexible intramedullary nail when not correctly applied.**Methodology:**We report the outcome of a 12 year old male with periimplant fracture left femur, who underwent removal of implant and insertion of flexible intramedullary nail. Patient was followed up at 1, 3, 7, and 10 months post-operatively. Varus-valgus, AP angulation, and limb shortening were measured pre and post-operatively. Complications were noted.**Results:**Pre-operative varus angulation was 10deg, anterior angulation of 55deg with limb shortening of 4cm. Postoperatively, varus was maintained to 10deg but anterior angulation was corrected to 40deg and limb shortening was reduced to 1cm. However, after 1 month the varus increased to 30deg maintaining procurvatum. Limb shortening increased to 2cm. Callus formation started to appear along the mechanical axis of the left femur which is apparent at 3 months post-op and procurvatum increased to 20deg. At 7 and 10 months post-op no signs of union was noted at the fracture site but the callus formation gradually progressed and appeared as a new femoral shaft.**Conclusion:**Formation of new bone in response to unstable flexible intramedullary fixation in pediatric femoral shaft fracture, is a rare complication.

Abstract no.: 43053

POSTERIOR DISLOCATION OF HIP WITH PERTROCHANTERIC FRACTURE: A RARE CASE REPORT

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Introduction: Traumatic hip dislocations are caused by high energy injuries. They are rarely associated with pertrochanteric fractures. There are extremely few reported cases describing this type of fracture dislocation and their management. Closed reduction of the dislocation is virtually impossible in most situations. **Materials and Methods:** We present the case of a 31 years old man involved in a road traffic accident sustaining a pertrochanteric fracture with an ipsilateral posterior hip dislocation. At the time of presentation he was haemodynamically stable and was neurovascularly intact. He was taken to operating theatre urgently. Open relocation of the femoral head was performed with the patient in supine position as an attempt of closed reduction was failed. A standard incision for a cephalomedullary nailing was used. A corkscrew was used to assist the relocation with one hand palpating the femoral head, which was lying under the gluteus maximus muscle. Hip joint found to be stable after relocation. **Conclusion:** We found this a good technique in reducing the dislocation with no further risk to sciatic nerve. Repeated attempts of failed closed relocation may injure the sciatic nerve as the femoral head may have button holed through the capsule as in this case. We stabilized the pertrochanteric fracture with a cephalomedullary nail.

Abstract no.: 43055

THE MANAGEMENT OF PINS-CARE IN EXTERNAL FIXATION TECHNIQUE: POVIDONE-IODINE VERSUS SODIUM HYPOCHLORITE 0,05% MEDICATIONS.

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Nowadays there isn't an universal approach to pin-site care to prevent infection. The medication of these pins is more important to obtain a good result in external fixation. Our purpose in this study is to evaluate the results obtained after pins medications with two different disinfectants: povidone-iodine (10%) and sodium hypochlorite 0,05% (Amukina-med®). 237 pins of 40 patients treated with Hoffmann II external fixation have been taken in consideration in our study. The medium age was 41.3 (range 19-71). All pins were inserted by hand pre-drilling associated with continuous irrigation with cold saline to reduce the risk of thermal necrosis. Patients were divided into 2 groups made of 20 patients each: in A group, 109 pins were medicated with povidone-iodine and in B group, 128 pins were medicated with sodium hypochlorite 0,05%. We had infection in 24 pins (22%) medicated with povidone-iodine and 13 pins (10,1%) medicated with sodium hypochlorite. We had a few pins mobilization, especially 13 in A group and 6 in B group. In all cases infections were resolved with oral antibiotic therapy. Our study showed the medication with sodium hypochlorite 0,05% reduces the percent of pins trans-infection and mobilization respect to povidone-iodine with an important significant statistical evidence (Chi-square's test: $p < 0.05$)

Abstract no.: 43057

EXTERNAL FIXATION IN PROXIMAL HUMERAL FRACTURES IN CHILDREN

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Humeral fractures represent less of 1% of all pediatric fractures and they are included between 3% and 6% of slipped epiphyseal. Observing in children between five and twelve years old, mainly in teenagers; in the infant period, they are only secondary to clavicle fractures. In most cases it is preferred a conservative treatment as a consequence of the high potential remodelling of children's bones. In a case of it is necessary a surgical treatment, the techniques more described in literature are using of percutaneous pins and Elastic Nails. Our approach consists in treatment of these fractures with an external fixation. We treated 11 children with age between 6 to 15 years old with proximal humeral fracture grade 4th in according with Neer-Horowitz's classification. The medium follow-up was 24 months and in all cases we obtained a good stability of the fracture and a fast healing. Vantages of the external fixation are rapid mobilization of the joint, low invasiveness, only a time of surgery, the possibility to correct any secondary displacement. It is important to underline that the positioning of the external fixation could be implanted by experienced surgeons and the patient should be cooperative to handle its until removal.

Abstract no.: 43058

IS DAY CASE FOREFOOT SURGERY ACCEPTABLE TO PATIENTS?

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Introduction The number of day case forefoot surgical procedures performed in the United Kingdom has grown rapidly in recent years. There remains a good deal of controversy concerning day case forefoot surgery. 40 consecutive patient attending Wirral university hospitals for forefoot day surgery procedure were surveyed. Basic demographic data was captured along with patient's satisfaction with process and overall care. The mean patient age was 53.8. 34 were females and 6 were males. The mean BMI was 26.4. 26 patients had American Society of Anaesthesiologists Score (ASA) of 1 while 14 were ASA 2. All the 40 patients filled in a 2 pages A4 pro forma to assess satisfaction after forefoot day surgery. 36 patients had received a clinic letter outlining their procedure prior to surgery written to them by their consultant. 39 of the patients knew that they were having a day surgery procedure. All the 40 patients attended a preoperative consent clinic. The mean satisfaction rate with the preoperative process was 89.1%. The mean satisfaction rate with the postoperative Physiotherapy was 81%. The mean postoperative pain score was 50.58%. None of the patients suffered a postoperative complication. The mean satisfaction rate of the day surgery experience was 92.7%. **Conclusions** Forefoot day surgery is not only acceptable and safe it is associated with high patient satisfaction rate. Proper preoperative counselling must occur as part of the consent process outlining the fact that they are having a day case procedure. Discharge is further enhanced by physiotherapy assessment prior to surgery on the day

Abstract no.: 43061

LOCALLY DELIVERED TAILORED ANTIBIOTICS FOR SALVAGE OF CHRONIC DIABETIC FEET INFECTIONS

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Management of chronic diabetic feet infections is challenging and labour intensive. 29 patients underwent salvage surgical debridement for diabetic foot infection. The mean age was 52.7; 23 males and 6 females. 9 patients type I and 20 type II diabetics. The mean follow up was 6.3 months. All were discussed in the Multidisciplinary Team Meeting. Magnetic resonance imaging preoperatively was done. All 29 patients had chronic osteomyelitis; 7 Hind foot and 22 Forefoot (11 phalangeal, 3 metatarsals and 8 affecting both phalanges and metatarsals). Surgical debridement was undertaken in 24, 2 toe amputations and 3 ray amputation. 5 deep tissue biopsies were sent for microbiology & a further deep sample was sent for histopathology. All patients had calcium sulphate paste (STIMULAN) mixed with tailored antibiotic injected into the deep tissues and or bone. 12 patients had postoperative negative pressure wound therapy (NPWT) dressings. 10 had regular postoperative non adhesive dressing and 7 underwent primary closure. 12 were treated with oral antibiotics and 9 had intravenous antibiotics. 8 patients did not receive any antibiotics. The seven patients who underwent primary closure have healed with no recurrence. The 2 patients who underwent NPWT and regular non adhesive dressings have demonstrated absence of infection. Due to the extensive debridement undertaken in these patients the limiting step in healing was epithelisation of the wound. All the patients have granulated. Local antibiotic delivery is effective in the treatment of chronic diabetic foot infection. We postulate that a tailored antibiotic regime based on cultures would have greater efficiency in treating infection.

Abstract no.: 43062

CHRONIC ANKLE INSTABILITY AFTER DISTAL FIBULAR NONUNION IN PAEDIATRIC POPULATION, A CASE SERIES AND LITERATURE REVIEW

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Chronic ankle instability (CAI) often occurs as a result of ankle injury. There is a paucity of literature documenting CAI in the paediatric population. The cause of instability was defunctioning lateral ligamentous complex as a consequence of bony avulsion of the tip of the fibula. Methods: Both patients sustained a twisting injury to the ankle. The force was sufficient to cause an avulsion fracture of the tip of the fibula. The fractures failed to unite with defunctioned anterior talofibular ligament (ATFL) & consequent CAI. MRI was requested in both cases. Case 1: Twelve year old girl. The MRI confirmed an intact ATFL and calcaneofibular ligament (CFL). The ligaments remained in their anatomic attachment to the non united bony fragment of the fibula. Having failed non-operative treatment, a decision was made to reduce and fix the avulsed fragment. The fracture was fixed with two headless screws and was immobilised in plaster for 6 weeks. Case 2: Nine year old girl. The MRI scan showed a ruptured ATFL with small bony avulsion. The CFL and posterior talofibular ligaments (PTFL) were intact. Due to the small size of the avulsed fragment fixation was not possible. A Modified Gould-Brostrom procedure was undertaken which facilitated a repair of the avulsed fragment using two G2 (dePuy-Mitek) anchor sutures. Results Case 1, the fracture healed without complication. The patient returned to normal activity with no impairment. The symptoms of instability settled completely. Case 2, post operatively the instability symptoms settled completely. The patient returned to normal activities.

Abstract no.: 43063

PATELLA LUXATION WITH LARGE CHONDRAL FRACTURE

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Chondral fracture of patella is very often after patella luxation. The authors compare results of 3 groups of patients: 2 groups of patients had refixation of large chondral fragments of patella with PDS transosseal suture (I) or with screw fixation (II), 3rd group of patients were fragments removed (III). Chondral fracture of patellae after luxation is quite often (48-72%). The repair of chondral fragment is crucial for femoropatellar good function in motion, without pain. The authors operated 32 patients in 1/2009-12/2014 with large chondral fractures of medial facete (average size 28x18mm) of patella after luxation, 21 women, 11 men, at the age of 13-28 years. The authors fixed fragments to the patella by transosseal PDS stitches NoI in 19 patients, in 5 patients with screws 2,0 mm, and in 8 patients the fragments were removed for comminuted chondral defect. Fixation of chondral fragments were provided by arthrotomy in 24 patients. In all cases there were sutures of ruptured medial retinaculum, in 13 cases we provided lateral release of patella for lateralisation more then 1/3 of patella. All patients were healed in 4 months after operation. In group "I" 1 patient had pain of the knee and limited of motion. In group "II" 3 patients had pain. In group "III" had 7 patients pain. Average Kujala score was 92 (group I), 86 (group II) and 78 (group III) in 1 year post operation. Refreshment of the subchondral bone and fixation of fragment by compression with PDS suture give excellent results.

Abstract no.: 43067

NATURAL HISTORY OF TUBERCULOUS SPONDYLITIS: A RADIOGRAPHIC EVALUATION

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WHO stated that in 2014, 9.6 million people fell ill with tuberculosis. It was estimated that 2% of these occurred in the spine. These figures were bases to investigate the character of the disease. Top ten countries afflicted by TB are developing nations where sophisticated imaging techniques are exorbitant costs born by patients. This study investigated the natural progression of tuberculosis evident on plain radiographs in correlation with patient's symptomatology. The purpose was to prognosticate patients with this diagnosis. It also validated the current pathophysiology. This study was performed in the Philippine Orthopedic Center, Spinal Surgery Unit among patients diagnosed with Pott's disease from January 2014 to December 2015. The radiographs of patients were evaluated at the initial consult and correlated with the time onset of low back pain and neurologic deficit. The findings were plotted in a timeline. AP and lateral radiographs of 273 patients consecutively seen in the department were included in the study. There were 130 females and 143 males. Mean age was 44 years old (range 18-78). A spectrum of lytic destruction of the anterior vertebral body was evident in 73% of cases. The range of destruction included minimal lysis of the endplate to complete erosion of the vertebral body and intervertebral disks. Most patients have an initial complaint of back pain 3-4 months prior to initial consult. Only 50% of these patients have neurologic deficit. This study concluded that radiographic evidence of vertebral destruction preceded far earlier its symptoms.

Abstract no.: 43068

ANALYSIS OF THE RELATIONSHIP BETWEEN DURAL TREATMENT AND THE RECURRENCE VIA A POSTERIOR APPROACH FOR VENTRALLY LOCATED SPINAL MENINGIOMAS

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Spinal meningioma is a relatively common tumor amongst intradural extramedullary spinal tumors. No consensus exists with regard the resection of dura mater at the occurrence site. Specifically, when the locus of the meningioma is located on the ventral side, dura mater resection and reconstruction become technically difficult. The purpose of this study was to analyze the relationship between a dura mater treatment and postoperative tumor recurrence following resection of ventrally located spinal meningiomas via a posterior approach. Twelve patients, who received surgical treatment for ventral spinal meningioma, were included. There were 3 male and 9 female patients, with an average age of 66.3 years (47-88 years). The average observation period was 55.4 months (22-132 months). All operations were performed via a posterior approach. In these cases, we analyzed the spinal level of tumor position, histopathological type (subtype), the grade of tumor resection (Simpson grade), pre- and post-operative walking state (Nurick grade), perioperative complications, and the recurrence. Histopathologically, there were eight cases of meningothelial type and four cases of psammomatous type. The level of tumor resection was Simpson grade I resection for 2 cases and Simpson grade II resection for the remaining 10 cases. The average of Nurick grade improved from 3.3 preoperatively to 1.3 postoperatively. One incident of tumor recurrence was identified 11 years after an operation involving a Simpson grade II resection. When a ventral occurrence of spinal meningioma is predicted, the operative procedure and approach should allow for Simpson grade I resection.

Abstract no.: 43069

ARTHROSCOPIC ASSISTED ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION USING BONE-PATELLAR TENDON-BONE (BTB) GRAFT AND RIGIDFIX FEMORAL FIXATION- A MIDTERM FUNCTIONAL OUTCOME

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BACKGROUND Arthroscopic reconstruction of torn ACL with bone patellar bone (BTB) has become the gold standard in treating ACL tears with high success rate. The purpose of this study was to prospectively evaluate the functional outcome after arthroscopic anterior cruciate ligament (ACL) reconstruction by use of bone patellar bone tendon auto graft (BTB) via rigidfix femoral fixation. **MATERIALS AND METHOD** We evaluated the results of 21 knees had been treated with arthroscopic ACL reconstruction by use of BTB autograft for femoral fixation and bioabsorbable interference screw fixation for tibia from March 2014 to August 2015. The mean follow up period was 18 months (range, 12 to 18 months). Patients were evaluated by the Lachman test, anterior drawer test, Lysholm score and Tegner activity scale at the preoperative and follow-up examinations. **RESULTS AND CONCLUSION** The mean Lysholm score postoperatively was 89.04 (range, 80 to 96). 23.8% of the 21 patients have good to excellent outcome, 66.7% patients have good to fair outcome and 9.5% patients have fair outcome. Post operatively 17 of them became Lachman negative and four patients showed grade 1 laxity and were statistically significant. The mean Tegner score before the surgery was 3.04 (range, 0 to 5) and attained 5.61 (range, 2 to 9) .ACL reconstruction via BTB autograft with femoral fixation by use of rigidfix eliminated anterior tibial translation in 81% of patients at a mean follow-up of 18 months. So the rigidfix cross-pin femoral fixation method via BTB autograft can be effective, useful, and reproducible.

Abstract no.: 43070

PRE-RADIOGRAPHIC OSTEOPHYTES ARE ASSOCIATED WITH CHANGES IN KNEE PAIN AND STRUCTURES IN OLDER ADULTS: A POPULATION BASED COHORT STUDY

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Objectives: To describe the prevalence of pre-radiographic osteophytes (OPs) in older adults; and to evaluate the predictive ability of pre-radiographic OPs for knee pain and structural changes. **Method:** 837 participants (mean age 62 years, 50% female) were randomly selected from local community at baseline. T1- or T2-weighted fat suppressed magnetic resonance imaging (MRI) was used to assess knee OPs, cartilage volume, cartilage defects and bone marrow lesions (BMLs) at baseline and after 2.6 years. Knee pain was assessed by self-administered Western Ontario and McMaster Osteoarthritis (WOMAC) Index questionnaire at baseline and after 5 years. Radiographic OPs was assessed at baseline using the Osteoarthritis Research Society International atlas. Knees with MRI-detected OPs but without any radiographic OPs at baseline were defined as pre-radiographic OP cases. Knees with both radiographic and MRI-detected OPs were defined as definite OP cases. **Results:** Of the 837 participants, 86.6% had MRI-detected OPs, while only 10% had radiographic OPs at baseline. The prevalence of pre-radiographic OPs were 628 (75%) in total knee at baseline. Compared to participants without any OPs, participants with pre-radiographic OP and with definite OP had greater cartilage volume loss and increased cartilage defects and BMLs over 2.6 years. Presence of pre-radiographic medial tibiofemoral OPs predicted decreases in total knee pain over 5 years, while participants with definite OPs predicted increases in total knee pain, after adjustment for relevant covariates. **Conclusion:** Although pre-radiographic OP is associated with knee abnormal structural changes, it predicts decreases in knee pain over time suggesting an adaptive response.

Abstract no.: 43071

PATELLAR RESURFACED PATIENTS HAVE QUICKER RECOVERY AND BETTER PATIENT SATISFACTION DURING THE FIRST 6 MONTHS OF SURGERY: JOURNEY AS IMPORTANT AS DESTINY.

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Patellar resurfacing or non resurfacing has been a topic of discussion for multiple decades. Proponents of patellar resurfacing claims better functional score and less anterior knee pain. In this study 43 total knee arthroplasty involving 40 patients with a mean age of 62 years who had tri compartmental osteoarthritis were evaluated. 23 patients who opted to undergo patellar resurfacing total knee arthroplasty were grouped under group A and 17 patients who opted to undergo non resurfacing total knee arthroplasty were grouped under group B. All the patients were subjected to same physiotherapy and post operative protocol. The patients in both groups were followed at 1st ,3rd and 6th months and at 1 year. Patients in resurfaced group started showing significant improvement from 3rd month onwards. Patients in resurfaced group had significant improvement in range of movements (<0.001) walking distances ($p<0.001$) and stair climbing capabilities ($p<0.05$) from 6th month onwards. British orthopaedic society showed comparable outcome among both the groups. A subgroup analysis excluding the non committal group showed significant improvement ($p<0.05$) in resurfaced group. Analysis on the anterior knee pain among two groups showed significant difference ($p<0.05$) in resurfaced group. Patellar resurfacing total knee arthroplasty yielded a better functional range of movements. The patients in the resurfaced group had a speedy return to their daily activities with no residual anterior knee pain unlike the patients in resurfaced group. Therefore we believe that patellar resurfacing total knee arthroplasty remains an excellent treatment even in Indian population.

Abstract no.: 43072

INFECTION RISK STRATIFICATION IN TOTAL JOINT PATIENTS USING A NEW SCORING SYSTEM: A VALIDATION STUDY

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To validate the new Infection Risk scoring system which was designed to predict the risk of post operative infection in patients undergoing joint replacement. This scoring system was designed after local audit at the authors center showed higher infection rate necessitating a need for process improvement Aim of the study is to validate the role of Cheyenne infection scoring system in the prevention of postoperative infection after total joint arthroplasty. Methods The scoring system was designed based on Analysis of historical data, extensive review of available literature, Panel discussion and consensus by a multidisciplinary panel. Patients were stratified based on the infection scoring system. Those with score 4 or above were considered high risk of infection. Patients who scored above 4 and with modifiable risk factors (Uncontrolled diabetes, smoking, pedal edema, poor skin) were counseled to consider risk reduction. The scoring system was implemented in the year 2013 in our center. After the implementation of risk scoring system in our center, it was tested on a prospective cohort of 150 patients undergoing joint replacement at our center. The infection risk in this cohort was 0% compared to the infection rate of 7.1% before the implementation of the scoring system The scoring system has aided the surgeon in reducing the postoperative infection rate significantly. The scoring system is evidence based, easy to use and gives a quantifiable number that is more understandable by the patient thereby helping them in performing a risk benefit decision analysis regarding the need for surgery.

Abstract no.: 43073

ASSOCIATION BETWEEN MRI-DETECTED OSTEOPHYTES AND CHANGES IN KNEE PAIN AND STRUCTURES IN OLDER ADULTS: A COHORT STUDY

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Objective: To describe cross-sectional and longitudinal associations between MRI-detected osteophytes (OPs) and knee structural abnormalities as well as knee pain in older adults. **Method:** Prospective population based cohort study of 895 participants aged 50-80 (mean age 62 years, 50% female) were performed. T1- or T2-weighted fat suppressed magnetic resonance imaging (MRI) was used to assess knee OPs, cartilage volume (CV), cartilage defects (CD) and bone marrow lesions (BMLs) at baseline and after 2.6 years. Knee pain was assessed by self-administered Western Ontario and McMaster Osteoarthritis (WOMAC) Index questionnaire at baseline and after 5 years. **Results:** 84.7% of participants had MRI-detected OPs at baseline. Cross-sectionally, MRI-detected OPs at medial tibiofemoral, lateral tibiofemoral and patellar compartments were significantly and site-specifically associated with a higher prevalence of CD and BMLs, and reduced CV after adjusted for common covariates. Severer MRI-detected OPs in patellar, medial tibiofemoral, lateral tibiofemoral and whole compartments significantly associated with higher prevalence of total WOMAC pain. Longitudinally, baseline MRI-detected OPs site-specifically predicted increases in CD and BMLs and loss of CV in total knee, medial tibiofemoral and lateral tibiofemoral compartments in multivariable analyses. Compared to participants without any MRI-detected OPs, there were significant dose-response relationships between medial tibiofemoral/total OP scores and increases of total knee pain over 5 years, before and after adjusted for relevant covariates. **Conclusion:** MRI-detected OPs were associated with knee structural abnormalities and knee pain cross-sectionally and longitudinally, suggesting the potential predictive value of MRI-detected OPs in OA.

Abstract no.: 43075

LONG TERM OUTCOME OF CRUCIATE RETAINING VERSUS POSTERIOR STABILISED TOTAL KNEE REPLACEMENT- AN AGE OLD DEBATE

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Introduction Total knee arthroplasty (TKR) is the mainstay of treatment for the patient with severe degenerative joint disease. Various authors reported about short- term and mid-term outcome studies between CR (Cruciate Retaining) and PS (Posterior Stabilised) design. We conducted a qualitative analysis of long-term survivor ship of CR and PS knees by revision due to aseptic loosening, instability, patellar complications, and periprosthetic fracture. **Methods** Twenty four articles have been identified with long-term follow-up. Six are comparative studies between CR and PS, four studies evaluating the survivor ship of PS design and 14 studies discussing about CR design. Eight are retrospective, ten studies are prospective and remaining six are level- IV studies. We analyzed National joint registry data of England, Australia and New Zealand also for this study. **Results** Our review shows that revisions due to aseptic loosening are comparable and revision due to patellar complication is slightly higher in CR knees. But revision due to instability and periprosthetic fracture is slightly higher for PS group. Considering over all survivability, the cruciate retaining knees has got less revision rate especially in reports with sizable case volume from reputed centers. Most studies from high volume centers and data from joint registry have shown that CR knee survivor ship is comparable to PS knee but none of the studies showed PS is superior to CR knees. In this absence of any data supporting the superiority of PS over CR, we recommend using CR knee in patients with longer life expectancy.

Abstract no.: 43076

EXTENDED TROCHANTERIC OSTEOTOMY IN REVISION HIP ARTHROPLASTY: A WORKHORSE APPROACH.

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Total hip arthroplasty (THA) – one of the most successful procedures in modern orthopedics. 10-year revision rates range between 5 and 20% mostly due to aseptic loosening, instability and osteolysis. We present the outcomes of 6 patients undergoing revision THA utilizing ETO. Methods Between 2014 and 2015, 6 consecutive revision THAs at our center. An ETO was carried out in all 6 patients for cement and implant retrieval ETO length was calculated preoperatively from the tip of greater trochanter preserving 2 cortical diameters distally. Results Mean age was 58.2 years (58-72). Indications for revision was Cup loosening – 1, Stem loosening – 2, femoral stem breakage - 2, Infection – 1, Indication for ETO were Stem and cup removal, Acetabular exposure. Mean ETO length was 125 mm (120-130). ETO fixation: 2 cerclage wires + 1 fiber wire (5) 1 cerclage wire + 2 fiber wires (1) Rate of union: 100% Mean ETO union: 22.2 weeks Revision system used: Revitan stem and Continuum cup Mean follow up: 10 months (8-14) Mean HHS improvement: 54.2 to 68.4 Conclusions While performing a revision THA, an extensive exposure can be achieved with the help of an ETO – the workhorse since 1995 Posterior and direct lateral approaches have been described with comparable union rates (close to 100%). We used the posterior approach at our center in all 5 cases ETO – successfully performed for aseptic loosening, infections, removal of well fixed broken cemented stems and fractures and complex primary THAs.

Abstract no.: 43078

BILATERAL INTERTROCHANTERIC FRACTURES IN A CHILD FOLLOWING 'NON-ACCIDENTAL INJURY': A RARE CASE REPORT

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Introduction : Paediatric hip fractures are rare and constitute less than 1% among paediatric fractures. Delbet classified hip fractures into four types. Bilateral intertrochanteric fractures in children are very rare and have been explained only few times in literature. However bilateral intertrochanteric fractures following 'non-accidental injury' as seen in this case ,has never been documented to the best of our knowledge.

Case report : Four year old female child was brought to our hospital by her mother with suspected act of child abuse by child's neighbour. Following detailed examination and radiological assessment, child abuse was confirmed. Child had multiple fractures in different stages of healing which included bilateral intertrochanteric fractures(Delbet type IV), D11 vertebral minimal wedge compression fracture, old malunited right supracondylar humerus fracture, old left proximal ulnar fracture and old malunited right proximal tibial fracture. Child was operated for bilateral intertrochanter fractures which appeared relatively fresh with open reduction and fixation with titanium elastic nailing and was immobilized by hip spica. Older fractures were managed conservatively. Eight months post operatively, there is complete radiological union of fractures and modified Harris Hip Score showed a score of 90 on both sides. Child is being counselled by child psychologist.

Conclusion : Child abuse needs attentive history elicitation and workup to diagnose. Bilateral intertrochanteric fractures rare very rare injuries, when managed properly, it possible to achieve good clinicoradiological outcome.

Abstract no.: 43082

PRIMARY INTRAARTICULAR AND EXTRAARTICULAR SYNOVIAL CHONDROMATOSIS : A RARE PRESENTATION AT ANKLE

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Introduction : Synovial chondromatosis is benign disorder wherein synovial tissue undergoes metaplastic changes into cartilagenous or osteocartilagenous bodies within joints, bursae or tendon sheaths. Knee, hip, shoulder and elbow are commonly involved whereas foot and ankle involvement are rare. Case report: 52 year old female presented with swelling over anteromedial aspect of right ankle with dull pain and terminal restriction in the movement over one year. On examination there were multiple palpable hard nodular swellings over anteromedial and anterolateral aspect of ankle joint. Radiologically, there were multiple calcific bodies of less than centimeter over anterior aspect of ankle joint. MRI T2 weighted images showed hypointense structures corresponding to osteocartilagenous bodies. Patient was operated with open excision of loose bodies and near total synovectomy. Intraoperatively we found multiple loose bodies of varying sizes intraarticularly as well as extraarticularly measuring subcentimeters with hypertrophic synovium. Histopathologic examination confirmed the diagnosis of synovial chondromatosis. Ten months follow up there was no recurrence. Discussion: Synovial chondromatosis can be primary or secondary. Affected age group is 30-50 years with more commonly seen in males than females. Histopathologic diagnosis is confirmatory though proper history, examination and radiography including CT and MRI. Important differential diagnosis include synovial chondrosarcoma, pigmented villonodular synovitis, tenosynovial giant cell tumour and soft tissue chondroma. Recurrence rate is 3-23%. Malignant transformation into synovial chondrosarcoma is seen in 5% of cases of primary synovial chondromatosis. Treatment depends on extent of symptoms which involves conservative treatment, open or arthroscopic removal of loose bodies with synovectomy.

Abstract no.: 43088

LOCALLY APPLIED SIMVASTATIN PROMOTES BONE FORMATION IN A RAT SPINAL FUSION MODEL

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Simvastatin is an inexpensive lipidlowering drug widely used to prevent cardiovascular disorders. This drug also has pleiotropic effects including bone stimulation, and it stimulates bone morphogenetic proteins-2 production. The local simvastatin application could increase bone formation in the some animal fracture or bone defect models. In the present study, we aimed to investigate the effect of bone formation with locally applied simvastatin in a rat spinal fusion model. We performed posterolateral lumbar fusion surgery with iliac autograft in thirty-eight rats. These rats were divided into 2 groups: group I (n = 17) animals were implanted with a carrier alone, group II (n = 21) animals were implanted with a carrier and a 0.5 mg simvastatin. The rats were euthanized after 6 weeks, group I (n = 7), group II (n = 10) and after 12 weeks, group I (n = 10), group II (n = 11). Their spines were explanted and assessed by radiography, micro-CT, and histologic analysis. The radiographic scores of group II were higher than those of the group I at both 6 weeks and 12 weeks time point. In micro-CT analysis, the tissue and bone volumes of the callus were higher in group II than in group I without significant deference, histologic analysis of the spines in groups II demonstrated new bone formation between the transverse process and showed mature osteoid tissue after 12 weeks. The effect of bone formation with locally applied simvastatin was efficacious in our rat spinal fusion model.

Abstract no.: 43090

CLINICAL AND FUNCTIONAL OUTCOME AFTER CRUCIATE RETAINING TOTAL KNEE REPLACEMENT FOR STIFF OSTEOARTHRITIC KNEE- A SHORT TERM OUTCOME STUDY.

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Introduction: Arthroplasty surgeons globally can be categorized into two- one favoring Cruciate retaining (CR) design and others preferring posterior stabilized (PS) design. Even though the registry data and mayo data showed increased survival for CR knees. In this study we are assessing the clinical outcome, functional outcome and patient satisfaction of cruciate retaining TKR in stiff osteoarthritis knee (with pre-operative ROM 15-90 degree). Methods: 30 patients with primary or secondary osteoarthritis with preoperative ROM 15-90 degree and mean age of 62 years are included in this study. This is a hospital based longitudinal study in which the data collected prospectively. The mean follow up was 1 year. All the patients were subjected to same physiotherapy and post operative protocol. The patients in both groups were followed at 1st, 3rd and 6th months and at 1 year. Result: Majority of the patients showed clinical improvement from 3rd month onwards. More than 90% of patients showed significant improvement in range of movements, walking distances and stair climbing capabilities from 6th month on wards. This study showed comparable result with historical studies with PS knee. At the latest follow-up, range of motion was significantly improved (~30 degree), as was the KSS. Conclusion: Patient undergoing total Cruciate Retaining TKR will have significant improvement in functional status and the risk of instability, dislocation and periprosthetic fracture very minimal. Considering the fact that CR is associated with less constrained knee, it also likely leads to long term functional out come because of decreased aseptic loosening.

Abstract no.: 43091

AN EXERCISE RESISTANCE BAND ENHANCES THE ACTIVE ANKLE EXERCISE-INDUCED INCREASE IN LOWER EXTREMITY VENOUS BLOOD FLOW

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Introduction: Venous thromboembolism is a serious complication that frequently occurs with orthopedic surgery in the lower extremities. Although active ankle exercise (AAE) is known as a physical thromboprophylactic method, the degree of exercise intensity required to enhance venous blood flow by AAE is unknown. We focused on an exercise resistance band as an easy tool in clinical practice to apply resistance to plantar flexion in AAE, and aimed to examine whether the band augments the AAE-induced increase in the peak velocity (PV) of blood in the superficial femoral vein. Materials and Methods: Twenty healthy young adult men performed AAE without resistance and with 4 bands of different colors and intensity levels (tan, red, blue, and silver) every 2 seconds in sitting and supine postures. We measured PV three times in each condition on pulsed Doppler ultrasonography, and calculated the means of the three values for statistical analysis. The length of the band at initiation of AAE, when the participant held it with an elbow in extension and an ankle in maximal dorsiflexion in each posture, was defined as its natural length. Results: The PVs in all the conditions in each posture were significantly higher than the PV at rest. The PV with the band was significantly higher only in AAE with the silver band, which showed the highest intensity in both postures (all $p < 0.05$). Conclusions: Use of an exercise resistance band can effectively augment the AAE-induced increase in PV, and increase the thromboprophylactic effect of AAE.

Abstract no.: 43092

**CLINICAL COURSE OF SKIN INVOLVEMENT OF SOFT TISSUE
SARCOMA**

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Introduction: Malignant soft tissue tumors can invade skin and occasionally present malignant wounds characterized by bleeding, exudate, odor, and infection. Bleeding from the tumor impairs patients' quality of life and can be life threatening. This study aimed to highlight the clinical problems associated with skin involvement of malignant soft tissue tumors. Methods: The patient group comprised 13 males and two females, with ages ranging from 23 to 87 years (mean 67 ± 17). The average follow-up was 26.2 months (3–106 months). Clinical information concerning clinical problems and courses associated with skin involvement of soft tissue sarcoma was investigated. Results: Skin involvements were observed in 10 of 15 cases in male patients over 65 years old. Tumors were located in the chest wall in six cases. The tumors were relatively large . and in 13 cases the histological diagnosis was high grade sarcoma. Skin involvement resulted in malignant wounds in 10 individuals. Six cases had undergone previous surgery. Surgical removal was done in 11, and amputation in two. Two patients received palliative treatment. After tumor removal, eight cases needed skin reconstruction, five by major musculocutaneous flap and three by skin graft. The 1-year survival rate was 69.5%, and the 5-year survival rate was 55.6%. Conclusions: Wide resection and skin reconstruction was generally necessary to achieve local control, because of the large skin and soft tissue defects. To avoid exacerbating the systemic condition, topical Mohs' paste and zinc oxide starch powder was used as palliative treatment or for pre-operative local control.

Abstract no.: 43095

CHECKREIN DEFORMITY- A STRANGE COMPLICATION AFTER TIBIA FRACTURE

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Checkrein Deformity is described as a Flexor hallucis longus tendon (FHL) pathology after a lower limb injury that appears six or nine months after it. The clinical presentation is a flexion contracture of the IP joint with mild extensión contracture of the hallux MP joint occasionally with the second and third toes included. The deformity increases with dorsiflexion of the ankle; plantarflexion of the ankle can partially correct the deformity. The tendon entrapment occurs inside fibrous tissue or fracture callus but also that can be secondary to a subclinical compartment síndrome. Our patient is a 16-year-old female who suffered a car impact in the lower limb The diagnosis is Tibia shaft fracture 42-A3 and soft tissues injury Tscherne 1 A surgery is made in 24 hours by nailing with no incidence. During the next weeks we observe a flexion contracture of the IP joint with mild extensión contracture of the hallux. Also the patient noticed the contracture of her great toe. We performed a leg and FHL ultrasonography, MRI, electromyography all with no evidence. Physical examination compatible we thought that should be a checkrein deformity. 5 months after surgery we appreciate fracture consolidation and decide to make deformity correction surgery The sequelae surgery consists in FHL and FDL (flexor digital longus) "Z" lengthening associated with IP capsulectomy. After surgery we used a cast during 3 weeks. One month after this surgery the patient walks properly with no deformity .

Abstract no.: 43096

EFFECT OF DRAINAGE TUBE ON KNEE FUNCTION AFTER ARTHROSCOPICALLY ASSISTED DOUBLE BUNDLE ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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Background: There is a paucity of literature evaluating the use of intra-articular drains after Arthroscopically assisted double bundle anterior cruciate ligament reconstruction(ACL) and their effects on knee function. Objective: The aim of this study is to determine the effect of postoperative drain use on knee function after DB ACL reconstruction with quadrupled hamstring graft. Methods: In this study, 38 arthroscopic DB ACL reconstruction patients were randomized for either intra-articular suction drain group or non-drain group. Outcome Assessment was done on postoperative day 4, day10, 1 month, 3, 6 and 12 months after the surgery in which patients were asked to complete a visual analogue pain scale. They were assessed for range of motion in flexion and extension with a universal goniometer, knee effusion and knee stability by lachman test. Result: Both treatment and control groups showed no statistical significant difference in flexion of the knee through the range of motion. ($p = 0.116$). The percentage reduction in knee effusion was found to be statistically significant at 4th ($p < 0.001$), 10th ($p < 0.001$) 16 and one month ($p = 0.012$)) in between treatment and control group. The overall pain difference between the two groups was not found to be statistically significant. ($p = 0.198$). Conclusion: Clinically the drain group showed faster pain relief, lesser effusion and early return to motion compared to the no drain group but was not statistically significant.

Abstract no.: 43099

MANAGING POST INFECTIVE GAP NON UNION IN CHILDREN IN DEVELOPING COUNTRIES

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Post infective gap non union in long bones in children is a difficult problem due to Infection, gap, shortening, deformity, joint stiffness and soft tissue issues. Considerable judgment is required to manage these cases and many a times innovative procedures are required suiting socioeconomic conditions of the patient. We treated forty five such difficult post infective gap non union in 40 children; Post open fracture 19 cases and squeal of pathological fractures in hematogenous osteomyelitis in 26 cases. Age at the time of reporting ranged from 18 months to 15 years. Tibia was the commonest bone to get involved, followed by Femur, Humerus, Radius and Ulna. A number of surgical procedures (54) were performed to achieve union. Tibialization of fibula(18), Single bone forearm(5), bridging the defect with strut graft(7), freshening of edges, bone grafting and stabilization(16), Ilizarov fixator(5), Nicoll's procedures(3) etc. were some of the common procedures. In 9 patients, two surgeries were required. Earlier sequestrectomies, curettage of sinuses, soft tissue coverage procedures were performed whenever indicated. In final analysis, thirty eight of the fractures had united, two landed with amputation and five still awaiting union. The results and indications of surgery have varied from series to series. We are presenting here our experience in treating these difficult non unions in children in a follow up ranging between 6 months to 5 years. We conclude that in societies, where amputation is still considered social stigma, limb conservation procedures should be given a chance.

Abstract no.: 43100

BACTERIOPHAGE THERAPY FOR TREATMENT OF METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) OSTEOMYELITIS - AN EXPERIMENTAL STUDY

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Background: Methicillin resistant *Staphylococcus aureus* (MRSA) are emerging as an important pathogen. The aim of this study is to evaluate an alternative therapy i.e. the role of *S. aureus* specific bacteriophages in the therapy of acute and chronic osteomyelitis caused by MRSA in an animal model. Materials and Methods: After approval from ethics committee, in twenty rabbits, osteomyelitis was created in the distal femoral metaphysis with known strains of MRSA. Rabbits were divided into Group A (n=4) to confirm the establishment of osteomyelitis, Group B (n=4) animals with osteomyelitis where Phage therapy started after 6 weeks and Group C (n=12) where therapy started after 2 weeks of establishment of infection. Groups B and C rabbits were treated with 4 doses of predetermined cocktail of seven virulent bacteriophages given intra lesionally at interval of 48 hours. Three groups were compared by clinical, radiological, microbiological and histopathological examinations. Results: Experimental group rabbits (B & C) recovered very well from the systemic and local illness within two weeks of the therapy. All the parameters studied showed convincing healing. Rabbits getting phage therapy after 6 weeks of infection also recovered satisfactorily, however, slowly. There was no recurrence or adverse effects in follow up period of 14 weeks. Conclusion: Local bacteriophage therapy appears promising treatment modality for acute and chronic osteomyelitis. The cost effectiveness and lesser adverse effects and their activity against biofilm forming chronic infection, makes it more favourable for its clinical use in future.

Abstract no.: 43101

RARE COMPLICATION OF PROXIMAL FEMORAL NAIL ANTIROTATION(PFNA) INSERTION OF ARTERIAL INJURY PRESENTED WITH TRIAD OF THIGH SWELLING, BRUISING AND REFRACTORY ANEMIA.

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Abstract Introduction:This case illustrates a rare complication of arterial injury to branches of profunda femoris after intramedullary nailing for proximal femur fracture. **Presentation:** The Patient underwent left hip proximal femoral nail antirotation (PFNA) insertion for left intertrochanteric fracture. Post-operatively, noted to have increasing thigh swelling, bruises and refractory low hemoglobin despite numerous transfusions. **Treatment:**The Patient underwent angiography which showed blushing of the bleeding artery. Embolization and evacuation of hematoma were performed. Patient was discharged well. **Discussions:**Recognition of the triad of thigh swelling, bruises and refractory anemia should alert clinicians on possible arterial injury following orthopaedic procedure on proximal femur.

Abstract no.: 43102

BIODEGRADABLE POLY(ϵ -CAPROLACTONE) AS CONTROLLED DRUG DELIVERY VEHICLE OF VANCOMYCIN FOR THE TREATMENT OF MRSA INFECTION

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Poly Methyl Methacrylate Acetate (PMMA) antibiotic beads are common local antibiotic delivery system, however, there are limitations. A second surgery is required for removal as PMMA is not biodegradable. Further, only heat stable antibiotics can be used with this vehicle. We fabricated and studied the biodegradable poly ϵ -caprolactone and Vancomycin (PCL-VMC) hybrid as delivery vehicle for vancomycin in controlling the MRSA osteomyelitis in an experimental study. PCL-VMC hybrid was prepared by dispersing the drug homogeneously through solution route. An in vitro study was conducted to optimize the vancomycin impregnation in PCL-VMC hybrid. In vitro drug release pattern from the hybrid material was investigated. Strong interaction between drug and polymer and also the sustained drug release was observed. For in vivo study, unicortical defect was created in the metaphysis of distal femur in 12 rabbits (24 limbs). After contaminating the defect with MRSA, rabbits were divided into two groups. Group I Polymer alone (control) and group II Polymer with vancomycin (experimental). Rabbits were assessed by clinical, radiological, histological, gross examination and bacterial load assay. In Group I infection persisted throughout the period of study. Group II did not show sign of infection in the follow up. The bacterial load study showed progressive decrease. The serial histology confirmed the biodegradability of polymer. We conclude that due to sustained bioavailability of antibiotic in our 'in vitro' study, its nature of biodegradability and ability to control the fulminate infection in 'in vivo' experimentation, PCL-VMC hybrid is a preferred material for control of osteomyelitis.

Abstract no.: 43104

TEN YEARS FOLLOW UP OF MULTIFOCAL RECURRENT EOSINOPHILIC GRANULOMA WITH VERTEBRA PLANA

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Patient presented in 2005 at the age of 5 years with low back pain and limp. She had lumbar tenderness with no neurological deficit. Systemic examination, hemogram was normal. Xray spine showed silver dollar appearance of L2 and D11 vertebra. In absence of biopsy facility, she was treated on the lines of tuberculosis for 8 months with no relief. In 2006 she sustained fracture of right proximal ulna. X ray showed a well defined expansile lytic lesion in proximal metaphyseal region. Biopsy reported langerhan cell histiocytosis. The chemotherapy with vinblastin and prednisolone was started and after 18 months she was relieved of her pain. Radiologically lesions started showing sign of healing and gain in vertebral height. In 2009 she developed a scalp swelling. Xray showed similar type of picture as in ulna. Biopsy showed LCH. This was a new lesion with emergence of pain in ulna and spine suggestive of reactivation. Chemotherapy was again started with 3 drugs vinblastin , prednisolone and 6-mercaptopurine. After 12 month of treatment she was improving. In 2015, Xray showed near restoration of vertebral height and decreased in lesion size of ulna and skull. The major challenges facing investigators is to design therapy that prevents reactivations and significant permanent consequences. Literature showed recurrence of 45% with single drug and 20% with two-drug therapy for multifocal bone patients. A regimen of three drugs in our patient showed no recurrence in 6 years of follow up and can be recommended to prevent the recurrences.

Abstract no.: 43105

PREGABALIN TREATMENT FOR COMPLEX REGIONAL PAIN SYNDROME AFTER FRACTURE IMMOBILISATION

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Introduction: Complex regional pain syndrome (CRPS) is a neuropathic pain disease. Pregabalin is an effective agent for the treatment of several peripheral or central neuropathic painful conditions such as diabetic neuropathy, postherpetic neuralgia, etc. There are a few studies about pregabalin with or without other drugs for the treatment of CRPS. The aim of this study is to determine the clinical effect of oral pregabalin treatment in CRPS. **Patients and Methods:** Patients who were in follow-up with fracture treatment and diagnosed as CRPS after immobilisation of fracture were participated in our study. Fracture sites, immobilisation time of injured site and onset of symptoms after trauma were noted for all patients. Pregabalin treatment started at a single dose of 25 mg daily for all patients with the diagnosis of CRPS and continued for 4 weeks. Physical examinations of patients were performed before and after the treatment. Local osteoporosis were noted if seen in radiographs. VAS and SF-36 scores were filled by all patients before and after the treatment. **Results:** A total of 16 patients with a mean age of 53.5 were included in our study. Mean immobilisation time was 7.6 weeks and mean onset of symptoms was 11.2 weeks. Allodynia, hyperesthesia, color changes, color asymmetry, sign of edema, sweating changes, temperature asymmetry, decreased ROM and motor weakness improvements were statistically significant. VAS and SF-36 scores improvements were statistically significant. **Discussion:** It should be noted that pregabalin is a proven effective agent in neuropathic pain conditions and should be considered in the treatment of CRPS. There is a need for long-term and large population studies in this controversial issue.

Abstract no.: 43106

**REFRACTORY PERIPROSTHETIC HIP ARTHROPLASTY INFECTION ,
RISK FACTOR EVALUATION AND TREATMENT WITH DIRECT LOCAL
ANTIBIOTIC INJECTION, AN EXPERIMENTAL STUDY**

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In some cases of periprosthetic joint infection, despite debridement and prosthesis removal and insertion of antibiotic impregnated cement spacer, infection does not resolve in the first stage. In this study, we try to eradicate infection in these refractory cases with local injection of antibiotics besides intravenous antibiotic therapy after second debridement and spacer removal. In these cases, the second procedure was changed. After complete debridement and implant removal new cement impregnated spacer was not inserted. Instead, a large drain pipe was inserted deep in the wound. Intravenous antibiotics were started in usual manner but extra antibiotics (half of the intravenous dose) were injected through drain directly in the depth of wound. Duration of antibiotic therapy was 6 weeks. From 2005 to 2014 , 2446 hip arthroplasties had been performed in our Hospital. Infected cases were studied . There were 46 cases of infection considered to be appropriate for two stage total hip arthroplasty. There were 14 cases (30%) which were refractory to first stage of treatment. Although all studies show that insertion of spacers may have better functional results, but eradication and resolution of infection has priority . It may be a start to define a scoring system to guide surgeon to select the best strategy for treatment of PJI.

Abstract no.: 43107

A COMPARATIVE STUDY BETWEEN FAST TRACK TOTAL HIP ARTHROPLASTY AND STANDARD CARE

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Introduction: Current trend in total hip arthroplasty is fast track total hip arthroplasty with shorter hospital stay. This study compares fast track THA with standard care. Materials and methods: THA cases (primary, unilateral) were studied. There were 2 groups (standard care and fast track) and two sub groups (40-60 years old and 60-80 years old). They followed for 1 year and hip scores (HHS, OHS, WOMAC) and other complications (dislocation, infection, DVT, IHD, ...) were recorded. Results: There were 46 patients in each group. Age, sex and underlying cause of hip destruction were matched. Average hospital stay in each group were 7 days and 2 days in standard care and fast track group respectively. There were lower scores in 2 weeks follow up of fast track but reach to standard care scores at one year follow up. Total costs (hospital stay, operation charge and prosthesis fees) are significantly lower in fast track group because of less duration of hospital stay and related charges. Discussion and conclusion: It seems that fast track THA has similar results with standard care with much lower price. Key words: total hip arthroplasty, standard care, fast track, post operative period

Abstract no.: 43109

EVALUATION OF LOWER LIMB AXIAL ALIGNMENT USING DIGITAL RADIOGRAPHY STITCHED FILMS IN PREOPERATIVE PLANNING FOR TOTAL KNEE REPLACEMENT

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Background: For patients with knee Osteoarthritis, even slight anatomical variations in the femur or the tibia could affect total limb alignment during Total Knee Replacement (TKR). Our hypothesis implies that the femoral Valgus Correction Angle (VCA) in patients indicated for TKR, is variable and higher than the reported norm of 6-degrees utilized in most intramedullary instrumentation systems, and that tibial bowing may result to a disparity of the tibial mechanical axis to the anatomical axis.**Methods:** Our study is a retrospective review of 216 pre-operative arthritic knees, which investigated the lower limb axial alignment using Digitally-stitched films. Patients excluded from the study are those with history of previous tibial or femoral osteotomy, secondary gonarthrosis, rheumatoid arthritis, previous femoral or tibial fracture, patients for bilateral TKR, or history of hip surgery.**Results:** The mean age was 68 years old (range: 39-86y). The mean VCA was 7 degrees (4.7-9.3) for men and 6.6 degrees (4.9-9) for women. However, 71 patients (33%) had more than 7 degrees VCA. Subsequently, 46 patients (21%) had tibial bowing producing an angle >1.5 degrees between its' mechanical and anatomic axis.**Conclusions:** The 6-degree standard when used as a guide may result in suboptimal prosthesis positioning during conventional TKR surgery. Therefore our findings suggest that the femoral valgus correction angle has a broad range, and using standard femoral intramedullary guides should not be overlooked.

Abstract no.: 43111

EARLY OUTCOME OF ENDOPROSTHETIC REPLACEMENT OF BONE TUMOURS AROUND THE KNEE IN A DEVELOPING COUNTRY: A CASE SERIES

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Background: The application of endoprosthetic replacement in the treatment of distal femoral tumours has become standard practice in Orthopaedic Oncology. However, this treatment modality is a rarity in sub Saharan Africa due to high cost of treatment and late presentation to the Orthopaedic surgeon. This case series presents the early outcome of endoprosthetic replacement for patients with bone tumours. **Methods:** Four consecutive patients who were treated for distal femoral (3 patients) and proximal tibial (1 patient) tumours using endoprosthetic replacement between June 2013 and August 2015 were reviewed in this observational study. Patients age range at the time of surgery was 20 - 48 years. Histopathological diagnoses derived were Giant cell tumour in two patients, plasmacytoma in one, and an osteosarcoma in the fourth patient. All the patients underwent wide local excision with modular endoprosthetic reconstruction and were evaluated using the Musculoskeletal Tumour Society (MSTS) Scoring System. **Results:** The MSTS functional scores calculated were 70%, 93%, 54% and 83% respectively. Complications noted included wound dehiscence in two patients, thrombosis of the posterior tibial artery needing an arterial embolectomy in one patient and loosening of the hinge mechanism which required a rebushing in the fourth patient. **Conclusions:** The early outcome of endoprosthetic replacement for bone tumours around the knee appears favourable despite the challenges peculiar to the West African sub region.

Abstract no.: 43116

HAS MINIMALLY INVASIVE SURGERY MADE A DIFFERENCE IN THE TREATMENT STRATEGY FOR METASTATIC SPINE DISEASE- AN EVIDENCE BASED REVIEW

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Purpose:There is evidence in the recent past that there has been major evolution in treatment of metastatic spine disease (MSD) with advent of minimally invasive surgery (MIS). We aimed to discuss evolution of surgical treatment in MSD from open approach to MIS. This will provide sound base for further development and understanding of treatment paradigms in MSD. **Methods:** Relevant articles were selected using search terms: “minimally invasive surgery”, “surgery”, “metastatic spine disease”, and any of the above terms with “radiotherapy” and “chemotherapy”. We also identified additional articles through hand searches of references. **Results:** A multidisciplinary team approach including spinal surgeons, medical & radiation oncologists is mandatory as the treatment options are constantly evolving and are of much debate. Current evidence shows best clinical outcomes are achieved by surgery with timely post-operative radiotherapy. To make surgical management an appealing choice in MSD, surgical morbidity needs to be minimized, especially when planning oncological treatment around surgery. MIS approaches have shown encouraging results with early wound healing resulting in early introduction of radiotherapy, reduced intra-operative blood loss and shortened hospital stay, good outcomes in terms of pain reduction and neurological improvement, comparable to open surgery. We also provide our treatment algorithm to operate on patients with MSD, which relies on clinical presentation and radiological appearance of spinal cord compression. **Conclusions:** Patient’s quality of life can be improved through MIS. Introduction of MIS can be a game-changer in the treatment of MSD due to less peri-operative morbidity and allowing earlier radiotherapy and/or chemotherapy.

Abstract no.: 43117

A PROSPECTIVE ANALYSIS OF EVALUATION OF VERSATILITY OF PERCUTANEOUS PEDICLE SCREW FIXATION IN METASTATIC SPINE TUMOUR SURGERY

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Background: Posterior percutaneous spinal fixation (PPSF) has evolved to address the problems associated with metastatic spinal disease (MSD). This study was designed to evaluate the feasibility and spectrum of application of PPSF in the management of MSD, highlighting its clinical advantages. Methods: Twenty-seven consecutive patients with MSD treated with PPSF in our institution from January 2011 to June 2014 were studied. After a multidisciplinary assessment, all patients were considered for surgical intervention due to clinical presentation of either neural deficit, skeletal instability, or both. Some of these patients belonged to the poor prognostic category based on survival prognostic scoring systems. The patients were categorized into seven groups depending on the modality of PPSF used. Demographic data, operative details, and clinical outcomes were investigated for pre- and postoperatively. Results: The median age was 60 years (range 49–78 years). Generally, all patients either maintained or improved their neurological status and achieved pain alleviation. Ambulatory status and Eastern Cooperative Oncology Group (ECOG) scores were improved using any modality of PPSF. The pure stabilization group had the lowest amount of mean blood loss, shortest operative time, and intensive care unit (ICU) and hospital stays, while the long-construct group was observed to have the greatest amount of blood loss, and longest operative time and ICU stay. Conclusions: For patients with MSD, even with predicted poor prognosis on survival prognostic scoring systems, it is possible to improve functional outcomes and quality of life with PPSF, keeping surgical morbidity to a minimum. PPSF allows patients with pure spinal instability to be addressed successfully with least morbidity.

Abstract no.: 43119

SOLITARY VERTEBRAL METASTASIS OF PRIMARY CLEAR CELL CARCINOMA OF THE LIVER - A CASE REPORT AND REVIEW OF THE LITERATURE

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Case Report: Solitary metastasis of any malignancy poses a clinical dilemma to the surgeon who is forced to decide whether a curative resection with clear margins should be attempted at the metastatic focus, or to resort to palliative control of the tumour using Chemotherapy. However, no reports of isolated metastasis from Primary Clear Cell Carcinoma of liver (PCCCL) have been documented. We present a unique case of such a patient who underwent surgical decompression, resection of the isolated metastatic focus, stabilization and reconstruction of the spine. We have also briefly reviewed the pertinent literature. Conclusion: PCCCL is a rare type of hepatocellular carcinoma which can present as "solitary metastasis" to the spine. In the management of solitary spine metastasis, for best outcomes in terms of local control and long term results, multidisciplinary approach and careful surgical planning based on anatomic and radiologic extent of tumour is of paramount importance. Though en bloc spondylectomy with circumspinal decompression and dorsovertral reconstruction is technically demanding, it should be attempted when feasible in selected cases

Abstract no.: 43122

UNUSUAL PRESENTATION OF OSTEOLASTOMA AS VERTEBRA PLANA – A CASE REPORT AND REVIEW OF LITERATURE

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Background: Osteoblastoma is rare and accounts for 3% of all benign tumours and 1% of all bone tumours. The spine is the most common site of occurrence, constituting 32 to 45 % of all osteoblastomas. It has a strong predilection for the posterior elements, most often occurring in the lumbar spine. Method: In this case report, we describe an unusual presentation of spinal osteoblastoma presenting as thoracic T9 vertebra plana in a 20 year old female. She presented with discomfort over the midback with unsteadiness of gait. The patient underwent detailed investigations including CT, MRI and CT guided Biopsy. To our knowledge, this is the first case report of vertebra plana due to spinal osteoblastoma in the English literature. Result: The patient successfully underwent posterior decompression of T9 with laminectomy followed by MIS (Minimally Invasive Surgery) posterior instrumentation from T7 to T11. Histopathology of the intraoperative specimen was consistent with osteoblastoma. The patient had an uneventful postoperative recovery and no evidence of tumour recurrence could be demonstrated on CT at 6 months follow-up. Conclusion: In conclusion, the differential diagnosis for vertebra plana is extensive and we add spinal osteoblastoma as another etiology to the existing list. Diagnosis and treatment of vertebra plana involves multimodality radiological imaging, and careful histological and surgical evaluation to identify the underlying etiology.

Abstract no.: 43123

THE ASSOCIATION OF FACETAL TROPISM WITH LUMBAR DISC DEGENERATION AND FACET JOINT ARTHRITIS

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Background: Any asymmetry between the right and left side facet joint orientation angle is defined as Facetal tropism. This results in more coronal orientation of one joint over the other, placing an asymmetrical torsional stress to the disc increasing the risk of disc degeneration. Studies have also been conducted relating the facet joint tropism with facet joint arthritis and lumbar spondylosis but without the firm conclusion. The purpose of this study is to determine the incidence of facet joint tropism at L3/L4; L4/L5 and L5/S1 and to determine the influence of facet joint tropism on lumbar disc degeneration and facet joint arthritis. Methods: This is a retrospective study of 51 patients with 153 spinal units (Male - 22, Female - 29, Mean age - 47 years) who were symptomatic for low back pain or sciatica. Patients with spinal deformities, spina bifida, spondylolisthesis, spinal infection, previous spinal surgery were excluded. Using MRI, Facet joint angles were measured using Noren's method; the grading of disc degeneration and facet joint arthritis using Phirmanns and Fujiwara classification. Results: Facet joint tropism shows significant positive correlation with facet joint arthritis at all levels, however mostly in younger age group and males, as compared to elderly age groups and female population. There is no significant difference between the facet joint tropism between the three levels in entire population (P = 0.712, Kruskal Wallis test). Conclusion: Facet joint tropism has no clinical significance with regard to disc degeneration. The association of Facet joint tropism needs to be studied in future studies with large sample size

Abstract no.: 43124

**EVALUATION OF VASCULAR PATTERN USED COLOR DOPPLER
ULTRASONOGRAPHY IN SOFT TISSUE TUMORS.**

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Introduction: Several imaging modalities have been applied to assess these tumors, including plain radiography, nuclear medicine, computed tomography (CT), magnetic resonance imaging (MRI), ultrasonography (US), angiography and positron emission tomography. Most general practitioners, however, find it difficult to distinguish benign from malignant lesions. Although MRI and CT are the most common modalities for evaluating soft tissue masses, many patients have difficulty undergoing these examinations. Additionally, their cost may be prohibitive. Resolution of US has undergone marked development. Purpose: The aim of the present study was to elucidate the usefulness of color Doppler (CD) US for preoperative differential diagnosis between benign and malignant soft tissue tumors. Materials and methods: 193 soft tissue tumors (69 malignant, 124 benign) were examined with CDUS. The maximum size, depth, tumor margins, shape, echogenicity and textural pattern were measured on gray-scale images. CDUS was used to evaluate the vessel characteristics such as occlusion, shunts, trifurcations, and vascular pattern. The Mann-Whitney U, Fisher's exact and χ^2 tests were used for unpaired comparisons between the quantitative parameters. Result: Shunt, trifurcation, and vascular pattern proved helpful in differentiating benign from malignant lesions. The vascular pattern analysis showed low sensitivity (57.4%) and moderate specificity (77.4%). A combination of any vessel characteristics demonstrated moderate sensitivity (67.3%) and high specificity (84.6%). Conclusion: Vessel characteristic analysis enables differentiation of benign and malignant lesions and evaluation of soft tissue tumors.

Abstract no.: 43125

LYMPHOPROLIFERATIVE DISORDER WITH PATHOLOGICAL FRACTURE OF FEMUR IN RHEUMATOID ARTHRITIS PATIENT TREATED WITH METHOTREXATE.

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Introduction: Methotrexate (MTX) is the key drug for the treatment of rheumatoid arthritis (RA). Patients with RA treated with MTX sometimes develop lymphoproliferative disorder (LPD). MTX-associated LPD (MTX-LPD) can affect nodal or extranodal sites, including the gastrointestinal tract, skin, lungs, kidneys and soft tissues, at almost equal frequency. However, it is very rare for MTX-LPD to manifest as multiple bone tumors with pathological fracture. Case: A 46-years-old woman was admitted to our hospital complaining of the right thigh pain and fatigue. She had a medical history of RA for 5 years and 2 months. She had receiving MTX (8-10mg/week) for 4 years and 11 months and etanercept (25mg/week) for 3 years 5 months. The RA activity had been well controlled with these drugs. Radiological findings showed multiple bone tumors, some lymphadenopathies, and pathological fracture of right femoral trochanter. We performed open biopsy and palliative surgery with intramedullary nail. The specimen showed diffuse infiltration of monotonous lymphoid cells. Histological diagnosis was diffuse large B-cell lymphoma (DLBCL) of non-germinal center B type (non-GCB type). We consulted her to hematologist. Following the withdrawal of MTX, LD and sIL-2R level were reduced gradually at four weeks. Furthermore, osteoblastic change was shown at iliac bone on X-ray. Base on the overall clinical data, the multiple bone tumors were diagnosed as MTX-LPD. However 2 months after, LD and sIL-2R level were increased rapidly. 18F-FDG-PET showed progressive disease. She is receiving chemotherapy of R-CHOP on days 1-5, on a 21 day schedule.

Abstract no.: 43126

WHAT MIGHT ACCOUNT FOR HIP OSTEOARTHRITIS? -ABNORMAL MORPHOLOGY OF THE HIP?

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The cause of hip osteoarthritis (OA) remains unclear, morphologic abnormality of hip was thought to be a contributing factor to hip OA. The hypothesis was that there were subtle anatomical morphology differences of the hip between normal and OA subjects; the objective of this study was to explore these anatomical differences which are predisposing to hip OA based on CT 3D reconstruction. Ninety-three normal subjects (186 hips) and 66 mild-to-moderate hip OA subjects (132 hips) were recruited in this study. Three parameters of the head-neck relationship were assessed: translation, rotation and concavity. Translation was the potential translational movements of femoral head related to the neck's axis. Rotation was described by the physeal scar to evaluate the rotation tendency of femoral head related to the neck at the head-neck junction. Concavity was used to assess the sphericity of the head as it joins the neck. The femoral neck anteversion angle and some parameters of the acetabulum: anteversion, inclination and CE angle were measured too. By comparison, it was found that OA subjects had less femoral head sphericity, head-neck junction concavity, acetabular and femoral neck anteversion angle; but greater acetabular coverage. These characteristics increased the risk of hip OA in OA subjects.

Abstract no.: 43127

**COMPREHENSION OF THE FEMORAL HEAD BONE DEFECT IN
DISPLACED SUBCAPITAL FEMORAL NECK FRACTURES.**

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Introduction: In general, Garden classification has been used for decision-making in femoral neck fractures(except besicervical neck fractures). Recently we not only checked X-ray but also checked CT and 3D-CT before the surgery. We found the bone defect of the upper side femoral head in displaced femoral neck fractures. Then, we considered the occurrence mechanism of the femoral head bone defect. Patients and methods: From July 2013 to Feb. 2016, femoral neck fractures were treated in 2 facilities. 10 cases of non-displaced femoral neck fractures and 47 cases of displaced femoral neck fractures. All cases were checked by X-ray, CT and 3D-CT to find the bone defect. Results: Femoral bone defects found in 46 cases in displaced femoral neck fractures, in one case that had non-trauma history, the bone defect was not found. In all non-displaced femoral neck fracture cases the bone defect was not found. Discussion: What is the reason for the bone defect of the femoral head? In speculation, the patients hit a major trochanter, the force translated to bending against the valgus. A fracture happed subcapital area and the fractured femoral neck moved inside. The edge of the fractured femoral neck dug into the femoral head under the rotation. Finally, the femoral shaft returned to outside due to muscle force. Because of defect of the femoral head it was judged to be a displaced femoral neck. Conclusion: We recommend checking CT, 3D-CT or image-intensifier under traction, to help deciding the stage of Garden classification.

Abstract no.: 43128

ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION AFFECTS THE LENGTH AND EXTRUSION OF THE MEDIAL MENISCUS

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Purpose: The medial meniscus is a secondary stabilizer of anterior tibial translation in anterior cruciate ligament (ACL)-deficient knees. ACL reconstruction effectively restores an increased anterior tibial translation in the ACL-deficient knee. However, knee osteoarthritis sometimes develops in ACL-reconstructed patients during a long-term follow-up period. We hypothesized that the medial meniscal position would be different between the ACL-deficient and reconstructed knees. The aim of this study was to investigate preoperative and postoperative location of the medial meniscus in patients who underwent ACL reconstruction. **Methods:** ACL-reconstructed knees and normal knees were investigated. Medial tibial plateau length (MTPL) and medial tibial plateau width (MTPW) were determined using radiographic images. Magnetic resonance imaging (MRI)-based medial meniscal length (MML), medial meniscal width (MMW), and medial meniscal extrusion (MME) were measured. Postoperative change in the MML, MMW, and MME were evaluated and compared with those in normal knees. **Results:** No significant differences between the ACL-deficient (preoperative) and normal groups were noted. The ACL-reconstructed (postoperative) group showed an increase in the MML, in the percentage of the MML ($100 \times \text{MML}/\text{MTPL}$), and in the MME. Significant differences between postoperative and normal groups were observed in the MML, MML percentage, and MME. MMW and MMW percentage ($100 \times \text{MMW}/\text{MTPW}$) were similar in all groups. **Conclusions:** The anteroposterior length and radial extrusion of the medial meniscus increased after ACL reconstruction. Transposition of the medial meniscus may be a possible cause of developing further degenerative knee joint disorders following ACL reconstruction.

Abstract no.: 43129

COSTAL CARTILAGE GRAFT FOR TREATMENT OF PARTIAL GROWTH PLATE INJURY IN A RABBIT MODEL.

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In growing children, partial growth arrest which may follow physal injury might cause leg length discrepancies and angular deformities. In this study, we notice the costal cartilage graft because it has used for the reconstruction of defects of the capitellum due to osteochondritis dissecans in growing children. An experimental model of partial growth arrest was made by resecting the medial half of the proximal tibial physis in 6-week-old New Zealand White rabbits. We divided into 3 groups for the transplantation into the defect in the growth plate. Group 1: no transplantation, Group 2: transplantation of bone wax, Group 3: transplantation of costal cartilage (allogenic transplantation). At 4 weeks after surgery the angular deformities of affected tibia in Group 2 and 3 was smaller than Group 1. However at 8 weeks, the angular deformities in Group 3 was smaller than Group 1 and 2. Histological findings showed that bony bridges developed at the damaged growth plate in Group 1. In Group 2, bone wax prevented bony bridges was seen in the small area. In Group 3, costal cartilage remained at the level of growth plate and was stained with safranin O in the area of damaged growth plate. It suggested that repaired the growth plate. In conclusion, costal cartilage could be useful graft for treatment of partial growth plate arrest.

Abstract no.: 43132

COMPARISON OF ESWT WITH LASER THERAPY IN TREATMENT OF PLANTAR FASCIATIS

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Introduction: Plantar fasciopathy is a common cause of heel pain and restricted activities of daily living. The purpose of this study was to compare the results of Extracorporeal Shock Wave Lithotripsy (ESWT) and LASER in the treatment of chronic plantar fasciopathy. Method: We did a randomized prospective comparative clinical study on 150 feet having chronic plantar fasciopathy. Feet were randomly divided into two groups of 75 feet each: Group 1 received ESWT and Group 2 Low Intensity LASER Therapy. All patients were assessed using Numeric pain score (NPRS) and Foot function index (FFI) at the baseline and subsequently at 2, 4, 12 and 24 weeks. Management included stretching exercises of gastrocnemius and plantar fascia, transverse friction massage at medial calcaneal tuberosity, strengthening of the foot intrinsic muscles, avoidance of high impact activities and sports for minimum of 2 weeks and appropriate footwear. Results: There were 142 patients with 150 feet in the study. Average age was 42.6 yrs. There were 65 females and 77 males. NPRS improved from mean 7.36 to 2.3 in Group 1 ($p < 0.05$) and from 7.39 to 2.38 in Group 2 ($p < 0.05$) while FFI improved from 42.1 to 5.1 in Group 1 ($p < 0.05$) and from 43.2 to 6.1 in Group 2 ($p < 0.05$) at final follow up. There was no significant difference in NPRS and FFI between the groups. In 6 feet, 3 in each group there was no relief and were administered local steroids. Conclusion: Both ESWT and LASER therapy along with stretching exercises are equally effective in treating plantar fasciitis.

Abstract no.: 43133

ANALYSIS OF THE RELATIONSHIP BETWEEN DURATION OF SYMPTOMS AND SURGICAL OUTCOMES AFTER LAMINOPLASTY IN VERY ELDERLY PATIENTS

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The purpose of this study is to analysis the relationship between duration of symptoms and surgical outcomes after laminoplasty for cervical spondylotic myelopathy (CSM) in very elderly patients. Patients who underwent laminoplasty for CSM were classified into 2 groups based on their ages, very elderly group (more than 80 years old, 26 patients) and young group (less than 70 years old, 39 patients). We used JOA score to evaluate the severity of myelopathy. The postoperative improvement was evaluated using the recovery rate by Hirabayashi method, and the achieved JOA score (postoperative JOA score - preoperative JOA score). Duration of symptoms was also studied. The mean preoperative JOA score was 8.8 in very elderly group, and 10.4 in young group. The mean postoperative JOA scores were 12.1, 13.7, and mean recovery rates were 40.7%, 52.4% in very elderly group and young group, respectively. All of them were significantly low in very elderly group ($p < 0.05$). The achieved JOA score was 3.3 in very elderly group, and 3.4 in young group. Duration of symptoms was 6.2 months in very elderly group, and 20.4 months in young group. It was significantly long in young group ($p < 0.001$). In this study very elderly patients had short symptom duration, but their pre and postoperative JOA score, recovery rate were significantly low. However, there was no significant difference in the achieved JOA score. Therefore, this result suggested that very elderly patients have a vulnerability of spinal code, but laminoplasty for CSM could be beneficial even in elderly patients.

Abstract no.: 43134

**ANATOMICAL MEDIAL PATELLOFEMORAL LIGAMENT
RECONSTRUCTION USING GRACILIS TENDON AUTOGRAFT WITH
APERTURE FIXATION**

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Introduction: MPFL reconstruction is the preferred operative treatment for recurrent patellar dislocation. The purpose of this study was to report the results of double bundle MPFL reconstruction using aperture fixation. Methods: The study included 29 patients (10 males, 19 females) who underwent double bundle MPFL reconstruction using the gracilis tendon autograft fixed at the patella using two Swivel Lock anchors and femoral fixation using a bioresorbable interference screw. The patients were followed for a minimum of 18 months. Objective assessment was done using the patellar tilt and congruence angles and subjective assessment using the Kujala scale and Lysholm scoring were obtained preoperatively and at final follow-up. Results: 26 patients out of 29 were available for final follow-up. Right knee was involved in 15 cases and left knee in 14 cases. Mean age of the patients was 24.3 years (range 16-44 years). The mean number of dislocations /subluxations suffered by the patients were 3. The congruence angle had significant improvement from $13.5^{\circ} \pm ^{\circ}$ before surgery to $-1.5^{\circ} \pm 0.0^{\circ}$ at the last follow-up. The patellar tilt angle improved from $16.4^{\circ} \pm ^{\circ}$ before surgery to $8.0^{\circ} \pm ^{\circ}$ at the last follow-up. The Kujala score significantly increased from 51.65 ± 0.0 points preoperatively to 83.89 ± 0.0 points at the final follow-up ($P < 0.0$). The mean Lysholm score was significantly increased from 55.14 ± 0.0 to 85.35 ± 0.0 points at the final follow-up ($P < 0.0$). Conclusion: Anatomical MPFL reconstruction restored the kinematics and stability of patellofemoral joint without any major complications.

Abstract no.: 43137

**TRACTION AS CONSERVATIVE MANAGEMENT FOR LOW BACKACHE –
A CASE SERIES**

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Aim: The aim of the study is to evaluate the effect of traction on low back pain. **Materials and methods:** Prospectively 200 patients were included in the study. Patients with no age limit with low back pain with Straight leg raising test positive and with decrease in disc space on X-ray were included in the study. Patients with stable fracture of spine were also included in the study. Patients with unstable fracture spine and cauda equina syndrome were not included in the study. Patients with VAS score more than 5 were admitted for pelvic traction and patients with VAS score less than 5 were managed with pelvic traction on OPD basis. Patients on OPD basis were called for follow up weekly and after 15 days X-ray was repeated. Traction was given to the patient till the VAS score is 0 or 1. **Results:** Average age of the patients was 52.25 years. Minimum days of traction given to the patient were 7 days and maximum was 15 days. 83.6 % of patients got relief. Patients who got relief were evaluated radiologically and clinically. The patients who did not have relief on 1st follow up or within 4-5 days were further investigated with MRI LS spine. **Conclusion:** Our study concludes that traction is cost effective and very effective method for relieving low back pain due to disc pathology and stable lumbar fracture as it works on the principle of distraction of the disc spaces and relieving the compression on the nerves.

Abstract no.: 43146

AUTOLOGOUS OSTEOBLASTIC CELLS (PREOB®) VERSUS CONCENTRATED BONE MARROW IMPLANTATION IN OSTEONECROSIS OF THE FEMORAL HEAD: A RANDOMIZED CONTROLLED SINGLE BLIND STUDY

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Non traumatic osteonecrosis of the femoral head (ONFH) is characterized by epiphyseal necrosis leading to femoral head collapse. It was shown that implantation of bone marrow concentrate (BMC) could delay ONFH progression. The possibility was raised that a cell-based medicinal product (PREOB®) consisting in a population of autologous osteoblastic cells (OB) could be more efficacious than BMC. This study was undertaken to evaluate the efficacy of OB cells implantation in a randomized comparison with BMC implantation in ARCO stage 1 or 2 ONFH. Hips were randomized to core decompression followed by BMC or OB cells implantation. The primary endpoint was the proportion of responders (absence of progression and pain improvement) at 24 months. Results: From 72 hips randomized, 30 hips per group were analyzed as the ITT cohort. At 24 months, 70% versus 40% of hips ($p<0.05$) and at 36 months, 60% versus 33% ($p<0.05$) in OB and BMC groups respectively were responders. The rate of progression to stage 3 or 4 was in favor of the OB group. At 24 months, 20% versus 40% of hips (NS) and at 36 months, 20% versus 47% of hips ($p<0.05$) in OB and BMC groups respectively progressed to fractural stage. A decrease in hip pain was observed in the OB group compared to the BMC group at 24 months (NS) and 36 months ($p<0.05$). Conclusions: This study showed that OB cells implantation could be more efficacious than BMC to delay the evolution and to reduce pain in ONFH.

Abstract no.: 43147

PIERRE ROBINS SEQUENCE WITH BILATERAL DEVELOPMENTAL DYSPLASIA OF HIP- A RARE ASSOCIATION

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Introduction : Pierre Robins sequence refers to triad of facial abnormalities which includes U-shaped cleft palate, micrognathia and glossoptosis. The triad is usually associated with syndromes like Sticklers syndrome, Marshal Syndrome or velocardiofacial syndrome. Among these syndromes, skeletal manifestations are seen in Sticklers and Marshall syndrome. However, skeletal involvement in the form of bilateral developmental dysplasia of hips are not seen. Hence hereby we report about a rare association of Pierre Robins sequence with bilateral developmental dysplasia of hip. Case report : Four year old female brought to our hospital with history of repeated flow of liquids through nose on feeding, speech difficulties, failure to gain weight and abnormal gait. She showed typical facial features with underdeveloped midface, smaller cheek bones, micrognathia, U shaped cleft palate with absent uvula and glossoptosis. Hip examination showed positive Trendelenbergs and Telescopy tests. On radiological examination, both hips were dislocated. Discussion : Sticklers syndrome, is a connective tissue disorder with ocular problems, hearing loss, typical facial features and skeletal involvement. In our patient there were no ocular problems. Skeletal manifestations too were different with child showing bilateral developmental dysplastic hips and such a hip pathology has not been described in Sticklers syndrome. There were no joint laxities. Marshall syndrome too have clinical resemblance with Sticklers syndrome and shows features like Pierre Robins sequence with skeletal features including joint laxity and early onset osteoarthritis. However hip involvement in the form of hip dysplasia is not seen in Marshall syndrome as seen in our patient.

Abstract no.: 43148

INTIMAL INJURY OF ABDOMINAL AORTA FOLLOWING TRAUMATIC SPONDYLOLISTHESIS IN A POLYTRAUMA PATIENT-A CASE REPORT

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Traumatic spondylolisthesis can involve lamina, pedicle or facet fracture, but usually spares pars interarticularis. Traumatic listheses causing cord injuries have been reported. Traumatic spondylolisthesis of L4 and L5 vertebra probably spontaneous reduced, causing intimal tear of abdominal aorta in a case of polytrauma is very rare and to the best of our knowledge it is not reported in English literature. In this case report we are presenting such a case which eventually led to gangrene of both lower limbs and death due to sepsis and acute renal failure. Our case emphasises the importance of repeated and regular examination of distal pulses in polytrauma patients to prevent mortality and morbidity.

Abstract no.: 43149

STATUS OF LOCAL HEMODYNAMICS IN PATIENTS WITH AVASCULAR NECROSIS OF THE FEMORAL HEAD 3-4 CURRENT STAGE, DEPENDING ON THE INTENSITY OF PAIN.

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Were examined 56 patients with avascular necrosis of the femoral head (ANFH) in the 3rd and 4th stages of the disease, 22 men and 34 women aged from 30 to 60 years. Pain was assessed by a standard visual analog pain scale (VAS). The total peripheral blood flow was assessed by rheovasography on RG4-02 unit. Served as control indicators reovazogramm lower extremities in 15 healthy subjects. For statistical processing of the results of research used the method of comparison of the mean values using the Student table, the method of comparing the relative magnitudes of compliance with Karl Pearson (χ^2). Patients depending on the intensity of pain were divided into two groups. When using the VAS found that the average pain intensity in one group was $7, \pm .9$ 1.8 points respectively for the second group - score of $5.1 + 1.4$. A study of the peripheral blood flow by rheovasography in all groups of patients was carried out on the knee of the affected leg. Identified parameters were compared with those in the control group. The study revealed in all surveyed patients on the affected side of the significant decrease in amplitude reovazogramm and increase peripheral resistance index compared to the control group, indicating that the decrease in total blood flow as a result of reduction of arterial inflow and difficulty of venous outflow and increase the tone and decrease elasticity of blood vessels and their ability to reduce and dilation.

Abstract no.: 43150

THE EFFICACY OF A PATIENT'S TREATMENT AND PROGRESS AIDE MEMOIRE (PTPAM) IN AN ORTHOPLASTIC RESEARCH CLINIC: AN ASSESSMENT OF PATIENT VIEWS

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Introduction: Open tibial fractures can have profound long-term effects for patients. The current BOA/BAPRAS standards recommend combined orthopaedic and plastic surgery management. In our Orthoplastic research clinic (OPRC) a multi-disciplinary team is present which reduces outpatient appointments, although patients could be overwhelmed with information. To address this, we have developed a Patient's Treatment and Progress Aide Memoire (PTPAM) to aid understanding, this study determines patient's views on this introduction. Methods: Patients were given a PTPAM when attending the OPRC and its role was explained. At their next appointment, prior to clinical review, the patients were given anonymised feedback forms adapted from previously used questionnaires in similar studies to fill out on their use of the PTPAM. Results: In total 48 patients were given a PTPAM and 40 provided responses to the questionnaire. A substantial majority (39 patients ((97.5%)) felt the PTPAM improved their understanding of their injury and its management to date. In 11 cases (27.5%) patients had used the PTPAM to improve communication with another health professional. In those that hadn't, 20 (69%) felt it would be useful to aid understanding in future appointments. Areas for improvement identified included a majority of patients (85%) expressed the wish to receive the PTPAM on discharge, and several patients requested electronic copies (12.5%). Conclusion: The majority of patients in this study felt the PTPAM improved their knowledge of their injuries and management. This demonstrates the efficacy of simple interventions in promoting understanding.

Abstract no.: 43151

SHOULD ORTHOPAEDIC SURGEON TRAIN FOR MINIMALLY INVASIVE SPINE SURGERIES- PATIENT PERSPECTIVE.

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Introduction: Single level disc surgery of lumbar spine is simplest spine surgery to be performed and can be approached through Micro-endoscopic, microscopic and conventional Lumbar surgery. Minimally invasive surgery needs further training and expertise. For young general orthopaedic surgeons its a dilemma , if its worth to undergo such training. Aim: Develop a patient perspective by evaluating clinical and functional outcome after micro-endoscopic; microscopic and conventional discectomy at the end of 12 months of surgery on the utility of MIS. Material and Methods: A prospective, non-randomized, cohort study, carried out in the Department of Orthopaedics, Acharya Vinoba Bhave Rural Hospital Wardha between August 2013- August 2015. All patients of 18 years and more having chronic back pain with progressive radicular pain and neurological deficit and underwent lumbar disc surgery at single level, were included. Patients with infective, neoplastic, failed back syndrome, spinal instability were excluded. At the end of 12 months, Outcome assessment- VAS pain score and Oswestery disability index. Results: Total 134 Patients were included with 56, 44 and 34 patients operated with open, microscopic and microendoscopic discectomy respectively. 96, 34 and 4 patients operated at L4-5, L5-S1, L3-4 level respectively- Patients operated with MIS had better outcome in terms of VAS back pain & radicular pain score, improved Oswestery disability index and less ALS and cost of treatment. Conclusion: MIS like microendoscopic and microscopic discectomy, are more effective & efficient treatment for lumbar herniated disc diseases . Require more technical expertise and steep learning curve.

Abstract no.: 43152

AN IN VITRO ANALYSIS OF BISPHOSPHONATE ELUTED NANOCOMPOSITE SCAFFOLD FOR PREVENTION OF OSTEOCLASTIC ACTIVITY OF OSTEOSARCOMA

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One of the problems in malignant tumours of bone or metastasis to bone is distraction in host bone and the reason of this phenomenon is osteoclastic activity of malignant cells. So if we could be able to control or prevent this activity it could be helpful for the patients. In the present study, with the aim of local delivery of anti-tumour drug as well as tissue regeneration, gelatine-TCP-mesoporous nanohydroxyapatite scaffold containing zoledronic acid drug was fabricated. Initially, TCP-mesoporous nanohydroxyapatite suspension containing specific amount of zoledronic acid was formed and then added to gelatine solution. Finally, nanocomposite scaffold was prepared by freeze-gelation method followed by immersion in glutaraldehyde for cross-linking. Here, we focus on the ability of scaffold to inhibit osteosarcoma cell line growth in vitro. Drug release profile and cell viability test was investigated and showed that scaffold has the ability of sustain release of zoledronic acid, so that the value of cell proliferation in the presence of drug eluted scaffold extractions was strongly suppressed. This behaviour was enhanced by further drug releasing as a consequence of increasing the time of incubation.

Abstract no.: 43153

RISK FACTORS FOR IN-PATIENT MORTALITY AFTER HIP FRAGILITY FRACTURE IN THE GERIATRIC POPULATION

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Background: The aim of the study is to identify the risk factors that associated with in-patient mortality. As the incidence of hip fractures increased globally, it is important to identify risk factors and tailor early precaution methods to prevent mortality. Method: We performed a retrospective study on hip fracture patients aged more than 65 years old from year 2010-2013. Patients' variables were age, type of fracture, gender, premorbid mobility status, type of surgery, abbreviated mental test score, ASA score. Results: A total of 1232 patient records were included. The only significant univariate risk factor for in-patient mortality was premorbid mobility status. Patients who are non-community ambulant has higher rate of in-patient mortality ($p < 0.001$). There was a trend of higher in-patient mortality rate in patient with more advanced age ($p = 0.038$), lower AMT score (median 4.0, IQR 3.0 to 9.0) and higher ASA score ($p = 0.068$). However, these were statistically not significant. Other variables such as gender, walking aid, type of fracture and type of surgical procedures were not significant either. Conclusions: The in-patient mortality risk factor after logistic regression showed no significant association. However, we do note the trend of higher mortality in advancing age, mobility, lower AMT score and higher ASA score.

Abstract no.: 43154

EVALUATION OF THE NATURAL HISTORY OF SPECT/CT IN THE KNEE JOINT COMPARED TO SYMPTOMATIC KNEES AFTER ACL RECONSTRUCTION

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Purpose: The purpose of this study was to evaluate the differences of bone-tracer uptake (BTU) in symptomatic knees after reconstruction of the anterior cruciate ligament (ACL) and asymptomatic knees on the native contralateral side. This study will contribute to the understanding of the natural history of SPECT/CT BTU in the knee joint in order to predict long-term complications such as posttraumatic osteoarthritis in those patients. **Methods:** A consecutive number of 80 patients after unilateral ACL-reconstruction were retrospectively included in the study. The population was subdivided into a group of symptomatic operated knees and a group of asymptomatic unoperated knees. SPECT/CT tracer-uptake was measured using a SPECT/CT localisation scheme. The correlation of the measured BTU values was calculated. **Results:** Symptomatic knees after ACL reconstruction showed significantly more BTU in all regions than asymptomatic ones. In the symptomatic ACL reconstruction group the highest BTU was found around the femoral and tibial tunnel entries near to the joint. The lowest BTU was found in femoral and tibial regions far from the joint. Significant correlations were found between BTU distribution and intensity in asymptomatic and symptomatic knees. **Conclusions:** SPECT/CT reveals specific BTU patterns in symptomatic and asymptomatic patients after ACL reconstruction. It could be speculated that BTU in the asymptomatic knees equates to the preoperative condition of the knee joint before ACL reconstruction and therefore the results of this study will help to understand the natural history of BTU and ultimately lead to prediction of development of osteoarthritis in an early stage.

Abstract no.: 43156

**TRI-PLANAR SCREWS FIXATION OF FEMORAL NECK FRACTURES
PRELIMINARY RESULTS OF A NEW TECHNIQUE**

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Introduction:There is a large divergence of views regarding the screw positioning in femoral neck fractures fixation,. The aim of this study is to evaluate the efficiency of a new divergent screw fixation technique for femoral neck fractures providing tri-planar stability. **Methods:** a retrospective study between May 2013-December 2015 including 21 patients (21 hips) 17 males 4 females suffering femoral neck fracture who were fixed using this technique (13 within 24 hrs. & 8 after 24 hrs.). The average age was 43 y (18-77 y). According to Pauwel's classification; 4 cases Type I, 13 cases type II, 4 cases type III. 18 cases were Transcervical, 2 Subcpital and 1 Basicervical. This technique is done by inserting 3 divergent screws one from a diaphyseal entry aiming at the supero-anterior quadrant of the head & abutting the calcar; 2 other screws are inserted from a metaphyseal entry aiming at the infero-posterior quadrant of the head thus crossing the 1st screw at an angle in all 3 planes. We evaluated the rate of union, time to full weight bearing, range of motion and complications. **Results:** One patient died, the remaining 20 cases gave the following results regarding union: 16 united (3-4 months), 3 out of those united in varus. 2 patients ununited and 2 patients infected. No evidence of AVN or Subtrochanteric fractures. **Conclusion:** We believe the divergent screw fixation technique provides the stability needed for femoral neck fractures union. However longer follow up & multi-center study is recommended.

Abstract no.: 43158

**TRIPLANAR TIBIAL DEFORMITY CORRECTION BY MONOLATERAL
FIXATOR ASSISTED NAILING**

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Introduction: In Blount's disease, there is a complex three-dimensional deformity, which typically includes varus, internal rotation, and procurvatum (3). The purpose of this study was to evaluate the results of using a monolateral fixator assisted nailing for triplanar correction of tibial deformity resulting from Adolescent Tibial Vara. All the patients were skeletally mature at time of surgery & gave the informed consent prior to being included into this study; the study was authorized by the local ethical committee and was performed in accordance with the Ethical standards of the 1964 Declaration of Helsinki as revised in 2000. **Methods:**We identified 26 patients (34 limbs) who underwent corrective osteotomies under image intensifier. We observed accuracy of correction (based on correction of the MAD), duration of surgery, postoperative knee ROM, and complications. Minimum follow-up was 11 months (6–18 months). **Results:**We achieved the desired MAD within 10 mm of the goal in 28 of 34 limbs. The Operative time was 86 ± 34 minutes per bone. Preoperative and postoperative knee ROMs were similar and there were no major complications. **Conclusion:**Fixator-assisted internal fixation combines the accuracy, minimal invasiveness of fixators, with patient compliance and the comfort of internal fixation. Temporary external fixation allows precise correction of the deformity and will be removed at the end of the operation.

Abstract no.: 43159

PATIENT ORIENTED EVALUATION OF CALCANEAN LENGTHENING OSTEOTOMY IN CP PATIENTS WITH PES PLANOVALGUS DEFORMITY

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Introduction: The objective of this study was to do a patient oriented evaluation of the operative management of pes planovalgus deformity in cerebral palsy (CP) patient by calcaneal lengthening osteotomy as described by Evans. **Methods:** Fifteen children (10 girls and 5 boys) with average age 11 years 6 months (range, 8 years 4 months to 14 years 6 months) with 22 feet with pes planovalgus (PPV) deformity were included in this study. Clinical evaluation was made according to Dogan's scale and graded as perfect, good, fair and poor. Preoperative and postoperative radiological assessment of anteroposterior talo-first metatarsal angle (AP-T1MT), anteroposterior talo-calcaneal angle (AP-TC), laterl Talo-first metatarsal angle (Lat. T1MT), lateral Talo-calcaneal angle (Lat. TC), and lateral Calcaneal pitch angle (Lat. CP) had been done for all feet. All feet were corrected with modification of the calcaneal lengthening osteotomy described by Evans. **Results:** Clinical results were perfect in 18 feet (82%), good in 2 feet (9%) and fair in 2 feet (9%). Radiological results showed improvement in 20 feet, while 2 feet showed no improvement. The improvement was significant in Lat. T1MT ($P < 0.001$), AP-T1MT ($P < 0.05$), AP-TC and Lat. CP ($P < 0.001$, < 0.001 respectively) whereas it was insignificant in Lat. TC ($P > 0.05$). **Results:** The results of the present study showed that the procedure reliably relieves pain in PPV foot in CP children and proved effective in addressing all components of the deformity in both hindfoot and forefoot clinically and radiographically.

Abstract no.: 43164

TOTAL KNEE ARTHROPLASTY AFTER HTO: A RISKY PROCEDURE?

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Introduction: High tibial osteotomy (HTO) may be indicated in the active, young patient with varus knee and medial compartment osteoarthritis. The good initial results start to deteriorate in a few years with the need to perform a total knee arthroplasty (TKA). Some papers report worst performance of TKA in patients with previous knee surgery. Our objective was to evaluate the influence of a previous HTO on the TKA performance. Methods: We retrospectively reviewed 20 patients who underwent TKA after previous HTO and 20 randomly selected patients who underwent primary TKA without previous knee surgery between January 1995 and December 2011. We clinically evaluated the patients, registering joint mobility, HTO durability, Knee Society Score (KSS) and International Knee Documentation Committee Subjective Knee Evaluation Form (IKDC). We also measured the lower extremity mechanical axis and collected the intra and post-operative morbidity and TKA revision rate. Results: The two groups have similar distribution in sex and age. The clinical and radiological assessment were worse in the previous HTO group, but not significantly ($p > 0,05$). The average durability of the HTO was 7.5 years (2 – 14 years). We also became aware of an increase in surgery time and blood loss, but not the revision rate, in the previous HTO group. Conclusion: TKA after a previous HTO appears to be associated with slight worse results and bigger per-operative morbidity. Still, the results of both groups are comparable, so we consider HTO a valid procedure in the young arthritic knee.

Abstract no.: 43166

MANIPULATION FOR FROZEN SHOULDER MAY INDUCE LABRAL TEAR

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Introduction: Frozen shoulder has been defined as a condition of uncertain etiology, characterized by painful restriction of active and passive shoulder motion occurring in the absence of a known intrinsic shoulder disorder. Even though manipulation under anesthesia is effective in terms of joint mobilization, the method can cause iatrogenic intraarticular damage. Methods: A total of 19 consecutive patients with primary frozen shoulder that had remained resistant to analgesic medication from 2014/7 to 2015/6. There were 6 men and 13 women. Their mean age was 51.8 years (range, 40–73 years). The main complaint was pain and stiffness for a mean of 7.5 months (range, 2–14 months). All patients had shoulder manipulation under general anesthesia. After manipulation, gleno-humeral arthroscopy was performed in all patient, via the posterior and anterior standard portals. Results: Under anesthesia, flexion improved on average from $134.4^{\circ}\pm 26^{\circ}$ to $168^{\circ}\pm 16.3^{\circ}$, external rotation from $48.6^{\circ}\pm 15.7^{\circ}$ to $81.8^{\circ}\pm 16.6^{\circ}$. Arthroscopy revealed hemarthrosis in all patients after manipulation. In 19 patients, disseminated synovitis was observed. After manipulation, the capsule was seen to be ruptured superiorly in 2 patients. The anterior capsule was ruptured in 5 patients. 7 patients had iatrogenic anterior labral tear. Discussion: Although primary frozen shoulder may follow a self-limiting spontaneous course, stiffness and pain persisting after more than 2 years have been described in 60% of patients. After manipulation, no significant rotator cuff injuries were seen. The pattern of articular changes included circumscribed labral detachments, and we observed poor short-term outcome in the patient group with labral tear.

Abstract no.: 43167

FINE CR TOTAL KNEE REPLACEMENT ENABLES DEEPER KNEE FLEXION FOCUSED ON ASIAN LIFESTYLE.

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Background:In the several years, surgical technique and design of Total Knee Arthroplasty (TKA) has been established. We had used only western implants for more than thirty years. However, Asian lifestyle is required deeper flexion knees, better knee joint stability and wider range of motion (ROM) for sitting on the floor. **Aim:**From 2011, we have been using 'FINE NAKASHIMA TKA' which is designed for Asian knees. The aim of this study is in order to compare the results of TKA, which is performed by 'FINE' with other western implants.**Methods:**We conducted 291 CR-TKA from January 2012 to June 2014. Male were 39 and female were 251. Average age was 73.9 years old. We have compared the outcome of FINE CR-TKA with western implants, which were performed by Biomet, NexGen CR-Flex, Triathlon and Evolution TKA. We measured JOA score, X-ray evaluation (K-L classification), surgical time, bleeding and ROM. **Results** 291 operated knee joints were 31 Biomet, 1 Evolution, 26 Triathlon, 37 NexGen CR-Flex, and 196 Fine joints. 6 months after operation, 47 patients 61 joints were enabled to flex deeply (maximum flexion angle was more than 145 degrees). The results of total average JOA score were 61.5 (before TKA) and 77.8 (after TKA). Furthermore, the results of FINE CR-TKA showed that about 10 % of all were enabled to flex deeply (ROM more than 145 degrees).**Discussion:**Nakane et al have been presenting TKA results. FINE, Japanese designed implants were no less good than previous western implants.

Abstract no.: 43171

INCIDENCE AND RISK FACTORS FOR SURGICAL SITE INFECTION AFTER TOTAL HIP ARTHROPLASTY BY SINGLE SURGEON IN SINGLE INSTITUTE

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【Introduction】 Surgical Site Infection (SSI) is one of the major complications in total hip arthroplasty (THA). Recently, some publications consisting of multi-center studies including surveillance systems in countries have reported on the incidence and risk factors of SSI after THA. However, the amount of available clinical information is limited in these types of studies. **【Methods】** In the present study, we evaluate the incidence and risk factors of deep SSI after THA by a single surgeon in a single institute. Between 2005 and 2014, 700 THAs (including revision THA) performed by a single surgeon (S.F.) in our institute were included in this study. We defined the follow-up periods for incidence as the estimated SSI in the first year after THA. The potential risk factors analyzed were as follows: sex, age, BMI (>25kg/m²), serum albumin (<3.5g/dl), steroid therapy, diabetes, liver function, renal function, HIV, hemophilia, ASA (American Society of Anesthesiologists) score (1,2 versus 3,4), and smoking as patient-related factors, and type of surgery (primary or revision, cement or cementless, navigation or non-navigation), duration of surgery (>120 min), blood loss (>500ml), and perioperative antibiotic prophylaxis (>48h) as surgery-related factors. **【Results】** Incidence of deep SSI was discovered in 10 hips (10/618, 1.6%) in primary THA and 5 hips (5/82, 6.0%) in revision THA. The potential risk factors for deep SSI in the present study resulted from revision surgery, blood loss, steroid therapy and ASA in the univariate analysis, and blood loss (p=0.02, OR:3.7) and ASA (p=0.02, OR:3.6) in the multivariate analysis our institute.

Abstract no.: 43173

DEVELOPMENT OF A SELF-ADMINISTERED QUESTIONNAIRE TO SCREEN PATIENTS FOR CERVICAL MYELOPATHY

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Background: In primary care, it is often difficult to diagnose cervical myelopathy. To screen cervical myelopathy more easily, we developed a self-administered questionnaire for the screening of cervical myelopathy. **Methods:** A case-control study was performed with the following two groups at our university hospital from February 2006 to September 2008. Sixty-two patients (48 men, 14 women) with cervical myelopathy who underwent operative treatment were included in the myelopathy group. In the control group, 49 patients (20 men, 29 women) with symptoms that could be distinguished from those of cervical myelopathy, such as numbness, pain in the upper extremities, and manual clumsiness, were included. The underlying conditions were diagnosed as carpal tunnel syndrome, cubital tunnel syndrome, thoracic outlet syndrome, tarsal tunnel syndrome, diabetes mellitus neuropathy, cervical radiculopathy, and neuralgic amyotrophy. Twenty items for a questionnaire in this study were chosen from the Japanese Orthopaedic Association Cervical Myelopathy Evaluation Questionnaire, which is a new self-administered questionnaire, as an outcome measure for patients with cervical myelopathy. Data were analyzed by multiple logistic regression analysis. According to the resulting odds ratio, b-coefficients, and p value, items were chosen and assigned a score. **Results:** Eight items were chosen by univariate and multiple logistic regression analyses and assigned a score. The Hosmer-Lemeshow statistic showed $p = 0.805$. The area under the receiver operation characteristic curve was 0.86. The developed questionnaire had a sensitivity of 93.5% and a specificity of 67.3%. **Conclusions:** We successfully developed a simple self-administered questionnaire to screen for cervical myelopathy.

Abstract no.: 43175

DISTAL TIBIA FRACTURES; WHEN NAILING IS PREFERRED?.

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Background: Despite the well-known advantages of nailing, many surgeons are hesitant to use in distal tibia fractures because of technical difficulties and high mal-alignment rates. Objectives: Prospective evaluation of static reamed nailing in treating distal tibia fractures, trying to define the situations in which nailing may be preferred. Patients & Methods: We evaluated 45 patients in whom we were reluctant to use plating because of patient, fracture, or surgeon factors. According to AO classification, 30 cases were type A, 12 type B, 3 type C fractures. Ten fractures were open; 4 type I, 5 type II, and one type III-A. The American Orthopedic Foot and Ankle Society (AOFAS) ankle-hindfoot scale was used for assessment. Results: The mean follow up time was 38.4 months. All the fractures united with acceptable alignment in a mean time of 14.86 with 3 delayed unions. The post-operative alignment was maintained till complete healing. Limb length discrepancy of ≤ 5 mm was encountered in 2 patients. Three patients had $\leq 10^\circ$ reduced range of ankle motion. Two patients changed their career, 5 patients (11.11%) could not reach their pre-injury daily activity, and 10 (22.22%) stopped sports practice. Implant removal was done for the 3 patients with knee pain. The mean AOFAS score was 94 at the end of follow up. Conclusions: Static reamed nailing is a safe and effective biological stable fixation for distal tibia fractures. Nailing may be preferred in uncontrollable patients, open fractures, osteoporotic bone, pathological fractures, obese patients, and when early weight bearing is unavoidable.

Abstract no.: 43176

NEW EFFICIENT MINI-INVASIVE TREATMENT FOR NON- COMMINUTED PATELLA FRACTURES

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Introduction: Several options continue to evolve for treating the common patella fractures. The reported high rate of complications with the available lines of treatment motivated us to think about a new mini-invasive treatment that improves the results and minimizes the complications. Methods: We evaluated prospectively the use of 2 transcortical crossing screws through a percutaneous or mini open approach in 25 patients with non-comminuted patella fractures. Our hypothesis was that fracture compression will be obtained by the partially threaded screws, the crossing-manner will maintain fixation stability by breaking tension stresses, and being mini-invasive, it will not carry soft tissue compromise or irritation. The patients were evaluated for operation time, quality of reduction, fracture healing, implant position, elbow range of motion, stability of fixation, and presence of complications. Results: All the fractures united in accepted position without any secondary procedure in a mean time of 9.5 (6-12) weeks. No fixation failure or implant related problems were encountered. One case with open fracture got superficial infection. At a mean follow-up of 22.6 months (14-30 months), the knee range of motion were comparable to the sound side except 10° extension lag in 2 patients, which was statistically non-significant, (P=0.1623). Conclusions: Percutaneous or mini-open transcortical crossing screws for isolated non-comminuted patella fractures offer an interesting, simple, cheap, and mini-invasive stable fixation that allows early rehabilitation with excellent results and minimal complications. A comparative study with tension band wiring is recommended before standardization of the technique.

Abstract no.: 43180

VERTEBRAL FRACTURE RELATED FACTORS IN PATIENTS WITH RHEUMATOID ARTHRITIS: A CROSS-SECTIONAL STUDY

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Introduction: Osteoporosis leading to bone fracture is one of a main comorbidity of rheumatoid arthritis (RA), and patients with vertebral fracture (VF) have higher mortality than patients without VF. This study aimed to identify the prevalence and related factors of VF in patients with RA. Methods: 672 patients (141 men, 531 women) aged 50 years or older were included in this study. Mean age was 67 (50-91) years and mean duration of RA was 11.9 (1-54) years. Clinical data included sex, age, age at RA onset, disease duration, history of corticosteroid use, current treatment of biological agents, medication for osteoporosis, operation history for RA and bone mineral density (BMD) at hip joint were analyzed. Coronal and sagittal radiography of total spine were performed to identify VFs and to evaluate spinopelvic alignment in the standing position. Parameters of spinopelvic alignment included coronal and sagittal shift of C7 plumb line, spondylolisthesis, Cobb angle, thoracic kyphosis, lumbar lordosis, pelvic tilt, pelvic incidence and sacral slope were calculated. Multiple logistic regression analysis was performed to reveal the related factors. Results: The prevalence of VF in patients with RA was 16.8%. Multivariate analysis demonstrated BMD, history of corticosteroid use, current medication for osteoporosis, coronal shift of C7 plumb line, thoracic kyphosis and spondylolisthesis as the related factors for VF. Conclusion: The reduction of corticosteroids use and more aggressive treatment for osteoporosis is needed for the prevention of VF with RA. Vertebral fracture in patients with RA was less associated with their spinopelvic alignment.

Abstract no.: 43187

SHORT TO MID-TERM RESULTS OF ULNA HEAD REPLACEMENT AS BOTH A PRIMARY AND REVISION IMPLANT

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We present the results of short to medium term follow up of 10 patients following ulna head replacement. The mean age of patients was 63.2 year (range 48 – 81 years), with the mean duration of follow up being 48 months (12 – 88 months). The indications for the procedure were primary osteoarthritis (n=3), post traumatic osteoarthritis (n=4), failed Darrach's procedure (n=2) and rheumatoid arthritis (n=1). Two patients required revision (20%). One for gross aseptic loosening of the stem and one for an initially oversized head. At final follow-up the satisfactory rate was 90%. The mean VAS score was 2.4 (range 0 to 8). The average DASH score was 37 (range 0 to 72.5). Our study suggests that ulna head replacement can give satisfactory forearm function, however, concerns exist regarding bone resorption and tapering around the prosthesis, which may affect the long-term performance of the prosthesis.

Abstract no.: 43190

FLOATING KNEE. MID-TERM COMPLICATIONS

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Ipsilateral fractures of the femur and tibia are complex and variable. This will determine their initial treatment and evolution. Methods: We did a retrospective review of the patients with floating knee treated in our hospital between 2007 and 2014. The mean follow-up was 34 months(12-84). We took into account the initial treatment, the definitive treatment, time between them, associated injuries and the kind of fracture according to modified Fraser's classification. Results: There were 9 males and 5 females (average 46 years old). According to modified Fraser's classification we found six fractures type I (42,86%), five type IIA (35,71%), one type IIB (7,41%) and two IIIB (14,29%). In type I we found 66,67% of open fractures while only one patient had open fractures in the others groups. 64,29% of the femoral fractures and 85,71% of tibial fractures were initially treated with external fixation. Mean time for definitive treatment was 5 day. The most used treatment in the femur was intramedullary nailing (42,86%), while in the tibia was plating (57,14%).We noticed complications in half of the patients: two, knee stiffness; three, non-union; one, misalignment; one, compartment syndrome. Five of this complications (83,33%) were found in type I fractures, three of them non-union. Conclusion: floating knee is a serious injury. The high risk of pseudoarthrosis in type I fractures is probably associated with open fractures in this group. Correct surgical planification and early mobilization of patients with multiple injuries is essential to avoid associated complications and obtain the best functional results.

Abstract no.: 43191

**THE POSTERIOR INTRAFOCAL PIN IMPROVES SAGITTAL ALIGNMENT
IN GARTLAND TYPE III PAEDIATRIC SUPRACONDYLAR HUMERAL
FRACTURES**

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Introduction: Closed reduction and percutaneous pinning are widely recommended for supracondylar humeral fractures. The purpose of this study was to compare the results of crossed pinning with or without a posterior intrafocal pin in Gartland type III supracondylar humeral fractures. **Methods:** We retrospectively reviewed 93 children who underwent crossed pinning for Gartland type III supracondylar humeral fractures between 2009 and 2013. One surgeon preferentially added one posterior intrafocal pin onto the crossed pins in 35 children, and the other surgeons used standard crossed pinning technique in 58 children. Results were assessed by range of elbow motion and radiographic measures including the Baumann angle, the lateral humerocapitellar angle and the position of the anterior humeral line (AHL). **Results:** Children treated with the additional posterior intrafocal pin had greater range of elbow motion (138.7o vs. 133.6o, p=0.01) and had a greater lateral humerocapitellar angle (44.9o vs. 37.8o, p=0.01) measured 3 months postoperatively. The percentage of AHL position in the posterior third was significantly higher in children with the posterior intrafocal pin immediately after fixation (Odds ratio [OR]: 6.26) and 3 months later (OR: 2.84). The percentage of AHL position in the anterior third was also significantly lower in children with the posterior intrafocal pin 3 months postoperatively (OR: 0.29). **Conclusions:** Adding one posterior intrafocal pin to crossed pinning can facilitate fracture reduction and enhance fixation stability. Better sagittal alignment and elbow motion support this safe and effective technique in treating type III humeral supracondylar fractures.

Abstract no.: 43192

CLINICAL SIGNIFICANCE OF ANTERIOR HUMERAL LINE IN SUPRACONDYLAR HUMERAL FRACTURES IN CHILDREN

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Introduction: Anterior humeral line (AHL) location is commonly used to evaluate sagittal alignment after fracture reduction in children with supracondylar humeral fractures. However, the position of the AHL for acceptable fracture reduction has not been validated by clinical outcome. Methods: We retrospectively reviewed 101 children who underwent closed reduction and percutaneous pinning for Gartland type III supracondylar humeral fractures between 2009 and 2014. There were 67 boys and 34 girls, with a mean age of 7.1 years (range, 4-12.8). The children were classified according to the location of the AHL three months postoperatively into five groups: anteriorly loss (n=6), anterior third (n=25), middle third (n=47), posterior third (n=21), and posteriorly loss (n=2). Clinical and radiographic outcomes were compared among the five groups. Results: Children with AHL anterior to the capitellum had less elbow flexion angle and less total range of elbow motion than children with AHL crossing the capitellum. In children with AHL crossing the capitellum, elbow flexion angle and total range of elbow motion were significantly decreased when the AHL crossed the anterior third of the capitellum. Conclusion: These findings indicated that middle third and posterior third of the capitellum are the optimal locations for the AHL to have greater elbow function postoperatively.

Abstract no.: 43195

**COMPARISON OF SCHATZKER AND DUPARC CLASSIFICATION AND
ROLE OF CT SCAN IN TIBIAL PLATEAU FRACTURES**

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Introduction: Accurate pre-operative assessment of plain radiographs and computed tomography (CT) scans are essential for classifying proximal tibia fractures and planning out treatment. We compared Schatzker and Duparc classification used of tibial plateau fractures in pre-operative assessment and analysed the role of multidetector CT scanner in pre-therapeutic assessment of tibial plateau fractures. Methods: We retrospectively studied 50 patients. Standard radiographs and CT scans were done in all patients. 2D sagittal and coronal and 3D reconstruction images were taken. All patients were analysed with Schatzker and Duparc classification. Results: Duparc classification had the advantage of being more reproducible and allowing a greater number of fractures to be classified. These two classification systems only overlap for Duparc lateral unicondylar fractures, which corresponds to Schatzker types I, II, III. Posteromedial fractures were not classified in Schatzker. In Schatzker type IV, intercondylar eminence can be involved which can be classified as spinocondylar in Duparc classification taking displacement into consideration. Schatzker type V fractures are bicondylar fractures that do not take into account potential comminution. Schatzker type VI fractures have the advantage of association with diaphysis fracture, but they do not allow tibial plateau fractures to be classified, which can be done in Duparc classification. Conclusion: CT scans offers a clear picture of fractured tibial plateau and the extent of cortical comminution. We propose Duparc and Ficat classification for proximal tibial fractures in pre-therapeutic assessment.

Abstract no.: 43196

FUNCTIONAL OUTCOME OF MADELUNG AND MADELUNG LIKE DEFORMITY IN ADOLESCENCE

Gaurav GARG

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Introduction: Madelung deformity is the result of bony and ligamentous dysplasia at the wrist that produces characteristic deformity and is usually recognized in late adolescence. This esthetic deformity is encountered rarely in orthopaedic practice. Should this condition be operated upon, and if the surgeon plans to operate, what is the right age and method to do so. Methods: We retrospectively analyze the clinical records, radiographs and functional outcome of patients who presented with madelung and madelung like deformity. Radiographic assessment was done using Dannenberg's criteria. Clinical assessment of range of motion of wrist, grip strength and pain score was done. Surgery was considered for patients fitting into the inclusion criteria. Dorso-lateral close wedge and palmar open wedge osteotomy of radius were done with or without ulnar procedure. Post-operative protocol was followed and periodic assessment was done. Mayo modified wrist score has been used to evaluate the pre-operative and post-operative scores. Results: The study enrolled twenty patients with thirty two affected wrists. Average age in our study was fourteen years with an average follow-up of twelve months. Statistically significant increase in range of motion of wrist was achieved for dorsiflexion, pronation and supination in surgically treated patients. Significant change in pain score, grip strength, RAU° and carpal slip was noted. Post-operative wrist score was also significantly improved. Conclusion: There is a definitive role of surgical intervention to improve the range of motion of wrist, grip strength and reduces pain score.

Abstract no.: 43198

ROLE OF MRI IN ACUTE KNEE INJURIES

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Aim:To evaluate the role of MRI in acute knee injuries. **Methods:** A retrospective study data was collected from past three years who underwent MRI scans for acute Knee injuries. Clinical diagnosis and arthroscopic findings were also collected and analysed statistically. All knee injuries presented to casualty were followed up in knee injury clinic and urgent MRI were requested which happened within a week. In percentage values M:F ratio was 85:15, nature of injury was sports: trauma of 69:31, medial:lateral meniscal tear ratio was 65:35, ACL plus MCL: ACL plus LCL injury ratio was 46:26 percent. **Conclusion:** MRI is a noninvasive, safe and reliable procedure which confirms and adds to specific clinical diagnosis and obviates the need for diagnostic arthroscopy avoiding any surgical procedure. This also helps for surgeon with appropriate skills to embark on the necessary definitive procedure avoiding multiple surgeries on the patient. Absence of injury on MRI helps to direct patients to physiotherapy and rehabilitative treatment faster. It can also pick up subtle findings of bone bruising only which can be as symptomatic as ligament injury but one which does not need any surgical intervention. More MRI scans does increase the scanning workload but also avoids surgical procedures which may be unnecessary and avoidable saving cost to hospitals in current scenario. The study was done under supervision of a senior knee surgeon who was involved in the acute knee injury clinics run each week. The above study helped set up a fast track for such patients.

Abstract no.: 43201

TIME TO THEATRE AUDIT

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Aim: To determine the causes of delay in patients going to theatre for trauma patients. To find out the length of time from operative decision making to theatre. And are the national guidelines been followed. Delay categories decided were withing 1,6,12 hours and within days. NCEPOD classification of national guidelines 2008 were followed as Code 1 immediate, code 2 urgent, code 3 expedited and code 4 elective. Standard expected was code 2 patients to reach theatre within 24 hours, exclusion cases were code 1 pts, complex fractues patients. Data from trauma book and Meditech was recorded. Decision to operate was set as time as start. Results: Fracture case category were forearm 23%, supracondylar 14%, elbow 7%, ankle 7%, septic arthritis 5%, miscellenous 7%. Only 55% cases were performed withing 24 hours. During mid week was the highest delay to theatre noted. SCFE had the highest wait to reach theatre. Post operatively septic arthritis had the highest length of stay after surgery. 45% patients breeched the 24 hour target. Improvement suggested were dedicated trauma list to educe waiting times and parent anxiety, avoid cancellation of elective cases to accomodate trauma. Total number of patients included were 127, mean waiting time was 35.5 hours, minimum was 1.7 hours, median was 21.4 hours and maximum was 187.7 hours. The above study was to be reaudited in a years time and booking times were decided to be taken from trauma board to theatre. The shortest wait was for supracondylar fracture elbow.

Abstract no.: 43202

IS REVERSE TOTAL SHOULDER ARTHROPLASTY FOR RECURRENT SHOULDER DISLOCATION IN AN ELDERLY AN OPTION? - A CASE REPORT

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Introduction: Recurrent Shoulder Dislocation is uncommon in elderly and its treatment is still a challenge. It is also expected an irreparable rotator cuff tear, which also complicates the treatment. Reverse total shoulder arthroplasty (RTSA), it is an option that is beginning to be described in such cases. Methods: The authors describe the case of a 61 years old patient, with Hallervorden-Spatz syndrome and recurrent anterior shoulder dislocation. In the last two years, this patient had 7-8 episodes of dislocation per month and is greatly limited. Results: This patient was a large Bankart lesion and an irreparable rotator cuff tear. The patient had virtually no mobility of shoulder due to permanent immobilization given its enormous instability. It was performed a RTSA without complications (delto-pectoral approach) and a physical therapy protocol started immediately. At 12 months of follow-up, the patient was painless and exhibited improvement in active range of motion: forward flexion to 130°, abduction to 100°, external rotation of 20° and internal rotation to the L4 spinous process, regained independence in its daily activities and was very pleased with the result, without any other dislocation. Conclusions: Recurrent dislocation has a negative impact on the patient's quality of life. This case's management became even more complex due to the rare neuro-degenerative disease. It was imperative to give back some quality of life to the patient. This type of arthroplasty, with this purpose, is still at an early stage of development, missing long term studies, but the results are encouraging, according to the most recent.

Abstract no.: 43203

CONSERVATIVE TREATMENT FOR DISPLACED FRACTURES OF OLECRANON IN ELDERLY

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Introduction: Conventionally displaced fracture of Olecranon are fixed. However we are aware of the complications involved after surgical treatment especially in elderly patients. Aim: Of the study was to analyse the outcome of displaced fractures treated conservatively. Selection criteria were elderly age, medically unfit for surgery, severe osteopenia and high risk for surgery. Total of ten patients, M:F ratio of 4:6, all fractures had displacement 5 mm or more. Paker fracture classification was followed for grade of displacement. 8 were grade 1 and 2 were grade 2 patients. Treatment given was initial immobilisation in sling followed by early mobilisation. Assessment was done on following basis of residual pain, elbow weakness, capacity of ADL, range of movement and stability of elbow. Morrey elbow score was adhered to. Bony union was seen in 6 while pseudoarthrosis was noted in 4 cases. No arthritis was seen to happen in these cases. All were above 70 years of age, mean fracture gap was 6.6 mm, associated injuries were 3 out of ten cases. Pain free with good activity of daily living was seen in 9 cases, all patients had good satisfaction, no significant loss of flexion was seen, 4 out of ten lack complete extension, no major complications were seen. Morrey elbow score was mean 88, excellent in 5, good in 4, fair in 1. ORIF allows joint congruity and early mobilisation but at risk of complications. Conservative treatment avoids surgery risks but can result in some lack of elbow extension.

Abstract no.: 43204

TREATMENT OF FEMORAL NECK FRACTURES IN PEDIATRIC AGE WITH CLOSE REDUCTION AND INTERNAL FIXATION WITH CANNULATED SCREWS

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Introduction: Femoral neck fractures are rare injuries in children, but the high incidence of long term complications make it an important clinical entity. Literature suggests an early surgical treatment to achieve optimal results and to avoid a high rate of complications. The purpose of the present study was to retrospectively analyze 8 children that sustained a femoral neck fracture, reporting about the surgical treatment performed. Materials and methods. Between March 2007 and November 2014, 8 patients (6 boys and 2 girls, with an average age of 9.1 years) were treated within 24 hours following admission to hospital, by closed reduction and internal fixation (CRIF). In all cases a fracture hematoma aspiration under fluoroscopic control was performed. The outcomes were analyzed using Ratliff's criteria and a detailed record of complications was kept for all patients. Results: According Delbet's classification system, there were 3 type I, 2 type II, 2 type III, and 1 type IV fractures. The average follow-up was 14 months (10-24 months). A satisfactory outcome was obtained in 6 (75%) children. Avascular necrosis (AVN) was the most evaluable complication, reported in the 2 fair outcomes (25%). Conclusions: It has been concluded that the development of AVN primarily influences the outcome in pediatric femur neck fractures and that an early and aggressive surgical treatment, aimed at anatomical reduction, may improve results.

Abstract no.: 43205

THE INTRODUCTION OF NEW ANTIBIOTIC PROPHYLAXIS IN THR AND TKR AND IMPACT ON PATIENT'S RENAL FUNCTIONS.

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Background: There is recent change in guidelines for antibiotic prophylaxis. Teicoplanin is administered in cemented and cefuroxime in un-cemented knee and hip arthroplasty. Objectives: To assess if the antibiotic prophylaxis guidelines were met in our institution and to identify the number of patients with acute kidney injury after lower limb arthroplasty. Principles and Methods: A retrospective study, total of 104 patients participated in the study from February to June, 2015. Results: 55 males and 49 females were involved in the study; mean of age was 69 years (range 31-88 years). 66 patients had cemented TKR. 63 (95.5%) got teicoplanin, 2 (3%) had cefuroxime while 1 (1.5%) had flucloxacillin. 5 patients had cemented while 33 patients had un-cemented THR. 80% of the patients undergoing cemented THR had teicoplanin, while only 18 out 33 patients (54%) undergoing un-cemented THR had cefuroxime. 12 patients out of 104 (11.53%) patients showed raised urea while 2 patients (1.92%) had raised creatinine levels. Patients with raised urea levels, 9 (75%) had teicoplanin, 3 (25%) had cefuroxime. None of the patients with raised U&E underwent for haemodialysis as their renal functions normalised in few days. No C-difficile was recorded in the study. Conclusions: Teicoplanin should be administered as prophylactic antibiotic for cemented arthroplasty while cefuroxime for un-cemented arthroplasty. Renal functions should be closely monitored. Both antibiotics have little impact on patient's renal functions and no AKI were seen during this period.

Abstract no.: 43208

**THE USE OF PATIENT SPECIFIC INSTRUMENTATION IN PERFORMING
COMPLEX PRIMARY KNEE REPLACEMENT: ILLUSTRATION IN TWO
CASES**

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Introduction: We report two cases of complex knee with significant deformity performed using cruciate retaining implants with PSI technique. Case with Varus deformity: A 78 year old male patient presented with varus and fixed flexion deformity. Radiographs confirmed severe osteoarthritis with significant medial bone loss. Multiple changes were made to the engineer's plan before approval for 3-D moulds. Intra-operatively, the chosen components were implanted. The gap balancing required removal of the osteophytes and soft tissue release. Post-operative long leg views showed satisfactory alignment. At 3 months post-operative follow up the patient was walking unaided with good range of movement of the knee. His Oxford knee score improved from 16 to 46 with gain of 30 points. Case with Valgus deformity: A 60 year old male patient presented with valgus deformity with significant lateral bone loss. The patient had a complex gait pattern due to type II valgus knee. The 3D reconstructions of MRI scan of the knee confirmed significant lateral tibial wear. Again, multiple changes were made to the engineer's plan. Soft issue balancing was achieved. Planned components were implanted. At 3 months post-operative follow up the patient was walking unaided with good range of movement of the knee. His Oxford knee score improved from 17 to 48 with gain of 31 points. Conclusion: Patient Specific Instrumentation may help the surgeon in planning for complex primary knee replacements and aids in simplifying the operative technique to achieve satisfactory alignment and functional outcome in these difficult cases.

Abstract no.: 43210

**ANATOMICAL VARIATION IN DISTAL FEMORAL ROTATIONAL AXES
AND ITS EFFECT ON FLEXION GAP: MRI ANALYSIS**

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Aim and Methods: We analysed the relationships between the rotational distal femoral axes and their effect on the flexion gap from the MRI scans of 200 knees in patients who underwent Patient specific instrumentation TKA. The effect of the rotational pivot point (central or medial) was also analysed. **Results:** The angle between epicondylar axis and posterior condylar axis ranged from 0°-7.9°. The angle between posterior condylar axis and Whiteside line ranged from 0°-10.3° of external rotation in 180 patients and 0.1° to 5.3° of internal rotation in 20 patients. The angle between the epicondylar axis and whiteside line ranged from 0.1°-7.8° of external rotation in 110 patients and 0.1°-7.3° of internal rotation in 84 patients, while 5 patients had an angle of 90°. There was significant differences in the posterior resection thickness and hence in the flexion gap when the different axes were used. The choice of the rotational pivot point was also had an effect on the flexion gap (medial pivot point with posterior referencing and central pivot point with anterior referencing). **Conclusions:** While previous CT scan studies have demonstrated the variation between the different rotational axes, our study has also demonstrated the differences in the posterior resection thickness (including the cartilage thickness) depending on the rotational axis chosen and the effect on flexion gap. Our study has also demonstrated the effect of the choice of the rotational pivot in the resulting posterior resection thickness and hence the flexion gap.

Abstract no.: 43212

THE FUNCTIONAL AND RADIOLOGICAL OUTCOME OF OPEN FLOATING KNEE INJURIES MANAGED SURGICALLY.

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Background: Floating knee injuries is usually associated with high risk of complication and functional disability. The type of fractures, soft tissue and associated injuries make this a challenging problem to manage. This study evaluates the functional and radiological outcome of these injuries after surgical management. Methods: 50 patients (48 male and 2 female patients; mean age, 34 years) who completed the follow-up of 28 months were prospectively analyzed from June 2013 till October 2015. All the patients in our study were victims of high velocity injury with an average time of arrival within 3.4 hours. After initial hemodynamic stabilization patients were classified as per Gustilo and Anderson (Grade I – 6, Grade II – 18, Grade IIIA – 14, Grade IIIB – 10, Grade III C – 4) and Fraser classification (Type I – 22, Type II – 28). For ease of analyses of our patients, we sub classified the patients into 3 groups based on the definitive fixation. Results: According to Karlstrom criteria the end results were Good to Excellent in 22 patients (44%) and Average to Poor in 28 (56%). 54% of the patient belonged to group 1 (internal fixation for both fractures and had excellent to good functional results. Complication in our study was restricted to the complex intraarticular fractures. Conclusion: Early mobilization of open floating knee injury patients and their limbs is imperative in order to avoid complications and achieve better functional outcome. Internal fixation of both fractures at the earliest gives the best results.

Abstract no.: 43217

**DHS IN INTERTROCHANTERIC FRACTURE WITH AND WITHOUT
DEROTATION SCREW- A COMPARATIVE STUDY OF 15 CASES EACH**

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Introduction: This study investigated the load among two fixation types in inter-trochanteric fractures with Dynamic hip screw and Dynamic hip screw with derotation screw. **Objectives:** To compare the stability of anatomical reduction in two groups and to compare the rehabilitative time of each group. **Methods:** A total of 30 patients with inter-trochanteric fracture were taken and divided into two groups. 15 patients with DHS with derotation screw were included in group II. 15 patients with DHS without derotation screw were included in group I. Lateral approach was used in all cases. **Results:** As per Harris hip score unstable intertrochanteric fracture shows 5 excellent, 2 good, 2 fair results in DHS group and 6 excellent, 2 good, 1 fair results in DHS with DRS group respectively. In stable intertrochanteric fracture both groups 6 patients in each group shows excellent result at 6 months. **Conclusion:** DHS with DRS give rotational stability 3rd plane to intertrochanteric fracture and helps early fracture union and early mobilization. DHS with DRS is better as compared to DHS in unstable intertrochanteric fractures.

Abstract no.: 43218

SHOULDER REPLACEMENT TREND IN QUEEN'S HOSPITAL

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148 shoulder replacement operations were performed in the period from 04/2010 until 03/2015 in 136 patients. 10 patients were excluded. 133 shoulder replacement operations were studied retrospectively at in 126 patients covering the above period. Operation notes, discharge summaries, pre and postoperative xrays and follow-up clinic letters were used to assess functional improvement, patients' satisfaction and complications. Inclusion criteria; all patients underwent shoulder arthroplasty operations at our institute during the aforementioned period. Minimum follow-up for 6 months and adequately documented electronic records. Indications for operation were divided into elective and trauma. Variety of shoulder replacements were identified in this study including hemiarthroplasty (both short stemmed and long stemmed), Copeland Surface Replacement with or without greater tubercle extension and Total Shoulder Arthroplasty including anatomical and reverse polarity total prosthetic replacement. In our result we found 22 elective cases and 13 trauma cases in hemiarthroplasty with 23% complication rate in the later. 38% complication rate in the Copeland resurfacing arthroplasty in 16 patients. In Primary standard total prosthetic replacement of shoulder joint, 27 Patients, about 11% complication and 13% in Primary reverse polarity total shoulder replacement, 47 Patients. In each category the functional improvement and patient satisfaction were looked at and found 95% were achieved in the former and 90% in the later. These result compared with literature and found to be inline with it. Also, this study were compared with previous study carried out in the same institute and the change in operation type and volume were addressed.

Abstract no.: 43219

TOTAL KNEE ARTHROPLASTY FOR POSTTRAUMATIC KNEE ARTHRITIS

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INTRODUCTION: During primary knee arthroplasty we sometime need to be prepared for much difficult further surgical procedures, and use of modular or more constrained endoprostheses. **AIM:** To determine the number particularly difficult posttraumatic complex primary total knee arthroplasty, analyze possible complications and assess the outcome of treatment compared to standard primary knee arthroplasty. **MATERIAL AND METHODS:** In a period 2008-2013, we performed 595 primary knee arthroplasties, 23 (3,86%) was difficult posttraumatic cases, F 13(56,5%) and M 10 (43,5%) , age 22-83 (60,82). At 4 extraarticular femoral malunion and one tibia, et 6 lateral tibial condyle, at 4 medial tibial condyle, in 3 bicondylar tibial malunion and in one lateral femoral condylar, one patient have had posttraumatic knee fusion, and 3 knee dislocations. At 5 (21,73%) knees we used bone grafting, at 5 (21,73%) stem augmentation, mostly CR and CS prosthesis, in one case hinge prosthesis. For result analysis we used KSS and WOMAC score. **RESULTS:** FU 39 (6-77) months. Full weight bearing at first 6 – 12 weeks. We haven't noted any septic or aseptic endoprosthesis loosening so far. KSS score improved from 37 to 89 and WOMAC score from 40 to 85. **CONCLUSION:** During primary knee arthroplasty in a relatively small number of knees we can expect increased intraoperative difficulties, particularly after posttraumatic osteoarthritis . It needs to recognize that on time. It is necessary preoperative planning procedures, to have proper surgical instruments, and particularly a wide range of implant, although it is a primary knee arthroplasty.

Abstract no.: 43221

ANALYSIS OF SURGICAL SITE INFECTION SURVEILLANCE IN SPINAL SURGERY

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Introduction: Surgical site infection (SSI) after spinal surgery are one of the inevitable complications, inflicting significant morbidity. The purpose of this study is to investigate this SSI surveillance in spinal surgery to identify risk factors of SSI and evaluate prophylactic treatments. Methods: A total of 810 patients undergoing spinal surgery were registered to this surveillance before the surgery. Mean age at the initial surgery was 64.9 years. Surveillance items included age, gender, preoperative nasal cavity cultivation, comorbidities, smoking, surgical procedural characteristics, duration of operation, amount of blood loss. If infection extends to the deep spinal structures beyond fasciae within one month after an operation, it is defined as early deep part SSI (EDSSI). Statistical analysis for association between survey items and EDSSI was performed. Results: Out of 810 patients, 17 patients (2.2%) were diagnosed as EDSSI. The increase in EDSSI showed that age and man were statistically significant. It was revealed that 29 MRSA carriers (3.5%) were in nasal cavity culture. There were 165 patients with diabetes, 41 patients with hemodialysis and 68 patients with steroid use. Increasing duration of operation, amount of blood loss and number of personnel in the operating room showed a statistically insignificant trend toward increasing rates of infection. Conclusions: In this surveillance, gender, hemodialysis and fusion surgery with instrumentation were identified as risk factors of EDSSI. Our prophylactic treatments for MRSA carriers, diabetes patients and smokers may be effective for the prevention of EDSSI.

Abstract no.: 43224

ARE WE FOLLOWING SAFE SURGERY WHO GUIDELINES IN THEATRE ?

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Introduction: Over 280 million operations happen worldwide each year, approximately 1 per every 25 human being alive. This causes a significant implication for public health. In developed countries the rate of major complications has been documented between 3 to 22 % in surgical procedures with a death rate of 0.4 to 0.8 %. Nearly half these adverse events in studies were determined to be preventable. Developing countries have a death rate of between 5 to 10 %. Globally almost 7 million surgical patients suffer complications each year. Surgical safety has emerged as a major public health concern. Aim: Current challenges are recognition of this as a public health matter, paucity of data, existing safe practises do not seem to be enough and complexity of surgical procedures making things worse. Methodology: To improve things more information as role and patterns be given to patients. Minimum standard of care be defined nationally, surgical safety check list be made mandatory. Ten basic essential objectives be followed as follows. Correct patient and correct site, avoid unnecessary anaesthetic agents to control pain, life threatening A,B,C issues be alarmed. Results: Our study done over a 3 month period found the following factors. Surgeon not available for briefing(18), Anaesthetist not available(7), Staffing issues(8), Change in operating list or order(6), Equipment issues(6), X ray delay(3), Inadequate preassessment (3), others(3). Average delay in theatre list finish time was seen more in first 3 months of the year than at end of the year.

Abstract no.: 43227

AN ALTERNATIVE AND EASY APPROACH FOR TIBIAL NAILING

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Introduction: tibial fractures are the most common long-bone lesion. Nailing is the gold-standard treatment. However, the classical positioning described by Küntscher in traction table with the knee in 120° of flexion brings many difficulties in reduction, intra-operative fluoroscopy and conversion to open reduction or fibular approach if needed. The transpatellar approach may lead to chronic anterior pain. We currently use the approach described by Tornetta and Collins - lateral parapatellar with the knee semi-extended. Methods: since October 2013 we changed our approach to patients submitted to tibial nailing, using the same instrumental and positioning the patient in dorsal decubitus with the knee at 30° flexion. The patients were followed at 4, 8 and 12 weeks post-op. Results: we operated 20 fractures in 18 patients (11 male, 7 female), 6 right, 7 left and 2 bilateral cases. Average age was 41,8 yrs (16-65), 2 were open (Gustillo I) and none complicated with neurovascular lesion. All fractures healed in the first 12 weeks. The average follow-up is 16,6 months (4-29); the average Lysholm score was 91,4 (70-100), and only 1 patient has anterior knee pain (VAS 2) and decreased knee flexion. Conclusion: in our experience, this positioning is more comfortable for the surgen and image intensifier, allowing access to the fracture area and fibula, if needed. As we don't open the patellar tendon, anterior knee pain is less likely to happen. It doesn't require special instrumental nor has the risk of articular cartilage damage, as described for the supra-patellar approach.

Abstract no.: 43232

AN ARTHROSCOPIC SIGN OF POSTEROLATERAL DAMAGE OF THE KNEE

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Introduction: A novel sign to diagnose postero lateral damage of the knee. Method: Arthroscopy of the knee is necessary after clinical examination and suspicion of a PLC injury. Sign: The diagnostic sign involves postero lateral 1 cm opening of the knee and visualisation of lateral meniscus. With higher grades of injury in the PL corner the intraarticular part of popliteal tendon can be visualised. In presence of any injury the synovial fold overlying the tendon becomes baggy and loose and can be seen clearly. It fails to form a tight covering as normally the case is. This is a very specific arthroscopic sign to diagnose such an injury. Conclusion: We suggest PLC injuries are easy to be missed and visualising popliteal tendon and covering should form a normal part of the knee arthroscopy. We have had a series of patients over the last ten years with PLC injury and this sign has been picked up as diagnostic in most of the cases. The popliteal tendon seems lax and extended too during such scenario. Research: We have demonstrated this aptly this sign on a toilet roll model where the paper normally is snugly fitted around the roll however in case of injuries the roll paper becomes lax and loose forming folds which is diagnostic to pick up. In undiagnosed and untreated PLC injuries can cause significant morbidity to the knee if timely diagnosis and treatment does not happen.

Abstract no.: 43234

COCCYECTOMY FOR INTRACTABLE COCCYDYNIA

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Introduction: A retrospective audit was carried out at a district general hospital over a period of 6 years. Clinical notes and operative findings were correlated. Increasing number of patients are being seen with intractable Coccydynia with no relief with conservative measures. Coccygectomy was carried out only in those patients with failed conservative treatment. Materials: Total of 7 cases, aged 18 to 52 years, M:F ratio of 2:5, symptoms of pain on sitting, standing and walking was noted. Conservative treatment included steroid injections, manipulation, local heat, cushioning. History of patients included fall, trauma and child birth. Method: Coccygectomy was performed by senior surgeon, midline approach, knee elbow position, Sacro Coccygeal junction identified mobility of segment located and then excised. Duration till surgery on average was 12 months, complications included 1 superficial infection, 1 wound dehiscence, 1 with hyper sensitive scar. Patients were discharged from clinic around 1 year post operatively. Conclusion: Coccygectomy is a effective and safe procedure in resistant cases with Coccydynia. Experience, meticulous surgical technique is necessary along with ability to address to any complications as necessary. Post operatively it can take anything between 3 to 12 months for the residual symptoms to subside. We recommend the use of this treatment in select cases only after all conservative measures have been exhausted. A large number of patients in future studies shall be more useful ideally a multi centre study if possible.

Abstract no.: 43236

OUTCOMES OF CONCOMITANT UPPER LIMB AND HIP FRACTURES IN THE ELDERLY POPULATION

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Introduction: Concomitant hip and upper limb fractures present a management dilemma given the lack of literature on outcomes in these patients. Methods: We retrospectively reviewed 1549 patients treated at a single trauma centre over 3 years. 29 patients had concomitant upper limb and surgically treated hip fractures. These patients were assessed on admission, post-operatively and at 6 months follow-up using post-rehabilitative scores. Results: 44.8% proximal humerus, 10.3% elbow, 44.8% wrist fractures; 55.2% were treated surgically. Conservative and surgical groups were matched in terms of pre-morbid conditions and fracture patterns. Surgically treated upper limb fractures had a longer median length of stay (mLOS) (17.38 vs 11.31 days, (P=0.494) and mean surgical duration (195.81 vs 89 minutes, P=0.0002). Shoulder fractures tend to have a longer mLOS (20.23 days) versus elbow (10.33 days) and wrist fractures (8.69 days) (P=0.0021). Conservatively managed shoulder fractures demonstrated better improvements in Modified Barthel Index (MBI) scores (+38.4 vs +22.6). Surgically managed wrist fractures demonstrated better improvements in MBI scores (+38.4 vs +28), however, both were not statistically significant. Elbow fractures demonstrated higher re-admission rates. Both surgical and conservatively treated upper limb fractures demonstrated improvements in MBI scores at 6 months; however, surgically treated upper limb fractures demonstrated larger improvements. There was no difference in inpatient morbidity or re-admission rates between both groups. Conclusion: Surgically treated wrist fractures had better functional outcomes at 6 months. Surgically treated concomitant upper limb fractures resulted in longer mLOS and operative duration.

Abstract no.: 43237

QUALITY OF LIFE AND SUBJECTIVE OUTCOME 10 YEARS AFTER TOTAL KNEE REPLACEMENT

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Introduction: Focus of attention in current health-care debates is often on quality of life and patient expectation. The purpose of the present study was to analyze the clinical and subjective 10-year outcome after total knee replacement (TKR) in all patients undergoing primary total knee arthroplasty (Innex UCOR; Zimmer) in 2002. Methods: 411 total knee replacements in 383 patients (66% women) were performed. Clinical (KSS, ROM, stability, VAS) as well as radiological outcome (radiolucency, loosening) were analyzed. Patient related outcome was evaluated using the SF-36 and overall satisfaction with knee surgery was evaluated. Results: At 10 years follow up, 216 patients were available for evaluation and completion of questionnaires. 20 patients (4,9%) were revised, 36 patients (8,8%) were lost to follow up. Postoperatively no significant difference was found regarding ROM (mean 120°, range between 85-150) and revision rates. Significantly improved scores were seen for postoperative KSS with a mean of 160.1 (range 10-200) in men and 132 (range 10-200) in women. 88% of patients were very satisfied with surgery results but 5% of women and 1% of men were unsatisfied with their outcome. No difference was found in overall satisfaction with general health. Discussion: In conclusion, we can state that patient satisfaction regarding function and quality of life after total knee replacement remain fulfilled 10 years after TKR. Nevertheless, 12% of patients remain not fully satisfied, although clinical and radiological outcome parameters may not differ from subjectively satisfied patients, especially in women. Future attempts to improve this group of patients remain necessary.

Abstract no.: 43242

FLOATING SHOULDER OR FLOATING SHOULDER GIRDLE

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Introduction Apart from disruption of the classic Goss ring, injuries to two additional rings were found. **Methods** For a period of 6 years 20 patients with diagnosis “floating shoulder” were operated. Five were women with average age 45 years and 15 – men with average age 35 years. The fractures of the scapula were as follows: Fracture of the glenoid and the body of the scapula - 2; fractures of the scapular neck - 2; fractures of the scapular body - 17; fractures of the scapular spine (acromion) – 5, fractures of the coracoid – 3. The injuries of the clavicle were as follows: acromioclavicular dislocation - 3, fractures of the acromial end of the clavicle - 3, fractures of the diaphysis – 10, fractures of the sternal end - 2, sternoclavicular dislocation – 1. Fractures of the humerus were as follows: Five of the proximal part and 1 of the metadiaphysis; Seven of the cases presented as multiple injuries, unclassifiable as floating shoulder, but as floating shoulder girdle; 2 of the patients had brachial plexus injury. **Results:** All patients with floating shoulder (13) regained full range of motion – mean Constant score (CS) 92; of the patients with floating shoulder girdle 2 had acceptable, 3 good and 2 – excellent results. **Conclusions** A new classification of these polystructural injuries is necessary. We think that intra-articular gap or step-off over 3 mm and the Anavian criteria for the scapular fractures mandate ORIF.

Abstract no.: 43247

TO ASSESS THE OUTCOME AND RESULTS OF PERCUTANEOUS CENTRALISATION OF CARPUS ON ULNA IN STAGED TREATMENT OF HEIKEL TYPE III AND IV RADIAL CLUB HAND

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Introduction: Traditionally centralisation of the carpus over the ulna in staged treatment of radial club hand has been performed by an open procedure, which has complications such as ulnar physeal injury, wound related complications and wrist stiffness. We hypothesized that, following deformity correction by differential distraction using a mini external-fixator, if centralisation could be achieved through a closed procedure it would avoid the above complications. The aim of our study is to describe the percutaneous centralisation procedure and evaluate its results and outcomes. **Methods:** 21 radial club hands in 17 patients were treated by this technique. Mean age at presentation was 10.2±3.5 months. In the first stage we used mini external-fixator to correct the radial deviation. After the deformity was corrected the fixator was removed. Following this, centralisation was achieved by passing K wire retrograde through 3rd metacarpal into the ulna under fluoroscopic guidance. Seven cases required additional ulnar osteotomy. The wire was kept in situ for maintaining the alignment of carpus till the lower end of ulna remodelled. Hand forearm angle was used to measure the deformity correction. **Results:** The mean follow up in this study was 27.1 ±19.6 months. Centralisation was achieved in all cases, however 4 patients had wire related complications resulting in loss of fixation and recurrence of deformity. The results were good to satisfactory in 90.5% of cases (Kanojia et al modified assessment criteria). **Conclusion:** Percutaneous centralisation avoids the complications of open technique. More-over, it is easily reproducible and the results are good to satisfactory.

Abstract no.: 43252

EARLY CLINICAL AND RADIOLOGICAL RESULTS OF BALLOON KYPHOPLASTY IN THE TREATMENT OF OSTEOPOROTIC VERTEBRAL COMPRESSION FRACTURE

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【Introduction】 BKP has since been covered by Japanese Health Insurance and subsequently this technique was introduced to our hospital in September 2011. We saw good results in the short term postoperative course of 67 patients. **【Materials and Methods】** 67 patients of 83 vertebral bodies who underwent BKP to vertebral compression fractures (VCFs) were analyzed, comprising 13 males and 54 females with average age of 74.9 years. The operated levels were mainly Th12 and L1. Cement was injected to filled firmly in the bone marrow. We evaluated clinical outcome using the visual analog scale (VAS), JOA Back Pain Evaluation Questionnaire (JOABPEQ). Radiological measurements included volume of bone cement, local kyphotic angle, correcting angle and presence of adjacent vertebral fracture. The length of conservative treatment ranged from 1 to 22 weeks (mean 10.1 weeks). **【Result】** The mean VAS pain score decreased from 8.4 ± 1.1 preoperatively to 2.6 ± 1.6 postoperatively ($p<0.01$). JOABPEQ also improved postoperatively. The mean preoperative and postoperative local kyphotic angle at vertebral compression fracture were $21.2\pm 4.6^\circ$ and $12.4\pm 3.7^\circ$, respectively ($p<0.001$). **【Conclusions】** In our experience, compression fracture of the thoracolumbar levels to prevent the deformity was considered to be better underwent BKP aggressively. The bone marrow with cement filled firmly provides pain relief significantly. The patients average received BKP five weeks after the injury. It can be performed BKP after diagnosis VCFs at an earlier stage.

Abstract no.: 43253

PERIACETABULAR OSTEOTOMY FOR THE TREATMENT OF COXARTHROSIS WITH HUGE CYSTS -PROSPECTIVE CONSECUTIVE SERIES AT A MEAN 15 YEARS OF FOLLOW-UP-

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Background: Satisfactory long-term results of periacetabular osteotomy (PAO) for the treatment of coxarthrosis have been reported. The purpose of this study was to examine the results of PAO in patients with advanced coxarthrosis with huge cysts caused by acetabular dysplasia. Methods: We prospectively analyzed ten hips in ten patients treated for bone cysts larger than 1.5 cm who underwent the Bernese PAO with bone grafts performed by a single surgeon. The average age of the patients at the time of surgery was 45.9 years, and the average duration of clinical follow-up was 15 years. The Japanese Orthopaedic Association (JOA) hip score was used and overall patient satisfaction with surgery was evaluated to assess hip function and clinical results. Plain radiographs were used to determine correction of deformity and progression of degenerative arthritis. Results: The mean pain score and the mean JOA hip score improved postoperatively. Radiographic analysis demonstrated consistent deformity correction and significant improvements in the AHI and anterior acetabular head index with no recurrence of the cystic lesion. Range of motion decreased and degenerative arthritis worsened in some cases with relative joint space narrowing and huge cyst. One has required a total hip replacement. Conclusions: PAO for the coxarthrosis with huge cysts improves hip function and may prevent or delay progression of degenerative arthritis in most patients. We must consider the indications and technique of PAO for the treatment of coxarthrosis when severe joint space narrowing is observed before surgery or when the cysts are larger than 3 cm.

Abstract no.: 43255

COMPARISON OF LONG-TERM RESULTS OF SURGICAL AND CONSERVATIVE TREATMENT OF CHILDREN WITH CLUBFOOT.

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Materials and methods: we have performed the analysis of 659 clinical cases of children aged from 1 week to 18 years treated during the period from 1993 to 2014 , who underwent 1367 surgical operations for equine-varus deformity. Since 2006 we have been widely using the method of Ponseti clubfoot correction. Results: Treatment results in all the children were evaluated on the international Midfoot Scale AO, Hindfoot Scale AO, and Laaveg-Ponseti scale. Results of the remote follow-up (in average 6.2 years) after conventional treatment after T.S. Zatsepin: Midfoot Scale AO - 47.0 points, Hindfoot Scale AO - 53,5 points and Laaveg-Ponseti - 42,5 points; after soft tissues release: Midfoot Scale AO - 65.4 points, Hindfoot Scale AO - 64,2 points and Laaveg-Ponseti - 69,6 points; after arthrodesis operations: Midfoot Scale AO - 51 points, Hindfoot Scale AO - 50 points, Laaveg-Ponseti - 22 points; after treatment by the method of Ponseti: Midfoot Scale AO - 82.93 points, Hindfoot Scale AO - 85,5 points and Laaveg-Ponseti - 88,4 points. Conclusion: change of tactics of clubfoot treatment with aggressive surgical interventions to the Ponseti method, with the use of AO-Scale and Laaveg-Ponseti, is highlighting the advantages of this technique of treatment. This method allowed us to greatly reduce the number release and arthrodesis.

Abstract no.: 43259

THE INFLUENCE OF INTRA-OPERATIVE SOFT TISSUE BALANCE ON POSTOPERATIVE KNEE STABILITY AND FLEXION ANGLE IN POSTERIOR-STABILIZED TOTAL KNEE ARTHROPLASTY

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Introduction: Clinical values of intra-operative assessment of soft tissue balance has been reported in total knee arthroplasty (TKA). The purpose of this study was to investigate the effect of intra-operative soft tissue balance on post-operative knee stability and range of motion in posterior-stabilized (PS) TKA. Material and Methods: Thirty-three knees in 33 patients (7 males and 26 females) who underwent PS TKA for varus knee osteoarthritis were included. The mean follow-up was 15.4 months. Intra-operative soft tissue balance including the joint component gap (CG) and ligament balance (varus angle: VA) were assessed under 40lbs. of distraction force at extension and 90° of flexion. Post-operative CG and VA evaluation assessed at one-year follow-up by stress radiographs at extension and flexion were assessed and compared with intra-operative values. Result: Post-operative CG at both angles were significantly correlated with the intra-operative CG values (extension; R = 0.41, flexion; R = 0.60). The post-operative VA at extension, not flexion, was significantly correlated with the intra-operative values (R = 0.37). Post-operative knee flexion angle showed a positive correlation with postoperative gap difference (flexion - extension) (R = 0.48) and post-operative VA in flexion (R = 0.38). Conclusion: The intra-operative condition of the soft tissue balance reflected the post-operative values in PS TKAsat one-year follow-up. In the PS TKA, appropriate flexion gap and lateral laxity in flexion might be important for the acquisition of post-operative high flexion angle.

Abstract no.: 43262

**PATIENT COMPLIANCE WITH VENOUS THROMBOEMBOLISM
PROPHYLAXIS IN TRAUMA AND ORTHOPAEDIC OUTPATIENTS**

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INTRODUCTION: Venous thromboembolic (VTE) disease broadly comprises pulmonary embolism (PE) and deep venous thrombosis (DVT), and cause significant morbidity and mortality, particularly in trauma and orthopaedic patients. A prevalence of 0.9% for PE and 1.2% for DVT has been reported in this population. Thromboprophylactic agents, such as, low molecular weight heparin (LMWH) are considered successful and cost effective in reducing the risk of VTE. We aimed to determine whether trauma outpatients accept LMWH after discussing their VTE risk and the evidence for prophylaxis. We also investigated compliance with administration. **METHODS:** At our major trauma centre, patients with lower limb injuries requiring immobilisation were included. At the time of removal from immobilisation patients completed a questionnaire. Patients who declined an offer of injectable subcutaneous LMWH as prophylaxis were offered Aspirin as a second line agent. **RESULTS:** 70 questionnaires were completed. 19 required surgical intervention for their injury, with the remaining 51 managed non-operatively. 31 patients accepted LMWH and 30 chose Aspirin as an alternative. 9 patients declined or were not commenced on prophylaxis. No patients reported missed doses due to pain, side effects or cessation for another reason. The mean average pain score recorded on the VAS was 3.8, with a mode of 2 and median of 3. **CONCLUSION:** LMWH is a recognised chemical thromboprophylactic and well tolerated by patients for VTE risk reduction in lower limb immobilised outpatients. With poor evidence supporting Aspirin as a solo prophylactic agent, our local policy has since withdrawn Aspirin for this purpose.

Abstract no.: 43264

PREVENTIVE FEMORAL NECK REINFORCEMENT IN ELDERLY PATIENTS

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Proximal femoral fractures amount more than one third of all the fractures in patients at the age older than 65 years. This happens due to the changes in the osseous tissue, dismetabolic disorders and impairment of the statokinetic function. We consider the proximal femoral fractures on one side to be the predictors of the fractures on the opposite side and make the preventive femoral neck reinforcement by screw fixation to prevent them. The aim of our scientific work is to assess the efficacy of preventive femoral neck screwing. We performed the preventive reinforcement in 13 patients: 9 women and 4 men older than 65 years. At the injured side we applied prostheses (biomet-magnum 2a) for the femoral neck fractures and nail fixator (stryker gamma-3) for thochanteric fractures. All the patients were aroused the next day. Conclusion: The method of preventive femoral neck reinforcement must be assesed very carefully, because the profilaxis of proximal femoral fractures can significantly reduce the tratment cost.

Abstract no.: 43265

OUTCOME OF CONSERVATIVE AND SURGICAL TREATMENT OF OLECRANON FRACTURE IN ELDERLY- IS THERE ANY DIFFERENCES?

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Introduction:Olecranon fractures can occur as the result of high energy trauma in the young and low energy trauma in the elderly. Surgical treatment is the method of choice in displaced fracture, but sometimes especially in elderly, due to the significant comorbidities, conservative treatment can be the first choice.**Aim:**To show is there any differences regarding long term outcome comparing surgical and non surgical treatment of displaced olecranon fractures in elderly.**Methods and materials:** We prospective analysed 25 patients older than 70, who underwent surgical treatment of olecranon fracture and 20 patients who underwent conservative treatment. All fractures occurred as the result of low energy trauma (fall from the standing height), and all fractures were displaced (classified by Colton classification).The follow up period was two years.Range of motion and DASH score had been used in order to evaluate the functional outcome.**Descriptive statistics** (gender,age, comorbidities) , Fisher exact test and two tailed t-test were used to evaluate the data, p value of <0,05 was considered statistically significant.**Results:**The range of motion were statistically better in surgical group at 6months, one year and two years of follow up.DASH score was significant better in surgical group at 6 months of follow up, but after one year and two years there were no statistically significant differences between two groups.**Conclusion:** According to our results, surgical treatment of displaced olecranon fractures has better outcome, but the subjective satisfaction depends on all day expectations

Abstract no.: 43268

POSTOPERATIVE MECHANICAL ALIGNMENT AFTER PATIENT SPECIFIC INSTRUMENTS(PSI) TKR AND CONVENTIONAL TKR .

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Introduction: accurate alignment after TKR is very important for implant longevity and functional outcome, patient specific instruments (PSI) TKR has been presented in the last decade as a sound technique for TKR instead of conventional TKR. Patients and methods: Patients were divided into 2 groups ; (group A) composed of 69 TKRs in 55 patients, done by conventional TKR, and (group B); composed of 40 TKRs in 23 patients, done by (PSI) TKR. Long standing films done for all patients 6 weeks postoperatively. Postoperative mechanical tibiofemoral , mechanical Lateral distal femoral (mLDFA) and Medial proximal tibial (MPTA) angles, were assessed in both groups by the same digital software (screen scale). T and Chi-square tests used for comparison (P value considered not significant if equal or greater than 0.05).Results: There were no statistical significant differences between both groups regarding the mean of postoperative mechanical tibiofemoral angle and number of outliers (knees with mechanical tibiofemoral angle more than 3o varus or valgus). The mean mechanical tibiofemoral angles were 3.19 and 3.91 for group A and B respectively with P value equal 0.202 .The percentage of outliers was (42%) in group A and (45%) in group B with P value 0.762. Also, no significant differences were detected between (mLDFA) and (MPTA) in both groups. Conclusion: PSI doesn't improve postoperative mechanical alignment or positions of the components.

Abstract no.: 43273

**CALCANEAL INTRAARTICULAR, MULTIFRAGMENTAL FRACTURES
SURGICAL TREATMENT DURING THE PERIOD FROM 2010 TO 2014 IN
HOSPITAL OF TRAUMATOLOGY AND ORTHOPAEDICS IN LATVIA**

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Background. The calcaneus is the most frequently injured tarsal bone and are associated with numerous complications. Aims: Collect and analyze data on a calcaneal fractures surgical treatment during the period from 2010 to 2014 in Hospital of Traumatology and Orthopaedics in Latvia. Methods: In a retrospective study included patients aged from 16 till 74 years, average age 43. Total collected calcaneal fractures number were 139, patients – 129; from those 19 women, 110 men. During the study for data analyze were used medical records, evaluated radiological examination in preoperative and postoperative period, using AGFA IMPAX program. Results: Calcaneal fracture is found as a result of high energy trauma - 107 (83%) patients, and low energy trauma – 22 (17%) patients. Intraarticular calcaneal fractures were 130 (94%) patients, extraarticular fractures – 9 (6%). X-ray Böhler angle average size before operation were 6,8 degrees (Computed tomography 7,8 degrees), after operation - 27 degrees. The most common treatment were used osteosynthesis method with a plate and screws – for 120 (86%) patients. Active drainage in postoperative period were used for 71 (51%) patients, average exudate volume were 113,5 ml. Summary/conclusions: An open calcaneal fracture reposition (with or without plastic) and internal osteosynthesis with a plate and screws, is used for multifragmental, intraarticular calcaneal fractures, what as a result significantly restore the calcaneal anatomy, where especially important is the average Böhler angle, which before osteosynthesis was 6.8 degrees, but after osteosynthesis 27 degrees. It shows, that full restoration of the anatomical structure has made.

Abstract no.: 43274

ROLE OF MINIMALLY INVASIVE SPINE SURGERY (MIS) IN TREATMENT OF THORACO LUMBAR SPINE FRACTURES: AN EXPERIENCE FROM JPN APEX TRAUMA CENTRE LEVEL ONE TRAUMA CENTER, AIIMS, NEW DELHI

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Twenty four (24) cases of acute thoraco lumbar spine fractures were treated using minimally invasive spine surgery techniques (MIS). The average age of the patients was 28 years. There were 19 males and 5 females. The mechanism of injury was fall from height in twenty (20) cases and road traffic accident in four (4) cases. There were fourteen (14) patients who had Burst fractures and ten patients (10) had Chance fractures. All patients were treated using minimally invasive technique – MIS. 18 patients were treated by posterior only approach with percutaneous pedicle screws. In six (6) patients, a mini-open anterior approach was used in addition to posterior percutaneous pedicle screws fixation, for decompression and anterior reconstruction. Anterior reconstruction was done with Expandable cages in four (4) cases and a Mesh cage was used in two cases. 18 patients were neurologically intact (ASIA E) and remained so post operatively. There were two patients with complete paraplegia (ASIA A). Three patients were ASIA 'C' and one patient was ASIA 'D'. All patients were mobilized after 48 hours, post operatively. Union was achieved in all cases. We had no case of Pseudo arthrosis or implant failure. A neurologic improvement one ASIA grade was found in three patients, two ASIA grades in two patients and three (3) ASIA grades in one patient.

Abstract no.: 43278

CAN BLOOD AND PERIPHERAL TISSUE BE USED AS DIAGNOSTIC TOOL FOR OSTEO-ARTICULAR TUBERCULOSIS???

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Musculoskeletal tuberculosis, one of the leading causes for deformity and lifelong disability, still remains a challenging problem in developing country like India. Indolent course of disease bring further delay in diagnosis and treatment. In recent years nested PCR-based protocols raised hopes as a reliable and fast diagnostic tool for the same. **METHOD:** A total of 103 suspected cases of extrapulmonary tuberculosis were selected for the study. Sample were collected and subjected to nested Polymerase chain Reaction (PCR) after DNA extraction. Heat shock protein gene (hsp65) of *M. tuberculosis* was targeted with in house designed primer. Final amplified product were analysed on 2% agarose gel stained with ethidium bromide under UV light. **RESULT:** All sample were found negative for acid fast bacilli by Ziehl Neelsen staining. On the other hand 47 specimen (43%) were found PCR positive for *M. tuberculosis*. And Nested PCR done in the blood samples from these 47 cases showed a positivity of (14/47, 30%). **CONCLUSION:** Paucibacillary patients have bacilli in blood which increases sensitivity of nested PCR and hence the detection of disease. So this small study reflects that peripheral blood may serve as a tool for diagnosis for this difficult osteo-articular tuberculosis.

Abstract no.: 43280

OSTEONECROSIS AFTER MAISONNEUVE FRACTURE TREATED WITH BONE MARROW STEM CELLS

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Avascular necrosis can be preceded by trauma and sometimes leads to articular collapse. The incidence is higher at the hip, knee and shoulder, but also affects the talus, elbow and wrist. It has also been described at the open fracture-dislocation of the distal tibia. We found necrosis of the distal tibia in 4 out of 17 Maisonneuve fractures. Clinical case: 58 years old male with Maisonneuve fracture of his left ankle. Past Medical History (PMH): hypertension, dyslipidemia, Obesity class I (BMI 33). Percutaneous syndesmotic fixation with two supra-syndesmotic 3.5 cortical screws was performed. Non-weight bearing immobilization for 3 weeks followed by non-weight bearing mobilization for 8 weeks was recommended. After progressive weight bearing, screws were removed at week 14. At week 16 the patient referred mechanical pain at the syndesmosis. At month 9, he was diagnosed of distal tibia necrosis by MRI, located where the screws where placed. Percutaneous drilling and injection of Bone Marrow Aspirate Concentrate (BMAC) was performed. Non-weight bearing for 4 weeks was recommended. Four months after that, we found clinical improvement, no pain with active motion nor with syndesmotic palpation and full range of motion. MRI and CT one year after the procedure showed us a decrease of the infarcted area, resolution of the edema and no articular collapse. Discussion: bone necrosis after a Maisonneuve fracture must be suspected when pain persists after screw removal. When no articular involvement, percutaneous drilling and stem cells injection should be considered.

Abstract no.: 43283

MORTALITY AND MORBIDITY RISK FACTORS AFTER SURGICAL TREATMENT OF A PROXIMAL FEMUR FRACTURE IN THE ELDERLY

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Proximal femur fractures (PFF) cause a significant impact on morbidity and mortality. Men have greater risk of death, but the relationship between surgery delay and mortality still remains controversial. Several other factors worsens functional outcome: displaced femoral neck fractures, ageing, cognitive or mobility impairment and post-operative complications. We studied PFF submitted to surgical treatment in our department during 6 years, in 65 or more years old patients. We excluded pathological or peri-prosthetic fractures, politrauma and a contralateral fracture during the study period. During the study period 897 PFF met the inclusion criteria, 262 were excluded, resulting in 635 cases. We had 78% of females, the mean age was 81; almost 91% were ASA 2 and 3. Mean diagnosis-surgery time was 2,5 days and mean post-operative hospital stay was 10,5 days. The complication rate at 30 day was 11% and at 1 year 16,5%. The mortality rate was 5,3% at 30 days and 14,2% at 12-months. We have found statistically significant impact on mortality with increasing age, male gender and ASA classification. Only ASA classification had a statistical relationship with complications. Moreover, we have found statistically significant relationship between occurrence of complications both with a delay in diagnosis-treatment time and longer post-operative hospital stay. In contrast, we have not found significant relationship between these variables and 1-year mortality. Since delay in diagnosis-treatment time and longer post-operative stay are modifiable factors, we should try to reduce both, improving referral to post-acute care services and controlling medical conditions that can preclude optimal outcomes.

Abstract no.: 43284

ANTEGRADE VERSUS RETROGRADE MIPPO FOR DISTAL TIBIA FRACTURES, A PROSPECTIVE RANDOMIZED COMPARATIVE STUDY

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Background: Antegrade MIPPO for distal tibia fractures was retrospectively proven to be superior to retrograde insertion. Objectives: prospective randomized comparative study for both insertion techniques. Methods: Sixty patients with distal tibia fractures were randomized to either insertion technique. As per AO classification, 36 fractures were type A, 16 type B, and 8 type C. All the parameters were compared and the AOFAS score was used for final functional Assessment. Results: The minimum follow up period was 24 months. Fifty-six patients, 29 in the antegrade and 27 in the retrograde group completed the follow up and were presented. Patients in the antegrade group had lesser mean time to OR (30.64 versus 55.34 hours), mean operative time (60.22 versus 86.65 min) mean hospital stay because of tibial fracture (2.76 versus 5.23days), and number of wound related problems, infection, and residual edema. Also, patients in the antegrade group had shorter skin incision, less limitation of ROM of the ankle joint, less number of physiotherapy visits, less number of implant removal requests, faster return to job and sports, and better AOFAS score. Conclusions: Antegrade plate insertion adds more to the merits of MIPO in treating distal tibia fractures. It allows faster interference with minimal surgical trauma, less complications, better functional results, and faster return to job and sports.

Abstract no.: 43285

MUSCULOSKELETAL DISORDERS AMONG ORTHOPEDIC SURGEONS

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Introduction : Orthopedic surgery is a physically demanding profession, predisposing to the occurrence of musculoskeletal injuries. The aim of this study is to evaluate the prevalence and the impact of musculoskeletal disorders among orthopedic surgeons. Methods : A survey was developed and distributed to orthopedic surgeons practicing in Algeria. The results were analyzed to determine the prevalence of musculoskeletal disorders related to operating activities of orthopedic surgeons. Results : 124 orthopedic surgeons (85% men) participated in the study. 92% reported sustaining one or more injuries at the workplace in the last twelve months. The back is the most common location of injury, followed by the shoulder, neck and hand. 68% of surgeons believe that these lesions are directly caused by work, and 84% think it is bad postures and positions in the operating room that are causing trouble. Pain is the chief symptom. 11% report that these lesions have led to a change in their work schedules. Discussion : Musculoskeletal disorders are common in the orthopedic surgeon, related to its operating activity. These lesions mainly affect the back. The pain remains the master symptom. Although 92% of surgeons report having had at least one injury and 68% believe that these lesions are directly related to work. The purpose of this study is to evaluate the prevalence of musculoskeletal disorders among Algerian surgeons; the results remain comparable to similar international studies. Conclusion : Orthopedic surgery is a physically demanding profession, which can cause musculoskeletal disorders.

Abstract no.: 43287

EARLY TOTAL CARE VS DAMAGE CONTROL IN POLYTRAUMA PATIENTS SUFFERING FROM A3'S MAGERL THORACOLUMBAR SPINE FRACTURES AND LONG BONE CLOSED INJURIES: EVALUATION OF METABOLIC SHOCK, OUTCOMES AND COMPLICATIONS.

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The ideal timing and manner for the fixation of the spine's unstable fractures in polytrauma patients remains controversial. Does the early surgical fixation in A3's spine fractures reduce metabolic shock, outcomes and complications? From March 1st2013 to August 31st2015 we recruited 27 polytrauma young adult patients with A3 spinal thoracolumbar fractures and long bones closed injuries (LBI). 12 patients had Early Total Care (ETC) associated with fixation of LBI; 15 patients had Damage Control Orthopedics (DCO) after an average of 7.8 days from the trauma. The choice of treatment for the patient shad been dictated by their intra-operative conditions and the ability of the surgeon in treating vertebral fractures. During access to the emergency room, before and after surgery, during hospitalization and the 6 months of follow up, the patients underwent seriated screening for monitoring inflammatory markers(LDH, CPK,IL-6, IL-1,IL-8, TNF- α , ALFA1G);thrombosis(Fibrinogen, D-dimer), infection(ESR, CRP, Procalcitonin) and a number of complications. The Valuated End Point was set at 6 months. From admission in Emergency to the third month after surgery there were high values of inflammatory and thrombosis markers for both groups with no statistically significant difference $p < 0.05$. After the third month there were no statistically significant differences between ETC and DCO. We had 3 complications in DCO group and 1 in ETC. Based on our data, we can assert that even if surgery of polytrauma patients with vertebral fractures is carried out in various steps, there are no negative outcomes or catastrophic complications.

Abstract no.: 43288

FOOT LOADING AND GAIT ANALYSIS EVALUATION IN 34 CONSECUTIVE PATIENTS SUFFERING FROM TIBIAL PILON FRACTURE TYPE A ACCORDING A.O.: THREE SURGICAL TECHNIQUES.

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The aim of our study is to investigate what technique among hybrid external fixation , plate and screws and intramedullary nailing produces better outcomes in foot loading, in treating typeA 4.3 fractures, according to the AO classification. From November 2011 to December 2014 at the Orthopaedics and Traumatology department of the AO Gaetano Rummo (Benevento, Italy), 34 patients with an average age of 32.3 (range 16-67),25 males and 9 females, suffering from type A tibia fracture were treated with intramedullary nailing. The patients were divided into 3 groups: 16 patients treated with hybrid external fixation, 10 with plate and screws and 8 with intramedullary nailing. The follow-up was performed with clinical and radiological evaluations at 15 days, 1 month, 3 months, 6 months and 12 months after surgery. The chosen outcome parameters for the three groups were: the visual analog pain scale of the traumatized tibia, the time elapsed from surgery to weight bearing, the average time to fracture recovery, the subjective / objective Ovadia and Beals score , the baropodometric examination at 12 months, the walking recovery at 12 months, possible complications. The Endpoint assessment was set at 12 months. The results showed that the incorrect reduction of type A tibia fracture can lead to changes of the sagittal balance line of the foot loading and pace training. We may conclude by saying that the experience of the surgeon in the reduction of the fracture and the knowledge of the means of synthesis is essential.

Abstract no.: 43291

THE CHALLENGES IN THE MANAGEMENT OF FLOATING KNEE INJURIES: RESULTS OF TREATMENT AND OUTCOMES OF 56 CONSECUTIVE CASES IN 10 YEARS.

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Floating knee is a flail knee joint resulting from fractures of the shafts or adjacent metaphyses of the femur and ipsilateral tibia. It is usually associated with several complications and mortality. This study was designed to present our experience with treatment of this injury. This study was performed between January 2004 and December 2013. 56 cases of floating knee injuries gathered from the 8620 lower extremities trauma files were studied, and the target information was recorded. The injuries most frequently occurred in subjects age 16-35 yo (60.71%), and males (85.71%). The most frequent mechanism of injury was a car to motorcycle accident (92.85%). External fixation was the common type of treatment (82.14%) in emergency or permanent treatment. The treatment was performed 24h from the trauma. We did a follow up with clinical examination, XR, Modified Cincinnati Rating System Questionnaire, Karlström/Olerud, and miscellaneous complication. Patients had an average 4.6 (Range 2-11). Early complications included 3.7% of cases with compartmental syndrome, 32 open fractures and 7 subamputated limbs. The limb was amputated in 3 patients. The most common late complications were heterotopic calcifications of the knee in 17 cases (30.6%). Good scores for the Modified Cincinnati Rating System Questionnaire and Karlström/Olerud were obtained only after the patients were sent to a reference center for the knee. Our Experience revealed that the complication rate associated with floating knee injuries remained high, regardless of the treatment regimen performed. Surgeons should focus on reducing complications while treating these injuries.

Abstract no.: 43292

20-YEAR EXPERIENCE IN EXTERNAL FIXATION OF THE PELVIS: REDUCTION, REMOVAL AND COMPLICATIONS FOR THE OPEN INTERNAL SURGERY.

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The severe fractures of the pelvic girdle in patients with multiple trauma often require a stabilization in emergency. Our purpose is to evaluate the complications associated with anterior pelvic external fixation. Through a retrospective clinical study at Level II Trauma Center, 169 patients fit the criteria for inclusion with a mean duration of anterior pelvic external fixation of average 6.4 days after emergency stabilization. Charts were reviewed for complications postoperatively in emergency. The symphysis diastasis, vertical displacement and posterior displacement of each hemipelvis reduction were quantified from pelvic radiographs and CT. The reduction was: excellent in 52 patients; good in 74 patients, sufficient in 23 patients and non sufficient in 20 patients. Superficial pin track infection occurred in 8 patients. Within the studied group the deaths have been recorded in three patients with extremely severe associated injuries (ISS over 52). The external fixation stabilizes the anterior pelvic ring lesions and it can be combined with the posterior stabilization using percutaneous sacro-iliac screws in case of associated lesions of the posterior ring. The external fixator is very useful especially in the acute phase, acquiring an acceptable reduction and an adequate stability in the partially unstable lesions (Tile B) and also reduces the pelvic volume and bleeding, being considered essential within the resuscitation protocols. The external fixator can be used as a permanent stabilization method when it guarantees a satisfying reduction.

Abstract no.: 43293

HALLUX VALGUS SURGICAL TREATMENT – IS THE SCARF OSTEOTOMY EFFECTIVE IN ACHIEVING BOTH PATIENT SATISFACTION AND GOOD IMAGING RESULTS?

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Several procedures have been described and developed for surgical treatment of hallux valgus (HV), normally consisting of distal soft-tissue realignment, metatarsal osteotomy, with or without phalangeal osteotomy. The ideal treatment should correct both foot deformity and the abnormally increased angles, as well as improve foot appearance and patient satisfaction. For its versatility and ability to correct severe HV deformities, we evaluated the results of HV treatment with Scarf osteotomy. We evaluated 32 patients (38 feet) during a 5-year period who were submitted to a Scarf osteotomy combined with distal soft-tissue realignment, with or without tenotomies or Weil osteotomies of lesser toes. Exclusion criteria were previous HV surgery, open physes, neurological or rheumatoid disorders, lack of pre-operative adequate x-ray and patients being lost to follow-up. Pre and post-operative AOFAS score, VAS, patient satisfaction and radiographic measures were used to evaluate results of treatment. Complications were recorded. The average follow-up was 37 months. The mean AOFAS Score improved from 66.1 to 93.2, and VAS from 6 to 1. Almost 95% were satisfied or very satisfied with the surgery. The HVA improved from 32,8° to 15,6° and IMA from 14,2° to 11,2°. The median sesamoid position improved from 3 to 2. All these differences were statistically significant. Complications included wound infection (3), recurrence (3), osteosynthesis material failure (1) and material intolerance (6). Our results support that Scarf osteotomy is an effective surgical treatment for HV, with significant improvement in VAS and AOFAS Score, effective correction of HV deformity and high patient satisfaction.

Abstract no.: 43294

HALLUX VALGUS SURGICAL TREATMENT WITH FIRST METATARSAL OSTEOTOMY - HOW DOES THE SURGEON'S EXPERIENCE INFLUENCE OUTCOME RESULTS?

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The ideal hallux valgus (HV) treatment should correct deformity, improve foot appearance and patient satisfaction. Different first metatarsal osteotomies allow different angle correction and there's an important learning curve for each one of them. We evaluated the influence of surgeon's experience in Chevron and Scarf osteotomies in the results of HV' surgical treatment. We evaluated 44 patients (54 feet) during a 5-year period (mean 41 months follow-up), submitted to a Scarf or Chevron osteotomy with distal soft-tissue realignment, with or without tenotomies or Weil osteotomies of lesser toes. Exclusion criteria were previous HV surgery, open physes, neurological or rheumatoid disorders, lack of pre-operative adequate x-ray and patients being lost to follow-up. Pre and post-operative AOFAS score, VAS, patient satisfaction and radiographic measures were used to evaluate results of treatment and complications were recorded. The patients were divided on the first 27 and the last 27 procedures. We found a statistically significant difference between groups concerning the osteotomy option. Scarf osteotomy allowed a better HVA improvement than Chevron ($17,2^{\circ}$ vs $10,0^{\circ}$). The mean HVA and IMA correction was $11,4^{\circ}$ and $1,8^{\circ}$ on the first group and $18,7^{\circ}$ and $3,7^{\circ}$ on the second, respectively ($p < 0,05$). We found a trend ($p = 0,051$) between groups concerning recurrence, insufficient correction and transfer metatarsalgia. The mean AOFAS Score and VAS improvement, the median sesamoid position improvement and satisfaction was similar in both groups. Our results support that surgeon's experience is a major factor in achieving optimal results, combined with a good osteotomy choice concerning the HV severity.

Abstract no.: 43295

COMBINED ARTHROSCOPIC AND MINI-INVASIVE ADHESIOLYSIS IMPROVES THE FUNCTION IN POST-OPERATIVE STIFF KNEES

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Background: Knee stiffness is a difficult complication following knee surgeries. Extra- and intra-articular adhesions exist that may severely incapacitate the knee. Traditional quadricepsplasty has significant morbidity. Intra-articular adhesiolysis alone is not sufficient in severe cases. Our hypothesis was that combined intra-articular arthroscopic adhesiolysis and extra-articular mini-invasive quadricepsplasty effectively improves ROM and function in post-operative severely stiff knees that that may not respond to arthroscopy alone and without the morbidity associated with the classic Judet technique. Patients and methods: This prospective study was performed from January 2010 to December 2013 in the Orthopaedic department of our university hospital. 16 patients with severe post-operative stiff knees were managed with combined arthroscopic and mini-invasive quadricepsplasty. The mean age of the patients was 28.5 years. Intra-operatively if the patient improved significantly by arthroscopy alone the procedure was terminated and the patient excluded from the study, otherwise, mini-invasive extra-articular quadricepsplasty was performed. The mean follow-up was 33.5 months. All patients were evaluated for pain, range of motion and knee function using the Knee Society Scoring System. Results: The average maximum degree of flexion increased from 27° preoperatively to 115° at the time of the final follow-up ($p < 0.001$). A superficial wound infection occurred in one patient. One patient had a persistent 15° extension lag. Conclusions: Combined intra-articular arthroscopic adhesiolysis and extra-articular mini-invasive quadricepsplasty effectively improves ROM and function in post-operative severely stiff knees that that may not respond to arthroscopy alone and without the morbidity associated with the classic Judet technique.

Abstract no.: 43296

**SLEEVE FRACTURE OF THE UPPER POLE OF THE PATELLA -
SURGICAL TREATMENT: A CASE REPORT AND A REVIEW OF THE
LITERATURE**

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Introduction: Patellar fractures in children account for approximately 1% of the total. Of these, less than 2% occurring in the immature skeleton and generally involve the inferior pole. A unusual type, superior pole sleeve fracture, may result from direct and/ or indirect trauma, and unfortunately the diagnosis may not be immediate. Methods: The authors describe the case of an 8-year-old male without medical background, who suffered a skateboard fall which resulted in a contusion of the right knee. The x-ray show a small bone fragment adjacent to the upper pole of the patella and a MRI scan was perform – superior pole sleeve fracture. Results: The patient was proposed for surgical treatment. Surprisingly, the beam corresponding to the internal vast was detached from the bone/cartilage fragment. The authors use for fixation two anchors. Plaster cast immobilization was carried for 2 weeks, then switching to a functional knee brace locked at 0° and consecutively adjusted to 15, 30, 45 and 90° of flexion and partial load up to 6 weeks. At 8 weeks the knee brace was removed and total charge allowed. At 6 months the patient has full range of motion without pain, has resumed to the practice of skateboarding, without any restriction. Conclusions: This being considered by many an under-diagnosed disease. Rupture of the beam insertion of the internal vast makes this injury even more uncommon. The anatomical reduction and reinsertion with anchors associated to the use of functional orthoses is one of the procedures with best outcomes.

Abstract no.: 43299

OUTCOME OF IRRIGATION AND DEBRIDEMENT AFTER FAILED TWO-STAGE REIMPLANTATION FOR PERIPROSTHETIC JOINT INFECTION

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Background: Two-stage revision is the gold standard for the treatment of deep implant infection after knee or hip arthroplasty. Irrigation and debridement is a treatment option for failed 2 stage revisions and is appealing because of its low morbidity. We determined the incidence of recurrent infections following irrigation and debridement for failed two-stage revision hip and knee arthroplasty. Methods: We performed a single center retrospective review of periprosthetic hip and knee infections treated with a two-stage procedure from 2002 to 2010. All patients that subsequently underwent irrigation and debridement for a subsequent infection were selected for the current study. Results: 440 two-stage revisions were performed between 2002 and 2010. Fifty-one two-stage revisions failed (11.6%). Nineteen failed two-stage revisions were treated with irrigation and debridement; 12 (63.2%) patients remained free of infection at follow-up (mean follow up: 34 months; range, 12-90 months), infection persisted in 6 patients (31.6%), 1 patient died (5.3%). Conclusions: Success rates of irrigation and debridement for failed two-stage procedures are similar to the success rates of irrigation and debridement in primary implant infections. According to the current paper irrigation and debridement is an acceptable treatment for failed two-stage revision if performed within the first 30 postoperative days after failed two-stage procedure or if symptoms are present for less than 3 weeks in the presence of a susceptible organism.

Abstract no.: 43300

ARE LATERAL COMPARTMENT OSTEOPHYTES A PREDICTOR FOR LATERAL CARTILAGE DAMAGE IN VARUS OSTEOARTHROTIC KNEES?

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We studied whether the presence of lateral osteophytes on plain radiographs was a predictor for the quality of cartilage in the lateral compartment of patients with varus osteoarthrotic of the knee (Kellgren and Lawrence grade 2 to 3). The baseline MRIs of 344 patients from the Osteoarthritis Initiative (OAI) who had varus osteoarthritis (OA) of the knee on hip-knee-ankle radiographs were reviewed. Patients were categorised using the Osteoarthritis Research Society International (OARSI) osteophyte grading system into 174 patients with grade 0 (no osteophytes), 128 grade 1 (mild osteophytes), 28 grade 2 (moderate osteophytes) and 14 grade 3 (severe osteophytes) in the lateral compartment (tibia). All patients had Kellgren and Lawrence grade 2 or 3 arthritis of the medial compartment. The thickness and volume of the lateral cartilage and the percentage of full-thickness cartilage defects in the lateral compartment was analysed. There was no difference in the cartilage thickness or cartilage volume between knees with osteophyte grades 0 to 3. The percentage of full-thickness cartilage defects on the tibial side increased from < 2% for grade 0 and 1 to 10% for grade 3. The lateral compartment cartilage volume and thickness is not influenced by the presence of lateral compartment osteophytes in patients with varus OA of the knee. Large lateral compartment osteophytes (grade 3) increase the likelihood of full-thickness cartilage defects in the lateral compartment.

Abstract no.: 43303

ANALYSIS OF CRYSTALLINITY AND STRAIN IN COMPARISON WITH UNUSED AND RETRIEVED TIBIAL INSERTS MADE OF BETA STERILIZED UHMWPE BY RAMAN SPECTROSCOPY

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INTRODUCTION: Beta sterilization is a unique sterilization method of B. Braun Aesculap (Tuttlingen, Germany) and has the potential to prevent oxidation, because the process is completed in short time. In this study, we investigated by Raman spectroscopy the crystallinity and strain deformation of retrieved beta sterilized conventional tibial inserts as compared to unused samples. **MATERIALS AND METHODS:** We performed experiments on 9 retrievals and 3 unused tibial inserts with average in-vivo time of 26.2 months (0.7-74). For each samples, we analyzed 3 locations (medial load zone, non-load zone, lateral load zone) collecting maps of Raman spectra at different depths. Raman spectra were used to calculate crystallinity fractions correlated to oxidation and creep deformation. **RESULTS:** As compared to unused samples, all the retrievals increased crystallinity in both load zones up to depth of 1000 μ m and the correlation with in-vivo time was strong ($p < 0.05$). Furthermore, all retrievals showed higher creep as compared to the unused samples, which was correlated to the body weight in lateral load zone regardless of in-vivo time ($p < 0.05$). **DISCUSSION:** The results of this study suggest that the oxidative degradation may occur even in the case of sterilization by beta-ray. Also, we noticed that the extent of creep depends on the weight of the patient rather than the implantation time. Interestingly, the strain of the lateral load zone was greater than that of the medial load zone, which might be explained considering the influence of lift-off phenomenon.

Abstract no.: 43304

EVALUATION OF FUNCTIONAL OUTCOME OF SINGLE STAGE BILATERAL ACL RECONSTRUCTION IN INDIAN SETTING

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INTRODUCTION: Bilateral anterior cruciate ligament (ACL) injuries are very uncommon with an incidence of less than 4 %. Ideal treatment protocol remains controversial between single-stage and two-stage bilateral ACL reconstruction. **PATIENTS AND METHODS:** A prospective study was undertaken including a total of 10 consecutive patients with bilateral ACL injuries who were admitted at our center between the period of Jan 2012 and Jan 2015. They underwent single stage bilateral arthroscopic ACL reconstruction with hamstring tendon autograft. The mean follow up was 24 months (20-36 months). Functional outcomes were evaluated by range of movements, International Knee Documentation Committee (IKDC), Lysholm and Tegner activity score and stability tests. **RESULTS:** The mean age was 28 years and average duration of rehabilitation was 8 weeks. The mean IKDC evaluation score was 90 points, the mean Tegner activity score was 7 points, and the mean Lysholm knee score was 92 points. All patients demonstrated full range of motion and 9 patients had negative Lachmans test at the final follow up. **CONCLUSION:** Single stage bilateral ACL reconstruction using hamstrings autograft is clinically safe and a cost effective treatment with excellent functional outcome.

Abstract no.: 43307

GAIT CHARACTERIZATION AND ANALYSIS IN PATIENTS WITH HALLUX VALGUS

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Introduction: Hallux valgus (HV), one of the most common forefoot problems, can lead to altered plantar pressure patterns. In addition, HV can also cause clinical gait alterations. This study examined the relationship between gait alterations or motor function and HV deformities. Methods: We examined 294 residents (94 men and 200 women; >65 years of age) of Miyagawa village in Mie, Japan in 2009 and compared gait-related factors between patients with normal-to-mild (HV angle <30; n=263) and moderate-to-severe HV (HV angle >30; n=31). Their plantar pressure patterns and gait-related factors such as step length, step width, foot angle, and gait speed were measured using a gait analyzer (Walk Way MW 1000; Anima, Tokyo, Japan). Results: Analysis of plantar pressure patterns revealed that the ratio of subjects in the moderate-to-severe group able to use the hallux ball during toe-off was significantly less than the ratio in the normal-to-mild group. However, when walking at their normal speeds, the gait-related factors did not differ significantly between the two groups. However, at maximum walking speed, the step length in the moderate-to-severe group was significantly shorter than that of the normal-to-mild group. Conclusions: Severe HV prevented subjects from pushing off with their toes, resulting in shorter step length. Thus, moderate to severe HV can cause not only gait alterations but also motor functional decline, especially when walking at maximum speed.

Abstract no.: 43311

EVALUATION OF THE LUMBAR SPINE REOPERATION PERFORMED BY ENDOSCOPIC PROCEDURES HAS BEEN SUCCESSFULLY CREATED

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Introduction: Our institution performed 1500 surgeries in 2014, including 1296 endoscopic spine surgeries (86.4%). Among these, 68 were reoperations and all the reoperation cases were performed using the endoscopic method. **Materials and Methods:** The study included 68 spine reoperation patients with a mean age of 57.0 years. The reoperation procedures, causes of the reoperation, complications, and results of the surgery were examined. The results of the surgeries were evaluated according to the Hirabayashi recovery rate using preoperative and postoperative JOA scores. The improvement rate for JOA (Japanese Orthopaedic Association) score was categorized as follows: excellent (100%-75%), good (74%-50%), fair (49%-25%), and poor (<25%). **Results:** Endoscope-assisted posterior fusion re-surgery was performed in 14 cases, and the cause of reoperation included disc degeneration (9 cases) and spinal instability (5 cases). Endoscopic laminotomy re-surgery was performed in 10 cases, and the cause of reoperation included re-stenosis (9 cases) and cystic lesion (1 case). Endoscopic discectomy re-surgery was performed in 43 cases, and the cause of reoperation included recurrent disc herniation (37 cases) and poor cases (6 cases). The surgical results obtained are as follows: a) Fusion group - three excellent cases, three good, six fair and two poor cases; b) Endoscopic laminotomy group - two excellent, five good, two fair and one poor case; and c) Endoscopic discectomy group - 24 excellent, 11 good, 6 fair, and 2 poor cases. There were six cases of dural tear and one case of surgical site infection, but no other serious complications or open conversion.

Abstract no.: 43313

RAPID DESTRUCTION OF THE HUMERAL HEAD -- SEQUELAE OF AN INSUFFICIENCY FRACTURE?

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In contrast to rapidly destructive coxarthrosis, rapid destruction of the humeral head is rare. We treated three elderly women who developed rapid collapse of the humeral head. No osteonecrosis, signs of infection, or detritus synovitis was noted on histological examination of the resected humeral head. Instead, the histology was consistent with fracture healing process. Survey for osteoporosis revealed lowered bone mineral density or altered bone metabolism markers in the three patients, although to a slight degree. Like the rapidly destructive coxarthrosis, we believe that humeral head destruction can occur as a result of subchondral insufficiency fracture in elderly women.

Abstract no.: 43314

VENOUS THROMBOEMBOLISM LONG AFTER TOTAL JOINT ARTHROPLASTY: RESULTS FROM A JAPANESE MULTICENTER STUDY

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Our objective was to assess the effectiveness and safety of thromboprophylactic regimens in Japanese patients from 6 months to 3 years undergoing joint replacement. Method: Overall, 2162 patients who underwent total knee arthroplasty (TKA) and total hip arthroplasty (THA) were enrolled. The patients were classified into 4 groups without anticoagulant, Xa inhibitor agent, low molecular heparin and other medicine. The primary efficacy outcome was the incidence of deep vein thrombosis (DVT) up to post-operative month (POM) 6 and long term thrombotic event and prognosis up to post-operative year (POY) 3. Result: The DVT incident of arthroplasty from POM 1 to 6 were 0.13% in THA, in TKA 0.29% and were 0% in both THA and TKA from POM 6 to POY 3. In addition, compared with TKA patients, treated additional arthroplasty, in 14.1% in the previous survey DVT onset group, non-onset group was 5.4%. Furthermore, the onset rate of the previous survey DVT onset group with HIT seroconversion became 26.7%. The thrombotic events were 0.3% in THA and 0.5% in TKA until POM 6 and were 0.8% in THA, 2.3% in TKA from POM 6 to POY 3. Discussion and conclusion: The DVT incidence was reduced to 1/100 of the rate up to POM 1. Little difference was found in comparison with general DVT incidence after POM 6. Thus, it is necessary to be careful about the DVT to POM 6 and about the additional operation of TKA patient with DVT history.

Abstract no.: 43315

CLINICAL ACCURACY OF CERVICAL PEDICLE SCREW PLACEMENT IN O-ARM BASED NAVIGATION SURGERY: EVALUATION OF MORPHOLOGY OF INSTRUMENTED PEDICLES

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Introduction: Cervical pedicle screw (CPS) fixation has become popular enough to publish good clinical results, however, it has the potential for serious complications. Because of anatomical features of the cervical pedicles, a misplacement of screws can cause iatrogenic injuries to neurovascular structures and these events can result in catastrophic outcome. The aim of this study is to assess the reliability of CPS placement using O-arm navigation and to clarify the reasons and risks of CPS malposition. Methods: Between 2009 and 2014, 101 consecutive patients underwent posterior instrumentation with CPS (454 CPSs) at our institute. We evaluated pre and postoperative CT scans so that we measured pedicle diameters and pedicle angles, and classified CPS breaches into 4 grades (0 – 3). Results: Of the all 454 CPSs, 385 (85%) were assessed as Grade 0 (no breach); 56 (12%) as Grade 1 (<2mm breach); 10 (2%) as Grade 2 (<4mm breach); and none as Grade 3. In vertebrae of which CPSs were malposition, pedicle diameters were significantly smaller and pedicle angle were significantly greater than in vertebrae of which CPSs were correct. Discussion: Because computer-assisted navigation is one of useful options in order to increase the safety of CPS insertion, we apply O-arm navigation. However, the latest generation of intraoperative navigation technology cannot ensure complete safety of CPS placement. Specific anatomical features that smaller pedicle diameter or greater pedicle angle made the vertebra have potential risks of CPS malposition.

Abstract no.: 43316

**NO VENOUS OBSTRUCTION IN THE ETIOLOGY OF SIMPLE BONE CYST
IN THE CALCANEUS: A REPORT OF TWO CASES**

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Introduction: The etiology of simple bone cyst (SBC) is unknown, but it is classically proposed that obstruction to the drainage of interstitial fluid and venous obstruction is the main possible primary explanation of simple bone cyst especially in the long bone cyst. But, there has been no reports concerning contrast examination of calcaneal bone cyst. We employed contrast examination to investigate a possible mechanism for venous obstruction in the of calcaneal bone cysts. Case reports: We investigated two calcaneal bone cysts of 10 year old male and 23 years old female. Before surgery, contrast material was injected into the cyst cavities of calcaneus without tourniquet. Image intensifier could detect that no abnormal venous return and contrast material remained within the cavities in both cases. Surgical specimens were pathologically diagnosed with SBC. Discussion: Classically, Cohen (1960, 1970) discovered that abnormal venous returns of long bone cysts in two cases, and most of orthopedic surgeon believed the explanation as etiology of SBC, whereas recent literatures indicated difference of the clinical manifestation, pathology, and treatment outcome between long bone cyst and calcaneal bone cyst. In this study, calcaneal cysts demonstrated no venous connection and closed space, being different from the long bone cyst. This result suggested the different etiology between long bone cyst and calcaneal cyst.

Abstract no.: 43319

SUCCESSFUL PROTOCOL FOR TREATING LONG STANDING ASEPTIC NON-UNION OF THE HUMERUS WITH DEFORMITY AND BONE LOSS

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Background: Long standing nonunion of the humerus usually is associated with deformity, disuse bone atrophy, metal failure, and major disability and job loss especially in developing countries. Objectives: To evaluate a simple well planned management protocol for these challenging cases. Methods: Twenty patients aged between 26-52 (37.8) years old complaining of major disability following long-standing humerus aseptic nonunion. Our protocol included: 1- detailed analysis of the x-rays to find out the possible causes of failure and excluding infection. 2- Thorough clinical evaluation and laboratory exclusion of infection. 3- Detailed Pre-operative planning. 4- Removal of implants, aggressive debridement, and freshening the bone ends while respecting the soft tissues and protecting the radial nerve. 5- Filling the gaps with fibular and iliac cancellous bone grafts. 6- Stable fixation by 2 plates in perpendicular planes. 7- Mobilization of the elbow and shoulder joints before soft tissue closure. 9- A well-planned post-operative physiotherapy program from the 2nd postoperative day. RESULTS: The results were encouraging. The follow up period ranged between 18-36 months. All the fractures united in a mean period of 4.7 months period. No infection or secondary operations to achieve union. The range of motion improved greatly with full range of the shoulder joint and elbow range between 5-125 degrees. Conclusion: This protocol was effective solution for this challenging problem especially in developing countries. Detailed analysis of the causes of failure, detailed planning, offering the best biological and mechanical environment for achieving union and early ROM were effective in regaining limb function.

Abstract no.: 43320

QUANTIFICATION OF THE PAIN REDUCTION AD MOBILITY RECOVERY PROPERTIES OF SYNOLIS V-A VS NO TREATMENT ON SHORT, MEDIUM AND LONG TERM IN PATIENTS HAVING UNDERGONE KNEE ARTHROSCOPY

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Introduction: many studies showed that the common irrigation fluids used for the knee arthroscopy are toxic for the articular chondrocytes, suppressing its metabolism and function. The purpose of this study is to evaluate the clinical outcome of patients injected with Synolis V-A after the arthroscopy. Methods: 60 patients were randomly divided into 2 groups. At the end of the arthroscopy 30 patients received intra-articular injection of 6 ml of hyaluronic-acid (2%) and Sorbitol (4%), 30 patients did not. Inclusion criteria were: age (from 18 to 60 years), meniscectomy or cartilage treatment (non-bleeding knee arthroscopy), body mass index (<30). Patients with leg joint misalignment, ligament lesion, bone problem, synovial membrane pathology, rheumatoid arthritis or inflammatory disease, pregnancy were excluded. Patients were reviewed at several follow-up points: the first post-operative day (D1), a week (W1), a month (W4) and 3 month from the surgery (W12). At each visit we evaluated the following aspects: the variation of IKDC subjective knee evaluation score, the variation of pain (using VAS and Womac pain sub-score), the variation of stiffness (WOMAC Stiffnes sub-score). Evolution of the symptoms was evaluated with self-assessment questionnaire on weekly basis. The statistical analysis was performed with student t-test. Results: The patients injected with Synolis V-A at the short and intermediate check-points had higher percentage of IKDC Score, lower point of pain and stiffness showing better clinical results than the patients that were not injected with the product.

Abstract no.: 43323

**EVALUATION OF ANTERIOR CRUCIATE LIGAMENT INJURY WITH
SEGOND FRACTURE**

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Introduction: Segond fracture is very frequently associated with anterior cruciate ligament (ACL) injury. But the feature of the Segond fracture is still unclear. Purpose: The purpose of this study was to evaluate the pre- and post-operative knee stability, the clinical results and the anatomical feature in ACL injury with Segond fracture. Methods: Studies carried out in 117 patients with ACL reconstruction at our hospital. Age, Lysholm knee score, side-to-side anterior laxity, pivot-shift test and posterior tibial slope as an anatomical feature were compared between Segond fracture group (6 patients) and non-Segond fracture group (111 patients). Results: There were no significant difference in age, pre- and post-operative Lysholm knee score and pre- and post-operative positive ratio of pivot-shift test. In pre-operative side-to-side anterior laxity of Segond fracture group was significantly bigger than non-Segond fracture group statistically, but there was no significant difference between two groups after ACL reconstruction. The posterior tibial slope of Segond fracture group tended to be large ($p=0.088$). Conclusion: The ACL injury with Segond fracture had more anterior laxity than that without Segond fracture pre-operatively and the posterior tibial slope tended to be large. But Segond fracture group achieved good knee stability as same as non-Segond fracture group after ACL reconstruction.

Abstract no.: 43324

TERIPRATIDE COULD ENHANCE BONY UNION OF BETA-TCP IN CASES OF THE CORRECTIVE OSTEOTOMY POST THE DISTAL RADIUS MALUNION: A CASE SERIES

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Introduction:Teriparatide is well known to activate osteoblastic bone formation and was also reported to be effective in promoting bony union in distal radial fractures. In this study, we reported 2 cases of the distal radius malunion treated by corrective osteotomy using beta-TCP with daily teriparatide for osteoporosis simultaneously.Case presentation:In the first case, a 64-year-old woman underwent osteotomy for the treatment of distal radius malunion. The operation was performed 6 months after the trauma. In the surgical procedure, first opening-wedge osteotomy was performed and next the artificial bone graft (beta-TCP) was implanted. Finally radius was fixed by volar locking plate. Moreover daily teriparatide injections (40 µg/day) were administered for osteoporosis. Then, bony union was obtained in 3 months after the operation. In the second case, a 57-year-old woman underwent osteotomy for the treatment of distal radius malunion. The operation was performed 5 weeks after the trauma. the surgical procedure was similar to the first case, and daily teriparatide injections were also administered for osteoporosis. Then, bony union was obtained in 7 weeks after the operation. Discussions:It has been reported that teripratide is promoting bony union, however there is no report about artifical bone graft healing. This report suggests that teripratide could enhance bony union of beta-TCP.

Abstract no.: 43325

NONUNION OF SUBTROCHANTERIC FRACTURES : COMMINATION OR MALREDUCTION

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Objective: This study aimed to investigate the impact on nonunion of the extent of comminution and postoperative displacement in patients surgically treated for subtrochanteric fractures. **Methods:** From 2008 to 2013, 44 patients with subtrochanteric fractures underwent surgery and follow-up. Of the patients, 32 were male and 12 were female. Their mean age was 45 years. The case distribution according to Seinsheimer classification was as follows: IIA, 8; IIB, 5; IIC, 7; IIIA, 8; IIIB, 3; IV, 9; and V, 4. Cephalomedullary nails were used in 28 cases; ordinary nails, in 9; and plates, in 7. After surgery, the fractures were evaluated for displacement on anteroposterior (AP) and lateral radiography. **Results:** Of the 44 patients, 37 achieved union from primary surgery at a mean time of 8.4 months. Five cases did not show union within the follow-up period. Two cases of nail breakage were diagnosed as non-union. Among the non-union cases, 2 were Seinsheimer classification IIIA; 3, IV; and 2, V. Displacement was observed on the lateral and AP radiographs of 4 cases, on only the lateral radiographs of 2 cases, and in neither radiograph of 1 case. The risk of non-union was approximately 15.4 and 24.2 times higher when displacement was observed on the AP (95% confidence interval [CI]: 1.33–176.82) and lateral images (95% CI: 1.76–335.67), respectively. **Conclusion:** When displacement occurred after surgical treatment for subtrochanteric fractures, the risk of nonunion increased owing to the difficulty achieving stable fixation.

Abstract no.: 43330

ONE YEAR CLINICAL RESULTS OF A NOVEL LOAD REDISTRIBUTION DEVICE FOR THE TREATMENT OF MEDIAL KNEE OA

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Introduction The Latella™ Knee Implant is a novel device designed to offload the medial compartment of the knee. It is a passive extra-capsular dome-shaped metal implant that is attached to the distal femur to displace the iliotibial band laterally. It is based on a novel hypothesis that by displacing the ITB and increasing its moment arm, the load within the knee may be redistributed. **Methods** 11 medial OA patients (all male, age = 54.2 ± 7.1 y, BMI = 27.9 ± 3.2) were included in this prospective study (Netherlands and UK). Follow-up included NRS pain scores, KOOS and IKDC scores, and imaging. The NRS pain score was used to measure improvement of medial pain during walking. **Results** The surgical procedure was simple (average ~ 30 mins) and all patients were able to bear weight within a day. At 12 months, the KOOS pain score improved from 62.6 (21.2) to 76.7 (19.2) and the IKDC score from 48.4 (14.6) to 65.9 (19.2). 60% of patients were responders using KOOS pain (MCID = 8) while 90% reported reduction of medial pain on the NRS pain scale. Radiographic analysis showed no signs of screw loosening or heterotopic ossification. All patients had initial post-operative lateral pain and flexion loss which resolved in a majority of patients. In one patient, persisting flexion-mediated lateral pain necessitated implant removal after 8 months. **Conclusions** In this pilot study, the Latella Implant is well-tolerated and provides medial pain relief. The patients continue to be followed for longer term outcomes

Abstract no.: 43334

DOES BRACHIAL PLEXUS EXPLORATION FACILITATE REVISION SURGERY FOR REVERSE TOTAL SHOULDER ARTHROPLASTY? CASE SERIES.

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Background: Patients undergoing reverse total shoulder arthroplasty (RTSA) often have extensive scar tissue from previous operations, preventing safe implantation of the glenoid baseplate or reduction of the humeral component. We describe an operative technique of exploration and removal of extensive scar tissue in these patients. Methods: This was a consecutive case series with retrospective analysis of data obtained prospectively from 18 patients (12 women) who required exploration of the brachial plexus for extensive scar tissue preventing RTSA. Indications for surgery were failed RTSA (9 patients), painful antibiotic spacer (3 patients), failed open reduction and internal fixation for proximal humerus fracture (3 patients), failed hemiarthroplasty (2 patients), and failed total shoulder arthroplasty (1 patient). Mean patient age was 66 years (range, 40-83 years) and minimum follow-up was 1 year (mean, 30 months; range, 15–69 months). All were studied with preoperative and postoperative physical examination, standard outcome measures, and radiographs. Results: The overall complication rate was 17% (3/18). There were no vascular or nerve injuries. Two patients (11%) experienced instability, and 1 patient (6%) sustained an infection (*Staphylococcus aureus*) requiring re-operation. After surgery, patients had significant improvement in pain and Western Ontario Osteoarthritis of the Shoulder (WOOS) Index scores but no other shoulder outcome scores. Conclusions: We describe a technique for removing dense scar tissue, which can present technical challenges during revision RTSA. With this approach, the nerve injury rate was low, and there was significant improvement in pain and WOOS Index scores.

Abstract no.: 43337

IS ACROMIOPLASTY NECESSARY IN THE SETTING OF FULL-THICKNESS ROTATOR CUFF TEARS? A SYSTEMATIC REVIEW

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Background: The benefits of acromioplasty in treating rotator cuff disease have been debated. We systematically reviewed the literature regarding whether acromioplasty with concomitant coracoacromial (CA) release is necessary for the successful treatment of full-thickness rotator cuff tears. **Methods:** We identified randomized controlled trials that reported on patients who underwent rotator cuff repair with or without acromioplasty and used descriptive statistics to summarize the findings. **Results:** Four studies fulfilled the inclusion criteria. They reported on 354 patients (mean age, 59 years; range 3–81 years) with a mean follow-up of 22 months (range 12–24 months). There were two level-I and two level-II studies. Two studies compared rotator cuff repair with versus without acromioplasty, and two studies compared rotator cuff repair with versus without subacromial decompression (acromioplasty, CA ligament resection, and bursectomy). The procedures were performed arthroscopically, and the CA ligament was released in all four studies. There were no statistically significant differences in clinical outcomes between patients treated with acromioplasty compared with those treated without acromioplasty. **Conclusions:** This systematic review of the literature does not support the routine use of partial acromioplasty or CA ligament release in the surgical treatment of rotator cuff disease. In some instances, partial acromioplasty and release of the CA ligament can result in anterior escape and worsening symptoms. Further research is needed to determine the optimum method for the operative treatment of full-thickness rotator cuff tears.

Abstract no.: 43339

USE OF THE REVERSE SHOULDER PROSTHESIS IN PATIENTS USING WHEELCHAIRS OR WALKERS

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Background: Reverse total shoulder arthroplasty (RTSA) may benefit patients with severe shoulder arthritis who depend on walkers or wheelchairs for mobility, especially those with shoulder conditions not amenable to anatomical total shoulder arthroplasty. Our goal was to evaluate the results of RTSA in patients who depend on walkers or wheelchairs for mobility. **Methods:** This was a consecutive case series with retrospective analysis of data obtained prospectively in 6 patients (6 RTSAs) who depended on a walker and 6 patients (8 RTSAs) who depended on a wheelchair for mobility and who underwent RTSA by a single surgeon. There were 4 men and 8 women with an average age of 63 years (range, 44–81 years), with a minimum follow-up of 1 year (mean, 19 months; range, 12–37 months). **Results:** There were no postoperative infections, dislocations, nerve injuries, or other medical complications. There was no radiographic evidence of baseplate loosening in any RTSA. There was a statistically significant decrease in pain on a visual analog scale from before surgery to last follow-up ($P = .035$). There were 7 shoulders with no scapular notching, 5 with grade-1 notching, 2 with grade-2 notching, and none with grade-3 or grade-4 notching. **Conclusions:** This study shows that, in the short term, RTSA can be effective for patients who are upper extremity-dependent for transfers and mobility when using a walker or a wheelchair. Longer study is necessary to determine the durability of RTSA in this population.

Abstract no.: 43340

INCIDENCE OF SQUEAKING AFTER CERAMIC-ON-CERAMIC AND CERAMIC-ON-METAL TOTAL HIP ARTHROPLASTY

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Introduction: Squeaking arising from a ceramic-on-ceramic (CoC) or ceramic-on-metal (CoM) total hip replacement (THR) may cause patient concern and in some cases leads patients to seek revision surgery. The aim of the study was to evaluate the incidence of squeaking in patients undergoing THR with hard-on-hard bearings and how squeaking relates to postoperative outcomes. Methods: This is consecutive case series with prospective analysis of data obtained in 50 patients who underwent either THR with CoC (36 patients) or with CoM (14 patients) between 2007 and 2012. There were 29 men and 21 women with an average age of 64.6 years (range, 41–81 years), with a minimum follow-up of 6 months (mean, 29.8 months; range, 6–73 months). All patients were assessed clinically (Short-Form 36 [SF-36] and Harris Hip Score [HHS]) and radiologically. Squeaking was detected with M-Audio's MicroTrack II Professional 2-Channel Mobile Digital Recorder and collected data were analyzed with Audacity software and Lab VIEW software. Results: One patient (5.5%) in CoC group was noted to squeak, with no revision surgery needed. There were no cases of squeaking in CoM group. Mean physical component of SF-36 was 38.9 (min 21, max 57). Mean mental component of SF-36 was 51 (min 22, max 67). Mean HHS was 82.4 (min 22.9, max 95.4). No correlation was present between incidence of squeaking and cup inclination. Conclusions: Current study demonstrates that squeaking after THR is an uncommon event that is typical of CoC bearing surfaces. No correlations have been noted between squeaking and postoperative outcomes.

Abstract no.: 43341

IMPACT OF CHARLSON INDICES AND COMORBID CONDITIONS ON COMPLICATION RISK IN BILATERAL SIMULTANEOUS TOTAL KNEE ARTHROPLASTY

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Background: The purpose of this study was to evaluate the influence of Charlson indices and comorbid conditions over risk of perioperative complications in bilateral simultaneous total knee arthroplasty (BSTKA). **Methods:** In our retrospective analysis, 556 patients including 133 males and 423 females (mean age 65.8 years) who had undergone the procedure from 2011 till 2014 were included. Risk factors [Charlson comorbid index (CCI), age-adjusted Charlson comorbidity index (ACCI), and comorbid illnesses] and perioperative complications were noted, and subsequently, statistical tests were applied. **Results:** There was significant association between Charlson indices and most of the complications ($P < 0.05$) with high-risk ACCI groups (more than 5 score) bearing maximum odds for cumulative major complication (OR 4.165, $P < 0.001$, 95% CI 1.874-9.256). In addition, hypertension, non-ischemic cardiac illness, and moderate to severe chronic kidney disease proved to be determinants for major complications ($P = 0.031$, $P = 0.041$, and $P = 0.014$ respectively). We also found significant association between organ-specific illnesses and organ-specific complications such as cardiac, pulmonary, neurological and renal complications ($P < 0.05$). **Conclusions:** Both CCI and ACCI are predictors of post-operative complications with ACCI being better predictive determinant. Hence, these should be used for risk stratification prior to patient selection for BSTKA. The influence of hypertension, non-ischemic cardiac illness and moderate to severe chronic kidney disease should also be considered during patient selection. Moreover, optimum organ function at the time of surgery should be the priority to avoid these complications.

Abstract no.: 43342

TREATMENT OF AN INFECTED NEGLECTED OPEN FRACTURE OF PROXIMAL LEFT FEMUR WITH SEVERE SOFT TISSUE AND BONE LOSS AND SHORTENING FOLLOWING HIGH VELOCITY GUNSHOT INJURY.

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We report a case of Yemini 25yr old male patient who sustained a gunshot injury to the left thigh with resistant infected open fracture, severe soft tissue injury and bone loss. General evaluation and workup were done for the patient on admission and pus discharge from the wound was sent for culture and sensitivity. Afterthen the patient underwent two stage surgery. In the first session radical attack on infection, external fixation using modified Ilizarov frame and packing of the wound with a synthetic bone graft impregnated with antibiotics. Later serial dressing, negative pressure wound therapy (NPWT), and antibacterial therapy according to culture lead to successful control of infection and wound closure. Second stage surgery included distal extension of the modified ilizarov frame for femoral lengthening through a distal femoral metaphyseal corticotomy. We think that multi modal therapeutic procedures used in the management of this difficult case is the clue to success and can be of value for management of such challenging cases.

Abstract no.: 43343

MYCOBACTERIUM ABSCESSUS ASSOCIATED PROSTHETIC KNEE JOINT INFECTION: A CASE REPORT AND LITERATURE REVIEW

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Infected total knee arthroplasty (TKA) due to Mycobacterium abscessus is a very rare prosthetic joint infection with only two such cases described in literature, however, none managed successfully. It is one of rapidly growing mycobacterium which is known to be extremely resistant to antimicrobial treatment and difficult to eradicate. Hence, at present, not much is known about its presentation and the treatment protocol to manage this condition. In this paper, we present an elderly female patient with infected TKA after two years of the primary procedure. She underwent joint debridement along with removal of prosthesis when it grew Staphylococcus aureus and Escherichia coli. The joint was debrided again due to persistent infection when M. abscessus was isolated. Subsequently, she was successfully treated with five months of second-line anti-tubercular drugs with revision prosthesis performed during the course of chemotherapy. She did not have any degree of relapse of symptoms in 2 years follow up and had satisfactory functional outcome with 0 to 90 degree of flexion in her knee. Our findings suggest that prosthetic joint infection due to M. abscessus is extremely difficult to diagnose. It can present with superinfection and requires a high degree of suspicion. However, it can be very well managed by combination of effective anti-tubercular chemotherapy and two or three stage revision surgery with successful clinical and functional outcome.

Abstract no.: 43345

A CASE REPORT

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Introduction: Kohler's disease is rare. Avascular necrosis of the navicular bone. This clinical entity belongs to a group of conditions called Osteochondrosis. The disorder can begin very early, after the age 2yrs, but more frequent in children aged between 5-10yrs. Far more common in boys than in girls. Etiology unknown, nevertheless a vascular incident and a retarded bone age have been implicated. Case Report: Case of a 4yr old boy presented with limp, pain and swelling around dorsomedial aspect of left foot after a trivial trauma. Examination revealed tenderness, swelling around medial aspect of midfoot and limitations of midtarsal joint movements. Diagnosis: confirmed with Xray, CT and MRI scan. Management: Serial below knee walking cast with medial arch support applied for 6months, followed by footwear with medial arch support, followed it up with serial Xrays. CT and MRI scan repeated after 11 months of treatment. Results: Patient showed excellent clinical improvement with pain and swelling. His limp completely resolved. Radiological imaging revealed complete remodeling and revascularization of the navicular bone. References: ^ Köhler A (1908). "Über eine häufige, bisher anscheinend unbekannte Erkrankung einzelner kindlicher Knochen". Münchener medizinische Wochenschrift 55: 1923–5. Stanton BK, Karlin JM, Scurran BL. Köhler's disease. J Am Podiatr Med Assoc. 1992;82 (12): 625-9. Sharp RJ, Calder JD, Saxby TS. Osteochondritis of the navicular: a case report. Foot Ankle Int. 2003;24 (6): 509-13. Bernardo Vargas. Kohler Disease. Medscape Reference. September 2014;

Abstract no.: 43346

FUNCTIONAL OUTCOME OF FLOATING KNEE INJURIES AND TREATMENT STRATEGIES AT A TERTIARY LEVEL CARE TRAUMA FACILITY

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Introduction: Floating knee injuries are very challenging injuries. Associated soft tissue trauma, fracture comminution and other systemic injuries make these difficult to manage. This is an attempt to assess the outcome of these injuries after surgical intervention. **Materials and methods:** Twenty-four patients with ipsilateral femoral and tibial fractures were included. Both the fractures were surgically fixed using various available modalities like locking plates or nailing or combination of these depending on the individual fracture geometry. Injury was classified as per Fraser classification. The associated injuries were managed accordingly. Assessment of the end result was done by the Karlstrom and Olerud criteria after bony union. **Results:** The mechanism of injury was road traffic accident in all the patients. There were 10 associated injuries. 7/24 patients had intramedullary nailing for both fractures. Those with comminution were fixed with locking plates. The complications were knee stiffness, delayed union of tibia and superficial infection. The mean bony union time ranged from 16-24 weeks for femur fractures and 17-28 weeks for the tibia. According to the Karlstrom and Olerud criteria, the end results were excellent in 5, good-11, acceptable-6, and poor in 2 cases. **Conclusion:** The associated injuries and the type of fracture (open, intra-articular, comminution) are prognostic indicators in the floating knee. Appropriate management of the associated injuries, internal fixation of both the fractures either with intramedullary or extramedullary devices and expert post-operative rehabilitation are necessary for good final outcome.

Abstract no.: 43347

A NOVEL USE OF ARTHROEREISIS IN THE ADULT FLAT FOOT

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The use of an arthroereisis screw is well described in the paediatric population for the correction of flexible flat feet. Here we present a case comparison series involving the use of an arthroereisis screw to augment reconstruction in adult patients with Tibialis Posterior Insufficiency. All patients (36 feet in 34 patients) underwent flexor digitorum longus transfer, reefing of the spring ligament and a translational medialising calcaneal osteotomy. In 23 cases the reconstruction was augmented with an arthroereisis screw (Kalix, Integra), which was removed 6 months later in all cases. The mean age was 58 years and most patients were female. Weight bearing radiographs were taken after removal of the implant and assessed using previously published parameters. One patient in the group without augmentation went on to have a triple fusion 13 months after reconstruction. In both cohorts the calcaneal pitch was raised, Meary's angle decreased, the medial cuneiform height increased and the talonavicular coverage angle improved post-operatively compared to pre-operative measurements ($p < 0.05$, Wilcoxon Signed Rank tests). There was a trend towards better radiographic correction in the augmented group and the difference in correction of the talonavicular coverage angle was statistically significant ($p < 0.05$, Students T test). There was however no difference between the MOXFQ, EQ-5D and heath VAS scores between the two groups at mean follow up of 4 years. We conclude that the use of an arthroereisis screw is a promising adjunct to conventional reconstruction in tibialis posterior insufficiency.

Abstract no.: 43351

RETROGRADE TIBIAL NAILING IS A NEW BIOMECHANICALLY SUPERIOR NAILING CONCEPT FOR THE TREATMENT OF DISTAL TIBIA FRACTURES

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Introduction: Surgical treatment of distal tibial fractures demands a stable fracture fixation while minimizing the irritation to the soft tissues by approach and implant. The experimental Retrograde Tibial Nail is a minimally invasive local intramedullary osteosynthesis, which has been under design by our group. The aim of this study was to investigate the biomechanical properties of the new implant in comparison to a standard antegrade nail (Expert Tibial Nail, Synthes®). Material and methods: Biomechanical testing was conducted in fourth-generation biomechanical composite tibiae (Sawbones Europe, Malmö, Sweden). A 10-mm wide transverse defect osteotomy served as an AO/OTA 43 A3 fracture model. In both groups, the distal fragment was secured by triple interlocking, while double interlocking was performed proximally. Non-destructive testing was measured under low and high axial compression (350 and 600 N) and under torsional load (8 Nm). Afterwards an axial "load to failure" test (1200N) was performed for extra-axial compression. Results: Biomechanical testing results showed similar axial stiffness of both implant devices during the low and high axial loading tests. The torsional stability was almost 2-fold higher for the RTN (1,10 vs. 0,66 Nm/°). Destructive extra-axial compression resulted in no failure of any implant-bone construct. Conclusion: The experimental Retrograde Tibial Nail provides the key features for the treatment of distal tibial fractures. It combines a minimally invasive local intramedullary osteosynthesis with a stable fracture fixation. An introduction as a medical device is planned for fall 2016.

Abstract no.: 43353

FAST RECOVERY AFTER TOTAL KNEE ARTHROPLASTY, A COMBINATION OF SURGICAL TECHNIQUE, BLOOD LOSS CONTROL AND POST OPERATIVE PAIN MANAGEMENT.

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Fast track protocols are becoming popular among knee replacement surgeons. The principal parameters that may influence fast recovery are blood loss and post op pain together with surgical technique. From Jan.2014 to Sept.2015 we performed 156 knee replacements with our fast track protocol. The protocol was divided in three parts: blood loss management, pain management, surgical technique. Regarding blood loss management all patients received a i.v. dose of tranexamic acid. Surgeries were performed without pneumo ischemia. A blood transfusion was performed when Hb levels were lower than 9 g/dl. Regarding pain management all patient had a combined spinal and epidural anaesthesia. A catheter for post op epidural infusion was applied. Intra op. injections with analgesic cocktail were performed in precise spots before and after implanting the prosthesis. The aim of the injections was to reduce post op pain, to avoid epidural and morphine infusions and to dispense a maximum of 3 g. of paracetamol over 24 h. The same surgical mid vastus approach was used. Post op rehab was started on the day of surgery. 11 patients received blood transfusion. 16 received a epidural post op infusion and 5 also received morphine. 125 patients were discharged within day 4, 30/156 patients between day 5 and 6, 1/156 patient at day 8 to a rehab facility. At day 15 147 had complete ROM and 99 had a one crouch weight bearing, 44 had complete weight bearing with no crouches. A minimal invasive mid vastus approach together with a precise protocol to manage blood loss and pain are of crucial importance to achieve a fast recovery after total knee arthroplasty.

Abstract no.: 43356

IS THERE AN ALTERNATIVE TO ARTHRODESIS OF THE ANKLE-JOINT FOR OSTEOARTHRITIS (PRELIMINARY REPORT)

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PURPOSE: Arthrodesis of ankle-joint is generally performed to eliminate pain, purulent process and provide joint stabilization and recovery of the support function of the limb. Full restoration of the limb function happens to be impossible. We have worked out a new method of surgery that could become an alternative to arthrodesis. **Technique of Surgery:** ankle joint is opened by anterior incision. Resection of the articular ends of the talus and tibia is carried out to make diastasis of about 1 cm. After resection it is recommended to give the talus a round shape with rasps. The wound is washed and sutured in layers. On the next day after surgery the patient begins passive and active movement in the joint. 7-10 days later the patient gets up and starts dosaged weight bearing. A month later, the weight bearing reaches 80-100%. This surgery were performed in 5 volunteer patients (2 female and 3male) . **RESULTS:** in 1 patient ankylosis in a physiologically correct position happened to be developing. We explained this by the fact that at the beginning we made resection of articular ends for 5-7 mm. Then we started to make resection up to 1 cm. Movements in joints in 4 patients are slightly limited. Patients walk with a full weight bearing and ,most importantly, they do not have any pain in the joint. Thus, this preliminary report and the first encouraging obtained results allow us to say that it is necessary to continue research in this direction.

Abstract no.: 43361

ARTHRODESIS AFTER ASTRAGALAECTOMY USING BY THE ILIZAROV RING FIXATOR.

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PURPOSE: The purpose of this study was to evaluate the outcome of tibio-calcaneal-naviculo arthrodesis using a new surgical technique. **METHODS:** The studies using a new method of tibio-calcaneo-naviculo arthrodesis were performed in 10 patients between 2003 and 2015. The average age of patients was 44.5 years. **SURGICAL TECHNIQUE:** Surgical approach was performed from the lateral and medial sides with resection of both ankles. After astragalectomy and debridement in patients with chronic osteomyelitis the damaged cartilage of tibia and articular surface of calcaneos and naviculo bones was resected. At the edge of the navicular bone a slot has been made. The second slot was made through facies articularis talaris posterior os calcaneos. In patients with no damage to the cartilage surface the resection of articular cartilage in tibia front and back edges, in calcaneos and the end of the navicular bones was performed. Thus, the back edge of tibia was implanted into the slot in the os calcaneos and the front one into the slot in the navicular bone and stabilized by the Ilizarov ring fixator. **RESULTS:** The Ilizarov ring fixator was removed in 3-4 months after the surgery. All patients were painless while weight bearing. Shortening was 2-2.5 sm. The results were classified as excellent in 6, good in 3, satisfactory in 1 patient on Kitaoke HB, Patzer GL, 1998 classification. **CONCLUSION:** This surgery permits to considerably reduce shortening of the lower extremity and deformity in the arthrodesis area. Patients can use usual footwear without an arch supporter.

Abstract no.: 43364

FLOATING HIP INJURIES: SEQUENCE OF FRACTURE FIXATION. A RETROSPECTIVE STUDY

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Introduction:Floating Hip is defined as ipsilateral pelvic-acetabular fractures and femoral fracture. Management of these injuries is still controversial with no guidelines available.**Objectives:**To evaluate the fracture pattern, treatment protocol, sequence of fracture fixation and functional outcome of patients with floating hip.**Methods:**From 2008 to 2013,53 patients with floating hip injuries were treated.50 patients were available with complete follow up. The following parameters were recorded from the records: age, sex, mechanism, injury pattern, timing ,sequence of fixation, method of fixation and complications were analysed. Functional outcome was assessed with Merle d Aubigne score.**Results:**The average age was 33.06 years.82% of patients were male and remaining 18 % were females. The mean time between injury and follow up was 25 months (12-84 months). All pelvi-acetabular fractures united by average 4.6 months. Sixty four percent [n=32] of patients underwent femoral fixation first followed by pelvi-acetabular fixation. Remaining 34 %[n=18] of patients underwent pelvi-acetabular fixation first followed by femoral fixation. Complications seen in this series included infections, knee stiffness, erectile dysfunction, femoral non-union, femoral delayed union, post-traumatic stress disorder, postoperative DVT ,heterotopic ossification , implant loosening, limping. Patients with femoral fixation first had reduced operative time, less blood transfusions, early functional recovery, better clinical scores and less complications which are statistically significant [P<0.05] .Overall, the Average Merle d Aubigne score was 16.8 indicating good outcome.**Conclusions:** Floating hip injuries are severe injuries caused due to high energy trauma. They can be effectively managed by stabilizing femur first either followed by acetabular or pelvis fracture fixation for better results.

Abstract no.: 43366

ROLE OF STAGED APPROACH IN FUNCTIONAL AND RADIOLOGICAL OUTCOME OF TYPE V AND VI TIBIAL PLATEAU FRACTURES. A RETROSPECTIVE STUDY.

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Introduction :The impact of high velocity injuries leading to high energy tibial plateau fracture is not only on bony component but also on the soft tissue components. This component determines the timing and method of definitive fixation in majority of the patients. We intended to study the functional and radiological outcome in high energy tibial plateau fractures managed in a staged manner. **Materials and Methods:**All patients operated from 2008-2013 for high energy tibial plateau fractures (Schatzker's type V and VI) in a staged procedure were reviewed and included in the study [n=44]. All patients underwent knee spanning external fixator initially and definitive fixation was performed after improvement in soft tissue conditions. Follow-up was done to assess knee function, lowa clinical scores and radiographic scores. **Results :** The average age was 40.85 years. The average time from injury to definitive surgical fixation was 6.8 days. Mean duration of follow-up was 25 months. Most of the patients underwent anterolateral approach and anterolateral plate fixation, additional posteromedial or medial buttress plating used in 20 patients. Mean Range Of Motion was 120.9 degrees. The average duration for clinico-radiological evidence of bony union was 12.4 weeks. Mean IOWA knee score was 89.2 with good radiological outcome. Complications noted in this series were two superficial infection, one deep infection and one varus collapse. No case of compartment syndrome was noted in this study. **Conclusions:** In High velocity injuries like Schatzker's type V & type VI tibial fractures, staged fixation provides excellent outcome with good knee function, radiological appearance and less complications.

Abstract no.: 43367

FRACTURE CLAVICLE: OPERATIVE VERSUS CONSERVATIVE MANAGEMENT. A PROSPECTIVE STUDY.

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Introduction:Clavicle fractures are common injuries in active individuals,and it is becoming increasingly apparent that clavicular malunion is a distinct clinical entity with radiographic, orthopedic, neurologic, and cosmetic features.**Aims:**To analyze the outcome of managements of nonoperative and operative procedures in fracture clavicle.**Materials and Methods:**This prospective observational study of 50 cases with fracture of the clavicle was conducted in a tertiary care hospital in a time span of 1 year after taking institutional ethical clearance and informed consent of the patients. Injuries were classified according to the AO classification scheme. Patients were treated either conservatively or operatively and followed-up at 6 weeks and 3, 6, and 12 months, then every 6 months. **Results:** The mean time for fracture healing was significantly shorter in the operative group (15.73 ± 0.70 weeks) than nonoperative group (27.47 ± 0.74 weeks). The difference is statistically highly significant ($P < 0.000$). Patients in the operative group were more satisfied with the appearance of the shoulder ($P < 0.05^*$). There was no statistically significant difference between two groups with respect to flexion, extension, abduction, internal rotation and external rotation movements with $P = 0.532, 1.00, 0.344, 0.052$ and 0.056 respectively. Patients in the operative group had better range of Shoulder adduction movement than nonoperative group ($P = 0.015$). **Conclusion:** Operative fixation of the clavicle fracture results in improved functional outcome, shorter time for union compared with nonoperative treatment at 1 year of follow-up and primary operative intervention in clavicle fracture in active adults may be of immense importance.

Abstract no.: 43369

A COMPARATIVE STUDY ON ULTRASTRUCTURAL MORPHOLOGY OF ANTERIOR CRUCIATE LIGAMENT STUMP IN ACL INJURED PATIENTS AND SEMITENDINOSUS GRAFT USED FOR ACL RECONSTRUCTION WITH THE HELP OF ELECTRON AND LIGHT MICROSCOPY

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Introduction:The autologous graft used for ACL reconstruction are expected to reproduce the complex ultra structural organization of ACL.The purpose of this study is to evaluate fibroblast, collagen, vascular and neural components of ACL and Semitendinosus.**Material And Methods:**38 cases with ACL tear reconstructed with semi-T tendon were included.Intra-operatively, residual ACL tissue was harvested by cutting stumps. All the tissues were investigated under light microscopy, immunohistochemistry and electron microscopy. The Image Analysis System Used For Morphometric Analysis,Fibril-Interstitium Ratio,Fibroblast Density,Microvascular Density and Nerve Densitydetermination.Electron microscopy was used for calculation of diameter of collagen fibrils.**Result:**The semitendinosus displayed an asymmetrical distribution of the collagen fibrils with lower density while in ACL the distribution of the fibrils were more homogenous, the fibril diameter were smaller and density was greater. The thickness was almost equal in the semi-T and the ACL. The fibrils in the semi-T were more uniform as compared to the ACL. The mean value of density of the blood vessels in the ACL were more.There were a remarkably higher number of nerve fibers in the specimen of ACL as compared to the Semitendinosus. The mean density of the nerve fibers in the Semitendinosus was 0.276 per mm² The density of the fibroblasts in Semitendinosus was 20.88 per mm². The mean fibril-interstitium ratio in the ACL was lower than Semitendinosus.**Conclusion:**The ultra structural organization of the semitendinosus graft resemble as close to autogenous ACL which ensures it's ability to withstand the multiaxial stresses and varying tensile strains imposed upon it as ACL.

Abstract no.: 43371

IDENTIFICATION OF FACTORS LEADING TO TOTAL KNEE REPLACEMENT - DATA FROM THE OSTEOARTHRITIS INITIATIVE (OAI)

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The study aim was to investigate the driving clinical and imaging based factors leading to total knee replacement (TKR) surgery in patients with knee osteoarthritis. 165 participants were identified from the Osteoarthritis Initiative (OAI) who received a TKR during a 4-year period. Patient and knee specific data were obtained from the visit before TKR, 1 year, 2 years, 3 years and 4 years before the TKR surgery. Between these timepoints we compared the participant's quality of life (QoL), WOMAC total score, WOMAC pain subscore, knee pain intensity score and Kellgren and Lawrence grades (KLG). To estimate the relation between clinical parameters' change and structural progression, we defined a "clinical/structural change index (CSCI)". Median KLG increased each successive year prior to the TKR surgery ($p < 0.0046$). For QoL, WOMAC pain score, WOMAC total score a significant change was only observed in the year before ($p < 0.0001$). Scores for pain intensity changed significantly starting 2 years prior to TKR surgery ($p = 0.014$). Scores for the CSCI for QoL, WOMAC pain subscore, WOMAC total score and pain intensity were 1.05, 4.4, 3.57 and 1.9 respectively. The results indicate that the driving factors for surgery seem to be based majorly on patients QoL and knee specific pain and functional scores. A CSCI of one or more clinical parameters with a value of more than 1 might potentially be a new and valuable indicator when trying to estimate a patient's need for TKR.

Abstract no.: 43373

CHEMORESISTANCE OF SW1353 CHONDROSARCOMA CELLS TOWARDS CISPLATIN IS PARTLY DEPENDANT ON AUTOPHAGY

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Chondrosarcoma is a rare tumor entity with a relatively high radio- and chemoresistance leaving surgery as the only curative treatment option. Therefore the underlying mechanisms of chemoresistance in chondrosarcoma need to be investigated. As found previously the anti-tumor effect of 2-Methoxyestradiol (2-ME) in chondrosarcoma cells can be enhanced via inhibition of autophagy. This study aims to investigate the potential synergistic effect of Cisplatin+Bafilomycin. In order to evaluate cell viability in SW1353 cells treated with Veh, NA, 2-ME+/-Bafilomycin and Cisplatin+/-Bafilomycin we used MTS-assays. Ultrastructural analysis was performed as well as Western Blot analysis of LC3 I&II to determine whether Cisplatin induces autophagy in SW1353 chondrosarcoma cells. Interestingly we found that Cisplatin only slightly induces autophagy in SW1353 chondrosarcoma cells, our results interestingly show an 1.2-fold increase of the LC3 II/I ratio in cells treated with Cisplatin at 24hrs and a 0.8-fold decrease at 48hrs compared to cells treated with No Addition (NA). However we were able to detect autophagosomes via Transmission Electron Microscopy in cells treated with Cisplatin, which is a strong indicator for the presence of autophagic flux. Treatment of cells with 50uM Cisplatin, 100nM Bafilomycin and 50uM Cisplatin + 100nM Bafilomycin leads to a decrease in cell viability to 20.45%, 47.67% and 12.91% respectively. Our findings suggest that the chemoresistance is partly dependant on autophagy. It strengthens our previous hypothesis that autophagy might be a mechanism of chemoresistance in SW1353 chondrosarcoma cells treated with 2-ME but and to a lesser degree in cells treated with Cisplatin.

Abstract no.: 43374

PATTERN AND INDICATIONS FOR AMPUTATION AMONG PATIENTS WITH DIABETIC FOOT DISEASE AT THE UNIVERSITY OF CALABAR TEACHING HOSPITAL, CALABAR, NIGERIA.

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INTRODUCTION: Diabetic foot ulcerations and gangrene are major causes of morbidity and mortality in our environment. Foot gangrene is a major indication for amputations among diabetics. **OBJECTIVES:** To determine the pattern and indications for amputations as well as factors contributing to such foot lesions in UCTH, Calabar. **METHODOLOGY:** This was a prospective study of diabetic patients who met inclusion criteria in one year (June 2013-July 2014) using structured questionnaire. Patients' age, sex, duration of diabetes and foot disease, level of education and income, patient's knowledge and practice of preventive measures were recorded and analyzed using SPSS version 20.0 at 5% level of significance. Patients were examined, wound swabs were cultured; radiographs, Doppler Ultrasonography were done. **RESULTS:** Forty-one patients were recruited, 22(53.7%) males and 19(46.3%) females. The mean age of participants was 57.00± 11.05 years. Twenty-seven (65.9%) patients presented with gangrene, 14(34.1%) patients had foot ulcers while 5(12.2%) had associated infections. Forefoot gangrene was commoner; (70.7%) of them had below the knee amputations. Trauma precipitated 56% of foot lesions and 32(78%) presented late to hospital. Twenty-six (63.4%) patients had no knowledge of foot care practice. **CONCLUSION:** The commonest pattern of amputation was below the knee in males more than females. Grade IV and V gangrene and spreading infections were the commonest indications for amputation. Late presentation, poverty and ignorance were key factors for foot lesions necessitating amputation. **RECOMMENDATIONS:** Health education and National health insurance program should be enhanced to cover more vulnerable groups.

Abstract no.: 43376

DISTAL RADIAL FRACTURES TREATED WITH A NON-BRIDGING EXTERNAL FIXATION TECHNIQUE: EVALUATION OF THE RESULTS OF 100 CASES AT MINIMUM 6 YEARS OF FOLLOW UP

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Distal radial fracture represent 17% of the fractures in the Orthopaedic Emergency Departments in Italy. In 2008 we have started treating these fractures with a new fixation system. The synthesis is guaranteed by two or more K-wires which can be intramedullary or x-crossing the cortex and/or inter-fragmentary. These K-wires are connected with two radial pins by an external bar. This radial to radial system gives stability to the fracture and allows to move the wrist immediately. Removal is after 35-40 days. We report on the results of our first 100 cases with a minimum follow up of 6 years. Clinical assessment was performed at 2, 3, 6 and 12 months. Radiographic assessment was performed at 35 days, then at 3 and 12 months. Outcome was measured on the basis of range of motion, grip and pinch strength, DASH and PRWE scores. Patients were evaluated after minimum 6 years from time of surgery. All patients had excellent or good results and were satisfied with the clinical outcome. At 60 days after surgery 90% of patients demonstrated excellent clinical and functional recovery. After 3 months 95% of patients demonstrated complete clinical and functional recovery. A high self reported satisfaction score was obtained. We observed a small number of minor complications. At minimum 6 years, results didn't show changes. This device was proved to be an excellent tool with mini invasive approach and early mobilization of the joint. Functional outcome was very good at 3 months and excellent at 6 months with a restricted need for patients to perform physiotherapy. The control at minimum 6 years showed a maintenance of these results over time.

Abstract no.: 43377

TRIPLE INTRAOPERATIVE LEG LENGTH MEASUREMENTS TECHNIQUE FOR TOTAL HIP REPLACEMENT IN LATERAL DECUBITUS. RESULTS IN A CONSECUTIVE SERIES OF 812 HIPS

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Asymmetrical leg lengths after THA is the main cause for legal action against orthopaedics. One of the weaknesses referred to posterior approach in lateral decubitus is the difficulty of measuring leg length discrepancy. 812 hips operated between 2005 and 2012 have been studied with a specific protocol. 69% percent of patients had an average preoperative shortening of the operated leg of 0,7cm. 23% had equal leg length and 8% had the operated limb longer. Preop planning included standing AP pelvis x-rays, standing and supine clinical evaluation of leg length discrepancy and assessment of patient leg length perception. During surgery, 3 different measurements of total length of the operated leg were repeated before and after draping, with the trial components and with the final components and the trial head. The first, evaluates the distance between a skin stitch applied 10 cm above the greater trochanter and a second applied on the greater trochanter. The second method estimates leg length at the tip of the patella with both legs in 20° of flexion and the operated leg parallel to the floor. The third method quantifies tension of the fascia lata at the level of the greater trochanter. Postop leg length was determined with standing and supine clinical evaluation, with patient satisfaction and on postop x-rays. Average postop LLD for these 812 patients was 0,2(-0,6 +1,5). Only 2 patients (0,2%) presented leg lengthening of more than 1 cm and only one was unhappy and required a shoe-raise having a LLD of 1,5 cm. In our experience, the triple measurements is helpful for minimizing LLD during minimal invasive posterior approach THA.

Abstract no.: 43379

DO WE NEED COLLISION MODEL SOFTWARE FOR FEMOROACETABULAR IMPINGEMENT CORRECTION?

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The success of arthroscopic decompression for FAI depends from correct indication, chondral integrity and effectiveness of the decompression. Conventional radiology and MRI, are adequate for decision making and quantification of chondral damages. Location and amount of bone to bone impingement it is of more difficult understanding, because it may depends from the acetabulum, the femur or both. Furthermore different sport activities have distinct R.O.M. necessities requiring a careful planning of bone trimming. Collision models improves comprehension of the role of the different portions of the hip joint in limiting R.O.M. Collision models can give us the localization of the imping spots and show a correlation between specific movement and impinging spot; can describe acetabular total coverage, acetabular and femur version. The surgeon, before the procedure, has the possibility to identify the impinging spots and mimic joint motion before and after simulating bony correction. We employed a dedicated CT based collision model in a selected group of patients (complex deformities on the acetabular side and young top level athletes). In the athletes group cases the software provides several crucial information including quantification of total acetabular coverage therefore often suggesting to limit our trimming only to the femoral side. Of crucial importance is on our opinion the possibility to analyse the alpha angle in relation to the acetabulum. In conclusion our initial experience with dynamic software assisted visualization of FAI has been extremely helpful. Software assisted FAI evaluation is an effective tool to improve our understanding and outcome of this pathological entity. Of not negligible importance is that collision models helps patients to understand their pathology.

Abstract no.: 43380

DEVELOPMENT OF AN INTERNALLY BRACED PROSTHESIS FOR TOTAL TALUS REPLACEMENT

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Introduction: Total loss of talus still remains a major challenge in foot and ankle surgery. Implantation of customized total talar prostheses has shown promising results. Most important factors for long time success are degree of articular congruence and ligamentous stability of the ankle. Therefore, our aim was to develop an optimized prosthesis providing a high level of primary stability. Methods: A customized hemiprosthesis was developed using CT and MRI data of the affected and contralateral talus considering the option of integrating the S.T.A.R. prosthesis (Stryker) into the design. Additionally, four eyelets for fixation of artificial ligaments were added at the corresponding footprints of the main ankle ligaments. Two modifications can be applied according to the clinical requirements: a tri-articular hemiprosthesis or a bi-articular hemiprosthesis compatible with insert and tibial component of the S.T.A.R. prosthesis. A feasibility study was performed using a fresh frozen human cadaver. Maximum range of motion of the ankle was measured and ligamentous stability was evaluated by use of standard x-rays after application of varus, valgus or sagittal stress with 150 N. Results: Correct implantation of the prosthesis was possible using a standard anterior approach to the ankle. Maximum dorsiflexion and plantarflexion were measured as 22-0-28°. Maximum anterior displacement of the talus was 6 mm, maximum varus tilt 3° and maximum valgus tilt 2°. Conclusion: Application of an internally braced prosthesis for total talus replacement in humans is technically feasible and might be a reasonable procedure in carefully selected patients with no better alternatives left.

Abstract no.: 43381

BILATERAL ACCESSORY PALMARIS LONGUS WITH ULNAR NERVE AND ULNAR ARTERY COMPRESSION DIAGNOSED BY DYNAMIC ULTRASOUND - A CASE REPORT

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Compression at Guyon's canal is well documented in the literature. We describe a case of bilateral accessory palmaris longus causing compressive symptoms in an active 25 year old individual who presented with bilateral wrist pain. What makes this case different from similar reports is that the anomaly was not only bilateral; compressing the ulnar artery as well as the ulnar nerve, but that the diagnosis was clearly demonstrated by dynamic ultrasound, only with the patient doing the action which exacerbated the symptoms. MRI confirmed the diagnosis of accessory palmaris longus but there was no compression of the neuromuscular structures. Contrary to the negative MRI scan result, the dynamic ultrasound showed that the ulnar artery was completely occluded only during resisted ulnar deviation, and no pulse was detected. We display images demonstrating the phenomenon. The authors advise that careful history and examination will guide appropriate investigation to reach a diagnosis.

Abstract no.: 43382

TRIPLANE ANKLE FRACTURE WITH CONCOMITANT IPSILATERAL SHAFT OF TIBIA FRACTURE. UNUSUAL COMBINATION OF USUAL INJURY?

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Introduction: Triplane fracture of ankle is a known injury occurring in an adolescent age due to asymmetric closure of the distal tibial epiphysis. Unlike adults, concomitant ankle injury with ipsilateral fracture of the tibia in children is less reported in literature. Case: We report a case of a 14 year old adolescent male who sustained a twisting injury to his right leg from a fall from height of 3-4 feet. He sustained a minimally displaced spiral fracture of the mid-shaft of right tibia with a concomitant triplane fracture of the ankle. He underwent closed reduction and percutaneous cannulated cancellous screw fixation for the triplane fracture and open reduction and internal fixation with 3.5 mm DCP plate of the spiral fracture of the tibia. The fractures healed uneventfully in 8 weeks with complete functional recovery in 12 weeks. Discussion The pattern of concomitant ankle injury associated with tibia shaft fracture in children is less described. The injuries can be explained by internal rotation force transmitted across the shaft of tibia from twisting trunk over the grounded foot causing spiral fracture of the midshaft tibia. The ankle injury in such cases can be easily overlooked in presence of more obvious tibia. Conclusion: This case highlights a unique pattern of lower limb injury in adolescent age group which should be borne in mind by the treating physician. One should have a very low threshold to assess and investigate further as any delay in the diagnosis and treatment can results in suboptimal outcome.

Abstract no.: 43385

SUPRAMALLEOLAR OSTEOTOMY WITH OR WITHOUT FIBULAR OSTEOTOMY FOR VARUS ANKLE ARTHRITIS

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Background: Supramalleolar osteotomy (SMOT) is an alternative procedure for early stage varus ankle arthritis. Some studies combined fibular osteotomy in all cases, and some never used. The purpose of current study was to evaluate the functional and radiological outcomes of pre- and postoperative SMOT, and to compare the outcomes between patients with and without fibular osteotomy. Methods: Forty-one varus ankle osteoarthritis patients treated with SMOT were included. Fourteen males and 27 females with a mean age of 50.7 (range, 32-71) years were followed with a mean of 36.6 (range, 17-61) months. There were 22 cases with fibular osteotomy and 19 without. The AOFAS ankle-hind score, Maryland foot score, AOS were used for pre- and postoperative functional evaluation. The tibial anterior surface angle (TAS), talar tilt (TT), tibiocrural angle (TC), and tibial lateral surface angle (TLS) were evaluated pre- and postoperatively. Results: At last followup time, the mean AOFAS score and Maryland score were improved ($P < 0.01$). The mean AOS pain and function scores were decreased ($P < 0.01$). For radiological evaluation, all included parameters were improved ($P < 0.05$) except TLS. The mean Takakura stage was decreased ($P < 0.01$). No significant difference was detected in comparing the functional outcomes between with and without fibular osteotomy groups. However, in fibular osteotomy group, TT was decreased ($P < 0.05$) and TC was improved ($P < 0.01$) significantly. Conclusion: SMOT is promising with substantial functional improvement and malalignment correction for varus ankle arthritis. And with fibular osteotomy is helpful in correction of TT and TC angles in suitable cases.

Abstract no.: 43391

POSTERIOR FUSION WITHOUT DECOMPRESSION FOR CERVICAL MASSIVE OSSIFICATION OF THE POSTERIOR LONGITUDINAL LIGAMENT (OPLL) - A CASE REPORT OF FIVE-YEARS FOLLOW-UP

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Introduction The particular pathological conditions of OPLL are canal stenosis and focal instability caused by limited mobile segments associated with OPLL. Fusion alone is also valid for OPLL case with not severe canal stenosis but segmental instability, however, there are no reports of cases in which fusion alone was performed for massive OPLL in cervical spine. We have obtained good results by fusion without decompression in a case of massive OPLL, and discuss the indications of this new surgical choice. Case 44-year-old male of Mixed type OPLL : The patient sustained myelopathy of 10 points in JOA score. He presented with massive OPLL on C4/5/6/7 disc levels. The score improve swiftly with collar immobilization up to 16 points. As a result, we judged that there is a high probability that the symptoms can be improved with fusion alone without decompression. Posterior fusion from C3 to C6 was performed using posterior instrumentation. Just after the surgery, his JOA score improved to 16 points without complications. At 5 years follow-up, radiological images showed a transformation from mixed to continuous in type of OPLL. **Discussion** Posterior fusion without decompression could be an effective and safe management choice for cervical mixed-type massive OPLL as long as patients are selected carefully. Such an approach could be considered in patients whose neck mobility is already beginning to become impaired, and in whom immobilization leads to almost complete resolution of symptoms, if there is visible room in the posterior subarachnoid space.

Abstract no.: 43393

EFFECTIVENESS OF SURGICAL TREATMENT IN RADIAL HEAD FRACTURES.

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The purpose of this prospective study is to analyze the functional outcome of the elbow following internal fixation of radial head fractures and to determine which fracture types are amenable to this treatment. **Method:** 32 fractures of the radial head were treated with internal fixation and outcomes were evaluated at an average of 28 months after surgery. Eighteen patients had Mason type 2 fractures; ten patients had Mason type 3. Two patients of the 32 had associated dislocation of the elbow. Fifteen patients with type 2 were displaced. Eight of ten type 3 fractures had more than three fragments. The results at follow-up were judged according to the HSS scoring system for the elbow. **Results:** results were excellent for sixteen patients with Mason type 2 fractures; all patients had an average sagittal range of movements of 125 degrees and full forearm rotation. Eight of ten type 3 fractures with more than three articular fragments had good results. The remaining two patients with type 3 fractures had poor outcomes due to loss of reduction and reduced sagittal range of motion. Two patients with associated elbow dislocation had poor results due to early failure of fixation, non-union at the fracture site and reduced arc of forearm rotation of less than 45 degrees. **Conclusion:** recent implants and technique for fixation in radial head fractures made it possible to reduce most of the radial head fractures, data suggest that surgery is best for minimally comminuted fractures. Dislocation may compromise the outcome of surgical treatment of radial head fractures.

Abstract no.: 43394

THERMOGRAPHY EVALUATION OF CLUBFOOT TREATMENT BY CASTING METHOD - A PILOT STUDY

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Clubfoot is one of the common congenital foot deformities among children with the incidence rate of one in thousand live births. It is characterized by the following four deformities: ankle equinus, hind foot varus, forefoot adductus and cavus. For the management of clubfoot, all orthopaedic doctors agreed that conservative treatment is effective method and should be started as early as possible after birth. Most of the studies recommended that the “structured evaluation of clubfoot” is necessary to quantify the clubfoot severity accurately before and after the treatment, and for progressive evaluation of the foot. Therefore, this study aims to assess and monitor the clubfoot casting method by using thermographic tool. Methods: A 2 year old clubfoot child was recruited from Sri Ramachandra hospital. Infrared images of dorsal and plantar side of the clubfoot were taken by using Infrared camera (FLIR). The captured IR images were analysed by using FLIR software. There were six landmarks were selected in the forefoot, midfoot and hindfoot areas to evaluate the skin temperature of clubfoot. Results: The results showed that high skin temperature on the head of the 5th metatarsal area (35.5° c) of the dorsal side and planter side of the forefoot area. This study has lot of limitations such as the sample size. Also, in this experiment, data was collected before the intervention only. Therefore, future study will be conducted with large sample size by using infrared camera to monitor and assess the progress of the clubfoot by casting intervention.

Abstract no.: 43395

LATERAL MENISCAL EXTRUSION CAN BE AN INDICATOR TO ESTIMATE SEVERITY OF THE LATERAL MENISCUS POSTERIOR ROOT TEAR IN ANTERIOR CRUCIATE LIGAMENT-INJURED KNEES

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Purpose: Injuries of the meniscal attachments can lead to meniscal extrusion, decreased contact surface, increased cartilage stress, and ultimately articular degeneration. We hypothesized that status of lateral meniscal extrusion (LME) would associate with severity of the lateral meniscus posterior root tear (LMPRT). The purpose of our study was to evaluate the relationship between preoperative LME and arthroscopic finding of LMPRT in anterior cruciate ligament (ACL)-injured knees. **Methods:** Twenty-six knees that had arthroscopic LMPRTs concomitant with ACL injuries were evaluated. Patients were divided into two groups, partial (type 1) and complete (type 2-4) root tears, by arthroscopic findings at the time of ACL reconstruction. We retrospectively measured preoperative LMEs using magnetic resonance imaging (MRI). Statistical analysis was performed using Mann-Whitney U test. **Results:** Eighteen knees had partial LMPRTs. Complete LMPRTs were observed in 8 knees (type2, 2 knees; type 3, 1 knee; and type 4, 5 knees). In the partial LMPRTs group, the average LME was 0.52 mm. In the complete LMPRTs group, the average extrusion was 1.95 mm. Significant difference between these groups was observed in the preoperative LMEs ($P = 0.0002$). There were no significant differences in sex, age, weight, and body mass index. **Conclusion:** This study demonstrated that preoperative LMEs were larger in complete LMPRTs associated with ACL injuries than in partial LMPRTs. Our results suggest that preoperative MRI-based LME can be a useful indicator to estimate severity of the LMPRT in ACL-injured knees.

Abstract no.: 43396

PERCUTANEOUS KYPHOPLASTY FOR KUMMELL'S DISEASE WITH SEVERE SPINAL CANAL STENOSIS

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Background: Percutaneous kyphoplasty (PKP) has proven to be an effective, minimally invasive procedure for the treatment of Kummell's disease in the early stages. However, there remains a risk of cement leakage and further neurological damage during and after kyphoplasty, especially in chronic osteoporotic stage III Kummell's disease with severe spinal canal stenosis. Objective: To evaluate the feasibility, efficacy, and safety of PKP for the treatment of chronic osteoporotic stage III Kummell's disease with severe spinal canal stenosis. Methods: A retrospective study was performed on 9 patients with eleven levels managed with PKP for chronic osteoporotic stage III Kummell's disease with severe spinal canal stenosis. Clinical and radiological outcomes were assessed. Results: Substantial pain relief was attained in all the patients. Both VAS and ODI scores improved significantly from pre- to post-operation ($p < 0.05$), which changed slightly at every follow-up. No neurological deterioration was found. Postoperatively, the anterior and midline vertebral body height were significantly corrected ($p < 0.05$), and this correction was sustained at the final follow-up. Similar results were seen in the correction of kyphotic angle. Neither cement leakage into spinal canal nor further dislodging of the posterior vertebral fragments was occurred. Two cases experienced subsequent fractures with one case choosing PKP again and the other choosing conservative treatment. Conclusions: PKP is an effective, safe, minimally invasive procedure for the treatment of chronic osteoporotic stage III Kummell's disease with severe spinal stenosis, leading to a significant relief of symptoms and improvement of functional status.

Abstract no.: 43397

DEMENTIA AFFECTS AMBULATORY ABILITY AFTER HIP FRACTURE IN ELDERLY PATIENTS.

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Background: In Japan, the number of patients with hip fractures is increasing. Dementia is associated with reduced activity of daily living after surgery for hip fractures in elderly patients. The objective of this study was to investigate the relationship between dementia and ambulatory ability in hip fracture patients. Method: We conducted a retrospective study of 245 patients who underwent surgical treatment of hip fractures. Mean age was 84.2 years (range, 65-99). We categorized ambulatory ability into five levels; walking without any adaptive equipment, cane, small walker, walker and wheel chair. Patients who decline over two levels down were defined as decline group, patients who maintained less than one level down were defined as retain group. We measured Hasegawa's Dementia Scale for Revised (HDS-R), Function Independence Measure (FIM), MMT (gluteus medius, quadriceps), ambulatory ability and length of stay. Follow up was undertaken at acute and rehabilitative phases. Results: Of the patients, 61% (149 of 245) had dementia. There were 76 patients (male 20, female 56) in the decline group and 169 (23, 146, respectively) in the retain group. There were significant differences between the groups in terms of gender, HDS-R (51%, 83%, odds ratio=4.6, p<0.01), FIM and MMT. Mean hospital stay was 81.5 days; 86.4 days in the decline group, 79.2 in the retain group. The difference was not significant. Conclusions: Patients with dementia had 4.6 times the risk of decline ambulatory ability. Dementia, male and muscle weakness were associated with ambulatory ability among hip fracture patients.

Abstract no.: 43399

ACCURACY VALIDATION OF PLAIN X-RAY IN INFANTILE ACETABULUM WITH THE USE OF THREE-DIMENSIONAL BONE MODEL

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Plain hip X-ray is usually used for the diagnosis of infantile acetabular dysplasia. Infantile hip joint has a lot of cartilage components and there is no literature about the accuracy verification of plain hip X-ray. In this study, we created the virtual X-ray from MRI image and analyzed the accuracy of x-ray in several positions. MRI was performed in 18 hips (mean age 4 years 3 months) including 7 normal hips and 11 dysplasia hips. Three-dimensional bone models were created from MRI data (cortical bone only). Three-dimensional bone models were projected two-dimensionally with inclination of the pelvis in the original computer analysis software and virtual X-ray was created in several positions of the pelvic inclination. Acetabular angle, Center-edge angle, Migration percentage changed significantly under the pelvic longitudinal inclination in virtual X-ray. On the other hand Shenton lines disturbance, difference of Tear Drop Distance were not affected with the inclination of the pelvis. Our conclusion suggested that we might should use several evaluation factors when we make a diagnosis of infantile acetabular dysplasia.

Abstract no.: 43401

TOTAL HIP ARTHROPLASTY WITH STEP-CUT SUBTROCHANTERIC SHORTENING OSTEOTOMY FOR SEVERE DEVELOPMENTAL DYSPLASIA OF THE HIP

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Performing total hip arthroplasty in patients with severe developmental dysplasia of the hip is a technically challenging procedure. The purpose of this retrospective study was to review the clinical and radiographic outcomes in patients with severe developmental dysplasia who underwent cementless total hip arthroplasty and a step-cut subtrochanteric shortening osteotomy. From 2012 to 2015, six total hip arthroplasties with a step-cut subtrochanteric shortening osteotomy were performed for Crowe type III or IV developmental hip dysplasia, with a minimum follow-up period of 1 year. The mean follow-up period was 23 months. Crowe types III and IV were seen in two and four patients, respectively. The mean Japanese Orthopedic Association hip score improved from 64 preoperatively to 82 at the latest follow-up. The average leg lengthening was 31 mm. The average height of the hip center decreased from 77 mm preoperatively to 21 mm postoperatively. Two of the six patients had an early complication, including one intraoperative femoral fracture and postoperative cup dislocation, and one postoperative dislocation due to trauma. There were no cases of nonunion or malunion in the osteotomized sites. All components were well-fixed at the time of the last radiographic follow-up. None of the patients developed an infection, venous thromboembolism, or neurovascular injury. In patients with a severe developmental dysplasia, cementless total hip arthroplasty combined with a step-cut subtrochanteric femoral shortening osteotomy resulted in promising short-term results. However, the complication rate was higher than the rate associated with primary total hip arthroplasty in patients with degenerative arthritis.

Abstract no.: 43404

LONG-TERM FOLLOW UP RESULTS OF MIS-TLIF FOR PATIENTS WITH DEGENERATIVE LUMBAR CONDITIONS -MIS APPROACH REDUCES ADJACENT SEGMENT DEGENERATION-

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Objective: To clarify the long-term advantages of MIS-TLIF. Study design: A prospective clinical and radiographic evaluations of patients who underwent MIS-TLIF for symptomatic degenerative lumbar disease, and compared them with conventional transforaminal lumbar interbody fusion (C-TLIF). Materials and methods: 155 patients aged 35-82 years that underwent single-level MIS-TLIF (76 cases) and C-TLIF (79 cases) were included with minimum follow-up of five years. Mean follow-up duration was 87.2 months for MIS-TLIF and 90.5 months for C-TLIF. Clinical outcomes were evaluated using JOA score. Postoperative severity of lumbar stiffness was asked for the evaluation of "so called fusion disease". Radiographic evaluations were performed including ASD, multifidus muscle atrophy using radiographs, CT scan, and MRI. Results: The JOA scores in the MIS-TLIF and C-TLIF of 14.5 and 13.7 points before surgery improved to 25.5 and 24.7 points at the latest follow-up with no significant difference. Postoperative lumbar stiffness was significantly less in the MIS-TLIF than C-TLIF. Additional operation due to clinical ASD was required in 1 case (1.3 %) with MIS-TLIF and in 8 cases (10.1 %) with C-TLIF. Radiographic ASD was observed in 7 cases (9.2 %) with MIS-TLIF and in 19 cases (24.1%) with C-TLIF. Postoperative multifidus muscle atrophy were significantly less in the MIS-TLIF at the latest follow-up. Conclusions: MIS-TLIF obtained the same clinical improvements as C-TLIF for a long period. Although technically demanding, MIS approach can preserve the posterior element as much as possible. Thus, MIS-TLIF offers several advantages over C-TLIF including minimizing approach related morbidity and ASD.

Abstract no.: 43405

ULTRASONOGRAPHIC EVALUATION OF THE STABILITY OF CAPITELLAR OSTEOCHONDRITIS DISSECANS IN THE BASEBALL PITCHERS

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Background: In the capitellar OCD patients, evaluating whether osteochondral fragment is stable or unstable is important to decide the indication for surgery or non-operative treatment. We examined the correlation between ultrasound (US) findings and intraoperative instability in the baseball pitchers. Method: We retrospectively reviewed thirty patients who had both preoperative US evaluation and surgery for capitellar OCD. The stability of the lesion was determined intraoperatively by International Cartilage Repair Society OCD classification. We excluded seven patients who had already a dislocated fragment or a loose body (ICRS classification **IV**). We took preoperative five US imaging futures; 1=non-circularity line of the subchondral bone; 2=irregular contours of the chondral surface; 3=crack of cartilage; 4=thinning of cartilage; 5=thickening of cartilage. These US imaging futures were compared with the intraoperative ICRS classification for lesion instability in twenty three patients whose ICRS classification **II** or **III**. Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) were determined for fragment instability. Results: We defined the fragment being unstable when US imaging had one or two and stable when had none of the following findings: 1; the irregular contours of the chondral surface, 2; the thinning of cartilage. These preoperative US imaging criteria correctly matched intraoperative instability of the fragment in 22 of 23 patients (96%) (sensitivity 100 %, specificity 91%, PPV 92%, NPV 100%). Conclusions: The US findings of the irregular contours of the chondral surface or the thinning of cartilage achieved high accuracy in differentiating unstable from stable fragment lesion.

Abstract no.: 43407

USEFULNESS OF ELASTIN FOR PROMOTING LIGAMENT HEALING IN RABBITS

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Introduction: Ligament is an elastic tissue composed of highly oriented collagen, elastin, and fibroblasts. The purpose of this study was to examine the effect of elastin on healing of the MCL in rabbits. Methods: Twelve weeks old Japanese white rabbits were used. With animals under general anesthesia, we ruptured the MCL using blunt dissection technique. We injected elastin peptide and PBS weekly to the MCL in other groups. We performed biomechanical test and assessed histologically by hematoxylin and eosin staining after 6 weeks and 12 weeks. The sections were evaluated using a modified histological grading Bonar score. Type 1 and 3 collagen, ALP, Tenomodulin, and elastin were evaluated using real-time PCR. Statistically a p-value <0.05 was considered significant. Results: The breaking strength was stronger after 12 weeks compared to 6 weeks. The elastic modulus and maximum stress of elastin group was higher than that of PBS group at 12 weeks. Histologically, Ligament fiber tended to align in elastin group at 12 weeks, but there were no significant differences between PBS group and elastin group evaluated by modified Bonar score. In real-time PCR, Tenomodulin of elastin group was higher than that of PBS group at 6 weeks. Conclusions: Upregulation of Tenomodulin was observed in elastin group at 6 weeks than at 12 weeks, and it might result in ligament healing at early phase. Elastin peptide injection significantly increased expression of Tenomodulin, and improved elastic modulus and maximum stress. Elastin peptide could be useful for promoting ligament healing.

Abstract no.: 43408

A CASE REPORT OF PARTIAL PEDICULECTOMY FOR EARLY ONSET LUMBAR FORAMINAL STENOSIS FOLLOWING OSTEOPOROTIC VERTEBRAL FRACTURE (OVF)

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Introduction: Osteoporotic vertebral fractures (OVFs) occur most in postmenopausal women age 60years and older, either after minimal trauma or spontaneously. The major symptom of OVF is back pain, however neurological involvements sometimes develop. Case report: An 80-year-old woman was referred to our hospital with diagnosis of L2 OVF. Although she suffered from back pain for 5 days, her chief complaint was left anterior thigh pain without back pain when she presented our hospital 4 months after her symptom started. Radiographs revealed L2 vertebral body fracture and retropulsion of bony fragments. Her left anterior thigh pain was so severe that she couldn't walk. Plain radiographs showed L2 vertebral body fracture. We suspected L1-L2 foraminal stenosis from computed tomography (CT) and MRI. We initially treated her conservatively with analgesics, but her leg pain did not get well. We performed nerve root block of left L1. After L1 nerve root block, her left anterior thigh pain had gotten better for a few days. Therefore we diagnosed radiculopathy of left L1. We initially planned PLIF for the radiculopathy. However, she was too thin to perform PLIF, whose BMI was 11.5. We thought partial pedicectomy was better than PLIF because we might prevent skin troubles by instrumentation. We performed partial pedicectomy. 5 days

Abstract no.: 43411

DOES CT SCAN BASED TECHNOLOGY FOR PATIENT SPECIFIC BLOCKS PROVIDE CORRECT SIZE MEASUREMENTS FOR KNEE IMPLANTS IN TKA?

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Introduction : Total knee arthroplasty (TKA) is now a commonly performed surgery with successful outcomes. Long term success of TKA depends on accurate achievement of postoperative mechanical alignment. Traditionally used conventional instruments (CI) for alignment guide are found to have several shortcomings, which have led to development of patient specific blocks (PSB), with the aim to improve mechanical alignment. This study compared the postoperative mechanical alignment of lower limb achieved after TKA using Computer tomography (CT) based PSB to that achieved using CI in TKA. Materials & methods: Total 80 knees were included in the study, with 40 knees in both the groups operated using PSB and CI. Postoperative mechanical femoro-tibial angle (MFT angle) was measured on long leg radiographs. We compared mechanical alignment achieved using PSB and CI in TKA using statistical analysis. Results : There was significant improvement in postoperative mechanical alignment (p value - 0.001), in PSB group compared to CI. Number of outliers were also found to be less in group operated with PSB (7 Knee) compared to those operated with CI (17 Knee). PSB improves mechanical alignment after total knee arthroplasty, compared to CI. Conclusion : CT based PSI can help restore the mechanical axis of the patients undergoing primary total knee replacement. In the present study, the PSI group had significantly better post operative mechanical axis as compared to the conventional instrumentation. CT based PSI hold promise and may help in accurate restoration of the mechanical axis and to decrease revision rates after TKA.

Abstract no.: 43412

IS MEASUREMENT OF MECHANICAL AXIS ON RADIOGRAPHS AN ART AND COMES WITH EXPERIENCE?

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INTRODUCTION: Hip-Knee-Ankle [HKA] radiographs are used in the planning of Total Knee Arthroplasty (TKA). Any variation or error in evaluation of HKA may reflect the outcome of management. With the advent of Picture Archiving and Communication Systems [PACS], the measurement is done with the help of computers, thus avoiding the need for bulky hard copies. The aim of present study was to assess the inter-observer variability in measurement of HKA axis using PACS and try to check its correlation with the experience of the staff measuring this axis. **MATERIALS AND METHODS:** 70 Standard full weight bearing HKA radiographs in standing position were studied by five doctors with a different range of experience in orthopaedics. **OBSERVATIONS AND RESULTS:** It was found that the two senior consultants had agreeability among them [$p=0.456$, not significant], about the measurement of MFT angle. Similarly, the surgeons who were less than five years of experience in the branch also had an agreement amongst themselves [$p>0.00$]). The statistically different readings were found to be between the senior consultant and the post graduate trainee [$p=0.001$]. Similar statistical significance difference was found to be between the senior consultant and the clinical fellow [$p=0.002$]. The other senior consultant also had statistically significant difference with observers of less than five years of experience [$p<0.005$]. **CONCLUSION:** The inter-observer variability is an issue and can be attributed to the difference in identification of the centers of the hip, knee and ankle. These differences keep on decreasing as the experience of the observer increases.

Abstract no.: 43413

IS REMOVAL OF A NAIL AND RE-OSTEOSYNTHESIS NECESSARY FOR ALL UN-UNITED FEMORAL SHAFT FRACTURE?

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A non-union after intramedullary nail fixation of femur shaft fractures is although infrequent but poses a management dilemma. The available options to deal with it include exchange nailing, removal of nail and plating, Ilizarov fixation and bone grafting. Each of these procedures has its pros and cons. We present our experience of plate augmentation (leaving the nail in situ) and bone grafting for the nonunion of femoral shaft fractures, in 16 patients. Twelve out of sixteen patients showed hypertrophic nonunion at fracture site while four showed oligotrophic non-union. A rotational instability at the fracture site was noticed in all these cases, intr-operatively. The fracture ends were freshened, and an 'over the top' plate fixation was done with 8-10 holes 4.5mm LCP (AO, Synthes). We had fixed the plate with bicortical screws where possible and unicortical locking screws where bicortical purchase was not possible. The average duration of follow-up was 9.6 (range: 7 to 15 months). We could achieve union in all cases with a mean time to radiographic union of 6.25 (range 4-9 months). None of the implants showed a failure on follow-up radiographs. There are only a few published studies on plate augmentation with a nail in situ for femoral nonunion. We believe that plate augmentation is an efficient and easy technique to achieve union. An 'over the top' plate provides additional rotational stability at the non-union site, and this technique offers the advantage of leaving the nail in situ which protects the plate from bending forces.

Abstract no.: 43415

TRANSIENT OSTEOPOROSIS OF THE HIP: A FORGOTTEN ENTITY

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Transient osteoporosis of the hip (TOH) is a poorly understood and forgotten clinical entity. Often either the diagnosis is delayed, and inadequate treatment is given due to lack of its awareness. We present, our experience of twelve patients (11 males and one female) within the age group of 35-50yrs, who had evidence of TOH on clinical and radiological parameters. All of these patients were treated conservatively by non-weight bearing mobilization, Non steroidal anti-inflammatory drugs, bisphosphonates, Vitamin D and calcium supplements. None of our patients had any symptoms after six months of diagnosis and the treatment. damaged the involved hip nor in any case, the disease progressed or damaged the affected hip joint. Radiologically plain radiograph was of no use in an early deduction of TOH. MRI was done in all cases and was found to be highly specific and sensitive in picking and diagnosis TOH. The clinical condition of TOH is characterized by its acute onset of hip pain in middle aged person (mostly male), and the symptoms are out of proportion of to the radiological findings. It is a nondestructive hip condition which is also self-limiting and responds well to the conservative treatment. Awareness of this entity is important to clinicians for early diagnosis and to avoid unnecessary treatment for other mimicking condition like avascular necrosis, inflammatory joint disorders, infections and metabolic conditions.

Abstract no.: 43416

RISK FACTORS FOR BONE CEMENT IMPLANTATION SYNDROME: A RETROSPECTIVE STUDY AND SUGGESTED PROTOCOL FOR HIGH RISK PATIENTS

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Introduction: Bone cement implantation syndrome (BCIS) is a rare but severe peri-operative pathology that presents on cementation of orthopaedic implants in certain patients and has effects ranging from transient hypotension to intra-operative cardio-respiratory arrest. Materials and Methods: We performed a systematic review of the literature on BCIS, principally in hip arthroplasty, in order to establish known risk factors for this complication. We also carried out a retrospective study in our institution in order to identify the mortality rate of cemented arthroplasty involving the femur between 2011 and 2015 and attempted to identify risk factors that our affected patients shared. Results: In the case of cemented hip arthroplasty for a fracture, the mortality rate in our institution was found to be 0.68%, with two deaths directly attributed to BCIS. When including all highly probable BCIS events during the same period of time (significant hypotension on cementation leading to multi-organ failure) this percentage rose to 1.7%. Discussion: The mortality rate in our series seems to be higher than previous published studies. We agree with published literature suggesting that this pathology may be grossly under-reported and its incidence underestimated. It is however potentially preventable, especially when high risk patients are identified pre-operatively. Conclusion: We present a peri-operative protocol for anaesthetists and surgeons in identifying high-risk patients for BCIS. This proposes several preventative measures, aiming to reduce mortality and morbidity from this under-reported complication.

Abstract no.: 43417

PREDICTORS OF FIXATION FAILURE IN INTERTROCHNATERIC FRACTURES FIXED WITH PFN-A

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Background: PFNA has been accepted as an implant of choice for Intramedullary fixation of unstable and potentially unstable intertrochnateric fractures. There are few studies which calculate the fixation failure predictors in fractures fixed with PFNA. We present our preliminary data to determine these factors. Objective: To ascertain the significance of neck shaft angle, tip apex distance, AO classification, Age and position of blade in neck in determining failure of fixation in the PFNA. Methods: 347 cases of intertrochanteric fractures fixed with PFNA in the year 2010-2013 were included in the study. Minimum follow up was till fracture union/ failure. Tip Apex distance, measured using CPACS system; neck shaft angle and blade position in neck was measured in the intra-operative images or immediate Post Operative x-rays. Results: The average follow up was 15 months. There were 22 cases of cut out with 12 joint perforations. There were also 13 cases of cut through with 5 perforations. The mean TAD was 18.67mm for united fractures, 22.61 for cutouts and 19.24 for cut throughs. The average neck shaft angle was 130.8° in united fractures, 129.5° in cutouts and 131.7 in cut throughs. Age and AO classification were not significant predictors of cutout. Conclusion: Our preliminary findings suggest that larger tip apex distances are associated with complications like cutout and cut through. Neck shaft angles seem to have a smaller role to play. There is an association between incidence of cutout and TAD.

Abstract no.: 43418

REINFUSION DRAINS IN PRIMARY HIP AND KNEE ARTHROPLASTY

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Introduction: Higher pre-operative and post-operative hemoglobin (Hb) levels are related to earlier functional recovery, higher patient satisfaction and shorter hospital length of stay in patients undergoing total hip or knee arthroplasty. The goal of the study was to evaluate the effects of reinfusion drains on hematological parameters of patients undergoing total hip and knee arthroplasty. **Methods:** We retrospectively reviewed 103 patients (reinfusion group) who underwent total hip or knee arthroplasty with the use of a postoperative reinfusion drain and 100 patients (no reinfusion group) who underwent total hip or knee arthroplasty with no postoperative reinfusion drain used. Preoperative variables evaluated were: age, sex and body mass index; comorbidities; and type of anesthesia. Pre- and postoperative variables evaluated were: Hb, hematocrit (Hct) and platelets levels at the first, second, third, and fourth postoperative days and at discharge. We also assessed the total blood loss during the postoperative in-hospital stay and the number of units of blood eventually transfused. **Results:** Eighty-four (84%) patients in the no reinfusion group and 42 patients (40.8%) in the reinfusion group were transfused postoperatively with at least one unit of blood (1.3 ± 0.9 and 0.5 ± 0.7 , respectively; $p < 0.001$). In the first and second postoperative day, Hb levels were higher in the reinfusion group ($p = 0.002$ and $p < 0.001$, respectively). Hct levels were significantly higher in the reinfusion group at first, second, third and fourth postoperative days and at discharge. **Conclusions:** Proper management of patients undergoing total hip or knee arthroplasty using reinfusion drains can reduce or eliminate the need for transfusions.

Abstract no.: 43420

OUTCOME AFTER EXTREMITY INJURIES IN BORDERLINE PATIENTS

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Summary: Globally there is a trend towards increasing victims with multiple disabilities. Aim of the study: Creating a system of healing events aimed at correction of vital functions and remove posttraumatic complications in patients affected by trauma combined. Material and Methods: For a period of 3 years (2012-2015 years), 1st Clinic of Orthopedic Traumatology of Emergency hospital "Pirogov" are treated surgically by the author and colleagues, 31 patients. Of these 19 men aged 18 to 65 years and 12 women aged 18 to 34d. After the accident - 23 patients, after altitude trauma -5 patients and with other injuries - 3 patients. Results: Through the definitive stabilization in these patients achieve stable hemodynamic stable saturation without coagulation abnormalities, normal body temperature without the need for catecholamine support, control of bleeding, inhibition of pathological inflammatory response, excision of the non-vital tissue, prevention of ischemia-reperfusion injury, pain relief. Conclusion: Despite the achievements of modern medicine, mortality polytrauma disease in intensive therapy wards in recent years onshaved off a large percentage of the victims remain disabled.

Abstract no.: 43426

LONG-TERM OUTCOME OF FEMORAL REVISION WITH THE WAGNER TAPERED STEM

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Introduction: Reconstruction of severely deficient femoral bone stock is a critical issue in hip revision surgery. This study evaluates retrospectively the long-term clinical and radiographic outcome of the cementless Wagner Self-Locking (SL) stem. Methods: From September 1992 to March 1998, 68 hips (66 patients) with extended femoral bone loss underwent revision using the Wagner SL stem. Twenty-six patients died of unrelated causes without further surgery. Forty hips were available for clinical and radiographic follow-up evaluation at a mean follow-up of 13.9 years (range, 10.4-15.8) after surgery. There were 11 male and 29 female patients, with an average age of 61 years (range, 29-80). In 31 hips a transfemoral approach was performed. Results: In 5 cases stem rerevision was required because of infection (2), progressive subsidence (2), and recurrent dislocation (1). Complications included dislocations (3) and subsidence ≥ 10 mm (8). The mean Harris hip score improved from 33.0 points preoperatively to 73.3 points at follow-up ($p < 0.001$). In 32 stems (91.4%) radiological signs of stable bone fixation were assessed. The cumulative survival rates at 15.8 years with femoral revision for any reason and for stem failure as the end points were 92.0% and 96.6%, respectively. Discussion: Revision of severe proximal femoral bone loss is a technically demanding procedure because of the difficulty in providing an adequate anchorage of the new prosthesis. The tapered and fluted Wagner SL stem, by means of a stable distal fixation, enables restoration of periprosthetic bone stock ensuring highly successful long-term outcomes.

Abstract no.: 43427

MICROBIOLOGICAL AND HISTOLOGICAL ANALYSIS OF THE HIP JOINT IN PATIENTS WITH AVASCULAR NECROSIS OF THE FEMORAL HEAD.

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Introduction: The aim of the study was to investigate the morphological characteristics and detection of microorganisms and their markers in the hip joint tissues when AVN. Methods: The laboratory study of remote hip joint tissues during THR in 26 patients with AVN (stage 3-4 by ARCO) was performed. Pathomorphologic methods, ELISA, PCR, electron microscopy were used. Results: Revealed pathological changes such as necrotic, degenerative, atrophic, osteoporotic, sclerotic leading to the destruction of the femoral head have a varying degree of severity. Inflammation is more pronounced in the synovium and has distinctive characteristics. In synovial fluid by ELISA were detected IgG to C. Trachomatis in 7.7% cases, IgG to HSV-1 and HSV-2 in 100%, IgG to Cytomegalovirus in 96.1% cases. In the blood serum IgG to C. Trachomatis were detected in 38%, IgA in 11.5% cases. IgA and IgG to Trichomonas vaginalis were detected in 3.8% and 11.5% cases respectively. IgG to HSV-1 and HSV-2 were detected in 100% cases, IgM in 11.5%. Cytomegalovirus IgG were defined in 100%, IgM in 38% cases. PCR detected in synovial fluid C. Trachomatis DNA in 3.8%, Herpesviridae DNA in 7.7% cases. In the synovium C. Trachomatis DNA was detected in 3.8%, Epstein-Barr virus DNA in 15.4%, Mycoplasma genitalium DNA in 3.8%. In the femoral head cartilage in 11.5% cases was detected Herpesviridae DNA, C. Trachomatis DNA in 4.9% cases. Conclusion: There was a direct correlation between the detection of microorganisms in situ and more pronounced structural changes in the cellular elements of hip joint.

Abstract no.: 43429

MEDIUM-TERM RESULTS OF METAL-ON-METAL HIP RESURFACING THROUGH AN ANTEROLATERAL APPROACH

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Introduction: Hip resurfacing has conventionally been undertaken through a posterior approach, but recent investigations expressed concerns with the damage of capsular blood supply. To date, few papers have reported only preliminary outcomes of surface arthroplasty performed through alternative approaches. This retrospective study evaluated the mid-term clinical and radiographic results of current generation metal-on-metal resurfacing prostheses performed using an anterolateral Watson-Jones approach. Methods: Fifty-seven hips in 52 patients underwent metal-on-metal resurfacing arthroplasty. Two patients died from unrelated causes, leaving 55 hips in 35 males (3 bilateral) and 15 females (2 bilateral), with a mean age of 56 years (range, 27-70). Clinical and radiographic follow-up was carried out in all the cases. The cumulative survival rate was determined according to Kaplan-Meier. Results: At a mean follow-up of 5.2 years (range, 2-9.2), 2 hips required revision because of early aseptic loosening of the acetabular component, and were successfully converted to conventional arthroplasty. Average Harris hip score improved significantly from 59.8 points (range, 30.4-90.6) preoperatively to 93.7 points (range, 53-100) at the latest examination. Neck narrowing showed an average of 3.27%, but it never exceeded 10%. Nonprogressive acetabular radiolucencies and osteolysis were detected both in 2 hips. The cumulative survival rate at 5.2 years with revision for any reason as the end point was 93.0%. Discussion: Medium-term clinical and radiographic results of modern metal-on-metal hip resurfacing performed through an anterolateral approach are promising, but longer-term evaluation is necessary. A rigorous patient selection is essential to minimize the risk of complications and prevent early failure.

Abstract no.: 43434

PATHOLOGY OF THE CARTILAGE TISSUE REGENERATE DERIVED FROM MESENCHYMAL STEM CELLS. EXPERIMENTAL STUDY.

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Introduction: The transplantation of mesenchymal stem cells (MSC) is an effective method of full thickness to the articular cartilage damage treatment. However, there is no common approach to the choice of the cell source, surgical transplantation technique and cells differentiation degree. Methods: We performed an experiment on dogs by MSC transplantation of the varying differentiation degrees. In group 1, into the created defect in the knee cartilage input un-differentiation MSCs derived from bone marrow of animals, isolated in vitro and placed in the carrier from the sodium hyaluronate. In group 2, MSCs were pre-differentiated in the chondrogenic direction by growth factors TGF β 3, IGF-1 and dexamethasone. Experiment on dogs lasted 6 months. Results: In the 1Group, restoration of the cartilage defect completes the formation of a thin layer of fibrous connective tissue. This regenerate does not fill the cartilage defect and does not provide an accurate anatomical relationship of the articular surfaces. The 2 groups in the defect occurred full filling by regenerate of fibrocartilage tissue. The newly formed chondrocytes are small, round with lacunization. Extracellular matrix has moderate metachromasia and gets purple or blue color. Conclusions: The experimental studies have shown the advantages of the implantation of the pre-differentiated MSCs in contrast with the method of the implantation of the un-differentiated MSCs. Morphogenesis features of the newly fibro-cartilage tissue, its remodeling into the hyaline cartilage and its durability as compared to the motherly cartilage require the further careful studies.

Abstract no.: 43435

CLAVICLE FRACTURES, SHORTENING AND THE DECISION FOR SURGICAL FIXATION – A CHANGE IN CLINICAL PRACTICE? “FIRST, DO NO HARM.”

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Introduction: The assumption of symmetry regarding clavicular length has previously been found unreliable. With the decision to surgically fix clavicle fractures often being based on the degree of shortening, this assumption if untrue may change clinical practice. We hypothesized that asymmetry exists with clavicles on the dominant side being significantly shorter. Methods: Two individuals clinically measured 508 pairs of Asian clavicles. Length was defined as the distance between either the sternoclavicular joint (SCJ) and acromioclavicular joint (ACJ) or suprasternal notch (SSN) and ACJ. Both individuals measured these in both clavicles twice and in each volunteer twice to determine the extent or lack of symmetry and intra- and inter-observer reliability. Other parameters recorded included age, sex, race, occupation and hand dominance. Results: Dominant clavicles were found to be significantly shorter by an average of 7mm and maximum of 31mm. Intra- and inter-observer reliability were both excellent. Conclusions: Even if osteometric measurements are standardized using bony landmarks, we strongly advocate not applying this technique to clavicle measurements in view of the inaccuracy and unreliability, especially if this is going to determine the necessity for surgery in patients with fractures of the clavicle and what is thought to be shortening. Clavicle length is also likely related to hand dominance with clavicles of the dominant arm being shorter. Both these facts have significant implications on the clinical measurement of clavicular length post-fracture and its use as a determinant for surgery, something all orthopaedic surgeons should be made aware of.

Abstract no.: 43436

THOMPSON CEMENTED HIP HEMIARTHROPLASTY; LONG TERM FOLLOW-UP. EXPERIENCE AND COMPLICATIONS.

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Clinica INDISA, Santiago (CHILE)

Objective: The purpose of this revision is to evaluate the indication and complications regarding hip hemiarthroplasty with the cemented Thompson implant on patients with medial hip fractures. Methods: We reviewed the outcomes following Thompson Hip Hemiarthroplasty in patients with hip fracture,. A descriptive, retrospective study. Results: From a series of 57 cases performed between January 2006 and December 2007, all of them cemented and performed through an anterolateral (Watson-Jones) approach. The average age was 85.8 years (70-101). Follow-up of a mean 57 months (0-120). The prevalent injury mechanism was a level fall on 50 patients (87.7%). Amongst complications, we registered, Surgical wound infection on 3 cases (5.2%), periprosthetic infection (1.8%) and one case of cotiloiditis converted to Total Hip Replacement (1.8%). No dislocations were reported. The 1-year mortality was 10.5%, 5-year mortality was 71.4% and a cumulative 8-year mortality rate of 96.5%. Discussion: Patient selection for Hemiarthroplasty following hip fractures is critical to avoid implant related complications, meet patients requirements and life expentancy. Our findings demonstrate satisfactory results for elderly patients treated with a Thompson cemented hip hemiarthroplasty.

Abstract no.: 43437

BURN OUT AMONG THE ORTHOPAEDIC SURGEONS

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Introduction: It is defined as a state of physical, emotional or mental exhaustion caused by long-term involvement in situations that are emotionally demanding, in the meaning of working stress. We propose an investigation of the prevalence of burnout among 152 orthopaedic surgeons, and an evaluation of protecting and predisposing factors. Methods: The first questionnaire is the Maslach Burnout Inventory, assessing the degree of burnout among our population : 22 questions divided according to the 3 components of the burnout: emotional exhaustion (EE), depersonalisation (DP) and the feeling of low personal accomplishment (LPA). The second questionnaire is composed of 40 additional questions regarding predictory or protecting factors of burnout based on professional and personal criteria. Results: We determine 23.68% of high degree of burnout in the EE dimension, 27.63% in the DP and 42.76% in the PA dimension. We found similar prevalence of high burnout in german and french speaking populations regarding EE and DP, but a significant difference is observed in the LPA score. The most prominent protecting factors regarding personal life are: age over 50, practice of sports and having relationships out of work. Having more than 2 children seems to affect positively the DP dimension. An important predisposing factor is the pressure felt by the administration and patients that raises the risk of EE and DP: with as much as 5.55 additional points in EE score. Conclusion: Our population of orthopaedic surgeons is prone to burnout, especially in all 3 components.

Abstract no.: 43440

METAL ON METAL TOTAL HIP ARTHROPLASTY; 10 YEAR FOLLOW-UP, EXPERIENCE AND COMPLICATIONS.

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Clinica INDISA, Santiago (CHILE)

Objectives: The aim of this study was to evaluate the incidence of Aseptic Lymphocytic Vasculitis (ALVAL) on Metal on Metal (MoM) bearing for Total Hip Replacement (THR). As secondary outcome, we evaluated functional results, survivorship and complications related to this procedure. Methods: Multicentric retrospective study. We reviewed the outcomes of all patients that underwent THR with MoM bearing were included. All data recollected was tabulated and patients were interviewed by a member of our staff. Functional outcomes were measured using the modified Harris Hip Score (mHHS). Results: 156 implants on a total of 154 patients were included (112 male / 42 female), performed between December 2004 to April 2010. Age range between 32 and 66 years old. Minimum follow-up of 58 months (58 - 121). Average post operative mHHS was 85 points. We observed 2 cases of aseptic loosening of the acetabular component, not associated to ALVAL, and 3 cases of surgical wound infection, requiring surgical approach and antibiotics. No recorded cases of instability. We had an implant survivorship of 98.7% at 10 year follow-up. Discussion: MoM bearing is an excellent alternative, with high rate of survivorship, stability and functionality. On this series of cases we did not observe ALVAL type reaction.

Abstract no.: 43443

COMPUTER-ASSISTED PATIENT SPECIFIC PROTOTYPE TEMPLATE FOR THORACO-LUMBAR CORTICAL BONE TRAJECTORY SCREW PLACEMENT: CADEVERIC STUDY

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For improvement of holding screw strength with less invasive exposure, a cortical bone trajectory (CBT) screw technique reports effective mechanical and clinical results. Accurate and safe placement of screw is crucial. A patient-specific drill template with pre-planned trajectory has been thought as a promising solution, it is critical to assess the efficacy, safety profile with this technique. The goal of this study is to evaluate the accuracy of patient-specific CT-based rapid prototype drill guide templates for thoraco-lumbar CBT technique. The volumetric CT scanning was performed in 7 cadaveric thoraco-lumbar spines and a three-dimensional (3D) reconstruction model was generated. Using the computer software, we constructed the drill templates that fit onto the posterior surface of vertebrae with drill guides to match the cortical bone trajectory. Eighty guide templates from T12 to L5 were created from the 3D computer models. The drill templates were used to guide drilling of the trajectory of CBT without any fluoroscopic control and the CT images were obtained after fixation. The entry point and direction of the planned and inserted screws were measured and compared. In total, 80 screws were inserted. No misplacement or bony perforation was observed by postoperative CT scan. Using the patient specific prototype template system demonstrates the clear advantage in safe and accurate cortical screw placement of thoraco-lumbar spine. This method has shown its ability to customize the patient-specific trajectory of thoraco-lumbar spine, based on the unique morphology. The potential use of drill templates to place thoraco-lumbar cortical bone trajectory screws is promising.

Abstract no.: 43445

ANTEROMEDIAL PLATING OF HUMERUS—AN EASIER AND EFFECTIVE APPROACH

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Introduction: Shaft of humerus fractures account for 1.2% of the total cases of trauma seen in the casualty. Plate osteosynthesis remains the gold standard of surgical treatment. The most commonly used approaches for treating these fractures are posterior and anterolateral approaches. Objectives: To describe the complications and outcome of patients undergoing anteromedial plate osteosynthesis of humeral shaft fractures. Methods: A prospective study was done in the Department of Orthopedics, Sri Ramachandra medical college and research institute, Chennai, India where the details of patients undergoing the procedure was collected with a follow up period of one year and analyzed. Results: Thirty patients with shaft of humerus fractures were treated with medial plating through anterolateral approach during the study period. Road traffic accidents accounted for 90% of the cases and 10% being slip and fall at home. Twenty two patients were male and eight were female. There was no requirement for blood transfusion for any of the patients. Radial nerve palsy was not observed in any immediately after surgery. Evidence of healing was seen between six to twelve weeks. Callus formation and cortical union were observed as evidence of radiological union. Conclusions: Anteromedial plating for treating humeral shaft fractures is a safe procedure with less risk of radial nerve palsy and good results. Keywords: Anteromedial Plating, Antero Lateral Approach, Humerus Shaft Fractures, Radial Nerve Palsy

Abstract no.: 43446

THE RESULTS OF SCARF OSTEOTOMY COMBINED WITH DISTAL SOFT TISSUE PROCEDURE ARE MOSTLY SATISFACTORY IN SURGICAL MANAGEMENT OF MODERATE TO SEVERE HALLUX VALGUS

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Background: The surgical results of Scarf osteotomy in the management of moderate to severe hallux valgus deformity were evaluated. Methods: 40 feet of 32 (28 females, 4 males) patients surgically managed by Scarf osteotomy were studied. The mean age of the patients at the time of surgery was 52,98 (range, 31-75) years. Patients satisfaction and visual analogue scale (VAS) grading were used for subjective evaluation. For objective measures of AOFAS scale; first metatarsophalangeal joint range of motion and radiological measurements of intermetatarsal (IMA), hallux valgus (HVA) and distal metatarsal articular angles (DMAA) were evaluated. Results: The mean follow-up period was 38 (range, 24-60) months. 16 feet (40%) were reported as very satisfied, 19 (47,5%) as satisfied and the remaining 5 (12,5%) as unsatisfied resulting with a total of 35 (87,5%) satisfaction. The mean preoperative VAS and AOFAS scores improved from 8,13±0,7 to 2,68±1,2 ($p=0,0001$) and from 58,25±6,1 to 78,25±8,1 ($p=0,0001$) on the final follow-up, respectively. The postoperative change of first metatarsophalangeal joint range of motion was not statistically significant ($p=0,281$). On the radiological evaluation; IMA and HVA angles improved from a mean value of 14,78±1,7 degrees to 8,13±1,5 degrees ($p=0,0001$) and from 35,2±5,8 degrees to 20,10 ±5,5 degrees ($p=0,0001$), respectively. DMAA did not show any statistically significant change on the final follow-up ($p=0,195$). Conclusion: Scarf osteotomy combined with distal soft tissue procedure is a technically demanding procedure. However, the osteotomy is intrinsically stable and the correction power is high, so the results are mostly satisfactory.

Abstract no.: 43448

PLATE AUGMENTATION AND AUTO-BONE GRAFT AFTER INTRAMEDULLARY NAILING FOR LARGE FEMORAL BONE DEFECT: A TECHNICAL NOTE

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Nonunion due to large segmental defect of long bone is challenging problem to patient and surgeon. General treatment methods for restoration of bone loss are cancellous bone grafting (including Masquelet technique), vascularized fibular grafting (VFG) and internal bone transport (IBT) with an external fixator. IBT with an external fixator is also performed with intramedullary nailing or locking plate to lessen the time of external fixation. The efficient strategy is not established firmly because current evidence is low. This article aimed to describe the advantage of additional plate augmentation and auto-bone graft for large femoral defect restored the length with intramedullary nail (IM) nail and/or external fixation (EF) in 4 patients. Four patients with large segmental femoral bone defect were treated with intramedullary nail. Staged operation was performed for an auto bone graft and an additional plate augmentation. Patients were excluded if they had less than 12 months of follow-up. Large femoral defect was defined larger than 6cm. All patients were achieved union and the effect of additional plate and autogenous bone graft was acceptable. Limb lengths and alignment was good compare with intact limb. We offer an additional plate augmentation and auto bone graft for large femoral defect after restoring the length of femur using IM nail.

Abstract no.: 43449

TREATMENT BY USING PLATELET RICH PLASMA INJECTION IN A CASE WITH JUVENILE OSTEOCHONDRITIS DISSECANS WHO FAILED WITH CONSERVATIVE TREATMENT

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Introduction: Osteochondritis dissecans (OCD) refers to separation of an osteochondral fragment from the bed of the joint surface. The lesions are called as adult form in individuals whose epiphyseal line is closed and juvenile type in those whose epiphyseal line is open. The treatment of OCD depends on patient's age and on whether the epiphyseal line is clear or not as well as on the size, location and stability of the lesion. Conservative treatment is preferred in juvenile cases. Surgical intervention may be necessary for unstable lesions and for those not responding to conservative treatment. An intermediate step between conservative and surgical management has not yet been available. **Purpose:** We aimed to provide in this case report clinical and radiological results of a patient with juvenile OCD not being able to treat with conservative modalities but cured with platelet rich plasma (PRP) injections, without the need for surgical intervention. **Case presentation:** Showing no improvement in symptoms and in physical examination despite conservative therapy of three months, a 16-year-old male patient received two intraarticular PRP injections three months apart, targeting the lesion of OCD localized in medial femoral condyle of the right knee. At the end of the 18th month, the patient did not have any limitation in his physical activities and radiographic examination confirmed that the lesion was treated successfully. **Conclusion:** Provided that conservative treatment fails in juvenile cases in adolescents, intraarticular PRP injection could hasten healing process radiographically, clinically and functionally and obviate the need for surgical intervention.

Abstract no.: 43451

ARE RADIOGRAPHS USEFUL PRIOR TO PERCUTANEOUS PIN REMOVAL FOLLOWING LATERAL HUMERAL CONDYLE FRACTURE FIXATION?

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The aim of this study is to assess the necessity and usefulness of routine postoperative radiographs prior to pin removal. Fifty consecutive patients with displaced lateral humeral condyle fractures admitted to our institution were included in this retrospective study. All patients underwent open reduction and pinning of the fracture; the percutaneous pins were routinely removed 4-weeks postoperatively. Perioperative data including fracture severity based on Jacob's classification, time between injury and operation, duration of operation and clinical complications were collected. Radiographic results measured included pin divergent angle (DA), pre- and postoperative Baumann's angle (BA), pre- and postoperative lateral humeral capitellar angle (LHCA). Postoperative radiographs taken prior to pin removal did not influence the intended timing of pin removal. All patients had their pins removed at 4 weeks postoperatively as planned. Failure of lateral humeral condyle fracture fixation is very rare. In this series, postoperative radiographs prior to pin removal had no bearing on the patient's subsequent management. Postoperative radiographs prior to pin removal while commonly done, are not useful and probably unnecessary. Reducing the amount of postoperative radiographs done not only reduces cost and radiation exposure to the patient but allows for a more efficient workflow in the outpatient clinic.

Abstract no.: 43455

A SINGLE FEMORAL COMPONENT FOR ALL TOTAL HIP REPLACEMENTS PERFORMED BY A TRUST? DOES THIS AFFECT EARLY CLINICAL AND RADIOLOGICAL OUTCOMES?

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Background: Hospitals may be forced to implement cost saving strategies when considering component choice for joint arthroplasty. This may involve the use of components which are not the first preference of individual consultants, or those they have little experience with. We aim to examine the effect of standardising the type of femoral stem used in a single trust, and determine whether this is safe practice, particularly in those who have never used this stem before. Methods: We report the results of 151 primary total hip arthroplasties performed using a single femoral stem over 1 year. Data was split into 2 groups: those in which the operating surgeon was familiar with this stem, and those who were not. Radiographic outcomes measured were leg length discrepancy, cement mantle grade, and femoral stem alignment. We also report on clinical outcomes, complications, and overall construct survivability. Mean follow up was 12 months. Results: Femoral stem survivorship was 100%, with no dislocations or revisions recorded. No significant differences in clinical outcomes were observed. Cement grading showed a learning curve, however results were similar between groups. Leg length inequality was significantly greater in those previously using the stem (+1.57mm vs 3.83mm), however this was not clinically significant. Alignment was similar between the groups. Conclusion: Our findings suggest that radiographic and clinical outcomes are similar at 12 months even with no prior experience using this stem. Learning curves were observed although outcomes appear within safe ranges from the first few procedures.

Abstract no.: 43457

THE C-STEM AMT FEMORAL COMPONENT: EARLY EXPERIENCES AND A REVIEW OF RADIOLOGICAL OUTCOMES

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Background: The C-Stem AMT triple taper femoral component is a modification of the original DePuy C-Stem which has an established clinical record. Whilst maintaining the same intramedullary design, the extramedullary characteristics have been altered to ease insertion and allow for more controlled insertion and optimize use with advanced bearings. No study to date has looked at radiological outcomes in depth, and we report our early clinical experiences at 2 years. Methods: We report the results of 220 primary total hip arthroplasties using the C-Stem AMT between June 2013 to May 2015. Radiographic outcomes measured were leg length discrepancy, cement mantle grading, and femoral stem alignment. We also report clinical outcomes, complications and overall patient and construct survivability. Results: Femoral stem survivorship was 100% with no revisions or dislocations observed. Mean leg length discrepancy was +3.1mm (range -10.2 - 14.3). 16 stems (7.3%) were inserted in excessive varus/valgus alignment. Cement mantle quality was assessed using the Barrack grading system. Grade A was reported in 48%, B in 41%, C in 10%, and D in 1%. Conclusions: Our findings suggest that the early clinical outcomes of this stem are promising, and that it can be reliably inserted in an acceptable radiographic position. Rather than relying on the proven outcomes of the original C-stem, best practice would be to follow the progress of this new design. Further, long term follow up studies are required

Abstract no.: 43458

FPL TENDON RUPTURE FOLLOWING K WIRE FIXATION OF DISTAL RADIUS FRACTURE

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Intro: A 31 year old male was treated for communitied fracture of distal radius fracture with 1.6 K wires times two which were removed at 6 weeks followed by physiotherapy. During mobilisation it was found that he had inability too flex the thumb. He had some bruising and stiffness on the wrist then. A decision was taken to explore the wrist with suspicion of FPL rupture. which was found to be retracted by 3 cm intra operatively. Due to significant retraction of proximal end a decision was taken to tenodese the dital end to FDP of the index finger. Also the Palmaris longus tendon was damaged and hence not suitable for a graft. Discussion: K wire fixation is a widely used procedure for distal radius fracture fixation however proper attention must be given to the length of insertion to avoid iatrogenic damage. Also pt be clinically examined during follow up exam to test function of tendons. The above case presents an unusual complication of fracture fixation.

Abstract no.: 43459

THROMBIN IN PSEUDO ANEURYSM OF POPLITEAL ARTERY POST TKR

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Case report: Pseudo Aneurysm of popliteal artery after TKR is a rare occurrence. To our knowledge only few cases have been reported in English literature. Pseudo aneurysm of popliteal artery can cause significant damage when it happens. Variable presentations of the condition can be seen as follows - painful knee, haemarthrosis, swelling, stiffness, distal neuro vascular compromise. Treatment: Surgical management include operative intervention with vascular graft/ excision/ repair. We present a 64 year old gentleman with recurrent haemarthrosis of knee one month after TKR and a persistently low Hb count. Duplex ultrasound exam confirmed the clinical suspicion. An angiography was performed which further confirmed but a balloon occlusion proved to be technically difficult further to which thrombin instillation under angiographic control successfully occluded the pseudo aneurysm. Discussion: We hereby present an innovative method of use of thrombin to occlude a popliteal aneurysm with surgical intervention or surgical damage. This is a controlled and precision technique to manage an complication like this.

Abstract no.: 43461

TITLE: TRANS-SACRAL INTERBODY FIXATION VS. TRANSFORAMINAL LUMBAR INTERBODY FUSION AT THE LUMBOSACRAL JUNCTION FOR LONG FUSIONS TO THE SACROPELVIS IN PRIMARY ADULT SCOLIOSIS

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Introduction: Fusion across the lumbosacral junction poses challenges. No data exists in the literature comparing radiographic or clinical outcomes between the surgical techniques of TSFR & TLIF in conjunction with iliac fixation. Methods: 36 consecutive pts at a single institution with primary adult spinal deformity undergoing long fusions to the lumbosacral junction with 2 different interbody fusion at L5/S1 level were reviewed. Pts were subdivided by approach (TSFR v TLIF). Fusion status at L5-S1 was evaluated by multiple X-rays and/or CT scans. Scoliotic curve changes were also evaluated preoperatively and at final f/u. Clinical outcome were assessed by SRS-22 and ODI. Results: There were 18 TSFR and 18 TLIF. Mean 14.00 levels were fused in the TSFR group and 10.94 in the TLIF group ($P= 0.01$). Both groups demonstrated significant postoperative radiographic improvement in coronal parameters. The fusion rates for TSFR was 100% vs TLIF 88.9% ($P<0.05$). 8 pts in the TSFR group had pelvic fixation with unilateral or bilateral iliac screws vs 15 pts in the TLIF group. ($P=0.015$). HRQOL outcomes were similar for both groups. Conclusion: TSFR and TLIF at L5-S1 for long fusion to the sacrum/Pelvis for adult primary lumbar scoliosis provides similar deformity correction and clinical outcomes. TSFR required fewer iliac screws to augment stability of the lumbosacral junction while achieving a higher rate of fusion.

Abstract no.: 43462

EVALUATION OF RESULTS OF TIGHTROPE RT IN ACL RECONSTRUCTION

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Introduction: Adjustable cortical suspensory devices like Tightrope RT (Arthrex Naples, FL)(TR) have gained popularity of late for femoral fixation in Anterior cruciate ligament (ACL) reconstruction. We conducted this study to determine long term clinical results of ACL reconstruction using TR. Methods: This was a retrospective study on 108 cases of single bundle ACL reconstruction using TR for femoral fixation. Autologus hamstring graft was used in all the cases. Tibial fixation was done with appropriate size biointerference screw (Arthrex, Naples, FL). Patients were evaluated using KT-1000 arthrometer, Lysholm score and International Knee documentation Committee (IKDC) Score with minimum follow-up of 12 months. Results: There were 74 males and 34 females with an average age of 29+-5.6 years. Average duration between injury and surgery was 9+-6.2 months. At 12 months, KT 1000 showed improvement from 6.7+-1.2 to 2.1+-1.8, lysholm score improved from 56+-10.8 to 85+-6.4, according to IKDC score 91% patients had satisfactory result (category A&B). In 1 case there was jamming of TR button on outer cortex for which hybrid fixation with a biointerference screw was done and in one case the button was fipped outside the iliotibial band. Conclusion: Tightrope RT gives satisfactory results for femoral fixation in cases of ACL reconstruction on a medium term follow-up.

Abstract no.: 43463

PROPHYLACTIC REINFORCEMENT OF CONTRALATERAL HIP FRACTURE: PRELIMINAR CLINICAL RESULTS OF A NEW INTERNAL FIXATION DEVICE

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Introduction: A prevention dedicated osteosynthesis device (PDOI) has been developed to reinforce the contralateral proximal femur on patients with a high risk of fragility hip fracture. A multicenter pilot study was initiated to evaluate the safety and effectiveness of this device. Methods: This study is an on-going prospective series of 15 PDOI. To date, 5 patients were implanted. Patients were recruited when arriving to the emergency room following a low-energy trauma leading to a pertrochanteric hip fracture. PDOI was implanted into the contralateral hip during the same surgery as the fractured hip fixation. Clinical evaluation includes OHS and WOMAC scores, plantar pressure measurements and imagery. Five years follow-up is planned. Results: Mean age and BMI of patients were 83 ± 1.7 years and 27 ± 8 kg/m² respectively. Mean duration of implantation was 54 ± 17 minutes for PDOI implantation and 49 ± 24 for hip fracture fixation in the opposite side. Mean cement quantity was 7cc (6-10) for PDOI. At 3 weeks and 3, 6 and 12 months, comparison between the two legs' plantar pressures revealed no differences. At 3 months, Womac scores for pain and functionality were 8 and 28 respectively, and 2 and 10 at 12 months. OHS score was 41 at 12 months. No osteolysis or implant loosening was observed at the different follow-ups. Mean follow-up is 14 ± 11 months, with one patient at 3 years follow-up. Conclusion: Results of this prospective study demonstrated the feasibility and safety of the implantation of this new PDOI. Further data are required to confirm this preliminary experience.

Abstract no.: 43464

TRAMPOLINE PARK INJURIES AND THEIR IMPACT ON LOCAL ORTHOPAEDIC AND EMERGENCY SERVICES

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Background: Trampoline-related injuries are well documented in the domestic environment, but to date no study has investigated injuries at commercial trampoline parks. A 16-month retrospective study was undertaken to investigate incidence and pattern of injuries at a local trampoline park and quantify the burden on orthopaedic and emergency services at the nearest hospital. **Methods:** All patients presenting to the Emergency Department (ED) from the trampoline park via ambulance from July 2014 to November 2015 were included. Patients' medical records were reviewed for clinical details including date, location and type of injury, treatment received, length of stay and outpatient follow-up. A cost analysis was performed to estimate financial impact of each injury. **Results:** A total of 71 patients were included in the study, with a mean age of 20. Fractures were diagnosed in 25 patients (35%), with the majority occurring in the lower limb. Fourteen patients (20%) underwent surgery, predominantly requiring open reduction and internal fixation. Two patients' injuries necessitated transfer to a level one trauma centre. Overall, 18 patients (25%) required admission to hospital with a mean length of stay of 1.75 days. The cost for emergency, in-patient and outpatient care totalled over £75,000. **Conclusions:** This study demonstrates, for the first time, the significant injury morbidity associated with trampoline parks. Emergency presentations from the park exceeded one patient per week, with a quarter of those injuries requiring admission and one fifth needing surgery. Contrary to studies evaluating domestic trampoline injuries, the majority of fractures occurred in the lower limbs.

Abstract no.: 43469

THE USE OF ARM SPAN AS A SUBSTITUTE FOR HEIGHT IN CALCULATING BMI FOR SPINE DEFORMITY PATIENTS.

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Introduction:Body Mass Index (BMI) value is based on weight to height ratio. In patients with spine deformities height does not reflect the true body size and the Arm span will provide better BMI values in nutritional assessment.**Methods:** 93 spine deformitypts (Grp1)were matched with 64 normal children (Grp2).BMIs using arm span and height were calculated, and statistical analysis was done to assess the relationship between BMI /height and BMI /arm span in both groups. Arm Span to Height difference (Delta AH) was calculated.**Results:**The avg age was 15.4yrs(grp 1)vs 14.8yrs(grp 2).A logistic regression showedthere was linearity in BMI scores ($R^2=0.97$ for group 2.For grp 1 there was a significant difference in the BMI valueswhen comparing BMI/armspan vsBMI/height ($p<0.0001$).Further analysis showed that the value at which BMI score must be calculated using arm span as opposed to the height was $\Delta AH>3\text{cm}$.**Conclusions:**For spine deformity patients $\Delta AH>3\text{cm}$ can have a significantnegative effect on the BMI calculation and the arm should be used as substitute to height in BMI calculation.

Abstract no.: 43470

STUDY OF 100 CASES OF LYTIC LESION UPPER FEMUR

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Upper femur is common site for different pathology. This is study of 100 neoplastic looking lesions. Simple and Aneurysmal bone cyst in children and adolescence. Primary malignancy in children and GCT in 3rd&4th decade. After 50 Years metastasis of known or unknown primary and Multiple Myeloma. But all lesions not metastasis. Malignant can be primary, isolated secondary and all change treatment. Any lesion can mimic tuberculosis and vice versa. In this study of 100 cases 45 were of metastasis, 15 tuberculosis, 12 cases of M.M., 7 aFIBROUS DYSPLASIA and 3 cases of Osteomalacea and brown tumour. Mostly could be diagnosed. Isolated & few multiple metastasis needed detailed investigations to reach diagnosis because patient with metastasis can be made comfortable and useful and in isolated secondary and primary curative line planned and if infective and metabolic disorder needed its own treatment. Small benign under observation only. Big benign needed steroids, chemicals, curettage bone grafting locally for strength and to avoid reoccurrence. Primary and isolated secondary radical resection with reconstruction. In metastasis, M.M., CCT, R/T ETC along with mechanical strength treatment. At time patient presented with pathological fracture with no malignancy history and treated simple fracture inviting grave complications. In few even repeated biopsy could not decide and therapeutic trial of ATT given. Few responded, few remained undecided to become clear when lesion appeared at other site & treated accordingly.

Abstract no.: 43473

EFFECT OF CONCOMITANT MENISECTOMY ON RECOVERY OF MUSCLE STRENGTH AFTER ARTHROSCOPICALLY ASSISTED ACL RECONSTRUCTION

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Purpose The purpose of this study was to determine the effect of concomitant meniscal surgery on the recovery of quadriceps strength following anterior cruciate ligament (ACL) reconstruction. **Methods** Thirty eight individuals that were cleared for participation following ACL reconstruction were invited to participate in this study. Participants were placed into groups according to surgical reports (ACL-only, n = 28; meniscectomy, n = 10). Quadriceps strength was quantified using isometric measures. Isometric strength was collected at 60 and 90° of knee flexion. One-way ANOVAs were utilized to detect whether differences existed in quadriceps strength between groups. **Results** Measurement of strength of quadriceps at 60 and 90 degrees of knee flexion showed that following surgery, the increment in the muscle strength was slightly more in the ACL group compared to the ACL+ Meniscus group as evaluated by comparing means. However, this difference in between the two groups was not statistically significant. **Conclusion** Concomitant meniscus surgery did not affect the recovery of quadriceps strength when individuals return to sport following ACL reconstruction. Though not much differences in quadriceps function were detected, all participants demonstrated decreased levels of quadriceps strength compared to healthy individuals at a time when they were returned to sport.

Abstract no.: 43474

ASSESSMENT OF DYNAMIC PROPRIOCEPTION USING STAR EXCURSION BALANCE TEST AFTER SINGLE-BUNDLE AND DOUBLE-BUNDLE ACL RECONSTRUCTION

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Purpose. The study was done to determine the influences of single-bundle (SB) and double-bundle (DB) reconstructions on balance ability and proprioceptive function. **Methods.** 42 patients who underwent a single or double-bundle ACL reconstruction using autologous hamstring tendons were included in this study with a 1-year follow-up. Excursion distances in eight different directions using Star excursion balance test were measured to indicate balance ability and dynamic proprioceptive function. **Results:** At 6 and 12 months after surgery, DB reconstruction resulted in better balance and proprioceptive function than SB reconstruction ($p < 0.05$). **Conclusions.** Our findings consider that proprioceptive function, and balance ability were superior with DB reconstructions compared to SB reconstruction at 6 and 12 months after surgery.

Abstract no.: 43475

ASSESSMENT OF PROPRIOCEPTION AND POSTURAL CONTROL DEFICITS IN PARTIAL MENISCECTOMIZED KNEES USING STAR EXCURSION BALANCE TEST.

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Background. The partial meniscectomy leads to proprioceptive knee deficits in a short period after the arthroscopic procedure; however, to our knowledge, a limited number of studies have investigated the longterm outcomes of partial meniscectomy on the knee joint proprioception. Aim. The aim of the present study was to assess the dynamic proprioception of the partial meniscectomized knee through star excursion balance test 6 months and 1 year after arthroscopic surgery. This was an observational study. Setting. Partially meniscectomized persons after 6 months. Population:Forty four patients who had an arthroscopic partial meniscectomy in the last 6 months Methods. All patients performed balance test using star excursion balance tests and excursion distance in eight different directions were measured. Results: Our study showed majority of the patients had difficulty in performing SEBT in posterior, posteromedial and medial directions in the injured leg and excursion distances in these directions were less compared to normal leg. However it was found to be statistically significant only for posteromedial ($p=0.018$) and medial directions.($p<0.001$) Conclusion: Proprioception and postural control deficits significantly affect objective knee function, indicating the importance not only of the restoring muscle function but also of the proprioception ability in partial meniscectomy patients.

Abstract no.: 43476

**TRANSLATION, ADAPTATION AND VALIDATION OF THE AMHARIC
VERSION OF THE SCOLIOSIS RESEARCH SOCIETY – 22 (SRS-22)**

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Introduction: The SRS-22 is widely used for assessing health related quality of life (HRQoL) in spine deformity pts and has undergone a process of trans-cultural adaptations and translation into Spanish, Dutch, Japanese, Turkish and Chinese. Ethiopia has a high number of non-English speaking pts. Assessing the SRS-Amharic validity makes the tool a reliable instrument in assessing the HRQoL of non-English speaking patients from Ethiopia in the population.
Methods: 84 pts with AIS were consecutively recruited. 74 of the first-time responders returned to the clinic to fill out the second responses within a 7 to 14 day interval. Measures of reliability such as internal consistency and reproducibility were determined by Cronbach's alpha coefficient and intra-class correlation respectively.
Results: The study grp had 42 females and 32 males with an avg age of 17yrs (10 -27yrs). The study showed satisfactory internal consistency. Cronbach's alpha coefficient for the 4 major domains, pain (0.75), function (0.74), self-image (0.75) and mental health (0.85), were high. Intra-class correlation was excellent for all domains and comparable to the original version. There were no floor or ceiling effects in patient responses.
Conclusion: The Amharic version of the SRS-22 outcome instrument has good reproducibility and may be useful for HRQoL evaluation of Ethiopian spine deformity patients for whom Amharic is the only language spoken.

Abstract no.: 43477

CHARACTERIZATION OF COMPLEX VERTEBRAL TRANSPOSITION (GAMMA DEFORMITY) AND EARLY RESULTS OF HALO-GRAVITY TRACTION AND VERTEBRAL COLUMN RESECTION (VCR)

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Introduction: Gamma deformity (GD) > 180 deg is rarely reported. We describe the characteristics of the deformity and the use of HGT and VCR Methods: A consecutive series of pts with GD were prospectively enrolled at a single site in West Africa. The degree of Vertebral Transposition (VT) was added to 180 deg to assess curve magnitude. HGT at 50% of body weight was applied over several weeks followed by VCR. Demographics, operative data, radiographic parameters, and complications data were collected. Results: 13 pts underwent HGT for an avg of 110 days prior to definitive surgery. Etiologies were Cong-11pts and NF-2pts. Avg age: 17.8yrs 6 M/ 7F. Pre op neuro deficits was present in 3 pts. Pre op coronal VT avg 75% and was corrected in all cases post op. Sagittal def avg 211deg and improved to 53deg (74% corr) post op. There was a high neuromonitoring alerts and post op neuro deficits occurred in 5 pts (38.5%). One pt. remained paraplegic post op. There was one (7.6%) pop mortality. Conclusion: Complex vertebral transposition (Gamma Deformity) > 180 degrees can be effectively treated with HGT and 3CO. High IOM alert occurred in this case series with high neurologic complication.

Abstract no.: 43479

ARTHROPLASTY OF ANKLE AND TIBIAL DIAPHYSIS IN CASES OF TUMORS

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Introduction: Tumors of the diaphysis and distal tibia account for 2% of all bone tumors. With the development of chemotherapy, improvement of surgical techniques, the emergence of new designs of implants, the individual arthroplasty is applied nowadays to replace bone defects after removal of the tumor. Objective: To show the possibility of the ankle and tibial diaphysis arthroplasty in cases of tumors. Methods: From 2009 to 2015, in cases of tumors of the tibia, an arthroplasty of the ankle was carried out for 11 patients, the diaphysis - 2 patients. Women amounted 7, men - 6, the average age of the patients was 43,4 years. Giant cell tumor of bone occurred in 5 patients, osteosarcoma - 5, chondrosarcoma - 2, angiosarcoma of bone - 1. Patients with osteosarcoma and bone angiosarcoma underwent courses of chemotherapy. During arthroplasty were used individual oncological implants "Inmed" (Ukraine). Results: The observation period after replacement ranged from 3 to 72 months. Postoperative complications were not observed. 2 patients had tumor recurrence and underwent limb amputation. Functional outcome of the ankle was assessed by MSTs system and averaged 74%. Overall disease-free survival of patients amounted 75,2±0,5%. Conclusions: In order to achieve good clinical and functional results in patients with tumors of the diaphysis and distal tibia, clear indications for joint replacement, careful selection of patients must be observed, taking into account the effect of preoperative treatment.

Abstract no.: 43481

HIP AT RISK. PERCUTANEOUS OSTEOTOMY OF THE FEMORAL NECK.

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Material and methods: Fifteen patients (23 hips) with severe cerebral palsy were treated with percutaneous varus and derotational osteotomy of the femoral neck between 2005 to 2010. Eight bilateral and seven unilateral, all of them with hip at risk (MP > 40%) (5 girls, 10 boys) but with a normal acetabular angle. The average age at surgery was 13 years, the oldest 16 years and the youngest 9 years with an average follow-up of 8.5 years. We evaluated pre and postoperative migration index of Reimers, and ROM (range of motion). We also evaluated time of hospitalization, osteotomy healing time, and pain. Technique: The bony surgery was performed by placing two Schanz screw in the femoral neck and then two more were placed distally, with the angulation between the proximal and the distal screws having the same angulation as the desired degree of derotation. Then we performed the osteotomy by a small incision, guided by fluoroscopy, at the level of the lesser trochanter correcting both anteversion and coxa valga. Results: Reimers Index pre 55% post 15%. Average ROM abduction pre: 25° - post: 47°. No use of opioids for postoperative pain care. Complications: four recurrent subluxation. No fractures, no deep infections, no pseudoarthrosis, no scars, no deaths. Less time of hospitalization. Faster bone healing. Ambulatory surgery for removing the fixator.

Abstract no.: 43482

A MINIMALLY INVASIVE APPROACH TO SCAPHOID NONUNION

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Introduction: Scaphoid nonunion is a challenging situation since several problems involved such as perfusion and stability of the scaphoid may arise. The purpose of this paper is to describe a step-by-step surgical procedure and its results by using a minimally invasive approach assisted with the arthroscope, trying to improve the environment and the mechanics of the scaphoid. Methods: 8 patients with scaphoid nonunion were evaluated between 2013 and 2015. All the subjects had suffered a traumatic episode of the wrist between 7 and 12 months before the surgery. The inclusion criterion was scaphoid nonunion according to Slade classification between stage 1 and 4. All the patients were treated by arthroscopic debridement of the nonunion, percutaneous fixation of the scaphoid through the proximal pole with a headless screw and associated injuries were assessed and treated. Results: The healing process was achieved in 100 percent of the cases at 3 months with variable angulation within the scaphoid as well as the scapho lunate and radio lunate angles. The range of motion obtained was between good and excellent and the satisfaction according to the DASH was satisfactory. The radiologic healing pattern was different in most of the patients and it was related to Slade classification. Conclusion: Wrist arthroscopy is an invaluable method of assistance for the treatment of scaphoid nonunion and for the diagnosis of associated injuries, and we believe that its role improves the prognosis in this type of injury.

Abstract no.: 43486

FUNCTIONAL OUTCOMES AND HEALING RATES AFTER SINGLE VS DOUBLE ROW ROTATOR CUFF REPAIR: META-ANALYSIS STUDY

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Introduction: Controversy exists regarding the optimal technique for arthroscopic rotator cuff repair. The purpose of this meta-analysis of level I randomized controlled trials that compared functional outcomes and healing rates of single-row vs. double-row rotator cuff repair techniques at a minimum 24m. Methods: A thorough online search of Pubmed, Medline, Cochrane, English articles. Only 5 studies with 375 patients were included (189SR/186DR). Functional outcomes included UCLA, ASES, Constant, and WORC scores. Healing rates were assessed radiographically using MRI, MRA, or US. Results: only UCLA score that showed statistically significant better clinical outcome of DR repairs ($p < 0.05$). The ASES, Constant, WORC scores showed no statistically significant difference. Radiologically, double-row fixation were associated with higher healing rates. Retears tend to occur with single row repair, but mainly of partial thickness type. Conclusions: No significant differences in functional outcomes between SR and DR repairs. Double-row fixation technique were associated with higher healing rates as assessed with US, MRI, or MRA. Single-row fixation technique were associated with higher retear rate, but of partial thickness type. Level of Evidence: Therapeutic Level I.

Abstract no.: 43487

TREATMENT OPTIONS IN DISTAL RADIUS GIANT CELL TUMOUR

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Introduction: Giant cell tumour (GCT) is a benign locally aggressive tumour. GCT commonly affects the femur and tibia, with lesions of the distal radius being the 3rd most common site. It accounts for 10-15% of all cases of all GCTs. Unfortunately treatment is potentially problematic, with recurrence rates at the distal radius being consistently higher than other sites. Objectives: In order to elucidate the best treatment option, we evaluate our result from one of the UK's major oncology centers. Results: A total of 43 patients were identified between 1988 and 2013. Mean age of 35.69 years (Range 14-79years). 3 Patients were Campanacci grade 1, 21 were Campanacci grade 2, 19 were Campanacci grade 3. Overall 20 patients were treated with simple curettage, 16 had curettage with cementation, 6 patients had excision of tumour with Fibula grafting and arthrodesis of the wrist, with no recurrence in this group, and 1 patient had endoprosthetic replacement. The overall recurrence rate was 28% with a mean time to recurrence of 33.16 months. The mean age for patients with local recurrence was 32.9months. The mean length of follow up was 77.37 months. Conclusion: Tumour excision has the best results with no recurrence in a total of 6 patients, all grade 3 tumors. This treatment options unfortunately comes with functional limitation after wrist fusion. Curettage with cementation has 25% recurrence rate as the second best option mainly in grade 2 tumours. More aggressive GCT should be treated more aggressively to avoid recurrence and further surgeries.

Abstract no.: 43489

DAIR (DEBRIDEMENT, ANTIBIOTICS, IRRIGATION, AND RETENTION OF THE PROSTHESIS) TREATMENT OF PERIPROSTHETIC JOINT INFECTION AFTER TOTAL HIP ARTHROPLASTY WITH ANTIBIOTIC-IMPREGNATED CALCIUM HYDROXYAPATITE

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Introduction: We have used the antibiotic-impregnated calcium hydroxyapatite (CHA) as a novel antibiotics delivery system for periprosthetic joint infection (PJI). The aim of this study is to evaluate the clinical results of DAIR treatment with the antibiotic-impregnated CHA for the treatment of PJI after total hip arthroplasty (THA). **Methods:** Nine patients (10 hips) treated with DAIR for PJI after THA were retrospectively evaluated. The study group consisted of 3 men and 6 women, with an average age of 63.7 (52-74) years. In 8 patients (9 hips), microorganisms were *Staphylococcus aureus* including MRSA (1 hip). In one patient, it was *E.coli*. All patients consisted of DAIR followed by exchange of liner and head with antibiotic-impregnated CHA in the surrounding bone. In one patient, because of cup loosening, cup revision was performed. The average duration of follow-up was 7.0 (1.0-15.1) years. **Results:** Three patients included in the study have died of other causes. Seven patients (8 hips) of 9 patients (10 hips) were successfully treated with no signs of infection or continued antibiotic treatment at the latest follow-up. In 2 of the 9 patients for whom treatment failed, infection was successfully treated with 2-stage reimplantation. Both patients had diabetes mellitus and had symptoms of infection over 3 weeks. Eighty percent of patients were successfully treated by DAIR with antibiotic-impregnated CHA. No complications with this antibiotic-impregnated CHA were observed. **Discussion and Conclusion:** This study suggests that a DAIR treatment with antibiotic-impregnated CHA produce a high rate of success PJI after THA.

Abstract no.: 43493

SONOGRAPHY OF CARPAL TUNNEL SYNDROME AFTER DISTAL RADIUS FRACTURE

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Introduction: Ultrasound is an effective tool to diagnose carpal tunnel syndrome (CTS), a common peripheral neuropathy. A greater cross-sectional area (CSA) of the median nerve at the carpal tunnel inlet (CSA-I) were seen in CTS wrist, and it has been proofed as the best diagnostic criterion. Most of studies discussed the diagnostic value in primary CTS. The aim of this study was to determine the difference of sonographic finding of median nerve between patients with primary CTS and secondary CTS caused by distal radius fracture (DRF). Method: We retrospectively collected data in a single medical center. 123 patients were enrolled and divided into 4 groups. Group I: healthy control group (n=50); Group II: patients diagnosed as primary CTS (n=43); Group III: patents had CTS after DRF (n=22). Group IV: patients had DRF history without CTS (n=8). The cross section areas (CSAs) of the median nerve were measured by ultrasound at four levels (distal radius site, inlet of carpal tunnel, middle of carpal tunnel, outlet of carpal tunnel). Result: Group II and Group III showed significantly larger CSA-I than healthy control group (0.101 cm²). Group III CSA-I (0.120 cm²) showed statistic significantly smaller than Group II (0.144 cm²) (p = 0.003). Conclusion: The ultrasound diagnostic cut point in DRF related CTS patients may be smaller than non-DRF groups. The clinicians who use ultrasound to diagnose CTS need to confirm the patients' trauma history carefully before diagnosis.

Abstract no.: 43494

LOCATION OF THE TIBIAL TUNNEL APERTURE AFFECTS EXTRUSION OF THE LATERAL MENISCUS FOLLOWING RECONSTRUCTION OF THE ANTERIOR CRUCIATE LIGAMENT

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Purpose: The anterior root of the lateral meniscus (LMAR) has an important role in stabilizing the lateral meniscus. This study evaluated the relationship between the position of the tibial tunnel and extrusion of the lateral meniscus (LME) after anterior cruciate ligament (ACL) reconstruction, where LME provides a proxy measure of LMAR injury. **Methods:** This retrospective case series analyzed the relationship between LME and tibial tunnel location using computed tomography (CT) and magnetic resonance (MR) images, of 26 ACL reconstructed knees from 25 patients (age, 17-31 years), with no evidence of meniscal injury during surgery. A measurement grid was used to localize the position of the tibial tunnel based on patient-referenced anatomical landmarks identified from a three-dimensional reconstruction of the tibial plateaus based on axial CT images. The reference point-to-tibial tunnel distance (RTD, mm) was defined as the distance from the midpoint of the lateral edge of the grid to the posterolateral aspect of the tunnel aperture. The optimal RTD cutoff to minimize post-operative LME was identified using receiver operating curve analysis (ROC). **Results:** LME was positively correlated to RTD ($r^2 = 0.64$; $P < 0.001$), with a RTD cut-off of 5 mm having a sensitivity to LME of 83% and specificity of 93%. The mean LME for a RTD >5 mm was 0.40 ± 0.43 mm, compared to 1.40 ± 0.51 mm for a RTD ≤ 5 mm ($P < 0.001$). **Conclusion:** A posterolateral location of the tibial tunnel aperture within the ACL tibial footprint decreases RTD and increases LME.

Abstract no.: 43496

RESPIRATORY DYSFUNCTION IN THE CERVICAL SPINAL CORD INJURY WITHOUT BONY INJURY

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Introduction: Respiratory dysfunction(RD) related to spinal cord injury without bony injury (SCIWOBI) is not well known. We evaluated the time course of RD and motor function in SCIWOBI, and indicate medical approach and proper care for this problem. Method: 54 patients (49 male, 5 female) with cervical SCIWOBI were subjected. Average age was 65 years old (39-85). ASIA motor score (MS: Upper and Lower extremities) and spirometry (%VC, FEV1.0%) were measured at the time of injury, 4 weeks, and 12 weeks after injury. Results: In 50 patients, restrictive pulmonary disorder was observed at injury. %VC (56.7) at injury was correlated with both of upper extremities MS (14.9) and lower extremities MS (22.4). The upper and lower extremities MS improved significantly in 4 weeks (upper:27.1, lower:32.6), and more significantly improved in 12 weeks (upper:31.3, lower:35.4). Similar to MS, %VC was significantly improved in 4 weeks (72.5) and was more significantly improved in 12 weeks (77.6). Improvement of %VC was not correlated with upper and lower extremities MS in 4 weeks, however, it showed a good correlation with lower extremities MS improvement from 4 to 12 weeks, but not upper extremities. Discussion: Improvement of the restrictive pulmonary dysfunction seems to be obtained due to recovery of abdominal and intercostal muscle, since improvement of %VC is correlated with recovery of lower extremities MS. The recovery is time dependently expected until 12 weeks after injury, so that continuous respiratory rehabilitation till 12 weeks, at least, is mandatory in SCIWOBI with RD.

Abstract no.: 43497

THREE DIMENSIONAL TEMPLATE IS BENEFICIAL FOR TOTAL HIP ARTHROPLASTY USING SHORT STEM TO TREAT DEVELOPMENTAL DYSPLASIA OF THE HIP

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[Introduction] Developmental dysplasia of the hip (DDH) has anatomical abnormality, such as leg length discrepancy, excessive femoral anteversion or proximal-distal mismatching. It is difficult to decide intramedullary fitting of short stem for DDH patients in total hip arthroplasty (THA). [Purpose] The purpose is to evaluate clinical and radiographic performances of short stem for DDH patients in THA planned by three dimensional (3D) template. [Materials and Methods] One hundred hips who were underwent THA with short stem (MiniHip: Corin) were enrolled between 2013 and 2014. There were 84 females and 16 males. The average age at operation was 63 years. Primary diagnosis was DDH. The follow-up term was 24 months. Preoperative planning was performed by 3D template software (ZedHip: LEXI) using CT data. Intramedullary fitting and stem size were decided at the coronal, sagittal and transverse plane, adjusting leg length, offset and femoral anteversion. Clinical score and radiographic bone reactions were estimated. [Results] Preoperative and the last follow-up Harris hip score was respectively 39.6 and 88.5 points. Any radiolucent lines were not seen on the porous surface of stem. Spot welds were observed in 98 % on the porous surface. Stress shielding were judged as none in 23 % and the 1st degree in 77 %. Stem migration, early loosening and revision were not experienced in this series. [Discussions] Accurate 3D template was extensively useful to get appropriate intramedullary fitting, primary fixation, good bony ingrown fixation and reduction of stress shielding could be expected in short stem THA for DDH patients.

Abstract no.: 43499

PERCUTANEOUS PINNING USING AN ORIGINALLY DESIGNED REDUCTION FRAME FOR SUPRACONDYLAR HUMERAL FRACTURES IN CHILDREN. A FOLLOW-UP OF 415 CASES FOR 40 YEARS.

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Introduction:For the treatment of displaced supracondylar humeral fractures in children, we have performed closed reduction using an originally designed reduction frame and lateral percutaneous pinning since 1974. This study aimed to review a large series of children treated in our institution over 40 years and to evaluate the functional/clinical outcomes and the rate of cubitus varus deformity and other complications. **Patients and Methods:**Four hundred fifteen children with supracondylar humeral fractures (Abe-Smith type II ~ IV) were treated using percutaneous pinning from May 1974 to April 2014. Two hundred sixty-one of those patients, followed up more than one year after surgery, were evaluated using modified Flynn's criteria. **Results:**The average follow-up period was 29 (12~77) months. According to modified Flynn's criteria, excellent or good results were obtained functionally in two hundred fifty-one fractures (96%) and cosmetically in two hundred fifty-three fractures (97%). Forty-three fractures (16.5%) had preoperative nerve deficits, which recovered completely 4.1 (0~10) months after closed reduction and percutaneous pinning. There were no cases of iatrogenic ulnar nerve injury caused by percutaneous pinning. Although 24 elbow joints (9.2%) had a mild cubitus varus deformity, these patients were able to perform their daily life activities without any problems. **Conclusions:**Closed reduction in the prone position using the reduction frame and lateral percutaneous pinning is a safe and reliable method for treating supracondylar humeral fractures in children.

Abstract no.: 43502

**SURGICAL CORRECTION OF CALCANEVALGUS FOOT DEFORMITIES
UTILISING A RING FIXATOR: A CASE REPORT**

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Calcaneovalgus foot deformities are a recognised sequelae of spina bifida affecting the Lumbar 5 level and is a result of strong or spastic ankle dorsiflexors and evertors combined with weak or absent ankle plantarflexors and invertors. These patients are generally community ambulators. Patients with calcaneovalgus feet typically walk on their heels and this eventually results in heel ulceration which is not uncommonly complicated by osteomyelitis. The aim of surgical intervention is to achieve a plantigrade foot to offload abnormal pressures on the calcaneum. Current surgical treatments include complete anterolateral compartment release of the extensors and peroneals. Another technique involves transfer of anterior tibialis tendon to the calcaneus. This case report describes a novel surgical alternative not previously described, utilising a ring fixator to gradually lengthen the contracted soft tissues to achieve a neutral, plantigrade foot with successful results. This technique was chosen in this patient's case in regards to her poor skin condition over the intended surgical site. In conclusion, application of a ring fixator to surgically correct calcaneovalgus foot deformities is a viable option and confers several benefits including soft tissue preservation.

Abstract no.: 43503

MANAGEMENT OF IDIOPATHIC CTEV BY ACCELERATED VERSUS STANDARD PONSETI PLASTER TECHINQUE-A PROSPECTIVE STUDY

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INTRODUCTION:Standard Ponseti method of correction is a well accepted method for correction of CTEV. Recently an accelerated Ponseti method for correction of CTEV with advantage of achieving correction early,has emerged. In this study we compared the standard Ponseti technique with accelerated Ponseti technique. **MATERIALS AND METHOD:**40 feet with Idiopathic CTEV have been enrolled in the study and randomly allotted to standard Ponseti and accelerated Ponseti group, with 20 feet in each group. The clinical severity was calculated using Pirani score. In standard group patients received weekly plasters whereas in accelerated Ponseti group patients received plasters every 3rd day. Patients were followed up for 6 months after correction of deformity. The results of each method was analysed. **RESULTS:**All the feet had good correction of deformity. Average number of plasters required were 8 in accelerated group whereas it was 7 in standard group. Achilles tendon tenotomy was done in 30 feet. Initially the mean pirani scores was 5.2 and 5.4 in accelerated and standard group respectively. The score after correction was 0.6 and 0.8 in accelerated group and standard group respectively. Average number of days needed for correction was 24 and 49 in accelerated and standard groups respectively. **CONCLUSION:** Comparable outcome can be achieved with an accelerated Ponseti method, with an advantage to complete all necessary manipulations within a 4-5 weeks period facilitates treatment, where patients have to travel long distances and thus avoiding drop-outs.

Abstract no.: 43505

PARTIAL PEDICULECTOMY FOR LUMBAR FORAMINAL STENOSIS FOLLOWING OSTEOPOROTIC VERTEBRAL FRACTURE

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An 80-year-old woman presented with left anterior thigh pain as a chief complaint and was referred to our hospital after 4 months from the initial onset. She could not walk and was almost bed-ridden because of left anterior thigh pain. She did not have the complaint of low back pain. Plain radiographs showed L2 vertebral body fracture. Magnetic resonance imaging and computed tomography showed left L1/2 foraminal stenosis. Left L1 nerve root block was temporarily effective. Therefore we diagnosed radiculopathy of left L1 due to foraminal stenosis. We performed partial pediculectomy because her body mass index was 11.5 and we considered the use of instrumentation was at great risk of skin trouble and failure. Under fluoroscopic guidance, a 4-cm skin incision was centered at the intervertebral foramen to be decompressed. The inferior cancellous bone of the pedicle was subsequently resected, leaving the inferior rim of the pedicle. The inferior cortical wall was then thinned from the cancellous side of the pedicle, and the thinned pedicle rim was removed. After partial removal of the pedicle, the nerve root moved upward into the space previously occupied by the pedicle. One year after the surgery, she could walk without assistance. VAS score reduced from 90 to 30 one year after the surgery. There are only a few reports describing radiculopathy following osteoporotic vertebral fracture (OVF) and this is the first report of partial pediculectomy for foraminal stenosis following OVF. In conclusion, partial pediculectomy might be an option for foraminal stenosis following OVF.

Abstract no.: 43515

COMPARISON OF TREATMENT RESULTS OF SYNDROMIC CLUBFEET WITH IDIOPATHIC CLUBFEET BY THE PONSETI METHOD

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INTRODUCTION: The purpose of this study was to evaluate results of Ponseti method in non-idiopathic clubfeet and compare with idiopathic clubfeet. **Methods:** From a dedicated Clubfoot Clinic database of 298 patients treated by Ponseti casting from August 2011 – July 2013, results of 42 non-idiopathic clubfeet (29 patients) were evaluated and compared to 150 idiopathic clubfeet (100 patients) for age at presentation, initial Pirani score, total number of casts, need for tenotomy, rate of relapse and brace compliance. **RESULTS:** Mean follow up was 14.5 months (6 – 23 months). In group A (syndromic) mean age of presentation was 7.79 months, mean initial Pirani score was 5 and mean casts required was 5.52. Tenotomy was required in 97.6%, relapse rate was 16.7% and brace compliance was 83.3%. There was no statistical significance between age of presentation and number of casts ($p=0.8$), initial severity and number of casts ($p = 0.23$) and initial severity and relapse ($p = 0.185$); however there was statistically significant correlation between compliance and rate of relapse ($p = 0.0001$). 4 patients (16.7%) who relapsed underwent re-tenotomy. Compared to idiopathic group, relapse rate was significantly higher in non-idiopathic ($p=0.024$) and non compliance was also higher (0.024). **CONCLUSION:** Contrary to common perception, Ponseti method gives excellent results in syndromic clubfeet with success rate of 83.7%. They respond to manipulation and serial casting and a higher rate of relapse correlates with non compliance of the brace protocol.

Abstract no.: 43516

**CONSERVATIVE TREATMENT OF ACUTE ANTERIOR CRUCIATE
LIGAMENT INJURY**

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Purpose ;Conservative treatment in patients with acute ACL injury was to evaluate the clinical results. **Materials and methods** ; Between January 2010 and May 2013, 46 patients diagnosed as having partial or complete ruptures of the ACL on MRI were treated non-operative methods. In this study, 37 male and 9 female patients with a mean age of 37 years were enrolled. Among them two patients were excluded due to operation during follow-up. There were 16 partial and 30 complete ruptures. They were managed conservatively by long leg cast 6 weeks, after removal of cast Quadriceps and Hamstring of isotonic exercises were performed. In all patients, knee instability using the Telos device was evaluated. And Tegner activity score, International Knee Documentation Committee (IKDC) score, range of motion, and were evaluated using body mass index (BMI) also investigated the relationship between. **Results** ; At final follow-up using the Telos device with varus and valgus stress and anterior and posterior stress test performed by knee instability showed significant positive correlation IKDC score and Tegenr activity score ($p<0.05$), but no significant correlation with BMI. In all cases, IKDC score B (nearly normal) or more was recovered. Tegner activity score and IKDC score showed a significant positive correlation ($p<0.01$) **Conclusion** ;Our study suggests that acute ACL injury diagnosed by MRI can be treated conservatively with favorable results. However, careful analysis based on concomitant injury and follow-up MRI is necessary.

Abstract no.: 43517

CONTRIBUTING FACTORS FOR PAIN IN DEGENERATIVE ARTHRITIS PATIENTS UNDERGONE TOTAL KNEE REPLACEMENT ARTHROPLASTY

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PURPOSE : It is examined the cause associated with pain during total knee replacement arthroplasties for the osteoarthritic knees. **MATERIAL and METHODS:** There are 226 knees of 161 enrolled patients who had undergone total knee replacement arthroplasties from september 2008 to may 2013. The severity of pain(VAS score) is measured in all patients. It is performed statistical correlation analysis between the assumed causes of pain; age, gender, physical examination (Medial joint line tenderness), grade of osteoarthritis (Kellgren-Lawrence grading scale), BMI, varus deformity, mechanical axis deviation, root tear and severity of symptoms (VAS score). **RESULTS:** VAS score(severity of pain) measures 6.31 on the average. VAS score had correlation with the severity of osteoarthritis(Kellgren-Lawrence grading scale)($P<0.05$), medial joint line tenderness($P<0.05$), but other underlying factors didn't show significant correlation. **CONCLUSION:** In patients undergone total knee replacement arthroplasties for the osteoarthritic knees, severity of pain corroborated by associations with severity of osteoarthritis(Kellgren-Lawrence grading scale) and medial joint line tenderness.

Abstract no.: 43518

MECHANISM IN FORMATION OF SUBCHONDRAL CYST

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Introduction: We understand the mechanism of osteoarthritic change in dysplastic hip as weight bearing on narrow section of acetabulum. But, we found that subchondral cysts are around fovea capitis. The aim of this study was to identify the mechanism of subchondral cysts at medial femoral head. Method: We retrospectively analysed the presence of medial femoral subchondral cyst from total 257 cases, 135 patients had operated with periacetabular osteotomy or total hip arthroplasty. All patients had X-ray and CT preoperatively and MRA was performed preoperatively from 123 cases. we checked the bony spur on CT. The extent of damage on ligamentum teres was evaluated on MRA. Result: As results that examine CT, subchondral cyst around fovea capitis was founded on 100 in 257 cases. We found bony spur around fovea capitis which was get over a half of fovea depth in 152 cases. ligamentum teres was confirmed partial or complete tear in 82 cases on MRA. In comparison with cases without cyst, 89 cases(89%) had mild osteoarthritis(Tönnis grade 0or I), out of 100 cases with medial femoral cyst and 100 cases(63%) had mild osteoarthritis out of control group. (P=0.000), There was also significant difference in incidence of bony spur around fovea capitis(P=0.000) and rupture of ligamentum teres(P=0.000). Conclusion: The formation of subchondral cyst at medial femoral head in dysplastic hip has something to do with damage of ligamentum teres. The mechanism of medial femoral cyst formation appears to be correlated with hip joint instability, as well as the compression pressure on joint.

Abstract no.: 43521

PROXIMAL FEMORAL NAIL ANTI-ROTATION (PFNA) AND HEMI-ARTHROPLASTY IN THE TREATMENT OF ELDERLY INTERTROCHANTERIC FRACTURES

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Objective: To determine reasonable treatment of intertrochanteric fractures with proximal femoral nail anti-rotation (PFNA) or hemi-arthroplasty (HA) in elderly patients. **Methods:** Between January 2009 and June 2014, a total of 467 patients were admitted to the Orthopedics Department of The Second Affiliated Hospital of Soochow University. Patient data were retrospectively analyzed and included 210 males and 257 females. The ages of the patients were between 60 and 97 years and the average age was 72 +/- 3.9 years. According to the Evans-Jensen classification scheme, the fracture types were type IA (n=28), type IB (n=41), type II (n=174), and type III (n=24). A comparison between the two surgical methods (PFNA and HA) included the duration of surgery, intra-operative blood loss, post-operative weight-bearing time, implant complications, and the Harris hip score. **Results:** The data were analyzed after 14-50 months (average 24 months) of follow-up. The duration of surgery between the PFNA hemi-arthroplasty groups did differ (hemi-arthroplasty required less time), the intra-operative blood loss in the PFNA group was significantly less than the hemi-arthroplasty group, and the post-operative weight-bearing time was significantly shorter in the hemi-arthroplasty group than the PFNA group. **Conclusion:** For elderly patients with unstable fractures, severe osteoporosis, and pre-operative mobility, hemi-arthroplasty is preferred because hemi-arthroplasty has fewer disadvantages compared to PFNA, which is not suitable for full weight bearing and bone union. PFNA for the treatment of intertrochanteric fractures has been increasingly accepted and widely used; however the use of arthroplasty remains controversial.

Abstract no.: 43522

A SEVEN-YEAR STUDY RESULT OF PATELLOFEMORAL JOINT ARTHROPLASTY

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[Background] The results of a multi-surgeon, multi-implant series of patellofemoral joint arthroplasties performed over a six-year period are presented. [Method] All patellofemoral joint arthroplasties performed from 2008 to 2015 were retrospectively reviewed using case notes, radiographs and clinic appointments until their latest follow-up period. [Result] Twenty-one arthroplasties in 79 patients were followed up for an average period of 26.8 months (range 3-70 months). The average age was 53.8 years with female patients thrice as common as male patients. There was no severe complication. Knee function: straight 0 °, flexion average 120 ° (110 ~ 135 °); Feller patellar score was 25.4 points (22 to 28 points). [Conclusion] Arthroplasty is required when conservative treatment is not effective. Although total knee arthroplasty (TKA) on the tricompartment osteoarthritis has achieved good results, it is still controversial for unicompartment osteoarthritis. However, patellofemoral arthroplasty (PFA) causes less invasive and obtains good clinical efficacy. Because of its less osteotomy and preserving the tibiofemoral joint, PFA does not affect the future possible TKA. The close follow-up of these patients is needed to address any concerns that can be easily resolved.

Abstract no.: 43524

HINDFOOT STABILIZATION BY LOCKED INTRAMEDULLARY NAIL IN PATIENTS WITH ACUTE DIABETIC OSTEOARTHROPATHY

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Diabetic osteoarthropathy (DOAP) is one of the severe complications of diabetes mellitus. Hindfoot localization of DOAP involves the peritalar region with varus deformation of the foot, massive bone loss, instability and ulceration caused the major lower extremity amputation. Surgical stabilization of the hindfoot in the acute stage can prevent complications but rare in orthopedic practice. Hindfoot stabilization by retrograde locked intramedullary tibial nail (Chm, Poland) was done in 21 patients with acute DOAP (I–II stage by Eichenholz). There were 10 men and 11 women, age from 24 to 63 (average $46 \pm 12,6$ years). Surgical technique has been assumed the lateral malleolus resection, joint debridement and hindfoot fixation by nail in plantigrade foot position. The results have been assessed by AOFAS hindfoot scale in terms 12–48 months (average $18 \pm 8,2$ months). Postoperative wounds have been healed without major complications: in 18 patients primary, in 3 – secondary. Patients ambulated with crutches and orthosis 8–12 weeks without weightbearing. Then full weightbearing in rigid orthosis was started. Complete bony union has been come in one case, in others it was partial with plantigrade foot position. DOAP exacerbation has been showed in 6 cases with nail migration in four. The nail position has been corrected in two cases and transtibial amputation has been done in two. The dynamic of foot function was from $46 \pm 6,4$ to $78 \pm 5,3$ ($p=0,03$; two-sample t-test). Hindfoot stabilization in patients with acute DOAP using intramedullary locked nail promotes speed relief of arthropathy, good anatomic and functional results.

Abstract no.: 43526

SURGICAL OUTCOME IN PATIENT WITH METASTATIC SPINAL CORD COMPRESSION ORIGINATED FROM PROSTATE CANCER

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Study design: We conducted a semi-prospective study of 140 patients with metastatic spinal cord compression (MSCC) originated from prostate cancer. Summary of background data: Prostate cancer is the most popular primary tumor in male patients with spinal metastases. Aarhus Spinal Metastases Algorithm (ASMA) combines life expectancy (revised Tokuhashi scoring system) and the anatomical classification (Tomita anatomy classification) of patients with spinal metastases to inform surgical decision making to help surgeons choose the most appropriate surgical intervention. Object: to investigate the clinical outcome of surgical intervention based on Aarhus Spinal Metastases Algorithm for MSCC patient originated from prostate cancer. Methods: This study consisted of 140 patients with confirmed prostate cancer spinal metastases and MSCC from Dec. 1992 to June 2014. Surgical procedure was selected according to ASMA. Survival analysis, Kaplan-Meier curve and Log-Rank test were performed. Results: The median survival time of entire cohort was 6.1 months. The mean operation time was 155 minutes, and the mean blood loss was 1455 ml. Pre-operative MSCC was recorded in 125 patients (Frankel score <5). After surgical interventions, 58 patients remained the preoperative neurological status, 57 patients improved at least one point in Frankel score, and 10 patients had decreased the neurological function. Therefore, the neurological function has been maintained or improved in 92% of the 125 patients. Conclusion: Surgical intervention that performed according to ASMA recommendation could remain or regain neurological function in most of the patients with MSCC originated from prostate cancer.

Abstract no.: 43527

ILIOPSOAS BURSITIS IN PATIENTS WITH ACETABULAR DYSPLASIA

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According to the hip registry, acetabular dysplasia(AD) has accounted for 62% of the THA in Japan. Iliopsoas bursitis(IB) is a relatively rare condition that is associated with hip osteoarthritis. It causes not only coxalgia but neurological symptoms and swelling of the lower extremities. There are several case reports of IB, but not much about the prevalence of them. The purpose of this study is to evaluate the relationship between AD and IB. Between May 2010 and March 2015, we underwent 157 primary THA. 78 out of 157(49.6%) cases were diagnosed AD. The study included 73 female and 5 male patients, mean age was 68 years. AD is defined as CE angle is less than 20 degrees and IB is defined as a swelling of the iliopsoas bursa located superior to the femoral head, pubic symphysis, or lesser trochanter. We reviewed CT images of the hip and examined the location, size of IB, and relation to the symptom. IB was found in 7(8.9%) patients, consisting of all women and mean age of patients was 73 years. Six of the seven cases were bilateral AD and mean CE angle was 11 degrees. IB were located at femoral head in 2 cases, pubic symphysis in 4 cases and lesser trochanter in 1 case. All of IB were confirmed at operating side. It may be related to pathology of the advanced stage of osteoarthritis. The results of the present study revealed that iliopsoas bursitis is not a rare condition in patients with hip dysplasia.

Abstract no.: 43528

ASSESSMENT OF IN VITRO AND IN VIVO OSTEOGENIC POTENTIAL OF SUBCHONDRAL BONE MESENCHYMAL STROMAL CELLS FROM OSTEOARTHRITIC LESIONS

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Osteoarthritis is characterized by increased subchondral bone remodeling that results in formation of hypomineralized sclerotic bone tissue. Here, we investigated the osteogenic differentiation potential of mesenchymal stromal cells (MSC) from nonsclerotic and sclerotic bone tissues from patient with knee and hip osteoarthritis (n=9). MSC were obtained by collagenase digestion and their osteogenic differentiation potential was evaluated using colony forming unit (CFU) assays and histochemical staining for alkaline phosphatase (ALP) and matrix mineralization. The bone-forming capacity in vivo, using a MSC-scaffold subcutaneous implantation model, was evaluated using micro CT and histological analyses. MSC clonogenicity was equal between nonsclerotic (20.1±2.2%) and sclerotic tissues (17.04±3.5%). The osteogenic induction was highly efficient in knee joints (~91%) and significantly higher than in hip (~63%) joints. Surprisingly, mineralization capacity in vitro was blunted in all donors. CT analysis revealed de novo calcified tissues in MSC-containing scaffold pores at eight weeks after implantation. Tissue volumes were equal between nonsclerotic and sclerotic MSCs from three donors. BSP, a late osteogenic marker involved in bone matrix mineralization, was found strongly expressed at the scaffold-MSC interface. Notably, BSP area fraction was higher in nonsclerotic MSC (13.9±3.2) compared with sclerotic MSC (4.0±0.7, p=0.048). TRAP staining revealed no evidence of osteoclast-mediated bone remodeling at 8 weeks. Masson trichrome provided histological evidence of bone formation in all donors. Our findings suggest that MSCs derived from osteoarthritic subchondral tissues adopt an aberrant osteoblastic phenotype upon osteogenic induction. Hypomineralization, a major characteristic of subchondral bone sclerosis in osteoarthritis, appears stably molecularly imprinted in tissue-resident osteoprogenitors

Abstract no.: 43530

**RADIOLOGICAL EVALUATION OF THE ACL AND SEMITENDINOSUS ,
GRACILIS TENDON WITH CHILDREN AGE.**

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The aim was the retrospective assessment the ACL and semitendinosus(ST) and gracilis (G) tendon in correlation with the children's age. Materials and Methods: Knee MRI examinations from December 2012 to July 2014 were evaluated in 132 patients (83 female and 49 male patients). The mean age was 14,9 years old (8-18) . Patients were grouped according to their age and a gap of 1-year was maintained between each group. Each examination comprised sagittal and coronal T1 ,T2-weighted and merge MR imaging series and pictures adequately depicted the ACL. Statistical analysis was to determine correlation between age, G and ST tendon transversal surface , transversal surface of the ACL and tibio-ACL angle. Results; It was found, that (diameter) surface area of hamstring tendons (ST,G) is related to age . The highest tendon transversal surface growth of the ST and G take place for ST at age of 12 yo. , and for G at age 13 yo. The transversal surface growth of the ST and G after this age is completed. ACL is correlated with age and the transversal surface highest growth rate of the ACL and the tibio-ACL angle highest rate take place at age of 10 yo and the ACL 's growth lasts to the age of 18 yo. Conclusion ; The ST and G tendon can be used for future grafts for ACL reconstruction after the age of 12 yo .

Abstract no.: 43531

ANALYSIS OF EARLY NEUROVASCULAR COMPLICATIONS OF SUPRACONDYLAR HUMERUS FRACTURES IN CHILDREN

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The aim of our study is the analysis of early vascular and nerve complications of supracondylar humerus fractures in 220 children hospitalized in the Pediatric Trauma-Orthopedic Department, determine the types, duration of symptoms, as well as methods of early diagnosis and treatment. The study analyzed the cases of patients treated in the years 2004-2014 . The group consisted of 143 males and 77 females. Acute neurovascular complications occurred in 16.81 % of patients with displaced supracondylar fracture (37 children). Nerve damage was found in 10 % of patient with displaced fracture (22 children). The most injured nerve was median nerve, this complication occurred in 15 examined (68,18%). Duration of symptoms ranged average of 51 days (from 2 days to 5 months). Symptoms of vascular injury occurred in 7,7 % children with displaced fracture (17 children).1. The incidence of vascular and nerve complications positively correlates with the progression of fracture according to Gartland classification. 2. Fracture reduction is a priority procedure in displaced supracondylar fractures and only then further diagnostic steps and treatment of possible complications should be concerned. 3. The median nerve is injured most often.

Abstract no.: 43532

OCCIPITAL CONDYLE FRACTURES IN ADOLESCENTS

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Background. The aim of the present paper was to present cases of occipital condyle fractures treated at our Department, review the literature, and stress the importance of MRI studies in the diagnostic work-up of these injuries. Material and methods. Our retrospective study involved a group of 3 female patients (mean age was 16.3 years) with occipital condyle fractures diagnosed/treated. We assessed the cause and type of fracture, additional damage, available classification systems, treatment methods, outcomes and complications. Results. Mean follow-up period was 19 (10-25) months. We achieved good clinical outcomes (NDI scores) in all the patients. In one patient, a follow-up MRI scan revealed the presence of a clinically silent post-traumatic epidural meningeal cyst at the C2-C6 level, anterior to the spinal cord. Conclusions. 1. The choice of an appropriate treatment method is decisively based on the assessment of the morphology and stability of the fracture in a CT/MRI scan rather than on the fracture type alone. 2. There is no noticeable difference between the usefulness of the classification system developed by Anderson and Montesano and that according to Tuli et al. 3. The use of the halo-vest is a good method of treating unstable occipital condyle fractures. 4. Early diagnosis and appropriate treatment of cranio-cervical junction fractures make it possible for the fracture to heal without severe clinical sequelae

Abstract no.: 43534

**SAFETY OF SIMULTANEOUS BILATERAL TOTAL KNEE REPLACEMENT
IN PATIENTS OVER 75 YEARS**

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Safety of simultaneous (one stage) bilateral total knee replacement (TKRs) remains controversial and highly debatable, more so in the elderly population. We studied 36 patients, above the age of 75 years, who underwent conventional simultaneous bilateral TKRs by a single surgeon. The surgery was followed by a carefully planned evidence based and, regularly reviewed post-operative protocol. There were no incidences of any adverse effects in this series. We conclude that, even in the elderly, simultaneous bilateral TKRs are safe and very effective, provided attention to details of rehabilitation and overall multidisciplinary medical care is exercised. Key words: simultaneous bilateral knee replacement; age over 75 years; care pathway; rehabilitation; complications; post operative protocol

Abstract no.: 43536

RADIOGRAPHIC EVALUATION OF PATIENTS UNDERGOING TREATMENT OF IDIOPATHIC CLUBFOOT BY THE PONSETI METHOD

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Objective: Evaluate the radiograph as a method of measuring effectiveness of Ponseti technique for the treatment of unilateral congenital clubfeet using plain radiography. Methods: We conducted a descriptive, retrospective study from medical record data on patients with congenital idiopathic unilateral clubfoot, with ages ranging from 48 to 177 months. Patients underwent radiographs in anteroposterior and profile, load and angles were traced to measure the relationship between the tarsal bones of the middle and hind foot of the treaty and normal. Results: The final average Pirani score was 0.35. Statistical analysis showed that the calcaneus-fifth metatarsal angle on the anteroposterior view, tibial-calcaneano profile and the horizontal-calcaneus profile also showed when subjected to the comparison test similarity, with p values > 0.05. Other angles did not show statistical similarity when compared with the foot control (p <0.01). All angles were within the normal range when compared to literature data. There was no significant correlation between radiographic results and parameter based on Pirani score. Discussion: The measurement of radiographic angles is a rigorous method of evaluating the effectiveness of treatment. The age heterogeneity of the sample entered a divergence between the good clinical and functional results and the comparative difference of angles. Stratified analysis by age group produced more reliable results. Despite this consideration, the mean values are in line with data from standard literature values.

Abstract no.: 43537

NANOS-SHORT-STEM PROSTHESIS IN YOUNG PATIENTS- SHORT TERM RESULTS

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Introduction: Total hip arthroplasty has become one of the most successful standard procedures in the orthopaedic surgery. With a more frequent use in young and active patients bone saving procedures become more important. The Nanos-short-stem endoprosthesis presented here requires metaphyseal anchorage. Material and methods: From juli 2005 to march 2009 a total of 112 (70 males,52 female) uncemented Nanos-short-stem prosthesis were implanted in 111 patients in Westpfalz academic hospital – University Mainz. The patients average age was 53 years (33-73). The indication for this procedure was predominantly coxarthrosis. In all cases dorsal approach was used. The mean follow up period was 2,5 years (range 6 months- 4,5 years). The patients were assessed using Harris Hip Score and radiologically to detect any bone changes , the stand of the prosthesis and peri-articular ossifications. Results: The perioperative Harris Hip Score was 53 (28-77), postoperative was 94 (86-100). We did not have discovered any prosthesis specific complications. Radiological follow up examinations showed the development of increasing trabecular reinforcement of the femoral neck and pertrachanteric regions. There is no evidence of any loosening or migration of the prosthesis. Conclusion: the stem design of Nanos-short-stem prosthesis allowed a metaphyseal intertrochanteric multipoint primary fixation . The surgical technique is simple. It offers alternative to conventional total hip arthroplasty especially in young patients and save bone stock for later revision(1-2). Long term studies still be needed.

Abstract no.: 43539

SCARF-OSTEOTOMY IN HALLUX VALGUS - TECHNIQUE AND CLINICAL RESULTS

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Introduction: Hallux valgus is a common condition. The choice of operation depends principally on the severity of the deformity. For mild and moderate deformities distal osteotomies of the first metatarsal such as Chevron, Austin, Wilson or Mitchell technique are used. Scarf osteotomy and Akin have been recently described for treatment of hallux valgus deformity. Material and methods: 22 patients / 23 feet (19 female, 3 males), 15 patients have severe hallux valgus deformity and 8 patients have moderate hallux valgus deformity. The age ranged 16 - 72 years. A Scarf osteotomy of the first metatarsal (15 patients) and an Akin- and Scarf- osteotomy (8 patients) was carried out. None of the patients has a previous surgery. The follow up period ranged from 6 - 12 months. The right foot was affected in 14 feet and left foot in 9 patients. The preoperative and the postoperative hallux valgus- and Intermetatarsal -angle under weight bearing were measured. Results: 19 patients were satisfied with the operation. The median Hallux valgus -and Intermetatarsal -angle preoperatively were 37 degrees, 14 degrees and postoperatively 14 degrees and 9 degrees respectively. Fracture in one case. No infection. No non-union or pseudoarthrose. Conclusion: Scarf osteotomy combined with Akin closing wedge osteotomy is safe and stable. It is effective in the treatment of hallux valgus deformity. It required skillful operative technique. Rarely followed by complications. A long term results - need to be evaluated

Abstract no.: 43541

TREATMENT RESULTS IN PATIENTS WITH GUNSHOT FRACTURES OF THE EXTREMITIES AT KIEV REGIONAL CLINICAL HOSPITAL.

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The purpose of the study was to evaluate the treatment results in patients with gunshot fractures of the extremities, who were injured in the Ukrainian military conflict. We conducted a retrospective clinical study on 31 injured patients with gunshot fractures of the extremities, who underwent treatment in Kiev Regional Clinical Hospital during 2014-2015. Primary treatment was carried out in field hospitals. 20 patients had blast injury, 11 - gunshot wounds. We used external fixation in 21 and plaster in 10 cases. In 14 patients wounds healed and in 17 - needed a secondary surgery. For treatment of nonhealing wounds after debridement and for provisional closure, we used myofasciocutaneous flaps in four, microvascular free flaps in three, and free skin grafts in nine cases. To determine the timing for internal osteosynthesis we evaluated laboratory variables, such as ESR, C-reactive protein, interleukin 6. Necrosis developed in 3 cases of free skin grafting and in all (8) cases in the joint zone. Full-thickness graft necrosis was not detected. After wound healing was achieved, 21 patients underwent internal fixation and in 10 patients fracture union occurred with a help of external fixation. 6 patients required reoperations. 3 patients had infection of postoperative wound, 3 – large joints contracture. There were no cases of osteomyelitis. We achieved bone union in all patients. Optimal treatment results were achieved, when skin graft was used (83% of cases). The best functional treatment outcome is achieved with choosing right timing for changing external method of fixation to internal.

Abstract no.: 43542

DISLOCATION OF THE PERONEAL TENDON

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Dislocation of the peroneal tendon is frequently misdiagnosed as a lateral ankle sprain. The superior peroneal retinaculum is an important structure in maintaining the position of the peroneal tendons behind the fibula. Extreme discomfort or apprehension during attempted eversion of the foot against resistance is a key feature of the acute injury while popping or snapping sensation around the lateral aspect of the ankle which may or may not be associated with pain is a feature of a chronic condition. MRI defined the soft tissue structures more exactly. In acute conditions conservative treatment with immobilization is a safe approach that yields good results in more than 50% of patients. However, there is potential for recurrence even with adequate conservative management. Surgical treatment is recommended for the acute injury and chronic conditions. In acute conditions direct repair of the retinaculum and periosteum back to bone through three or four drill holes in the postero-lateral aspect of the fibula. In chronic situation bone block procedure can be used. the treatment principle is coverage and containment of the peroneal tendons with bone block created from the fibula. advantages are preservation of the fibro-oseous tunnel for smooth gliding of the tendons, Creation of a physiologically deeper groove. The disadvantage includes the failure of the technique to address the underlying problem in the pouch into which the tendon dislocate technical complexity, screw related problems. In our review we want to bring a highlight of this rare condition, present our experience in the management of such cases.

Abstract no.: 43543

PEDICLE SCREW PLACEMENT ACCURACY USING A NEW INTRAOPERATIVE CONE-BEAM COMPUTED TOMOGRAPHY IMAGING TECHNIQUE: RETROSPECTIVE ANALYSIS OF 586 PEDICLE SCREWS

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Purpose: To assess accuracy of pedicle screw placement using a novel intraoperative cone beam computed tomography (CBCT) imaging technique, and to compare the efficacy of this technique with conventional postoperative computed tomography scans for pedicle breach determination. Methods: In 102 patients, 586 pedicle screws were inserted over a 21 month period. CBCT scans, acquired intraoperatively after all screws were inserted, were retrospectively reviewed for pedicle breach determination according to recognized classification systems. Of the 586 screws, 239 screws were also assessed using conventional postoperative CT scans. Agreement on screw placement assessment using intraoperative CBCT and using postoperative CT was measured with Kappa and Gwet's coefficients. Using CT scanning as gold-standard, the ability of CBCT imaging to properly test screw placement has been assessed by the sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV). Results: Of the 586 pedicle screws, 496 (84.6%) were placed ideally within the pedicle, 24 (4.1%) were in-out-in screws, 21 (3.6%) had a medial breach of less than 2 mm, 10 (1.7%) had a medial breach between 2 mm and 4 mm, 4 (0.7%) had a medial breach of more than 4 mm, 5 (0.9%) had a lateral breach, and 26 (4.4%) had an anterior breach. Kappa and Gwet's coefficients were 0.80 and 0.93, respectively. Sensitivity, specificity, PPV, and NPV of CBCT images were 77%, 98%, 91%, and 96%, respectively. Conclusion: Intraoperative CBCT allows for accurate assessment of pedicle screw placement and might render postoperative CT imaging unnecessary.

Abstract no.: 43544

IS SYNOVECTOMY NECESSARY IN TOTAL KNEE ARTHROPLASTY WITH RHEUMATOID ARTHRITIS?

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Introduction: With rheumatoid arthritis (RA), it has been described that synovitis predisposes to inflammatory reactions after total knee arthroplasty, and sometimes to loosening of arthroplasty. This has led surgeons to consider RA as an indication to a synovectomy at the time of TKA. To our knowledge, there is no report with long term FU results on the effect of synovectomy or absence of synovectomy on a TKA in presence of RA. The purpose of this study was to evaluate if a synovectomy. Methods: The results of a consecutive (within 3 years) series of 65 bilateral staged PS fixed-bearing total knee arthroplasties (28 men, 37 women) performed in knees with RA were reviewed at an average of 16 years FU (ranging 15 to 22 years). The first knee underwent a synovectomy in addition to TKA; the synovium in the suprapatellar pouch, medial, and lateral gutters was excised and separated from the joint capsule during knee exposure. The second knee of the same patient had no synovectomy and received the same implant. Results: Knees in the synovectomy group received blood product transfusions significantly more frequently (23.3% versus 16.6%; $P < 0.01$), had longer mean lengths of hospitalization (9.60 (95 % C.I. =6.56; 13.63) days versus: 6.51 (95 % C.I. =5.50; 9.52) days; $P < 0.001$) as well as higher hospital cost. The Knee Score of the KSS (89.1 versus 80.2 points; $p = 0.02$) and the ROM for flexion (130 versus 102 degrees; $p = 0.01$) were significantly better in the group without synovectomy. There were 4 severe hematoma and deep infections after synovectomy. The Kaplan-Meier survivorship for revision at 15 years of follow-up was 84% for TKA with synovectomy and 97% for TKA without synovectomy. Conclusions: Absence of synovectomy in rheumatoid

Abstract no.: 43545

PERCUTANEOUS CONSOLIDATION OF PROXIMAL FEMUR FOR IMPEDING PATHOLOGICAL HIP FRACTURE: CLINICAL RESULTS OF A NEW PROPHYLACTIC DEVICE

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Purpose: A percutaneous internal fixation device (Y-STRUT®, Hyprevention) has been developed to prevent hip fracture in case of osteolytic metastases located in the femoral neck. The tolerance of Y-STRUT® and the related operative procedure has been prospectively evaluated in this multicenter pilot study. **Material and methods:** A total of 12 cancer patients have been considered for prophylactic consolidation in 2 different hospitals. These consolidations were performed percutaneously under fluoroscopic guidance by interventional radiologists. All patients presented a high risk of hip fracture (Mirels score ≥ 8). Patients were followed by medical consultations and radiographic exams. **Results:** Two patients suffered from a fracture that occurred prior to the prophylactic consolidation and were excluded from the study analysis. Ten patients (40% female, mean 61 ± 6 yo) were treated for impending pathological fractures (mean Mirels score of 9 ± 1). All the procedures were performed with success. Average hospitalization was 2.3 ± 1.4 days. Four of the 10 patients were discharged the day following the intervention, suggesting that the implantation could be performed as an ambulatory procedure. Wound healing was achieved in all cases with no access site complication. Mean pain decreased from 3.6 ± 2.9 at baseline to 2.4 ± 0.9 at 2 months. During the follow-up, 6 patients deceased from severe progression of their underlying cancer after a mean follow-up of 142 days (24-324). All survival patients have reached a follow-up of one year. **Conclusion:** Preliminary results demonstrated the feasibility and the safety of Y-STRUT® implantation as well as the tolerance of the device.

Abstract no.: 43547

EFFECTIVENESS OF A RADIOFREQUENCY-BASED BIPOLAR HEMOSTATIC SEALER DURING SURGERY OF LUMBAR SPINAL STENOSIS

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BACKGROUND Spinal surgery is commonly associated with excessive blood loss. Perioperative bleeding is of particular concern during decompression and fusion with instrumentation of LSS, which often requires allogeneic transfusion. However, there are specific risks and limitations that often preclude the utilization of transfusions. Alternatives include the use of antifibrinolytic drugs and topical fibrin-based and thrombin-based agents, although safety and effectiveness are yet to be fully established. There is a clear need for assessing alternative methods of hemostasis. **METHODS:** 48 patients undergoing decompression and fusion with instrumentation of LSS were included in this study. Twenty seven consecutive patients were treated intraoperatively with a standard method of hemostasis consisting of hypotensive anesthesia, thrombin-soaked sponges, and intraoperative blood salvage (Control). In addition to standard method of hemostasis consisting of hypotensive anesthesia, thrombin-soaked sponges, and intraoperative blood salvage our patients treated with a bipolar sealer (Aquamantys 2.3 Bipolar Sealer, Salient Surgical Technologies, Portsmouth, NH). **RESULTS:** Blood loss was reduced by 47% after the using of the bipolar sealer compared with the Control. There was a statistically significant difference between groups for blood loss per fusion level. Control patients required much more blood transfusions versus none or little treated with the bipolar sealer . Complication rates were similar between the groups. **CONCLUSIONS:** These findings suggest that the Aquamantys 2.3 bipolar sealer effectively supports hemostasis and reduces the need for transfusions during surgery of LSS.

Abstract no.: 43549

THE CLINICAL SEVERITY OF PE FOLLOWING JOINT REPLACEMENT IS UNRELATED TO THE LOCATION OF EMBOLI IN THE PULMONARY VASCULATURE.

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Introduction: Computed tomography pulmonary angiography (CTPA) has become standard of care for the diagnosis of pulmonary embolism (PE). We studied if a relationship exists between the location of the PE and the patient's clinical severity at the time of diagnosis. Methods: 269 patients who developed a CTPA-proved, in-hospital PE following elective THA or TKA in our institution between 2005 and 2012 were studied. The clinical severity of the PE was calculated utilizing the Pulmonary Embolism Clinical Severity Index (PECSI), that classifies patients in 5 classes (Class 5: most severe). PE were classified based on the most proximal location of the emboli (central, segmental or subsegmental); and in unilateral or bilateral. All patients were followed for a year. Results: There were 62 central, 139 segmental and 68 subsegmental PE (180 unilateral and 89 bilateral). There was no association between the location of the PE and the PECSI ($p=0.32$). Patients with bilateral or unilateral lung involvement had similar PECSI ($p=0.78$). Two patients died during the first year. One died of an autopsy proven E. Coli sepsis 11 months postoperatively. The second patient was anticoagulated, developed an intracranial bleed, and died 8 months postoperatively. Discussion: The PECSI was similar in patients with central, segmental or subsegmental PE; and in patients with unilateral or bilateral lung involvement. The one-year mortality rate of patients with postoperative PE is very low and death can be caused by anticoagulation and conditions that are unrelated to the PE or its clinical severity at the time of diagnosis.

Abstract no.: 43550

IN VIVO DRUG RELEASE BEHAVIOR AND OSSEOINTEGRATION OF A DOXORUBICIN-LOADED TISSUE-ENGINEERED SCAFFOLD

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Bone tissue-engineered scaffolds with therapeutic effects must meet the basic requirements as to support bone healing at the defect side and to release an effect drug within the therapeutic window. Here, a rapid prototyped PCL scaffold embedded with chitosan/nanoclay/ β -tricalcium phosphate composite (DESCLAYMR) loaded with chemotherapeutic drug doxorubicin (DESCLAYMR_DOX) is proposed as a potential multifunctional medical application for patients who undergo bone tumor resection. We showed the DESCLAYMR_DOX scaffold released DOX locally in a sustained manner in mice without significantly increasing the plasma DOX concentrations. The evaluation of osseointegration in a porcine study showed increased mineralized bone formation, unmineralized collagen fibers and significantly higher alpha Smooth Muscle Actin (α -SMA) positive areas relative to total investigated area (TA) in defects treated solely with the DESCLAYMR scaffold than in the DESCLAYMR_DOX; and Alkaline phosphatase activity, α -SMA/TA and bone formation were higher in the DESCLAYMR loaded with 100 μ g/scaffold DOX (DOX_low) than with 400 μ g/scaffold DOX (DOX_high). Our results suggest that the DESCLAYMR_DOX can be a viable candidate as a multifunctional medical application by delivering the chemotherapeutic agent to target remaining tumor cells and facilitate bone formation.

Abstract no.: 43551

CAGE RETROPULSION AFTER LUMBAR INTERBODY FUSION: A REPORT OF THREE CASES

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Introduction: Although cage retropulsion after posterior lumbar interbody fusion (PLIF) or transforaminal lumbar interbody fusion (TLIF) is very rare complication, it sometimes causes severe symptoms which require revision surgery. Purpose: To investigate cases of cage retropulsion after PLIF or TLIF, and risk factors. Methods: Between October 2008 and July 2012, sixty three patients (seventy one discs) who underwent single- or multilevel PLIF or TLIF combined with posterolateral fusion, using posterior pedicle screw fixation and box-shaped or bullet-shaped cages for various degenerative lumbar spinal diseases were investigated retrospectively. The number of cages inserted in single disc was one or two. In retropulsion cases, preoperative anterior disc height, middle disc height (MDH) and posterior disc height were measured, and compared with height of used cages. Results: There were three cases (three discs; three men; mean age, sixty four yr) of cage retropulsion. Cage migration started at seventh day after surgery in all of three cases, and cage retropulsion into spinal canal was observed at seventh day, thirty-seventh day, fiftieth day, respectively. One patient complained leg pain due to dural sac compressed by migrated cage, whom required revision surgery. In each case, the number of cages inserted in single disc was only one. In two of three cases, height of cages were lower than preoperative MDH. Conclusion: We experienced three cases of cage retropulsion after PLIF or TLIF. To use only one cage for single disc and lower height cage than preoperative disc height are possible risk factors.

Abstract no.: 43555

A CRITICAL ANALYSIS OF RADIOGRAPHIC FACTORS IN PATIENTS WHO DEVELOP DISLOCATION AFTER ELECTIVE PRIMARY TOTAL HIP ARTHROPLASTY

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Introduction: In order to diminish the dislocation rate, surgeons strive to achieve adequate component orientation, offset and limb-length. In addition, dislocation can theoretically be reduced by using large head diameter, favorable head-to-neck and cup-to head ratios. The aim of this study is to assess eight radiographic and implant-related parameters associated with an increased risk of dislocation in patients who sustained a dislocation and in those with a stable arthroplasty. Methods: 1487 consecutive elective primary THAs performed by a single surgeon, using a posterolateral approach were reviewed. At an average follow up of 18 months, 38 patients (2.5%) dislocated. 37 patients with good quality, standardized radiographs were selected as a "study group". Each study group patient was matched paired 3 patients who had a stable arthroplasty based on gender, age, BMI, diagnosis and follow up. The variables compared between the groups included: head size, head-to-neck ratio, cup-to-head ratio, leg-length discrepancy, offset, cup inclination, cup version and cup orientation based on the safe zone defined by Lewinneck. Results: None of the parameters analyzed showed a statistically significant difference between the groups. Discussion: Variables unrelated to those analyzed in this study may be responsible for postoperative THA dislocation. In this study, 90% of patients who developed a dislocation had properly positioned acetabular components. The majority of patients in the study group had adequate restoration of limb-length and offset. The results of our study may be useful for the orthopaedic surgeons who discuss instability following THA surgery, in patients with sound radiographic reconstructions.

Abstract no.: 43556

LONG TERM FOLLOWUP OF BHU HIP DEVICE(BIPOLAR PROTHESIS)

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Bhu hip device has been used as a alternative method for management of fracture neck femur and pathological conditions of hip for the past 10 years. clinical and radio logical followup evaluated at 10 year followup. all the patients were assessed regular interval on the basis of harris hip score and and the routine activities. study of 250 patients was done. 10 year followup shows good harris hip score with good abduction in radiology. bhu hip device is a nobel device which has major structural changes which allows longevity as well as good clinical outcome with low dislocation rate and excellent harris hip score even after 10 yrs. patients are also allowed to sit cross legged and squat postsurgically , a major concern in third world country .

Abstract no.: 43568

COMPARISON OF TWO IDENTICAL CASES OF PATHOLOGIC FRACTURE THROUGH A BENIGN LESION OF THE FEMORAL NECK.

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Introduction: Treatment of pathologic fractures through benign lesions affecting heavily loaded areas of long bones can be challenging and may be associated with risks of significant complications and morbidity. The optimal approach to pathologic fractures through benign lesions in weight bearing bones is unknown. Methods: We present the illustrative cases of two young adult females who underwent open reduction and rigid internal fixation with a locked plate for a displaced pathologic fracture through a very large simple cyst involving the femoral neck and trochanteric region of the proximal femur. While demographic data and lesion characteristics were almost identical in both cases, bone defect reconstruction was performed with cancellous allograft only in one case and a composite of cancellous allograft, a synthetic bone graft substitute, zoledronic acid and demineralized bone matrix in the other. Results: Although immediate post-operative radiographs showed satisfactory anatomic reduction, implant position and complete filling of the respective bone voids, the first patient treated with allograft only, showed progressive graft resorption and failure to unite. The other patient treated with the composite, showed unusually fast fracture consolidation, allowing full unrestricted weight-bearing function already after 6 weeks and complete remodeling of the proximal femur without any sign of a residual or recurrent lesion after one year. Conclusions: A biologically active composite of allograft, calcium salts, an anti-resorptive agent and growth factors can result in substantially faster consolidation of a given bone defect and its associated pathologic fracture, compared to conventional cancellous allograft alone.

Abstract no.: 43570

DO PATIENTS FIND PATIENT-REPORTED OUTCOME MEASURES CAPTURE THEIR ISSUES IN FOOT AND ANKLE CLINICS? A RETROSPECTIVE REVIEW OF PATIENT FEEDBACK

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Patient reported outcomes measures (PROMs) are widely used to assess quality of health services. However few studies have examined patients' experience of PROMs. We aimed to determine whether foot and ankle patients feel PROMS adequately capture their symptoms. We retrospectively analysed clinician reported and PROMs data captured at our specialist foot and ankle unit. All new patients attending our clinics are invited to complete PROMs electronically. We record EQ5D, EQ-VAS, MOxFQ and VAS scores. Patients are asked to rate their experience of using PROMs and leave feedback. Feedback comments were stratified as: 'positive comment,' 'constructive feedback,' 'general complaints,' 'technological issues,' 'questions do not adequately capture symptoms,' or 'other.' Over 32 months 2534 new patients were seen: 2176 (85.9%) completed PROMs and 2591 (98.3%) had clinician recorded contextual data captured (diagnosis and co-morbidity). Of the 2176 patients completing PROMs, 666 (30.61%) left comments. Of these patients 330 (49.55%) left positive comments, 65 (9.76%) had difficulty using the technology and 214 (32.13%) felt PROMs did not adequately capture their symptoms. The mean patient experience rating of using PROMs was 8.55 ± 1.85 out of 10. This is the largest study to report the routine capture of PROMS and clinical context using an electronic system on all patients (irrespective of whether they are surgical candidates or not). Our finding is that patient experience of electronic PROMs is in general positive; however up to one third of patients leaving feedback feel that PROMS are not adequate to capture their symptoms.

Abstract no.: 43572

EARLY RESULTS OF PATIENT SPECIFIC INSTRUMENTATION IN TOTAL ANKLE REPLACEMENT

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Patient Specific Instrumentation is widely used in knee replacement surgery but is a relatively new concept in ankle replacement. We present the early results of a cohort of patients treated with the INFINITY® Total Ankle Replacement using the PROPHECY® preoperative navigation guide. We retrospectively reviewed clinical and radiological results of our initial 24 consecutive patients undergoing total ankle replacement with this system. All procedures were performed through an anterior approach by a single surgeon. Our minimum follow up was 6 months (range 6-14 months). Mean age of patients was 66.5 ± 8.75 , mean BMI was 27.7 ± 3.6 and mean surgical time was 127 ± 15 minutes. With relation to the mechanical axis of the tibia, postoperative coronal alignment was $0.6^\circ \pm 4.5^\circ$ of valgus, and sagittal alignment was $0.6^\circ \pm 3.0^\circ$ of dorsiflexion. The predicted tibial implant size was used in all cases; in 6 cases the talar component used was 1 size smaller than predicted. Mean improvement in total range of ankle and hindfoot motion postoperatively was 14.5° ($p < 0.001$): mean postoperative dorsiflexion was $8.0^\circ \pm 4.5^\circ$ and plantarflexion was $29.8^\circ \pm 4.1^\circ$. There was a significant improvement in all patient reported outcome scores recorded with mean improvements in: EQ5D (0.3544, $p < 0.001$), EQ-VAS (8.98, $p = 0.025$), MOxFAQ for pain (43.21, $p < 0.001$), standing and walking (48.37, $p < 0.001$) and social activities (45.73, $p < 0.001$), and VAS (4.48, $p < 0.001$). Excellent alignment of components is achievable using preoperative navigation guides in ankle replacement surgery. This is reflected in improved function and clinical scores at 6 months. Longer term follow up is needed to ensure this performance is maintained.

Abstract no.: 43575

CAN ENDOSCOPIC BIOSPY AND DRAINAGE EFFECTIVELY DIAGNOSE AND TREAT INFECTIOUS LUMBAR SPONDYLODISKITIS WITH EARLY EPIDURAL SPINAL CORD COMPRESSION?

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Introduction:Early diagnosis and management is crucial in managing spinal infections. Percutaneous aspiration and biopsy of lumbar infections under USG and CT scan invariably gives inadequate diagnosis and high recurrence rate. In this study we describe endoscopic method of effectively treating patients with infectious lumbar spondylodiscitis and having intractable back pain with early onset epidural spinal cord compression in lumbar spine on MRI. **Materials and Methods:**Thirteen patients with intractable back pain and no neurodeficit with early onset epidural spinal cord compression in lumbar spine on MRI and had failed to respond to 2-3 weeks of intravenous antibiotic therapy were enrolled in the study. The goal of surgery was to confirm the pathogen on biopsy and drain the abscess. Under local anaesthesia and sedation, spinal endoscope was passed over trocar disc space under C-arm. Biopsy was taken, abscess was drained. Chemotherapy was started after histologic diagnosis and patients were monitored with CBC, ESR, CRP and repeat MRI after 3 months. **Results:**Thirteen cases with lumbar spondylodiscitis and abscess on MRI were reviewed. Mean duration of surgery was 52 min. Mean follow up duration was 8 months. The average pre operative VAS score of 8 decreased to average postoperative score of 4. Tuberculous spondylodiscitis in 6 cases, pyogenic in 3 cases and inconclusive in 4 cases. After adequate chemotherapy /antibiotic therapy no recurrence of spondylodiscitis was noted. Only one patient underwent surgery for stabilization of the spine. **Conclusion:**Endoscopic biopsy and drainage can give us a better diagnosis and decrease the pain in a predictable manner.

Abstract no.: 43576

FIXATION OF INTERCONDYLAR EMINENCE FRACTURE IN BICONDYLAR FRACTURE IMPROVES RANGE OF MOVEMENT

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Introduction: Bicondylar tibial plateau fractures are commonly associated with tibial eminence fracture. Despite adequate fixation & rehabilitation of bicondylar tibial plateau fractures, non-fixation of intercondylar eminence fracture leads to restricted range of motion & residual flexion deformity can affect post-operative outcomes. Methods: In this retrospective study, we evaluated 96 consecutive patients treated with or without fixation of intercondylar eminence fracture with comminuted bicondylar fracture of proximal tibia from 1995-2013. Proximal tibial fracture was fixed with L or T buttress plate or pre-contoured locking plate & use of raft screw via either medial & lateral or postero-medial & lateral approach. Intercondylar eminence fractures were fixed via converging K-wire technique or screws without over compression. We divided patients into two groups depending upon whether intercondylar eminence fracture was fixed or not. Patients were followed up at 1, 2, 6, 12 months. 10 patients were lost to follow up. We analyzed range of motion achieved, residual deformity, condylar width & intercondylar area. Statistical tests of significance as applicable were used. Results: 48 patients underwent fixation of the intercondylar eminence fracture (Group 1) while 46 patients did not (Group 2). Range of motion achieved was significant in Group 1 as compared to Group 2 ($p=0.035$). Residual deformity, condylar width & intercondylar area were significantly less in Group 1 compared to Group 2. Intercondylar eminence fracture restoration avoids ejection of the fragment when condyles are compressed & fixed. In the group where intercondylar eminence fracture was not fixed, the fragment ejected out leading to laxity, flexion deformity & stiffness. Thus, proper reduction & fixation of intercondylar eminence fracture gives better range of motion with less residual deformity.

Abstract no.: 43577

PATELLAR SURFACE SCANNING WITH INTRAORAL SCANNER IN TOTAL KNEE ARTHROPLASTY

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Introduction: There are different methods of patellar management during TKA. Studies mostly suggest patellar resurfacing or nonresurfacing, some authors propose patelloplasty, a reshaping method where both facets are resected and patella is trimmed to match the trochlear surface. Our aim was to compare differences in contact area magnitudes and congruence between various methods, using an intraoral scanner for surface scanning, which is a novelty in orthopaedics. Methods: In our prospective clinical study two patients underwent a TKA (Genesis II, Smith & Nephew), their patellar surfaces were scanned using a TRIOS® intraoral scanner (3Shape). Data were acquired as a cloud of points. The contact area between them and the endoprosthesis CAD model was examined with Cloud Compare, throughout 0°-120° of knee flexion. To achieve best proximity without surface overlap, the ICP algorithm was used. The distance between the surfaces was measured using the Cloud-to-mesh function. Results: CAD to patellar surface distances were compared in SPSS, ANOVA test revealed significantly different contact magnitudes for all types of patellar surfaces ($p < 0.001$). Up to 75° of flexion the average contact magnitude was 2.436 ± 0.459 mm using nonresurfacing method, 2.569 ± 0.269 mm using resurfaced method and 3.367 ± 0.493 mm using patelloplasty. Above 90° of flexion, the average contact magnitudes were 3.857 ± 0.682 mm, 4.430 ± 0.671 mm and 4.771 ± 1.067 mm using nonresurfacing, resurfacing and patelloplasty respectively. Conclusions: The right choice of patellar management can improve contact and congruency, thus improving the quality of endoprosthesis implantation. Surface scanning using an intraoral scanner has proved to be an effective method.

Abstract no.: 43578

TO COMPARE THE QUALITATIVE DIFFERENCE IN THE INTERBODY FUSION ACHIEVED WITH LOCAL BONE GRAFT VERSUS GRAFT HARVESTED FROM THE POSTERIOR SUPERIOR ILIAC SPINE.

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Introduction:Posterior lumbar interbody fusion (PLIF) has been widely used in arthrodesis for segmental instability of the lumbar spine. Autologous bone graft is currently the gold standard, its advantages being osteoinductive, osteoconductive, and potentially osteogenic and complications being increased operative time and blood loss, pain at the donor scar site, and limited quantities of bone stock. Although literature supports use of local autograft from the posterior elements in PLIF, there is no case control study available to compare its use with graft harvested from PSIS, and hence this study.**Materials and Methods:** This was a case control study of 37 patients who had undergone posterior lumbar interbody fusion between Sept 2013 to Sept 2014. The diagnosis of spondylolisthesis, degenerative disc disease with instability was done by clinical examination, X rays and MRI. **Results:**The average preoperative JOA score in group 1 patients was 11.41 and 26.50 post operatively and those of group 2 patients was 10.05 pre operatively and 26.74 post operatively. There was no significant difference in the functional assessment (p value = 0.96) and intervertebral angle measurements (p = 0.42) between two groups. There was 95.5 % grade 1 fusion with iliac crest graft after 2 years and 84.6 % with laminospinous graft. The remaining patients had grade 2 fusion. No significant differences in the clinical results of PLIF between patients of both grafts noted. **Conclusion:** Laminospinous graft is as good as PSIS graft in posterior lumbar interbody fusion with added advantage of decreased graft site morbidity.

Abstract no.: 43579

TROCHANTERIC FRACTURE TREATMENT WITH DYNAMIC HIP SCREW FIXATION – COMPARISON BETWEEN TWO AND FOUR-HOLE SIDEPLATES

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Introduction: Trochanteric fractures represent over half of all hip fractures in elderly people. Dynamic hip screw systems (DHS) are an acceptable fixation method for these fractures. Although two (DHS-2) and four-hole (DHS-4) sideplates seem biomechanically equivalent, there are few studies assessing the occurrence of complications between them. This retrospective analysis compares the complications using DHS-2 and DHS-4 in proximal femur fractures. Methods: We retrospectively evaluated all 231 consecutive patients, with trochanteric fractures, who were treated with DHS between January 2012 and December 2014. Outcomes of blood loss, implant failure and mortality were measured. Results: Seventy-five percent (n=173) were treated with DHS-4 sideplate, whereas 25% with DHS-2 (n=58). The mean age was 82,1years. Mean follow up was 692±319 days, with a global failure rate of 2.6% (0,9% for DHS-2 and 1,7% for DHS-4, p=0,644) and a mortality rate of 30.5%. Cut-out of the femoral neck screw was the only cause of failure. Mean time for failure was 30,5±29,0 and 60,5±73,8 days for DHS-2 and DHS-4 respectively, but was not significant (p=0,625). Hemoglobin loss was more severe in DHS-4 (1,9±1.4g/dl), than in DHS-2 (1.6±1.4g/dl) but did not reach significance (p=0,153). In failure patients, hemoglobin loss was also more severe (p=0,025). No cases of sideplate failure were found. Conclusions: Complications in both two and four-hole sideplates are similar, regarding failure rates and haemoglobin loss. Our findings support that either implants are valid choices when considering DHS systems for the treatment of trochanteric fractures.

Abstract no.: 43580

FIXATION OF NON-UNION INTRA-CAPSULAR FRACTURE NECK OF FEMUR USING SLIDING HIP SCREW & FIBULAR GRAFTS

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Introduction:Revision surgery of previously operated fracture neck of femur (NOF) with non-union is a challenging problem.Loss of fixation of hardware with varus angulation,extrusion of implants & collapse at fracture site results in failure.Treatment options include revision internal fixation or arthroplasty.Thus,we carried out this study with the aim to study union rate & functional outcome in previously operated & non-united intra-capsular fracture neck femur using non-vascularized fibular graft & sliding hip screw.**Methods:**This study was carried out on 30 patients aged 20–60 years.Patients <20 years, >60 years, pregnant women & extra capsular fracture neck femur were excluded.Procedure was carried out under spinal/epidural anesthesia.Previous implants were removed.Voids were filled with cancellous bone graft.Position of guide wire was confirmed on Image Intensifier.Revision osteosynthesis was done with Sliding Hip Screw.Required length of fibular graft was calculated by inserting guide wire at site of fibular graft & deducting 10mm from it.Perioperative prophylactic antibiotics were used.Patients were followed up at 1.5,3, 6 and 12 months & were evaluated by using Anglen criteria.**Results:**Satisfactory bony union was obtained in 21 patients (70%), of which 16 showed excellent, 3 had good, & 2 had poor functional outcome.Fractures failed to unite in 9 patients (30%) & were subjected to arthroplasty while avascular necrosis occurred in 5 patients (16.66%).Long term follow-up showed excellent incorporation of fibular graft.Use of non-vascularized fibular strut graft is technically less demanding.Fibula being cortical provides mechanical strength besides stimulating union, & its incorporation with surrounding bone gives biological fixation.Once graft is revascularized, osteoblasts replace the resorbed bone.

Abstract no.: 43584

EXTERNAL FIXATOR AS A PRIMARY AND DEFINITIVE TREATMENT FOR OPEN HUMERUS FRACTURES –SYRIAN WAR EXPERIENCE

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Background:War injuries occur as a result of high energy trauma and may be caused by heavy weaponry or explosions. During these circumstances, most of the injuries occur in the musculoskeletal system, especially humerus fracture. The first line of treatment of humerus fracture is nailing or plating, but external fixation is also indicated as damage control. In situations of conflict, poor countries, healthcare systems can be forced to use the external fixator as a primary and definitive treatment. We report our experience in using external fixation as a primary and definitive treatment for open humerus fractures. Methods:A retrospective chart review of one field hospital between 2011 and 2015. Result:(159) presented with open humerus fracture, average age (28.36 years),(89.9%)male. There are according to Gustilo classification 66 (41.5%) type one, 41(25.8%) type two, 51 (32.1%) type three , and 19 (11.9%) with vascular injury. Most of the cases 66 (41.5%)manged by AO external fixator,30 (20.8%) orthofix,51 (32.1%) Syrian,10(7.1%) hoffman. The external fixator was the primary and definitive methods of treatment in 52 (32.9%), and with average 2.1 months to achieve full union The main complication was the pin tract infection with 19 (11.9%) cases of deep infection. Conclusion: Satisfactory results can be obtained using definitive external fixation of open humerus if a stable fixation is achieved. Pin tract infections are not a major problem and can be treated with local wound care. The most common problem of external fixation is decreasing of the range of motion of the elbow joints.

Abstract no.: 43585

CASE REPORT: POSTERIOR HIP DISLOCATION WITH IPSILATERAL FEMORAL HEAD AND SHAFT FRACTURE - USING A TEMPORARY EXTERNAL FIXATOR AS A METHOD FOR CLOSED REDUCTION

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INTRODUCTION: Complex fractures are increasing because of various traumatic mechanisms. They drift from standard classifications, and their treatment is controversial. Of such cases are hip dislocations with associated fractures of the ipsilateral femur. **CASE PRESENTATION:** This case report describes the condition of a 30-year-old man involved in a motor vehicle collision. Clinical examination, X-rays, and CT scan revealed a posterior hip dislocation with an ipsilateral femoral head and mid-shaft fractures. The patient was treated by closed reduction of hip dislocation using a temporarily applied external fixator followed by intramedullary nailing of the femoral shaft. **DISCUSSION:** Achieving a closed reduction is a challenge with ipsilateral fractures, but it should be favored over open reduction due to a lower risk of complications. The type of femoral head fracture, in this case, may have aided in an easier reduction. **CONCLUSION:** Hip dislocation is an orthopedic emergency, its treatment is challenging if associated with ipsilateral fractures. The decision of a closed versus an open approach should be made after considering the management plans of other injuries.

Abstract no.: 43594

THE COST OF COMPLEXITY IN PEDIATRIC SCOLIOSIS

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Introduction: Adverse outcomes have traditionally been reported in terms not directly applicable to public policy. Little has been published investigating the impact of clinical factors on cost of care in children with scoliosis. We hypothesize that more complex patients place higher burden on higher-level institutions, thus financially disincentivize the care of challenging patients. Methods: We compared estimated costs for consecutive patients who underwent pediatric scoliosis fusion at a single institution between 5/1/08-12/31/10. The records of 155 children ages 3-18 were reviewed. Severity was gauged by clinical data: idiopathic (IS) vs non-idiopathic scoliosis (NIS), a major comorbidity or ambulation status. We obtained estimated cost data for patient hospitalizations for a minimum of four-years after the date of surgery from the Pediatric Health Information System. Results: 90 patients had IS and 65 had NIS; 29 had related readmissions, totaling 212 admissions. Estimated cost ranged from \$7441-411930. Mean costs were 59.5% higher for NIS than IS cases ($p < 0.001$). Cost was significantly different when classified by comorbidity or ambulation. Higher costs positively correlated with younger age (0.21), fusion levels (0.42), major curve (0.46), and length of stay (0.81; $p < 0.001$). Conclusion: Higher costs were seen for patients with NIS, major comorbidities, non-ambulatory, large preop. Curves, more levels fused or were younger. The cost of caring for complex patients is not reflected in reimbursement and is a challenge to a sustainable business model. By understanding the financial burden of complex patient care, legislation can be proposed to account for these disparities.

Abstract no.: 43595

PREDICTING RISK OF SURGICAL SITE INFECTION IN NEUROMUSCULAR SCOLIOSIS PATIENTS UNDERGOING CORRECTION: CAN WE RELY ON ADMINISTRATIVE DATA SETS?

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Purpose: As healthcare becomes more transparent, tools based on administrative and clinical data will be used assess outcomes. Patients with neuromuscular scoliosis (NMS), present a challenge: they have the greatest need, but the predisposition for poor outcomes. Assessing risk-adjusted outcomes for these patients is paramount. Methods: Single-center retrospective study comparing the ability of a clinical and administrative model to predict SSI in children with NMS who underwent primary or revision posterior fusion (12/13- 5/15). Risk Severity Score (RSS) model: developed using a multicenter dataset, involves 5 clinical risk factors. The CDC's definition of SSI was used. Pediatric Health Information System (PHIS) model: developed using a national dataset, includes risk factors derived from patient demographics, ICD9 diagnoses and procedure codes. Reoperation for SSI within 60 days of surgery was identified for development of this model. Results: 30 NMS patients undergoing spinal fusion: five (16.7%) developed SSI requiring reoperation within 90 days of index surgery. Average probability of SSI (RSS model:2.8%, range 3.8-27.4%, PHIS model: 5.2%, range 3.0-9.3%). For 4/5 identified SSI cases, the RSS model predicted a greater probability of SSI. Conclusions: The clinical RSS and administrative PHIS model predicted different probabilities of SSI in our NMS population. These differences warrant further consideration, as such tools will be the foundation of future risk stratification models. Each model has advantages and disadvantages, and we hypothesize that a model combining both of these data sources will create the most accurate risk stratification tool that will provide the greatest benefit to our patients.

Abstract no.: 43597

IN PATIENTS WITH NONIDIOPATHIC SPINAL DEFORMITY, RISK OF SURGICAL SITE INFECTION CAN RANGE FROM 2.0% TO 54.8% - RESULTS OF A NOVEL RISK SEVERITY SCORE

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Introduction: Predicting SSI following spinal fusion is essential to reduce patient harm and burden. Aim: develop a RSS reflecting the probability of developing SSI within 90 days of surgery in pediatric patients with nonidiopathic spinal deformity undergoing spinal fusion. Methods: Multi-center study to develop an SSI predictive model for children with nonidiopathic spinal deformity who underwent primary or revision spinal fusion (1/06-12/11). Patient characteristics, preoperative laboratory results, and clinical data were collected. The CDC's case definition was used to identify SSI within 90 days of surgery. Results: Of 867 patients, etiologies included neuromuscular (52.9%), congenital (19.2%), syndromic (21.6%) and other (6.4%). The overall SSI rate was 8.8%. Our model identified 5 clinical risk factors for developing SSI: HGB<13g/dl (OR 2.29, P 0.002), Neuromuscular Etiology (OR 1.91, P 0.087), Non-ambulatory Status (OR 2.73 P 0.004), Pulmonary Comorbidity (OR 1.52 P 0.100), Same-day Non-Spine Procedure (OR 3.21 P 0.006). Using this model, it was determined that a patient with zero risk factors has a risk of 2.0%, while a patient with all five factors has a risk of 54.8%. Conclusions: A RSS to predict the probability of SSI within 90 days of spinal fusion in children with non-idiopathic spinal deformity shows increased risk based on neuromuscular etiology, non-ambulatory status, pulmonary comorbidity, preoperative hemoglobin, and a same-day non-spine procedure. This RSS will aid surgeons when considering operations in children with nonidiopathic scoliosis, and will improve shared decision making with families during preoperative counseling.

Abstract no.: 43600

**OUR RESULTS IN THE TREATMENT OF PROXIMAL HUMERAL
OSTEOPOROTIC FRACTURES WITH A PHILOS PLATE**

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Laws of biomechanics suggest that stable osteosynthesis for osteoporotic bone is necessary to increase the contact surface of metallic implants and bone and the stability of the screw-plate-bone compound. Every surgical procedure has to establish anatomical reduction and stable fixation that will enable early mobilisation. Between 2007 and 2014, a total of 107 patients older than 65 years with closed proximal humerus fractures underwent surgical treatment with PHILOS plate system (Synthes, Switzerland). 51 patients were operated with deltopectoral approach and 56 with deltoid split approach. After a mean follow up period of 14.68 (6-28) months functional and radiologic results were assessed. We noted 11 postoperative complications related to surgical technique (3 intraarticular screw placement, 1 displacement in major tuberculum fragment, 1 displacement in major tuberculum fragment along with oblique placement of the plate, 2 cases of inadequate reduction, 1 case of humeral head avascular necrosis, varus humeral head fixation in 3 cases). None of the patients developed superficial or deep surgical infection. In this study PHILOS locking plate showed good applicability, respecting bone biologic properties because of negligible interference with blood supply of the humeral head. There was no requirement to shape the plate enabling stabilization at constant angles as clear benefit of this plate. All that enables early mobilisation, and no implant insufficiency resulting in satisfactory treatment results and high Constant shoulder scores.

Abstract no.: 43601

SPINAL MUSCULAR ATROPHY: GROWING SPINAL INSTRUMENTATION PRESERVES LUNG VOLUMES AND MAINTAINS QUALITY OF LIFE

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Introduction: Modern SMA therapy utilizes growing spinal instrumentation to achieve stability while allowing spine and lung growth. Methods: We conducted a multicenter retrospective cohort study and queried two national Early Onset Scoliosis registries for patients with SMA treated between 2000 and 2015. Patients with a diagnosis of SMA and treatment with growing spinal instrumentation were eligible for analysis. We used pre-operative and post-operative forced vital capacity (FVC) values to evaluate pulmonary function. Pre-operative and post-operative EOSQ-24s were used to evaluate changes in HRQoL. Results: We identified 64 patients meeting inclusion criteria (averages: Cobb=67.8; 53%F; 8.1yrs at implant. Average initial Cobb correction was 34.8%. 14 patients had pre-operative and post-operative (6 months – 2 year out) FVCs. 13 patients had pre-operative and post-operative (6 months – 2 year out) EOSQ-24s. These groups did not overlap. Average pre-operative FVC equaled 1.07L (58.7% of expected) (range: 0.29-1.88L). Average post-operative FVC equaled 1.14 (48.1% of expected) (range: 0.49-1.86). Average pre-operative EOSQ domain scores were well below age norms in all categories. Average post-operative EOSQ scores increased by $\geq 10\%$ in the domains of general health, pulmonary function, transfer, physical function, daily living, and fatigue. Scores decreased by $\geq 10\%$ in the domains of pain/discomfort, financial impact, child satisfaction, and overall satisfaction. The domains of emotion, parental impact, and parental satisfaction were unchanged. Conclusions: Surgery for SMA maintains absolute lung volume, and improves scores in multiple EOSQ-24 subdomains.

Abstract no.: 43602

CLASSIFICATION OF EARLY ONSET SCOLIOSIS CORRELATES WITH COMPLICATIONS AFTER INITIATION OF GROWTH FRIENDLY SPINE SURGERY

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Introduction: In 2014, Vitale et al proposed a classification system of EOS (C-EOS) that categorizes patients by etiology, Cobb angle, and kyphosis. In 2015, Smith et al validated a new classification system to report complications of growing spine instrumentation. Smith categorized complications as disease or device related and graded severity by the magnitude of the response required to resolve the complication. Methods: We conducted a multicenter retrospective cohort study by querying a national registry to gather data on patients meeting the following inclusion criteria: age at diagnosis of EOS <10 years, index growing spine instrumentation surgery and a minimum of 5-year follow-up from the index procedure. The outcomes analyzed were the number of Smith complications, stratified according to single variables (Cobb, kyphosis, etiology), as well as categorized by C-EOS. Results: The query returned 171 eligible study subjects over a span of 14 years. Of these 171 subjects, 156 had sufficient data to be categorized according to C-EOS. Of the 48 possible combinations of etiology, Cobb angle, and kyphosis, 29 were represented, 11 of which had five or more subjects. C3+, S3+, N3+, N3N and N4+ emerged among the top 5 for nearly all complication thresholds measured. There were greater than 2.87 complications per patient in the C3+, S3+, N3+, N3N and N4+ C-EOS groups, as opposed to 1.42 complications per patient for the other represented C-EOS groups with N ≥5 (P = 0.002). Conclusions: In this preliminary work, more advanced C-EOS categories were associated with more frequent Smith Classifications.

Abstract no.: 43603

ONE YEAR RESULTS OF THIRTY-SIX MAGNETICALLY CONTROLLED GROWING RODS FROM THE POST-UNITED STATES RELEASE

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Introduction: MCGRs (Magnetically Controlled Growing Rods) were released in the United States in 2014. This multicenter review studied this cohort of patients at 1-year follow up. This series studied major curve correction and complications in patients with Early Onset Scoliosis (EOS) undergoing initial insertion (New) compared to patients converted from other types of growth-friendly instrumentation (Con). Methods: An EOS registry was queried for patients treated with MCGRs with 1 year of follow-up. Immediate major curve angle correction, 1-year major curve angle correction, and complications were collected and compared between News and Cons. Smith classification was used to describe complications. Results: We identified 36 patients (56%F; mean age 8.2years; mean follow-up 1.01y). 11 were Con (31%) and 25 were New (69%) of which 30/36 (83%) patients had complete data. The mean preoperative major curve angle was 70.5° (64.8° Con vs 73.3° New, p=.308). Both News and Cons were lengthened 3.6 times/year (14.3 weeks/lengthening). News had initial curve correction of 46%, and 1-year correction of 36%, while Cons had initial curve correction of 2% and 1-year correction of 18%. Comparing curve maintenance/correction over 1 year, News lost 9% correction, while Cons gained an additional 15%. (p=.005). The 17 hyperkyphotic patients (mean 75.7°) experienced initial correction of 23% and maintained 20% correction at 1-year. There were 13 total Smith complications in 11/36 patients, 5/11 Cons (0.45 complications/yr) vs 8/25 News (0.32 complications/year) (p=0.342). Conclusions: While New patients had better initial curve correction, Con patients had better curve correction/maintenance at 1-year follow up.

Abstract no.: 43604

SHOULD TROCHANTERIC FRACTURES BE TREATED WITH DYNAMIC HIP SCREW SYSTEMS OR INTRAMEDULLARY NAIL IMPLANTS?

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Introduction: Hip fractures represent an important cause of hospitalization, morbidity and mortality for elderly patients. Treatment of trochanteric fractures includes dynamic hip screw (DHS) systems and intramedullary (IM) implants, although the best method remains controversial. Methods: We retrospectively analysed 376 consecutive patients with trochanteric fractures between January 2012 and December 2014. Fractures were classified in accordance with AO/OTA Classification system. Outcomes measured were type of fracture, type of implant, time to surgery, blood loss, complications and mortality. Results: Two-hundred-thirty-one were treated with DHS (61,4%) while 145 with IM (38,6%). Mean age was 82,5years. Global failure rate was 4.0% (1.6% and 2.4% in DHS and IM, $p=0,113$), and mortality rate was 31,4% (18,4% in DHS and 13,0% in IM, $p=0,426$) over a mean follow-up of 651 ± 387 days. Failure causes were femoral neck screw cut-out in 2.4% (DHS 1.6%, IM 0,8%, $p=0,739$), distal locking site fracture 0.5%, implant failure 0,3% or other causes 0,8%. Time to surgery was $1,9\pm 2,9$ days and no relation between delayed surgery and mortality was found ($p=0,109$). There was no difference in the haemoglobin loss in DHS ($1,8\pm 1,4$ g/dl) and IM ($1,8\pm 1,5$ g/dl) patients ($p=0,929$), although failure cases had a greater blood loss ($p=0,044$). Conclusion: Based on our results, both DHS and IM are equivalent, in failure rates and haemoglobin loss, for the treatment of trochanteric fractures. Mortality rate was not affected by the fixation method used, nor by a greater time to surgery.

Abstract no.: 43607

**MID-TERM RESULT OF MICROSURGICAL UNILATERAL APPROACH
BILATERAL DECOMPRESSION IN LUMBAR SPINAL CANAL STENOSIS**

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From 2008 till 2013, 92 patients with symptomatic lumbar spinal canal stenosis (LSSS) but without clinical instability underwent microsurgical unilateral approach bilateral decompression (ULBD). Tubular retractor system (TRS) was employed in 60% of cases. 51% of the 92 patients had degenerative spondylolisthesis (DS). A total of 143 levels (1.6 levels per patient) were decompressed. The mean blood loss was 88ml and mean post-operation hospital stay was 4.6 days. The mean follow up was 49 months and 89 patients had at least 2 years of follow up. The Visual Analogue Scale (VAS) leg, VAS back, Japanese Orthopaedic Association Lumbar Score and Oswestry Disability Index all improved statistically significantly from 7.1, 4.7, 15.6 and 50% to 2.9, 3.1, 22.6 and 32.4% respectively. Given the choice, 92% of our patients would like to choose the same procedure again. Comparing cases with spondylolisthesis to those without, there was no statistical significant different between these 2 groups in the clinical improvement obtained. Conservative management was successful in all 13 cases of incidental durotomy, a case of wound infection and 1 case of transient extensor halluc longus weakness. As a result of excessive removal of the spinous process, 2 cases of delayed onset spinous process fracture were noted with employment of TRS. 8 cases (8.7%) need revision surgery within the follow up period. This retrospective study concludes that microsurgical ULBD generates satisfactory clinical outcomes in selected patients with symptomatic LSSS without clinical instability regardless of the presence of DS.

Abstract no.: 43608

FIXED BIPOLAR HEMIARTHROPLASTY OF HIP - AN INDIAN PERSPECTIVE.

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Introduction: 165 consecutive cases of fracture neck femur managed with bipolar hemiarthroplasty over 5 years in a government hospital were analysed for studying patient outcome with reference to immediate complications, late complications, anterior thigh pain, gait abnormality, return to work and need for revision surgery. Methods: 165 patients having intracapsular fracture neck femurs were treated with fixed bipolar prosthesis from January 2010 to January 2015 with maximum follow up of 5 years and minimum of 1 year. The inclusion criteria were traumatic fracture neck femurs between 55 and 92 years. Exclusion criteria were acetabular arthritic changes, pathological fractures and patients unfit for surgery. Patients selected through inclusion criteria were worked up as per protocol. All surgeries done under spinal or epidural anaesthesia using standard posterior approach and implanting fixed bipolar prosthesis. Mobilisation initiated after 48 hours of surgery using a frame. Follow up done at 4 weeks, 2 months, 6 months, 12 months and every 6 months till a maximum of 5 years. All hips were analysed using Harris hip score and radiologically. Results: The average series age was 72.6 years with females outnumbering males 56% to 44%. Harris hip score showed progressive improvement at 6 months and reached a peak at 28 months. The commonest complications were anterior thigh pain, trendelenburg gait and protrusio acetabuli. 18 cases were lost to follow up and 9 cases died due to other causes. 5 cases developed post operative infections and required revision surgery and thus excluded from the study.

Abstract no.: 43612

IATROGENIC VASCULAR INJURY DURING ORTHOPEDIC SURGERY: A REVIEW OF FOUR CASE STUDIES

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Introduction: We report four cases who underwent emergency vascular repair following iatrogenic vascular injury sustained in another hospital. **Materials & Methods:** We reviewed four patients (three males and one female, average age 41 years) with iatrogenic vascular injury sustained during orthopedic surgery between 2010 and 2014. Surgical procedures associated with vascular injury included the following: 1) MED for a disk herniation in the L4–L5, 2) TKA for osteoarthritis, 3) removal of intra-knee joint hematoma following intramedullary nailing, and 4) plating for tibial condyle fracture. Injured arteries included one internal iliac artery, which was injured during the MED procedure, and three popliteal arteries. **Results:** The mechanisms of vascular injury included the following: 1) perforation in two cases, 2) rupture of a pseudo-aneurysm likely caused by drilling for interlocking screw in one case, and 3) vascular occlusion secondary to thrombi because of pinching of the vessel using forceps in the final case. Vascular repair involved direct suturing in two and direct anastomosis in the other two cases. All four patients recorded a successful vascular repair associated with no subsequent adverse outcome. **Discussion:** Although the surgical procedures reviewed here were all performed by an orthopedic surgeon or clinical fellow under supervision, the primary cause for vascular injury appears to be carelessness in three of the cases and lack of knowledge of an existing pseudo-aneurysm in the fourth. It is important to establish a safety protocol system including systematic recording of medical accidents to reduce the frequency of medical accidents and iatrogenic injury.

Abstract no.: 43614

A CASE OF LATE RECURRENT DISLOCATION OF A ROTATING PLATFORM IN A KNEE-OPUS PROSTHESIS: A THICKER INSERT IS NOT ALWAYS THE SOLUTION

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A 83 year-old female presented to our outpatient orthopedic clinic with recurrent left anterior knee pain and sensation of sudden buckling. The symptoms first appeared with deep knee bending and attempts to sit cross-legged. Anteroposterior and lateral radiographs revealed 90-degree spinning of the insert on the tibia and posterior dislocation of the lower thigh. Closed reduction was performed successfully. Both varus and valgus stress radiographs revealed marked instability during extension. An epicondylar view also revealed instability, especially on the lateral side. Loosening of implant was not observed. The range of motion remained excellent, but showed genu recurvatum. Therefore, we decided to fill loose extension and flexion gaps with the thickest insert available for use. The retrieved insert revealed marked severe wear with gross loss of polyethylene material on the femoral side, especially in anterolateral and posteromedial portions. It also revealed marked delamination, cracking, and widespread oxidative degradation. The patient felt a sudden sensation of dislocation again 2 days after insert exchange. The radiographs revealed posterior complete dislocation of the exchanged insert from the tibial platform, and posterior dislocation of the lower thigh. Closed reduction of the insert was not possible, and open reduction under general anesthesia was performed. We report here a case of insert dislocation in a rotating platform mobile-bearing knee system developed in Japan, and discuss and clarify the differences from other rotating platform prostheses based on previous literature.

Abstract no.: 43616

OSTEOGENESIS AND ANGIOGENESIS STIMULATED BY POROUS CaSiO₃/β-TCP COMPOSITE SCAFFOLD IN VITRO

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Osteogenesis and angiogenesis is important to the regeneration of long bone defect. Ideal biomaterials for the regeneration of long bone defect should have the capability to stimulate the osteogenic differentiation of mesenchymal stem cells and the angiogenesis of endothelial cells. In this study, porous CaSiO₃/β-TCP composite scaffolds were developed through 3-D printing. The effects of porous CaSiO₃/β-TCP on the osteogenic differentiation of human bone marrow mesenchymal stem cells (hBMSCs) and the angiogenesis of human umbilical vein endothelial cells (HUVEC) were explored in comparison with β-TCP scaffolds. It was shown that extracts from porous CaSiO₃/β-TCP scaffolds could enhance cell viability, alkaline phosphatase (ALP) activity, calcium mineral deposition, and mRNA expression levels of osteoblast-related genes (OCN, RUNX2, BMP-2) of hBMSCs. In addition, the extracts also stimulated HUVEC proliferation and in vitro angiogenesis with improved NO synthesis and angiogenic gene expression (VEGF, KDR, FGF). It was found that the concentration of Si ions in extracts of the porous CaSiO₃/β-TCP scaffolds was obviously higher than that of β-TCP scaffolds, indicating an important role of Si ions in stimulating cell proliferation, osteogenic differentiation and angiogenesis. The results suggest that the porous CaSiO₃/β-TCP scaffolds might be considerable biomaterials for the regeneration of long bone defect due to their distinctive dual functions of osteogenesis/angiogenesis stimulation.

Abstract no.: 43617

EXPERIMENTAL STUDY ON A BIOABSORBABLE SUPER-HIGH MOLECULAR WEIGHT POLYD,L-LACTIC ACID PLATE CONTAINING RECOMBINED HUMAN BONE MORPHOGENETIC PROTEIN-2 FOR FRACTURE HEALING

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To investigate the effect of a bioabsorbable super-high molecular weight polyD,L-Lactic acid(PDLLA) plate containing sustainingly released recombinant human bone morphogenetic protein-2(rhBMP-2) on fracture internal fixation and healing through activity experiment in vivo. 32 New Zealand rabbits were used in the study. A 2.5 mm middle ulna osteotomy was made bilaterally. The right side was experiment side, fixed internally by PDLLA containing rhBMP-2, and the left control side, fixed by common PDLLA. All rabbits were randomly divided into 4 groups. After a follow-up of 4, 8 and 12 weeks, the ulnas were examined visually, radiographically, histologically, and by computer graph analysis to compare the fracture healing, fixation results and degradation processes at different times after being fixed by the two types of plates. We found that PPLLA plate containing rhBMP-2 has good biocompatibility, osteoinductive activity to enhance fracture healing, no interference with radiographical or other graphical examination, no need of further surgery to remove the implant, and has similar elastic modulus to human compact bone to successfully conduct stress. According to our study, PPLLA containing rhBMP-2 may be an effective way to treat fracture or nonunion at the non-weight-bearing site.

Abstract no.: 43618

TREATMENT OF COMMINUTED FRACTURES OF THE PROXIMAL HUMERUS IN OLDER PATIENTS WITH MINIMAL INVASIVE INTERNAL FIXATION

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To study the method of treatment of comminuted fractures of the proximal humerus in older patients with minimal invasive internal fixation with AO LPHP and to evaluate its clinical effects. There were 29 patients (13 males, 16 females) with displaced proximal humerus fractures, which were all injured from trauma. The average age was 65 years (range 51 to 79 years). According to Neer classification, the fractures were classified as Neer II fractures in 16 cases , Neer III fractures in 7 cases , Neer IV fractures in 6 cases. All patients were surgically treated with minimal invasive internal fixation with AO LPHP. The cases with obvious osseous defects of the head of humerus were filled with bone, and the cases with impaired rotator cuffs were sutured through the positioning holes in AO LPHP with the nonabsorbable thoracic bone sutures. The shoulder joints' functional exercises of all the cases were begun gradually on the first day after operation. All the 29 cases were followed up. The follow-up ranged from 6 to 18 months with an average of 11 months. No greater tuberosity of humerus was displaced during the period after operation. Only 1 case' lesser tuberosity of humerus was displaced slightly, and it was healed at last. According to the Neer hundred-mark system score, the joint function of shoulder was excellent in 16 cases, good in 8 cases, fair in 4 cases and poor in 1 case. The excellent and good rate was 83%. The avascular necrosis of the humeral head occurred in 1 case (3 %).

Abstract no.: 43619

AN OBSERVATIONAL RETROSPECTIVE STUDY COMPARING ELASTIC STABLE INTRAMEDULLARY NAILING AND SUBMUSCULAR PLATING FOR DIAPHYSEAL FRACTURES IN CHILDREN AGED 5-16 YEARS

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Aim: An observational retrospective study was carried out to compare the efficacy and outcomes following elastic stable intramedullary nailing (ESIN) and submuscular plating (SP) for diaphyseal fractures for children in the age group 5-16 years. **Method:** From January 2012 to September 2014, 40 consecutive age-matched patients in the age group 5-16 years with diaphyseal femoral fracture at a tertiary teaching hospital were identified and included in both arms of the study. The duration of surgery, amount of blood loss, radiation exposure, complications and the duration of time taken for radiographic and clinical union, among other parameters, was compared. **Results:** There was no significant difference in the overall union and complication rates between the two groups. However, the amount of radiation exposure and implant related complications were lower for the submuscular plating group. There was no difference in malunion rates between the SP and ESIN groups. Functionally, there was an earlier trend to return to school in the ESIN group, along with a trend to faster union rates. **Conclusion:** Submuscular plating provides a viable alternative to elastic stable intramedullary nailing which is commonly done for diaphyseal fractures in this age group.

Abstract no.: 43626

SURGICAL TREATMENT FOR THORACIC MYELOPATHY DUE TO SIMULTANEOUS OSSIFICATION OF THE POSTERIOR LONGITUDINAL LIGAMENT AND LIGAMENTUM FLAVUM AT THE SAME LEVEL

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Ossification of posterior longitudinal ligament(OPLL) complicated with ossification of the ligamentum flavum(OLF) in the thoracic spine is a rare condition. The optimal treatment option for thoracic myelopathy due to OPLL and OLF remains controversial, and high risk of postoperative paralysis remains a major complication. We conducted a retrospective review of clinical and radiographic records of 15 patients who underwent surgery for simultaneous OPLL and OLF at the same level. Simultaneous OPLL and OLF occurred in the upper thoracic spine in three patients (20%), mid-thoracic spine in 10 patients (67%), and lower thoracic spine in two patients (13%). Six, 4, 2, and 3 patients underwent posterior decompression, posterior decompression and fusion, posterior decompression and OPLL manipulation through a posterior approach, and OPLL manipulation and posterior fusion, respectively. The mean Japanese Orthopaedic Association score before surgery and at the final follow-up was 5.7 ± 1.9 and 7.0 ± 2.1 points, respectively, yielding a mean recovery rate of 16.5%. However, no significant difference was observed between pre- and postoperative JOA scores. Mid-thoracic lesions and considerable blood loss were risk factors for poor surgical outcome. Simultaneous OPLL and OLF in the mid-thoracic spine was observed in two-thirds of the patients. We suggest that simultaneous OPLL and OLF in this area has a relatively poor recovery and may be very challenging and risky to treat, regardless of the surgical method selected, and recommend early surgery for OPLL and OLF in the mid-thoracic spine.

Abstract no.: 43627

DYNAMIC SPANNING EXTERNAL FIXATOR OF THE LOWER EXTREMITY: A DESIGN CONSTRUCT

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Background: The external fixator has been used as one of the mainstays of operative fracture treatment. It allows “local damage control” for fractures with severe soft tissue injuries and can be used as a temporizing frame or as a definitive treatment frame in some cases. The application of a static spanning external fixation for fractures of the distal femur or proximal tibia has been performed in our local clinical setting for the longest time. In this study, a dynamic spanning external fixator prototype is designed which will accommodate the biomechanical range of motion of the knee from 0-20 degrees of knee flexion after 3-6 weeks of immobilization to allow controlled destiffening and avoid knee stiffness. Method: The dynamic spanning external fixator was designed in 3D and will make use of stainless steel rods and coupling as the static spanning external fixator. The connecting construct on the knee joint or the z-construct uses articulating couplings with ball joint and telescoping rods to accommodate knee flexion and extension. Application of the dynamic spanning external fixator follows AO principle with placement of pins into the anteromedial aspect of the tibia and the anterolateral aspect of the femur to create a stable base in each segment. Conclusion: The dynamic external fixator designed, will accommodate the biomechanical range of motion of the knee while it provides rigidity and stability as a static external fixator. Recommendations are to construct and determine the biomechanical strength and stability of the construct in static and dynamic mode.

Abstract no.: 43628

ARTHROSCOPIC ELBOW SYNOVECTOMY IN RHEUMATOID ARTHRITIS PATIENTS: - LONG-TERM CLINICAL AND FUNCTIONAL OUTCOMES IN TERMS OF PAIN, FUNCTION AND RANGE OF MOVEMENTS.

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Objective: To determine the long term clinical and functional results of arthroscopic elbow synovectomy in rheumatoid arthritis patients with refractory elbow synovitis in terms of improvement in pain, function, and active range of motion (AROM) or arc of motion. **Method:** - fifteen rheumatoid elbows in thirteen patients, not responding to DMARD therapy and with radiological changes not more than Larsen grade 3 were taken, who underwent arthroscopic elbow synovectomy. The main outcome measured in forms of Mayo Elbow Performance Scale (MEPS) score, measurement of pain using a visual analogue scale (VAS), radiological angles of elbow, disease activity score (DAS-28), arc of motions (AOM) and complications, which were assessed at follow-up periods of 6 months, 24 months and 30 months . Statistical analysis was done both qualitatively and quantitatively. Mann-Whitney U test, Chi Square test and student- t test were used as the statistical test for determining significance. **Results:-** in the study group the improvement was sustained and significant as compared to baseline (VAS 1.28, MEPS 81.07 and mean flexion range 85 degrees)(p value <0.001). No significant complications were encountered in postoperative period after elbow synovectomy. **Conclusion:-** study assess the long term results of arthroscopic synovectomy in elbow synovitis secondary to rheumatoid arthritis with significant results favoring arthroscopic synovectomy.

Abstract no.: 43632

CLINICAL AND RADIOGRAPHIC RESULTS OF SURGICAL TREATMENT FOR THE POSTERIOR ACETABULAR WALL FRACTURE

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the purpose of this study is to analyze the impact of preoperative factors affect the clinical and radiographic results after surgery in posterior acetabular wall fracture. 29 patients who needed operation for posterior acetabular wall fracture at our hospital from december 2010 to march 2014 were enrolled in this study. fracture pattern, quality of reduction, number of bony fragments in posterior acetabular wall, presence of marginal impaction, loose bodies in the joint, femoral head fracture and postoperative complication, etc. were examined by retrospectively analyzing the medical records and the radiographic examinations. the results after the operation were analyzed based on the criteria of matta. The clinical results were excellent in 3 cases, good in 14 cases, fair in 2 cases and poor in 10 cases, while the radiographic results were excellent in 17 cases, good in 6 cases, and poor in 5 cases. the number of bony fragments in posterior acetabular wall, loose bodies in the joint are factors affecting the radiographic results. the statistical significance was observed between the clinical and radiographic result at the time of final follow-up. the factors that make it difficult to reduction of posterior acetabular wall fracture affects the radiographic results. comminution of acetabular posterior wall fracture, loose bodies in the joint are considered as an important factor affecting the clinical results.

Abstract no.: 43634

NOVEL SUNFLOWER CONTOUR WIRING FOR COMMINUTED PATELLA FRACTURES USING AI-PINS AND A CABLE WIRE SYSTEM

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Introduction: We use AI-Pins and a cable wire system to treat comminuted patellar fractures. An AI-Pin has two holes in the sleeve box that can crimp the cable wire. The outline of the AI-pins and the cable wire is like a sunflower contour. Even if the cable wire is partially broken, the reduction position of the fracture fragments can be maintained by this wiring system. The purpose of this report is to present our wiring technique, and to retrospectively evaluate clinical outcomes. **Methods:** Twenty patients were treated using this method. The patients were encouraged to move the knees actively and to load the weight as soon as possible after the surgery. Bone union and range of motion of the knee were assessed at the latest follow-up examination, and postoperative complications were evaluated. **Results:** All fractures were united. The average ranges of flexion and extension of the knee were 133.3 degrees and -1.9 degrees, respectively. Four cable wires in 4 patients were partially broken without the displacement of the fracture. Back-out of the wire, deep infection, and limitation of the range of motion of the knee due to subcutaneous irritation of the wire were not observed in any of the patients. **Conclusions:** This wiring technique can prevent back-out of pins and maintain reduction position of comminuted fracture fragment. Our novel sunflower contour wiring for comminuted patella fractures using AI-pins and a cable wire system is one of the good options in treating comminuted patella fractures.

Abstract no.: 43635

MINIMALLY INVASIVE TENSION BAND FIXATION FOR THE TREATMENT OF OLECRANON FRACTURES.

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Introduction: We have been performing minimally invasive tension band fixation (MIT) through a 2-cm incision. The purpose of this study is to present our surgical technique and to retrospectively evaluate clinical outcomes. **Methods:** Through a longitudinal 2-cm incision, 2 titanium pins were inserted parallel to the proximal surface of the proximal fracture fragment in the intramedullary canal of the ulnar shaft. A bone tunnel was made percutaneously in a direction perpendicular to the ulnar shaft by using a 2.4-mm K-wire. A nonabsorbable looped suture was passed percutaneously through the bone tunnel. The 2 ends of the suture were pulled out from the skin incision, and then the suture was passed through the 2 holes of the AI-Pins. The suture was tightened using double-loop sliding knot technique to fix and compress the fracture. Twenty patients were treated with this technique. Bone union and range of motion of the elbow were assessed at the latest follow-up examination, and postoperative complications were evaluated. **Results:** All fractures were united. The average ranges of flexion and extension of the elbow were 132 degree and -10 degree, respectively. No patient had loss of fracture reduction, implant failure, or deep infection. **Conclusions:** Our technique of MIT can be performed through a 2-cm incision. Small skin incisions are advantageous from an esthetic viewpoint, and this technique can also prevent backing out of the pins. Furthermore, since the pins are placed in the intramedullary canal, there is no possibility of the postoperative complications that may occur after trans-cortical fixation.

Abstract no.: 43638

MINIMALLY INVASIVE SCREW FIXATION FOR CALCANEAL FRACTURES USING HIGH STRENGTH, BIOACTIVE, BIORESORBABLE CANNULATED HA/PLLA SCREWS

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Introduction: The purpose of this report is to present our surgical technique for treating calcaneal fractures using HA/PLLA screws, and to verify the advantages of this device using postoperative radiographs. Methods: Two transverse 2 cm skin incision was made at 1 cm proximal to insertion of the Achilles tendon into the calcaneus and at 2 cm inferior to the lateral malleolus. A 3-mm K-wire was inserted in an axial direction to manipulate the fracture fragment through the posterior incision. During the reduction of the posterior facet using the K-wire, 2 cannulated HA/PLLA screws were inserted, holding the posterior facet to the sustentaculum. Then, additional 2 guide wires for cannulated HA/PLLA screws were inserted from posterior to anterior just below the fracture fragment through the posterior incision. The same procedure was used for additional 2 cannulated HA/PLLA screws. Twelve patients were treated using this method. Radiographs were evaluated for fracture healing, radio-opacity of the pins, and radiolucent zones around the pins. Results: All fractures were united. Shadows of all the screws were observed and there were no radiolucent zones around the pins at the final radiographic follow-up. Two of the patients had pain due to subcutaneous irritation of the screw head. Conclusions: The radio-opacity of HA/PLLA devices is a major advantage of this device. No radiolucent zones were present around the screws, no osteolysis was observed on postoperative radiographs. Re-operation for removal was unnecessary. Open reduction and internal fixation using HA/PLLA screws offers several advantages in treating calcaneal fractures.

Abstract no.: 43639

CORRECTION OF TORSIONAL DEFORMATION OF TIBIA IN ADOLESCENTS

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Introduction: Torsion deformations of tibia take a special place among orthopedic diseases in children and adolescents. They are less common than the varus and valgus deformity, but have more complex biomechanical characteristics. If the clinical and radiological diagnosis of varus and valgus deformities are simple, the diagnosis of torsion deformations can cause certain difficulties. This disorder can be removed only surgically. Methods: In the adolescent orthopedics department were treated 62 teen with torsion deformations of tibia from 2012 to 2015 (from them - 11 boys, 51 girls). The age of patients was from 10 to 16 years. All patients were applied the Ilizarov's device on the tibia area with osteotomy of the proximal end of the tibia. Patients with torsional deformations up to 30 ° were performed osteotomy of the proximal end of the tibia and one-stage correction of the deformity with fixation of Ilizarov's device. Patients with deformation above 30 ° were performed osteotomy of the proximal ends of both shin bones and the application of Ilizarov's device with a gradual correction of the deformity. In combination: torsion of tibia with varus deformity of the knee were performed osteotomy of the proximal tibia bone and tibia torsion simultaneously corrected with medialization of the distal fragment with Ilizarov's device fixation. Results. Torsional osteotomy of shin bones improved the biomechanics of the operated patients. In addition, the operation gave us a positive cosmetic effect, which is important for patients in this age and for their parents.

Abstract no.: 43640

THE EFFECTIVENESS OF SCIALOGICAL PARAMETERS IN HV SURGERY.

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The influence of HV scialogical parameters on the foot function rate before and after surgery; the influence of patient's subjective opinion on the foot function rate. There were 83 feet in 61 patients with HV surgery. The metatarsophalangeal angle (MPA), 1st intermetatarsal angle (1st IMA), distal articular set angle (DASA), subjective assessment of first ray by proper scale, foot function score (AOFAS scale) have been investigated. Terms of observation 1-12 years (in $6,5 \pm 1,2$). The foot function depended on from 1st IMA and DASA (linear regression; $p < 0,001$) before surgery; from 1st MPA and subjective assessment (linear regression; $p < 0,001$) after surgery. The decision about surgery based on objective scialogical parameters but the final result depends on visual effect and patient's subjective opinion.

Abstract no.: 43641

FACTORS THAT IMPACT THE INFECTION RATE IN OPEN TENDON ACHILLES LACERATION

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Background:Open tendon Achilles lacerations have a high incidence in Qatar, can be caused by direct cut wounds made by sharp objects, Grinder injury, slipped in the bathroom.We aimed to study the Epidemiology of Open tendon Achilles laceration, detect the incidence of complication and wound infection, and the factor that contributes it. Methods:A retrospective chart review of Open tendon Achilles injuries operated and followed up in the orthopedic department at Hamad Medical Corporation(HMC), Doha, Qatar, from 2010 to 2015. Results:There were (322)cases of open tendon Achilles laceration, average age (32.1 years),(97.5%) male. Bathroom injury was the most common cause of injury and found in 264(81.7%), sharp objects in 50 cases (15.5%), and 9 cases (2.8%) caused by Grider injury. Partial cut 201(63.5%) was more common than complete cut 116(35.9%). The infection rate was 8.7% (28 cases out of 322). Patient factors that impact the infection rate were the age (p-value 0.02), with no difference gender, DM, smoking, Mechanism of injury or type of cut. Management factors that impact the infection showed a statistical difference in increasing the time to surgery p-value<0.001, the length of hospital stay p-value <0.001. Surgical factor that impacts the infection showed no difference between the type of suture p-value0.373, type of postoperative slab p-value 0.493. The reoperation rate was more in infected group comparing to non- infected group with significant statistical p-value <0.001. Conclusion:Relative low incidence of major wound infections in the studied group of patients. Primary tendon Achilles open wounds repair is considered safe.

Abstract no.: 43642

CORRECTION OF TORSIONAL DEFORMATION OF TIBIA IN ADOLESCENTS.

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Introduction: Torsion deformations of tibia take a special place among orthopedic diseases in children and adolescents. They are less common than the varus and valgus deformity, but have more complex biomechanical characteristics. If the clinical and radiological diagnosis of varus and valgus deformities are simple, the diagnosis of torsion deformations can cause certain difficulties. This disorder can be removed only surgically. Methods: In the adolescent orthopedics department were treated 62 teen with torsion deformations of tibia from 2012 to 2015 (from them - 11 boys, 51 girls). The age of patients was from 10 to 16 years. All patients were applied the Ilizarov's device on the tibia area with osteotomy of the proximal end of the tibia. Patients with torsional deformations up to 30 ° were performed osteotomy of the proximal end of the tibia and one-stage correction of the deformity with fixation of Ilizarov's device. Patients with deformation above 30 ° were performed osteotomy of the proximal ends of both shin bones and the application of Ilizarov's device with a gradual correction of the deformity. In combination: torsion of tibia with varus deformity of the knee were performed osteotomy of the proximal tibia bone and tibia torsion simultaneously corrected with medialization of the distal fragment with Ilizarov's device fixation. Results. Torsional osteotomy of shin bones improved the biomechanics of the operated patients. In addition, the operation gave us a positive cosmetic effect, which is important for patients in this age and for their parents.

Abstract no.: 43643

USING AUTOGRAFTING AND CEMENTED FILLING OF CONDYLE DEFECTS OF THE TIBIAL PLATEAU IN TOTAL KNEE ARTHROPLASTY AT ELDERLY PATIENTS

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Introduction: At condyle defects of the tibial plateau most is often used autologous bone grafting or full cemented filling of the defect, herewith no determined clarity in what events acceptance one or another method of the filling under total knee arthroplasty. The purpose persisting studies is a study outcomes operative treatment patients in elderly age with tibial condyle defect after total knee arthroplasty without using augments. Methods: Beside 54 patients at elderly age with tibial condyle defect was performed total knee arthroplasty; with autologous bone grafting - 24 and cement filling -30. The Clinical examination was conducted scale for knee joint Bristol Knee Score, Lysholm Knee Scoring scale. Results: On osteoimpaction place had joining of the tibial plateau, but in osteosclerosis area observed the osteolysis offset of the hip component in front-back and lateral directions to 2,0 mms, tibial component in front-back direction also to 2,0 mms above of the cement mantle.

Abstract no.: 43647

THE ASSOCIATION BETWEEN SQUAT DEPTH AND OUTCOMES OF OPERATIVELY TREATED FEMORAL SHAFT FRACTURES: A PROSPECTIVE STUDY IN DAR ES SALAAM, TANZANIA

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Introduction: Even though performance of a full squat is required for essential activities of daily living in many low- and middle-income countries (LMICs), no study to date has evaluated the association between squatting and other established outcomes of operatively managed femur fractures. The purpose of this investigation was to compare squat depth with patient-reported outcomes, complications and reoperation after operatively treated femoral shaft fractures. Methods: In this prospective study, adult patients with diaphyseal femur fractures treated by intramedullary nailing were enrolled at a Tanzanian tertiary hospital. Squat depth was assessed at 6, 12, 24 and 52 weeks postoperatively and was graded on a four-point scale – unable to squat (1), hip above knee-level (2), hip at knee-level (3), hip below knee-level (4). EQ-5D-3L, reoperation and complications were recorded to assess for correlation. Results: Out of 332 enrolled patients, 231 (70.0%) had completed the Squat-and-smile test at 1 year. A majority of patients (92.5%) achieved grade 3 or 4 squat depth at one-year postoperatively. Average squat depth significantly increased from 2.5 +/- 0.8 at 6 weeks to 3.4 +/-0.56 at 1 year (p=0.01). Squat depth scores of 3 or above were significantly associated with a higher EQ-5D VAS (90.1+/-12) than squat depth scores below a 3 (79.7+/-17 p=0.026). Conclusion: For patients operatively treated for femoral shaft fractures, squat depth significantly improves over one-year follow-up. Patients who squat at or below knee-level report significantly higher self-rated health than those who cannot, suggesting that squat depth can be used for functional assessment.

Abstract no.: 43649

PLANTAR EPIDERMOID CYST: RARE POSSIBLE CAUSE OF PAIN IN THE GREAT TOE

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Background:Epidermal cysts are benign lesions that appear as a consequence of traumatic inclusion of epidermal cells into the dermis. We report a case of a 23-year-old man with a mild painfull mass under the left great toe . **Method:**A 23-year-old man presented to our clinic with a complaint of pain associated with a plantar mass of his left great toe. The patient reported a 6 months presence of the lesion; he stated that the pain associated with this lesion was exacerbated by weightbearing activities . **Result:** Physical examination revealed a discrete lesion located under the first great toe distal phalanx of the left foot. Palpation of the lesion elicited pain. The MRI revealed hypointence, a well-defined 23*17*12 mm soft tissue mass image with fine and delineated borders. The mass was isolated using sharp and blunt dissection until the complete excision of the subcutaneous mass was achieved . The excised mass was sent to the laboratory for pathologic study. The laboratory determined that the cutaneous piece had laminar content. Slides identified a cystic formation covered with polystratified epithelium . Some granulomatous type inflammatory changes surrounding the lesion were also noted. **Conclusion:**This case should alert the clinician about the existence of painfull mass in the distal phalanx of the great toe. Some of the lesions could be directly derived from skin problems aggravated by pressure from the first toe. This should be taken into consideration when addressing the management of these lesions.

Abstract no.: 43650

DESMOPLASTIC FIBROMA IN THE DISTAL RADIUS: A RARE BENIGN OSSEOUS LESION

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Background:Desmoplastic fibroma is rare benign agresive tumor of bone. Incidence is 0.3 %. The most common areas of involvement include the mandiblei pelvis and femur. A case of a 39 year old male with desmoplastic fibroma in the distal radius presented here
Method:A 39 year old male presented to our clinic with right wrist pain. His pain was increased during the flexion and extension of the right wrist. Result:Radiograph demonstrated a lytic expansile lesion in the distal radius. MRI showed that 4.5x3x2.5 cm lesion at the distal radius metaphysoepifizeal localisation which caused cortical destruction.It also had a soft tissue component. We applied trucut biopsy in the operation room under image intensifier control. Pathology laboratuar confirmed that the samples were histologically named desmoplastic fibroma and curettage was planned. Conclusion:In conclusion desmoplastic fibroma in the distal radius is rare and an intralesional resection is strongly recommended to prevent recurrence. The disease may be misdiagnosed as a bone cyst. So the diagnosis should be confirmed with the histological examination.

Abstract no.: 43652

AN ATYPICAL CASE OF NEUROFIBROMA

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Background:The aim of study is to present a rare case with neurofibroma, had widespread mass in his body. **Method:**A 22-year-old male was admitted to other hospital's outpatient clinic with the complaint of swelling in the right paravertebral region. **Result:**Abdominal computed tomography was obtained and 2 masses were determined; one in the right adrenal gland with 7 mm in diameter, and has smooth surface and hypoechoic areas in the central, and second in the paravertebral muscles with 9 mm in diameter as a hypoechoic lesion and heterogeneous density. He was referred to our hospital for further treatment. Firstly PET Scans was obtained and two lymph nodes were determined; one in the mediastinum and 14 mm in diameter, and second in the hilar region and 12mm diameter. General surgeons firstly evaluated patient and they performed right adrenal gland mass excision. Then the patient was transferred to our clinic due to lumbar mass. The lumbar mass was excised and the material was send to pathology. Neurofibromas were diagnosed in the pathological examinations.The patient was discharged after 5 days of operation. He was scheduled to revisit the clinic at 3 and 6 months postoperatively. **Conclusion:**Neurofibromas are benign peripheral nerve sheath tumors usually solitary and sporadic. There is an association with neurofibromatosis type 1 and the disease usually diagnosed with skin or eye findings. However they rarely admitted with widespread mass in the body, without any skin or eye lesions.

Abstract no.: 43654

AN UNUSUAL LOCATION OF ELBOW SYNOVITIS

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Background:This study is aimed to present an unusual case of elbow synovitis that mimicking other inflammatory events. **Method:**An 13 years-old man admitted to outpatient clinic with severe pain, swelling and erythema in his right elbow. He had received antibiotherapy by another hospital due to their diagnosis of olecranon bursitis; however, his symptoms were increased. In physical examination his elbow was warmth and elbow circumference was increased due to diffuse edema when comparing to left. Range of right elbow motion was restricted and painful especially in the last one third of flexion and extension movements. Neurovascular examination was in normal ranges and upper extremity pulses were palpable. Intra-articular fluid collection and bone marrow edema in the olecranon were determined in the MRI images. The patient was hospitalized due to suspicion of septic arthritis. In spite of intravenous antibiotics his symptoms had not declined and patient underwent arthroscopic surgery. **Result:**In the arthroscopic images synovium was inflamed and articular cartilage was minimally damaged. Damaged synovium was removed and intraarticular structures were rearranged. Patient was discharged one day after the surgery. Patients elbow was full of motion and the other symptoms were resolved in the follow up examination **Conclusion:**Synovitis is a condition that is characterized by irritation and inflammation of synovial membrane. The disease commonly is occurred in the knee synovium and to a lesser extent may involve hip, ankle, or shoulder joints. Elbow synovitis is very rare, commonly confirmed with arthroscopic examination and may required arthroscopic debridement.

Abstract no.: 43655

EVALUATION OF THE EFFECT OF CONCENTRIC OR ECCENTRIC QUADRICEPS TRAINING ON FUNCTIONAL CAPACITY OF LOWER EXTREMITY IN HEALTHY YOUNG ADULTS

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Introduction: This study planned for the effect of concentric or eccentric quadriceps training on the functional capacity of lower extremity, and to detect which exercise type was more effective. **Methods:** Healthy young volunteers were randomized to 3 groups; concentric exercise (n=20), eccentric exercise (n=20), and control group (n=20). Exercise training was applied under the supervision of physical therapist for 10 repeats with 3 sets, 3 times/wk, for 8 wk. Control group didn't participate to exercises. Thigh circumference, quadriceps muscle strength, flexibility of lower extremity, functional capacity and postural balance of all participants were evaluated at baseline and at the end of 8 week by same therapist who was blind to exercise groups. Thickness of quadriceps muscle was measured with ultrasonography by same physician who was blind to exercise groups. **Results:** Significant improvements were detected for thickness of quadriceps muscle in both concentric and eccentric exercise groups (p=0.001, p=0.003, respectively). Significant difference was detected on thickness of non-dominant quadriceps in eccentric exercise group (p=0.050). At the end of training program significant difference was detected for 6 minute walking test and hop test in concentric exercise group (p=0.006, p=0.000, respectively). When groups were compared at the end of training program, there was significant difference for only hop test in favor of concentric group, whereas there were no difference for thigh circumference, muscle strength, flexibility, functional capacity, postural balance and ultrasonographic quadriceps thickness between concentric and eccentric groups. **Discussion:** According to results of this study both concentric and eccentric exercises had similar effects on dominant side quadriceps muscle. However eccentric exercises had additional improvement on non-dominant quadriceps muscle.

Abstract no.: 43662

COMPARTMENT SYNDROME OF THE LOWER LEG AFTER PROLONGED SURGERY

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Background: Acute compartment syndrome usually occurs after a traumatic injury such as a car crash. It also can occur when a patient has been lying in the lithotomy position during prolonged surgery. In this case we presented iatrogenic complication after a patient who developed compartment syndrome after urological surgery at our hospital. **Method:** A 64-year-old man underwent a 9-hour operation in the trendelenburg position for a laparoscopic radical prostatectomy under general anesthesia. Pain and slight numbness in his right leg has observed in the operating day evening. NSAIDs were initiated and the patient was taken to the side limb elevation. Patient have been consulted on our Orthopaedic service on the 3rd day, Upon that complaints continued increasingly for postoperative 1th and 2th days. **Result:** Arterial/Venous doppler ultrasonography, EMG and biochemical tests were performed immediately on patient with initial diagnosis of compartment syndrome. We diagnosed compartment syndrome as a result of imaging, tests and our physical examination and we observed complete foot drop. We performed an emergency fasciotomy to decompress the compartments of cruris. In the general anesthesia we carried out dermatofasciotomy with opening lateral 30 cm, medial 15 cm skin and facia incision. The peripheral pulses of the right leg were examined with ultrasonography and observed that pulses were nonpalpable. 15 Sessions of hyperbaric oxygen therapy and physical treatment applied after surgery. **Conclusion:** Acute compartment syndrome can be prevented if adequate measures are taken, but after lengthy surgery, maximum alertness for emerging acute compartment syndrome remains indicated.

Abstract no.: 43665

RELATIONSHIP BETWEEN CORE STABILIZATION AND FUNCTION OF UPPER EXTREMITY IN PATIENTS WITH ROTATOR CUFF RECONSTRUCTION

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Introduction: During upper extremity movements deep trunk muscles are activated earlier than the upper extremity muscles in order to minimize the changes of gravity center. Combination of upper extremity rehabilitation with core stabilization ensure better motor performance due to improvements of neuromuscular control between distal and proximal segments. Therefore the aim of this study was to evaluate the relationship between function of upper extremity and core stabilization in patients with rotator cuff reconstruction. **Methods:** Totally 66 patients (54.94±9.83 years) who had mini-open rotator cuff reconstruction were enrolled in study. Pain level and shoulder range of motion were evaluated with Visual Analogue Pain Scale and with universal goniometer, respectively. Patients evaluated with Disabilities of Arm, Shoulder and Hand (DASH), Western Ontario Rotator Cuff Scale, Shoulder Pain and Disability Index (SPADI). Quality of Life in Patients with Rotator Cuff Diseases (RC-QoL), and Short Form-36 (SF-36). Davies Closed Chain Upper Extremity Stability test, and Prone Bridge and Supine Bridge tests was applied to evaluate the stability of upper extremity, and core muscles, respectively. **Results:** Pain for rest and activity were at minimal level (2.28±2.79, 1.62±2.27 respectively), and range of motion was at good level. Significant positive correlations were detected between stability of upper extremity and endurance of trunk flexion and prone bridge test (p=0.013, r=0.38, p=0.007, r=0.39). Positive relationships were detected between core stability and general health, social function, and physical function of SF-36 (p=0.005, r=0.39, p=0.028, r=0.32, p=0.023, r=0.32). **Discussion:** There were relationships between core stability and functional capacity of upper extremity and quality of life. Therefore addition of core stabilization exercises in postoperative rehabilitation programs would be beneficial in patients with rotator cuff reconstruction.

Abstract no.: 43668

INTRAMEDULLARY FIXATION VERSUS THE SLIDING HIP SCREW FOR TROCHANTERIC HIP FRACTURES; A RANDOMISED TRIAL OF 1000 PATIENTS

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The Sliding Hip Screw (SHS) is the traditional treatment of choice for trochanteric hip fractures, with the alternative being the intramedullary femoral nail. Earlier designs of these nails had increased fracture healing complication rates compared to the SHS. Ongoing development of intramedullary nails means that further evaluation is needed to compare the new designs of nail to SHS fixation. We conducted a randomised trial of 1000 patients to compare the Targon Proximal Femoral (PF) Nail systems with the SHS. Patients with trochanteric hip fractures (AO classification A1-A3), were randomised to either implant. All surgery was supervised by one surgeon. All surviving patients were followed up for a minimum of one year by a blinded observer. The length of surgery was similar for both groups. There was no significant difference in blood transfusion, post-operative medical complications or mortality between groups. Overall fracture fixation complications were rare. Implant cut out occurred for 0.8% of patients, non-union 0.5% and fracture around the implant for 0.7%. The re-operation rate was higher for the SHS, but not statistically significant. At follow-up no difference in pain scores was seen. There was a significantly improved regain of mobility in the nailed group. This is the largest randomised trial on this topic, which suggests that improved designs and surgical technique mean newer versions of nails for proximal femoral fractures may not suffer from the complications of the earlier short intramedullary nails. Intramedullary fixation appears to achieve superior regain of mobility in comparison to the sliding hip screw.

Abstract no.: 43671

PROSPECTIVE RANDOMIZED COMPARISON OF DOUBLE BUNDLE VS ANATOMICAL SINGLE BUNDLE ACL RECONSTRUCTION: SIX YEARS-FOLLOW UP

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Single bundle ACL reconstruction is increasingly used in a large number of patients and it allows obtaining very good results; however, functional tests show a persistent rotational instability. Biomechanical studies seem to indicate that double bundle ACL reconstruction (DB) allows to obtain increased anterior and rotational stability compared to single bundle (SB). Purpose: The aim of this study was to compare the clinical outcome of patients treated either with a personal SB (free-hand trans tibial femoral tunnel) or with a DB technique (Out-In for PL femoral tunnel/In-Out for AM femoral tunnel) at 6 years follow-up. Methods: A total of 60 patients with complete ACL rupture (age 16-40 y/o) were prospectively randomized to SB (n=30) or DB (n=30) groups. Patients were evaluated pre-operatively and after surgery at 6 months, 1, 3, and 6 years with Lysholm score, IKDC form, KT-2000. Results: No significant differences in background factors (age, time from injury, sex) between the two groups were observed ($p>0.05$). Homogeneity was also found in term of pre-operative Lysholm score, IKDC and KT-2000 between SB and DB group ($p>0.05$). Already after 6 months from surgery both groups showed significant improvements for Lysholm, IKDC and KT-2000 score respect to pre-operative observations ($p<0.001$); however, no significant differences have been observed in term of post-op values between the two groups at each time point (6-year evaluation) Conclusion: In our study we did not detect any advantage in using DB ACL reconstruction in term of clinical outcome and knee stability at both short- and medium term.

Abstract no.: 43672

THE RELATIONSHIP BETWEEN CURVATURE DEGREE, FEAR AVOIDANCE BELIEFS AND UPPER EXTREMITY FUNCTIONALITY IN ADOLESCENT IDIOPATHIC SCOLIOSIS PATIENTS WHO UNDERGOING SCOLIOSIS SURGERY

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Introduction: To investigate the relationship between curvature degree, fear avoidance beliefs and upper extremity functionality in adolescent idiopathic scoliosis (AIS) patients who undergoing scoliosis surgery. **Methods:** Thirty one females and seven healthy females, mean age 16.59 ± 2.18 years (min: 11, max: 19) who had scoliosis surgery between 2005-2014 years participated in the study. Cobb angle of patients before and after surgery were measured. Upper extremity functional status of participants was assessed with Disabilities of the Arm, Shoulder and Hand Questionnaire, hand grip strength was assessed with Jamar hand dynamometer, fear avoidance beliefs during physical activities assessed with Fear-Avoidance Beliefs Questionnaire, quality of life with Short Form-36. The patients were asked whether they exercised regularly. **Results:** The mean follow up period is 33.86 ± 25.98 . There was negative correlations between preoperative Cobb degrees and fear avoidance beliefs during physical activities ($p=0.034$). A significant positive correlation was found between DASH score and fear avoidance beliefs during physical activities (0.000). DASH scores were showed a negative correlation with subscales of SF-36 ($p<0.05$). Three of the patients were found to be regular exercise. %81.6 of the patients were doing regular exercise. **Discussion:** It were found that Fear-Avoidance Beliefs Questionnaire score was high in patients who has high degree of curvature before surgery and the rates of curvature correction after surgery did not change patient's fear avoidance beliefs. Patients fear avoidance beliefs during physical activities increases while upper limb functionality reduce. According to this finding we concluded that regular exercise and activity participation training should be given to the patients after surgery.

Abstract no.: 43673

MISTAKES AND COMPLICATIONS OF ACETABULAR REVISION HIP ARTHROPLASTY

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The basis of the research results amounted to 188 patients with aseptic acetabular instability, which carried revision hip joint. Through analysis of the results of revision hip arthroplasty authors determined the frequency of complications of revision hip in a re-aseptic instability, septic loosening, head dislocations. Statistically determined that re-aseptic instability of acetabular components prevalent in patients with cemented implants where bone defects volume of more than 50 cm³ were replaced by bone cement (19 cases, 86%), in violation of the recommended position of the implant component in 15 (68%) cases, overlapping bone did not reach 40% in 16 cases (73%). When using plastic material of the bone defect an average volume surpassed 150 cm³, the contact with maternal bone did not reach 50% in 100% of cases. Septic complications were observed in 12 (6%) cases for 10 years. Determined a direct correlation between the occurrence of septic complications frequency of positive results highlight the culture of microorganisms during revision surgery. The presence of contamination by microorganisms in interference increases the number of complications that justifies the need for microbiological and serological examination of patients with aseptic instability and the need for antibiotic complications. Dislocations head prosthesis revision in the postoperative period were observed in 8 (4%) cases, mainly in the early postoperative period, up to 3 months. Determined that the presence of chronic dislocation of the implant head correlates significantly from the deprecated bone position and overlap 40% of revision acetabular implant

Abstract no.: 43677

IS MENISCAL REPAIR A GOOD OPTION FOR CHRONIC MEDIAL AND LATERAL MENISCAL TEARS?

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The aim of this study was to determine the outcomes after arthroscopic repair of chronic meniscal tears using clinical examination and patient outcome measures. Methodology This study was carried out on 14 patients (10 males and 4 females) with a mean age of 24.9 (19-36).11 patients were involved in medium to high level sporting activities before the injury .2 patients had BMI over 37,3.Mean time from injury to repair was 15 weeks (4-52).12 out of 14 were bucket handle tears.8 patients underwent medial meniscal repair (all bucket handle tears) and 6 had lateral meniscal repair(4 bucket handle tears).Of these ,10 patients underwent reconstruction of an associated anterior cruciate ligament tear(ACL) ,6 in the same session and in 4 cases was performed 6 weeks later.Majority of the tears were located in the red zone or red-white zone.All meniscal repairs were carried out using all-inside technique.The minimum follow-up was 6 months.Results At the latest follow-up all parameters evaluated improved significantly.The median Lysholm score was 96 and the median Tegner activity level before the injury and after the surgery remained unchanged for 13 of them.In 1 patient meniscal repair failed and 3 months later he had meniscectomy carried out.Short-term success rate of 92.85% lead to conclusion that repair of chronic meniscal tears is a good option.We are following up all these patients and assess them again at 1 year from the operation.

Abstract no.: 43678

LONG-TERM RESULTS OF ToTaL CEMENTLESS ARTHROPLASTY IN THE PATIENTS WITH HIP JOINT OSTEOARTHROSIS

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In work, were presented principals of preoperative planning, on the base of examination of 168 patients with osteoarthritis of the hip joint, among which 125 patients in 139 cases were done total uncemented hip replacement. The algorithm of differentiated selection of prosthesis in form, type of fixation and the character of functional covering in patients with atrophic, normotrophic and hypertrophic types of osteoarthritis was developed. The system of clinical-x-ray scoring of arthroplasty results was worked out and long-term results of total uncemented hip replacement in patients with osteoarthritis of hip joint were analyzed for own rating. Dependence of long-term results of total uncemented hip replacement from sex and Body Mass Index patients, term of functioning the endoprosthesis was defined by correlation analysis. Peculiarities of clonogenic activity of marrow's stroma in patients with different kinds of osteoarthritis of hip joint were discovered. The activity level is low at atrophic type, and high at hypertrophic type. By the way, it is proved at in vitro conditions that the most effective at low clonogenic activity of marrow's stroma is titanic, porous covering, at high clonogenic activity – titanic covering with superficial layer of hydroxyapatite. Designed algorithm of differentiated selection of endoprosthesis for its form, type of fixation and the character of functional covering in patients with different kinds of hip joint osteoarthritis give us the opportunity to avoid mistakes even on the stage of preoperative planning.

Abstract no.: 43682

TREATMENT OF LIBYAN WAR TRAUMA OSTEOMYELITIS, SEPTIC AND ASEPTIC NON UNION. OUR EXPERIENCE OF 56 CASES.

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In a civil hospital in Italy, we have been treating sequelae of Libyan war traumas. From November 2011 to October 2014 we treated 56 war trauma patients. 54 cases presented a septic or aseptic non union, 2 presented with osteomyelitis. In 18 cases the lesion was in the upper extremity in 38 in the lower extremity. A full evaluation was taken for each patient. All external hardware applied in camp hospital were considered potentially infected and exchanged. All non unions were treated with dynamized mono axial external fixators, when needed compaction on the fracture site and lengthening was performed. In 10 cases a muscular flap was performed and in one case a vascularized fibula graft from the other leg was performed. Infection was considered healed when 3 consecutive blood tests were negative. In 6 cases there was a discrepancy between clinical and lab findings and a WBC total body bone scan was performed. Healing was achieved between 3 and 22 months. Overall a total of 29 additional procedures were performed to achieve final healing. All patients were monitored for 6 to 12 months after infection healing to detect possible recurrence. 1 patient was lost during treatment, 2 patients were lost at follow up and 1 died for causes unrelated to the infection. Treatment of septic and aseptic non unions as well as osteomyelitis is a high demanding procedure and requires a multidisciplinary approach. A precise protocol is mandatory to achieve fracture healing. Cooperation with Libyan colleagues has greatly enhanced patients compliance and reduced problems due to different culture and different language.

Abstract no.: 43689

SUBCLAVIAN THROMBOSIS (PAGET-SCHROETTER SYNDROME) IN SPORTS ENTHUSIASTS: A REPORT OF 2 CASES

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we report cases of subclavian thrombosis (paget-schroetter syndrome (ps)) occurring in 2 sports enthusiasts. neither patient had any significant past or family history. case 1 involved a 38-year-old man who had been swimming and weight-training 2-3 times/week, and presented to our hospital with swelling, pain, and numbness in the right upper extremity. magnetic resonance imaging and contrast-enhanced computed tomography revealed right subclavian thrombosis. after transcatheter thrombectomy and thrombolysis, anticoagulation therapy was performed. as of one and a half years later, he has experienced no recurrence of symptoms. case 2 involved a 29-year-old woman working as a kaatsu training coach and yoga instructor who visited our hospital with swelling of the left arm after exercise. ps was diagnosed from venous ultrasonography. we performed thrombolytic and anticoagulation therapy. two years have elapsed without recurrence of symptoms. discussion: ps is a relatively rare diagnosis, but can cause pulmonary embolism and so requires early treatment. Patients with this disease are likely to first present to various departments. ps therefore needs to be included among the differential diagnoses for upper extremity swelling. operative treatment for PS reportedly offers good results, but conservative treatment in our cases likewise achieved positive outcomes. we will continue long-term follow-up.

Abstract no.: 43698

EVALUATION OF SEVERE LOWER EXTREMITY OPEN FRACTURES AND INFECTED CASES

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The Gustilo–Anderson system is widely used to classify open fractures. However, the range of severity in type IIIB open fracture varies greatly. Between April 1, 2011, and August 31, 2015, 102 lower extremity open fractures in 98 patients were treated at our hospital. We classified deep infection cases using the Gustilo–Anderson classification. Among the 102 cases, 22 were classified as type I, 44 as type II, 17 as type IIIA, 17 as type IIIB, and 4 as type IIIC. There were no infected cases in type I, II, and IIIC open fractures. One among the 15 cases of IIIA (6.7%) and five among 17 of IIIB (29.4%) experienced complicated deep infection. We also calculated the Ganga Hospital Score (GHS) in IIIB cases and divided them into 3 groups based on the score (Group I ≤ 9 , Group II = 10–14, and Group III ≥ 15). None of the 6 cases of Group I, three among eight of Group II (37.5%), and two among three of Group III (66.7%) had deep infections. It was found that in cases wherein GHS score was high, the tendency of complicated deep infection increased.

Abstract no.: 43700

A RETROSPECTIVE STUDY COMPARING HIP RESURFACING AND TOTAL HIP ARTHROPLASTY PERFORMED THROUGH AN ANTEROLATERAL APPROACH

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Introduction: In younger patients, surface replacement arthroplasty (SRA) is an alternative to stemmed total hip arthroplasty (THA), as it provides a femoral bone preserving procedure. This retrospective study compares the mid-term results of current generation resurfacing prostheses and conventional THAs. Methods: Between August 2004 and June 2009, two closely matched groups of patients received elective hip prostheses. Forty-two hip resurfacing procedures were retrospectively compared with a series of 41 stemmed cementless THAs. Clinical examination was performed using the Harris hip score (HHS). The difference between the femoral head diameter and the size of the implanted socket was measured to estimate the amount of acetabular bone removal. Finally, the pre- and post-operative haemoglobin levels and the number of blood transfusions were registered. Results: The median of HHS increase between pre- and post-operative assessment was 45.62 for THAs and 30.72 for SRAs ($p < 0.0001$). While the median femoral head diameter was 49.09 in the stemmed group and 48.91 in the resurfacing group ($p < 0.54$), the median acetabular size of SRA was significantly greater than THA (56 mm vs 52 mm, $p < 0.00$). Although in the SRA group a significantly increased pre-operative Hb concentration was detected in comparison with the THA group ($p < 0.02$), a significantly higher amount of blood was transfused ($p < 0.04$). Discussion: Whereas SRA is undoubtedly a femoral bone preserving procedure, an increased acetabular bone removal may occur. Moreover, higher blood loss and transfusion requirement can be expected in hip resurfacing. Further studies including larger patient populations are needed to definitively confirm these findings.

Abstract no.: 43703

OUTCOME SCORING SYSTEM FOR SURGICAL RELEASE IN CONGENITAL MUSCULAR TORTICOLLIS

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Background: Congenital muscular torticollis is the third most common musculoskeletal anomaly, characterized by unilateral shortening of the sternocleidomastoid muscle causing head tilted towards the affected side. Previously, "Lee scoring system" was used to evaluate surgical outcome but it tended to be more subjective. Objectives of this study were to evaluate functional outcome of surgical release in congenital muscular torticollis and establish proper outcome scoring system. Material and method: We evaluated 19 patients (male: female 7:12, mean age 7.2 years) who were undergone surgical release treatment in Siriraj Hospital between year 1998 – 2011. Using ImageJ® (National Institutes of Health, Bethesda MD – USA) to measure the parameters. An outcome scoring system based on craniofacial asymmetry, deficits of rotation of the neck, deficits of flexion/extension of the neck and degree of head tilted were calculated and categorized as poor, fair, good or excellent outcome by 2 observers. We also compare our new scoring system result to previous "Lee scoring system". Result: Photographs of 19 patients were evaluated and categorized accordingly to each outcome scoring system. All intra-class correlation coefficients were higher than 0.6, suggesting good inter-rater reliability ($p < 0.05$) of all the measurements. Percentage agreement in the new scoring system was 63.16 which higher than using Lee scoring system (52.63%). Conclusion: New outcome scoring system focuses on the evaluation of functional outcome of surgical release in congenital muscular torticollis. This scoring system tends to be less subjective and more accurate. Using this tool can help improve evaluate surgical outcome in congenital muscular torticollis.

Abstract no.: 43708

OUTCOME SCORING SYSTEM FOR SURGICAL RELEASE IN CONGENITAL MUSCULAR TORTICOLLIS

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Siriraj Hospital, Mahidol University, Bangkok (THAILAND)

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Abstract no.: 43711

ESTABLISHING THE MOST COMMON ETIOLOGY FOR TOTAL HIP ARTHROPLASTY(THA): AVASCULAR NECROSIS(EAST) V/S OSTEOARTHRITIS(WEST)

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Introduction: To find out the most common etiology for patients undergoing THA and to study its effectiveness. Methods: 120 patients were assessed for the role of THA in avascular necrosis(AVN) and degenerative diseases of the hip joint. We had 80 patients of AVN, 32 osteoarthritis (OA) patients, and 8 patients with rheumatoid arthritis (RA). The patients were in the 35-74 years age group with 80 male and 40 female patients. The results were evaluated using the Hospital for Special Surgery score. Results: The most common indication for patients undergoing THA is AVN stage 3 and stage 4(Ficat and Arlet) in the Indian population as against the western population where stage 4 OA(Kellgren and Lawrence) is most prevalent. In the present study, 80 (66.6%) patients had AVN of femoral head, 32 (26.6%) had OA, and 8 (0.67%) had RA. In 2005, Dhaon et al., reported that in Indian population, AVN is most common (66.6%) while OA was reported only in 4.76% cases. In 2010, Nath et al., reported AVN in 50%, OA in 0.67%, and RA in 16.67% of patients. Studies in the west report OA as most common diagnosis (63% by Harris et al., 77% by Berger et al., and 97% by Slack et al.) AVN was the second most common (10% by Harris et al., 7% by Berger et al., and 2.23% by Slack et al.). The most common etiology for AVN was unsupervised drug intake. The difference in etiology may be responsible for altering the ultimate outcome.

Abstract no.: 43712

TUBERCULAR SPONDYLODISCITIS IN ELDERLY – IS IT DIFFERENT?

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Tubercular spondylodiscitis in elderly is a devastating situation. Aim of study is to report safety, outcome and complications after conservative/ surgical treatments of Pott's spine patients (>60 years age) and analyse sagittal spine alignment during healing Methodology: Analysis of data (epidemiological and outcome measurements) of consecutive elderly Potts spine patients treated conservatively or surgically (based on disease stage) between January 2010 and July 2013. Results: Of 66 patients, 85% had at least 1 medical co-morbidity and only 45% were community ambulators. Mean delay in presentation was 132 days and lumbar disease was the commonest. 35 % patients had neuro-deficit. Most patients had stage 2 (38%)/ 3 (42.4%) disease. 19 patients were conservatively managed, while others underwent surgery: 18 had posterior stabilization and debridement, 26 had additional cage reconstruction (transpedicular/ extracavitary approach), 2 anterior cervical discectomy and fusion and 1 cervical corpectomy and fusion. Standard anti-TB regimen was followed. Significant complications occurred in 23 patients, most common being liver dysfunction. Mean lordosis loss in conservatively treated (CG) lumbar/ lumbosacral disease was 8 degrees, while lordosis was restored by 11.6 degrees after surgery (OG). In thoracic/ thoracolumbar disease, sagittal alignment correction was 12.6 degrees in OG (as against 5.7 degree kyphotic collapse in CG). 92 % were cured with no recurrences. Conclusion: Outcome of TB spine in elderly is good after both conservative (early disease) and surgical (later stages) treatments, despite high co-morbidities and complications. However, surgical stabilisation maintains better sagittal alignment during healing. High possibility of liver complications warrants monitoring

Abstract no.: 43714

THROMBOSIS INCIDENCE IN UNILATERAL VS. BILATERAL TKR AT THE MILITARY HOSPITAL , RIYADH, SAUDI ARABIA.

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Background : TKR is among the most common joint replacement procedures in world wide and Military hospital in Riyadh, Saudi Arabia. Performance of a bilateral total knee replacement procedure requires a single anesthetic, low cost and short stay single rehab duration. However, there are reports of some risks involved after total knee replacement. The purpose of this was to assess the incidence of VTE associated with bilateral Total knee joint replacement compared with unilateral total knee joint replacement. Methods: A retrospective review of 181 Total knee joint replacement with knee arthritis was performed. Patients underwent either simultaneous bilateral total knee joint.replacement (87 patients) or unilateral total knee joint replacement (94 patients). For each group, potential risk factors examined including: DM, hypertension type of coagulation factor, type of anesthesia, frequent of blood transfusion, obesity and asthma. Results: There was a significant association between TKR and high risk factors. High risk factors found were found associated with VTE ($p=0.02$). The incidence of VTE was similar in unilateral and bilateral total knee replacement. The diagnosis of the patients was confirmed by CT. There were 4 patients with VTE 2 males and 2 females all of them are in high risk. Conclusion: Simultaneous bilateral Total knee joint replacement is an effective treatment option, surgeons should be aware of the probability that high risked patients may develop DVT.

Abstract no.: 43716

THE IMPACT OF AGGREGATED ELECTRONIC MEDICAL RECORDS ON CLUBFOOT OUTCOMES AT THE PROGRAMMATIC LEVEL IN DEVELOPING COUNTRIES

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Background: Despite intermittent access to electricity and internet, clinics in developing countries benefit from the use of electronic medical records to catalog and manage the trajectory of clubfoot care. Miraclefeet, in collaboration with the University of Iowa and Ponseti International Association, maintains a free, secure, web-based patient database for clinical partners. This International Clubfoot Registry (ICR) provides partnering clinics in developing countries with access to an online database that allows physicians to maintain patient medical records. Essential at the end-user level for purposes of standardized record keeping, this online format also opens physicians to feedback on the clinical and programmatic level regarding the quality of treatment and patient outcomes. Methods: Miraclefeet is conducting a study to determine if providers in the field who are presented with clinical performance data improve the patient outcomes within their clinics. To determine the efficacy of self-monitoring using ICR data, we first ran reports on baseline indicators to determine rates of relapse, dropout and percent tenotomy. We will then present clinics with updated indicators on a quarterly basis over the next two years to monitor for improvement in rates of relapse dropouts and tenotomy. Results: Comparing these indicators for partnering programs in multiple countries will identify trends in the efficacy of the ICR as a self-monitoring clinical improvement tool. Conclusions: In the era of big data, effective use of aggregated data may impact patient care and help providers in the field optimize clubfoot treatment practices.

Abstract no.: 43718

A RARE CASE REPORT OF DIFFUSE LARGE B- CELL LYMPHOMA OF BONE WITH MULTICENTRIC INVOLVEMENT

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Introduction : Primary bone lymphomas(PBL) are rare, even though secondary involvement of the bone marrow is a common event in systemic lymphomas. Most PBL are Primary Bone Diffuse Large B-Cell Lymphomas(PBDLBCL). Case presentation : In the present case report, a 58 year female presented with long term pain in the left thigh along with palpable subcutaneous masses on the head. The MRI done in the periphery reported it as a cystic lesion and was advised extended curettage. We reviewed the case and carried out CT pelvis with left thigh and CT head to see for bony involvement which showed involvement of the sacrum, femur and parietal bones. We did biopsy of the trochanteric region and nodule from scalp. Both the reports showed large tumor cells having round, irregular cleaved nuclei with 1-2 prominent nucleoli and moderate amount of cell cytoplasm with frequent mitotic figures. Immunohistochemistry was positive for LCA and CD-20 suggesting diffuse large B- cell lymphoma. The patient was then started on CHOP regime. Conclusion: Traditionally, the treatment has been combination of chemotherapy and radiotherapy. But over the last two decades, chemotherapy (CHOP based) has become the standard treatment. The introduction of rituximab has been accompanied by a remarkable improvement. Role of radiation in advanced stage PBL is controversial. In a study by Ramadan et al patients with advanced-stage disease who received chemotherapy plus irradiation actually had a poorer outcome compared with those who received chemotherapy alone (10-year OS were 25% and 56%, respectively).

Abstract no.: 43719

METAETHNOGRAPHY BARRIERS UPTAKE COMPLIANCE

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Background: Despite the global use of the Ponseti Method, uptake and completion of clubfoot treatment remains suboptimal. While qualitative research has been conducted to investigate the factors influencing the uptake and completion of clubfoot treatment, systematic reviews to provide further understanding, are lacking. Methods: Noblit and Hare's methods of meta-ethnography were used to synthesize published qualitative research to understand the barriers to uptake and completion of clubfoot treatment. 105 studies were identified, of which 19 underwent a full-text review, resulting in the synthesis of 8 papers from 8 countries. Malpass's notion of first-, second-, and third-order constructs was used to organize the synthesis. Results: The barriers to uptake of treatment are gender and power dynamics, stigma regarding clubfoot, logistics of treatment, knowledge of treatment both for caregivers and health care workers, the organization and delivery of health services, and the financial costs associated with treatment. The barriers to treatment compliance are similar: gender and power dynamics, society and stigma regarding clubfoot, logistics of treatment, organization and delivery of health services, financial costs of treatment (both direct and indirect), confusion regarding treatment and the burden on the treatment, and the duration of the treatment. Conclusion: Despite differences across the countries where the studies were conducted, findings suggest comparable factors across cultures that influence the uptake and completion of clubfoot treatment. The length of the treatment appears to exacerbate other barriers to treatment compliance. Targeted interventions are necessary to support compliance during the intervention, as well as encourage uptake of treatment.

Abstract no.: 43723

COMPARING PEDIATRIC HEALTH PEER EDUCATION AND HOME VISIT EVALUATIONS TO DEVELOP SIMILAR INTERVENTIONS TO IMPROVE RETENTION RATES IN PONSETI METHOD CLUBFOOT TREATMENT

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Background: Research has shown that early detection and enrollment into treatment are vital to successfully treating clubfoot with the Ponseti method. However, in the developing world, under-resourced health systems and lack of awareness of services can lead to distrust in health care and misinformation on clubfoot treatment. Furthermore, when children are enrolled in treatment, retaining them is often a struggle. Our data has shown up to a 53% drop out rate in certain developing countries. Research shows parent noncompliance is commonly due to language barriers, misunderstanding of medical instructions, failure to understand the importance of bracing leading to lack of continuity of care, stigmatization from the community, transportation issues, and lack of support. **Methods:** To improve retention rates, our strategy is to develop a peer education intervention. Parents who have successfully completed treatment for their children will be trained as peer educators. The intervention will involve home-based visits and clinic-based consultations conducted by the peer educators to help guide parents through treatment. **Results:** Studies have demonstrated that peers who have faced similar experiences serve as trusted sources of information for those in similar situations. Although there has been limited research on peer education and home-based visits in clubfoot treatment, intervention evaluations for pediatric health issues involving similar types of treatment, such as child immunization, have been shown to be effective with increases in treatment adherence (16%-20%) and parent self-efficacy. **Conclusion:** By comparing best practices of these interventions we would be able to design an intervention that would improve retention rates.

Abstract no.: 43726

**FEMORAL COMPONENT ROTATION IN TOTAL KNEE ARTHROPLASTY.
A COMPARISON BETWEEN TRANSEPICONDYLAR AXIS AND
POSTERIOR CONDYLAR LINE.**

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Background: Proper rotational alignment of the femoral component is critical for a successful TKA. However the optimal referencing choice to determine femoral rotation is debatable. We evaluated the accuracy of femoral component rotation when either the surgical transepicondylar axis (TEA) or posterior condylar line (PCL) referencing technique was used based on post-operative metal artifact reducing MRIs. In addition, we investigated if a relationship exists between the preoperative tibial joint line angle (TJLA) and femoral component rotation. Methods: 31 patients who underwent MRI for a symptomatic TKA between April 2008 and November 2015 were retrospectively reviewed. All patients underwent TKA by a single knee surgeon using either the TEA or 3 degrees off the PCL as reference for determining the femoral rotation. The hip-knee-ankle angle and the TJLA were measured on preoperative full-length x-rays and the rotation of the femoral component was measured in postoperative MRIs. Results: The median rotational deviation of the femoral component was significantly higher in the PCL group than in the TEA group (Internal rotation of 4.1 degrees [IQR -5.2 to -2.0] vs. 1.3 degrees [IQR -2.4 to 0]) (p=0.02). Linear regression revealed the slopes between the TEA and PCL group were similar (p=0.90); however, the Y-intercepts in the TEA group (-2.8±0.7) were significantly higher than the PCL group (-5.5±1.1) (p=0.007). Conclusions: The use of TEA as a rotational reference is more reliable than the PCL, independently from the value of the TJLA.

Abstract no.: 43729

USE OF FREE VASCULARIZED FIBULAR GRAFT FOR ANTERIOR CERVICAL CORPOREAL RECONSTRUCTION IN SPINE INFECTION

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Introduction: The aim of this study was to evaluate the clinical and radiologic results of using free vascularized fibular graft (FVFG) for anterior reconstruction of the cervical spine with varying levels of corpectomy secondary to infection. **Methods:** six patients underwent anterior cervical reconstruction using an FVFG after cervical corpectomy due to cervical spine body destruction secondary to infection. The graft was stabilized using anterior cervical plating. All patients were evaluated neurologically according to the modified JOA scoring systems and the Nurick grading system. The neurologic recovery rate was determined, and the clinical outcome was assessed based on three factors: neck pain, dependence on pain medication, and ability to return to work. The fusion status and maintenance of lordotic correction by the strut graft were determined by measuring the lordosis angle and fused segment height (FSH). **Results:** All patients achieved successful resolution of infection and fusion of graft. The mean follow-up period was 32.5 months. Graft union occurred at a mean of 4.2 months. The mean loss of lordotic correction was 0.9 degrees, and the mean change in FSH was <2 mm. The neurologic recovery rate was excellent in four patients, good in one, and fair in one. All patients achieved satisfactory clinical outcome. No neurologic injuries occurred during the operations. **Conclusion:** The use of FVFG is a valuable and effective technique in anterior reconstruction of cervical corporeal destruction resulted from infection.

Abstract no.: 43731

MACRODACTYLY TREATMENT AND ITS IMPORTANT PSYCHOLOGICAL AND FUNCTIONAL REPERCUSSIONS

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Introduction: Congenital macrodactyly is a rare congenital malformation characterised by progressive enlargement of all mesenchymal elements of a digit. Due to the phenotypic differences of the various types of macrodactyly, there is no definite treatment algorithm. Timing and extent of therapeutic measures have to be considered very carefully to ensure the best functional outcome. The main surgical principle in treating this condition is to improve cosmetic appearance and preserve neurological function as far as possible. There is a broad spectrum of therapeutic options such as soft tissue debulking, phalangectomies, ray resection, osteotomies, epiphysiodesis and arthrodesis of interphalangeal joints, in order to prevent the overgrowth and reconstruct the appearance of the finger. Clinical Case: An eight year old male child, with digital gigantism of the third and fourth fingers of both hands, without syndromic association. Physical examination showed increased palmar volume, and gigantism of the third and fourth fingers, deviation from divergent axis, digital hyperextension, ankylosis of joints bilaterally. Surgical technique: A Z incision was made on the volar side of D3 and D4 bilaterally. Careful dissection and isolation of the neuro-vascular pedicle was also performed. Afterwards, soft tissue debulking was made. After the identification of the distal inter-phalangeal joints shortening osteotomy of the third phalanx, of both D3 and D4 bilaterally, was performed and subsequent fixation with k-wires. Finally, epiphysiodesis of the third phalanx bilaterally was performed. Conclusion: Macrodactyly is a rare congenital anomaly, which despite many efforts and treatments to improve it, has important psychological and functional repercussions.

Abstract no.: 43735

TOTAL KNEE ARTHROPLASTY IN PATIENTS WITH SEVERE DEFORMITY USING COMPUTER NAVIGATION SYSTEM.

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Introduction: Total knee replacements are one of the most successful procedures in orthopedic practice. According to the AHRQ, more than 600,000 knee replacements are performed each year in the USA. Total knee arthroplasty in patients with severe deformity conceals many difficulties. We want to introduce our experience in total knee arthroplasty in patients with deformity more than 20° in frontal plane. Objectives: Analyze the results of TKA in patients with deformities in frontal plane more than 20°. Show the peculiarities of computer navigation system in total knee arthroplasty. Methods: We followed up 83 patients with deformities from 20° to 36° of varus and valgus. 57(69%) patients with varus and 26(31%) with valgus. 45(54%) TKA were done using computer navigation, 38(45%) were done using standard instrument. Results: Patients after navigated TKA had no deformities in frontal plan more than 3°, and 11 % of patients after "standart" TKA had deformities more than 3°. Conclusions: 1. TKA with navigation system in patients with severe deformities of the lower limb in frontal plan shows more accurate positioning of the implant. 2. No wasting time on balancing and release in patients with severe angular deformities. In routine use it saves time. 3. The ability to accurate calculation of the saw cut in mm in patients with severe flexion contracture or severe hyperextension of the knee joints.

Abstract no.: 43736

**ULTIMATE OUTCOME OF VASCULARIZED FIBULAR GRAFT
COMPLICATED BY VASCULAR THROMBOSIS**

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We studied 18 cases (14 males and 4 females) of osteocutaneous fibular flaps that were complicated by thromboses of the anastomosed vessels. Thirteen cases underwent revision of the anastomosis. In 8 (61.5%) of the 13, the flap was salvaged after revision anastomosis. In all viable flaps, union occurred at a mean duration of 5.6 months. In 6 (60%) of 10 non-viable flaps bone union occurred at a mean duration of 10 months. The difference in the time to union was statistically significant. Necrosis of the bone graft occurred in the remaining 4 cases. Necrosis of the bone graft occurred mainly in cases with segmental bone defect and associated infection. We think that utilizing the skin paddle for monitoring is imperative for early detection and salvage of vascular thrombosis. Also, vascularity of the graft is mandatory to achieve early union and avoid necrosis especially in infected cases and segmental defects.

Abstract no.: 43737

TRANSTIBIAL NEAR ANATOMIC VS ACCESSORY ANTEROMEDIAL PORTAL FOR ANATOMIC SINGLE BUNDLE ACL RECONSTRUCTION, A COMPARATIVE STUDY

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Our study compared the accessory anteromedial portal "AAMT" and the modified transtibial technique "MTTT" for SBACLR. **MATERIALS & METHODS:** Our 60 active adult patients with ACL injury were grouped into two equal groups who treated surgically. One group treated using the AAMT and the other group through MTTT. Both groups had same postoperative course and follow up for one year from surgery. The follow up was done Lysholm & IKDC subjective forms, objective IKDC knee examination form, and radiological evaluation. The results were evaluated and compared to each other. **RESULTS:** There was no significant difference in the subjective results and clinical examination between the two groups. Regarding the radiological angles, the AAMT group had a more coronal oblique graft orientation than that of the MTTT group but both were found to be more oblique than the native ACL. Also, Our MTTT succeeded to put the graft and tunnel in more obliquity than the traditional TTT and even more than anatomic ranges in spite of having the graft inclination of the AAMT higher than our MTTT. Patients' complaints and subjective scoring were found to be positively related to the graft stability. Patients with better pre-operative subjective state would have smoother postoperative period and better final outcome. **SUMMARY:** our study offers simple modifications to the transtibial technique to allow near anatomic ACL reconstruction with similar results comparable to the AAMT & with less complications. **Keywords:** ACLR - MTTT - AAMT – Arthroscopy - Orthopaedics

Abstract no.: 43739

DESIGN AND DESCRIPTIVE DATA OF THE RANDOMIZED CLUBFOOT FOOT ABDUCTION BRACE LENGTH OF TREATMENT STUDY (FAB24)

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Objective: To describe the design and baseline characteristics of the Clubfoot Foot Abduction Brace Study (2-4 year) (FAB24). Summary of Background Data: Foot abduction bracing is currently the standard of care for clubfoot treatment. However, the length of abduction bracing varies considerably by institution and the optimal length of bracing is not known. The FAB24 trial was designed to specifically address the primary question: Does 2 or 4-year foot abduction bracing lead to fewer relapses and better results? Methods: The current literature evaluating bracing in clubfoot and the rationale for FAB24 is discussed. The clinical trial design, including eligibility criteria and follow-up, is described in detail. Preliminary data describing baseline demographics and clinical description of patients at enrollment is presented. Results: Patient enrollment for FAB24 was conducted at X sites in North America and included screening of 315 patients with eventual randomization and enrollment of 139 patients. Enrolled patients were 60% male, 50% had bilateral clubfeet, and were treated with a median of 6 casts prior to brace fitting. Conclusion: This randomized trial will contribute clinically important evidence-based information regarding the optimal length of bracing for clubfoot.

Abstract no.: 43748

POSITIONING-RELATED BRACHIAL PLEXOPATHY DETECTED BY TCMEPS DURING SPINE DEFORMITY SURGERY

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The most fearful complication of long-lasting surgeries of spine deformities is neurodeficit. At risk are not only the lower limbs (paraplegia) due to surgery of thoracic spine, but also the upper limbs (brachial plexopathy) due to patient malposition. Detection of brachial plexopathy due to eventual arm malpositioning during the spine surgeries. This work summarizes a 51-patient experience in transcranial electric motor-evoked potential (TceMEP) monitoring during long-lasting spinal deformity surgery performed by a single surgeon in last 5 years. Six patients (11.7%) experienced persistent noteworthy decreases in MEP amplitude on one or both arms. Two (3.9%) of these patients, both kyphotic, experienced postoperative brachial palsy which resolved within 3-4 months. Transient decreases of upper limb MEP amplitude unrelated to brachial plexus appeared to be related to systemic and anesthetic variations during the procedure. In this study we did not elaborate TcMEP recordings in relation to surgical manipulation. We also did not concentrate on SSEP recordings for brachial plexopathy detection in this study. Sudden, persistent TceMEP amplitude decline appear to be a sensitive detector of developing brachial plexus ischemic or mechanical injury. TceMEP recording can guide successful repositioning and help alert plexopathy.

Abstract no.: 43750

ARTHROSCOPIC MENISCAL ROOT REPAIR; NOVEL TECHNIQUE, GUIDE, AND CASE SERIES.

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Background: Meniscal root injuries varies from horn radial tears, root detachment, to root bony avulsion. Traditional treatment of the meniscal root injury was observation versus complete or partial meniscectomy, with questionable improvement in symptoms, and inevitable advanced arthritis on the long run. Methods: twenty seven consecutive cases of meniscal root injuries was refixed arthroscopically. Meniscal stumps were held with square mattress sutures by using Accupass® suture passer. Sutures were retrieved via transosseous tunnels made with a specially designed Root Guide®. Fixation were done over endobuttons. A minimum 2y follow-up with IKDC, KOOS, and Lysholm scores. Results: mean age of study sample 21y (range: 17-31). Scores (IKDC, KOOS, and Lysholm) improved (from 41 to 83), (from 32 to 86), and (from 38 to 88) respectively. All improvements were statistically significant (p-value<0.05). Conclusion: the new technique is safe on femoral articular cartilage, does not need accessory portals, and gave significant improvements. Patient satisfaction was 96.3%, and incidence of OA at a mean 2.6 years follow up period (range 2-4y) was 11% (3 cases).

Abstract no.: 43754

TOTAL KNEE ARTHROPLASTY IN MORBID OBESITY

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Obesity is a significant risk factor for developing knee osteoarthritis and increased need for knee arthroplasty procedures. Obese patients have inferior outcome following total knee arthroplasty (TKR) compared to non-obese patients, and are more likely to suffer from surgical complications. The goal of the present study was to evaluate the outcome of TKR and rate of complications in morbid obesity (BMI >40) compared to regular obese patients (40>BMI >30). A study based on our prospective data base was conducted, we compared the surgical outcome based on the Knee society score (KSS) and rate of complications following TKR between obese patients 40>BMI >30 (Cohort A) and morbid obese BMI >40 (Cohort B). There were 131 patients in cohort A (mean BMI = 35.2) and 123 patients in cohort B (mean BMI = 46). The mean follow-up was 5.6 years. There were no significant differences regarding KSS between the cohorts, 85.7 and 85.3 in cohort A and cohort B, respectively ($p=0.276$). The surgical incision was significantly longer in cohort B. In cohort B there was increased risk for surgical complications including: superficial and deep infections, skin necrosis, nerve injuries and thromboembolic events. Morbid obesity didn't increase the risk for aseptic loosening. Our data suggest that morbid obese patients may have the benefits of TKR as regular patients, however, they have increased risk for systemic and local surgical complications.

Abstract no.: 43755

DISLOCATION OF THE ANKLE JOINT WITHOUT FRACTURE - A RARE CASE

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Introduction: the ankle joint dislocations are usually accompanied by fractures. An exposed dislocation without fracture is extremely rare. This injury occurs when the force applied to the joint is strong enough, to result in loss of articular surface congruence and consequent ligament injury. Our aim is to report rare case of ankle dislocation without associated fracture. Material and Methods: 22 year old female, fell of stairs and had a sprain mechanism of the ankle joint, which resulted in an exposed peroneal malleolus dislocation. No neurovascular injuries were present. Reduction was performed in the emergency room and prophylactic antibiotics were initiated. Conventional radiographs showed no fracture. Results: arthroscopy was performed and a rupture of the lateral ligament rupture complex was detected. No other tendon or osteochondral lesions were present. Reinsertion of the ligament complex with mini-anchors was performed. At 4 months, there was slight mechanical pain, a 45 degree mobility arch and 60 points on the AOFAS scale. At 9 months, the patient improved pain, had a 70 degrees mobility arch and 90 points on the AOFAS scale. There was no wound infection or other relevant complications. Discussion/Conclusion: exposed ankle joint dislocations are usually associated with malleolus fractures. Hypoplasia of the medial malleolus, recurrent sprains, muscle and ligament laxitude deficiencies may cause predisposition to the rare condition presented. The treatment approach resulted in an excelent clinical and radiological outcome.

Abstract no.: 43758

ALLOGRAFT ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION IN A SKELETALLY IMMATURE TOP ATHLETE WITH ALL-INSIDE MINIMAL TRANSPHYSEAL TECHNIQUE: A CASE REPORT

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Management strategy of ACL injury in skeletally immature athlete remains to be established, and the optimal surgical technique is still controversial. Creating the tunnel into the anatomic footprint often requires transphyseal drilling. In addition, autograft ACL reconstruction must involve the harvest site morbidity. Therefore, most physicians does not recommend surgery in skeletally immature athletes. Here, we report a 12-year-old (Tanner 3) male elite soccer player. He sustained his right knee while playing a soccer. Both physical and radiological examinations revealed the complete rapture of ACL. He and his parents did not accept for nonoperative treatment as it requires strict activity limitations for long period and poor clinical outcomes, and decided to undergo the surgical treatment. We performed all-inside minimal transphyseal allograft reconstruction. Femoral socket (12 mm in depth) created with outside-in technique using retro-drill system while avoiding the physeal plates. The place of femoral tunnel was into the footprint: 31.3% deep/shallow and 34.1% high/low measured in Quadrant method. We preserved ACL remnant to expect the revascularization and remodeling of graft. Tibial tunnel placed center of the footprint and created socket within the epiphysis with retro-drill (15 mm in depth). Three strands with peroneus tendon allograft was prepared using suspensory cortical fixation devices (TightRope) both on femoral and tibial side. Pass the allograft through anteromedial portal and fixed it. The 50% of graft was covered by ACL remnant. Postoperative rehabilitation performed according to regular protocol. The follow-up observation is still ongoing and we would present them.

Abstract no.: 43765

RELATIONSHIP BETWEEN PATIENT-DERIVED KNEE SCORE AND STANDING SAGITTAL ALIGNMENT OF THE SPINE, PELVIS AND LOWER EXTREMITIES IN THE PATIENTS WITH KNEE OSTEOARTHRITIS

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Introduction: To keep the standing posture, sagittal imbalanced patients whose body trunk were leaned anteriorly requires their knees flexed. The purpose of this study was to investigate the relationship between patient-derived knee score and standing sagittal alignment of the spine, pelvis and lower extremities in the patients with knee osteoarthritis. **Methods:** This study included 25 knees of 24 patients (7 males and 17 females, average 74 years) with symptomatic knee osteoarthritis, scheduled for primary TKA. Functional status of the knee was evaluated by new knee society score (KSS). Using radiographs taken in neutral standing position, we evaluated thoracic kyphosis, lumbar lordosis, pelvic inclination, spinal sagittal global alignment (sagittal vertical axis (SVA): the horizontal distance between C7 plumb line and sacrum) and knee flexion angle (KF: the angle between the femoral and tibial axes, the average angle of bilateral lower extremities). The correlation between KSS subscale and these radiographic indices for sagittal alignment was investigated in each case. **Results:** Duration time of walking, which is KSS subscale, was significantly correlated with SVA ($r = -0.50$, $p < 0.05$) and KF ($r = -0.54$, $p < 0.05$). The others of KSS subscale were not correlated with radiographic indices of standing sagittal alignment. **Conclusions:** Knee osteoarthritis patients with anterior leaned body trunk and flexed knees could not continue to walk for long time.

Abstract no.: 43768

GRADING OF INSTABILITY OF ELBOW IN CUBITUS VARUS AND ITS VALIDATION

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Introduction: Instability of elbow commonly associated with cubitus varus has often remained unnoticed and its influence on the results of operative treatment not appreciated. Methods: Out of 183 patients of cubitus varus seen during 1990-2013, in 153 there was progressive medial shift of olecranon during flexion. There were 96 male and 57 female with average age 10.6 years (range 5-28). Average duration of deformity was 10.5 years (range 1-22). Degree of deformity was 20-38 degree (average 27). Based on degree of medial shift of olecranon, the instability was graded in 3 groups. Group I (32 patients) displacement less than 10% of distance between olecranon and medial epicondyle on normal side, grade II (100 patients) displacement of more than 10%, but olecranon came to normal position in extension. Grade III (21 patients) olecranon medially displaced even in extension. Medial release of triceps and supracondylar osteotomy of humerus with lateral wedge resection was done for correction of deformity. Results: On follow up of at least 2 years, all the 32 patients in group I had full correction. Group II 88 patients had full correction, 7 had cubitus rectus and 5 had cubitus varus of 5-10 degree. Group III, 3 had cubitus rectus and 18 had cubitus varus of 10-20 degree with instability. Conclusion: This grading appear to be satisfactory in predicting the outcome of operative treatment.

Abstract no.: 43769

ORTHOPLASTIC APPROACH TO DEVASTATING TRAUMA IN THE LOWER LEG AND FOOT; ROLE OF VASCULARIZED TISSUE TRANSFER

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Development of several artificial materials and VAC therapy has made remarkable progress in the management of skin and soft-tissue defect. However, intractable problems often are encountered in the lower extremity and foot due to major trauma etc., in which vascularized tissues (VT) are inevitable. Purpose of the study is to review patients who received VT transfer in the lower leg and foot. 12 patients have been treated, using VT reconstruction since 2005. There were 8 male and 4 female patients with an average age of 47.6 years. Involved sites were lower leg in 6 patients, ankle joint in 2 and foot in 4. Main cause of skin defects was open fracture of Gustilo IIIA or B in 9, and the remaining 3 were due to secondary infection. Except for a pedicle sural flap, free tissue transfer was used, and 9 of 11 VT included bone (7 scapulas & 2 fibulas). The average follow-up period was 22.1 months. Large flaps were used, and their size ranged from 8 by 4 cm to 30 by 10 cm. All flaps survived except for partial necrosis in one patient, which resulted in below knee amputation. Wound healing was satisfactory in 11 patients, and solid union was achieved in all patients after 6 months after surgery, who recovered walking ability. Pedicle flap is useful in a moderate defect, and free flap is usually selected when defects are either extensive or in distal location. VT is thus essential to manage severely damaged distal lower extremity.

Abstract no.: 43770

PSOAS MAJOR MUSCLE AND PELVIC ALIGNMENT ON SAGITTAL MRI

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Background: It is said that psoas major assists flexion and external rotation of the hip joint, but the actual function of this muscle is not clear. Anatomically, psoas major arises from the Th12~L5 vertebral bodies and is attached to the lesser trochanter of the femur, changing direction over the superior pubic ramus. We considered that psoas major might act like a pulley system. Although there have been many reports about the area of the psoas major on axial MRI, there have been none about its sagittal alignment. We evaluated the influence of the psoas major muscle on pelvic alignment by performing sagittal MRI. **Methods:** In this pilot study, we retrospectively reviewed 37 female patients aged 24 to 92 years who underwent conventional pelvic MRI. We measured the sacral slope, pelvic incidence, and angle of psoas major to the vertex of superior pubic ramus on pelvic sagittal T2-weighted images. Then we analyzed the relations among age, sacral slope, pelvic incident angle, and psoas major angle. **Results:** There was no correlation between age and the psoas major angle ($r^2=0.015$, $p=0.47$) or between the pelvic incident angle and the psoas major angle ($r^2=0.027$, $p=0.33$). In contrast, there was a significant correlation between age and the sacral slope ($r^2=0.23$, $p=0.0026$), as well as a weak correlation between the sacral slope and psoas major angle ($r^2=0.095$, $p=0.064$). **Conclusions:** This study suggested that the psoas major muscle influences pelvic sagittal alignment.

Abstract no.: 43771

EVERTOR MUSCLE ACTIVITY AS A PREDICTOR FOR RECURRENCE IN IDIOPATHIC CLUBFOOT.

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Introduction: Among clinical and demographic risk factors for recurrence in treatment of idiopathic clubfoot, most studies reported poor brace compliance was the important one. Evertor muscle activity was not usually considered. Objectives: To evaluate whether recurrence could be predicted by demographic, clinical and gait parameters of evertor muscle activity. Methods: A series of 79 idiopathic clubfoot patients with two-year follow up. Group one, patients wore brace less than 8 hours/day. Group two, patients wore full-time brace in first three months following at least 8-10 hours/day. Evertor muscle activity was documented in Pirani score: 0 for normal activity, 0.5 for flicker in evertor muscles under skin or toe flaring without foot eversion and 1 for no activity. Statistical analysis was done to find the risk factors associated with recurrence. Results: Primary correction was obtained in all children after casting treatment with Ponseti method. 61 patients in group one and 18 patients in group two. At a mean follow-up of 31.4 months, The mean age at follow-up was 3.2 years. Recurrence was noted in 16 patients in group one, 4 patients in group two. No statistically significant relationship was found between recurrence rate and severity of initial deformity, age at time of treatment, number of casts required or brace compliance. However, only poor evertor muscle activity was statistically associated with recurrence. Conclusions: Bracing regimen at least 8-10 hours/day may be ineffective to prevent recurrence. Improving the muscle balance around the ankle especially the evertor group should be emphasized after casting treatment completed.

Abstract no.: 43772

THE ASSOCIATION OF SEVERE HYPOGLYCEMIA WITH HIP FRACTURE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: A NATIONWIDE POPULATION-BASED COHORT STUDY

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Aims: To assess the risk of hip fracture among patients with type 2 diabetes mellitus (T2DM) and severe hypoglycemia. **Methods:** Using the National Health Insurance Research database in Taiwan, this study identified 2643 patients with T2DM who had developed severe hypoglycemia from 2001-2009. A control cohort who had never developed severe hypoglycemia was randomly selected to match each subject at a ratio of approximately 1:2. The index date of the severe hypoglycemia cohort was set to be the first date of developing severe hypoglycemia, and follow-up was terminated when the patient developed hip fracture, withdrew from the insurance system or 31st December 2011. Multivariate Cox proportional hazards regression analysis was used to evaluate the risk of hip fracture. **Results:** The overall incidence of hip fracture was higher in severe hypoglycemia cohort than non-hypoglycemia cohort (adjusted hazard ratio: 1.95, 95% CI 1.55-2.45). The adjusted relative risk were 1.63 (95% CI 1.28-2.07) for hypoglycemia visits <3 per year, 27.1 (95% CI 13.7-53.6) for hypoglycemia visits 3-5 per year, and 100 (95% CI 53.7-187) for hypoglycemia visits ≥ 6 per year. Medication analysis showed that patients taking insulin alone (adjusted hazard ratio: 2.21, 95% CI 1.48-3.29) or insulin concomitant with sulfonylureas (adjusted hazard ratio: 1.62, 95% CI 1.04-2.55) were significantly associated with hip fracture. **Conclusions:** Patients with T 2DM and severe hypoglycemia were associated with higher risk to develop hip fracture, especially those taking insulin alone or insulin combined with sulfonylureas. The more the frequency of severe hypoglycemia indicated the higher associated risk.

Abstract no.: 43775

REPAIR OF THE POSTERIOR CAPSULE AND THE OBTURATOR EXTERNUS TENDON REDUCES THE RISK OF DISLOCATION AFTER POSTERIOR-APPROACH THA.

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INTRODUCTION: Although posterior soft tissue repair reduces the incidence of dislocation after posterior-approach THA, little is known about the importance of tendon repair of obturator externus. This study makes a comparison for dislocation rate after posterior-approach THA in two different procedures for short external rotators fixation. **METHODS:** We retrospectively reviewed 653 patients who underwent primary THAs through a posterior approach. In 509 patients we detached the piriformis and the conjoined tendon from the greater trochanter backed with the capsule and repaired to the posterior margin of the gluteus medius (Group 1). In 144 patients we released all external rotators from the insertion backed with the capsule in L shaped incision and repaired back to the superior capsule and the posterior margin of the gluteus medius (Group 2). We compared the dislocation rate between two groups at least one year after the operation. We also compared the dislocation rate in different head size in this two groups. **RESULTS:** The overall dislocation rate were 6.1% in Group 1 and 1.4 % in Group2. The dislocation rate in 28mm head size were 6.9% and 3.1%, in 36mm head size 1.1% and 0% respectively. **CONCLUSIONS:** The obturator externus plays a significant role preventing posterior dislocation after THA. In natural hip, it runs from obturator foramen to the greater trochanter passing the capsule like a sling and gives supporting pressure on the femoral head especially in flexion and internal rotation of the hip. This function can be considered to working after THA as well.

Abstract no.: 43777

ADVANTAGES OF INTRA-CAPSULAR MICRO-ENUCLEATION OF

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Surgical enucleation for schwannoma is the established treatment modality. However, some schwannomas cannot be easily enucleated and this sometimes results in iatrogenic nerve injury even with atraumatic procedures. Here we present a retrospective review of the management of schwannoma in the extremities and compare clinical outcomes from the two techniques of extra- and intra-capsular enucleation. We reviewed 50 schwannomas from 49 patients who underwent surgical excision of schwannomas arising from the extremities. 34 had undergone extra-capsular resection and 16 had undergone enucleation using the intra-capsular technique. The post-operative neurological deficits were graded as minor, major and transient. The duration of symptoms, maximum tumor diameter and site of occurrence were compared between patients with the three grades of deficit. In total, 40 patients developed no sensory changes following enucleation of schwannoma or only temporary and minor changes that had fully resolved within 6 months. Ten patients developed new neurological deficits following surgery that took longer than 6 months to resolve. Four patients experienced new motor deficits or paresthesia following operation that had still not recovered at the final follow-up, all of whom underwent enucleation using the extra-capsular technique. Neurological deficit after enucleation was significantly lower using the intra-capsular compared to the extra-capsular technique. These results support intra-capsular micro-enucleation as a safe and reliable treatment for every type of schwannoma. To minimize the risk of nerve injury, en-block resection should not be used because the main purpose of schwannoma surgery is the relief of symptoms, not tumor resection.

Abstract no.: 43779

COMPARISON OF MID FLEXION A-P STABILITY BETWEEN CONVENTIONAL FIXED PS AND HIGH-CONFORMITY MOBILE PS TKA

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Introduction: Knee stability after total knee arthroplasty (TKA) appears to affect patient satisfaction. However, there are only a few reports to compare the stability between different conformity of articulating surfaces of TKA. Objectives: We compared the sagittal stability between conventional fixed PS TKA (Vanguard PS: PS group) and high-conformity mobile PS TKA (Vanguard RP: RP group) using a novel knee stability device (KS-measure KSM-100, SIGMAX, Japan). Methods: We evaluated 100 patients (PS and RP group, 50 knees each). All operations were done by the same surgeon. The sagittal stability at 30 degrees flexion was evaluated with KS measure. The device can measure knee movement when doing anterior and posterior drawer test (Anterior side; 0-30 pounds and Posterior side; 0-10 pounds). Results: Knee movement of patients with PS group was significantly larger than RP group. Mean knee anterior movement of patients with PS and MB group were 5.8 and 4.4mm with 30 pounds. Then, mean knee posterior movement of the patients with PS and RP group were 0.8 and 0.5mm with 10 pounds. Conclusions: The anterior and posterior knee movements were significant between two different types of TKAs. In Vanguard RP, the post-cam starts to engage from 30 degrees flexion, while that of Vanguard PS engages from 45 degrees. Furthermore the posterior of the post also forms the articulation in Vanguard RP system. We consider that post-cam mechanism and geometry affects stability. This information may be important when thinking the postoperative outcome of TKA patients.

Abstract no.: 43782

ANTERIOR CERVICAL FUSION USING STAND-ALONE CAGE AND HOMOGRAFT: EARLY RESULTS

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Objective: Analysis of clinical and radiological results after implantation of the stand-alone cage (Zero P, DePuy) in patients with degenerative diseases of the cervical spine. **Introduction:** Anterior discectomy and fusion with or without use of a plate, and the use of autologous or homologous graft is considered the gold standard in the treatment of cervical radiculopathy. Problems related to implanting osteosynthetic materials and taking a graft led to the development of a stand-alone CAGE and osteoconductive material. **Materials and methods:** A prospective analysis of treatment results of 9 patients who underwent anterior decompression and fusion using the standalone CAGE and homologous graft from the bone bank. We analyzed intraoperative parameters, clinical findings, and postoperative dysphagia and bone ingrowth. **Results:** The mean age of patients was 48 years (39-60). The follow-up period was 5 to 10 months. Four patients underwent surgery of 2 segments, and five patients of 1 segment respectively. In the early postoperative period, all patients had mild dysphagia, which completely disappeared in 8 patients after 4 weeks, while in one female patient it remained after 3 months. After five months fusion was observed in all patients (100%). Pain reduction is also significant and according to VAS scale for pain in neck and arm ($p < 0.005$) averaged from 7.6 to 3.2. **Conclusion:** Early results of the use of a stand-alone CAGE in the treatment of degenerative disease of the cervical spine using a homologous graft are promising.

Abstract no.: 43784

OSTEOGROW: A NOVEL THERAPY FOR ACCELERATED AND ENHANCED BONE REPAIR

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BMP2 and BMP7 bone devices contain high protein doses to achieve clinical success in bone fracture repair. We demonstrated that BMP6 is more potent in stimulating bone formation than its BMP7 paralogue because of significantly lower susceptibility to Noggin. Whole blood derived coagulum (WBCD) serves as a carrier for BMP6 in a novel bone inducing implant Osteogrow that significantly reduces the inflammatory response, fibrosis and oedema, as opposed to currently used BMP-based therapies. Above 90% of BMP6 added to the full blood remains incorporated in the coagulum, bond to its extracellular matrix components. The release of BMP6 from the coagulum in in vitro experiments demonstrated a slow discharge within a period of 7 days. Osteogrow accelerated and enhanced the bone union as assessed by imaging and histologic evaluation. Pharmacokinetic studies, conducted in Bmp6 knock-out mice, rats and in rabbits, showed a minimal presence of BMP6 in circulation and a lack of distribution into the deep tissue compartment. A single dose toxicology study conducted in rats showed an absence of BMP6 related adverse effects when BMP6 was administered iv in doses up to 450 µg/kg, which is around 300-fold higher than the maximum anticipated human dose, assuming 5% bioavailability. The clinical trials are conducted in patients with distal radius fracture and high tibial osteotomy, compartments in which BMP2 and BMP7 are not effective. We expect that Osteogrow will be safe and affordable to patients with bone healing problems and will promote faster bone healing reducing the need for secondary interventions.

Abstract no.: 43787

THREE-DIMENSIONAL COMPUTED TOMOGRAPHY RADIOGRAPHIC ANALYSIS OF ENTRY POINT OF SACRAL ALAR ILIAC SCREW

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Introduction: The entry point (EP) of sacral alar iliac (SAI) screw is controversial. The purpose of this study is to clarify the ideal EP of SAI screw. Methods: We retrospectively analyzed the computed tomography image of 25 patients with adult spinal deformity in Mimics 17.0, an application for three-dimensional analysis. We placed a cylinder as SAI screw without violating the cortex expect for sacral iliac joint. We assessed about maximum length of screw with diameters of 8, 9 and 10 mm, transverse and sagittal angle of trajectory, distance of EP from S1 posterior foramen and range of enable entry points. We created color mapping of the EP depending on the length of screw. Results: The mean of maximum length of them were 114.4, 109.1 and 105.5 mm. The mean of trajectory angle were 45° in transverse and 25° in sagittal in all diameters. The mean distances of EP of them from S1 foramen were 5.1, 4.8 and 3.8 mm in medial and 2.5, 2.4 and 2.5 mm in caudal. The color mapping showed that the EP of longer SAI existed in medial and caudal of S1 foramen. Discussion: In past studies about EP of SAI screw, there was no consideration about screw diameter. SAI screws in them might violate the cortexes of sacrum or iliac. In our study, SAI screws were placed without violating them. The ideal EP of longer SAI screw exists more medial than those of past studies.

Abstract no.: 43789

EPIDEMIOLOGICAL PROFILE OF OSTEONECROSIS OF FEMORAL HEAD IN INDIAN POPULATION

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A prospective cum retrospective study was designed to evaluate the etiologies of Osteonecrosis of femoral head (ONFH) in Indian patients and to assess the severity by radiological staging (ARCO) and clinical score (Harris hip score). All total 249 patients (382 hips) were evaluated; 162 patients were prospectively evaluated and remaining 87 were retrospectively evaluated based on their clinical records. The mean age was 34.71 with 70.28% patients between 20-40 years. Male to female ratio was 5:1 (209: 40). Bilateral ONFH was observed in 53.41% patients. In atraumatic conditions, bilateral involvement was seen in 61.61% of patients. Steroid intake was the leading cause of ONFH (37.3%), followed by idiopathic (21.3%), chronic alcohol intake (20.1%), trauma (15.3%) and miscellaneous causes. Alcohol intake and steroid administration were usually bilateral, but idiopathic ONFH had almost equal incidence of unilateral and bilateral involvement. There were 48% hips in ARCO stage-2 followed by 33% in stage-3 and 15% in stage-4. The mean HHS was 80.97 ± 14.35 in unilateral ONFH whereas it was 72.79 ± 14.43 and 80.07 ± 13.52 in more-involved hip and less-involved hip respectively in bilateral ONFH. The ARCO staging correlated with HHS ($P < 0.05$) in unilateral ONFH and more severely affected hip in bilateral ONFH, but it didn't show any correlation to less involved hip in bilateral cases. This study revealed that ONFH in Indian patients is a disease of young individuals with male predominance. Steroid intake is the most common cause followed by idiopathic, chronic alcohol administration and trauma. Alcohol and steroid induced ONFH are usually bilateral.

Abstract no.: 43790

AN APRIL AND MAY 2015 EARTHQUAKE DISASTER IN NEPAL: AN OVERVIEW OF THE ORTHOPAEDIC EXPERIENCE IN 192 ADMITTED CASUALTIES AT CIVIL SERVICE HOSPITAL IN KATHMANDU.

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Introduction: On 25 April 2015 a massive 7.6 magnitude earthquake struck nepal followed by dozens of aftershocks including a 7.3 magnitude on 22 May 2015 killing over 9000 people's and injured more than 23000. This study aimed to provide an overview on type of injuries and the procedures carried out among admitted casualties at orthopaedic department. Method: All patients who required admission for treatment were included. Retrospective analysis of the medical records of 192 earthquake victims for demographic data, type of injuries, procedure performed and complications were reviewed. Results: A total number of patient received was over 2800 among which 192 were admitted for orthopaedic procedures. Twentytwo patients were managed conservatively. 205 surgeries was performed on 170 patients out of which eight for spine fractures, 87 were lower limb fractures and 110 upper limb fractures. Thirteen patient was managed on external fixator with wound debridement and later grafting. One patient required nail revision and two amputation of limb was performed. No mortality occurred in hospital while 9 dead bodies were received. Conclusion: Well-planned categorisation of casualties with timely and appropriate surgical intervention by orthopaedic team can not only save the injured limb but also prevents unnecessary mobility and mortality.

Abstract no.: 43795

CORRECTION OF BUNIONETTE DEFORMITY WITH SCARFETTE OSTEOTOMY

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Introduction: There are several options for the surgical management of symptomatic tailor's bunions. Most cases require corrective osteotomy including distal, proximal or metatarsal shaft osteotomy. We think that a "scarfette" osteotomy could be successful in all types of bunionettes. Methods: A dorsomedial soft tissue release is done at first. After adequate resection of the lateral condyle, a scarf type osteotomy is done with the necessary medial translation. 2 twist off screws are used for fixation. After 5 weeks heel weight bearing, full weight bearing could be commenced. Results: 26 patients were treated with this procedure between January 2009 and June 2014. The mean 4/5 IM angle improved from 9.8 to 4.9. Mean AOFAS score improved from 51.2 to 90.5. The screws had to be removed in one patient due to overlength and loosening of the distal screw. So far no revision has been necessary due to recurrence. Conclusion: The scarfette osteotomy combined with partial lateral condyle resection and dorsomedial soft tissue release allows the necessary correction of the increased 4/5 IM angle. In addition, the possibility to rotate the inferior fragment could improve the DMA angle and the varus deformity of the toe. The shape of this diaphyseal osteotomy provides better stability than the distal or proximal osteotomies. Two 2mm diameter self cutting screws could be strong enough to maintain the stability till the bony consolidation and remodelling. The outcomes of our first 26 cases are encouraging to keep using this method for symptomatic bunionette deformities.

Abstract no.: 43797

USE OF MRI TO EVALUATE HIP CONGENITAL DISLOCATION POST CLOSED REDUCTION

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Introduction The purpose of this study is to identify and to verify diagnostic efficacy about the use of magnetic resonance imaging (MRI) to evaluate hip congenital dislocation (CDH) post-closed reduction. **Material and Methods** A retrospective review of post-closed reduction from June-1-2008 to September-30-2015 in 35 babies with CDH was performed. In 15 cases we used TC scan to evaluate the reduction. In the remaining cases, 20 patients of age < 12 months, 2 male, 18 female, 18 monolateral (12 left , 6 right), 2 bilateral, MRI (Philips Ingenia 1.5 Tesla) was performed. All evaluated hips were classified as dislocated (4 grade sec. Graf.). All MRI without addictional anesthesia, within 24 hours from post-closed reduction and application of pelvic-podalic casts were performed. **Results** In all 20 cases, there was a good or excellent visualization of femoral head and its articular congruence, showing the complete reduction in 19 patients and inadequate reduction in 1 patient, in which open reduction was necessary later. There weren't false positive or negative results. **Conclusion** Use of MRI is a valid diagnostic method to evaluate femoral head, limbus, acetabular cartilage, giving a three-dimensional evaluation of the involved structures, demonstrated a sensitivity of 100% and a specificity of 100%. Also without additional anesthesia, there were not significative motion artifacts. Our diagnostic protocol using MRI post-closed reduction proved to be an effective, non-invasive and therefore reproducible method in the clinical practice.

Abstract no.: 43809

A NEW DOUBLE ELEVATING OSTEOTOMY IN MANAGEMENT OF SEVERE NEGLECTED INFANTILE TIBIA VARA USING THE ILIZAROV TECHNIQUE.

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Infantile tibia vara is a deformity of abrupt angulation into varus due to an affection of the postromedial aspect of the proximal tibial physis. The deformity often includes internal tibial torsion and limb length discrepancy. Gradual correction of the deformity is currently the treatment of choice for these challenging cases as it requires less invasive surgery, allows progressive and adjustable correction, permits bone lengthening if needed and achieves a more accurate correction compared to acute correction. Elevation of the depressed medial tibial condyle allows restoration of the joint architecture. Different techniques described to elevate the depressed medial tibial plateau are all technically demanding and carry potential risks of unsalvageable intra-operative complications. The aim of this study is to report the results of a safer technique for the double elevation osteotomy combined with gradual correction using the Ilizarov frame, allowing it to be more reproducible, less technically demanding and avoid those potential complications. This study included 12 limbs in 8 patients (mean age 9 years), all were classified as stage V or VI according to the Langenskiold classification. All osteotomies healed completely in all patients. The mean preoperative femoral shaft-tibial shaft angle was 36° of varus. This improved to 5° of varus. The mean preoperative femoral condyle-tibial shaft angle was 58°. This improved to 84°. The mean preoperative angle of depressed medial tibial plateau was 63°. This improved to 8°. All patients were maintaining full extension of the knee and noticed a significant improvement in their gait pattern.

Abstract no.: 43811

APPLICATION OF FOSFOMYCIN FOR LOCAL THERAPY OF PROSTHETIC JOINT INFECTION

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Aim: in vitro evaluation of application of fosfomycin incorporated into polymethylmethacrylate (PMMA) bone cement for local therapy of prosthetic joint infection (PJI). **Methods:** susceptibility of 358 clinical isolates of *S.aureus*, 26 - *K.pneumoniae* and 19 - *E.coli* to vancomycin, fosfomycin, and gentamicin was tested. Bone cement samples comprising vancomycin (1 or 2g) or fosfomycin (2 or 4g) were prepared based on 20g commercial PMMA bone cement, including 4,22% w/w gentamicin. The control samples were without additional antibiotic. The activity was tested against reference strains: MSSA, MRSA, *K.pneumoniae* and *E.coli*. Flex and compression strength with the elasticity modulus were determined in all tested samples. **Results:** activity of fosfomycin compared to gentamicin was significantly higher against MRSA ($p<0,01$), *K.pneumonia* ($p<0,01$), *E.coli* ($p<0,05$). Isolates of Staphylococci resistant to vancomycin were not present, whereas this antibiotic was not active against gram-negative pathogens. Samples with 1g vancomycin were active against MRSA and *E.coli* for 2 days; against MSSA and *K.pneumoniae* - 3 and 5 days, respectively. Doubling of vancomycin concentration did not substantially prolong its activity. Samples with 2 and 4g fosfomycin inhibited MRSA growth for 3 and 5 days, MSSA and *K.pneumoniae* for 28 days, *E.coli* for 17 days. Appreciable changes of strength values compared to the control samples were found for samples with 2g vancomycin and 4g fosfomycin. **Conclusion:** the use of gentamicin-laden bone cement with the addition of 2g fosfomycin for preparation of spacers appears to be a promising approach to the treatment of prosthetic joint infection.

Abstract no.: 43812

FRACTURES OF DISTAL RADIUS: OSTEOSYNTHESIS USING LOCKING COMPRESSION PLATES

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Distal radius fractures are difficult to manage with an unpredictable outcome, more so when there is intra-articular extension. Internal fixation has become the mainstay of management for these fractures, more so with the evolution of locking plates. Twenty eight patients with 29 fractures of distal end radius, with an age of 36.39 years were managed by open reduction and internal fixation using locking compression plates. Using the AO classification system, fractures were classified as type B (16), type C (12) and type A (1). Twenty six patients were treated with volar locking plate and two with dorsally placed plates. All patients were allowed early active mobilization of wrist joint and were followed at monthly interval. Standard radiographs were taken at each follow up and patients were assessed according to the Gartland and Werley Scoring system. Fracture union was achieved in all the cases and at the time of final assessment (6 months) twenty two patients had an excellent outcome. Of the remaining patients, four were graded as good, one fair and one poor outcome. Complications observed included screw impingement (1), Irritation of flexor tendons (1) and Sudeck's osteodystrophy (1). Fixation of distal radius fractures with locking compression plates provided sufficient stability with good clinical outcome and patient satisfaction, provided the operative technique is carefully performed to prevent complications. Most of these fractures can be managed by volar locking plates with only some of the fractures requiring dorsal plating.

Abstract no.: 43814

**COMPARING ELEMENTARY GEOMETRICAL SHAPES RSA TO
MARKER-BASED RSA OF THE PHOENIX CUP USING PHANTOM
EXPERIMENTS**

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Conventional model-based radiostereometric analysis (RSA) for evaluation of implant migration depends on expensive reverse-engineered (RE) surface models of these implants. Marker-based RSA is known as the most accurate RSA method requiring even more expensive, specially constructed implants with markers on them. In cases of simple implant shape the elementary geometrical shapes (EGS) module can be used to create surface models for RSA purpose instead of RE models, thus reducing costs for models dramatically. To evaluate the accuracy of EGS-RSA we conducted a RSA phantom study of the Phoenix cup, an acetabular component of Peter Brehm GmbH (Weisendorf, Germany), comparing the use of EGS models with marker-based RSA. In these phantom experiments, we prove that both methods produce accurate results showing that the EGS module can be equally used for RSA analysis of the Phoenix cup in clinical studies.

Abstract no.: 43817

MIPO AS AN APPROACH IN FIXATION OF PHILOS PLATE IN MANAGEMENT OF PROXIMAL HUMERUS FRACTURE

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Objective: The objective of our study was to clinically assess functional result and radiologically union rate of proximal humerus fracture with philos plate by minimally invasive plate osteosynthesis (MIPO) via anterolateral deltoid splitting. **Method:** In our study group total of 28 patients with simple 2 part fracture or proximal humerus with metaphyseal comminution were included with random allotment MIPO (n=15): ORIF (n=13) with a minimum follow-up of 12 months were enrolled in our study. The patients were investigated radiographically and assessed clinically using the DASH score. **Results:** The MIPO technique required less surgery time and caused less blood loss compared to ORIF with standard deltopectoral approach, fewer incidences of superficial or deep infection and better function clinically with better DASH score. MIPO required a smaller incision, less scarring, and was cosmetically more appealing, better functional results at 3 and 6 months, with better outcomes, less pain, when compared to ORIF. **Discussion:** MIPO has good outcomes in the management of proximal humerus fractures including minimal soft tissue dissection, preservation of natural biology and minimal blood loss, although there may be an increased risk to axillary nerve (neuropraxia). Universally accepted ORIF has its own advantages of proper anatomical reduction which may be a difficulty in MIPO but in skilled hands can be addressed. **Conclusion:** The use of MIPO with a locking compression plate in the management of proximal humerus fractures is a safer and superior option compared to ORIF although surgically demanding.

Abstract no.: 43818

CADAVERIC RSA EXPERIMENTS WITH A FULL CERAMIC KNEE IMPLANT COMPARED TO AN IDENTICAL METAL IMPLANT

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In a model-based radiostereometric analysis (RSA) study we compared the full ceramic total knee arthroplasty (TKA) BPK-S ceramic® (Peter Brehm GmbH, Weisendorf, Germany) to CoCrMo implants of identical construction. Using cadavers we could simulate the influence of surrounding soft tissues on measurement precision as realistic as possible. Furthermore we fixed markers on the surface of the ceramic implants to be able to conduct marker-based RSA in comparison to our model-based results. Our data show that model-based RSA can also be conducted with a less radio-opaque ceramic implant compared to an identical metal implant. We also evaluated the femoral component which is usually not assessed in RSA studies, as loosening of femoral metal TKA components is of minor clinical relevance. Caused by the femoral shield of the implant, bone marker occlusions might occur in the commonly used a.p. projection. Thus we also compared results derived from a.p. x-rays with results derived from x-rays with a medio-lateral view, assuming the latter projection is able to reduce marker occlusion problems. Our results suggest that the medio-lateral x-ray projection is an appropriate alternative to a.p. projected RSA-pictures and can solve problems caused by marker occlusions due to the femoral shield.

Abstract no.: 43822

RSA PHANTOM MEASUREMENTS OF TWO JUST SLIGHTLY DIFFERENT COCRMO TIBIA COMPONENTS USING CONTOUR REDUCTION

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Model-based radiostereometric analysis (RSA) is almost as accurate and precise as marker-based RSA. Without markers attached to the implants, expensive reverse-engineered (RE) models of the implants are required for model-based RSA. To fit for every patient, implants often exist in different design variations. If the design of two implants is just slightly different, contour reduction (CR) might be used to reduce the number of needed RE models. In our phantom experiments we compared two slightly different variations of CoCrMo tibial components of identical size using full contours and contour reduction to analyze the influence of CR on RSA accuracy. Our data show that the loss of accuracy by using CR is acceptable compared to using full contours. Accuracy is not influenced when virtual models are just slightly bigger than the implant itself at a certain site compared to slightly smaller RE models. These results confirm that CR itself can be used as an appropriate tool to reduce costs for RE models in model-based RSA if two implants just slightly differ in their design.

Abstract no.: 43826

EVALUATION OF FEATURE POINT MOVEMENT IN MODEL-BASED RSA PHANTOM EXPERIMENTS

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Triangulated surface models for model-based radiostereometric analysis (RSA) normally contain thousands of triangles. Calculating the Maximum Total Point Motion (MTPM) as the one triangle that moved the most, one cannot know which one of these triangles exactly moved the most. Defining some of these triangles for representative implant sites as so called feature points, the translation of these specific points due to migration can be calculated precisely, thus, giving valuable information about micromovements of particular parts of the implant. We analyzed feature point movement in a model-based RSA phantom study of the total knee arthroplasty (TKA) BPK-S ceramic® and CoCrMo (both Peter Brehm GmbH, Weisendorf, Germany). Our data show that micromovements of five feature points defined on the surface of the femoral component (tip of the femoral shield, medial, lateral, posterior-medial, posterior-lateral) and six points defined on the surface of the tibial component (tip, anterior, medial, lateral, posterior-medial, posterior-lateral) can be analyzed precisely using model-based RSA, thus giving valuable information about migration of these specific parts of the implants.

Abstract no.: 43829

SURGICAL TREATMENT OF THREE AND FOUR-PART PROXIMAL HUMERAL FRACTURES WITH USE OF PROXIMAL HUMERUS LOCKED PLATE

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Introduction: In recent years, plate osteosynthesis with angular stable implants is frequently used for treatment of displaced proximal humeral fractures. The aim of my study is to evaluate the result of Proximal Humeral Locked Plate, used for treatment of three and four part proximal humeral fractures , evaluate the incidence of postoperative complications and functional recovery of the shoulder. **Materials and methods:** 30 patients had a mean age of 54 years (Range from 20-80 years) with three or four part fractures were treated by proximal humerus locked plate through a deltopectoral approach, 20 cases had 3 part fracture and 10 cases had 4 part fracture. Patients were checked with X-rays and clinical evaluation, according to the Constant-Murley shoulder score. Patients were followed-up for 12 months. **Results:** Union was achieved in all patients with a mean neck/shaft angle of 130° (range 108°-150°). The mean Constant score at last follow-up was 82.28% ranged between (67%–96%). Mean constant score of patients had 3 parts fractures was 84.7%, however it was 76.25% in those had 4 parts fracture. Of the 30 cases, 4 had screw protrusion into the gleno-humeral joint, 3 cases suffered from nerve palsy, 2 cases had malunion and one patient suffered from shoulder stiffness. **Conclusions:** Surgical treatment of 3 and 4 part proximal humeral fractures with the use of Locked plate can lead to a good functional outcome and considered an effective system for providing fracture stabilization provided that the correct surgical technique is used. Awareness of potential hardware complications is essential.

Abstract no.: 43834

**ONCOGENOUS OSTEOMALACIA -ADULT ONSET
HYPOPHOSPHATEMIC OSTEOMALACIA MESENCHYMAL TUMOR
AROUND RIGHT HIP – A CASE REPORT**

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Tumour- induced osteomalacia, also known as oncogenic Hypophosphatemic Osteomalacia is an rare disorder resulting in increased renal phosphate excretion, hypophostemia and osteomalacia. We report a 58 year old female in 1998 with inability to bear weight and progressive severe muscle pains since 2 years. A diagnosis of Adult onset – isolated hypophosphatemic osteomalacia , metabolic myopathy with primary cause as oncogenous osteomalacia was considered. The patient was put on phosphate , Vit D and Calcium supplementation therapy and dramatic improvement was noted. The patient regained full ability to walk and muscle pains dissappeared. Recurrence started in 2009 with raised parathormone levels, a diagnosis of Recurrence of Osteomalacia with secondary parathyroidism was made. FDG PET- CT scan done showed well defined smoothly marginated enhancing soft tissue mass in the right upper medial thigh just below the hip joint – mesenchymal tumour ? With pseudo fractures of ribs and pelvic bones. Surgical near total excision + curretage of the mass was done, due to the deep anatomical location, local infiltration of the tumour and adherence to the hip capsule made the surgery difficult . HPE confirmed a mesenchymal tumour. Attempts to taper and withdraw phosphate supplements unsuccessful from 2010 onwards. Presently the reports show persistent hypophosphatemia with increased Parathormone levels. FDG PET CT shows recurrence. Purpose of Presentation is the challenges in clinical diagnosis, Surgical excision of inaccessible tumour and medical management

Abstract no.: 43835

PROXIMAL FEMORAL NAIL VERSUS PROXIMAL FEMORAL NAIL ANTIROTATION 2(PFNA2) IN UNSTABLE INTERTROCHANTERIC FRACTURES

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AIM : To compare the results of Proximal Femoral Nail(PFN)with a Proximal Femoral Nail Antirotation 2(PFNA2) for the treatment of unstable intertrochanteric fracture of the femur. Methods: We followed 40 consecutive patients with unstable trochanteric fractures (Arbeitsgemeinschaftfür Osteosynthesefragen classification 31.A.2 and A.3) treated with a PFN or a PFNA2 for 1 year. The radiologic position of the implant was evaluated intraoperatively by fluoroscopy, further evaluation and the complications of bone union, failure of internal fixation and deformity were evaluated by follow up radiologic findings. The postoperative local and systemic complications were registered. The functional outcome was documented using modified Harris hip score. Results: In our series of 40 cases, from May 2012 to May 2014, there were 27 males and 13 females, maximum age of 82 years and minimum age of 29 years,Mean age of 55.5 years.46.5% of cases were admitted due to slip and fall and with predominance of right side. Mean duration of hospital stay was 14days and mean time of full weight bearing was 16.5 weeks. Good to excellent results were seen in 88.89% cases of PFN and 94.55% cases of PFNA2 as per modified harris hip score. Conclusion: we consider that PFN and PFNA2 are excellent implants for the treatment of unstable intertrochanteric fractures.The functional and radiological outcome were comparable but were better in PFNA2 fixations in our population group.

Abstract no.: 43836

TREATMENT OF OPEN (IIIA) TIBIA FRACTURES WITH LIMITED ACUTE BONE SHORTENING

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Introduction: Open tibia fractures remain a challenge to all trauma surgeons. Techniques have evolved to improve outcome, the overall management of these injuries is complex and often multiple operations may be needed. Protocol: We describe our experience of managing open, Gustilo 3A tibia fractures. The operative management is performed during the acute post-injury period in one theatre sitting. The procedure is performed with joint Orthopaedic and Plastic input. Following wound debridement, a limited bone shortening (<1cm) is carried out through the wound using a low energy corticotomy technique. The fracture is reduced and stabilised with a fine wire circular frame. The original wound is left open and negative suction dressing applied. Any wound extension is primarily closed without tension. 48 hrs of intravenous antibiotics are used post operatively. Immediate weight bearing is encouraged and the patient reviewed regularly in Plastic and Orthopaedic Out patients. Results: Between 2010 and 2015, 6 distal open tibial fractures were treated with this protocol. All fractures united with no deep infection. No skin grafts or flaps were necessary. Final limb length discrepancy was 1cm or less. Conclusion: the technique of debridement, limited bone shortening and stabilisation using a circular frame with combined orthopaedic and plastic input offers a useful option of treating 3A fractures of tibia in a reliable and safe way.

Abstract no.: 43853

ROTATIONAL AND ANGULAR MALALIGNMENT AFTER GAMMA NAIL INSERTION IN LATERAL DECUBITUS POSITION

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Introduction: Insertion of gamma nail with the patient in lateral decubitus position have the advantages of easier access to the entry point, easier fracture reduction and easier implant positioning. We studied the incidence of femoral angular and rotational deformity following Gamma nail insertion in lateral decubitus position for peri trochanteric fractures. Methods: 31 patients (26 males and 5 females; the average age of 42.6 years) having 31 proximal femoral shaft fractures fixed with Gamma IMN were included in our study. Postoperatively, computerized tomography (CT) scans of the pelvis and both knees (injured and uninjured sides) were examined to measure anteversion angles on both sides. Also, a scout film of the pelvis and both femora was taken to compare the neck shaft angles on both sides. Results: No angular malalignment was detected in our series; the mean angular malalignment angle was $1.6 \pm 1.5^{\circ}$ (range $0-4^{\circ}$). We had a high incidence of true rotational malalignment of $\geq 10^{\circ}$ in 16 out of 31 patients (51.6%); most of them were external rotational malalignment. Younger age group (≤ 40 years) had significantly more incidence of true rotational malalignment ($\geq 10^{\circ}$) than older age group (>40 years). Conclusions: Gamma nail fixation in lateral decubitus position without the fracture table gives accurate entry point, good implant positioning in the femoral head with no or minimal angular malalignment but poses high incidence of rotational malalignment. Extra care and awareness of rotation should be exercised during Gamma nail insertion especially when performed with the patient in lateral decubitus position.

Abstract no.: 43854

MODIFIED CLASSIFICATION IN AUTOLOGOUS GROWTH PLATE CHONDROCYTE GRAFTING IN RABBITS.

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The aim of our study was to evaluate the usefulness of the new classification for the histological assessment of the growth plate after transplantation of autologous cultured chondrocytes in New Zealand white rabbits in order to treat the injured growth plate. The histological evaluation included 24 samples obtained from the proximal tibial growth plate from 14 New Zealand white rabbits after grafting of the autologous cultured chondrocytes. The following parameters were taken into consideration :graft morphology , matrix staining (metachromasia), cell morphology, chondrocyte clustering, growth plate architecture, basal integration, subchondral bone abnormalities, inflammation, endochondral calcification abnormalities, vascularization, reserve zone assessment, . proliferative zone assessment, hypertrophic and degeneration zone assessment, overall assessment. Based on the results and after the statistical analysis, we have found: satisfying graft morphology, satisfactory basal integration of the graft, lack of inflammatory response, fairly good growth plate architecture. Autologous chondrocytes transplantation is a good method of treating growth plate damage. We propose a new tool for the histological evaluation of the growth plate.

Abstract no.: 43856

PROSPECTIVE CLINICAL EVALUATION OF ARTHROSCOPIC FIXATION FOR LESIONS OF THE ACETABULAR LABRUM: AVERAGE FOLLOW-UP OF 43 MONTHS.

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Introduction: Labral injury is considered a source of hip pain, especially in young adult patients, and is associated with the development of early onset joint degeneration. The goal of this study was to evaluate the clinical outcome of primary arthroscopic repair of labral injuries of the hip fixed with anchors. Methods: From October 2010 to December 2013, every patient operated on by a single surgeon, who underwent surgical arthroscopic repair of the acetabular labrum, was prospectively evaluated using the modified Harris Hip Score (mHHS). Surveys were completed during medical appointments: in the last pre-operative evaluation, 3 months after surgery, and in the final evaluation (with an average follow-up of 43 months). Results: Eighty-four patients were included during the study period, for a total of 90 hip arthroscopies. The mean age was 44.2 years with an average postoperative follow-up period of 43 months, with a minimum and maximum follow-up of 25 and 59 months, respectively. The average pre-operative mHHS was 80.44 points, whereas the postoperative mHHS at 3 months was 94.96 points, and the last mHHS evaluation was 96.6 points. There was a statistically significant difference between these values ($p < 0.001$). Conclusion: labral restoration improves mHHS scores in the short term follow-up (3 months) and medium term (43 months on average).

Abstract no.: 43859

DOES KNEELING AFTER TOTAL KNEE ARTHROPLASTY AFFECT PATIENT SATISFACTION?

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One common concern after Total Knee Arthroplasty (TKA) is the ability to kneel. Our objective was to evaluate kneeling capacity and patient satisfaction post-operatively. 404 patellar resurfacing TKAs were studied. 178 patients were allowed to kneel and 226 were not. A questionnaire that inquires about hobbies, sports, religion, occupation, employment status, and satisfaction was completed. 49 out of 404 patients stated that they kneel. 28 belong to the “allowed to” and 21 to the “not allowed to” kneel group. Men [(OR): 5.38], and patients with an occupation or hobbies that requires kneeling [(OR) 2.41] were significantly more likely to kneel. Higher BMI is associated with reduced ability to kneel. Patients whose religion requires kneeling were less likely to kneel [OR 0.48]. No correlation was found between age, duration, or frequency of kneeling relative to ease or difficulty of kneeling. We found that men with lower BMI, and patients with jobs or hobbies that require kneeling are most likely to kneel. Physician's recommendation did not correlate with ability to kneel. Neither religion nor age has any effect on kneeling. Most commonly, patients did not kneel because of pain, fear of damage, and physical inability. Satisfaction was reported as 8.7/10 vs. 8.1/10 (p=0.056) in the “able” versus “unable” to kneel group, respectively. Patients should be warned that only a minority are able to kneel post-operatively. However, most patients still recommend TKA regardless of their ability to kneel.

Abstract no.: 43860

ILIZAROV METHOD IN CHRONIC OSTEOMYELITIS OF TIBIOTALAR JOINT

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Treatment of chronic osteomyelitis of the tibiotalar joint is often complex and not easily solved. In these cases it occurs the total destruction of the joint and ankle arthrodesis. Authors present their personal series with Ilizarov Method fixation, for achieving arthrodesis of ankle joint. From January 1982 to December 2011, 43 patients were treated, 13 males- 30 females, mean age 67.3 years (42-80). In all the evaluated cases there was a chronic osteomyelitis and an arthritic ankle. 15 patients were treated with monofocal technique removing up to 2 cm; 28 patients were treated with bi-or tri focal bone transport and removal of bone from 3 to 7 cm. The mean follow-up was 3.8 years (2-5). The index AOFAS was used before and after treatment. Average holding time of the apparatus was 18 months. 43 surgical revisions were provided with grafts at the docking site, in 32 cases corrections of apparatus were performed, 2 skin coverings were employed. Consolidation occurred in all cases; infection recurred in 4 patients from 10 to 18 years. The average index of preoperative AOFAS was 42/100 while postoperatively was 83/100. Ilizarov fixation could be a safe method for arthrodesis of the ankle joint in case of infection, as it allows to simultaneously treat both the bone component and the soft parts. It is still a procedure which lasts for a heavily protracted amount of time and it is combined with a low patient compliance. It remains a convincing alternative to amputation.

Abstract no.: 43861

INFECTED NONUNIONS OF LOWER LIMBS TREATED WITH ILIZAROV METHOD: OUR EXPERIENCE

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Authors mean to show the decennial clinical records concerning the treatment of infected nonunions, due to the failure of internal stabilization, using Ilizarov's method. In this research 2 types of internal stabilization were examined: plate and screws fixation and intramedullary nail fixation. Number of treated patients: 390; 286 with tibial location (54 intramedullary nail, 232 plates and screws), 104 with femur location (42 intramedullary nail, 62 plates and screws). In all of them was applied Ilizarov's apparatus. The transport was monofocal in 286 cases and bifocal in 104. Ilizarov's apparatus was removed approximately after 240 days (min. 200 days, max. 280 days). The consolidation of the nonunion site was showed in 321 cases. Bone autograft was required in 356 cases (iliac crest autograft), in 34 cases intramedullary nail was required due to failed consolidation to the "docking site". 23 patients had a second fracture. After the decennial experience of the Putti Institute of Cortina d'Ampezzo, authors consider Ilizarov's method still actual in infected nonunions with bone loss treatments. In fact, thanks to a better stabilization and a multiplanar control, the Ilizarov's method allows the simultaneous management of different problems. This method should be addressed to the selected cases because it requires serial controls, a good compliance of the patient and longer times compared with other treatments.

Abstract no.: 43862

EUTHANASIA OF A PAINFUL PROSTHESIS

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Aim of this work is to evaluate if all the "painful" prostheses have to be considered as infected. 297 cases of "painful" prostheses were selected from January 1999 to June 2015, from a series of 1419. Patients did not show any radiographic sign of infection, with normal laboratory markers. The most relevant element was the worsening of pain. 88% of these cases involved the knee, while 12% the hip. Six infiltrative cycles of local antibiotics were performed in a 18 months' period, as final treatment in 75% of cases, as propaedeutic for two-stages surgery in 25% of cases. A gram+ germ (Staphylococcus Aureus/Epidermidis) was identified in 2/3 of cases; in 1/3 there was no development. After a follow-up between 8 months and 5 years, the infection did not relapse in 89% of cases, while in 11% there was a renewal of the sore symptomatology. In relapsed ones, the pathogenic germs were not isolated. In Authors' experience the "painful" prostheses were treated with six cycles of an antibiotic therapy, in a parenteral and/or articular administration. The latter one allows the reduction or the disappearance of the painful symptomatology. Not every infected prosthesis is painful and according to author's opinion, all painful prostheses should be considered as infected until proven otherwise.

Abstract no.: 43863

MECHANICAL AND BIOLOGICAL COMPLICATIONS IN MODULAR ONCOLOGIC PROSTHESES

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In the past, the amputation or arthrodesis was considered the only surgical approach in the treatment of bone tumors. Today, surgeons prefer limb salvage, thanks to prosthetic surgery and the adjuvant and neoadjuvant therapy protocols. The use of modular prostheses also increases the risk of mechanical and biological complications. Authors take into account a personal series of 83 modular prostheses carried out from 1989 to 2013 in patients suffering from: Osteosarcoma (18), Chondrosarcoma (34) and solitary metastases (12 lung, 11 breast, 3 kidney, thyroid 3, 2 prostate). At last check the patients had: healing 23%, local recurrence 18%, 19% metastatic dissemination. Death within 10 years 40%. In 37% of cases it was observed the appearance of the following complications: Infections 4%; 8% aseptic loosening, prosthetic failure 19%, 4% periprosthetic fractures; etherometry 2%. In one case it was necessary amputation for persistent infection. Less satisfactory functional results were seen in male patients and in cases with larger femoral resection. The histology influenced the choice of treatment and prognosis "quoad vitam". The appropriate management and the choice of materials reduced the risk of complications. Mechanical complications are the most common cause of prosthetic failure. Infection is a complication that affects most biological surgical revision and possible recourse to amputation. The use of silver coated prostheses reduced the incidence of infection. Extendable magnetic prostheses can be a valuable solution in patients with etherometry, even adults.

Abstract no.: 43869

NEW CLASSIFICATION FOR DEGENERATIVE SPONDYLOLISTHESIS OF THE LUMBAR SPINE: A RELIABILITY

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Introduction: Degenerative Spondylolisthesis of the Lumbar Spine (DSLS) is a common cause of chronic low back pain in adults. A new classification system based on sagittal alignment and balance was proposed and required evaluation. Methods: 108 patients admitted in our spine surgery department for surgical treatment of DSLS between January 2012 and December 2015 were included. Three observers measured sagittal alignment parameters with a validated software: segmental lordosis (SL), lumbar lordosis (LL), pelvic incidence (PI), pelvic tilt (PT), and sagittal vertical axis (SVA). Full Body low-dose lateral view X-rays were analyzed and classified according to three main types: type 1a: preserved LL and SL; type 1b: preserved LL and reduced SL ($\leq 5^\circ$); type 2a: $PI-LL \geq 10^\circ$ without pelvic compensation ($PT < 25^\circ$); type 2b: $PI-LL \geq 10^\circ$ with pelvic compensation ($PT \geq 25^\circ$); type 3: global sagittal malalignment ($SVA \geq 40\text{mm}$). Two observers classified X-rays twice with a 3-week-interval for intra-observer reproducibility. Inter-observer reproducibility was calculated using Fleiss's κ and intra-class coefficient. Intraobserver reproducibility was calculated using Cohen's κ . Results: 99 patients out of 108 had valid full body images. Mean age was 69 years. Mean sagittal alignment parameters values were the following: PI: $50.7^\circ \pm 34.3^\circ$; PT: $19.9^\circ \pm 15.6^\circ$; SVA: $41.1\text{mm} \pm 45\text{mm}$; SL: $17.8^\circ \pm 9.5^\circ$. Interobserver and intra-observer reproducibility showed an almost perfect agreement (ICC=0.91 and 0.94, respectively). Fleiss κ value for inter-observer reproducibility was 0.91. Cohen's κ for intra-observer reproducibility was 0.91. Conclusion: This new classification showed an excellent inter- and intra-observer reliability. This simple method can help surgeons improve their preoperative DSLS analysis taking into account global sagittal parameters.

Abstract no.: 43870

A COMPARATIVE ANALYSIS ON TREATMENT OPTIONS FOR SOLITARY BONE CYST IN CHILDREN

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The purpose of this study is to analyze treatment options for solitary bone cyst in children. Three treatment options were applied in 29 patients who suffered from simple or solitary bone cyst. Treatment modalities included aspiration of fluid followed by injection of high strength injectable graft(A), elastic stable intramedullary nails followed by aspiration of fluid and injection of high strength injectable graft(B), and total resection of the lesion followed by allograft reconstruction(C). Fifty cases due to solitary bone cyst were recruited in our institution. Results of 34 patients were showed in the final follow-up. Five cases were performed by plan A, 21 by plan B, and 8 by plan C. Recurrence occurred in 2 cases of plan A, 4 of plan B, and none of plan C. It took the shortest operation time in plan A, whereas the longest time in plan C. Meanwhile, patients by plan C had the longest healing time, who also possessed the risk of growth plate injury. Although recurrence could happen in plan B, elastic stable intramedullary nailing decreased the danger of pathological fracture.

Abstract no.: 43874

THE USE OF PATIENT REPORTED OUTCOME MEASURES IN PRIMARY TOTAL HIP ARTHROPLASTY

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Background: It is mandatory that all patients undergoing Total Hip Arthroplasty (THA) in England are offered preoperative and postoperative EUROQuol 5D (EQ-5D), Visual analogue scale (VAS) and Oxford Hip Score (OHS) questionnaires in order to assess health gain achieved from the procedure. We aimed to assess if patient age, gender, co-morbidities, index of deprivation, cementation of prosthesis, approach & surgeon seniority influenced patient reported outcome measures (PROMs). Methods: PROMS data from a tertiary NHS hospital were analysed between January 2012 and September 2014. A total of 1167 patients underwent primary THA within the search period. Results: Females experienced a significantly greater health gain than males postoperatively as shown by VAS and OHS. Increased age resulted in significantly worse OHS scores post operatively ($p < 0.001$). A greater number of co-morbidities resulted in smaller gains in VAS, EQ-5D & OHS ($p < 0.001$). There was no significant difference between cemented vs uncemented prosthesis, surgical approach or surgeon experience level in either OHS, EQ-5D or VAS score. Increased deprivation scores resulted in smaller OHS gains ($p < 0.03$), however no significant effect in EQ-5D or VAS score. Conclusions: This study shows that pre-existing conditions influence the benefit of THA perceived by the patient, with greater numbers of co-morbidities conferring smaller health gains. EQ-5D & VAS score are generic rather than procedure specific, therefore it is impossible to judge if the magnitude of improvements reported by the patient are secondary to the THA itself or influenced by pre-existing physical and environmental factors unrelated to surgery.

Abstract no.: 43876

UTILIZATION RATES OF KNEE-ARTHROPLASTY IN OECD COUNTRIES.

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The number of knee arthroplasties and the prevalence of obesity are increasing exponentially. We analysed economic, medical and population data relating to knee arthroplasty surgeries performed in OECD countries. Gross domestic product (GDP), health expenditures, obesity prevalence, knee arthroplasty utilization rates and growth in knee arthroplasty rates per 100,000 population were assessed for total population, for patients aged 65 years and over, and patients aged 64 years and younger. Obesity prevalence and utilization of knee arthroplasty have increased significantly in the past. The mean utilization rate of knee arthroplasty was 150 (22-235) cases per 100,000 total population in 2011. The strongest annual increase (7%) occurred in patients 64 years and under. Differences between individual countries can be explained by economic and medical patterns, with countries with higher medical expenditures and obesity prevalence having significantly higher utilization rates. Countries with lower utilization rates have significantly higher growth in utilization rates. The future demand for knee prostheses will increase x-fold by 2030, with exact rates dependant upon economic, social and medical factors. We observed a 10-fold variation in the utilization of knee arthroplasty among OECD countries. A significant and strong correlation of GDP, health expenditures and obesity prevalence with utilization of knee arthroplasty was found. Patients aged 64 years and younger show a two-fold higher growth rate in knee arthroplasty compared to the older population. This trend could result in a four-fold demand for knee arthroplasty in OECD countries by 2030.

Abstract no.: 43877

**QUALITY OF OUTCOME DATA IN TOTAL HIP ARTHROPLASTY:
COMPARISON OF REGISTRY DATA AND WORLDWIDE NON-REGISTRY
STUDIES FROM 5 DECADES.**

Christof PABINGER

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PURPOSE: This systematic review assessed evidence on outcome (revision rate for all reasons) following hip arthroplasty from its beginning 5 decades ago. **METHODS:** We evaluated all studies from all current hip implants since their market introduction in 1962 regarding "revision rate per 100 observed component years". Data were compared with arthroplasty registries. **RESULTS:** A total of 54 different hip implants were included: for 81% (44 of 54) data is either absent or poor; for 30% (16 of 54) not a single publication could be found. For 52% (28 of 54) less than 100 revisions for all reasons are published in non-registry studies. The remaining 10 implants (19%) comprise 92638 primary implants with 4473 revisions. Control group were the same implants with 111658 primary cases and 3029 revisions from arthroplasty registries. A systematic developer bias as in knee arthroplasty could not be found but several independent authors were found to significantly bias the literature. The overall revision rates per 100 observed component years from non-registry studies (and joint registries) are 0.4 (0.5) for stems, 0.7 (0.7) for cups and 1.4 (2.1) for resurfacing systems. **CONCLUSIONS:** For 81% of all hip implants assessed limited evidence exists from non-registry studies regarding outcome (revision rate) even 5 decades after market introduction. For the remaining 19% of implants no systematic developer bias could be found but several individual authors significantly biased results of single implants. We therefore ask for a more active publication of new implants.

Abstract no.: 43879

QUALITY OF OUTCOME DATA IN KNEE ARTHROPLASTY.

Christof PABINGER

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BACKGROUND AND PURPOSE: Recent reports on developer bias in unicondylar knee arthroplasty led to concerns about quality of publications regarding knee implants. We therefore compared revision rates of registry and non-registry studies from the beginning of knee arthroplasty up to the present. We assessed the time interval between market introduction of an implant and emergence of reliable data in non-registry studies. **MATERIAL AND METHODS:** We systematically reviewed registry studies (n = 6) and non-registry studies (n = 241) on knee arthroplasty published in indexed, peer-reviewed international scientific journals. The main outcome measure was revision rate per 100 observed component years. **RESULTS AND INTERPRETATION:** For 82% of the 34 knee implants assessed, revision data from non-registry studies are either absent or poor. 91% of all studies were published in the second and third decade after market introduction. Only 5% of all studies and 1% of all revisions were published in the first decade. The first publications on revision rates of total knee arthroplasty (TKA) started 6 years after market introduction, and reliable data were found from year 12 onward in non-registry studies. However, in unicondylar knee arthroplasty (UKA) the first publications on revision rates could be found first 13 years after market introduction. Revision rates of TKA from non-registry studies were reliable after year 12 following market introduction. UKA revision rates remained below the threshold of registry indices, and failed to demonstrate adjustment towards registries. Thus, the superiority of registry data over non-registry data regarding outcome measurement was validated.

Abstract no.: 43880

UTILIZATION RATES OF HIP ARTHROPLASTY IN OECD COUNTRIES.

Christof PABINGER

OPZ Graz, Graz (AUSTRIA)

BACKGROUND: Hip arthroplasty and revision surgery is growing exponentially in OECD countries, but rates vary between countries. **METHODS:** We extracted economic data and utilization rates data about hip arthroplasty done in OECD countries between 1990 and 2011. Absolute number of implantations and compound annual growth rates were computed per 100,000 population and for patients aged 65 years old and over and for patients aged 64 years and younger. **RESULTS:** In the majority of OECD countries, there has been a significant increase in the utilization of total hip arthroplasty in the last 10 years, but rates vary to a great extent: In the United States, Switzerland, and Germany the utilization rate exceeds 200/100,000 population whereas in Spain and Mexico rates are 102 and 8, respectively. There is a strong correlation between gross domestic product (GDP) and health care expenditures per capita with utilization rate. Utilization rates in all age groups have continued to rise up to present day. A seven fold higher growth rate was seen in patients aged 64 years and younger as compared to older patients. **CONCLUSION:** We observed a 38-fold variation in the utilization of hip arthroplasty among OECD countries, correlating with GDP and health care expenditures. Over recent years, there has been an increase in the utilization rate in most countries. This was particularly evident in the younger patients. Due to increasing life expectancy and the disproportionately high use of arthroplasty in younger patients we expect an exponential increase of revision rate in the future.

Abstract no.: 43881

THREE-DIMENSIONAL VIRTUAL SIMULATION AND EVALUATION OF THE FEMOROACETABULAR IMPINGEMENT BASED ON “BLACK BONE” MRA

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Introduction: Femoroacetabular impingement (FAI) is a recognised cause of secondary osteoarthritis of the hip. Several imaging methods have been used to analyse the pathologic signs. Because of the lack of precise pre- and intraoperative overview and the difficulty locating osseous pathologies, arthroscopic and minimal invasive treatment is still challenging. We have developed a procedure that is based on magnetic resonance arthrography (MRA) and is used to virtually verify the range of motion (ROM) of the hip. It enables the evaluation of FAI and the preoperative simulation of adequate surgical manoeuvres. Methods: Each MRI was completed on a 3.0 Tesla system using a flexible transmit/receive surface body coil with the patient in the supine position. An axial three-dimensional (3D) gradient-echo (VIBE = Volume Interpolated Breathhold Examination) sequence was performed. For the generation of three-dimensional bone models, semiautomatic segmentation of the MRA data was accomplished using Amira® visualisation software version 5.2. The self-developed software “HipProject”, written in C++, computes the maximal ROM of the hip. The virtual colliding regions were visualised for verification and simulation of osseous trimming. Results: In addition, for necessary information about damage to the cartilage and labrum, “black bone” MRA was used to generate extremely precise 3-dimensional reconstructions of the hip joint to automatically calculate the preoperative osseous ROM. Furthermore, the acetabular and femoral locations of the impingement zone were individually visualised and quantified. Conclusions: The described procedure is a useful tool for the preoperative investigation of impinging hips. It enables appropriate planning of required surgical interventions.

Abstract no.: 43884

PRIMARY TOTAL HIP REPLACEMENT AFTER SEVERE ACETABULUM FRACTURE

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Introduction: According to literature review (J.S.Daurka, P.S.Pastide, et al.2014) from 8% to 23% of pelvic injury were with severe acetabular fractures, which demanded to perform THR with or without ORIF. THR in these patients need to be with the best initial stability and with materials, which can to ensure long implant survival. Objectives: Main purpose was to analyze results of THR after pelvic and acetabular injury, time after injury, reconstruction types, new materials and complications. Methods: We analyzed 2 groups of patients: 15 with pelvic discontinuity and 24 without. In the first group we have 11(73.3%) patients after ORIF. In the second group we had 18(75%) patients after ORIF. Patients of both groups were underwent THR with high porous acetabular components and, or augmentation. Results: In first group Harris hip score in follow up period in average was 72 (from 56-84). It depends on severity of trauma and reconstruction difficulties. There were 2 (13,3%) deep periprosthetic infection. In the second group Harris hip score in average was 83 (from 68 to 93). We had 3(12,5%) deep infection. All infections were after ORIF. We have no aseptic loosening with this uncemented fixation in both groups. Conclusion: Functional results seemed to be better in patients with ORIF and without pelvic discontinuity. No aseptic loosening and instability with uncemented high porous cups and, or augmentation. According to high infection complication rate in cases with ORIF we strongly recommend to exclude infection before THR according to Philadelphia protocol.

Abstract no.: 43887

EPICONDYLITIS – SUCCESS OF A 15 WEEKS TARGETED HOME EXERCISE PROGRAM

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A variety of treatment options is available for epicondylitis, but no preferred concept of treatment is supported by current data. The aim of the study is to investigate the effectiveness of a 15-week home exercise program. Twenty people were included in this prospective pilot study. To evaluate the success of training, we used the Numeric Rating Scale (NRS), the Disabilities of Arm, Shoulder and Hand (DASH) questionnaire, questions VII and VIII of the Short Form-36 (SF-36) survey, and a force measurement of the finger muscles with a spring balance. Fifteen men and five women with a mean age of 40.3 years showed a significant reduction ($p = <0.001$) from 3.5 ± 2.6 of their NRS compared to baseline value. Significant improvements were also found for DASH and SF-36 survey. The median DASH value could be reduced from 17.5 to 4.2 ($p = 0.003$), the SF-36 mean value increased from 49.8 ± 29.5 to 83.7 ± 22.8 ($p = <0.001$). The increase of strength for the superficial digital flexor muscles was statistically significant ($p = 0.018$). Compared to the study group, the control group spent five additional hours of training in the outpatient clinic. The success of a targeted home exercise program to strengthen the finger muscles was proved. Moreover, we achieved identical results compared to control group, which was treated with a traditional therapy program (cortisone, orthosis, physical therapy), with the advantage of reducing costly training time in an outpatient clinic.

Abstract no.: 43889

ACETABULAR RECONSTRUCTIONS IN RE-REVISION HIP REPLACEMENT

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Introduction: The main reasons for the revision are instability and dislocations (22,5%), mechanical loosening with periprosthetic osteolysis (32,5%) and infection (14.8%) of Kevin J. Bozic, Md, Steven M. Kurtz, Phd. 2009). Aseptic loosening in re-revisions is about 39% (www.dhr.dk). Objectives: We analyze different acetabular reconstruction types in patients with re-revision surgery and Paprosky III defects. Methods: 41 patients were isolated in two groups with re-revision and Paprosky III A,B defects. We identified 18 patients in the 1st group with reinforcement construction and bone grafting. Volume of bone grafting was from 100 to 250 cm³. The 2d group reconstruction was with tantalum augmentation and hemispherical cup in 20 cases, augmentation with reinforcement rings were in 23 patients. Infection was the reason of 9 previous revisions in the 1st group and 12 revisions in the 2d group. In both groups mean time after last revision was 37 months. Mean time of follow up was 47 months (from 8 to 72). Results: In the first group 5(27%) patients underwent re-revision. In 2 cases the reason was loosening and in 3 (16,6%) cases it was infection. The second group had 1(4.4%) re-revision because of infection. Infection was the reason in previous revision in these patients. Conclusion: We evaluated better result in augmentation group. In this group augmentation with high porous cup or reinforcement ring allowed to achieve excellent biological primary stability. Material quality lead to early osteointegration between components. It the reason for possibility for earlier weight bearing on the revision side.

Abstract no.: 43890

XMEDX TELEMEDICAL APPROACH FOR HIP DYSPLASIA

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Hip dysplasia is the most common pediatric orthopedic deformity. Operative treatment is need in most cases, if not diagnosed within the six weeks after birth. The solution for this problem is hip sonography (screening). The screening is a simple process, leading to a simple treatment, if needed: Bandages or abduction pants are used to fix the newborns hips for a few weeks of treatment. In Austria, Germany, Switzerland and the Czech Republic hip screenings led to a significant reduction in operations and disabilities like limping and pain. However, in other countries, no comprehensive screenings of neonatal hips are performed. This leads to an insufficient supply of expertise and thereby a large number of destroyed hips. Furthermore, there are endemic areas, regions like Croatia or Spain where the incidence of hip dysplasia is increased. A web-application and a native Android- app provide a good support for clinics to improve their sonographic examination. The app makes it possible to capture images of a hip sonogram and sends them to a specialist (e.g. Prof. Graf, the inventor of hip sonography). Images taken with the app were validated in test series. The validation showed that the captured images are quite suitable for evaluation through experts.

Abstract no.: 43891

ALL-ARTHROSCOPIC AMIC FOR OSTEOCHONDRAL LESIONS OF THE TALUS: CLINICAL AND RADIOLOGICAL FINDINGS

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BACKGROUND: Autologous Matrix-Induced Chondrogenesis (AMIC) technique has shown to provide satisfactory clinical results for the treatment of knee, hip and ankle cartilage lesions. The purpose of this study is to evaluate clinical and radiological outcomes of patients treated with a new All-arthroscopic AMIC (AT-AMIC) technique for osteochondral defects of the talus at a minimum follow-up of 24 months (mean follow-up, 41 months). **METHODS:** 20 patients underwent AT-AMIC procedure for type III and IV osteochondral lesions of the talus. Patients were evaluated pre-operatively and at 6, 12 and 24 months post-operatively using AOFAS score AOFAS, VAS and SF-12 forms. Radiological assessment included CT-Scan, MRI and MOCART evaluation. **RESULTS:** All the scores significantly improved with respect to pre-operative values already after 6 months, with further improvements up to 24 months (AOFAS, from 57.1 ± 14.9 before surgery to 86.6 ± 10.9 after 24 months; VAS, from 8.1 ± 1.0 to 2.5 ± 2.2 ; SF-12, from 29.9 ± 4.1 to 48.5 ± 6.9 and from 43.8 ± 2.9 to 53.1 ± 3.9 respectively for PCS and MCS). Lesion size area significantly reduced from 111 ± 43.2 mm³ pre-operatively to 77 ± 38.14 mm² ($p < 0.001$) at final follow-up as assessed by CT-scan, and from 154.1 ± 93.6 mm² to 94 ± 61.35 mm² ($p < 0.001$) as assessed by MRI. The mean MOCART score was 42.8 ± 23.5 points and 50.9 ± 24.9 points, respectively at 12 and 24 months after surgery ($p < 0.001$). **CONCLUSION:** Our study demonstrates that AT-AMIC can be considered a safe, scarcely invasive and effective technique able to rapidly and significantly improve pain and function and radiological healing of lesions, with progressive further improvements at least up to 24 months.

Abstract no.: 43893

**XMEDX: A HELPFUL TELEMEDICAL APP FOR UNIVERSITIES,
SURGEONS AND DOCTORS**

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The recent development of telemedicine in Austria and Germany is investigated. Subsequently, the data is used to estimate how and in which direction future developments will progress. All related fields of studies at Universities were assessed and the annual number of students was observed over time. IT-related fields of studies serve as the primary source for telemedical know-how. In contrast, there are very few medical universities offering courses about telemedicine. The availability and quality of telemedicine applications in consumer- stores like the Apple App-Store and the Google Store has been examined. These stores offer a variety of apps with medical content. Additionally, previous and current telemedical projects in Germany and Austria were assessed. The total number of Apps, projects, background and annual growth rate were assessed. After a rapid growth in the first 8 years, the number of projects has levelled out at a stable plateau at the moment. The first attempt of telemedicine projects was telemonitoring; today the focus has changed to teleconference and teleconsulting. A detailed view shows that innovation is possible for orthopaedic surgeons as well: Looking into the different clusters of the respective medical fields, it can be seen that up to now, the main fields of potential applications of telemedicine were cardiology and neurology. Using a newly launched webb app, orthopaedic surgeons and Traumatologists can benefit from teletherapy and web based services for their patients. The new developed App has significant opportunities for quality control and saving measures. It is already applied at two Universities.

Abstract no.: 43898

THE ROLE OF ILIZAROV CIRCULAR FRAME IN ELDERLY PATIENTS

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Introduction: The circular Ilizarov frame is used successfully in the management of high energy complex fractures, remedial surgery for non unions, failed fusions and deformity treatment. The purpose of this study is to demonstrate the mid-term outcomes of the use of Ilizarov frame in elderly patients who had acute fractures, non unions and required ankle fusions. Materials & Methods: We have collected data from all patients treated with an Ilizarov circular frame from January 2012 until December 2014, who were 65 years of age or over at surgery. We collated clinical, radiological and quality of life questionnaire (SF-12) data. Mortality, complication and revision data were also collected. Results: 34 patients were treated, mean age was 70.4. 56% were female. Tibial plateau and Pilon fractures accounted for over half and ankle fusion 30%. The minimum follow up was 13 months. 1 patient had died and 1 needed an amputation. Physical and mental outcomes were good/excellent. Conclusions: Ilizarov circular frame as a definitive treatment of many trauma and orthopaedic conditions can be safely and reliably used in the elderly with good quality of life results.

Abstract no.: 43899

POSTERIOR TALAR SHIFTING IN MOBILE-BEARING AND FIX-BEARING TOTAL ANKLE REPLACEMENT.

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Background: Sagittal implant malalignment after TAR has been considered to be a possible cause for premature implant failure. In a prior study, the change of the tibiotalar ratio (T-T ratio) over time in TARs was assessed in an three component implant. Aim: The aim of this study was to compare the translation of the talus in TARs performed with an unconstrained, three-component design (Hintegra), and those performed with a semi-constrained, two-component design (Zimmer Trabecular Total Ankle). Methods: The study included 71 consecutive patients (71 ankles) who underwent TAR with the Hintegra implant and 24 consecutive patients (24 ankles) who received the Zimmer implant between May 2011 and December 2014. Patients were assessed clinically and radiologically preoperatively (T0), at 6 months (T2) and 12 months (T3) post-surgery. There was also a radiological assessment 2 months after surgery (T1). Results: The changes of the post-operative T-T ratio over time were not significant in the Zimmer group. In the Hintegra group, the T-T ratio at 2 months (34.4%) was significantly different to the T-T ratio at 6 months (37.0%). The AOFAS score significantly increased from pre-op to 6 months post-surgery in both groups . There was no statistical difference in the preoperative scores. Conclusions: The significant antero-posterior translation of the talus documented only in the cohort receiving the unconstrained, three-component implant may have associated with, and produced by the presence of the mobile bearing interface between the polyethylene insert and the tibial prosthesis.

Abstract no.: 43900

TOTAL ANKLE REPLACEMENT AND SIMULTANEOUS SUBTALAR ARTHRODESIS: CT SCAN EVALUATION OF FUSION RATE

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Background: Patients with arthritis or severe malfunctions involving both the ankle and the subtalar joints can benefit tibiototalcalcaneal (TTC) arthrodesis or total ankle replacement and subtalar fusion. Actually, TTC fusion is considered as a salvage option resulting in a completely stiff ankle and hindfoot, considerably limiting global foot function. With the evolution of prosthetic design and surgical techniques, total ankle replacement (TAR) has become a reasonable alternative to arthrodesis. The aim of this study was to investigate the fusion rate of the subtalar joint in patients simultaneously treated with total ankle replacement (TAR) and subtalar joint fusion. Methods: This study includes 25 patients who underwent primary TAR and simultaneous subtalar fusion. Sixteen males (64%) and 9 females (36%) were enrolled (mean age 58). Patients were clinically assessed preoperatively and at 6 and 12 months postoperatively. Radiographic examination included a postoperative CT 12 months postoperatively. Results: 12 months postoperatively, the subtalar fusion rate in patients treated with TAR and simultaneous subtalar fusion was 92%. There was a statistically significant increase in American Orthopedic Foot & Ankle Society ankle/hindfoot score from 27.9 to 75.1. Range of motion significantly increased from 12 to 32.8 degrees. In addition, there was a statistically significant decrease in visual analog scale (VAS) pain score from 8.6 to 2.1. Conclusions: TAR and simultaneous subtalar joint fusion are reliable procedures for the treatment of ankle and subtalar joint arthritis. Furthermore, CT scans showed an excellent reliability among orthopaedic surgeons in determining the degree of fusion of subtalar arthrodesis.

Abstract no.: 43901

SURGICAL OUTCOME OF COMPLEX SCOLIOSIS

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Introduction: Scoliosis is a complex three dimensional deformity characterized by coronal, sagittal and horizontal plane deviation. A significant number of cases need surgical intervention. Revolutionary design & capability of spinal instruments have drastically changed the principle of scoliosis correction by surgical intervention. Objectives: During the period February 2009-December 2015, 71 cases of different types of Scoliosis underwent surgical intervention at NITOR, BSOH and other private hospitals in Dhaka. 49 were female and 22 were male and age ranged from 14 to 38 years. Methods: All cases were corrected by transpedicular screws and rods and 1 case stabilized by sub laminar wiring. 61 cases were managed by only posterior approaches and 3 cases required both anterior releases, costoplasty, posterior stabilization as well. In every case fusion was done in selected segments. Results: Total follow up time was about 5 years (6 months-5yrs). All patients were assessed in terms of correction of deformities, cosmesis, and functional outcome. 71 patients had average coronal plane Cobb's angle measuring about 70 degree pre-operatively and 17.12 degree immediate post-operative period. 5 patients (5.7%) developed neurological deficit. 3 regained completely but another one regaining her neurological deficit very slowly. There were malposition of screws in 9 (14%) cases, Painful prominence of screws in 7 cases (9%), full flexion lack in 8 cases (12.5%) & superficial infection in 1 case (1.5%). 80 % patients improved cosmetically. Conclusions: Overall outcome in surgical treatment of Scoliosis in terms of cosmesis and patient expectation by transpedicular screws and rod system was satisfactory.

Abstract no.: 43904

ADULT KNEE OSTEOCHONDRITIS DISSECANS - ARTHROSCOPIC FIXATION WITH BIOABSORVABLE DARTS IN BIG OSTEOCONDRA DEFECTS. FUNCTIONAL AND IMAGIOLOGIC OUTCOMES

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Introduction: Adult osteochondritis dissecans(AOD) usually appears in young adults, and, if left untreated, will evolve into an early osteoarthritis of the knee. Surgical treatment is reserved for situations where the osteochondral fragment is displaced or unstable. It is controversial when we should fix the fragment or graft and the ideal method of osteochondral fragment fixation remains uncertain. In recent literature, arthroscopic fixation with bioabsorbable darts has shown good functional and imagological outcomes. Methods: clinical case of 37-year-old adult, martial arts athlete, referred to the orthopaedic outpatient clinic with pain in his left knee, without relief with conservative treatment. The MRI showed a Clanton and Lee type III lesion on the posterolateral aspect of a medial femoral condyle of the left knee sized 20 cm in largest diameter. Results: Through arthroscopy we were able to identify the fragment. After reduction, we fixed the lesion with two bioabsorbable screws. On the post-operative follow-up, we evaluated the patient at 2 weeks, 6 weeks, 3 months and 6 months. There was an apparent pain relief on follow-up and Lysholm score of 90 at 3 months. 6 months MRI showed a smooth cartilage surface with no apparent re-displacements. Discussion: Bioabsorbable screws demonstrate biomechanical resistance without the need of a second surgery. On follow-up, we did not find adverse reactions or aparent image or mechanical failure of the bioabsorbable implants. Conclusion:The functional and MRI evolution of our patient shows healing of the osteochondral defect without apparent mechanical failure, even though it was a big osteochondral lesion.

Abstract no.: 43905

FARMEDIAL VERSUS ANTEROMEDIAL PORTAL DRILLING OF THE FEMORAL TUNNEL IN ACL RECONSTRUCTION: A COMPUTED TOMOGRAPHY ANALYSIS.

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Introduction: The success of ACL reconstruction is predicated on a variety of factors. Tunnel placement plays one of the most significant roles in achieving knee kinematics and function. The purposes of this study were to compare femoral tunnel position, angle, length and posterior wall blow-out after ACL reconstruction with hamstring tendons autograft through either a farmedial portal or an anteromedial portal technique. Methods: We evaluated 36 patients who underwent ACL reconstruction between January 2014 and July 2014 in our institute, in a prospective, randomised cohort study. All the surgical procedures were performed by a sports fellowship-trained orthopaedic surgeon with experience in both portal reaming. The operated knees were evaluated with 0.5 mm fine CT scans of 3-D CT between days 3 and 5 postoperatively. Results: According to the 3-D CT measurements, the mean femoral tunnel length was significantly longer ($p < 0.05$) in the FAM group compared with the AM group. The femoral tunnel length averaged 34.2 ± 3.6 mm versus 36.6 ± 3.0 mm ($p = 0.042$) in AM and the FAM groups, respectively. The femoral tunnel position, as evaluated with use of the quadrant method, was more anterior in the FAM transportal technique group, and the difference between the two groups was significant ($p < 0.05$). Conclusion: FAM drilling of the femoral tunnel creates longer and anterior femoral tunnels with regard to the AM drilling techniques. Additional studies with clinical outcomes are required for the clinical relevance of these techniques and to show which one is superior.

Abstract no.: 43908

HIP ARTHROPLASTY IN PATIENTS UNDERGOING CHRONIC HEMODIALYSIS.

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Introduction: Dialysis-dependent patients have osteoporosis due to inability of the calcitriol formation in kidneys, changes in the calcium metabolism and side effect of anticoagulants. Severe osteoporosis can lead to the femoral neck fractures. Constant using of corticosteroids and impaired microcirculation lead to the avascular necrosis of femoral head and osteoarthritis. Methods: We performed 15 THRs in 12 patients. 3 patients had femoral neck fracture, 5 patients had AVN of the femoral heads, 3 patients had coxarthrosis and 1 patient had rheumatoid arthritis. All patients had osteoporosis. This patients before operation received calcium, calcitriol and bisphosphonates within 6 - 12 months. 11 operations in 9 patients were performed with use of uncemented prosthesis and 4 operations in 3 patients were performed with use of hybrid prosthesis (uncemented cup, cemented stem). In all cases, we used acetabular components with Trabecular Metal surface. During hospitalization (10 - 14 days), patients were performed hemodialysis in our clinic. 5 - 7 days after surgery, all patients underwent duplex ultrasonography of lower limbs veins. Results: Mean follow-up was 26.5 months (from 2 months to 52 months). All patients are alive. In this group we had no any cases of aseptic loosening, dislocation or deep periprosthetic infection. 3 patients (25 %) had sonographic signs of deep venous thrombosis without clinical signs and pulmonary embolism. These patients were examined by angiosurgeon and received heparin therapy. Blood clot resorption was marked in all cases.

Abstract no.: 43909

SURGICAL OUTCOME OF 'BIOLOGICAL PLATING' IN FRACTURES OF LONG BONES

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What is biological plating? The name itself states a technique relating the biology of the bone. In order to deal with excessive pursuit of the stability of the fixed system mechanics, Gerber and Palmer have proposed a new concept of biological osteosynthesis. We had taken up this project to study the outcome of surgically managed long bone fractures in our department treated by biological plating over a period spanning from August 2013 to August 2015. Discussion: Biological plating rules pay more attention to the biological characteristics of the bone instead of destroying the normal physiological environment of bone growth and development. After that, the concept of biological internal fixation is rapidly developing. The basic idea of bio-plating is, during fracture reduction and the process of fixation, maximized protection should be done to preserve the regional blood supply; therefore, healing of fractures becomes faster and prevents many complications. The overall purpose of this technique is to prevent the bone physiology and give stability so that the bone and the vascular supply itself give the major role in bone healing. Clinical, Radiological, Functional outcome of the long bone fractures treated with biological plating technique was studied, kept under follow up. Considering the difficulties in planning the surgical treatment as well as postoperative care for these serious injuries and the never-ending confusion in the available data published in recent literature, this study was expected to significantly contribute towards decision making and better understating of these fractures, and their management outcomes.

Abstract no.: 43910

ARTHROSCOPIC ASSISTED ACL RECONSTRUCTION THROUGH TRANS - TIBIAL TUNNEL USING BONE – PATELLAR TENDON – BONE GRAFT: SINGLE INCISION TECHNIQUE

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Introduction: In spite of all the controversy, patellar tendon (B-PT-B) graft is still the author's choice being inserted through transtibial tunnel and fixing it by interference screws that too by single mini incision. The aim of this article is to describe the surgical technique and also to discuss the results. Material & Method: 40 Patients of ACL injuries underwent Arthroscopic assisted ACL reconstruction by different method out of which the procedure of "Arthroscopic assisted ACL reconstruction through trans tibial tunnel using bone – patellar tendon – bone graft: Single incision technique" was done in 26 cases which forms the material for study. The inclusion criteria for selection of cases for this procedure were isolated complete tear ACL (Grade III injury) in young active patients; evidenced by MRI and clinical examination (pre –operative as well as per operative on table after anaesthesia). Results: The follow-up study has revealed excellent long term results. 87% of 26 patients had negative pivot shift examination with remaining 13% having grade 1 ligament laxity. Tegner activity levels were similar to preinjury levels, Lyshome score was 91. All patients except one were satisfied with procedure. Conclusions: Advantages in transtibial femoral tunnel are: simple to create tunnel by single incision, and by single guide pin; easy to insert graft; easy to fix the graft by interference screw. Most endoscopic technique reveals no superior differences in final outcome when compared with our technique. In conclusion, this technique is easy and reliable method with good outcome.

Abstract no.: 43911

BACK PAIN AND MRI ABNORMALITIES IN THE THORACO-LUMBAR SPINE OF ELITE LONG DISTANCE RUNNERS. A CROSS SECTIONAL STUDY.

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Study design: Observational cross-sectional study. Level of evidence 3. Objective: To investigate the amount of MRI abnormalities in the thoraco-lumbar spine and the prevalence of back pain in male elite long distance runners compared to a control group of non-athletes in the corresponding age. Summary of Background: Studies have shown that athletes have a higher prevalence of back pain and a greater number of spinal abnormalities on MRI, such as disc degeneration, compared to non-athletes. Data: Study participants were 22 male elite long distance runners (runner group) and 25 male non-athletes (control group) of 18-28 years of age. Methods: Back pain was assessed by a three part self-reported questionnaire. Sagittal T1 and T2 weighted MRI examinations from Th5 to sacrum was conducted to evaluate MRI abnormalities according to study protocol. Results: The runners reported a significant higher prevalence of back pain (45%), compared to the control group (12%) (P=0.011). No statistical significant difference was found in amount of MRI verified spinal abnormalities (P=0.614) or type of abnormalities between the groups. No statistically significant correlation between back pain and MRI abnormalities was established. Conclusions: Elite level male long distance runners have a significant higher prevalence of back pain but demonstrate no significant difference in the amount or type of spinal abnormalities compared to non-athletes. Further prospective studies are needed to validate the results

Abstract no.: 43914

ONE BONE FOREARM; A SALVAGE PROCEDURE FOR RADIO-ULNAR BONE DEFECTS

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Introduction: Large defect or gap in one of the forearm bones is not uncommon. Due to extensive gap with surrounding soft tissue scarring, the usual method of gap grafting may not be feasible in these cases. In such cases creation of a one bone forearm has been found to be a sound and excellent method of treatment. The purpose of this paper is to present review of these 6 patients treated by one bone forearm. Methods: 5 cases of post traumatic gap nonunion of radius and one case of pseudoarthrosis of ulna, altogether 6 cases were treated by creation of one bone forearm in last 6 years in the institute. Male, female ratio was 5:1 with age ranging from 12 years to 27 years. Ulnar transposition was done in 5 cases and radial transposition was done for 1 case of pseudoarthrosis of ulna. All cases were fixed in neutral position. Results: Longest follow-up was 6 years and shortest was 3 years. According to clinico-radiological evaluation 2 patients came out with excellent result and remaining 4 had good result. In toto all 6 patients had good functional outcome. Conclusions: Radial / Ulnar transposition to produce 'one bone forearm' is still a dependable, effective and economical procedure with lesser complication, good outcome, shorter hospital stay and easier post operative maintenance for large radio-ulnar defect.

Abstract no.: 43916

BACK PAIN AND MRI CHANGES IN THE THORACO-LUMBAR SPINE OF YOUNG ELITE MOGUL SKIERS.

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Design: Cross-sectional study. Objective: Investigate the amount of MRI abnormalities in the thoraco-lumbar spine and the lifetime prevalence of low back pain (LBP) in young elite Mogul skiers compared to a control group of non-athletes in the corresponding age. Background: Athletes have in general a higher prevalence of LBP and a greater number of spinal abnormalities on MRI, such as disc degeneration, compared to non-athletes. Methods: Study participants were 16 elite Mogul skiers and 28 non-athletes of both genders and of 15-20 years of age. LBP was assessed by a questionnaire. Sagittal T1 and T2 weighted MRI examinations from Th5 to sacrum was conducted to evaluate MRI abnormalities. Results: The Mogul skiers had significantly more MRI abnormalities in mean (7.25 vs 4.78, $p < 0.023$) compared to the controls. No significant difference was seen regarding the lifetime LBP prevalence between the groups (50 % vs 42 %, $p = 0.555$). Conclusions: Elite Mogul skiers have significant higher amount of MRI abnormalities such as disc degeneration compared to non-athletes. No significant difference in prevalence of LBP could be stated. No correlation could be found regarding disc degeneration and LBP.

Abstract no.: 43919

AN OUT COME ANALYSIS OF SURGICAL MANAGEMENT OF PILON FRACTURES.

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High energy Pilon fractures are among the most challenging injuries known to orthopaedic surgeons. External fixations methods use different types of techniques such-as conventional Ex-fix , Ilizarov fixators/Hybrid fixators. But no conclusive evidence is found in the English literature regarding the ideal management of the Pilon fractures. We had taken up this project to study the outcome of surgically managed Pilon fractures by both open reduction and internal fixation (ORIF) & external fixations methods over a period spanning From August 2012 to August 2015. Aim of the study: To study the surgical outcome of the intra-articular pilon fractures of tibia treated with either open reduction and internal fixation open reduction and internal fixation (ORIF) or '2' stage procedure or treated by Ilizarov external fixators. Discussion: Minimal invasive techniques for reduction of articular fragments combined with stable fixation through an external device has been employed in recent years. Circular frames with tension wires like the classic ilizarov fixator provide better stabilisation especially in comminuted lesions to fix fractures in all 3 planes after reduction. Clinical, Radiological, Functional out-come of the Pilon fracture's of both the groups was be evaluated. The results of this study was compared with the results of various contemporary studies involving pilon fractures. Considering the difficulties in planning the surgical treatment as well as postoperative care for these serious injuries and the never ending confusion in the available data published in recent literature, this study is expected to significantly contribute towards decision making and better understating of these fractures, and their management outcomes.

Abstract no.: 43921

MYOSTIS OSSIFICANS CIRCUMSCRIPTA; A REHABILITATION CHALLENGE IN CASES OF SCI / TBI

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Introduction: Myositis ossificans circumscripta is heterotopic ossification seen in cases of brain or cord damage which may involve several joints especially the hip, knee and shoulder. Since last four years we have seen 8 cases of Myositis ossificans circumscripta in SCI /TBI patients admitted for rehabilitation in our institute. Here one such case of massive Myositis ossificans Circumscripta is being reported not only because of its size but also to discuss the different aspects of Heterotopic ossification including rehabilitation challenge. Case Report: A 32 years old male was admitted for rehabilitation of right sided hemiparesis following TBI 6 years back. He also had pain & contracture of the right hip. Patient was conscious, oriented, alert with minimal perception lost. Clinically, patient had right sided hemiparesis with moderate spasticity and was able to ambulate independently with stick on left side slowly with circumduction gait. Passive range of motion of all joints were full except the right hip (fl.- 0 to 60o, abd.- 0 to 30o, add.- 0 to 30o). X-Ray of right hip revealed massive ossification around the joint. Other routine blood examination including ESR, alkaline and acid phosphatase was done. CT scan and other higher investigations were not done due to financial constrain. With this, the final diagnosis was made as "Traumatic brain injury with right sided hemiparesis with heterotrophic ossification of right hip". The rehabilitation program then started with medication (Indomethacin), proper physiotherapy and occupational therapy.

Abstract no.: 43927

HIP PRESERVATION SURGERY: COMBINED INTRA-ARTICULAR AND EXTRA-ARTICULAR PROCEDURES

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Growth disturbance of the proximal femur occurs secondary to Perthes disease and other Perthes-like lesions. This results in a large aspheric femoral head, foreshortened femoral neck, and overriding trochanter. The intra-articular pathologies include cam, cam-induced pincer, chondral and osteochondral lesions, labral tears and pathologic ligamentum teres. This will gradually cause joint incongruence with early osteoarthritis. Hip preserving surgery involving a surgical dislocation approach combined with a proximal femoral osteotomy is thought to provide a single procedure that can simultaneously address intra-articular as well as extra-articular pathologies, hence restoring the proper biomechanics. It aims at improving congruence, ROM, decreasing pain, optimizing abductor lever arm with leg-length equalization and delaying secondary OA. The combined surgical dislocation and intertrochanteric osteotomy has not been exclusively addressed in the literature. Reports on the effect of the combined procedures on the femoral head blood supply are lacking. We believe this is the first series to discuss the effects of the combined procedures. This was conducted on 25 patients, diagnoses included Perthes disease (8), slipped capital epiphysis (6), post-traumatic sequelae (4), multiple epiphyseal dysplasia (3), septic hip sequelae (2), and hip dysplasia (2). The average patient age was 13.5 years. The minimum follow-up was 12 months (average, 25 months; range, 12–38 months). Three patients needed a periacetabular osteotomy and five patients needed a Chiari osteotomy to address the associated acetabular dysplasia. All osteotomies healed within 8 weeks. No cases developed osteonecrosis. All patients reported improved motion, no progression of Tonnis grade was observed.

Abstract no.: 43928

TENOSYNOVITIS OF THE EXTENSOR TENDON OF THE HAND DUE TO RESISTANT MYCOBACTERIUM TUBERCULOSIS.

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Tubercular tenosynovitis is rare, which can delay diagnosis of this disease. Extra pulmonary tuberculous involvement of the musculoskeletal system is uncommon, accounting for only 10% of tuberculosis (TB) cases. Although the tendon sheaths constitute an uncommon target of extra-articular TB, it remains the leading cause of chronic tendon sheath infection. Case report: A 40-year-old Indian male with a 5-month history of progressive painful swelling over dorsum of the left hand with a discharging sinus over the left dorsum of the left hand and inability to flex his ring and little fingers of the same. There was no associated history of fever, loss of weight or appetite, night sweats, malaise or fatigue. There was no history of trauma, pain in other joints of the body, morning stiffness of the back or hand joints, or continuous use of vibratory tools. The patient had no history of previous illness suggestive of diabetes mellitus, injuries or surgery. Physical examination revealed a well-looking male with a left hand swelling with a discharging sinus over dorsum of the left hand. The discharge is thin, mucopurulent with inverted margin with bluish discoloration at the margin. The swelling was non-tender, doughy in consistency, approximately (4*5) cm, non-compressible, extending proximal and distal to the hand with positive cross-fluctuation. Conclusion: Tubercular extensor tenosynovitis is rare. Delayed diagnosis is common due to slow progression and numerous differential diagnoses, which often leads to complications. Early radical excision of the infected tissues combined with anti-tuberculous multidrug therapy gives good functional results and prevents recurrence.

Abstract no.: 43929

USUAL CARE REHABILITATION AND RETURN TO SPORTS ADVICE AFTER KNEE ARTHROPLASTY: A SURVEY AMONGST PHYSIOTHERAPISTS IN THE NETHERLANDS

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Background: The role of physiotherapy (PT) after knee arthroplasty (KA) is under debate and physiotherapeutic advices concerning return to sports after KA are unknown. Objective: To gain insight in usual care rehabilitation and advice of physiotherapists concerning return to sports after KA. Methods: An online survey amongst regional PT practices was performed. Questioned topics concerned practice characteristics, general rehabilitation aspects, treatment modalities, importance of ten sub-goals for rehabilitation (like pain reduction, endurance and muscle strength) and ways to attain these goals were questioned. Finally, physiotherapists were asked about their recommendations concerning return to sports after KA. Results: 82 physiotherapists completed the survey (response rate 62%). Most practices (65%) treat between ten and twenty KA patients per year. The average duration is three to six months (73%). A preoperative intake is performed by 56% of therapists. 80% of the practices use a protocol, which is individualized in 69%. Nine of 10 sub-goals were considered important by $\geq 90\%$ of the practices, but great variability was noticed in methods of attaining these goals. Return to low-impact sports was mostly recommended, while return to intermediate- and high-impact sports was either advised against or considered impossible. Conclusions: This study shows a considerable practice variance between physiotherapists in provided PT methods to attain patient goals in rehabilitation after KA. Recommendations concerning return to sports are comparable to advice of orthopaedic surgeons. Further research on appropriate rehabilitation after KA is recommended; in order to optimize both patient outcomes and cost-effectiveness of this worldwide increasingly performed intervention.

Abstract no.: 43930

ARE SUSPECTED CAUDA EQUINA PATIENTS ADEQUATELY MANAGED? A RETROSPECTIVE EVALUATION OF PERFORMANCE AT A SECONDARY CARE CENTRE.

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Introduction: Suspected cauda equina syndrome is defined as a case of severe back and leg pain with variable neurological symptoms and signs, and a suggestion of sphincter disturbance. The British society of Neurological surgeons recommends MRI of these patients within 24 hours of their presentation. This study aims to compare the grass-root performance in day-to-day practice with the accepted standards of care. Methods: All suspected cauda equina patients presenting to a secondary care center over a period of 6 months were retrospectively evaluated for the efficacy in clinical examination (including neurological examination, complete per-rectal examination), investigations (bladder scan, MRI) and timely referral to an appropriate spine unit. Results: 29 patients were identified (3 males, 26 females). Age distribution was bimodal, viz. between 30-40 and 50-60 years. Associated trauma was identified in only 35% of cases. 50% of cases had no motor involvement, whereas 75% had sensory involvement. Bladder and bowel involvement was found in 71% and 75% respectively. Anal squeeze was not documented in 78% of cases. More than 20% patients didn't undergo a MRI scan within 24 hours of arrival to hospital. 3 cases of suspected metastatic cauda equina were identified, who were treated with radiation. Conclusion: The importance of complete per-rectal examination including anal squeeze, sensation, anal tone and saddle anesthesia must be re-emphasized among emergency doctors. A pre & post void bladder scan must be done before referring the patient to the spinal unit. Metastatic cauda equina patients require direct referral to a specialized oncology center.

Abstract no.: 43931

MID-TERM RADIOGRAPHIC AND CLINICAL RESULTS OF A NEW CONSERVATIVE TREATMENT PROTOCOL IN LEGG-CALVÈ-PERTHES DISEASE

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Aim: Most appropriate treatment for Legg-Calvè-Perthes disease (LCPD) remains controversial even today. We aimed to set a conservative treatment protocol which can be easily applied to the clinic practice. And examine the efficiency of this treatment protocol. **Patients and Methods:** Treatment protocol which was consist of; intermittant manual traction, range of motion exercises, activity limitation, bed rest, use of NSAID (ibuprofen 100mg/5ml) and ASA (100mg/day) during attack periods was applied for all patients. Treatment protocol was customized for each patient. Patients whom were diagnosed in our pediatric orthopaedic clinic and treated with conservative treatment protocol were evaluated retrospectively and 35 patients 39 hips were included in the study. **Results:** Mean follow-up was 13,7 (8-22) years. According to the Stulber classification; 27(69%) hips were good, 6(15%) hips were fair and 5(14%) hips were bad. There were no contracture. Moderate limping was evident only in 5 hips among 39 hips. There were no need for crunches during daily activity among limping patients. In 30 hips, patients could walk without any distance limitation, in 6 hips patients could walk 6 blocks. No pain that limits activity was detected in any of patients. Only 5 hips had developed Stulberg Group 4 and 5 hips among 19 patients who had Harring group B/C and C hips. **Conclusion:** This study conclude that applied treatment protocol was successful and easy to treat the LCPD. Although Harring lateral pillar and Catteral classifications were efficient to predict the radiographic results, they could not predict the clinical results succesfully

Abstract no.: 43933

PER-CUTANEOUS SCAPHOID FIXATION-IN ACUTE TRAUMA (A CASE REPORT)

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Scaphoid fracture is the most common type of bone fracture in the carpus. Frequently, however, the diagnosis of this scaphoid injury is delayed; a delay in the diagnosis and treatment of a scaphoid fracture may alter the prognosis for union, increase the risk of avascular necrosis, and dramatically increase the long-term likelihood of arthritis. Here we presented a case of 28 year male from Jharshuguda admitted to Hi-Tech Medical College & Hospital with a chief complain of pain and swelling over right wrist due to an alleged history of RTA sustaining injury to wrist with fall with an out stretched hand. Case Report: The case was presented to us after 2 days. On examination there was diffuse swelling over the wrist, with tenderness present over anatomical snuff box. On axial loading of the thumb the pain is aggravated and severe. All the range of movement of right wrist is present but painful. On radiograph there was complete fracture of the waist of the scaphoid (Herbert-B2). On the 3D CT SCAN also reveal the same. Conclusion: Our result confirms previous findings that acute fixation of the scaphoid allows rapid return to full function and activity, including contact sports. Herbert and Fisher reported a much higher rate of union for acutely stabilized scaphoid fractures and O'Brien and Herbert reported 97% success in a series of acute scaphoid fractures treated by primary internal fixation.

Abstract no.: 43935

RELAPSED DEFORMITY IN CLUBFOOT PATIENTS TREATED USING THE PONSETI METHOD: TIMING AND ASSOCIATED RISK FACTORS

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A relapsed deformity is a common occurrence following clubfoot treatment using the Ponseti method. Little information exists regarding the timing of, and risk factors associated with, relapsed deformity. We evaluated 191 idiopathic clubfoot patients who were seen in our clinic and followed for >2 years (range: 24-118 months). Kaplan-Meier Survival analysis was used to determine the probability of survival without experiencing a relapsed deformity. Additionally, multivariate logistic regression analysis was used to assess the influence of patient characteristics and socio-economic variables on the development of a relapse. Based on the survivorship analysis, the probability of a relapse remained around 30% for all patients at 2 years of age, but increased to 45% by 4 years of age. By age 6 years, the probability of a relapse was 52%. Overall, controlling for all other variables in the analysis, parent-reported adherence with bracing reduced the odds of developing a relapse by 15 times compared to parent-reported non-adherence ($P < 0.01$). Feet graded as Dimeglio IV were 5.74 times more likely to relapse than those graded Dimeglio III ($P = 0.008$). The median age at first relapse was 20 months. The probability of developing a relapse following Ponseti clubfoot treatment was greater than 50% by 6 years of age. The results emphasize that risk of relapse can be reduced with proper brace use. Further, initial relapses often occurred shortly after infants with clubfoot usually begin to walk. This information may be useful to the clinician when counseling clubfoot families at the start of treatment.

Abstract no.: 43938

A FREQUENCY MATCHED CASE-CONTROL STUDY OF TWO ALTERNATIVE WOUND CLOSURE METHODS FOR TUMOR ARTHROPLASTY OF THE HIP.

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Introduction: We wished to examine the wound complication rate of an alternative wound closure method for tumor resection and endoprosthetic reconstruction of the hip. Methods: We performed a retrospective case-control study of a cohort of 70 frequency matched patients with metastatic bone disease or malignant hematologic bone disease who had received treatment at our center between 2012 and 2014. All patients underwent tumor resection and endoprosthetic reconstruction of the proximal femur and either occlusive wound closure (OWC), with a combination of intradermal suture, Steristrips and an occlusive skin adhesive (Investigational group, n=35) or routine wound closure with conventional staples (Control group, n=35). Results: Patients with OWC were significantly faster to achieve dry wound status and experienced significantly shorter administration of antibiotics and hospital stay accordingly. Compared to the patients in the control group their wounds were already dry after a mean 3.4 days (vs 6.7 days, $p<0.0001$), they received antibiotics for a mean 4.2 days (vs 6.8 days, $p<0.0001$) and their mean hospital stay was 6.3 days (vs 8.0 days, $p<0.015$). Prolonged wound drainage (PWD) for 7 days or more was observed in 34% of patients (n=12) closed with staples, compared to (n=0) of patients with OWC. Conclusions: Compared to conventional staples, occlusive wound closure (OWC) appears to significantly reduce wound complications, use of antibiotics and hospital stay in patients undergoing tumor arthroplasty procedures of the hip. It may therefore also contribute to a reduction of the potentially increased risk for periprosthetic joint infection (PJI) in this patient population.

Abstract no.: 43940

CONCURRENT FRACTURES OF PROXIMAL AND DISTAL EPIPHYSES OF THE FEMUR WITH IPSILATERAL HIP DISLOCATION IN A SKELETALLY IMMATURE GIRL

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Fracture dislocation of the capital femoral epiphysis is a rare injury in skeletally immature patients. Its association with fracture of the distal femoral epiphysis of the same side is very unusual. Fracture dislocation of femoral head epiphysis is often complicated with damage to the vascular supply of the femoral head and leads to serious outcomes like avascular necrosis, growth arrest and permanent deformities. We describe the case of a young girl who suffered concurrent injury to the proximal as well as distal epiphyses of right femur along with hip dislocation and patellar fracture. Early open reduction and internal fixation was done for the injuries. The outcome at the end of two and half years was assessed and was found to be good in the knee but unsatisfactory in the hip.

Abstract no.: 43943

**NEGLECTED PILON FRACTURE WITH CONCOMITANT IPSILATERAL
COMMINUTED FRACTURE OF TALUS**

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Fracture of the tibial pilon with concomitant occurrence of a fracture of ipsilateral talus is an uncommon injury. Fracture of the plafond occurs when the talus is forcefully driven into the distal tibia due to axial compression injury. These are severe injuries often associated with significant trauma to the surrounding soft tissues. The early anatomical reduction and fixation of these injuries are important to prevent post-traumatic ankle deformities and arthritis. The association of tibial pilon fractures with concomitant fracture of body of talus is a challenging situation to manage. Case report: We describe a 30 yr old male patient from Odisha came with a neglected fracture of the tibial pilon along with comminuted fracture of the ipsilateral talar body. Patient did not receive any orthopaedic help for the injuries and was in bed for last one month. Radiographic evaluations showed comminuted fracture of talus with comminuted fracture distal end of tibia without disruption of the distal tibio-fibular syndesmosis. The patient was treated with arthrodesis of the ankle as well as the subtalar joints using a retrograde intramedullary interlocking nail with bone grafting. The patient was given below-knee plaster cast for two months. Partial followed by full weight bearing was allowed after evidence of bony fusion on radiographs. Conclusion: As post-traumatic complications of painful joint arthrosis are almost inevitable in such complex and neglected fractures, primary arthrodesis was chosen for this particular patient. For select group of such complex ankle fractures primary arthrodesis using a retrograde interlocking nail is a good treatment option.

Abstract no.: 43945

AN OUTCOME ANALYSIS OF TRIMALLEOLAR FRACTURES

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: A trimalleolar fracture is a fracture of the ankle that involves the lateral malleolus, the medial malleolus, and the distal posterior lip of the tibia, which can be termed the posterior malleolus. The trauma is sometimes accompanied by ligament damage, subluxation or dislocation of ankle joint. Ankle fractures account for 9% of fractures representing a significant portion of the trauma workload. Ankle fractures have a bimodal age distribution with peaks in younger males and older females. There has been three-fold increase in the incidence amongst elderly females over the past three decades. In addition, amongst multiply injured patients foot injuries are prognostically important those who survive their injuries are far more impaired functionally if they have a foot injury in addition to multisystem trauma. There are two different mechanisms of injury which have different effects on the structure of the ankle. One occurs with a twisting mechanism where the body rotates around the foot, and the other occurs with a crushing mechanism following an impact to the foot, for example in a motor vehicle accident. Aim : This review provides a summary of trimalleolar ankle fractures, including the classification, clinical presentation, appropriate radiological evaluation, treatment and outcomes.

Abstract no.: 43947

PATIENT-SPECIFIC RESECTION GUIDES AND MATCHING IMPLANT SCAFFOLDS FOR CUSTOM PELVIC TUMOR RESECTION AND RECONSTRUCTION

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Introduction: Adequate resection and reconstruction of pelvic tumors can be very challenging. Complex anatomy and limited exposure can make safe and appropriate placement of resection lines difficult and subsequent endoprosthetic reconstruction demanding. Recent technological advances now permit virtual planning and production of complex patient-specific resection guides and patient-specific implant scaffolds prior to the intervention. Methods: We report our experience with 5 cases of periacetabular tumors where resection and reconstruction were accomplished with specifically designed resection guides and corresponding composite implants consisting of a precisely matching, defect specific titanium scaffold as well as integrated plates to provide for immediate stable fixation and subsequent opportunity for ingrowth into the residual bone. Results: The resection guides could be satisfactorily applied in all cases with relative ease, permitting quick and efficient reproduction of the planned osteotomies (n=15) with a high degree of accuracy (maximum resection-implant gap of 0-3mm). Histologically all resection margins were negative as planned, except in one case where the os pubis resection was extended due to intraoperative concern. All implants could be placed as planned, with post-operative imaging demonstrating satisfactory implant position. Persistent radiolucency was observed to remain present at the ischial ramus-implant interface. One implant had to be removed due to PJI. Conclusion: This technology affords high intraoperative accuracy, surgeon confidence and decreased operative time and is certain to develop into a promising treatment option for complex pelvic tumors in the future. The possibility to integrate and merge advanced imaging modalities such as PET-CT & PET-MRI scans would be desirable.

Abstract no.: 43948

**OSTEOCHONDRAL AUTOGRAFT IN POST-TRAUMATIC
OSTEONECROSIS OF THE FEMORAL HEAD**

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Osteonecrosis of the femoral head is a distinctive complication following femoral neck fractures. Joint incongruence occurs secondary to femoral head collapse, leading to pain restricted range and ultimate hip oateoarthritis. Osteochondral lesions are not uncommonly associated with femoral head osteonecrosis, and further complicate the treatment by articular cartilage damage and loose bodies. This has led to the development of multiple cartilage restorative procedures, including drilling or microfracture of the subchondral bone, replacing the normal hyaline cartilage by the less durable fibrocartilage. Osteochondral autograft and mosaicplasty procedures have proven success in the knee and other joint surfaces, including the talus. Femoral head mosaicplasty has not been exclusively addressed in the literature. Reports on the effect of mosaicplasty coupled to intertrochanteric valgus osteotomy are lacking. We believe the combined mosaicplasty with valgus osteotomy can improve joint congruence, relieve pain, improve motion, and delay hip arthrosis. We present four cases (age 19-45 years) who developed femoral head osteonecrosis after femoral neck fractures, associated with osteochondral lesions. All patients had undergone surgical dislocation of the hip, mosaicplasty from the ipsilateral knee, together with an intertrochanteric valgus osteotomy. Minimum follow up was 2 years. All patients had improved pain, ambulation and range of motion. MRI has documented head viability with articular cartilage incorporation. No progression of Tonnis grade was observed. We believe that OATS of the femoral head together with a valgus osteotomy is a powerful hip preserving tool for post-traumatic osteonecrosis of the femoral head.

Abstract no.: 43951

TRAUMATIC SECTION OF ACHILLES AND PERONEAL TENDONS

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Introduction: The literature is silent with regard to traumatic section of the Achilles tendon by a blade. Disruption of the short and long peroneal tendons is rare and often resulting from a torsional mechanism. The aim of our paper is to present a rare case of concomitant traumatic section of the Achilles and peroneal tendons inflicted by a blade and to draw attention to the importance of the operative field exploration. Methods: A 33-year-old woman admitted to the ER for aggression. She referred functional impotence and inability to perform normal gait. On physical examination, there was a 5cm long cross-incised slash wound in the posterior face of the ankle, a positive Thompson test and no neuro-vascular deficits. During surgery, it was found a full cross section of the Achilles tendon and wound exploration revealed concomitant cross-section of short and long peroneal tendons. Vigorous lavage, surgical debridement and end-to-end suture of the peroneal tendons and Achilles tendon were performed. Functional assessment and pain were graded according to AOFAS and Visual Analogue Scale (VAS), respectively. Results: After immobilization with plaster splint for 6 weeks the patient began physical therapy and rehabilitation protocol. One year post-operatively, the patient has no significant limitations in her daily life (AOFAS: 87; VAS: 1). Conclusions: Traumatic rupture of the Achilles tendon is in rare instances associated with concomitant section of short and long peroneal tendons. In cases with loss of tissue continuity, exploration of the wound bed is critical to identify possible concomitant injuries of other tendons.

Abstract no.: 43952

COMPARISON OF DIFFERENCE IN INTERBODY FUSION ACHIEVED WITH LOCAL BONE GRAFT VERSUS GRAFT HARVESTED FROM P.S.I.S.

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Introduction: Bone graft properties have a great influence on the process of spinal fusion. Autologous bone graft harvested from posterior superior iliac crest is currently the gold standard. Posterior lumbar interbody fusion is a therapeutic option for patients who suffer from pain and instability of the lumbar spine. In this technique fusion is achieved at intervertebral joint the anterior column is reconstructed which is the load-bearing column of the spine. Aims: To compare the qualitative difference in the interbody fusion achieved with local bone graft versus graft harvested from the posterior superior iliac spine. Materials and Methods: This was a prospective study done in Dr. D.Y. Patil Medical College and Research Center from October 2013 to November 2015. Total 37 patients were included in this study which were divided in two groups. Group A included 19 patients in whom the graft harvested from PSIS was used for fusion. Group B included 18 patients in whom local graft was used for fusion. Results: Results were calculated on J.O.A. score. The average preoperative JOA score in group A patients was 11.41 (range 7 to 15) and 26.50 post operatively (range 20 to 29). The average pre operative JOA score in group B patients was 10.05 (range 4 to 15) and 26.74 post operatively (range 23 to 29). There was no statistical significant difference found in both groups with regard to JOA score (P value 0.926). Conclusion: Thus we conclude Laminospinous graft is as good as PSIS graft in posterior lumbar interbody fusion.

Abstract no.: 43955

RESULTS AND COMPLICATIONS OF TOTAL HIP ARTHROPLASTY WITH CERAMIC-CERAMIC

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New materials have been developed in recent years to reduce early wear and osteolysis in patients with Total Hip Arthroplasty (THA). The tribological ceramic-ceramic surface has been increasingly used. Ceramics are extremely resistant to scratching and have excellent biocompatibility. The risk of breakage and complications has decreased considerably. The objective of this study is to evaluate the results and complications of THA with ceramic-ceramic components. The sample consisted of 135 patients with surgeries performed between 2007 and 2011. Eight were excluded for lack of follow-up and removal of implants due to infection. The mean age of patients was 47.1 years comprised 54.3% of men and 45.7% women. The main identified etiology was osteonecrosis of the femoral head (23.1%). The acetabular inclination of the implant varied between 38° and 56° and the varus femoral implant exceeded 3° in only 10 patients. Good or excellent results were observed in 97.7% of the sample, using the functional score of Merle d'Aubigné. No complications such as fracture or grinding components were observed. Heterotopic ossification was observed in only one patient. Osteolysis or migration of the acetabular component was not seen in any case. The results showed similarities between the current studies, especially regarding the survival of the implant and the presence of creak. The components of ceramic-ceramic-edge show an excellent result compared to complications such as creaking and breaking. Longer follow-up of larger randomized trial is needed to clarify the outcomes but the medium term showed good results, with 100% survival at 82 months.

Abstract no.: 43956

ORTHOPAEDIC COMPLICATIONS IN GAUCHER DISEASE: CLINICAL CASE REPORT

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Introduction: Gaucher disease is a rare autosomal recessive disorder resulting in glucocerebrosidase deficiency, a lysosomal enzyme that cleaves glucose residues from cell wall destruction that occurs in physiologic cellular turnover. These products accumulate forming Gaucher cells, and type I presents with hepatosplenomegaly, anemia, thrombocytopenia, bone pain or fractures. Orthopaedic manifestations usually include bone deformities, osteopenia (risk of pathologic fractures), osteonecrosis, osteomyelitis or bone crisis, similar to sickle cell disease. Methods: clinical case of a pathologic subtrochanteric fracture in a patient with type I Gaucher disease. Results: 52 year-old male, Gaucher disease, with history of traumatic dislocation of the left hip at 20 years of age, sustained open reduction. Secondary osteonecrosis of the femoral head with subsequent salvage procedure in other institution (vascularized graft of iliac crest autograft). In August 2013 presented with left hip pain and sudden inability to walk after minor trauma. X-ray showed a subtrochanteric fracture and severe arthritic hip. We did a non-cemented total hip replacement with long stem and osteosynthesis with hook-trochanteric plate and cerclage. No superficial or deep infection. Fracture healed at 6 months. Excellent clinical and functional outcome at 1 and 2 year follow-up. Conclusion: Gaucher's is a systemic disorder, affecting clotting, soft-tissue and bone healing. Multidisciplinary approach is necessary before surgical intervention (enzyme replacement and blood substitutes), and the orthopaedic surgeon must be vigilant to soft-tissue complications, adequate fixation of fractures due to poor bone quality and delayed or no healing. A thorough understanding is essential managing Gaucher's orthopaedic complications.

Abstract no.: 43957

**EVALUATION OF BLOOD LOSS IN TOTAL KNEE REPLACEMENT:
EXPERIENCE IN A NIGERIAN TERTIARY HOSPITAL**

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Introduction: Total knee replacement is a rewarding procedure, producing a lasting relief for severe knee pains due to osteoarthritis. However, significant blood loss usually in the post-operative period may be a challenge, necessitating prompt restoration of circulating blood volume to minimize morbidity and mortality. The aim of this study was to evaluate blood loss after total knee replacement. **Patients and Methods:** A prospective study of blood loss after Total Knee Arthroplasty in 53 patients in the National Orthopaedic Hospital, Lagos. Consecutive patients with established indications, presenting for total knee replacement were recruited into the study after obtaining their consent. **Results:** The mean intra-operative blood loss was 342.4mls, with a range of 50 - 1500mls. The mean post-operative blood loss and total blood loss were 603.6mls and 940.3mls respectively, showing a strong positive correlation ($r = 0.884$, $p < 0.01$). The average pre-operative and post-operative haemoglobin concentration were 12.5 ± 1.2 g/dl and 9.8 ± 0.9 g/dl, respectively. The mean haemoglobin loss was 2.6 ± 1.2 g/dl ($r = 0.46$, $p < 0.001$). **Conclusion:** Post-operative blood loss as measured by effluent in suction drainage, is a good predictor of total blood loss after total knee replacement for severe knee osteoarthritis.

Abstract no.: 43958

A BIOMECHANICAL COMPARISON OF TWO CEPHALOMEDULLARY NAILS; ONE USING A SINGLE LAG SCREW WITH ANTIROTATOR BLADE AND A NAIL USING TWO LAG SCREWS FOR UNSTABLE INTERTROCHANTERIC FRACTURES.

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Implant choice for fixation of intertrochanteric fractures remains controversial despite being one of the most commonly performed operation. Although use of sliding hip screws is still considered a gold standart in treatment of these fractures, there is a wide tendency in using cephalomedullary nails because of their biomechanical superiority over sliding hip screws. This trial was initiated in order to compare the biomechanical properties of two different cephalomedullary nails, aPFN and the PROFIN under axial loading , based on the questions that , can a single lag screw with an antirotator blade render better rotational stability? is there a difference between one lag screw or two lag screws with respect to superior migration or cut-out of the screws? and do different nail designs cause different types of failure and what are the pros and cons of classical and new designs from the view point of biomechanical aspects? Ten pairs of third generation synthetic bone models simulating unstable intertrochanteric fracture were used for biomechanical testing. No posterior displacement of screws were recorded in both groups suggesting rotational instability. There was not a significant difference between force values loaded at the time of failure. Although there was no statistically significant difference between compressive strengths at the time of failure, aPFN may provide equal rigid fixation whith less possible cut-out which may have an important consequences in real clinical applications.

Abstract no.: 43959

CASE REPORT; SURGICAL MANAGEMENT OF SYMPTOMATIC LINBURG-COMSTOCK SYNDROME

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In 1979, Linburg and Comstock first described the clinical significance of anomalous tendon slips from the flexor-pollicis-longus tendon (FPL) to the index flexor-digitorum-profundus (FDP). The anomalous connection would lead to loss of independent excursions of the muscles. It might cause pain in the distal forearm over the radial aspect with finger movement. We are presenting a 21-year-old man, right-hand dominant, who complained of pain in the left distal forearm for one year. His pain increased when attempting to flex his thumb or index finger independently. On physical examination, active flexion of the interphalangeal joint of the thumb was always accompanied by simultaneous flexion of the index. The patient was diagnosed with Linburg-Comstock syndrome, and surgical exploration was planned. He had snapping at the volar aspect of the distal forearm when performing tight grip. Under general anesthesia, a 5-cm longitudinal incision was made along the radial aspect of the palmaris-longus tendon. The FPL and FDP were covered with one tenosynovium. Surgical exploration was performed and anomalous tendinous interconnections between FPL and FDP of index were discovered and released. Flexion and extension exercises for the thumb began the day after the surgery. Few days following the operation, the patient was able to flex his thumb and index finger independent of each other. Three weeks later a carpal tunnel release was performed due to persistent pain accompanied by median nerve symptoms. Thereafter, he was pain free. The snapping has improved, but did not resolve completely.

Abstract no.: 43961

CASE REPORT; MID-FOOT SOFT TISSUE INFECTION WITH CONCURRENT KOHLER'S DISEASE

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Kohler disease is an osteochondrosis of the tarsal navicular bone. The Exact etiology remains unclear. Misdiagnosis as infection is common. We are presenting a five year old female with a two day history of left foot pain. Mother and patient related trivial history of trauma. Diagnosed of ankle sprain was made. Child was treated in a below knee backslap for two weeks with no improvement. Re-assessment was done at outpatient clinic where swelling, hotness, and redness were observed. The patient was admitted to the hospital as a case of soft tissue abscess around the medial aspect of the midfoot. Incision and drainage was carried out. Purulent discharge was evident superficially, but no deep purulence was found. Culture came back as Methicillin-Resistant-Staphylococcus-Aureus. Antibiotics were started accordingly. As the symptoms and signs persisted, reoperation was decided two days later with suspicion of osteomyelitis versus septic arthritis around the medial aspect of the midfoot. Up to that level, there were still no positive radiological findings. MRI was not done because of technical difficulties at our hospital. At the second operation, there was only serous discharge, with no signs of deep seated infection. Several days later, repeated x-rays showed sclerosis of navicular bone, announcing diagnosis of Kohler disease. Consequently, a below knee backslab was applied, and converted later to a below knee walking cast. Eight weeks later, the plaster was removed and the child was pain free and started to regain full activity gradually.

Abstract no.: 43963

**EARLY HOSPITAL READMISSION AFTER TOTAL HIP REPLACEMENT:
ETIOLOGY, RISK FACTORS AND OUTCOMES.**

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The hospital readmission after total hip arthroplasty (THA) has been considered low, but imposes additional logistical and financial strain on the health system. Recognize the causes of readmission after discharge can identify errors in the protocols used, thus avoiding future problems for patients considered at risk. To analyze the causes and risk factors associated with hospital readmission within ninety days after the THA, and to correlate the outcome of these patients with its comorbidities and complications. This is a longitudinal, descriptive and prospective study. All patients readmitted during May 2014 and May 2015 was followed. During this period, there were performed 672 primary total hip replacements. The sample consisted of 74 patients (40 men and 34 women) with a mean age of 57.9 years. The readmission rate within 90 days after arthroplasty was, in this study, 11%. The average number of days between the discharge and hospital readmission was 27.3 days (5-87) and the average length of stay after surgery was 6.6 days (2-31). The main cause related to readmission in this study was periprosthetic infection (31.9%), followed by dislocation of arthroplasty (25%). Hospitalizations motivated by clinical complications accounted for 23.6%, like deep vein thrombosis and acute coronary syndrome. Readmission to hospital following THA is not uncommon. Prolonged hospital admissions lead to increased cost to the hospital. Conversely, premature discharge from hospital may lead to complications occurring at home that would more safely be dealt with in hospital.

Abstract no.: 43964

HOW TO PREPARE AND PRESENT EFFECTIVELY: TIPS AND TRICKS

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Introduction: A good presentation enables one in; making a stronger impact than words alone, saving time, efficiently conveying a message and educating a gathering. It can skyrocket one's popularity and success. Guidelines are lacking on how to prepare and deliver powerful presentations. We extensively surveyed the internet and published data on how to present effectively. We formulated guidelines to help speakers in preparing and presenting on the podium in a well-organized and systematic manner. Methods: A thorough Google and Pubmed search was conducted on how to present effectively. Keywords used were: creating effective, efficient dynamic, presentations, PowerPoint, skills, tips and tricks. Results: Our search revealed a paucity of published data on "how to present effectively". To successfully construct a worthy presentation, it is important to research extensively with attention to minute details. The audience deserves special consideration while drafting the presentation that is made in a well-defined format. After a brief overview, the presentation should contain 3-5 logical and understandable main points. Short and simple slides should have tables, graphs, figures with meticulous formatting. Ample practice and rest prior to the date of presentation ensure confident opening, delivery and driving home of crucial take home messages. While one must be clear, loud and assertive, it is equally important to humbly address questions from the floor. Conclusion: a crisp, precise, well-linked presentation is imperative for efficient communication. By following a basic set of guidelines, one can prepare and present a paper efficaciously.

Abstract no.: 43965

CAPITATE SHORTENING IN KIENBÖCK'S DISEASE IN 05 CASES.

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Kienböck's disease is a form of osteonecrosis affecting the lunate, which progresses through several stages if not treated. Usual surgical procedures unload the lunate. Radial shortening is the common procedure in negative ulnar variance. For wrists with neutral or positive ulnar variance, this procedure could produce a distal radio-ulnar discrepancy and an ulnocarpal impingement. We perform, in these cases, a capitate shortening. Our objective was to assess the long-term clinical and radiological outcome of capitate shortening for patients with neutral or positive ulnar variance at stage II and IIIA of disease. Between 2007 and 2013, 05 patients (03 male, 02 female) were operated. Their average age was 38 years (28 to 49). Two Lichtman's stage II and three stage III A with neutral or positive ulnar variance. The surgical procedure consisted in a dorsal approach and a 2 mm shortening osteotomy in the capitate's waist. Fixation was carried out by two memory staples. The mean follow-up was 03 years (29-60 months). Clinically all patients had improved wrist pain, wrist range of movement, and grip strength after the surgery. Radiographic disease progression occurred only in 1 wrist, rated stage IIIB, at 4 years follow-up without a bad clinical outcome. The other 4 cases have all shown signs of revascularization. Any intracarpal complication or capitate non-union occurred. The capitate shortening is a simple and low aggressive procedure. We recommend this procedure for symptomatic patients in early Kienböck's disease with neutral or positive ulnar variance.

Abstract no.: 43968

MEDIUM TERM DURABILITY OF THE CLS CEMENTLESS FEMORAL PROSTHESIS

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Total hip arthroplasty (THA) is considered a procedure with satisfactory results by restoring function and relieving pain in most patients. Studies using the CLS Spotorno cementless femoral stems have demonstrated good-to-excellent mid-term results. The purpose of this study was to evaluate the clinical and radiographic outcomes of THA using the CLS Spotorno femoral stem in the medium term. We performed a longitudinal, retrospective, descriptive study. The sample consisted of all patients who underwent total hip arthroplasty primary with cementless femoral stem Spotorno, with at least five years of postoperative follow-up. We performed 305 THA in 285 patients. The mean age was 49.8 years (20-80). The mean body mass index was 27.5 (18.0 to 42.1). The main cause was coxarthrosis secondary to osteonecrosis of the femoral head (38.6%). The most common Singh index was type 5 (41.63%). Mean follow-up was 7.5 years (5.0 to 9.0). Six patients (1.96%) had aseptic femoral loosening. Femoral osteolysis was observed in 3.27% of the sample. According to Merle d'Aubigné score, 92.5% of patients achieved good or excellent functional results after this period. As noted, we obtained results similar to those described in the literature in relation to the stem cementless Spotorno, especially in patients with good femoral bone quality. In follow-up of 7.5 years, we obtained survival of 98.04% with respect to aseptic loosening. The use of cementless stems in the femur has been showing good results, especially in young patients with good bone quality.

Abstract no.: 43970

PYRODISC® INTERPOSITION IMPLANT FOR TRAPEZIOMETACARPAL OSTEOARTHRITIS – 5 YEAR CLINICAL RESULTS

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Introduction: Trapeziometacarpal osteoarthritis has a high prevalence. There are described several surgical procedures in the failure of conservative treatment, not having been proved to date the superiority of any of them. The PyroDisk® interposition implant was introduced in 2005 and the few existing studies have short follow-ups (it is published in the literature only one study with a 5 year follow-up, involving 19 patients). The objective of this study is to evaluate the 5 year clinical and radiological results of interposition arthroplasty with PyroDisk®. Methods: We conducted a retrospective, cross-sectional analytical study, with a sample composed by patients undergoing interposition arthroplasty with Pyrodisk® between January 2008 and April 2010. Results: We evaluated 26 patients corresponding to 29 arthroplasties. We found a high degree of satisfaction (92.3%) and a low degree of disability in daily living activities (average DASH 22.1), with an average pain score of 1.78. The average Kapandji score at 5 years was 8.56. The mean grip strength was 13.0 kg/cm² and key pinch strength was 4.5 kg/cm². There was no statistically significant relationship between the degree of osteolysis and the clinical results at 5 years ($p>0.05$). We registered three complications (10.3%): 2 dislocations and 1 superficial sensory branch neuroma. The implant survival at 5 years was 93.1%. Conclusions: Our study confirms the good five year clinical results of interposition arthroplasty with Pyrodisk®. The observed lysis did not compromise the results.

Abstract no.: 43974

LOCAL RECURRENCE OF GIANT CELL TUMOR OF BONE

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Giant Cell Tumor (GCT) is a benign bone tumor relatively rare in adults, but the biological behavior is still unpredictable. The incidence of local recurrence presents variation between 0-65% in international studies. The objectives were measure the rate of recurrence and metastasis of 155 patients with GCT and evaluate the risk factors associated with this outcome at an Orthopaedics Institute in Brazil. We collected information about 155 patients with confirmed histological diagnosis of GCT, treated in orthopedic oncology department at Rio de Janeiro from January 2000 to July 2014. Demographic characteristics were evaluated and compared between patients who had local recurrence during follow-up. Local recurrence occurred in 26 patients (16.7%), of which twenty-two were female (84.6%). The most common site of local recurrence was the distal femur (38.4%). Eleven patients had early recurrence, while fifteen cases were diagnosed after 15 months, representing 42.3% and 57.7%. Metastases were identified in 5 patients (3.2%). Tumor-related factors did not evidence increased incidence of local recurrence of giant cell tumor. Surgical treatment with intralesional margin is an option in the treatment of local recurrences and presents no difference on recurrence-free survival other types of procedures. Clinical treatment is reserved for cases of unresectable tumors or when surgical treatment is impossible.

Abstract no.: 43976

CONSTRAINED LINER IN TOTAL HIP ARTHROPLASY

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Introduction: Constrained acetabular liners have been shown to be an effective treatment modality for patients with recurrent instability of the hip. It is used in cases of marked abductor muscle insufficiency, multiple failed revisions for instability, intraoperative multidirectional instability and neuromuscular disorders. Aim of the work: to discuss the results for hip arthroplasty using cementless constrained acetabular cups aiming at evaluation of the improvement of function and the presence of complications. Patients and methods: the study was performed on 15 patients (15 hips), 7 (46.7%) with abductor insufficiency, 5 (33.3%) with neuromuscular disorder and 3 (20%) with recurrent dislocation of the hip prosthesis. The mean follow-up period was 13.07 months. Results: All the included cases had an initial (preoperative) poor Harris hip score. Of them, 11 (73.3%) turned into good, 1 (6.7%) turned into fair, 2 (13.3%) had an excellent score while 1 (6.7%) remained poor 1 year postoperatively. Conclusion: Constrained liners are a good option for patients who have failed management of instability with other implants, those with instability of unclear etiology or deficient abductors and those with cognitive & neuromuscular problems. Key words: Constrained- instability- failed THA-abductor insufficiency-neuromuscular disorder.

Abstract no.: 43978

WARNING METAL ION LEVELS IN CHILDREN WITH GROWTH ROD INSTRUMENTATION (GR) IN EARLY ONSET SCOLIOSIS

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Introduction: Recently wear and corrosion of metal implants have been of great concern especially in MoM hip implants. Evidence of that phenomenon in spinal implants in children is sparse. We aimed to measure metal ion levels in children undergoing sliding GR, with cobalt-chromium/titanium single or double-rod constructs, having interval lengthening. Methods: Cross-sectional study in 23 GR children and in 3 children prior to surgery aged 3.3-15.8 were included, during a 6.5-month period in 2014-2015. Standardized venous blood samples were collected mean 2.5(0.5-6) years post index surgery, processed and stored with adherence to contamination-free consensus guidelines. Blinded analysis for serum chromium(Cr), cobalt(Co), molybdenum(Mo), titanium(Ti), using high-resolution mass spectrometry at a certified laboratory. Results: The Cr levels in 7/23 children exceeded the 134,5nmol/l warning threshold, given by MHRA(www.gov.uk). The Cr level at index was 39nmol/l(34-42) vs. 111nmol/l(10-452) during elongation, excluding one outlier of 1550nmol/l, P=0.02. 14/23 had elevated Cr. 21/23 had increased Ti from index 48nmol/l(21-70) vs. 202nmol/l(33-591) during elongation, P=0.001. Mo index was 0.020micromole/l(0.014-0.025) vs. 0.044micromole/l(0.010-0.195) during elongation, P=0.01. 11/23 had elevated Mo. Co index was 4.5nmol/l(2-7) vs. 11nmol/l(5-38) during elongation, P=0.02. 15/23 had elevated Co but none above the 119nmol/l warning threshold. Conclusion: We detected Cr warning levels in 30% of the children undergoing GR and Ti ion levels were elevated in the majority (21/23). The children with elevated ion levels did not differ clinically from the remaining group. Minimizing iatrogenic metal ion exposure in these children is important due to the increased risk of genotoxicity and mutagenicity.

Abstract no.: 43980

A NOVEL METHOD FOR DETECTION OF TRAUMATIC KNEE ARTHROTOMY

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Penetrating joint injuries of the knee are difficult to diagnose and can lead to septic arthritis. The saline load test is the accepted method for acute diagnosis, but has low sensitivity and can be extremely painful to perform. We conducted this exploratory study to show proof of concept of a knee load test using air instead of saline. Bilateral knee arthrotomies were made at the superior medial arthroscopy portal site with overlying skin wounds of 1.0 cm on the left and 3.0 cm on the right, in fresh cadavers. A water column was created over the wound. 40 cc of air was injected into the joint and the water column was monitored for any "bubbling" effect. If none was observed, joint was manually compressed to express the air. 10/14 1.0 cm and 14/14 3.0 cm skin wound arthrotomies were detected. Using plus-four method, 95% confidence that the true proportion of successful diagnoses of traumatic knee arthrotomy in cadavers with a 1.0 cm wound size is between 0.45-0.88 and 0.78-1.00 for the 3.0 cm. Also strong evidence that a traumatic knee arthrotomy is more likely to be successfully diagnosed with a 3.0 cm than in a 1.0 cm wound at significance level $\alpha = 0.05$. This method for detecting traumatic knee arthrotomy is easy to perform and has good diagnostic value. This preliminary data shows a proof of concept. We hope to complete a blinded, larger size study to obtain sensitivity and specificity data to compare to the saline load test.

Abstract no.: 43982

TREATMENT OF PROXIMAL HUMERUS FRACTURES WITH REVERSE SHOULDER ARTHROPLASTY

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Introduction: Proximal humeral fractures represent 4-5% of all fractures. Surgical treatment of complex fractures in the geriatric population is controversial and it is associated with high rates of failure and reoperation. Hemiarthroplasties, whose functional results depend on the consolidation of tuberosities, present little predictable and often unsatisfactory clinical outcomes. Reverse Shoulder Arthroplasty (RSA) has gained popularity as a first treatment option in such cases. This study aims to evaluate the functional results of RSA in the treatment of complex fractures of the proximal humerus in elderly patients. Results: We reviewed 15 patients, 13 women (86,7%) and 2 men (13,3%) with an average age of 74,1 years (69-86). The mean follow-up was 29.4 months (16-49). 11 fractures were classified (73.3%) in "four-part" of Neer and 4 fractures (26.7%) in "three-part"; 5 (33.3%) of these patients experienced failure of osteosynthesis. The average score of Constant score was 62 (38-90). The average mobility arc was 112.5 ° (90-140 °) of anterior elevation, 95.8 ° (70-120°) of abduction, 10 ° (0-20 °) of external rotation with arm along the body, 30 ° (10°-40 °) of external rotation with the arm in 90 ° of abduction and average internal rotation until L5. The average DASH was 37.41 (5.8-67.0). The mean visual analog scale score was 1.67 (0-4). Radiographically, there was no peri-implant osteolysis or glenoid "notching". Conclusion: RSA should be considered in the primary treatment of complex fractures of the proximal humerus in elderly patients. Larger follow-up studies are needed to assess long-term results.

Abstract no.: 43983

MINIMAL ACCESS ORTHOPAEDICS: THE FUTURE?

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INTRODUCTION: The practice of surgery has become less invasive over time. Surgical incisions were initially planned to maximise exposure of the operative site but with increasing technical skill and new technologies it has become possible in many fields to perform the same operations using less invasive methods. Minimally invasive surgery (MIS) continues to gain traction due to its perceived benefits: reduced analgesic requirement, reduced tissue trauma, and improved post-op rehabilitation. Is MIS the future of orthopaedic surgery? **METHOD:** Critical systematic review: PubMed, Medline and the Cochrane library. **DISCUSSION:** MIS is a broad field which can be divided into two categories: arthroscopic and mini-open/percutaneous. Arthroscopic surgery has developed rapidly and almost entirely replaced open approaches in many shoulder and knee procedures. Arthroscopic procedures in the hip, elbow and ankle are not as commonly used as those in the shoulder and knee but are developing, though evidence of their superiority to open procedures is limited. Mini-open and percutaneous procedures are well-established in spinal, foot and ankle surgery with results comparable to open procedures. Mini-open approaches are developing in the field of arthroplasty: incisions are limited by implant size but modular implants, computer and robotic assistance are allowing incisions to be made smaller. **CONCLUSION:** MIS has proven to be a safe alternative to open approaches in many fields in orthopaedic surgery and continues to develop in others. Developments in computer navigation and robotic assistance should allow further progress in minimally invasive procedures, both arthroscopic and mini-open.

Abstract no.: 43984

PROSPECTIVE STUDY OF EFFICACY OF MINIMALLY INVASIVE PLATE OSTEO SYNTHESIS FOR FRACTURE SHAFT OF HUMERUS IN ADULTS.

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As already accepted there are many different modalities of fixation of fracture shaft humerus, but the anatomical complexity and the risk of damage to the vital structures have prevented the popularity of fixation by minimally invasive percutaneous plating osteosynthesis(MIPPO) technique. With the objective of achieving biological fixation and relative stability at the fracture site in order to achieve callus formation, union, we have studied the clinical, radiographic and functional outcome of 15 patients. Materials and methods: Patients aged between 18 and 60 years with closed fractures of diaphysis of humerus between October 2013 and May 2015 in a hospital based study admitted to Bowring and Lady Curzon hospital and Victoria Hospital were treated with MIPPO method. Standard and defined protocol was followed. All the fractures were classified according to AO method. Closed reduction and fixation was achieved under image control using MIPPO technique with 3cms. incisions, proximally below the acromion and distally 6 cms above the medial epicondyle with an anterior approach. Submuscular tunnel was made by finger dissection and a long narrow LCP was fixed anterolaterally across the fracture with 2 or 3 screws on either side. Assessment of union was done radiologically by noting callus formation, functionally by UCLA score that were excellent in 13 and good in 2 cases. MAYO performance score for elbow was excellent in 12 cases, good in 3 cases. Conclusion: MIPPO fixation for fracture shaft humerus provides good functional results and can be considered as one of the management options.

Abstract no.: 43986

EARLY DISCHARGE OF ELECTIVE LOWER LIMB ARTHROPLASTY PATIENTS WITH COMMUNITY SUPPORT TEAM

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Introduction There has been an increasing focus on early recovery and discharge following elective hip and knee joint replacements, the most common orthopaedic operations. Reduced length of stay has the obvious advantages in presumed patient satisfaction as well as optimisation of service utilisation for more patients and cost effectiveness, especially in the current climate of endemic bed crisis. **Objectives** Our primary aims were to assess 1. How effectively the length of stay for lower limb arthroplasty patients has been reduced without compromising the patient safety and quality 2. To assess high patient satisfaction levels through validated measures **Methods** Data was collected through various resources 1. Healthcare evaluation data /Hospital Episodes Statistics Financial year 11-12, 12-13, 13-14, 14-15 2. Health and social care information centre, PROMS data tables – for the years 12-13, 13-14, 14-15 3. Enhanced Recovery data –Kent, Surrey & Sussex trusts (Jan-12 to Feb-15). 4. Prospectively collected data for SPET cohort June13-May 14 5. Surgical site infection data Register **Results** The average length of stay during year 2011-12 was 5.25 days which gradually improved as follows Year 2012-13 5.32 days Year 2013-14 4.81 days Year 2014-15 3.83 days The numbers of readmissions were relatively low . SSI data showed reduced total infection rate Patient satisfaction survey shows ratings of 85% highly satisfied & 15% satisfied. **Conclusions** Our study showed that Enhance recovery team i.e. SPET initiative resulted in significantly reduced length of stay (efficiency) and readmissions (safety), excellent patient experience (effectiveness), Optimum resource utilisation and large efficiency savings (cost effectiveness).

Abstract no.: 43989

RESTORATION OF SPINAL MOTION IN THORACOLUMBAR FRACTURES MANAGED BY NONFUSION TECHNIQUE

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Introduction: In managing thoracolumbar and lumbar fractures, posterior fusion using transpedicular screw system has been the treatment of choice. The author performed only stabilization of fracture without fusion, followed by removal of metal implants within proper period. **METHOD:** Twelve patients with thoraco-lumbar and lumbar spine fractures under 40 years of age (mean 28.4 years) were managed by this non-fusion method. Implants were removed at mean 9.2 months after initial fixation of fracture and patients were followed up for more than 10 months. For metal-fixed segments, sagittal alignment such as angle of kyphosis, height of body, recovered motion range in flexion-extension, right-left bending view were measured radiologically comparing with control group. Clinical aspects such as gross deformity, functional ability were investigated also. **RESULTS:** Immediately after injury, sagittal angle was average 17.2° kyphosis, which was changed into 2.8° lordotic angle after fixation of fractures. This angle changed to 1.7° kyphotic angle just before implant removal, 2.4° kyphotic just after implant removal of implants operation, which increased to 9.8° kyphotic at final follow-up. The height of fractured body was maintained till final follow-up. The mean segmental motion was measured 10.5° in sagittal plane, 10.9° in coronal plane. Most patients were satisfied for final gross appearance and functional outcomes. **CONCLUSION:** The author's non-fusion method seemed to be effective in achieving stability and sagittal alignment as well as regaining segmental motion of fixed segments. In managing fractures especially for young active persons, non-fusion method seemed to be one of the effective methods.

Abstract no.: 43999

FUNCTIONAL ANALYSIS OF COMPLEX FOREARM INJURIES

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Complex forearm injuries involve multiple tissues and often associated with contamination, crushing and loss, its inadequate treatment can lead to complications, disabilities and amputations. In retrospective study of 16 such patients treated aggressively, 10 primary internal fixations, 1 external fixation, 2 delayed internal fixations, 3 emergency bone graftings, 1 delayed bone grafting were done. Primary musculotendinous repair was done in 5, 7 left unrepaired and tendon transfers were done in 2 patients. 2 Primary nerve repairs and 2 delayed nerve graftings were done. One Brachial artery was repaired. 6 skin graftings, 2 emergency, 5 early, 5 delayed flaps were done. One superficial infection and one implant infection treated with lavage and antibiotics and removal of implant after bony union respectively. One superficial flap necrosis treated with debridement and closure and stiffness of elbow treated with radial head excision. One implant failure was treated with stronger construct and bone graftings. Average follow up period of study was 48 months with average tip pinch strength 58.48%, key pinch strength 61%, grip strength 54.75% of other limb with average DASH score of 10.2. All were back to same jobs with one patient changed the dexterity. 3 patients with mild and 2 with moderate pain and nobody had severe or extreme pain, all satisfied with their salvaged limbs including 10 with no restriction, 1 had quite a bit restriction in social life. Associated major nerve injury worsens the outcome. Salvage of upper limb in such complex injuries is a challenge but aggressive management can give satisfactory functional results.

Abstract no.: 44001

TRANEXAMIC ACID IN TRAUMA: A SYSTEMATIC REVIEW

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Objectives: Tranexamic acid (TXA) is an antifibrinolytic that can prevent clot breakdown. The purpose of this review is to investigate the efficacy of TXA in reducing mortality in major trauma and secondly to look at patient's outcomes when using TXA in trauma. Methods: Searches were performed in PUBMED, EMBASE and other databases for randomised controlled trials (RCT) and observational studies. Results: Eight relevant studies were identified from the search, 3 randomised controlled trials (RCTs) and 5 observational studies were identified. Five of the 8 studies found a significance in mortality with TXA use. Three showed TXA reduced mortality including the high quality level I evidence, CRASH 2 study. Three studies found no significance on mortality. There appears to be no increased risk of VOE with TXA however results from the studies varied. No study reported any adverse events due to TXA use. There does not appear to be any significant benefit of TXA use in TBI but a trend towards lower mortality. There is a role in paediatric trauma despite evidence from only 2 observational studies. Conclusion: There is a high quality RCT to suggest the use of TXA in trauma patients with supporting evidence from observational studies. The outcomes in TBI are unclear. It may be beneficial in paediatric use but there is currently no level 1 evidence in paediatrics to support this. Implications: Further prospective studies looking specifically at role in TBI and paediatric trauma are required to support routine use in these specific populations.

Abstract no.: 44005

ANKLE INJURY DIAGNOSTIC PROTOCOL IN RUSSIAN OUT-PATIENT DEPARTMENT

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The acute ankle sprain is one of the most familiar soft tissue injuries to the orthopedic surgeons everywhere. Knowing the injury morphology we can apply the proper treatment and lower negative results and complications rate. MRI is a very good instrument in the ankle soft tissue diagnostics but it is not available in most out-patients orthopaedic departments so we designed a simple diagnostic algorithm for the ankle injuries. So the crucial role in the algorithm belongs to clinical investigation and radiography. The clinical investigation always include inspection of any swelling, ecchymosis or deformity of the ankle, careful palpation to localise the pain and tenderness and evaluation of ROM. The surgeon has to perform the anterior drawer test to assess the anterior talofibular ligament, varus test to assess the calcaneofibular ligament, eversion test to assess the deltoid and the external rotation test to exclude the syndesmotic injury. The Ottawa Ankle Rules are not acceptable in Russia because the radiography is included in the diagnostic standard. The radiographic assessment should first of all exclude the bony injury, especially fractures of the anterior process of calcaneus, lateral process of talus, base of the fifth metatarsal. While there are any positive ligament-symptoms the stress-radiography should be performed. This diagnostic protocol provides a fulfill examination of the ankle joint and helps not to miss most of ankle injuries. If there are any suspicions on any injury, the sonography or MRI should be done to determine the further treatment.

Abstract no.: 44006

ACCURACY OF FEMORAL OFFSET AIMER FOR SINGLE BUNDLE QUADRUPLED HAMSTRING ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION USING TRANSPORTAL TECHNIQUE.

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INTRODUCTION: Precise femoral tunnel placement is essential for reproducing normal biomechanics of the knee during anterior cruciate ligament(ACL) reconstruction. Conventionally, entry point is the intersection of lateral intercondylar and bifurcate ridge. Femoral offset guides are a simple way of making entry. The objective of our study was to compare both techniques and to find out if any variation is present. **MATERIALS & METHODS:** 34 knees from January to May 2015 were studied who underwent ACL reconstruction by transportal technique. Arthroscopic marking was performed where anatomical ACL tunnel is supposed to be. The 6mm offset femoral aimer was used with knee in 120° flexion at around 10 or 2 'o' clock. The gap between both the points was measured. **DISCUSSION :** On measuring the knees for the distance between the mark made and the area drilled using the commercially available femoral aimers it showed no variation in 72% of cases, 20.5% of cases had 1 – 2 mm variation in the remaining 8.5% of cases there was a 3-4mm variation. The femoral aimer helped in maintaining a thin intact posterior wall with no blow outs. **CONCLUSION:** Our study confirms that femoral offset guide could be a useful tool in placing femoral tunnel in ACL reconstruction. The accuracy of placement is not deviating much from anatomic ACL placement. Hence in the situation of inability to precisely identify the landmarks of anatomic ACL, one can use this as an alternative as it's reproducible even by an inexperienced surgeon.

Abstract no.: 44007

OPEN REDUCTION AND INTERNAL FIXATION OF COMMUNUTED PATELLAR FRACTURES WITH HEADLESS COMPRESSION SCREWS AND WIRING TECHNIQUE

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Management of a comminuted patellar fracture is challenging. Various surgical fixation methods have been suggested. However, issues of loss of reduction and breakage of fixatives have not been resolved. In the current study, we describe a new technique for exposure and stabilization of comminuted patellar fractures and evaluated the clinical and radiologic outcomes of this new treatment. Twelve patellar fractures with articular comminution, which were treated by headless compression screws with additional modified tension band wiring or separate vertical wiring were enrolled in this study. Loose articular fragments were fixed with headless compression screws under direct visual reduction of the articular surface, which was facilitated by the superior everting of the patella. Radiographs were obtained at routine follow-up, and clinical outcomes including range of motion, quadriceps circumference, Lysholm, and Bostman grading scales were measured at the last follow-up. All the fractures healed at a mean of 15 weeks. Articular step-off larger than 2 mm was not seen in any of the cases. The average range of motion arc was 134.2° (range, 120°–145°), and the mean Lysholm and Bostman scores were 94.4 (range, 84 to 100 points) and 28.7 (range, 25 to 30 points), respectively. Thigh muscle wasting was observed in four patients (33.3%), but no patient had >1.5 cm difference in thigh circumference girth between the injured and uninjured lower limbs. Articular fixations with headless compression screws under direct visual reduction of the articular surface resulted in good clinical outcomes and were considered clinically effective for comminuted patellar fractures.

Abstract no.: 44009

NONVASCULARISED FIBULAR GRAFTING IN NON-UNION AND NEGLECTED FEMORAL NECK FRACTURE: A SYSTEMATIC REVIEW

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Management of nonunion femoral neck fracture and neglected femoral neck fracture in young adults is a challenging task. Every effort should be directed towards hip joint salvage in these patients. Among different available options of hip salvage, nonvascularised fibular graft (NVFG) osteosynthesis is simple, easy to perform and a successful technique. A search of Pubmed/ Medline revealed 304 articles on NVFG in neglected and nonunion of femoral neck fracture. After filtration and screening we could identify 15 articles reporting outcome and complications of NVFG. After review of these 15 articles on NVFG, the average nonunion rate was estimated to be 7.86% (range 0-31%). Six articles that evaluated the preoperative and postoperative osteonecrosis reported improvement in 50% patients. The clinical and/or functional outcome was good to excellent in 56%-96% patients following fibular Osteosynthesis. Few complications such as coxa vara deformity, limb shortening and intra-articular penetration of the graft or hardware have been reported. However there is minimal donor site morbidity such as mild ankle pain, transient loss of toe flexors and extensors, transient lateral popliteal nerve palsy.

Abstract no.: 44010

FUNCTIONAL OUTCOME OF LRTI PROCEDURE IN CMC JOINT ARTHRITIS OF THUMB OF INDIAN PATIENTS

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CMC joint of thumb is second common arthritis, associated with pain, stiffness and disability. LRTI is one of the known procedures to relieve pain and provide stability for functional improvement. Retrospective study of such 11 patient was done to assess the functional improvement and disability after procedure. All the patients were diagnosed for CMC joint arthritis on the bases of clinical presentation and classified on the basis of Xray. Trapeziectomy with beak ligament reconstruction with FCR tendon and interposition was done. The thumb was immobilized with K wire with a spica cast for 4 weeks, followed by thumb splint and physiotherapy. At follow up of average duration of 24 months they were assessed for function and disability using DASH score. The average tip pinch strength gain was 75%, key pinch strength gain 80%, grip strength gain 80% of other limb. The average active 1st web space angle improvement was 19.5 degree compared to preoperative angle. Average DASH score was 4.14. Nobody had severe or extreme pain, 3 had mild pain and 2 had moderate pain. They were able to carry out their day to day activities. One had hypoaesthesia on the dorsum of proximal thumb. Based on our observation of DASH scores, the results have remained encouraging in most cases with restoration of beak ligament with a stable and functional thumb with cosmetic improvement. LRTI is a reliable procedure to restore mobility with stability for function with cosmetic improvement in elderly Indian patients.

Abstract no.: 44011

EPIDEMIOLOGICAL CHARACTERISTICS OF PATELLOFEMORAL OSTEOARTHRITIS IN ELDERLY KOREANS AND ITS SYMPTOMATIC CONTRIBUTION IN KNEE OSTEOARTHRITIS

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Many studies have reported the prevalence of knee osteoarthritis (OA) but have invariably focused on the tibiofemoral (TF) joint and overlooked the patellofemoral (PF) joint. Accordingly, little epidemiological information is available regarding the PF OA. The purpose of this study was to document the epidemiological characteristics of PF OA in elderly Koreans. Radiographic assessment was performed for 681 elderly (≥ 65 years old) Koreans recruited from a community, and symptom severity was evaluated using Western Ontario and McMaster Universities Index and Short Form-36 scales. Prevalence of different categories of knee OA (isolated PF OA, isolated TF OA and combined PF and TF OA) was calculated. The symptoms of isolated PF OA group and non-OA group were compared. The overall prevalence of OA was 22.0% in the PF compartment and 34.1% in the TF compartment. The prevalence of isolated PF OA, isolated TF OA, and combined PF and TF OA was 3.8%, 17.8%, and 19.2%, respectively. Female sex, aging, and obesity were not associated with isolated PF OA. No significant differences were found in any clinical outcome scales between the isolated PF and non-OA groups. This study documents that OA in the PF joint is common in elderly Koreans, but isolated PF OA is rare. Demographic risk factors are not associated with isolated PF OA, suggesting that isolated PF OA may have a different pathophysiology from other types of knee OA. Our study also indicates that the presence of isolated PF OA should not be construed to be responsible for clinical symptoms.

Abstract no.: 44013

COMPARISON OF TREATMENTS OF PROXIMAL OR DISTAL TIBIA SHAFT FRACTURES ; LOCKING INTRAMEDULLARY NAIL VS MINIMALLY INVASIVE PLATE OSTEOSYNTHESIS

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In this randomized, prospective study, we aimed to compare minimally invasive plate osteosynthesis(MIPO), locking intramedullary nailing(IMN) for proximal or distal one third tibial shaft fractures. 85 patients with meta-diaphyseal tibia shaft fracture in the proximal or distal 1/3 of the tibia who had undergone IMN or MIPO were enrolled. Group A included 42 patients who had undergone IMN. Group B consisted of 43 patients who had been treated by MIPO. Each clinical outcome was assessed: hospital stay, operative time, time to radiographic union, union status, infection and the incidence of re-operation and complications of malunion, nonunion, angulation, and shortening. Each patient was followed up at least 2 years postoperatively. Modified WOMAC score was introduced for functional evaluation. There was no significant difference ($P>0.05$) in hospital stay, time to radiographic union and the incidence of union status among the two groups. As for postoperative complications, two cases of nonunion, four cases of malunions in group A, whereas 3 cases of delayed union, 1 case of neuropathy, and 1 case of surgical wound infection were observed in group B. There was no difference in functional evaluation between the two methods after operation ($P>0.05$). We consider that the minimally invasive plate osteosynthesis and locking intramedullary nail stabilization are all efficient methods for treating proximal or distal tibia fractures. Conventional IMN using interlocking technique alone had higher incidence of malalignment and deformity than MIPO.

Abstract no.: 44016

IMMEDIATE POST-OPERATIVE PAIN RELIEF AFTER KNEE ARTHROSCOPY: BUPIVACAINE VS BUPIVACAINE AND MORPHINE COMBINATION. A RANDOMISED CONTROL STUDY

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Aim: To evaluate the analgesic effect of intra-articular injection of bupivacaine alone or a combination of bupivacaine and morphine following arthroscopy of the knee joint. **Methods:** In a prospective, randomized study, 34 (42 knees) patients who required elective knee arthroscopy were assigned to two groups: Group A consisted of 18 patients (24 knees) who received bupivacaine (0.5%, 10cc) alone and Group B consisted of 16 patients (18 knees) who received a combination of bupivacaine (0.5%, 10cc) and morphine (1mg). Analgesic effect was evaluated by pain intensity (visual analogue scale) and analgesic requirements during the first four, eight, twelve and twenty-four hours post-operatively. **Results:** At 24 hours following the operation, the visual analogue scale score and the analgesic requirements were significantly higher in Group A compared to Group B ($P < 0.01$, $P < 0.01$, respectively). Two patients in-group B complained of nausea in the first twelve hours. **Conclusion:** We conclude that a combination of bupivacaine and morphine is more effective in management of immediate post-operative pain and therefore helps in very early mobilisation. We therefore recommend the use of intra-articular injection of a combination of bupivacaine and morphine following knee arthroscopy.

Abstract no.: 44019

THE TREATMENT OF MINIMALLY INVASIVE PLATE OSTEOSYNTHESIS (MIPO) WITH DUAL LOCKING COMPRESSIVE CLATE (LCP) IN METAPHYSEAL COMPLEX DISTAL FEMUR FRACTURES

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The incidence rate of complication of metaphyseal complex distal femoral fractures is high. So the metaphyseal complex distal femoral fractures is a challenge to conventional plate fixation. In this retrospective study, we aimed to analyze the complications and clinical outcomes of minimally invasive plate osteosynthesis (MIPO) with dual locking compressive plate (LCP) treatment for metaphyseal complex distal femoral fractures. 22 patients with metaphyseal complex distal femoral fractures who had undergone MIPO with dual LCP were enrolled. Each clinical outcome was assessed: operative time, time to radiographic union, union status and complications of malunion, nonunion, angulation, and shortening. Each patient was followed up at least 2 years postoperatively. Modified WOMAC score was introduced for functional evaluation. The mean operating time was 163.1 minutes (range, 85-210). In 19 cases except for 3 cases, bony union was obtained. The average time to union was 16.2 weeks (range, 7-29). The average Modified WOMAC score was 41.2 (range, 18-55). As for postoperative complications, three cases, (nonunion, malunion, shortening, respetvely). We consider that the MIPO with dual LCP are efficient methods for treating metaphyseal complex distal femoral fractures. To get good clinical outcome of MIPO with dual LCP techniques in metaphyseal complex distal femoral fractures, proper patient selection and good surgical technique are essential.

Abstract no.: 44023

A COMPARISON OF PLAIN RADIOGRAPHY TO COMPUTER TOMOGRAPHY IN DETERMINING CORONAL AND SAGITTAL ALIGNMENT FOLLOWING TOTAL KNEE ARTHROPLASTY

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Introduction: Optimal coronal and sagittal component positioning is important in achieving a successful outcome following total knee arthroplasty (TKA). Modalities to determine post-operative alignment include plain radiography and computer tomography (CT) imaging. This study aims to determine the accuracy and reliability of plain radiographs in measuring coronal and sagittal alignment following TKA. Methodology: A prospective, consecutive study of 58 patients undergoing TKA was performed comparing alignment data from plain radiographs and CT imaging. Hip-knee-angle (HKA), sagittal femoral angle (SFA) and sagittal tibial angle (STA) measurements were taken by two observers from plain radiographs and compared with CT alignment. Intra- and inter-observer correlation was calculated for each measure. Results: Intra-observer correlation was excellent for HKA ($r > 0.89$) with a mean difference of $< 1.9^\circ$. The least intra-observer correlation was for SFA (mean $r = 0.58$) with a mean difference of 8° . Inter-observer correlation was better for HKA ($r > 0.95$) and STA ($r > 0.8$) compared to SFA ($r = 0.5$). When comparing modalities (radiographs vs CT), HKA estimations for both observers showed the least maximum and mean differences while SFA observations were the least accurate. Conclusion: Radiographic estimation of HKA shows excellent intra- and inter-observer correlation and corresponds well with CT imaging. However, radiographic estimation of sagittal plane alignment was less reliably measured and correlated less with CT imaging. Plain radiography was found to be inferior to CT for estimation of biplanar prosthetic alignment following TKA.

Abstract no.: 44024

**MANAGEMENT OF FRACTURES IN PATIENTS WITH OSTEOPETROSIS-
CASE SERIES OF 4 PATIENTS**

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Introduction: Osteopetrosis is a group of sclerosing bone dysplasia characterised by diminished osteoclast mediated bone resorption. We present a series of 4 patients with osteopetrosis who underwent surgical management in our hospital. Material and methods: 4 patients with a total of 8 fractures were managed in our hospital from 2007-15. All patients were male in the 20-40 years age group and had a history of previous multiple fractures. Majority of fractures involved femur with 1 subtrochanteric, 3 shaft and one neck of femur, three of them being peri-implant fractures. One patient had humerus while another had patella and fifth metatarsal base fracture. Most of the femur fractures were fixed with plate fixation while neck femur fracture was managed with hemiarthroplasty and allograft, plate and cable system. Humerus fracture and fifth metatarsal fracture was managed with locking plate while patella fracture was fixed with screws. Results: Patient with bilateral peri-implant femur fracture had multiple retained broken screws while removing the old implant. Patella fracture fixation was complicated by one broken screw and one partially inserted screw as it could not withstand the torque generated while inserting the screw in sclerotic bone. Fifth metatarsal fracture fixation was complicated by delayed infection that needed surgical debridement. All patients had eventually united. Conclusion: There is a high incidence of intra and post-operative complications in fractures sustained in patients with osteopetrosis including delayed and non union; broken implant; peri-implant fractures and infection leading to osteomyelitis. Great caution must be taken while fixing these fractures.

Abstract no.: 44025

POST-THROMBOTIC SYNDROME FOLLOWING TOTAL KNEE ARTHROPLASTY; DOES CURRENT PROPHYLAXIS AFFECT THE LONG-TERM OUTCOMES AND QUALITY-OF-LIFE?

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Introduction: Although much effort has been devoted to preventing venous thromboembolism, there is little published regarding the morbidity caused by post-thrombotic syndrome, PTS, in patients undergoing TKA. It is unclear if this is due to a low index of suspicion, insufficient clinical monitoring for PTS, or if PTS is simply not a major morbidity in these patients. Objectives: To identify the incidence of PTS following total knee arthroplasty in patients receiving prophylaxis. To assess the effect of PTS on patient reported outcomes and quality-of-life. Methods: Retrospective analysis of all elective total knee arthroplasty in a 12month period. All patients received LMH heparin and thromboembolic stockings for 2 weeks post-operatively. Patients with confirmed thrombosis on radiographic imaging were reviewed at 12-18months and villalta score and venous disease-specific quality-of-life, VEINES-QOL, questionnaires were completed. Results: Total 442 patients. 54(12.2%) underwent ultrasound doppler or CT pulmonary angiograms. 6 had confirmed thrombosis (2 DVT: 4 PE). Incidence of thrombosis was 1.35% overall. 1 patient was excluded as hospital inpatient during study period. 3 patients developed PTS with positive villalta scores, average 7.6 (5-10). VEINES-QOL scores showed good overall health perceptions with 80% of patients scoring above 80/100 (81-96), p(<0.001). One patient reported poor quality-of-life, VEINES-QOL score of 57. Conclusion: The overall incidence of venous thrombosis following TKA is low. Patients with venous thromboembolism following TKA are likely to develop post thrombotic syndrome, despite adequate post-operative prophylaxis. PTS leads to impaired quality of life and poor health perceptions amongst those undergoing total knee arthroplasty.

Abstract no.: 44026

UTILITY OF SUPINE LATERAL RADIOGRAPHS IN ASSESSMENT OF LUMBAR SEGMENTAL INSTABILITY IN DEGENERATIVE LUMBAR SPONDYLOLISTHESIS

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Introduction: Evaluating segmental instability is critical to the management of lumbar spondylolisthesis. Standing flexion-extension lateral radiographs are routinely obtained as it is believed to demonstrate the forward-backward motion of the segment; however recent studies with MRI and CT have shown that the relaxed supine position can facilitate the reduction of the anterolisthesed segment. Methods: Supine lateral radiographs have been added to the routine evaluation (standing neutral/flexion/extension lateral radiographs) of symptomatic spondylolisthesis at our institution. 27 patients with this series of radiographs were included. The amount of listhesis was measured and compared on each radiograph: Standing neutral lateral ("neutral"), Standing flexion lateral ("flexion"), Standing extension lateral ("extension"), and Supine lateral ("supine"). Results: 27 patients (25 female, 2 male), with a mean age of 58 were included in this study. The mean mobility seen with flexion-extension was 5.25%. The mean mobility seen with flexion-supine was 9.3%. This difference was significant in paired t-test ($p < 0.0001$), and independent of age and BMI. The maximal mobility was seen comparing flexion and supine radiographs in 20 patients, and comparing neutral and supine radiographs in 5 cases. Only three cases demonstrated more reduction in extension than in supine. Conclusion: The supine radiograph demonstrates more reduction of anterolisthesis than the extension radiograph. This view is inexpensive and technically easy for both the facility and for patient comfort, can be a valuable tool in the evaluation of spondylolisthesis. This study suggests that we may skip the extension radiograph when evaluating instability in spondylolisthesis patients.

Abstract no.: 44027

THE ANKLE EVALUATION SCORE

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There is a significant increase in the amount of different kinds of ankle injuries as well as the different ankle surgical procedures in Russia. One of the typical problems is the functional assessment of the ankle joint at all stages of the treatment from diagnostics to the outcome evaluation. The good clinical assessment score must be simple to use, must be comprehensive, understandable and reproducible one. We applied the AOFAS ankle-hindfoot score, Karlsson-Petersson scoring system, Kaikkonen score and the FAOS questionnaire to assess the outcome after the ankle surgery, including fracture fixation, ankle arthroscopy and ligament reconstruction. The FAOS questionnaire is very detailed, but it cannot assess the objective data. The AOFAS scale is also very detailed and it deals with the objective data, including multiplanar x-ray measures. It is considered very good for the full assessment of the ankle function but it takes very long to perform all the test and to make a proper conclusion. The Karlsson-Petersson and the Kaikkonen scores are very similar, simple to perform and cover both the patient complaints and the objective data. The Kaikkonen score seems to appear a little bit more objective, cause there are questions on the ROM and the stability. So we used the ankle assessment score based on Kaikkonen system to understand better the outcome results after the ankle surgery.

Abstract no.: 44028

ACCELEROMETER-BASED, PORTABLE NAVIGATION (KNEEALIGN®) VERSUS CONVENTIONAL INSTRUMENTATION FOR TOTAL KNEE ARTHROPLASTY: A PROSPECTIVE RANDOMIZED COMPARATIVE TRIAL

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Introduction: Accelerometer-based, portable navigation devices (PAD) have been introduced as a less invasive and simpler technique to perform navigated surgical implantation of knee prostheses. They have been postulated to have better accuracy than conventional (CON) instruments in restoration of alignment in total knee arthroplasty. Methods: 190 patients were enrolled in this prospective, patient-blinded randomized controlled trial and underwent TKA using either the KneeAlign PAD or conventional IM guides. Multiplanar alignment was evaluated with a CT imaging protocol. Results: The post-operative hip-knee angle was 86.5% and 82.2% for PAD and CON respectively (p=0.54). In addition, there was no difference in alignment between the 2 groups for component coronal and sagittal plane alignment. PAD demonstrates accurate restoration of alignment however there was no statistically significant difference when compared to CON. PAD did not significantly increase the time to perform the surgery

Abstract no.: 44032

OUR EXPERIENCE OF ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION WITH SEMITENDINOSUS AND GRACILIS AUTOGRAFT

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Introduction. Treatment of anterior cruciate ligament injuries is an actual problem. Mostly this type injury occurs in sportsmen. Treatment of anterior cruciate ligament injuries with an arthroscopic technique leads to early returning to usual activity. Methods. 102 patients (81 male, 21 female) at age from 14 to 58 y.o. with anterior cruciate ligament tear were operated. 72 patients obtained trauma during sport activity. 38 patients had isolated anterior cruciate ligament tears, 64 patients had besides meniscus injuries: 41 medial meniscus tear, 16 lateral meniscus tear, 7 both meniscuses tear. Remoteness of trauma was from 1 month to 5 years. In all patients semitendinosus and gracilis autografts were used. In patients with meniscus tear partial or subtotal meniscectomies were performed depending on type of meniscus tear. Patients were recommended to do isometric quadriceps exercises from the next day of operations. Gradual knee flexion motions were recommended in 3-4-day after surgery. Results. All operated patients were observed monthly till twelve month. Lysholm score was used for evaluation of results. By the 12 month excellent results occurred in 38 patients, good results in 60, satisfactory in 4 patients. Recurrent synovitis was occurred in one patient. Later this patient underwent arthroscopic synovectomy but no effective. Total 2 patients underwent revision and autograft removal. Despite this the majority of sportsmen returned to sport. This method of anterior cruciate ligament reconstruction is effective, less traumatic, allows to return patients and sportsmen to previous activity.

Abstract no.: 44033

DOES LOWER LIMB ALIGNMENT DEVIATE MUCH IN KINEMATICALLY ALIGNED TOTAL KNEE ARTHROPLASTY?

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Introduction: Mechanically aligned total knee arthroplasty (TKA) with neutral hip-knee-ankle (HKA) angle and perpendicular tibial component with regards to tibial mechanical axis were thought to guarantee best implant survival. However, studies had showed that kinematically aligned TKA offered better outcome with similar survival rate. As tibia vara is known to be common among Asian population, this had intrigued us to compare the radiologic outcome of both techniques. **Methods:** Retrospective review was conducted on 80 patients who underwent TKA using kinematic knee alignment technique (40) and mechanical alignment technique (40) by a senior surgeon. All surgeries were verified intra-operatively and post-operative long limb radiographic films were taken. The accepted values for normal alignment were $180 \pm 3^\circ$ for Hip-Knee-Ankle Angle and $90 \pm 3^\circ$ for Coronal Femoral-Component Angle (CFA) and Coronal Tibia-Component Angle (CTA). **Results:** The mean CFA was 91.2° and 89.4° in the kinematic knee group and mechanical group ($p < 0.001$) whereas mean CTA was 88.7° and 91.9° respectively ($p < 0.001$). The mean HKA of kinematic knee group was -0.28° and -1.75° in mechanical group with similar outliers of 20% each. The outliers in CFA and CTA for mechanical knee group were 17.5% and 32.5% respectively whereas in kinematic knee group, they were 12.5% and 15%. **Conclusion:** The mechanical alignment of the knee was restored similarly with either of the techniques. However, CTA in kinematically aligned TKA had shown to be more varus.

Abstract no.: 44034

SURGICAL TREATMENT OF A GIANT INFECTED HAEMOPHILIC PSEUDOTUMOUR OF THE ILIUM AND PROXIMAL THIGH

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Pseudotumour of the ilium is a rare and severe complication in haemophiliacs, caused by the recurrent bleeding in either bone or soft tissues. We report the case of a patient with a giant infected and fistulized haemophilic pseudotumour of the ilium and proximal thigh, who had very little muscle mass. The surgical treatment consisted in selective embolization of branches of the hypogastric artery (to reduce bleeding) prior to the excision of the pseudotumour, which was performed using two approaches: 1) Iliofemoral to dissect the anterior area of the ilium to the lesser trochanter and 2) Kocher Langenbeck to dissect the gluteal area. Finally we used negative pressure wound therapy to obliterate the dead space, because the patient was not a candidate for muscle flaps. In this case we emphasize the multidisciplinary management to achieve success, as well as consider the use of negative pressure wound therapy as a novel treatment modality to obliterate the dead space in this type of patients.

Abstract no.: 44038

MALE PREDISPOSITION TO STAPHYLOCOCCAL PERIPROSTHETIC JOINT INFECTION AFTER PRIMARY TOTAL KNEE ARTHROPLASTY.

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Introduction: The incidence of periprosthetic joint infection (PJI) after primary total knee arthroplasty is relatively small but the cumulative cost of PJI on patients, health providers and society is immense. Several joint registries demonstrate a male predominance in revision rates due to infection however there is currently limited understanding of the gender specific patterns of PJI. *S. aureus* is consistently the most commonly identified organism in infected TKAs and may be community acquired. The purpose of this study was to investigate the gender specific patterns of PJI following primary TKA, the incidence and gender ratios of preoperative staphylococcal colonisation and the effectiveness of staphylococcal eradication and best practice perioperative protocols in preventing PJI after primary TKA. Methods: An analysis of a single surgeon database of over 1,500 primary TKAs was undertaken to quantify the incidence, bacteriology and gender ratio of nasal swabs and PJI. Results: There were 16 cases of PJI, 15 of which occurred in males. *S.aureus* was the causative organism in all cases. The majority of isolated staphylococci were methicillin sensitive and likely to be community acquired. Ten PJIs occurred within 6 months of the index procedure. Six PJIs were late and largely related to other septic foci. Forty-nine of 185 swabs were positive with a male to female risk ratio of 1.45. No PJIs occurred in the screened and eradicated cohort. Conclusion: Male gender is a risk factor for staphylococcal colonisation and PJI after primary TKA. Eradication combined with best perioperative practice protocols shows promising early results.

Abstract no.: 44040

COMPUTER ASSISTED KINEMATIC TOTAL KNEE ARTHROPLASTY

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Introduction: Kinematic alignment (KA) is an alternative total knee arthroplasty (TKA) technique that aims to restore pre-morbid alignment, joint orientation and ligament tension. The technique and results have been reported with generally excellent outcomes using image derived instrumentation (IDI) and modified conventional instrumentation albeit largely by a single author. A single randomized controlled trial compares the results of kinematic TKA done with IDI with mechanical axis TKA done with conventional instruments. Computer assisted TKA is the unequivocal gold standard for accuracy in TKA and has a number of potential advantages over other platforms with respect to kinematic technique but has no reported results. Methods: A single surgeon completed 231 cruciate retaining computer assisted kinematic TKAs in 193 patients (48 bilateral simultaneous). Preoperative and 12 month postoperative clinical and radiographic data as well as intraoperative navigation data was collected prospectively. Results: At 12 months postoperatively the mean and modal standing HKA values were -0.20 and 00 respectively. The mean Oxford Knee Score had improved from 23 to 43 and the WOMAC score from 46 to 8. The only alignment parameter that consistently correlated with significantly poorer patient reported outcome was femoral component valgus in excess of 30. There were two patellofemoral complications of note specifically related to the technique. Conclusions: Excellent clinical and radiographic results can be achieved using a computer assisted kinematic alignment TKA technique. Excessive femoral valgus and challenged patellar tracking should be avoided.

Abstract no.: 44042

RANDOMISED CONTROLLED TRIAL TO COMPARE OUTCOME BETWEEN MONO-SEGMENTAL PEDICLE INSTRUMENTATION (MSPI) VERSUS SHORT-SEGMENT PEDICLE INSTRUMENTATION (SSPI) IN MANAGEMENT OF THORACOLUMBAR FRACTURES

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Background and objectives: This study compare the clinical and radiological outcome between mono-segmental pedicle instrumentation (MSPI) versus short-segment pedicle instrumentation (SSPI) in management of thoracolumbar fracture (AO A3.1, A3.2). **Material and Methods:** Forty-eight patients with thoracolumbar burst fractures (AO A3.1, 3.2) without neurological deficit fulfilling the inclusion criteria were included. The patients were randomised into 2 groups. Post-operative low back pain (VAS) score, blood loss and operative time, radiological (kyphotic angle, percentage of anterior body height compression) at 2,6,12 and 24 weeks follow up and Oswestry Disability Index at final follow up were analysed. **Results:** Forty-five patients (23 in MSPI and 22 in SSPI) were followed up successfully with final follow-up of 24 weeks. The two groups were similar in mean age, fracture level and type. Blood loss during surgery in MSPI is significantly lower than SSPI ($p < 0.05$). All the other parameters were comparable and no significant differences were found between the two groups ($p > 0.05$). **Conclusion:** Clinical and Radiologic parameters demonstrated that both MSPI and SSPI are effective and reliable operative techniques for selected fractures (AO A3.1, 3.2) in thoracolumbar spine with significantly decrease amount of blood loss and less surgical trauma in MSPI, thus offering better clinical results. **Key words:** Mono-segmental, Thoracolumbar, Pedicle.

Abstract no.: 44048

COMPARISON OF GRAFT ORIENTATION AND FEMORAL GRAFT-BENDING ANGLE BETWEEN TRANSTIBIAL AND ANTEROMEDIAL PORTAL TECHNIQUES FOR ANATOMIC DOUBLE-BUNDLE ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION USING TRANSPARENT 3-DIMENSIONAL COMPUTED TOMOGRAPHY

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PURPOSE: The aim of this study was to compare graft orientation and bending angle at femoral tunnel aperture between transtibial (TT) and anteromedial portal (AMP) techniques for anterior cruciate ligament (ACL) reconstruction. **METHODS:** Fifty-eight patients who underwent anatomic double-bundle ACL reconstruction with hamstring tendons participated in this study. Of these patients, twelve patients underwent femoral tunnel creation through the tibial tunnel and 46 patients underwent femoral tunnel creation through the far anteromedial portal. Transparent 3-dimensional CT image reconstruction, which can depict the bone tunnels in three dimensions, was used to evaluate graft orientation and bending angle. A line drawn between the center of the femoral and tibial tunnel orifice was determined as a virtual graft. As graft orientation, angles between the virtual graft and tibial plateau on the coronal and sagittal planes were measured. Three-dimensional vectors of the femoral tunnel and the virtual graft were determined from the coronal and sagittal images, and the graft-bending angle was defined as the angle between the two vectors. Statistical analysis was performed using unpaired t-test. **Results:** Angles of the antero-medial (AM) graft by the TT technique were significantly greater on the coronal ($p=0.002$) and the sagittal ($p=0.015$) planes. Significant difference was not found for PL graft. The AM femoral graft-bending angle of the TT group was significantly smaller ($p<0.001$), but there was no significant difference for the PL graft. **CONCLUSION:** The AMP technique resulted in less acute graft orientation, but more acute graft-bending angle for the AM graft.

Abstract no.: 44049

DISTAL TIBIA FRACTURES: ORIF VS. MIPPO

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ORIF was traditionally used for treatment of distal tibia fractures. High level of wound complications was the main issue. Minimally invasive percutaneous plate osteosynthesis (MIPPO) gains popularity but results are inconsistent. Objectives: Direct comparison of ORIF vs. MIPPO in distal tibia fractures. Methods: 118 patients with distal tibia fractures were treated from 2008 to 2014. In 56 cases ORIF and in 55 MIPPO were used. Mean age of patients in ORIF-group 43.5 ± 13.7 (17-79), in MIPPO-group 43.0 ± 12.9 (22-84) years. In ORIF-group 14 fractures were open (G1-8, GII-3, G3A-3), in MIPPO-group – 7 open fractures were encountered (GI-4, GIIIA-3). Fracture distribution according to AO-OTA classification was comparable. Mean time from injury to definitive fixation was slightly higher in ORIF-group (9.8 ± 9.1 days) vs. MIPPO-group (7.0 ± 5.9). In 11 cases external fixation was initially applied. Locked plates were used for definitive fixation. Results: Most fractures healed uneventfully. There were 3 non-unions in ORIF-group and 6 in MIPPO-group ($p=0.23$). Axial deviations more than 5° were noticed in 3 cases in both groups ($p=0.65$). Wound complications were seen in 6 cases in ORIF-group (2 of them deep infection) and in 4 cases in MIPPO-group (1 – deep infection, $p=0.51$). There were totally 5 additional surgeries in ORIF-group and 8 in MIPPO-group ($p=0.26$). Functional results according to LEFS-score comprised 56.4 points for ORIF-group and 59.5 points for MIPPO-group. Conclusions: Surprisingly we have higher incidence of consolidation disturbances in MIPPO group (NS). The frequency of axial deviations and wound problems appeared to be similar.

Abstract no.: 44051

DIFFERENCES BETWEEN CASES WITH BONE UNION AND CASES WITH INTRAVERTEBRAL CLEFT FOLLOWING OSTEOPOROTIC VERTEBRAL FRACTURES

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Objective. To identify how OVF non-union influences the clinical results. **Summary of Background Data.** Vertebral non-union, which displays as an intravertebral cleft on plain X-rays, was reported as a factor for prolonged severe pain following osteoporotic vertebral fracture (OVF). However, the differences between bone union and non-union cases remain unclear. **Methods.** A total of 324 OVF patients from 25 institutes in Osaka, Japan, who could be followed for 6 months were included in the study. At the 6-month follow-up, the patients were classified into bone union and nonunion groups based on plain X-ray findings and clinical results were evaluated respectively. The outcome assessments included VAS for back pain, SF-36 and severity of bed-ridden state for quality of life (QOL), MMSE for cognitive functions, and degree of vertebral body collapse on plain X-rays. **Results.** Overall, 280 patients were classified into the union group and 44 into the non-union group. The VAS score at 6 months was significantly worse in the non-union group ($P=0.01$). The scores of the physical functioning and bodily pain scores in SF-36 at 6 months were significantly lower in the non-union group ($P=0.019$, $P=0.01$, respectively). The percentage of nearly or completely bed-ridden patients and that of newly developed cognitive impairment was significantly higher in the non-union group ($P=0.02$). Progression of vertebral collapse during the 6-month follow-up was more pronounced in the non-union group ($P<0.01$). **Conclusion.** The present results revealed that non-union following OVF can be the cause of prolonged pain, QOL impairment, cognitive status deterioration and vertebral collapse progression.

Abstract no.: 44058

EARLY DIAGNOSTICS, PREVENTION AND TREATMENT THROMBOSIS OF LOWER EXTREMITY VESSELS IN PATIENTS WITH MULTIPLE FRACTURES OF LOWER EXTREMITIES

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Introduction. Traumatic injuries of soft tissue and vessels, obligatory immobilization of extremities and in bed position creates positive conditions appearing thrombosis of veins and thromboembolic complications. Methods. For the period of 2009 – 2015 120 patients with multiple fractures of long bones of extremities was treated. Doppler ultrasound method of the lower limbs is performed in the mode of color imaging of the studied lower limbs and doplerography imaging of the deep and superficial veins of the hip. The diagnosis of deep venous thrombosis was confirmed in 22 patients. In 14 patients identified segments deep vein thrombosis following order ileofemoral segment-4, femoral-popliteal-tibial segment 4, the lower leg vein 6. In 8 patients revealed a blood clot veins relative to the lumen of the vessel: they differed both parietal, occlusive and floating thrombus. Results. Patients with thrombotic complications conducting the following operations: plication of the left common femoral vein with thrombectomy- 3; thrombectomy – 3; ligation of major veins – 2. The patient after surgery instead of conventional heparin was administered low molecular weight heparins (fraxiparine), subcutaneously. Given these factors, more rationally administered low molecular weight heparins - fraxiparine. Clexane have extended the warning feasibility study. Low molecular heparin is as effective as heparin and fractionated, wherein a number of essential advantages. When massive embolism vein thrombosis of the inferior vena cava, in ileocaval segment given the greater risk of developing pulmonary embolism used streptokinase 250 000-300.000 in International unit

Abstract no.: 44060

PATTERN OF COMPLEX PRIMARY HIPS PRESENTATION FOR TOTAL HIP REPLACEMENT SURGERY AT A TERTIARY INSTITUTION IN NIGERIA.

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Introduction: Total hip replacement (THR) surgery is still evolving in Nigeria with increasing awareness as more cases are being done. This has brought out individuals who hitherto had no solutions for their hip pathologies. This work aims to present the pattern of complex primary hips presenting for THR. Methodology: Data collected over a seven year period (November 2008-November 2015) from patients who presented for THR were analyzed for age, sex, diagnosis, type of hip, complications, duration of surgery, blood loss and transfusions. Result: 136 cases of THR were done, 72 (52.9%) cases were primary hips, 59 (43.4%) complex primary and 5 (3.7%) were revision hips. The commonest complex primary hip was seen in sickle cell disease patients (23.7%) with avascular necrosis of head of femur and absent/tight medullary canals. This is followed by old unreduced hip dislocation and non union hip fractures with an incidence of 10.1% each. The major peri operative complication noted was calcar split in 8 patients (13.5%). Conclusion: Sickle cell disease patients presented more with complex primary hips and the commonest difficulty was recreating medullary canals. Complex primary hips present challenging technical difficulties with increased risk of complications, increased operation time and blood loss. This group of patients requires extensive detailed planning to ensure successful operation. Key words: Complex primary hip, total hip replacement, arthroplasty.

Abstract no.: 44062

COMPARISON OF PATIENT-DERIVED AND OBJECTIVE OUTCOME AFTER TOTAL KNEE ARTHROPLASTY IN ASIAN: POSTERIOR CRUCIATE-RETAINING VERSUS POSTERIOR STABILIZED VERSUS MOBILE-BEARING DESIGNS

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Introduction: Patient-derived evaluation have become the focus of increased attention when assessing TKA. The purpose of this study was to compare patient-derived and objective outcome among the three different design of the PFC-Sigma prosthesis (Cruciate-Retaining <CR> vs Posterior Stabilized <PS> vs Mobile-Bearing<MB-PS>). Methods: We reviewed 152 knees<CR:67, PS:60, MB-PS:25 knees> who underwent cemented TKA for OA between January 2012 and December 2013. The mean age of surgery and follow-up were 73.9 years and 24.9 months. Preoperative and follow-up ratings according to the Japanese Orthopaedic Association (JOA) score, Knee Society score (KSS), 2011 KSS, and range of motion (ROM), standing femorotibial angle (FTA) were obtained for all patients. Results: At the time of follow up, there were no differences among three groups with regard to a postoperative ROM (CR:115.6±12.1, PS:116.0±18.6, MB-PS:122.9±11.1) , FTA (CR:175.1±1.7, PS:175.4±2.8, MB-PS:175.4±0.97) , JOA (CR:88.33±5.9, PS:83.00±9.0, MB-PS:84.58±8.1) , KSS (P<0.05 each), 2011 KSS knee score (CR:87.2±10.6, PS:91.1±10.6, MB-PS:90.8±5.6, P=0.3692) . Whereas, significant differences (P=0.0183) was detected among groups in 2011 KSS function score (CR:58.4±16.0, PS:74.2±15.9, MB-PS:66.3±20.8). Particularly there were significant differences (P< 0.0001) in advanced activities (CR:9.0±5.3, PS:16.6±4.4, MB-PS:14.9±5.3/25) . Furthermore, in the item of standard activities, there were differences in walking on uneven surface (P=0.0133) , getting into or out of the car (P=0.0194) , stepping to the side (P=0.0298) . Satisfaction score showed significant improvement (P<0.01 each) after surgery all groups but did not differ in groups (CR:25.0±8.7, PS:29.5±6.3, MB-PS:25.3±4.9/40). In contrast, expectation score were lower at most recent follow-up compared to preoperative scores and score data were similar among groups (CR:9.7±2.5, PS:10.5±2.3, MB-PS:11.0±2.3/15). Conclusion: Patient-derived functional score of 2011 KSS were higher in PS group than CR group. Further detailed evaluation can be determined whether the characteristics of different prosthesis affect each category of the 2011 KSS.

Abstract no.: 44063

EFFECT OF EXTRACORPOREAL SHOCK WAVE THERAPY IN SICKLE CELL DISEASE RELATED-HIP OSTONECROSIS

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Background and Purpose: Sickle cell disease related-hip osteonecrosis is a progressive disease with significant morbidity and long term disability. Different modalities of treatment including both surgical and nonsurgical options have been used with varying levels of success. Extracorporeal shock wave therapy (ESWT) is a non-operative treatment option described for early-stage disease, however; exact indications have not been established yet. To the best of our knowledge, the use of ESWT for the management of sickle cell related-hip osteonecrosis has not been described. The aim of this study was to assess the effectiveness of ESWT in the treatment of osteonecrosis of the femoral head (ONFH) in sickle cell disease patients. **Patients and Methods:** Eighteen hips were included in this study. Pre- and post-operative clinical assessment utilizing VAS pain score and Harris hip scores were performed. Radiological evaluation using plain radiographs and MRI were performed pre- and post-operatively. **Results:** The overall clinical outcomes were improved in 60.6%, unchanged in 12.1% and worsened in 27.3%. Plain radiographs showed only 6.06% improvement, 78.78% remain unchanged while 15.1% were worsened. On MRI, the lesions showed progression in 4.7%, regression in 42.9% and were unchanged in 52.4%. **Conclusion:** Functional outcomes of sickler patients treated with ESWT for early ONFH appear to be effective although long-term results are needed to validate the efficacy of ESWT sickle cell related-hip necrosis.

Abstract no.: 44066

THE EFFECT OF SURGICAL APPROACH ON THE SAGITTAL ALIGNMENT OF A SHORT TAPERED STEM

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Purpose: A neutral stem alignment in the sagittal plane is recommended for cementless femoral stems in total hip arthroplasty. Our aim was to evaluate any effect of the surgical approach on the sagittal orientation of a short tapered femoral stem. We used the Tri-Lock BPS (Bone Preservation Stem) stem; a new short single-taper stem (Depuy Synthes). **Method:** We retrospectively reviewed the immediate post-operative radiographs of 352 patients (176 on each group) who underwent a total hip arthroplasty using a Tri-Lock BPS stem inserted through either a direct lateral or posterior approaches. The femoral stem position was assessed in the sagittal view using the computer-assisted EBRA-FCA (EinzelBildRontgenAnalyse-Femoral Component Analysis) method. All radiographic measurements were performed twice with a time interval of at least 3 weeks by a single independent observer who was not involved in the management of these cases. **Results:** There was a significant difference between the two approaches in the sagittal stem orientation ($p=0.01$). A neutral stem tip position was significantly more difficult to obtain with a direct lateral approach, when compared to the posterior approach. **Conclusion:** The anatomy of the proximal femur in the sagittal plane makes it difficult to achieve a neutral alignment of a short tapered stem with either approach. However, the posterior approach avoids the cuff of glutei that can lever the proximal stem anteriorly causing an anterior entry point and consequently reduces the risk of sagittal mal-positioning.

Abstract no.: 44068

ARTHROSCOPIC SUBTALAR ARTHRODESIS - IMPRESSIONS AND COMPLICATIONS

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Introduction: Arthroscopically assisted subtalar arthrodesis (AASA) is an elegant and logical procedure with the advantage of the noninvasiveness. It has though some potential for devastating complications like avascular necrosis of the talar head or nerve injury of the sural nerve. Method: a 32 yo man, soldier had his left ankle injured while participating in a sports event. He had an inversion injury of the foot which led to pain and swelling and subsequent chronic pain in the medial aspect of the hind foot. Earlier attempt to stabilize the joint through Brostrom procedure and medial side microfractures of the talus failed to control the pain. Thorough evaluation of the MRI and X-ray images confirmed that the subtalar joint had suffered secondary impingement. Through lateral and posterolateral portals the subtalar joint was visualized and thorough debridement of the chondral surface was performed. Two 6.5 cannulated partially threaded compression screws were introduced from the posterior aspect of the calcaneal tuberosity. Leg was immobilized in a plaster brace for 4 weeks with non-weight bearing for 10 weeks in total. 3 months after the surgery the dorsiflexion was completely limited because of an antegrade migration of one of the screws. Removal of the screw followed and complete restoration of the ankle dorsiflexion. 5 months after the original surgery, the patient had pain free walking and range of movement in the ankle joint, but complained of permanent loss of sensation down the lateral aspect of the foot, following the sural nerve distribution zone.

Abstract no.: 44069

CLINICAL AND RADIOLOGICAL OUTCOMES OF ASR-TOTAL HIP REPLACEMENT AT MID-TERM FOLLOW UP

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We report the outcome of ASR-total hip replacement in 16 patients which was performed by the same surgeon between February 2004 and February 2010. Of the 16 hips, 12 hips were revised for failed resurfacings and 4 hips were primaries. The mean length of follow-up was five years (2 to 10). There were no deaths and none of the patients was lost to follow-up. None of the hips underwent any further revision. Functional Harris hip scores, radiological assessment using the EBRA method and metal ions were recorded. The results of the total hip group were compared with those of a control group of age matched patients. In the latter group there were 500 resurfacings performed during the same period by the same surgeon. The outcome of the hybrid group was comparable with that of the resurfacing group. Long-term follow-up is advocated to monitor the outcome of these cases.

Abstract no.: 44071

**HOW TO TAKE A VITAL STEP TO PREVENT FALLING AFTER
INTERTROCHANTERIC FRACTURE INTERNAL FIXATION**

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Introduction: How to take a vital step to prevent falling? Which is the most important factor? This article is to analyze the risk factors of contralateral hip fracture after intertrochanteric fracture internal fixation. Methods: Clinical data base of patients with intertrochanteric fracture between Dec.2008 and Oct.2015 was set up and patients were divided into two groups. Group A: with contralateral hip fracture, Group B: without contralateral hip fracture. SPSS 18.0 was utilized for analyzing Singh index, Harris score, iliopsoas Strength and Trendelenburg sign. Results: 349 patients were enrolled and 89.1% (311/349) were followed up. Twenty-one cases presented contralateral hip fracture(6.80%) ,in which showed 14 contralateral intertrochanteric fractures and 7 femoral neck fractures. All the contralateral hip fractures occurred in 3 to 36 months after the first operation. Singh index and iliopsoas strength showed statistical difference with Mann-Whitney U test and logistic regression. However, Harris score between group A and B showed no statistical difference, as well as Trendelenburg sign. Conclusion: Osteoporosis is the pathologic basis of intertrochanteric fracture in senior population. The main cause of a second fall after the first operation on contralateral hip is the weakness of muscles around the hip, especially iliopsoas weakness. Patients with iliopsoas weakness could not take a vital step to prevent falling. Therefore, anti-osteoporosis is essential of treating contralateral hip fracture, but at the mean time, Surgeons should take iliopsoas strength practicing into consideration and obtain full recovery of hip function after operation to prevent a second tumble.

Abstract no.: 44072

RESULTS OF TOTAL HIP ARTHROPLASTY AFTER CORE DECOMPRESSION WITH TANTALUM ROD FOR OSTEONECROSIS OF THE FEMORAL HEAD

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Introduction: Many options have been used to treat early stage osteonecrosis of the femoral head, and core decompression with implantation of a tantalum rod is one method. The purpose of this study was to evaluate clinical and radiological outcomes, as well as potential complications during conversion THA in such patients. Methods: Six male patients (eight hips) underwent THA subsequent to removing a tantalum rod (group I) from April 2010 to November 2011. We retrospectively reviewed the medical records of these patients. We enrolled age- and sex-matched 12 patients (16 hips) during the same period, who had undergone primary THA without a previous operation as the control group (group II). Results: The mean preoperative HHS values were 56.5 points and 59.1 points in groups I and II, respectively. The HHS improved to 96.0 points and 97.6 points, respectively, at the 3-year follow-up ($p = 0.172$). Mean operation time was 98.8 min in group I and 77.5 min in group II ($p = 0.006$). Total blood loss volumes were 1193.8 ml and 944.1 ml in groups I and II, respectively ($p = 0.004$). No significant differences were reported in either group in radiological follow-up results. However, one case of squeaking occurred in group I during the follow-up. Conclusions: No differences were detected between the two groups clinically or radiologically except extended operative time and increased blood loss. However, the incidence of squeaking (one of eight hips) was higher than that of the control group or than that reported previously.

Abstract no.: 44073

**SCHEME OF MINIMALLY INVASIVE LUMBOSACRAL SPINAL FIXATION
BASED ON THE MORPHOLOGY OF THE PELVIS**

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Background : The sacral alar iliac (SAI) technique is a valuable option for lumbosacral fixation. It is not easy to determine the ideal insertion site and trajectory of SAI screw under radiographic guidance. We measured the computed tomographic (CT) to understand morphology of pelvis and to determine the ideal trajectory of SAI screws of Asian people. Methods : We studied 30 patients with lumbar spine disease who underwent preoperative CT scans. The morphology of the S1 intervertebral foramen and of the distal part, the pelvic tilt and thickness of transverse section, and the degree of freedom of screw insertion were measured to determine the safe SAI technique. Results : At the inferior border of the S1 intervertebral foramen and in transverse plane parallel to the S1 vertebral body endplate, the average obliquity of sagittal plane of ilium was 41°. The extended line on the back side of the sacral passed 8.8mm medial on average to the sacroiliac joint and passed through on the bottom in 28mm of the sacroiliac joint surface. The angle between the S1 vertebral body endplate and the S1 intervertebral foramen in the sagittal plane was 3.7° on average and was close to that of the endplate. Conclusions : The tilt of the S1 vertebral body endplate, the distance from the S1 vertebral body endplate, the inner edge of the S1 or L5 pedicle of vertebral arch are indicators for inserting screws linearly in the anteroposterior projection with fluoroscopy and contribute to a safer insertion of a rod.

Abstract no.: 44074

**MID-TERM FUNCTIONAL OUTCOMES OF NAVIGATION-ASSISTED
TOTAL KNEE ARTHROPLASTY**

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Aim. The aim of this study is to investigate the functional outcomes of navigation-assisted total knee arthroplasty (TKA) after an average follow up of 2.5 years. **Method.** Between December 2004 and December 2009, a total of 147 TKAs in 94 patients were performed by the same surgeon at a single institution. Of the 147 procedures, 123 were navigation-assisted and were compared with the remaining 24 conventional TKAs. Hospital for Special Surgery (HSS) knee score and radiographic measurements of all patients in both groups were recorded preoperatively and for a minimum duration of 1-year-follow up. **Results.** The survivorship of all knees was 99.3%. Only, one patient required revision due to deep infection. No statistically significant difference was noted for HSS scores in both groups; however, TKAs performed using navigation-assistance consistently results in good outcomes with low variance. **Conclusion.** Navigation-assisted TKA produces good clinical outcomes comparable to conventional TKA that are consistent and reproducible. Further studies with longer follow up are required to assess functional outcomes of navigation-assistance in TKAs. **Key words:** Total knee arthroplasty; Functional outcomes; Navigation; Computer-assisted surgery.

Abstract no.: 44076

PAN-ACETABULAR DYSPLASIA TREATED WITH A NOVEL DOUBLE PEMBERTON'S OSTEOTOMY

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The Pemberton's osteotomy has been recognized as a standard technique for the treatment of acetabular dysplasia. Pemberton's osteotomy is characterized by a redirection of the acetabular roof, hinging on the triradiate cartilage after an incomplete iliac osteotomy. The shape of the acetabuloplasty is modified by rotating the acetabular fragment caudally and anteriorly to improve the anterior and lateral coverage of the femoral head. The aim is to report and describe a new surgical technique of a Double-level Pelvic Osteotomy performed in a 7-year-old girl with severe pan-acetabular dysplasia where a single classic Pemberton's was not sufficient to provide an adequate coverage. The rationale for this double-level Pelvic Osteotomy is that the superior level Pemberton's could provide the necessary lateral coverage and some of the required anterior coverage, while the inferior level Pemberton could provide adequate anterior coverage by directing the correction more anteriorly. To the best of our knowledge, this technique has never been reported. The osteotomy described in this paper achieved sufficient acetabular coverage in the case of severe acetabular dysplasia. The described osteotomy might be the solution to combined severe anterior and lateral acetabular dysplasia.

Abstract no.: 44079

METHODS OF TREATMENT OF TIBIAL PLATEAU FRACTURES

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Introduction. Tibial plateau fractures are severe injuries that treatment must be focused on restoration of congruity of articular surface of the knee. Otherwise this injuries may lead deformity and knee instability. Materials. 19 patients with tibial plateau malunions were observed. Complaints of patients were of tibial plateau malunions were: valgus or varus instability, bending of the injured extremity, deformity of the knee, hypotrophy of thigh. In 10 patients without deformity of the knee osteotomy on the line of union was performed and tibial plateau was displaced to the original place with following screw fixation. In severe valgus or varus deformities oseotomy was performed on the top of deformity with following fixation with Ilizarov device. Deformity correction was begun in 7-10 days after surgery. In all cases knee motions recommended in 10-12 days after surgery. Results: short term results from 3 to 6 month were studied in 13 patients. Long term results were studied in 12 patients. Criterion of evaluation were followings: range of motion, stability of the knee with and without loading, static of walking, absence of pain during walking. Results were studied in 12 patients. Good results occurred in 10 patients, and satisfactory in 2 patients who underwent additional ligaments reconstruction of the knee. Suggested methods are less invasive and allow early beginning of rehabilitation.

Abstract no.: 44080

POST-TRAUMATIC BONE DEFECTS OF LOWER LIMBS TREATED WITH INDUCED BIO-MEMBRANE TECHNIQUE IN 7 PATIENTS – TECHNIQUE, RESULTS AND REVIEW OF LITERATURE

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INTRODUCTION :Segmental bone defects from traumatic injuries is a surgical challenge and leads to significant long term morbidity to the patients. Limb salvage by Ilizarov , vascularized fibular graft or acute limb shortening have shown variable results and were long, cumbersome and patient unfriendly. Recently Masquelet described the technique of debridement with antibiotic cement spacer for an induced bio-membrane formation, followed by second stage bone grafting with successful outcomes. But these results were not reciprocated at other centers due to damage to bio-membrane during cement removal. We present this series describing our technique of cementation and cement retrieval which was able to maintain the bio-membrane without damage. **METHODOLOGY and RESULTS:** Our study was a retrospective case series of 7 patients, 3 involving tibia and 4 femur, with mean bone defect of 8.8cm after debridement. They primarily underwent thorough debridement, with filling of bone defect with antibiotic bone cement spacer, while maintaining the vascularized soft tissue sleeve and a temporary stabilization. This was followed by second stage removal of cement spacer intricately while maintaining the bio-membrane, and bone grafting of defect with definitive fixation. The average time for bony union was 8 months seen on serial radiographs done at 3 monthly follow up. Mean follow-up was 16.2 months. Functional outcomes were good as measured by Lower extremity functional scale. **CONCLUSION:**The technique of delayed bone grafting with fixation after initial debridement and placement of a cement spacer provides bony union and good functional outcome for patients with large post-traumatic bone defects.

Abstract no.: 44081

T1 RADICULOPATHY AND ITS FEATURES IN SYMPTOMATOLOGY

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T1 nerve root comprises brachial plexus together with C5 through C8 roots. Only T1 root is protected by the thoracic cage at its origin probably because it bears an important hand function. Therefore, T1 radiculopathy seems to be thought quite rare lesion and its features in symptomatology have not been clarified yet. We report 4 cases of T1 radiculopathy and findings useful for the diagnosis. All of the cases (56 through 75 years old) underwent posterior foraminotomy unilaterally at T1-T2 disc levels. We are assured of their diagnosis by improvement in subjective symptoms or objective signs after surgeries. Chief complaints of all cases were hand dysfunctions. Paresthesia was complained in little finger in 2 cases, in ulnar upperarm in 1, and in none in 1. Weakness were detected on manual muscle testing in finger extensors in 3 cases, in first dorsal interosseous in 3, in abductor digiti minimi in 3, in extensor pollicis longus in 3, in adductor pollicis in 4 and in abductor pollicis brevis (ABPB) in 4. ABPB was the weakest on MMT in all cases. Their grades on MMT were 1 in 1 case, 2 in 2 and 3 in 1. Atrophy of ABPB was observed in all cases. Compressing factors causing T1 radiculopathy were laterally herniated disc in 1 case and foraminal stenosis due to hypertrophy of facet joints in 3. Patient with T1 radiculopathy complains hand dysfunction. Atrophy or severe weakness of abductor pollicis brevis, mimicking carpal tunnel syndrome, is the feature of T1 radiculopathy.

Abstract no.: 44082

CHARACTER AND MAIN COMPLICATIONS OF PRIMARY JOINTS REPLACEMENT AND IMPROVEMENT SCENARIOS FOR REVISION SURGERIES.

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V.M. Prohorenko, M.J.Azizov, Kh.Kh.Shakirov Scientific Research Institute of Traumatology and Orthopedics (SRITO) of the Ministry of Health of the Republic of Uzbekistan The purpose of study was to determine frequency and character of the dangerous complications of primary joint replacements and to develop algorithm of the revision surgery technique allowing improvement of results. Methods: We studied 328 patients who underwent primary hip joint replacements in the Clinics of the SRITO Uzbekistan and Novosibirsk SRITO, Russia. Average age was 51,6. 57,6% men, 42,4% women. Dominating complications in the operated patients after primary hip replacement were: acetabular, femoral and total instability, infection, hematoma and dislocation. Taking into account the valuable nuances of the surgical tactics related to polymorphous character of the postoperative complications there were defined principal components of the algorithm of the choice of variant of revision interventions after complications of the primary hip replacement. Presented algorithm is critical in resolving of the concrete clinical tasks of the revision surgeries. This is confirmed by the fact that in 85% of the patients with revision operations there registered good and satisfactory results. Conclusions: The number of revision surgeries after hip joint replacements accounted for 6,1% from the total number of primary performed operations. Infectious complications, accounted for 3,25%. We developed our algorithm for choice of variant of the revision surgical intervention that allows to exclude elements of the excessive improvisation and to optimize surgical technique for its performance.

Abstract no.: 44083

INTRADURAL DISC HERNIATION- A DIAGNOSTIC DILEMMA.

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We present 6 cases of intradural disc herniation at L4-L5 level diagnosed on the basis of intraoperative findings with their clinical, intraoperative and retrospective MRI analysis. All cases on preoperative MRI findings were reported as diffuse annular bulge with large posterocentral extrusion at L4-L5 compressing the roots. Our study comprised of males in age group of 30 to 60 years. 4 out of 6 presented with cauda equina syndrome. In 3 cases, cauda equina was associated with sudden deterioration in the power of lower limb muscle groups. We suspect that intradural herniation of disc was synchronous with cauda equina syndrome in these cases which was very well documented in one of the cases. On retrospective analysis, MRI findings of mass effect in the form of displacement of the traversing nerve roots due to large central disc with crumble disc sign was suggestive of early evidence of intradural disc herniation. Y sign in ventral dura due to splitting of ventral dura and arachnoid mater by disc material was a good diagnostic sign to suspect intradural extra-arachnoid disc. Based on our series and literature review we propose three stages of intradural disc herniation on MRI: Stage 1- Stage of Effacement, Stage 2- Stage of focal discontinuity and Stage 3- Stage of Intradural herniation. We also suggest that sudden deterioration in the power of lower limb muscle groups with cauda equina syndrome in patients having large central disc on MRI especially at L4-5 levels should raise suspicion of intradural herniation of disc.

Abstract no.: 44085

THE RESULTS OF OXFORD UNICOMPARTMENTAL KNEE ARTHROPLASTY IN PATIENTS WITH OR WITHOUT PREOPERATIVE GENU RECURVATUM

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Introduction: The Oxford unicompartmental knee arthroplasty has shown excellent results in medial osteoarthritis knee. The patients have shown cartilage and bone loss at distal femur and anteromedial part of medial tibial plateau. Almost the patients have developed flexion contracture, decreased range of motion in advanced stage of disease. However some the medial OA knees have shown genu recurvatum in patients without neuromuscular disorder. No study has shown the results of the Oxford UKA in medial OA knee with preoperative genu recurvatum without neuromuscular disease before. The purpose of this study are to compared the incidence of postoperative genu recurvatum, hyperextension angle, knee score, pain score, and functional score between patients with or without preoperative genu recurvatum following Oxford UKA Materials and methods: We prospectively followed 104 patients (114 knees) who had been treated with cemented MIS UKAs from January, 2011 to April, 2013 and who had had a minimum of 24 months of follow-up. The patients were divided into two groups; the patients without preoperative genu recurvatum group (85 patients; 94 knees) and patients with preoperative genu recurvatum group (19 patients; 20 knees). The incidence of recurrence genu recurvatum, knee score, pain score, and functional score were recored. Results: The patients in both groups were not different in incidence of postoperative genu recurvatum and postoperative hyperextension angle. The knee score, pain score, and functional score were the same between two groups. Conclusion: We suggest that the patients who had preoperative genu recurvatum were not contraindication for Oxford UKA.

Abstract no.: 44088

TOTAL HIP ARTHROPLASTY IN SICKLE CELL DISEASE PATIENTS

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Evolution of medical treatment has led to improved life expectancy in patients with sickle cell anemia. Improved life expectancy has, in turn, led to an increasing number of patients with avascular osteonecrosis of the femoral head requiring a total hip arthroplasty. Patient assessment starts with understanding the extent of the disease process and the patient's skeletal manifestations. A multidisciplinary effective approach preoperatively and implementing treatment strategies increase the likelihood of a successful surgical outcome. Intraoperatively, consideration of bone stock, bone quality, and method of component fixation may help minimize the risk of fracture of either the acetabulum or the femur, and loosening. The optimal method of acetabular and femoral fixation in these patients has not been conclusively determined. Although patients with sickle cell disease are at increased risk of medical and surgical complications, total hip arthroplasty properly selected patient can provide significant pain relief, patient satisfaction and restoration of function.

Abstract no.: 44089

A MINIMALLY INVASIVE TECHNIQUE, FOR PROXIMAL HUMERUS FRACTURES, THAT CAN BE DONE UNDER LOCAL ANESTHESIA

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Introduction: Fractures of proximal humerus shaft, are third most common fractures, above the age 65; osteoporosis, co-morbid conditions, make them not so fit or unfit candidates for general anesthesia. Moreover, brachial anesthesia does not always include shoulder in its effect. These fractures need sound fixation of fracture fragments, for early shoulder movements, to prevent adhesive capsulitis. They are treated by modalities varying from- just a sling , multiple k-wires to Open reduction and internal fixation and latest PHILOS. We propose a minimally invasive external fixation technique, of managing fractures of proximal humerus, that can be done under local anesthesia. Material and Methods: Patients under local anesthesia (xylocaine 2% plain) were fixed with Joshis External Stabilizations System i.e. JESS, which requires (a): Thin k-wires, though we used Schanz screws, (b): Universal Link Joints, and (c): Connecting smooth steel rods . Early passive movements were started next day, and active physiotherapy started gradually. JESS was removed piecemeal within 6 to 10 weeks. Results & Discussion: All the fractures eventually healed in 10 to 16 weeks, none had adhesive capsulitis, though 3 out of 14 had mild pin track problems. While the stability of fracture fixation with 'K wires' and 'just screws' is questionable, ORIF entails a big exposure and blood loss, along with all other risks of open reduction. Moreover, all these techniques, offer debatable quality of fixation in osteoporotic patients. To combat aforesaid issues, external fixation is gaining in popularity. JESS, happens to be a good option, which we successfully attempted under local anesthesia.

Abstract no.: 44091

A RARE CASE OF INTRANEURAL NEUROTHEKEOMA OF MEDIAN MIMICKING CARPAL TUNNEL SYNDROME

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We report a rare case of a large intraneural neurothekeoma (4.5x 1.5x1.1 cm) of the median nerve at the wrist, which presented as forearm swelling with clinical features of carpal tunnel syndrome. Neurothekeomas are rare; small, superficial, and typically asymptomatic benign tumors of undetermined cellular origin with high recurrence rate. Complete excision is usually curative. This case is interesting owing to the tumor's large size and location within the median nerve, which made it highly symptomatic, mimicking carpal tunnel syndrome.

Abstract no.: 44098

RESURFACING ARTHROPLASTY AFTER FAILURE OF TANTALUM ROD INSERTION IN OSTEONECROSIS OF FEMORAL HEAD

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Many authors reported high failure rate of tantalum rod insertion for early stage of osteonecrosis of femoral head(ONFH). But, there is no report about treatment after failure of tantalum rod insertion in ONFH. So we report resurfacing arthroplasty(RSA) without removal of the tantalum rod. We performed RSA to 9 patients(10hips) after failure of tantalum rod insertion in ONFH. RSA was performed 14.9 months later from tantalum rod insertion. Average age was 38.6 year-old and all patients were male, average follow-up duration was 31.1 months. We evaluated intraoperative bleeding, transfusion, necrotic area of femoral head. And postoperative radiologic findings and range of motion(ROM), UCLA score, Harris hip score(HHS), VAS pain score were evaluated. Necrotic area of femoral head was $34\pm 9.4\%$, blood loss was $660\pm 320\text{cc}$ and transfusion volume was 0.7 ± 0.9 pints. Postoperative flexion contracture was improved to 0° from 1° , forward flexion was improved to 117.5° from 106.0° , internal rotation was improved to 22.5° from 11.5° , external rotation was improved to 43.0° from 32.5° , adduction was improved to 26.5° from 18.0° , abduction was improved to 40.0° from 32.0° . UCLA score was improved to 9.1 from 4.7 and HHS improved to 97.7 from 71.6 and VAS pain score was improved to 1 from 8. There was no component loosening or osteolysis and RSA related complications. This technique preserve the bone stock of proximal femur and provide mechanical support and prevent femoral neck fracture. RSA without removal of the tantalum rod can be one of the treatment option for failed tantalum rod insertion in ONFH.

Abstract no.: 44103

MUSCLE ATROPHY AFTER CERVICAL SPINAL CORD INJURY

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Introduction: Muscle atrophy (MA) is the common complication after cervical spinal cord injury (SCI). MA is associated with the ability to walk and is recently reported that may cause heart diseases etc. In addition, several trials of new therapies for SCI already started to walk again. On the other hand, few studies reported about MA after cervical SCI. However, most of them were retrospective or cross-sectional studies. To evaluate the changes of the body composition longitudinally is important for understanding MA. The purpose of this study was to investigate the influence of cervical SCI on body composition within six months after SCI. Methods: 12 patients (ASIA A; 5, C; 3, D; 4) were recruited from February 2013 to February 2015. These patients were 8 males and 4 females with a mean age of 55 years (range: 18-70 years). Body composition was assessed using dual-energy X-ray absorptiometry at 1 and 6 months after injury. Results: There were decreases 9.0% in upper limb muscle mass, 12% in lower limb muscle mass, 10% in fat mass, 9.3% in body weight respectively between 1 month and 6 months after injury. There were significant differences in upper limb muscle mass, lower limb muscle mass, fat mass and body weight between 1 month and 6 month after injury ($p < 0.05$). Conclusions: This study suggested that there was significant MA within 6 months after cervical SCI. These data is thought to be a very important basic data for comparison of effect to MA by the new therapies.

Abstract no.: 44105

TREATMENT OF PATIENTS WITH HIP PERIPROSTHETIC INFECTION AND COMPLEX DEFECTS OF ACETABULUM.

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Introduction: The periprosthetic infection is the most serious and unpleasant complication of the hip replacement. Treatment of these patients is very expensive and often ineffective. Two-stage revision hip arthroplasty remains the gold standard of treatment of joint periprosthetic infection. The first stage is the implantation of spacer with antibiotic. Use of articulating spacers is more preferable. But complex defects of acetabulum (Paprosky IIC, IIIA, IIIB) limits the use of articulating spacers. Methods: For patients with hip periprosthetic infection and complex defects of acetabulum we offer the following type of custom made spacers. After removal of implant we reinforced acetabular roof defects with two or three long 6,5 mm screws. We did not fully twist these screws into the bone. We put bone cement mass (usually 80 g) with antibiotic (usually 2 – 3 g of vancomycin) into the acetabulum. After that we reduced the femoral part of spacer into the acetabulum cement mass. After polymerization of bone cement we received the articulating, antibiotic-loaded, cemented spacers. Screws in the acetabular roof defect did not allow spacer to migrate cranially. Results: With use of this spacer we operated 11 patients with complex defects of acetabulum. 1 patient died 7 months after surgery due to a heart attack. Also we had one case of spacer dislocation (9,1 %). There were no any cases of recurrent infections. In 7 cases (63,6 %) we have already done second stage with implantation of revision implants.

Abstract no.: 44106

THE COMPLICATED ROLE OF VENOUS DRAINAGE ON THE SURVIVAL OF ARTERIALIZED VENOUS FLAPS

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Objective: To evaluate the role of venous drainage on venous congestion and flap survival of the arterialized venous flaps (AVFs). **Materials and methods:** a 8 x 10 cm skin flap was designed symmetrically in the rabbit abdomen. Four groups were included: the conventional arterial perfusion flap as the control group and three experimental groups. The experimental groups I, II and III were designed based on the number of drainage veins(one drainage vein for experimental group I, two for group II and three for group III). The thoracoepigastric arteries and veins and one femoral artery were used as vascular sources. Levels of epidermal metabolite, water content, status of vascular perfusion and flap viability in each group were observed and analyzed. **Results:** In contrast to the control group, significant venous congestion assessed by water content was noted in all the three experimental groups and the most severe one was found in the experimental group I; while no statistical difference was observed between the experimental groups II and III. Similar results regarding blood perfusion state, epidermal metabolite levels and flap survival status were obtained among the three experimental groups. **Conclusions:** Venous drainage is vital in the survival of AVFs, but the problem of venous congestion can only be partially solved by increasing the number of draining veins. Further studies are warranted to gain insight into this complicated issue.

Abstract no.: 44107

THE MODIFIED TECHNIQUE OF THE ANKLE RESECTION ARTHRODESIS

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Analyzed the results of resection arthrodesis of the ankle joint in 172 patients with severe injuries of this joint. In the main observation group (79 patients) used a modified procedure arthrodesis which includes resection of the lower third of the fibula and the medial malleolus, resection of the articular surfaces in a horizontal plane so as to set the foot to the shin axis at an angle of 90° in the sagittal plane, 0°-5° valgus, 5° external rotation. The essence of the modification was to shift the foot backwards by 10%-15% of the sagittal size of the talus block. In the comparison group (93 patients) used the traditional method of installing foot after resection at an angle of 95°-100° in the sagittal plane, in other planes comply with the neutral position. The average term evaluation was 2,1±0,4 years. Evaluation of functional results was carried out by AOFAS for hindfoot and midfoot. Evaluation of bone fusion in the resection area was carried out according to X-ray and CT. Results AOFAS in the main group constituted for hindfoot 76,2±1,8 points, for midfoot 82,3±1,7, which corresponds to a good result. In the comparison group on the AOFAS results were worse and amounted to 58,4±1,2 and 57,1±1,9 points, which corresponds to a satisfactory conclusion. Maturity of bone fusion in the resection area in patients of the main group averaged 9,2±0,8 weeks in the control group - 11,6±1,2 weeks.

Abstract no.: 44110

CHANGE OF ALPHA ANGLE AND PREVALENCE OF CAM DEFORMITY ON PLAIN RADIOGRAPH ACCORDING TO AGE

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The etiology of primary cam deformity isn't clearly verified yet. So, we analyzed the relationship between α -angle, prevalence of cam deformity and age on plain radiograph. We retrospectively selected 100 patients for each age(8-22) randomly and measured α -angle on both hip AP and frog-leg view. Cam deformity was classified as α -angle larger than 55°. We analyzed the correlation between α -angle, cam deformity and age. In addition, we classified cohort into 3 groups by age 8-12(Group A), 13-18(Group B), 18-22(Group C) which is before, during, and after rapid bone growth of femoral head and compared α -angle and prevalence of cam deformity. α -angle on hip AP and frog-leg view, the prevalence of cam deformity on frog-leg view showed positive correlation with age between 8 to 18 year-old in Pearson correlation analysis. In the comparison of average α -angle and prevalence of cam deformity between Group A and B, Group B showed higher α -angle on both hip AP and frog-leg view and higher prevalence of cam deformity on frog-leg view in χ^2 -test. In the Group B and C, Group C showed statistically significant higher prevalence on the frog-leg view in χ^2 -test. Marked increase of α -angle and prevalence of cam deformity occurred before fusion of the physis of femoral head. We presumed unbalanced load to femoral head physis causes unbalanced fusion of the physis which can cause delayed fusion of the anterolateral part of physis. This results in overgrowth of the anterolateral femoral head-neck junction and eventually cause primary cam deformity.

Abstract no.: 44111

TO EVALUATE THE CLINICAL APPLICATION OF ANTERIOR OPERATIVE MANAGEMENT IN PATIENTS OF THORACOLUMBAR SPINE FRACTURES

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【Abstract】 To retrospectively analyze results of anterior corpectomy and fusion for TL fracture according to the AOSpine TL injury classification system(2013).Methods :According to the AOSpine TL injury classification system (2013) , 35 patients with A or B type TL fractures between January 2010 and December 2014 were recruited . patients with neurologic deficits were underwent anterior corpectomy with stabilization. The mean age was 44.3 years and The mean follow-up period was 31.67 months.VAS and ODI and ASIS were recorded to assess clinical application and neurological recovery.Radiological measurement ,including Cobb angle , anterior vertebral height and canal stenosis index ,were used as remodeling of vertebral body at time of before and after surgery ,and at final follow-up. Results : patients with incomplete paraplegia had already shown neurological recovery. Mean preoperative Cobb angle was 23.40 degrees. At final follow up,mean kyphotic angle was changed to 7.29 degrees($P < 0.05$). Canal stenosis index was 44.17% at time of injury ,and 4.66% at time of final follow up ($P < 0.05$) .Anterior vertebral height was enlarged from an average of 28.00mm to 38.25mm ($P < 0.05$) . VAS,ODI and ASIS were significantly improved at the end of follow-up ($P < 0.05$) . No statistically significant difference was demonstrated for ASIS score between preoperation and postoperation.Conclusion: Base on AOSpine TL injury classification system (2013) , anterior operation under indirect vision can achieve an adequate decompression and stabilization , a correction of kyphotic deformity with a lower risk of neurological deterioration,and the early rehabilitation training for patients.

Abstract no.: 44116

PERIPROSTHERIC FRACTURE AFTER FAILURE OF AN UNCEMENTED, COBALT-CHROME ALLOY TOTAL HIP ARTHROPLASTY FEMORAL STEM: A CASE REPORT AND CURRENT LITERATURE REVIEW

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Introduction: With the use of modern high-strength material, fracture of the femoral stem is extremely rare in total hip arthroplasty. The prosthesis material and patient characteristics, such as obesity and femoral canal morphology, contribute to the catastrophic complication. Only a few cases of failure of cobalt-chrome femoral component with cementless techniques have been reported. This is the first report describing the complete progression of a fractured cobalt-chrome alloy stem, from implant failure to subsequent periprosthetic fracture. **Case report:** We report a case of periprosthetic fracture following uncemented stem failure in a 42-year-old male patient. Initially, the patient presented to our clinic with painful thigh, and the radiograph showed stem fracture without displacement. However, he refused the revision surgery because of the minor nature of the symptoms. The serial plain films obtained the next year showed progressive displacement of the fractured stem. Unfortunately, periprosthetic fracture occurred after a low energy trauma one year later. During the revision surgery, a 12-mm extensively porous coated stem (Zimmer ZMR, Warsaw, Indiana) and wire-loops were applied. The postoperative course was uneventful and he can ambulate with the aid of a walker. **Conclusion:** Cantilever bending force caused by loss of proximal femur support due to stress shielding, and good fixation of the distal stem is believed to be a critical factor in this case. Revision surgery should be performed immediately after the fractured stem is detected to prevent subsequent periprosthetic fracture. Clinicians should monitor high-risk patients with persistent thigh pain after total hip arthroplasty.

Abstract no.: 44120

ADDITIONAL HARVEST OF THE GRACILIS TENDON AFFECT KNEE FLEXOR MUSCLE STRENGTH AT THE FAST ANGULAR SPEED 3 MONTHS AFTER DOUBLE-BUNDLE ACL RECONSTRUCTION

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Introduction: Hamstring tendon grafts are a popular choice for anterior cruciate ligament (ACL) reconstruction. It is unclear whether the gracilis tendon harvest in addition to the semitendinosus tendon affect to the knee muscle weakness in the early post-operative phase. Methods: Thirty four patients (twenty-one ST, thirteen ST/G) were assessed with an isokinetic knee muscle strength 3 months after double-bundle ACL reconstruction. We assessed the side-to-side ratio in the peak torque in the quadriceps (extensor) and hamstrings (flexor) at 60 deg./sec., 180 deg./sec. and 300 deg./sec. with a Biodex dynamometer (Biodex Medical Systems, Shirley, NY). Statistical analysis was conducted with a Mann-Whitney U test. Results: Knee flexion strength only at 300 deg./sec. in the ST/G group was significantly lower than ST group, however, there were no significant differences at the other measurements between two groups. Conclusions: Harvesting the gracilis in addition to semitendinosus appear to affect knee flexor muscle weakness at the fast angular speed in the post-operative early phase after double-bundle ACL reconstruction. Agility training should be considered at the early phase especially after ACL reconstruction using both the semitendinosus and the gracilis tendon.

Abstract no.: 44121

STUDY OF RESULTS OF ORIF OF FRACTURE SHAFT HUMERUS BY ANTERIOR BRACHIALIS SPLITTING APPROACH

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Humeral shaft fractures are relatively common injuries accounting for 3% of all fractures. Majority can be treated well by nonoperative means. However, floating elbow, segmental fracture, bilateral humerus fractures, fractures with intra-articular extensions, polytrauma, irreducible fractures, obese pts, women with large pendulous breasts need operative intervention. ORIF by plate & screws gives better results than intramedullary interlocking nails. Plate & screws can be applied through anterior brachialis splitting, antero lateral, posterior, posteromedial approaches. Anterior brachialis splitting approach for 40 cases of fractures middle 1/3 of humerus were studied for delayed/ non-union, deep infection, joint stiffness, iatrogenic radial nv injury. Non visualisation of radial nv did not pose any additional risk. 3 cases of delayed union, 1 case of neuropraxia of radial nv, 3 cases of 5 degrees of limitation of extension were noted.

Abstract no.: 44125

DESKTOP 3D PRINTING IN ORTHOPAEDIC ONCOLOGY. IS IT POSSIBLE TO IMPROVE THE SURGICAL NAVIGATION IN ACRAL TUMORS?

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INTRODUCTION: Surgical navigation is used in limb-sparing surgery but it is difficult in acral tumors. For reducing target registration error (TRE), a similar position of the limb must be ensured in the preoperative images and during image guided surgery (IGS). The study evaluates the reproducibility of position during navigation using a distal extremity patient-specific desktop 3D printed model. **MATERIAL AND METHODS:** A patient with a soft-tissue sarcoma in the hand is selected. A desktop 3D printed mold of the hand is done. This holder is modeled extruding a patient's hand surface created from the segmentation of a previous CT scan used to plan the neoadjuvant external radiotherapy. Most of tools are open-source software, the desktop 3D printer is a low-cost fused deposition modelling (FDM) hardware, and the thermoplastic material is polylactic acid (PLA). Navigation is performed with a multi-camera optical tracking system, that it is connected to 3D Slicer platform. **RESULTS:** The fiducial registration error (FRE) obtained from the conical holes in the mold and TRE from the conical holes in the printed hand for each repetition demonstrate the reproducibility of distal extremity position during navigation. **CONCLUSION:** This study presents a workflow of surgical navigation in acral tumors that includes desktop 3D printing for reproducing distal extremity position. This piece can be printed with a low-cost FDM printer at the hospital. These results allow us to follow the preoperative planning during the surgical procedure.

Abstract no.: 44130

BIOMECHANICAL ANALYSIS OF DUAL GROWING RODS PROCEDURE FOR EARLY ONSET SCOLIOSIS: TITANIUM CONSTRUCT VERSUS COBALT-CHROMIUM CONSTRUCT

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Introduction: The dual growing rods technique is commonly used in the treatment of early onset scoliosis. Recently, spinal rods made of cobalt chromium alloy have come to be used in addition to rods of titanium alloy. The aim of this study was to investigate differences of stiffness and stress in the construct made of different metals. Materials and Methods: The eight vertebral bodies based on the standard of ASTM were made of high polymer polyethylene. They were divided into two groups: T group with rods of titanium alloy (n = 4) and C group with rods of cobalt chromium alloy (n = 4). Titanium tandem connectors were used in both groups. The tests were static, with a load of 100 N applied to the construct. Strain gauges were affixed to four locations. The stresses at all four locations along the construct, stiffness and displacement were compared between the groups. Results: The stresses on the upper rod were significantly greater in the T group while stress on the lower rod was significantly greater in the C group. Stress of the tandem connector was not significantly different between the groups and was quite similar in both cases. The mean stiffness was significantly greater in the C group, whereas the mean displacement was significantly greater in the T group. Discussion: This analysis suggests the possibility that implant failure of dual growing rods procedure may occur the site of upper rod in the titanium construct and lower rod in the cobalt chromium construct.

Abstract no.: 44131

MAGIC WAND FOR A NAGGING PROBLEM: MICRODEBRIDEMENT USING RADIOFREQUENCY COBLATION FOR MANAGING REFRACTORY TENNIS ELBOW

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INTRODUCTION: Many treatment modalities have been prescribed for Tennis Elbow or Lateral epicondylitis. However a limited number of cases continue to appear for follow up with no improvement in pain relief or function and may require surgical intervention. The objective of this study was to assess the outcome of radiofrequency coblation, in a consecutive series of refractory tennis elbow patients. **MATERIALS AND METHODS:** A retrospective review of 22 patients with tennis elbow treated surgically between January 2010 and January 2014 was performed. There were 10 men and 12 women averaging 38 years at the time of surgery. In all patients, non-operative management failed, and they underwent surgery at a mean of 12 months after the onset of symptoms. Under regional anaesthesia & tourniquet control, microdebridement using radiofrequency coblation was performed using Topaz microdebrider wand. Postoperatively patients mobilized their elbow, with local cryotherapy. **RESULTS:** At a mean follow-up of 12 months, pain improved from 1.5 +/- 1.3 preoperatively to 8.1 +/- 2.4 at follow-up ($P < .01$). Of the patients, 7 (32%) reported mild pain with strenuous activities and 1 (5%) received mild benefit from the procedure. Patients required a mean of 3.8 weeks to return to regular activities and 8 weeks to return to full activity. No serious complications were identified. **CONCLUSIONS:** Microdebridement using Radiofrequency coblation is a good option for refractory lateral epicondylitis. This procedure appears to be safe and effective and allows early mobilization and return to work.

Abstract no.: 44133

AN ANOMALOUS FEMORAL STEM NECK "FRACTURE" SERIE - THE IMPORTANCE OF SURVEILLANCE AND NATIONAL REGISTERS

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Introduction: Patients undergoing total hip arthroplasty may face a variety of complications. The femoral stem "fractures" were a frequent complication in the first generation of hip prostheses. Its prevalence has been decreasing over time, with current rates in the literature citing values below 0.1%. Methods and results: We present 4 cases of patients treated with the same non cemented hip prosthesis between 2006 and 2008, which sustained an early non traumatic femoral stem neck failure. We calculated the percentage of failures for that reason and reviewed the literature on the subject. Results: The 4 patients were submitted to a revision arthroplasty with good clinical and radiographic results, without any complication to date. Considering the 2006-2008 period, the rate of failure for this cause is 0.83%. Discussion/Conclusions: Femoral stem neck "fractures" are a quite uncommon complication and few cases are described. Although rare, the predisposing factors are well described - obesity, activity level, bone quality, varus orientation of the femoral stem, femoral stem undersizing, poor cementing technique and material defect. We obtained a rate of femoral stem neck "fracture" much higher than those in international literature series, which allows us, in the absence of other obvious factors, to put the hypothesis that these events were related to the intrinsic characteristics of the employed prosthesis. The breakthrough in prosthetic design, metallurgy and cementing techniques may lead to a decrease in prosthetic "fractures". We must not forget the importance of reporting and record these cases in order to detect abnormal series early.

Abstract no.: 44134

DOUBLE ROW SUTURE ANCHOR FIXATION OF POSTERIOR CRUCIATE BONY AVULSION: A NEW TECHNIQUE

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Posterior cruciate ligament (PCL) injury is frequent in road traffic accidents (RTA), most common being fall from a vehicle. A fall over the knee or posteriorly directed blow over the proximal tibia often results in PCL bony avulsion. Often, the PCL bony avulsion is quite displaced and requires fixation. Fixation can be achieved by arthroscopic or open technique using sutures or cannulated cancellous screw. Often, the fragment is too comminuted to allow screw fixation. In such cases, fixation of fragment by suture anchor is a plausible option. However, while fixation of fragment with a single anchor in the crater of avulsed fragment may lead to lifted margins of fragment. This results in not-so-secure fixation of fragment. In such conditions, addition of footprint anchor to further secure the fixation adds on to the strength of fixation. We report a series of two cases which were fixed by such technique by direct open posterior approach which resulted in excellent outcome. The fracture united in three months and patients resumed their original activity status. Double row PCL fixation technique could be opted whenever open fixation is required in a comminuted fragment. It is also a good option in patient who have multiple implant in proximal tibia wherein insertion of one or two cannulated screw is difficult due to space crunch.

Abstract no.: 44135

APPLICATION OF MODULAR FEMORAL PROSTHESIS AND ALLOGRAFT FOR THE FEMORAL REVISION IN THE TOTAL HIP ARTHROPLASTY

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objective : To explore efficacy and result of femoral revision in THA by using modular femoral prosthesis and allograft. **Methods**: From July 2008 to May 2014 , nine patients with nine hips received femoral revision using modular femoral prosthesis and allograft including 4males and 5females with mean age of 63.1years ranging from 48 to 79 years old. Left side was involved in6cases and right in3. Causes for revision included aseptic loosening of primary cemented prosthesis in 8, and aseptic loosening of primary cementless prosthesis in 1. Shortest time from the last operation to the revision was 3 years, and the longest was 21 years. There were 3 of type IIIA ,6 of type IIIB , according to the Paprosky bone defect classification. Clinical evaluation were based on Harris score system. **Results** : Patients were followed up for 12-60 months . Leg discrepancy from more than 2cm in seven cases were restored to less than 1cm postoperatively. The allografts showed signs of incorporating with host bone in 10-12 months after the operation. Femoral prosthesis were stable without any signs of infection and loosening. The patients were allowed to full weight-bearing 3-5 months later and pain relief occurred in all involved hips. Mean Harris Hip Score was improved from 30.6 points preoperatively to 84.1 points at final evaluation, good and excellent scores were about 88.9 % . **Conclusion**: Modular femoral prosthesis and allograft for femoral revision to treat femur bone defect was feasible . It can obtained the initial stabilization and the short and mid-term result was satisfactory, but future effect was needed to evaluate long term result.

Abstract no.: 44138

PERCUTANEOUS VERTEBROPLASTY IN TREATMENT OF AGGRESSIVE VERTEBRAL HEMANGIOMAS

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Spine hemangiomas occur in population with frequency of 10-11%, mean age of the disease manifestation is 30-45 years, over 2/3 of these patients are women. The thoracal part of the spine is most frequently involved (70-75 %). PURPOSE: Analysis of percutaneous vertebroplasty effectiveness in spine hemangiomas. MATERIALS AND METHODS: Between 2010 and 2013 78 vertebroplasties have been performed in patients with vertebral body hemangiomas of thoracolumbar spine. The patients' age varied from 28 to 61, mean age was 48,2 years, female were 45 and male were 33. In 66 patients vertebroplasty was performed on one level, in 12 patients on two levels. 52 (66,7%) hemangiomas were localized in thoracal spine, 26 (33,3%) - in lumbar spine. Preoperative examination included an estimation of the general condition of patients, orthopedic, neurologic status, X-ray , MRI, CT and densitometry. RESULTS: Intensity of pain and patients' functional condition were evaluated by Watkins scale, Visual Analogue Score (VAS) and Oswestry inability index. In all the patients, in the following 24-72 h, a successful outcome has been observed with a complete resolution of pain symptom. Cement leakage has been observed in 5 patients, without any onset of clinical radicular syndrome due to epidural diffusion. Clinical and radiological follow-up until 3 years has been performed in 54 patients and it showed stability of the treatment and absence of pain. CONCLUSIONS: Percutaneous treatment with vertebroplasty for aggressive hemangiomas is a valuable, mini-invasive, and quick method that allows a complete and enduring resolution of the painful vertebral symptoms.

Abstract no.: 44139

THE ANALYSIS OF TIME INTERVALS FOR MAJOR ORTHOPAEDIC SURGERIES: A PROSPECTIVE CROSS-SECTIONAL CORRELATION STUDY

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In the last decade, with the overload of surgeries, studies about the effective usage of operative rooms (OR) have gain popularity. Nevertheless, there is no study in the literature that specifically analyzes different time intervals for major orthopaedic surgeries. Hence, the purpose of this prospective, observer-based, cross-sectional study is to evaluate the different time intervals for major orthopaedic surgeries and their correlation on total operative time. Only major orthopaedic surgeries (primary athroplasties of hip, knee and shoulder including unicondylar and partial arthroplasties) were included in the study group. Data were recorded on a standardized form by independent observers. Anesthesia release time (ART), surgical preparation time (SPT), operative procedure time (OPT), anesthesia end time (AET), and the total operative procedure time (TOPT) were calculated. Gender, age, type of anesthesia, the anesthesiologist and ASA scores were also evaluated for time dependence. A total of 147 surgeries were analyzed. There was no statistically significant difference between female and male patients. The ART time interval was found significantly longer for combined anesthesia, resident anesthetists and increased ASA status. Spearman rank correlation analysis for TOPT revealed that, there was a strong positive correlation between TOPT vs. ART and modest correlation between TOPT vs. OPT. In conclusion, TOPT is mostly dependent to type of anesthesia, the experience of anesthesiologist and the ASA status of the patient. In our study, the strongest correlation was found between ART and TOPT. Therefore reducing ART is the most important factor in reducing TOPT.

Abstract no.: 44140

OUR EXPERIENCE IN TREATMENT OF THE LISFRANC INJURIES

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Introduction: The Lisfranc injuries are damages that are difficult to diagnose and to treat. Materials and methods: From 1995 to 2015 on the base of trauma and orthopedic departments of the 6th City Clinic Hospital of Minsk 178 patients with Lisfranc injuries were treated (mean age - 37,8 years). According to the Myerson classification the type A injuries were identified in 81 cases, type B1 - in 21 cases, type B2 - in 68 cases, type C1 - in 5 and type C2 - in 4 patients. Methods of treatment which were applied: cast immobilization - 21 cases, CR with K-wiring - 49, OR with K-wiring - 57, OR with screw fixation - 16, minimally invasive reduction with wire fixation - 13, external fixation - 3, Lisfranc joint arthrodesis - 18 patients, forefoot amputation - 1 case. Results and discussion: The late results were evaluated in 153 patients (the mean period 42,4 months). It was found 34 cases of the postoperative complications. The average result on JSSF scale was 76,6 points, on a scale MFS - 82,8 points. The best outcomes were achieved after the low-invasive instrumental reduction. Conclusions: The late results of the Lisfranc injuries depend on quality of the reduction of dislocated bones. The minimally invasive reduction for the Lisfranc injuries can achieve anatomic reduction, reduces surgical invasion and improves outcomes.

Abstract no.: 44143

DISTAL FEMORAL STRESS FRACTURE IN A CHILD WITHOUT ANY SPORTIVE ACTIVITY: A RARE CASE THAT MIMICS SARCOMA OF THE BONE

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Distal femoral stress fractures are an uncommon cause of knee and thigh pain and are extremely rare in patients with open femoral epiphyses. The purpose of this case report is to present a case of distal femoral stress fracture that mimics round cell tumor of bone. A 10-year old girl was admitted to our outpatients' clinics with a complaint of left knee and thigh pain. The pain was over three weeks and aggravated by physical exercise. The child had also pain while rest and sleeping and had no limping. She had normal daily activities and had no sportive background and obesity. Physical examination revealed tenderness on the distal femoral region and painful knee range of motion. There were no signs of infection. The X-ray examination was normal. To rule out any soft tissue and bone pathologies, a magnetic resonance imaging (MRI) was scheduled. The MRI showed diffuse increased signal intensity and pathological contrast enhancement on the distal femoral metaphyseal region and the surrounding soft tissues, resembling inflammation and edema. The differential diagnosis was osteomyelitis, possible round cell tumor of the bone (like as Ewing's sarcoma) and least likely stress fracture. To rule out any malignancies, closed punch biopsy was performed and the pathology was reported as bone repair tissue (late callus formation). The child was diagnosed as stress fracture and after 4 weeks of non-weight bearing, she was completely recovered. In conclusion, distal femoral stress fracture must be kept in mind for children who have even no sportive activities.

Abstract no.: 44144

RISK FACTORS FOR FRACTURE HEALING COMPLICATIONS IN ATYPICAL FEMORAL FRACTURES

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Introduction: Fracture healing complications, as nonunion, delayed union and implant failure, were the common complications of atypical femoral fractures (AFFs). However, only few previous studies had been correlated these poor outcomes with perioperative factors. Methods: A total of 38 patients with displaced AFFs and receiving surgical treatment, between 2010 and 2015, were retrospectively reviewed. All patients had been followed for at least 12 months postoperatively. Demographic, perioperative, and postoperative data related to the fracture and treatment were collected. Then the risk factors for nonunion, delayed union and implant failure were analyzed using logistic regression analysis. Results: The incidences of nonunion, delayed union, and implant failure in our study were 32%(n=12), 55%(n=21), and 16%(n=6). Following the AFFs, the significant risk factors of nonunion were higher body mass index (BMI), and diabetes (p=0.02 and 0.003 respectively). On multivariate analysis, the risks of nonunion after AFFs were increased by younger age (odds ratio [OR] 0.87, 95% confidence interval [CI] 0.76-1.00, p=0.04), and diabetes (OR 89.34, 95%CI 5.38-1484.46), p=0.002. Univariate analysis revealed that demineralized bone matrix (DBM) augmentation was significantly decreased the risk of delayed union after AFFs ((OR 0.19, 95%CI 0.04-0.88, p=0.03), and the significant risk factors for implant failure after AFFs was younger age (OR 0.88, 95%CI 0.77-0.99, p=0.04). Conclusion: Some perioperative factors, such as age, BMI, diabetes, and DBM augmentation, are significantly associated with the fracture healing complications after surgical treatment of AFFs. However, larger sample size is needed for identification of other potential risk factors.

Abstract no.: 44147

FAILED HIP FRACTURES AND ITS MANAGEMENT WITH ARTHROPLASTY IN PAKISTANI POPULATION

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Background:Osteoporosis is epidemic in Asian countries. It is a major cause of fractures that orthopaedic surgeons deal in Pakistan, though proper epidemiological data is not available. Habiba U et al found that 75.3% of post menopausal women of Pakistan were predisposed to Osteoporosis. Pakistan is a developing country with large burden of hip fractures. Patients living in remote areas are the ones which suffer more because of inadequate awareness, fear of surgical treatment and lack of availability of standard treatment. . Being in a tertiary care centre we come across these types of cases very frequently. Six to eight such cases present to outpatient department of Liaquat National Hospital every month being referred from every part of the country. Method & Material:This was prospective ,observational study in which patients with different primary Hip surgeries were taken,their different parameters were analysed in this study which include :bio-data ,co-morbid, ambulatory status , diagnosis ,severity of deformity ,implant used ,rehabilitation protocol ,per and post-op analgesia ,complications and pre and post-operative clinical ,radiological and functional outcomes.Conclusion :Failed internal fixation after hip fracture is a difficult problem to deal with especially as the life expectancy of patients and associated osteoporosis is increasing in the current age. It is possible to improve their quality of life with SHA by experienced arthroplasty surgeon.

Abstract no.: 44151

**A CLINICAL SERIES ON EARLY MOBILIZATION OF NEGLECTED
PATELLAR TENDON TEAR USING PRIMARY REPAIR WITH
SEMITENDINOSUS AUGMENTATION AND CERCLAGE
REINFORCEMENT**

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Introduction: Neglected patellar tendon ruptures are rare due to its immediate need for repair to allow proper tendon healing. Knee stiffness is a common complication if intervention delayed up to 3 weeks due to tendon retraction and fibrous changes. Current recommendation for chronic ruptures is primary repair with augmentation and start rehabilitation on the 3rd week post-operatively to allow tendon healing. However, knee stiffness and delay to return to activities of daily living is a complication. Methods: 10 patients were treated at our institution, diagnosed as chronic rupture of the patellar tendon, wherein tendon repair with semitendinosus grafting, reinforced with cerclage wire were done. Procedure was done inevitably more than 3 weeks due to financial constraints. Range of motion exercises was started 1 week post-operatively. Range of motion measurements, manual muscle test score and thigh girth comparison were taken upon monthly follow-ups for 9 months. Results: Average range of motion is 90.75 degrees flexion from 0 degrees extension upon 3rd month follow-up. Thigh girth comparison was at a mean difference of -4.2 on the 3rd month and at a -1 on the 9th month. Manual muscle test score was at 1/5 pre-operatively. On the 9th month follow-up, MMT score for 9 patients were 5/5. Average number of days from surgery to return to activities of daily living was noted to be at 146 days. Conclusion: In neglected patellar tendon ruptures, early mobilization can be employed after primary repair and semitendinosus augmentation reinforced with cerclage wire, to prevent residual knee stiffness.

Abstract no.: 44153

CLINICAL EXPERIENCE OF 10 CASES WITH SARCOMA IN THE HAND

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Sarcomas in the hand are very rare, accounting for <1% of all tumors and clinical outcomes after surgery and adjuvant therapies have been unclear. The aim of this study was to examine oncological outcome and functional evaluation. A retrospective review was performed in 10 patients who were treated for soft tissue (7) or osseous sarcoma (3) in the last 20 years. The most common pathologic subtype of soft tissue sarcoma was epitheloid sarcoma and two were malignant change from Ollier disease to chondrosarcomas. At initial presentation, 5 patients was considered as Enneking stage IIb, 3 as stage IB and 2 as stage III. All patients were treated with wide resection. No patients received pre-operative chemotherapy considering the stage and age. Seven patients received the affected digital ray amputation and reconstructed by adjacent ray transposition. Two patients with angiosarcoma and epitheloid sarcoma received post-operative chemotherapy but died of lung metastasis. Sarcomas in the hand often metastasize to the lung. Chemotherapy is not effective especially for epitheloid sarcoma. Multiple options exist for digital reconstruction, with the choice dependent upon tumor location, surgeon preference and the patients' functional requirements. For central digit ray defect, the technique of adjacent finger ray transposition is useful for closing the central gap between the remaining fingers. A total thumb defect from the base of the carpo-metacarpal joint can be reconstructed by index finger ray transposition All patients experienced emotional difficulty with acceptance of a three-fingered hand. Careful preoperative informed consent may improve postoperative emotional outcomes.

Abstract no.: 44155

RELATIONSHIP BETWEEN CORONAL AND SAGITTAL ALIGNMENT OF THE LOWER EXTREMITIES IN THE VOLUNTEERS WITH KNEE OSTEOARTHRITIS

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Introduction:It is still unknown that the severe knee osteoarthritis is always associated with knee contracture. We investigated the relationship between coronal and sagittal alignment of the lower extremities using the data of volunteers aged over 50.**Methods:**We reviewed radiographs of 594 subjects (239 males, 355 females and the average 73 years) in musculoskeletal examination for the volunteers with age over 50. The antero-posterior radiographs of the whole lower extremities were taken in standing position, and knee osteoarthritic grade were evaluated by Kellgren-Lawrence grading system (KL grade). Hip knee ankle angle (HKA) was also measured in every subjects. Using the lateral pelvic radiograph taken in standing position, we measured femoral inclination angle (FIA) which was substituted for knee flexion angle. Then, relationship between HKA (coronal alignment) and FIA (sagittal alignment) was investigated in each KL grade.**Results:**In KL grade 0-3, there was no correlation between HKA and FIA. In KL grade 4, there was the significant correlation between HKA (varus 6°) and FIA (flexion 11°) ($r = 0.40$). However, many subjects with below FIA 10 degrees (70 subjects: 46%) were observed even in KL grade 4. **Conclusions:**Significant correlation between coronal and sagittal alignment of the lower extremities in KL grade 4 was observed. However, the result, which 46% of the knee osteoarthritis volunteers were with below FIA 10 degree, suggested that the osteoarthritis was not the only reason why the knee contracture occurs.

Abstract no.: 44157

THE ETHIOLOGY OF HAMMERTOE AND ITS SURGICAL TREATMENT

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Introduction. The hammertoe is often takes a place in II, III, IV toes. A basic cause of their development are changes foot construction and architectonics owing to flatfoot, injuries, wearing wrong shoes, leads to weight redistribution on forefoot or specific diseases (cerebral paralysis, rheumatic arthritis, multiply sclerosis). Purpose. The study of the toe deformity development depending from patients' age and previous diseases or factors. Methods. At Traumatology Department of RCH#1 for period 2011-2015 were treated 15 patients in age 22-65 years (males/females – 1/1) with diagnosis Rheumatic polyarthritis, toe neurogenic contractures and deformities as a result of flatfoot, injuries, of wearing wrong and uncomfortable shoes. Performed 39 operations for correction hammertoe. Operations performed by modified method Hohmann. After operation toes fixed throw the nail phalanx to ark in cast bandage. Results. Close results determined, that in 96% cases we achieved correction of deformed toe. At 80% we received a good results, 16% results considered as satisfactory. According our observations, the toe deformities on 20% develops in patients with systemic diseases and injuries in young age (17-35 years). Flatfoot and wearing “wrong” shoes usually leads to foot deformity in 35 years and older. Conclusions: 1. At systemic and rheumatic diseases at children and adolescents is have to be follow preventive measures against foot deformity development. 2. At posttraumatic immobilization, it is necessary to discount foot arch and toes position for deformity prevention. 3. Application of modified Hohmann's method at 80% of cases gives good results.

Abstract no.: 44160

INACTIVE LIFESTYLES IN YOUNG ADULT MALES- AN IMPENDING ORTHOPAEDIC CRISIS

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The correlation of inactive lifestyles with heart disease, diabetes and metabolic syndrome is well known. What is not documented is the correlation of a sedentary life style with musculo-skeletal aches and pains. The life expectancy, nutrition, literacy and availability of healthcare of Indians is improving as a result of rapid industrialisation and prosperity. Yet this success hides an underbelly of an impending health crisis which will soon neutralise the benefits of rising affluence. Higher BMI, long work hours (10-12 hours) in an uncomfortable body position is common in two groups of Indians. Migrant lower middle class males are the first group. The common occupations at risk are goldsmiths, diamond polishers and those who embroider silver thread into textiles. They sit on the floor. Software professionals staring at computer screens all day are the second. Group 1 has low back and knee pain and group 2- neck pain. Both groups have muscle wasting, propensity to develop hypertension, diabetes and heart disease. BMI is higher in group 2. It is difficult for an Orthopaedic surgeon to deal with these patients as it is a lifestyle problem and cannot be cured permanently with medications. Moreover, the rapidly disappearing public recreation spaces in India due to poorly designed urbanisation and industrialisation is compounding the problem. The culture of regular exercise is also lacking. Developing countries such as India are therefore sitting on a time bomb. And the individuals themselves gradually become incapacitated and may eventually have to quit their jobs.

Abstract no.: 44161

DEVELOPMENT OF ARTHROSCOPIC PTFL/ATFL/CFL RECONSTRUCTION USING A FREE TENDON: A CADAVERIC STUDY

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Introduction: Posterior talo-fibular ligament (PTFL) reconstruction technique has not yet been reported. We performed arthroscopic PTFL, anterior talo-fibular ligament (ATFL) and calcaneo-fibular ligament (CFL) reconstruction using a free tendon with a fresh cadaver. Methods: Left cadaveric ankle was used. Allogenic extensor hallucis longus tendon was harvested from contralateral leg and folded to trifurcate shape including double-folded ATFL and single bundle PTFL and CFL. Anatomical bone tunnels of fibula, talus and calcaneus were drilled with anterior ankle arthroscopy using 3 portals. Another talar bone tunnel on the postero-lateral process was created through hindfoot endoscopy for PTFL reconstruction. Folded tendon was introduced through subtalar portal. Interference screws were fixed for fibula, anterior talus and calcaneus. Suture anchor was used for PTFL fixation into the posterior talar tunnel. Results: It was confirmed by dissection that PTFL, ATFL and CFL were safely reconstructed. Conclusions: Arthroscopic PTFL/ATFL/CFL reconstruction technique was developed. Although PTFL is seldom injured, such disorders as ankle dislocation and iatrogenic damage after removal of large distal fibula fragment of the lateral malleolus avulsion fracture exist. This is a minimally invasive technique and helpful for those.

Abstract no.: 44163

ARTHROSCOPIC RE-RELEASE REVISION OF GLUTEAL MUSCLE CONTRACTURE AFTER PRIMARY OPEN RELEASE SURGERY

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Introduction: Gluteal muscle contracture (GMC) is a rare condition due to multiple reasons and presents with hip abduction and external rotation when crouching. Some severe patients treated by open surgery showed residual symptoms and required revision surgery. The aim of this study is to present a case series of arthroscopic re-release after primary open release. **Methods:** From January 2007 to July 2015, 1126 consecutive patients underwent arthroscopic release of GMC, out of which 108 patients were second release after open incision surgery. Revision surgery was carried out by gluteus and iliotibial band contracture fascia release using radiofrequency under arthroscopy. 103(46 men and 57 women) with a mean age of 28.3 years were followed up for more than 6 months and were enrolled in this study. Preoperative and postoperative gait, activity of hip joint, limbs discrepancy and Harris hip score were observed and compared. **Results:** The mean follow-up was 37.5 months. Snapping hip was disappeared and Ober syndrome turned negative. The adduction and flexion ranges of the hip were 46.8 degrees and 122.6 degrees, compared with 15.2 degrees and 56.8 degrees before surgery. No hip abductor contracture recurred and no patient had residual hip pain or gluteal muscle wasting. The mean results for Harris hip score were significant better than the preoperative data ($P<0.05$). **Conclusion:** Severe gluteal muscle contracture could be released and revised effectively and thoroughly with radiofrequency energy under arthroscopy.

Abstract no.: 44164

COMPLICATIONS OF POST OPERATIVE PAIN MANAGEMENT AFTER UNILATERAL KNEE REPLACEMENTS.

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Immediate post operative pain relief is an important step in knee replacements. There is still no consensus on the methodology to be followed. In our practise we have tried 6 different techniques. NSAIDS only, NSAIDS with paracetamol, paracetamol with injectable opioids, continuous infusion epidural catheters, epidural with injectable opioids and local infiltration of the capsule of the knee joint. Each technique has advantages and disadvantages and none is perfect. We looked at the complications of 200 consecutive unilateral replacements done by 4 different surgeons over a period of nearly 8 years and analysed them. The number of females was 136 and left knees were more common (127/200). The average age of patients was 66.4 years. Almost all patients were mobilised after 48 hours and discharged 5-6 days after surgery (with exceptions). Most patients required at least one blood transfusion and average duration of surgery was 115 minutes. The common complications of post operative pain management have been occasional inadequate and non-uniform pain relief, erratic blood pressure control and over sedation of patients. There was also a case of intestinal obstruction requiring ITU admission for 10 days due to usage of opioids in an individual with previous abdominal surgery. This paper outlines our management preferences and suggests a protocol for each individual based on their co-morbidities. We also discuss the red flags before performing any of the above 6 procedures.

Abstract no.: 44165

TRABECULAR TITANIUM IMPLANTS FOR ACETABULAR DEFECTS IN REVISION ARTHROPLASTY. CASE REPORT.

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The prevalence of revision hip arthroplasty is 18% in the United States and is projected to double by the year 2026. Revision hip arthroplasty is a challenging procedure probably being the acetabular revision the most difficult aspect related to the management of bone loss. Acetabular defects can be reconstructed with various methods depending on size and location. We report the case of a 78-year-old man who underwent a two-stage hip revision for prosthetic joint infection. During the second stage he presented with an acetabular defect type IIb according to the Paprosky classification and underwent complex reconstruction of the acetabulum using a trabecular titanium augment combined with a trabecular acetabular shell. Post-operative imaging revealed a correct articular alignment, with nearly perfect centre of rotation. The patient also evolved quickly in his recovery, with early aided walking. This presentation emphasises the role of new trabecular metal implants in solving complex bone defects during total hip arthroplasty revision procedures.

Abstract no.: 44166

MINIMUM INVASIVE TENSION BAND WIRING METHOD FOR THE PATELLAR FRACTURES

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Introduction: Conservative treatment for patellar fractures sometimes makes functional limitation of knees, however, there are some problems such as large incisions, fragments dislocation with peeling periosteum in the conventional open surgery. We sometimes performed minimum invasive tension band wiring (MIS-TBW) for them. Methods: 36 patients with single and closed patellar fractures were performed MIS-TBW in our institution from 2009 to 2015. Of 36 cases, 5 were AO type A-1, 10 were C-1, 14 were C-2, and 7 were C-3. The mean distance of main fragments and step-off of the joint surface were 4.1mm (range, 1-11), 1.1mm (range, 0-5). MIS-TBW was performed as follows: after percutaneous reduction, Lambotte wires were passed under the patellar and quadriceps tendon through the four 1cm-incisions. The tourniquet wasn't used for all cases. We evaluated operating time, postoperative X-ray and clinical results. The mean follow-up period was 18.6 months. Results: The average of MIS-TBW operating time (34.7 minutes) was significantly shorter than that of the open method (46.7 minutes). The mean distance of main fragments and step-off of were improved to 1.0mm and 0.3mm right after surgery. The bone union was observed in all cases. The average of knee flexion angle at 2 weeks after surgery and the latest follow-up were 112.5° and 143.2°. Regarding with clinical results, 88.9% of all patients were excellent, and all type C-3 as well. Conclusions: Even for comminuted fractures MIS-TBW can be a recommendable treatment. This method has an advantage for cosmetic problems, blood flow around the fragments.

Abstract no.: 44167

FIXATION OF CALCANEAL FRACTURES THROUGH LIMITED LATERAL APPROACH. DOES IT WORK?

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Introduction: Calcaneal fractures are the most common tarsal bones fractures. Methods: The study involved 46 displaced intra-articular calcaneal fractures. Procedure is done in lateral position through transverse skin incision on the lateral aspect at the junction between thick and thin skin of the heel and carried directly down to the bone. Through a fracture line in the lateral wall of the calcaneus, the lateral wall along with the skin is elevated as one flap by an osteotome until exposure of the subtalar joint. Steinmann pin is introduced through the calcaneal tuberosity to help reduction. Fixation of reduced fragments was done using k-wires and checked by image intensifier. The lateral wall is then reduced together with the skin. The skin is closed, dressed and a posterior slab is applied. X-rays are obtained at 2, 6 and 12 weeks and the cast and K-wires are removed in six weeks. Calcaneal fracture scoring system was used; Pain(36points), Work(25points), Walking(25points), Walking aids(14points). Results: The mean score was 67.55 ± 17.35 . 61.9% had satisfactory results while 38.1% were unsatisfactory. Relationship between classification of the fracture and the final results was significant (the greater the grade, the worse the score)($\chi^2=5.914$, $p=0.05$). The calcaneal angles including Bohler, Gissane, and calcaneofibular space were significantly improved. Complications included subtalar arthrosis(17.4%), residual broadening(15.2%), decreased subtalar motion(17.4%). Pain on activity was mild in 71.4% and moderate in 23.8%. No infections or wound complications occurred. Conclusions: Trans-osseous limited lateral approach is effective for management of calcaneal fractures.

Abstract no.: 44168

MODIFIED GIFT BOX TECHNIQUE FOR ACUTE POST TRAUMATIC ACHILLES TENDON REPAIR, A SERIES OF 8 CASES.

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Introduction: Treatment of Achilles tendon rupture in young active patient remains controversial. Non-surgical and percutaneous treatment leads to higher incidence of re-rupture while augmentation repair has higher incidence of wound complication. Open primary repair remains the mainstay of treatment with prolonged rehabilitation and high wound complication rate (20%). Newer techniques are being tried to decrease re-rupture rate. Modified gift-box technique described by Labib et al, has shown higher strength of repair in in-vitro studies and good clinical results in the hands of its inventor. Our aim study was to evaluate clinical results of this technique in young patients. Methods: A retrospective study of young patients operated for acute post-traumatic compound tendoachilles tear with modified gift-box technique. The parameters recorded at follow-up included general demography, ability to single-toe raise (on neutral, incline, decline), toe walking for 40 feet, pain on VAS-scale. Achilles Tendon Total Rupture Score and Modified Rupp score were scored. Result: Out of the 8 patients included in the study, 7 patients had unilateral tear and 1 patient had bilateral tear. The mean age was 27yrs (20-35) and mean duration of follow up was 17.4months(08-24months). The mean dorsiflexion was 12.2(08-15 degrees) and plantar-flexion was 31.8(30-35degrees). Single toe raise and toe walking for 40 ft. was possible in all patients. 2 patients complained of grade 2 pain on VAS-Scale. The ATRS Score was 97.1(94-99) and Mod. Rupp Score was 28.3(26-29). CONCLUSION: Modified Gift-Box technique gives excellent results in young active patients with no re-rupture and return to pre-injury activity in all patients.

Abstract no.: 44169

IDENTIFICATION OF FATAL FACTORS ASSOCIATED WITH MORTALITY AND SEVERITY OF TRAUMA FOR PATIENTS DUE TO FALL FROM HEIGHT.

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Introduction: Falls from height are among the critical events of severe injury. The purpose of this study was to clarify the factors which have impact on the mortality and residual symptoms. Methods: The factors such as age, sex, height of fall, site of injury, AIS, ISS and outcome were investigated. In the cases of survival, Performance Status (PS) was applied to evaluate activities of daily life in the final examination. All the patients were categorized based on the distance fallen. The relationship among the height of fall, the mortality and the severity of trauma using ISS was evaluated, and the factors which were higher related to mortality were also extracted by statistical analysis. The profiles of patients with weakened ADL (PS = 2 or over) were investigated. Results: Height of fall ranged from 2m to 19m. 76 cases survived and 11 cases died in this study. Weak correlation were found between ISS and height of fall ($r_s=0.30$). There was no significant difference dependent on the height subgroups ($p=0.95$). AIS for head injury, AIS for thoracic injury and age were identified as the factors related to mortality. 65 out of 70 survived cases finally achieved PS= 0 or 1 and could return to almost normal life. Five cases had higher dysfunction of ADL with PS = 2 or over. The causes of disability are severe higher cerebral dysfunction, spinal cord injury, right peroneal nerve palsy and amputation of thigh due to intractable infection after the operation.

Abstract no.: 44172

LONG-TERM OUTCOME OF A MODULAR HEAD ADAPTER SYSTEM IN REVISION HIP ARTHROPLASTY FOR MULTIMORBID PATIENTS

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Introduction: Recurrent dislocation of THA in multimorbid patients remains challenging for the future. The objective of this retrospective study was to document reliable long-term data after operative treatment of this typical complication by using a modular head adapter system. **Methods:** A multimorbid collective of 19 patients (10 female, 9 male; mean age 69[50-98]) with dislocating THA was treated operatively with a modular head adapter system in 2003-2004. All patients were followed-up clinically after 1,7 & 10 years using Oxford Hip Score, Barthel Index and health related quality of life (NHP and EQ-5D) as well as evaluation of patient medical records and re-exam of all surviving patients. **Results:** In this multimorbid patient group in-hospital mortality was 8.7% (n=2). After a mean survival period of 96 (12-144) months 78,9% (n=15) of the patients had died mainly due to cardiopulmonary reasons. 10,4% (n=2) patients underwent further total hip revision surgery due to recurrence of THA dislocation. After discharge 17 of 19 patients (89.5%) were mobile with a Barthel-Index of 88 that did not change significantly during the follow-up period. Patients with ASA > 3 evidenced a significant higher rate of mortality (p=0.04) and a significant worse level of activity (p<0.01). Quality of life statistically showed no significant differences to comparable treatment groups in the literature. **Discussion and Conclusion:** Recurrent THA dislocation rates in multimorbid patients remain a surgical challenge in a fast growing geriatric population. We conclude from our 10-year-follow data that implanting a modular head adapter system in multimorbid patients is safe and effective in the long-term to prevent recurrent THA dislocation without exposing these patients to the high operative risks of major total hip revision surgery.

Abstract no.: 44173

PREVALENCE OF HIGH-INTENSITY ZONE IN LUMBAR DISCS BY AGE AND CORRELATION BETWEEN HIGH-INTENSITY ZONE AND OTHER DEGENERATIVE FINDINGS ON MR IMAGES

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Introduction: High-intensity zone (HIZ) of lumbar intervertebral disc is a high-intensity signal located in the posterior annulus fibrosus on T2-weighted magnetic resonance image (MRI). Few studies described the prevalence of HIZ in lumbar discs by age. A cross sectional study was performed to investigate the prevalence of HIZ in lumbar discs by age and the correlation between HIZ and other degenerative findings, such as disc degeneration, disc bulging and herniation and adjacent vertebral endplate change on lumbar MRI. **Methods:** We retrospectively reviewed MRI studies of 305 patients (1525 discs) with low back pain, leg pain or numbness. The prevalence of HIZ in 5 different age groups (<20, 20-39, 40-59, 60-79, 80-91 years) was calculated. **Results:** Number of patients of 5 different age groups were 19, 38, 69, 145 and 36, respectively. The prevalence of HIZ of 5 different age groups were 13.3%, 47.4%, 52.2%, 42.8% and 50.0%, respectively. Disc degeneration was observed in 58.1% and 39.2% of the discs with and without HIZ, respectively. Disc bulging and herniation were observed in 63.9% and 41.0% of the discs with and without HIZ, respectively. Intensity changes of adjacent end plates were observed in 11.6% and 10.0% of the discs with and without HIZ, respectively. **Conclusion:** The prevalence of HIZ of over the third decades was around 50% and no significant difference was observed among the age group over the third decades. HIZ showed correlation with disc degeneration, disc bulging and herniation in patients with low back pain, leg pain or numbness.

Abstract no.: 44175

SURGICAL OUTCOME OF LUMBAR SPINAL STENOSIS IN THE 80 YEARS OR OLDER

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Purpose: we researched the clinical outcomes, complications and radiological changes for elderly patients who were treated surgically for lumbar canal stenosis. Methods: we retrospectively reviewed 386 patients who underwent the lumbar spinous process splitting laminectomy between 2008 and 2014. the japanese clinical score, complications, operation time, intraoperative blood loss, and length of hospital stay after surgery for 31 patients aged 80 years and older (elderly group) who were treated surgically for lumbar canal stenosis were compared with those of 30 patients aged 60 years and younger (younger group). lumbar radiographs were assessed at the preoperative period and the final follow-up. radiological parameters included the disc height, %slip, instability at decompression level. Results: the average improvement evaluated using the JOA score was 54.2% for the elderly group and 61.0% for the younger group ($P=0.32$). There were 4 complications in the elderly group and 3 complications in the younger group. there was no statistical difference in operation time, blood loss, length of hospital stay between the elder group or the younger group. the disc height was significantly lower in the elderly group at the preoperative period (6.1mm vs 9.1mm) and the final follow-up (6.1mm vs 8.3mm). post-operative intervertebral instability was 5 patients in younger group, the other hand there was no post-operative lumbar instability in the elderly group. Conclusion: The elderly group achieved very similar the clinical results to the younger group. Elderly group was not most cases post-operative intervertebral instability. It is considered one of the factors that the disc height is low.

Abstract no.: 44179

REOPERATION CASES AFTER TROCHANTERIC FRACTURE FIXATION USING GAMMA 3 NAIL

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The purpose of this study is to examine the reoperation rate and cause in patients with a trochanteric fracture fixation using Gamma 3 Nail (G3N). We operated 1150 patients (1166hips) with G3N from April 2008 to September 2015 at our hospital. The mean age was 86 years, and mean follow-up was 117 days. Twenty one cases were required reoperation. The reason for reoperation was 11 cases of cut out of the lag screw(N=11;0.9 %), 6 cases of fracture at nail distal, 2 cases of infection,1 case of pseudo articulation, and 1 case of femoral head necrosis. Seven cases of cut out and femoral head necrosis were execute prosthesis insertion. The cases which are not that operation were 3 case of nail evolution and 1 case of lag screw evolution. All cases of fracture at nail distal were executed osteosynthesis by using long G3N. One case of non-union was executed osteosynthesis by using plate and autogenous bone graft, the other 2 cases of infection were executed evolution of nail. All cut out cases were able to be diagnosed within 6 months after operation. Regarding to the femoral head, our case executed reoperation in 29 months after operation. Femoral head necrosis sometimes develop from after more than one year, it is also the lack of objective symptoms unlike infection and fracture at nail distal. Therefore, it requires the long-term follow-up by X-rays. As a limit, the assessment of long-term follow-up was difficult for many cases of acute stage hospital.

Abstract no.: 44185

SURGICAL SITE INFECTIONS FOLLOWING SPINAL INSTRUMENTATION: CLINICAL MANIFESTATION, ETIOLOGY AND TREATMENT

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Surgical site infection (SSI) following spinal instrumentation carries high medical, economic and social costs for the patient and surgeon. This retrospective cohort study aimed to identify the commonest clinical and biochemical presentation of SSIs, and characterize those who develop SSIs. Patients who underwent spinal instrumentation at our institution for non-infected conditions between January 2010 and November 2015 (N=903) were included. There were 22 cases of SSI (13 deep and 9 superficial). 22.7% had prior invasive spinal procedures. 63.6% had type-2 diabetes mellitus. The mean glycosylated hemoglobin (Hba1c) was 6.77 (5.4-10.3). Serous wound drainage was the commonest presentation (50%). The C-reactive protein, erythrocyte sedimentation rate and total white cell (TWC) was elevated in 90.9%, 100% and 72.7% of cases. Of the 6 without elevated TWC, 5 demonstrated neutrophilic left-shift. The mean number of days from surgery to presentation was 24.0 (7-180). All our SSIs followed posterior approaches. The mean duration of procedures was 3.80 hours. 95.5% had 1 or 2 drains inserted before closure. Blood-cultures were positive in only 27.3%, the commonest isolated organism being methicillin-resistant *Staphylococcus aureus* (MRSA). Wound-cultures were positive in 81.8% of cases, the commonest isolated organism being MRSA. Only 69.2% of deep SSIs were effectively treated with a single debridement. All patients with MRSA SSIs received at least 4-weeks of antibiotics. Identifying high-risk patients preoperatively, including those with elevated high Hba1c, prior spinal procedures and MRSA nasal-carriage and taking preventive measures may reduce the risk. Repeated debridement may be required to adequately treat deep infections.

Abstract no.: 44192

USEFULNESS OF QUALITY OF LIFE SCALE SPECIFIC FOR LUMBER SPINAL STENOSIS: EVALUATION OF SURGICAL EFFICACY

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Introduction: An original LSS-specific scale to measure quality of life (QOL) was developed. The purpose of this study was to clarify the usefulness of the LSS-specific QOL scale for evaluating the surgical efficacy of lumbar decompression for LSS. **Materials and Methods:** A total of 103 LSS patients (63 men, 40 women; the predominant age group, 70s) who underwent decompression surgery were included in this study. LSS-QOL scale (0–100, higher scores indicating worse condition), SF-36, numerical rating scale (NRS) of low back pain, leg pain, and leg numbness (0–10, higher scores indicating worse pain), as well as satisfaction with surgery (0: unsatisfied, 10: completely satisfied), were examined before and 1 year after surgery. **Results:** The preoperative average of LSS-QOL scale score was 58.2±19.1. The correlation coefficient between LSS-QOL scale score and the NRS of the symptoms was 0.28 ($p < 0.05$) for leg pain and 0.29 ($p < 0.05$) for leg numbness. The correlation coefficients between LSS-QOL scale score and the SF-36 subscale scores were significant for all 8 subscales ($r = -0.38$ – -0.48) ($p < 0.01$). The postoperative LSS-QOL scale score was 40.7±23.7. The change of the LSS-QOL scale score from baseline showed statistically significant correlation with the changes of all NRS of symptoms (0.26–0.32), all SF-36 subscale scores ($r = 0.28$ – 0.58), and satisfaction with surgery (0.47) ($p < 0.01$). **Conclusion:** The results of this study showed that the LSS-QOL scale had responsiveness with surgery. LSS-QOL scale could comprehensively evaluate the efficacy of surgery for QOL.

Abstract no.: 44197

MEDIAL PATELLOFEMORAL LIGAMENT RECONSTRUCTION: CLINICAL AND RADIOLOGICAL PREDICTORS

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Introduction: Although the value of medial patellofemoral ligament (MPFL) reconstruction has been demonstrated, few studies have assessed predictors of good clinical results. The main objective of this study was to isolate, the clinical and radiological predictors that can significantly influence the clinical results. Methods: 107 patients (110 ligament reconstructions) presenting an objective patellar instability, were evaluated with a mean follow-up of 55 months. Functional scores were preoperatively and at end of follow-up assessed. Plain X-ray with radiological assessment of patellar height and tilt and a CT scan measurement of the patellar tilt and TT-GT distance were performed preoperatively and at 6 months. Femoral tunnel position was assessed. The amount of femoral tunnel widening was measured by means of the 3D CT scan image. Results: Clinical factors, did not influence functional scores (all $p > 0.05$). For technical factors: association with a bone graft or incorrect positioning of the femoral tunnel, also had no effect on clinical outcome ($p > 0.05$). It was the same for preoperative radiological factors: radiological and CT scan tilt, TT-TG distance, patellar height (all $p > 0.05$). For postoperative radiological factors, patellar height and tilt were not predictors. However, the correction of patellar tilt with quadriceps contracted ($p = 0.013$) and relaxed ($p = 0.003$) and the TT-GT distance correction ($p = 0.023$) were predictors of good clinical results. Discussion: For the MPFL ligament reconstruction, predictors of clinical improvement of the patient were patellar tilt and TT-GT distance correction at CT scan.

Abstract no.: 44201

SAGITTAL RADIAL SHAFT FRACTURE TREATED WITH OPEN REDUCTION AND INTERNAL FIXATION WITH SCREWS AND PLATE

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Introduction: Radial shaft fractures are usually classified as oblique, transverse or comminuted. Review of literature does not yield a description of a sagittal split. However, sagittal split patterns are well described in tibial plateau and distal radius where the mechanism of injury is an axial force directed from the articular surface towards the shaft. Methodology: The patient is a 56 year old male, right handed construction foreman. He fell from a ladder with a hyperextended right arm. X-rays showed a transverse middle third radius and ulna fractures with a sagittal split on the distal radial fragment extending from the articular surface to the junction of middle and distal third of the shaft. Patient underwent open reduction and plating of the radius and ulna. Intraoperative findings showed articular displacement less than 1mm. The sagittal split was reduced and two lag screws were inserted lateromedial followed by a 7-hole mini DCP traversing the transverse split. The ulna was fixed in a standard manner. Intraoperative range of pronation and supination was full. X-rays showed restoration of radial bow and satisfactory reduction and placement of implants. Postoperative recovery was unremarkable. Discussion: The mechanical property of a bone is dictated by its composites namely collagen and hydroxyapatite. Bone has mechanical properties that vary with the direction of the applied load. This type of fracture was caused by a tension force resulting in a transverse fracture while a concomitant axial force coming from the articular surface resulted in a sagittal split.

Abstract no.: 44202

INTEREST OF RADIOLOGICAL ANALYSIS IN DUAL MOBILITY THA WEAR: EXPLANTS ANALYSIS

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Introduction: A disadvantage of the use of THA Dual Mobility (DM) is the wear of the liner. Often detected through its late complications, aseptic loosening (AL) or intra-prosthetic dislocation (IPD), the wear of the liner remains difficult to evaluate. Our objective was to assess if there was a correlation between the volumetric wear of the insert and breaking down of the head on standard hip radiographs. Methods: From DM THA, we analyzed 30 inserts over 15 years explanted for DA. Each explant, the latest hip radiographs face and profile before explantation were analyzed by searching depression of the head relative to the cup. With a surface scanner we have measured quantitatively wear of the liner, as well as the offset of the center of the head. Results: There is no statistically significant correlation between the X-ray linear penetration of the head within the acetabulum and the volume of overall wear of the insert ($p > 0.05$). This seems due to the three-dimensional character of the wear and the random positioning of the insert during radiography. There was a correlation between the offset of the center of the head and internal wear ($p = 0.045$) and overall wear ($p < 0.001$) of the insert. Discussion: Simple radiographs of the hip is not possible to assess the wear of DM THA liner. With the addition of three-dimensional imaging, evaluation of offset head center, is expected to estimate the overall level of wear of the liner and target patients at risk of wear complications.

Abstract no.: 44203

MANAGEMENT OF TRAUMATIC TIBIAL BONE LOSS BY ACUTE SHORTENING - A CASE SERIES

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Introduction:Our aim was to show that acute shortening and subsequent limb lengthening with circular ring fixators gives a more predictable outcome of clinical and radiological union in Traumatic Tibial Bone loss. **Methodology:** Ours is a, consecutive case series of four patients who presented with Open tibial fractures with bone loss. They were treated by acute limb shortening to close both the soft tissue and bony defects and application of a ring fixator. Three out of four patients underwent metaphyseal osteotomy for re-lengthening within two to three weeks of initial injury. After a delay of 1-2 weeks, limb lengthening was started. The mean bone defect was 4.5 cm. The mean age of the patients was 39.5 years.**Results:** The mean follow up period was 14.5 months (10 to 18 months).The mean bone healing time was 7.75 months (6 to 9 months).The mean EFT (External fixator time) was 7.62 months (5 to 9.5 months). The average Frame Index (months in frame /cm of bone gained) was 2.34 months/cm. Three patients had a predictable outcome of clinical and radiological union. For the fourth patient acute shortening allowed the fracture to unite. One patient had an equinus contracture of 10 degrees and underwent percutaneous Tendoachilles lengthening after the frame removal. None of the patients needed bone grafting procedure at the docking site.**Conclusion:** Use of frames for bone shortening and subsequent lengthening is able to provide predictable outcome of bony union in Traumatic Tibial bone loss.

Abstract no.: 44204

DEVELOPMENT AND TESTING OF A NOVEL HYDOXYAPATITE KNOCK IN SCREW FOR ACL-FIXATION

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Ruptures of the ACL are the most common knee injuries. Today the ACL-reconstruction using a transplant is the golden standard. Inter alia prevalently interference screws are used for fixation of the transplant. Customarily these screws are made of polylactide (PLA) or a composite of PLA and a minor fraction of Hydroxyapatite (HA). Due to its acidic degradation PLA causes formation of cysts around the implant, even if it is combined with HA. The underlying idea was to create a fixation device of pure HA to avoid cyst formation. Beside material properties that required a novel design, it was the intention to simplify handling during operation. Computer-based a knock-in screw was developed. The new fashioned HA-screw was then tested against the market leading composite screw in a sheep model. Healing was observed at 6 and 52 weeks. DXA-analysis ensured the similarity of bone status at the initial time point. Qualitative CAT scans showed osteointegration in both screws at 52 weeks and improved bone-implant contact in the HA screw at 6 weeks. However, quantitative micro-CT, histological assessments as well as biomechanical results are currently being obtained.

Abstract no.: 44214

RESULTS OF DISTAL RADIUS FRACTURE MANAGEMENT WITH EXTERNAL FIXATION METHOD (ANALYSIS OF RESULTS-PATIENTS TREATED DURING 2014)

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., . (SERBIA)

Distal radius fractures are the most common skeletal injuries. Statistics say that over 10 percent of all fractures belong to radius. Injury occurs by falling on open palm. Treatment is mostly conservative, and includes closed reduction with cast immobilisation. Aim of treatment is to sustain radius length and anatomy of radiocarpal joint. Aim of the research is to present results of different types of distal radius fractures treatment, with external fixation method. In our hospital, during the year 2014., 23 patients with distal radius fractures were treated (7 men and 16 women), with external fixation method. External fixator by Mitković was used. Operation was performed in next manner: closed reduction was performed, under fluoroscopic control; external fixator was applied; fluoroscopic confirmation of reduction is done. Intervention is performed in regional, or general anesthesia. Treated patients had following fracture types (AO classifications): A2; B2; B3; C1- 3 injured, average age 37,3; C2- 9 injured, average age 49; C3- 4 injured, average age 69,75. The result of operative treatment in types A2, B2 and B3 was good. C1 fracture treatment also gave good results. In C2 types, there were 8 good, and one bad outcome. In C3 types, the outcome was 50% good, and 50% bad. B2 and B3 types had good final outcome. Results were evaluated by fluoroscopic imaging and measuring articular angle (25° in AP and 10° in LL). Closed reduction and external fixation method is simple and quick. In our material, it didn't show like good enough with C3 fracture types, so it needs to be fulfilled with other treatment manners (K wiring). Fracture, distal radius, external fixation

Abstract no.: 44215

ANALYSIS OF PEDIATRIC ELBOW FRACTURES TREATED IN THE UNIVERSITY HOSPITAL GIESSEN

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Elbow fractures are the second most common entity after wrist fractures in children. The distal humerus is affected 6 times more than the proximal forearm. The current study investigates pediatric elbow fractures treated between 2012 and 2016 in the University-hospital Giessen. Analysis of fracture pattern and localization was carried. Further, conservative and operative management of fractures was addressed in correlation to healing results and complications. Interestingly, seldom fracture patterns such as avulsions of the olecranon; and rarities, including a supracondylar humerus fracture combined with a fracture of the radial epicondyle were observed. The study emphasizes on the need to address each fracture in a specific way according to its type and the patient's age. A critical assessment of the follow-ups could direct to the most suitable treatment option.

Abstract no.: 44216

CLINICAL AND SCANOGRAPHIC RESULTS OF A SERIES OF 110 MEDIAL PATELLOFEMORAL LIGAMENT RECONSTRUCTIONS

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Introduction: The primary purpose of this study was to demonstrate, based on clinical, radiographic and scanographic results, the efficiency of MPFL reconstruction in achieving patellar tilt correction, required to prevent the risk for patellar dislocation and to control associated symptoms. Methods: One hundred and seven patients (110 ligament reconstructions) presenting with objective patellar instability, were evaluated with a mean follow-up of 55 months (24 to 91). This standardized reconstruction was performed using a gracilis tendon graft. The clinical outcomes were evaluated using the IKDC and Kujala functional scores. Radiographic and scanographic measurements including patellar tilt measurement were performed preoperatively and at 6 postoperative months with the quadriceps contracted and relaxed. Results: At last follow-up, 3 patients reported recurrent patellar dislocation. The Kujala score improved from 55.40 preoperatively to 88.12 postoperatively and the real IKDC score from 46.30 to 75.69 ($p < 0.001$). Patellar tilt was significantly reduced between pre- and postoperative CT scan with either contracted or relaxed quadriceps ($p < 0.001$). Discussion: The low rate of recurrence and significant functional score improvement confirmed the efficiency of MPFL reconstruction in the treatment of objective patellar instabilities. In order to prevent recurrent dislocations and improve symptoms, correcting patellar tilt appears necessary. The low rate of recurrence, significant functional score improvement, and patellar tilt correction confirmed the efficiency of MPFL reconstruction in the treatment of objective patellar instabilities.

Abstract no.: 44220

ANTERIOR CERVICAL INTERBODY FUSION WITH CAGES IN DEGENERATIVE CERVICAL DISC DISEASE

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Background : Degenerative disease of the cervical spine is a common cause of neck and upper limb pain and in severe cases could be a potential debilitating disease. Anterior cervical decompression and fusion (ACDF) is a widely accepted surgical procedure for the treatment of cervical degenerative disc diseases. The gold standard for interbody support is iliac crest autograft; however, autologous bone grafts obtained from the anterior iliac crest are associated with significant donor site morbidity and complications. Anterior cervical discectomy is often combined with plate and screw fixation to maintain the spinal curvature and intervertebral height, however, plates and screws may cause complications. The deficiencies mentioned above have favoured on-going development of cage technology, and several types of interbody fusion cages have been developed and are used widely in clinical practice. **Method:** twenty patients with degenerative cervical disc disease treated with Anterior Cervical Interbody Fusion With Cages and bone graft substitute, twelve females (60%) and eight males (40%) and ages of population were 35 to 68 with the mean age 49.2 **Results .** The main Visual Analogue Scaling decreased from 6.9 to 1.4 for arm and neck pain, 18 patients had evidence of radiological union. One patient had no evidence of radiological union. One patient had cage extrusion due to improper cage size. **Conclusion:** Anterior cervical decompression and fusion procedure using stand alone peek cages is established as a safe and efficient procedure in treatment of cervical spondylosis. **Keywords :** Cervical disc , Cervical cages, Anterior cervical discectomy and fusion, Degenerative cervical disc disease.

Abstract no.: 44223

TREATMENT OF TIBIAL FRACTURES BY INTERLOCKING NAIL WITH BLOCKING SCREWS

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Background: Because of its location, the tibia is vulnerable to frequent injuries, Intramedullary nailing of metaphyseal fractures may cause bony deformities as a result of instability after fixation. This has been attributed to muscular forces which displace the fracture and due to poor bone nail contact in the metaphysis and nails with locking screws placed in a single plane. Blocking screws were placed adjacent to the nail in the concave side of the deformity and perpendicular to the interlocking screw holes, Blocking screws were used to correct alignment after insertion of the nail, maintain alignment, improve the stability of the bone implant complex, and control the nail during insertion. Method: This study included 20 tibial fractures (20 patients), 17 patients were males and 3 patients were females. The youngest patient was 22 years old and the oldest was 63 years old with the mean age 35.5 years. Results: The results were satisfactory in 17 cases and unsatisfactory in 3 cases, The mean valgus alignment was 5 degrees in 4 patients only and no angulation in the other cases. Conclusion: Interlocking intramedullary nailing with blocking screws in the treatment of proximal and distal thirds of the tibia, is safe and effective with low rate of complications and allow early weight bearing. Keywords: tibial fractures, interlocking nail , blocking screw.

Abstract no.: 44231

TRANS-SACRAL INTERBODY FIXATION VS. TRANSFORAMINAL LUMBAR INTERBODY FUSION AT THE LUMBOSACRAL JUNCTION FOR LONG FUSIONS TO THE SACROPELVIS IN PRIMARY ADULT SCOLIOSIS

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Introduction: Fusion across the lumbosacral junction poses challenges. No data exists in the literature comparing radiographic or clinical outcomes between the surgical techniques of TSFR & TLIF in conjunction with iliac fixation. Methods: 36 consecutive pts at a single institution with primary adult spinal deformity undergoing long fusions to the lumbosacral junction with 2 different interbody fusion at L5/S1 level were reviewed. Pts were subdivided by approach (TSFR v TLIF). Fusion status at L5-S1 was evaluated by multiple X-rays and/or CT scans. Scoliotic curve changes were also evaluated preoperatively and at final f/u. Clinical outcome were assessed by SRS-22 and ODI. Results: There were 18 TSFR and 18 TLIF. Mean 14.00 levels were fused in the TSFR group and 10.94 in the TLIF group ($P= 0.01$). Both groups demonstrated significant postoperative radiographic improvement in coronal parameters. The fusion rates for TSFR was 100% vs TLIF 88.9% ($P<0.05$). 8 pts in the TSFR group had pelvic fixation with unilateral or bilateral iliac screws vs 15 pts in the TLIF group. ($P=0.015$). HRQOL outcomes were similar for both groups. Conclusion: TSFR and TLIF at L5-S1 for long fusion to the sacrum/Pelvis for adult primary lumbar scoliosis provides similar deformity correction and clinical outcomes. TSFR required fewer iliac screws to augment stability of the lumbosacral junction while achieving a higher rate of fusion.

Abstract no.: 44237

MERSEY (UK) ORTHOPAEDICS TRAINERS PERCEPTIVE ON WORK BASED ASSESSMENTS.

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Background: Work based assessment (WBAs) tools are a main part of orthopaedic training in the UK. We explore the orthopaedic trainer's perceptive on WBAs. Methods: Questionnaires were sent out to all trainers within the Mersey deanery. Results: Responses were received from 38 trainers. Trainers reported prospective WBAs with agreement prior to assessing occurred in 36.8% in comparison to 26.3% being retrospective assessments. Some trainers reported 18.4% of assessments being submitted without discussion. Trainers provide written input on WBA in 63.2%. Regarding why written input is not being provided 45.5% felt that the feedback is not being read and it is a tick box exercise. Trainers can sometimes feel harassed or annoyed with reminders for validation of WBAs (14.3%). Just over half of the trainers (51.4%) agree WBAs are an essential part of an assessment system with 17.1% strongly agrees. The majority of trainers have are neutral regarding how accurately WBAs reflect a trainee's competency for procedures (45.7%) and for operative skills (42.9%). Conclusion: The majority of trainers feel neutral regarding how accurately WBAs reflect a trainee's competency. The trainers do provide written input, however there is a feeling that WBAs can be a tick box exercise. WBAs can be time consuming and trainer's sometimes feel harassed for having reminders to fill in WBAs. Further work needs to be carried out to demonstrate how WBAs can accurately reflect competencies and how we can engage all parties involved to make it a more dynamic learning and assessment process.

Abstract no.: 44239

ELASTIC STABLE INTRAMEDULLARY NAILING OF PEDIATRIC TIBIAL SHAFT FRACTURES

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The main objective of this study was to retrospectively evaluate clinical and radiographic outcomes of pediatric tibial shaft fractures treated by elastic stable intramedullary nailing. A study was performed on eleven children with displaced or opened tibial shaft fractures. An average age was 10.8 (range: 4-16). Seven were accompanied fibular shaft fracture, and four were open fracture. Nine of eleven fractures were caused by high-energy trauma. We made the original evaluation criteria which took into account alignment (varus / valgus / procurvatum / recurvatum / shortening), knee / ankle range of motion and pain. And we classified these fractures outcomes into three stage as Excellent, Good and Poor. All patients underwent regular clinical and radiographic follow-up at least the time remove the implant. All fractures had united, and the mean time to union was 85.5 days (range: 45-144). Three children had a compartment syndrome after operation, and needed fasciotomy. Those three fractures were caused by high-energy trauma. At the time of remove the nail, seven children had an excellent rating and four had a good. Finally, nine of eleven children had an excellent rating. This study showed good clinical and radiologic outcomes in the pediatric tibial shaft fractures treated by elastic stable intramedullary nailing. However, in case a fracture caused by high energy trauma, we have to pay a lot of attention to compartment syndrome after operation.

Abstract no.: 44242

REDUCTION TECHNIQUE FOR VALGUS IMPACTED FEMORAL NECK FRACTURES : A CASE SERIES

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Introduction: Valgus impacted femoral neck fractures present considerable difficulty in achieving anatomical reduction and therefore the management of these fractures remain an area of considerable controversy. Conventionally, in situ fixation without dis-impaction of the fracture fragments has been advocated which sometimes is known to be associated with kinking of lateral epiphyseal vessels , inferiomedial opening of fracture and hence progressing to avascular necrosis of femoral head and fracture nonunion . We therefore describe our technique of achieving anatomic reduction of fracture neck femur without disturbing the vascularity leading to good clinical outcome

Materials & methods: Between January 2013 to December 2015, twenty cases of valgus impacted neck of femur fractures with mean age of 23.4 years were included in the study. An indigenous reduction technique was used wherein the proximal head fragment was manipulated using 3mm Schanz pin as a joystick through mini-open approach to achieve anatomic reduction of the fracture site and fixed with 6.5mm titanium lag screws.

Results:All twenty patients had complete union of their fractures with anatomical alignment. The average time for radiological fracture union was 12 weeks. No patient had any infection or implant related problems and complete pain free ambulation was achieved in 16 weeks. The final average Harris hip score in the patients was 97.

Conclusion: Our technique of Schanz pin mediated technique of reducing valgus impacted femoral neck fracture is easy to use and allows for anatomical reduction of fracture surfaces resulting in excellent functional outcomes

Abstract no.: 44245

TOTAL HIP ARTHROPLASTY: COMPARISON OF LATERAL APPROACH VERSUS DIRECT ANTERIOR APPROACH – A FIRST IN SOUTH EAST ASIA

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Introduction: Total hip arthroplasty (THA) is one of the most successful surgical interventions in all of medicine, allowing for patients suffering from hip osteoarthritis to experience tremendous pain relief, to return to high levels of function, and to experience improved quality of life. Although several approaches to performing the THA exist, one that has gained attention in recent years is the direct anterior approach (DAA). The purpose of the study was to compare the post-operative hip scores and length of stay, return of joint function and patient comfort amongst patients who underwent total hip arthroplasty using the hardinge approach and the direct anterior approach. Methods: Patients who underwent THA performed by a single surgeon in a single center from May 2013 to June 2015. 14 patients underwent DAA and 26 underwent hardinge. We obtained follow-up and charted results using SF-36, oxford hip score, WOMAC (western Ontario & Mcmasters University Arthritis Index). Results & discussion: DAA provides earlier return to joint function (post-operative day zero physiotherapy), shorter length of stay, improved patient comfort and overall improved scores of VAS, WOMAC, oxford hip score, SF-36 in comparison to hardinge approach. This presents an attractive alternative approach to the hardinge or posterior approach that is commonly adopted in south-east asia, yielding superior hip scores and resulting in earlier return to joint function and improved comfort.

Abstract no.: 44247

STUDY OF POST OPERATIVE COGNITIVE DYSFUNCTION IN TOTAL KNEE AND TOTAL HIP REPLACEMENT UNDER REGIONAL ANAESTHESIA IN INDIAN PATIENTS.

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Background: Cognitive dysfunction after major surgical procedures is a cause of concern on account of increased percentage of elderly persons in the demographic data worldwide. Cognitive dysfunction after total joint replacements can lead to considerable decrease in the quality of life to the patient and his caregivers. Our prospective study aims to evaluate the post-operative cognitive dysfunction after total knee replacement and total hip replacement under regional anesthesia in Indian patients aged above 60 years. Material and methods: This was a prospective study conducted at our institution in a group of 600 patients aged above 60 years who underwent total knee and hip replacement with a preoperative Mini mental state examination score (MMSE) greater than 24. All the patients were assessed with MMSE scores preoperatively and postoperatively at day 2, 3 months, 6 months and 1 year. Results: A total of 62 patients developed cognitive dysfunction on day 2 which resolved in 42 patients in subsequent visits. At the end of 1 year follow up, a total of 20 patients continued to have cognitive dysfunction which was mild in 15 patients and severe in 5 patients. Oxygen desaturation, electrolyte imbalance, prolonged hospital stay, cardiopulmonary deterioration were identified as predictive etiological factors in these patients. Conclusion: Cognitive dysfunction after total joint replacement surgery is a definitive complication in the elderly population especially in patients with preoperative risk factors. However, our study shows a significant gradual improvement from day 3 to 1 year follow up.

Abstract no.: 44248

UNIVERSAL NEONATAL FOOT ORTHOTICS: A NOVEL METHOD TO CORRECT FOREFOOT ADDUCTION, PRELIMINARY REPORT

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Forefoot adduction (FFA) is the most common congenital foot deformity. We present our experience with UNFO brace in the treatment of FFA. Methods: UNFO is a novel brace applied easily by the parents to the baby's foot. An adjustable strap is tightened around the apex of the deformity while the heel and head of 1st metatarsus are held firmly in the brace. Fifteen babies (22 feet) were treated with UNFO and followed for at-least 2 months after the end of treatment. Twelve feet were graded as moderate deformity, ten as severe. Average age at the beginning of treatment was 5.5 months. Treatment lasted less than 3 months. In severe cases UNFO was applied when the deformity was diagnosed. In moderate cases UNFO was applied only if the baby was older the 5 months or no major improvement of the deformity occurred during follow-up. UNFO was first applied for 23 hours a day. When complete correction of the deformity was achieved gradual weaning was performed. Follow-up was continued up to the age of two years. Results: Full correction of the deformity was seen in 4-21 days and maintained in all cases after cessation of treatment. Minor side effects were encountered including 2 superficial wounds and 2 skin redness. In all cases skin irritations resolved after 2-3 days and treatment with the brace was continued. Conclusion: UNFO offers excellent treatment with rapid lasting correction of FFA and only minor side-effects.

Abstract no.: 44254

TURF TOE: OUTCOME FOLLOWING SURGICAL TREATMENT.

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ABSTRACT – Background: Turf toe injury was originally described by Bowlers and Martin in 1976 as plantar capsule-ligament sprain of the great toe metatarsophalangeal joint. Although it has been classically described to be commonly seen in athletes, it can occur in non-athletes with injury involving hyperextension and axial loading of first metatarsophalangeal joint. Aim: To assess patient outcomes and complications following surgical treatment of turf toe in a consecutive series of patients. Method: An analysis of consecutive patients undergoing surgical treatment for turf toe by a single foot and ankle surgeon was done. Pre and postoperative MOxFAQ scores were studied to measure the outcome. Study Design: Case series. Level of Evidence: Level 4. Results: Study included 7 patients with turf toe injury. Following surgical treatment, all of the patients showed improvement in outcome score. Average MOxFAQ score improved from 70.31 preoperatively to 23.43 following the repair. None of the patients had any complications or recurrence. Conclusion: Managing of turf toe involves correct diagnosis and careful selection of candidates for surgery. This study demonstrates that good patient outcomes can be obtained with surgical treatment of turf toe.

Abstract no.: 44258

COMPARISON OF POSTOPERATIVE KNEE PAIN FOLLOWING INTRA ARTICULAR EPIDURAL CATHETER TECHNIQUE VERSUS ADDUCTOR CANAL BLOCK IN UNILATERAL TOTAL KNEE ARTHROPLASTY-A RANDOMIZED CONTROLLED TRIAL

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Introduction and Aim:Total knee arthroplasty is associated with intense early post operative pain. Adductor canal block is almost pure sensory blockade which provides pain relief in the immediate post operative period while Intra articular epidural catheter technique in knee joint promotes enhanced recovery after surgery ,Therefore we conducted a randomized controlled trial to compare the efficacy of Adductor canal block versus Intra Articular epidural catheter technique in our hospital.**Materials and Methods:**A prospective randomized controlled trail was conducted between September 2015 and January 2016 in which 150 consecutive patients undergoing primary total knee arthroplasty had either an Adductor canal block (Group 1,n=75) with bolus of 20ml of 0.2%Ropivacaine or intra articular epidural catheter in knee joint (group 2,n = 75) with loading dose of 20ml of 0.2%Ropivacaine and intermittently supplemented with 10ml of 0.2%Ropivacaine every 8th hourly. Anterior knee pain assessed with Visual Analogue Scale (VAS) and scores were collected at 24hours ,48hours and 72 hours post operatively.**Results:**Post operative visual analogue scale scores were analyzed and there were statistically significant differences between two groups. Visual analogue scale scores were significantly better in Intra Articular epidural catheter group at 24,48 and 72 hours when compared to adductor canal block($P=0.03$).**Conclusion:**Intra articular epidural catheter technique has demonstrated excellent analgesic control in the immediate postoperative period for a period of 36-48 hours when compared to adductor canal block provides pain relief for only 6-8 hours post operatively. Thus Intra articular epidural catheter technique promotes early mobilization and discharge following TKA, whilst maintaining patient safety.

Abstract no.: 44259

PATIENT CHARACTERISTICS AND OUTCOMES AFTER FRACTURE NECK OF FEMUR SUSTAINED WHILE INPATIENT IN HOSPITAL

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Introduction A fractured neck of femur is a devastating injury for the elderly. The literature regarding fractures sustained in the community is extensive, but fractures sustained during hospital stay represent a comparatively understudied group. **Methodology** Retrospective review of prospectively collected data of all patients admitted with fracture neck of femur to our institution, using National Hip Fracture Database. For each patient, we matched 2 patients who fell in community with same type of fracture, gender, ASA grade and age and those patients formed a controlled group. **Results** We identified 55 patients. 32 were inpatient in our institution, 23 fell while inpatient in our sister hospital. 5 (9%) patients did not have surgery as they were too frail, others were operated. Average delay from injury to surgery was 34 hours (controlled group = 33 hours). Only 6 % of patients were discharged home in studied group (30% in controlled group). 18% of died during hospital admission and 28% died within 3 months (controlled group - 14 % and 23 % respectively). **Discussion** This is vulnerable group of patients. Despite delay to theatre being similar as in matched group of patients, mortality was higher with more patients being institutionalised after surgery. These patients seem to be more sick and have higher ASA grade than rest of the patients presenting with fracture neck of femur to our institution ($p < 0.05$). We believe this data is important when assessing, managing and counselling patients who suffer a fracture neck of femur during hospital admission.

Abstract no.: 44261

THE EFFECT OF INTRA-ARTICULAR CONTRAST ON BACTERIAL GROWTH

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Introduction: Acute atraumatic hip pain is a common presentation in children and distinguishing transient synovitis from septic arthritis can be clinically challenging. Aspiration of the hip is commonly performed using a radiopaque iodinated contrast agent to confirm needle placement prior to aspiration. Iodine has been shown to have antimicrobial action against bacteria, and a survey confirmed variation in practice due to concerns about the effect contrast may have on culture results. We undertook to determine whether an iodinated radiopaque contrast agent influences laboratory microbiological culture results, increasing the chance of a false negative result following aspiration of a joint when septic arthritis is suspected. Method: Using techniques based on the British Society of Antimicrobial Chemotherapy (BSAC) testing methodologies we assessed the effect Iopamidol (Niopamtm 150) had on bacterial growth in the laboratory. The bacteria tested included both gram positive organisms (Staphylococci sp. and Streptococcal sp.) and a range of gram negative organisms (Inc. Pseudomonas aeruginosa). Areas of bacterial inhibition were assessed at 24 and 48 hours with distilled water used as a control. Results: We found that there were no areas of inhibition on any of the tested organisms at 24 or 48 hours. Discussion: These results show that a 100% concentration of Niopamtm 150 has no effect on the bacterial growth of these common causative organisms of septic arthritis. We therefore conclude that it is unlikely to contribute to false negative microbiology culture results in hip aspirates and recommend its use to confirm needle placement during the procedure.

Abstract no.: 44263

EVALUATION OF THE SURGICAL MANAGEMENT OF PATIENTS WITH MULTIPLE OSTEOCHONDROMAS OF THE FOREARM: A SYSTEMATIC REVIEW.

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Multiple osteochondromas is a disorder of endochondral bone growth that features abnormal bone prominences capped with cartilage. As in other parts of the body, MO of the forearm causes a variety of clinical, functional and cosmetic problems. As there is no consensus on its management, we evaluated the best available evidence on outcome after various surgical treatment regimens in patients with MO of the forearm. MEDLINE and EMBASE were searched for articles published until December 31st 2015 that reported on the outcome of at least ten surgical procedures for multiple osteochondroma of the forearm. We abstracted information on study design, population, surgical treatment, indications for surgery, preoperative and postoperative outcome, and complications. We also assessed the quality of each study. Sixteen retrospective studies evaluating surgical management of forearm deformities in patients with multiple osteochondroma met the inclusion criteria. The studies reported on a wide variety of forearm deformities, surgical procedures and indications for surgery. In general, clinical, radiographic and patient-related outcome measurements improved after surgical management, although different outcome parameters were used. Account should be taken 1.) of partial recurrence, which occurred most often after combined surgical procedures or excision of osteochondroma and 2.) complication rate, which was the highest after ulnar lengthening. In conclusion, this review demonstrates that there are no clear guidelines for the surgical management of forearm deformities in patients with multiple osteochondroma. New well-designed prospective studies are needed to reliably evaluate the long-term results of management in these patients.

Abstract no.: 44268

SALVAGE OF 30 CASES OF INFECTED TOTAL KNEE ARTHROPLASTY WITH ILIZAROV EXTERNAL FIXATOR WITH 5 YEARS FOLLOW UP

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Introduction and Aim: Knee arthrodesis may be the only option of treatment in cases of chronic infected total knee arthroplasty (TKA) with concomitant irreparable extensor mechanism disruption, extensive bone loss. Circular external fixation offers possible progressive adjustment to stimulate the bony fusion and to make corrections in alignment. We evaluated the results of knee arthrodesis with Ilizarov fixator for infected TKA. **Materials and Methods:** All 30 cases of infected TKA treated for knee arthrodesis with Ilizarov external fixator. All the cases were operated after obtaining the written informed consent with prior explanation of the procedure. All cases were opened through previous surgical scar, and excision of sinus and scar margin was done along with a medial parapatellar arthrotomy. The implants were removed. Thorough debridement and wash was done. In one stage procedure the bone edges were freshened with a saw or bone file, and approximation of the bone ends was achieved by primary docking and ilizarov external fixator applied. **Results:** 30 cases of femoro-tibial fusion were retrospectively evaluated. Number of preoperative arthrodesis surgeries were 3.5. Comorbidities like Diabetes was present in 14 patients (46%). Two people were died and one patient had early implant removal due to noncompliance. One transfemoral amputation and another pseudoarthrosis noted. Male-to-female ratio was 11:19. Mean age of the patients was 62.3 years. Staph aureus was grown in 13 patients (43.3%) out of which 4 were MRSA, 4 Klebsiella, 4 Pseudomonas, 3 Gonocci, 3 other organisms and no growth in 3 cases. Union was achieved in 25 patients (92.5%). The duration for union in these patients was 4 to 13 months with average of 8.4 months.

Abstract no.: 44269

**DOES IT MAKE DIFFERENCE IN WHICH HOSPITAL YOU FALL??
COMPARISON OF OUTCOME OF NECK OF FEMUR FRACTURE
TREATMENT DEPENDING IF HOSPITAL PROVIDES TRAUMA
SERVICES.**

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Background: Fracture neck of femur is a devastating injury for the elderly. We wanted to evaluate the difference in the outcome when fracture was sustained in the hospital, depending if the hospital provide trauma surgery services. Methods: Retrospective review of prospectively collected data of all patients who suffered a fall when inpatient in hospital and had treatment in our institution. Results: We identified 55 patients. 32 were inpatient in our institution (group A), remaining 23 fell while inpatient in our sister hospital that does not provide trauma services (group B). The mean ASA grade was similar in both groups (3.27 vs 3.22) as was age and type of fracture. Patients in group A waited on average 28 hours for their surgery, and 12% of them had surgery more than 36 hours after diagnosis was made, whereas patients in group B waited 44 hours on average for surgery with 62% of them waiting longer than 36 hours .The difference was statistically significant. The mortality was 23% of those falling in trauma centre and 16 % of those falling in other institution. This was not statistically significant. Conclusion(s): Despite longer delay to surgery for patients who had to be transfer from initial to hospital where they can receive surgery, the mortality was similar between the groups. Also, the discharge destination was similar amongst both groups. We believe that most important factor in management of this self-selected, frail group of patient is standardised and prompt surgical and medical management, not timing to surgery.

Abstract no.: 44270

BILATERAL CHRONIC NON-TRAUMATIC DISLOCATION OF KNEE TREATED BY TOTAL KNEE REPLACEMENT – A CASE REPORT.

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Introduction: Complete knee dislocation is a rare and severe injury and usually follows high-energy trauma. Non-traumatic knee dislocations is exceedingly rare. We are presenting here a case of bilateral chronic non traumatic spontaneous knee dislocation in a patient and how it is successfully managed. Bilateral non traumatic knee dislocation has never been reported in the literature before. **Material:** A 68-year-old woman was brought to our hospital with history of not able to walk for few months. She could not stand without support. The clinical examination showed a multidirectional instability of both knees with a grossly restricted range of flexion and extension. She is not obese. She denied any history of injury. Sensation of both lower limbs were normal. She was not suffering from any chronic illness including diabetes mellitus. The performed radiological examination revealed an anterior dislocation of both knees. **Discussion:** Because of its rarity and never been reported in the literature, managing this patient was difficult. This dislocation is due to chronic attritional rupture of both cruciate ligament due to osteoarthritis. Considering the age and etiology, we decided to manage this patient with total knee arthroplasty in a staged manner. We were able to manage the knee replacement without any constrained prosthesis. Post-operatively, the knee was completely stable and regained almost full range of motion. The patient was able to walk pain-free and comfortably. This is the first time that a case of chronic bilateral knee dislocation treated with arthroplasty has been reported in the literature.

Abstract no.: 44274

**SPORT AND ACTIVITIES LEVELS IN TOTAL ANKLE REPLACEMENT:
MOBILE- AND FIX-BEARING**

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Background: The number of total ankle replacement (TAR) being performed is rapidly increasing, especially in young subjects. Patients often request TAR not only for pain relief but also to participate in physical activities. This study aimed to assess and compare participation in sports and physical activities 12 months after TAR with either mobile-bearing and fix-bearing prosthesis. Methods: Between May 2011 and January 2015, 117 primary TARs were performed (77 Hintegra, 40 Zimmer Trabecular Metal Total Ankle). Pain and function were assessed using AOFAS, VAS, SF-12 scores obtained preoperatively, at 6 and 12 months postoperatively. Activity levels were determined using the Halasi ankle activity scale and the UCLA score obtained preoperatively and 12 months after surgery. Radiographic examination included plain radiographs with full weight-bearing taken preoperatively and 12 months postoperatively. Results: All patients had a significant improvement of AOFAS, VAS and SF-12 scores. The Halasi activity scale and UCLA score were 4,2 and 6,6 respectively for fix-bearing group and 3,7 and 6,3 for mobile-bearing 12 months after surgery. Conclusion: In our series running, dancing and skiing represented the three most frequent sports. In fix-bearing group 60% of patients practiced sport and 49,4% in mobile bearing group one year after surgery. This could be helpful for surgeons during the decision-making concerning the design of prosthesis to be implanted in high demanding subjects and the kind of sport to be suggested.

Abstract no.: 44276

**INTRA-ARTICULAR ANALGESICS FOLLOWING KNEE ARTHROSCOPY:
COMPARISON OF DEXAMETHASONE, DEXMEDETOMIDINE AND
ROPIVACAINE- A PROSPECTIVE MULTICENTER DOUBLE-BLIND
STUDY**

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Introduction: Adequate pain relief after knee arthroscopy reduces surgical stress response and patient's morbidity and it improves postoperative recovery and rehabilitation. The effect of high dose dexamethasone was evaluated in knee arthroscopy. It was hypothesized that a longer post-operative analgesia could be achieved, provided that high dose dexamethasone was safe and free from any side effects. **Methods-** Prospective multicenter double blind study of 60 patients undergoing arthroscopic knee surgery from May'15- Dec'15, randomly assigned into 3 groups- Group I (20 ml of 0.2% ropivacaine), Group II (dexamedtomidine- 1ug/kg wt diluted with 0.2% ropivacaine to 20 ml) and Group III (Dexamethasone (300ug/kg) diluted with 0.2% ropivacaine to 20 ml.). Analgesic effect (VAS Score), time to first postoperative analgesic request, analgesic used during first 24 hours were evaluated. Clinical incidences of nausea, vomiting, bradycardia, hypotension or other side-effects requiring intervention was observed in all the groups. **Results-** Group III had significant low pain scores for first 20hours as compared to Group II and Group I. Time to first analgesic requirement were longest in Group III (1356.2±193.10mins)(p<0.01). Intensity of pain and total analgesic requirement was significantly less in Group III (38.2±27.83 mg)(p<0.01) in comparison to Group II and I. No significant side-effects were noted. **Conclusion-** A300ug/kg dosage of Dexamethasone is safe, cost effective and free from relative side effects, has a better patient compliance in terms of post-operative pain, need for analgesia and it could be used routinely in arthroscopic knee surgeries.

Abstract no.: 44277

RELEVANCE OF GENDER KNEE - MORPHOMETRIC ANALYSIS OF MALE AND FEMALE KNEE IN INDIAN POPULATION

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Total knee replacement is one of the most rewarding procedure . Recent ly gender knee has been introduced especially for women . Difference in anterior condylar anatomy is the reason given for designing gender knee. We studied the dimensions of men and women knee on the basis of MRI pictures. This is the first MRI based study done in India. Materials and Methods: 207 magnetic resonance images (105 of men and 102 of women) that had been randomly collected from MRI centers were evaluated. The medial and lateral heights, in millimeters, of the anterior condyle were then measured directly from the axial magnetic resonance imaging data. Additionally, the mediolateral dimension (width) between the epicondyles and anteroposterior (AP) dimension of medial and lateral condyles were measured at this level . The aspect ratio between these measurements was calculated by dividing AP dimension by the ML dimension. Results: Condylar Height On the basis of the numbers available, there was no significant difference between the sexes with regard to lateral condylar height. The average difference was only .8mm . The average difference of medial condylar height was only 0.3 mm. Aspect Ratio There was no significant difference between men and women with regard to the aspect ratio. The average aspect ratio was 0.78 for men compared with 0.80 for women . Conclusion: There is no significant difference exists in the anatomy between the two sexes. Our study doesnot support that women need separate prosthesis for total knee replacement.

Abstract no.: 44279

THE USE OF AN EXTERNAL HIP DISTRACTOR IN PERFORMING HIP ARTHROSCOPY FOR THE TREATMENT OF FEMORO-ACETABULAR IMPINGEMENT.

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Introduction: Hip arthroscopy has become a gold standard in the treatment of early stages of femoro-acetabular impingement (FAI) in order to prevent early osteoarthritis. Complications rates between 0 and 13% have been described. Most of these complications are traction-related due to the use of the traction table, thus limiting the procedure in a timely manner. Therefore we hypothesized that the use of an external distraction device might prevent traction injuries and might allow to perform the entire procedure. Material and methods: We performed a retrospective review of 56 hip (54 patients) treated arthroscopically for FAI with the use of an external hip distractor. Results: Adequate hip distraction was obtained in all cases. Overall mean surgical time was 223 minutes. In all cases the entire procedure could be performed. Overall mean complication rate was 10.7%. Only 1 major complication occurred: a hip subluxation. We didn't encounter any traction-related injuries. Discussion: Traction-related injuries account for almost 60% of complications and are related to the intervention time. These complications are seen in the early phases of the surgeon's learning curve. In up to 5% of cases the procedure couldn't be performed due to insufficient access to the joint or limited time on the traction table. Conclusion: An external hip distractor is a safe and helpful alternative in order to prevent traction-related injuries during the learning curve of the surgeon and to be able to perform the entire planned procedure with sufficient hip distraction and without time limits as seen on traction table.

Abstract no.: 44280

TREATMENT OF ARTICULAR FRACTURES OF THE PHALANGES IN THE CONTEXT OF A DYNAMIC EXTERNAL FIXATOR. ABOUT 10 CASES

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Introduction: Fractures of the phalanges are often neglected lesions and mistakenly considered minimal, however, if they are not supported or that treatment is neglected, they can leave significant functional sequelae. Fractures involving the first and second interphalangeal joint, represent about 9% of fractures of the hand. Material and methods: Our prospective study provides a homogeneous series of 10 patients with unstable articular fractures interesting inter proximal and distal phalangeal joint (10 men) whose average age is 32years. These 04 cases of fracture of the head of the first phalanx and 06 cases fracture of the base of the second phalanx. All patients benefited from surgery under loco regional anesthesia as an outpatient by dynamic external fixator in distraction (Suzuki) Results: The patient mobilizes his hand in the immediate postoperative. Rehabilitation: a few days after surgery. Removal equipment: 6 weeks on average. Mean follow-up duration of 06 months (range 02 -10 months). The level of pain on average is 2.8 with a range of 1 to 6. Grip strength reaches 75% of the contralateral hand. DASH on average 20.70% of 15 to 45%. The mean time to recovery of the professional activity was 08 weeks (6 to 12 weeks). Consolidation was achieved in all cases . It is noted 02 cases of superficial sepsis.

Abstract no.: 44281

BICHEMICAL MARKERS IN POLYTRAUMA PATIENTS WITH UNSTABLE PELVIC FRACTURES

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Polytrauma represents an association of multiple injuries able to induce a systemic response and resulting in a life-threatening condition. Regardless the different approaches and definitions, the severity of this association, determined by a specific pathophysiology, requires special therapeutic protocols, adapted to the status of the patient. One of the most challenging situations for the trauma specialists is represented by polytrauma with unstable pelvic fractures- the stabilization of these fractures is considered a resuscitative measure, but this must be done avoiding the “ second hit” phenomenon. These can be achieved by adapting the treatment to the patient’s systemic response to aggression, which has to be evaluated by objective means. The authors perform a retrospective study on 32 polytrauma patients with unstable pelvic fractures, treated in a Level 1 Trauma Centre (Clinical University Hospital Bucharest), in order to analyze the possibility to use biochemical markers: ESR, C Reactive Protein, IL-1, IL-6, for assessing the status and guide the treatment. From the inflammatory markers, both conventional ESR and CRP proved to reflect the response to trauma, but the most sensitive reaction is that of IL-1 and IL-6 especially, which were found to have more distinctive curves of variance depending on the pathological mechanisms triggered both by trauma and by the treatment. Both IL-1 and IL-6 showed aspects which can be considered as predictive curves for either MSOF or favorable outcome, thus giving useful information regarding the extent of the surgical treatment the patient can withstand , thus preventing the “ second hit” phenomenon.

Abstract no.: 44283

DISTAL FEMORAL SHORTENING OSTEOTOMY CONCOMITANT WITH ACETABULAR REVISION OF THA.A CASE REPORT

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Distal femoral shortening osteotomy is a procedure employed in selected cases of total hip arthroplasty(THA) in high riding developmental displasia of hip(DDH).Here we report an unique use of it in the acetabular revision of THA done in Crowe 4 hip.The patient was 62 years old man who undergone right THA operation for coxartrosis seconder to high riding DDH at another institution 5 years ago.The acetabular shell had been placed into high false acetabulum.He had symptoms of acetabular loosening for two years,on x-ray failure of proximal part of the artroplasty was obvious.At the operation we placed new acetabular shell into true acetabulum to restore normal hip biomechanics.Distal part of the artroplasty was in good situation,i.e. femoral stem was well fixed.So we performed distal(diaphyseometaphyseal) femoral shortening osteotomy to reduce the femoral head into new shell,instead of extracting well fixed stem and making subtrochanteric shortening osteotomy and inserting a revision stem.We fixed the osteotomy with a plate.Post operative period was uneventful.Patient started full weight-bearing at 8 weeks.In this kind of rare revisions distal femoral shortening osteotomy,instead of exchanging well-fixed femoral stem prevents lots of complication related to time consuming complex operations

Abstract no.: 44287

PROGNOSIS OF RECTUS FEMORIS STRAIN DEPENDS ON ITS INJURY LOCATION.

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We sometimes experience the recurrence of rectus femoris strain and extra healing time is needed until full recovery. We carried out research on thirty patients with acute rectus femoris strain, regarding the relations between the location of rectus femoris muscle strain and recovery period in sports. Rectus femoris has central aponeurosis. It spreads throughout the middle third of rectus femoris muscle. We categorized rectus femoris muscle strain, using sonography, into three types as following: central aponeurosis type, in which case the injury is located around the aponeurosis, lateral type, the injury is located on the lateral side of central aponeurosis and the medial type, the injury is located on the medial side of central aponeurosis. We compared the recovery period of each type. As a result, the prognosis for lateral type is longer than for the other two types. Some cases of the lateral type had recurrence. I will show the lateral type case. In terms of structure, lateral muscle fiber runs straight and has penetration structure at both sides of myofascial junction. So lateral muscle fiber can contract strongly. We think this is the reason why the lateral type of rectus femoris muscle strain is easy to recur. This study suggests that the initial sonographic assessment is very important, because recovery time depends on the type of the injury. If the type is lateral, we must treat it with more attention and can prevent them from recurrence.

Abstract no.: 44288

SEGMENTAL BONE INFECTIONS- THERAPEUTICAL PROBLEMS

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Bone infections require complex treatment, starting with complete debridement and sequestrectomy; consequently, a bone defect results, thus necessitating complex procedures in order to graft it. This paper analyses types of surgery required to heal a bone infection in order to establish a potential algorithm for treating these complications. Authors retrospectively analyze 14 patients with segmental bone infections operated between 01.01.2009-01.06.2014 , regarding: age, gender, type of fracture - closed or open, initial treatment, microbiology, type of injuries time from trauma to surgical treatment, number and type of surgical procedures, mean time of hospitalization, local and systemic complications. Mean age was 34 yrs. (14- 62 yrs.); high energy trauma were responsible for the fracture in 10 cases.; there were 8 open fractures ,1 case type I, 1 type II, 1 type III A, 4 cases III B, 1 case IIIC, The medium value of the number of surgical procedures was 5, and bone defects were 6-20 cm long. External fixation was used in all the cases; Local procedures (peroneum pro tibia) was used in 2 cases vascularised peroneal graft for 10 patients and bone grafting and bone substitutes for the rest. In all the cases, the alternative in case of failure would have been amputation. Treating segmental bone infections requires complex surgical procedures, as well as a multidisciplinary team, able to solve the multi-structural injuries generated by the infection.

Abstract no.: 44289

CORRELATION OF CLINICAL EXAMINATION, MRI AND ARTHROSCOPY FINDINGS IN MENISCO-CRUCIATE INJURIES OF THE KNEE: A PROSPECTIVE DIAGNOSTIC STUDY

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Introduction: To correlate the clinical examination, MRI and arthroscopic findings in Cruciate ligaments and Meniscal injuries of knee and to evaluate the accuracy of clinical examination and MRI with the gold standard arthroscopy. Material and methods: A Prospective diagnostic double-blind study of 104 consecutive patients presenting to Outdoor/ casualty with trauma to the knee complaining of knee pain/locking/ instability, from August'13 to June'15. All the patients were subjected to clinical examination, MRI scanning and diagnostic arthroscopy. Variables like sensitivity, specificity, Positive predictive value, Negative predictive value and accuracy of clinical examination and MRI against arthroscopy were evaluated. Results: The sensitivity, specificity and accuracy of clinical examination for ACL tears was 94.7%, 71.4% and 88.5% and of MRI was 94.7%, 78.6% and 90.4% respectively ; for PCL tears 100%, 100% and 100% for clinical examination and for MRI 80%, 97.9% and 96.2% respectively. These values for medial meniscus tears were 76.5 %, 68.6% and 71.2% for clinical examination and 88.2%, 62.8% and 71.2% respectively for MRI. For lateral meniscus tears, 40%, 94.6% and 78.8% for clinical examination and 46.7%, 89.2% and 76.9% respectively for MRI. Conclusion: A skillfully performed clinical examination establishes a diagnosis on which an arthroscopic procedure can be planned, reserving MRI scans for patients where the clinical examination fails to establish a diagnosis or cannot be performed. Decision to use MRI should be based on the criteria that it would confirm, expand the diagnosis or change diagnosis in such a way that alters the proposed treatment.

Abstract no.: 44290

A ROTATING HINGED KNEE PROSTHESIS FOR REVISION SURGERY AND PRIMARY CASES; 14 YEARS OF EXPERIENCE AND FORGOTTEN JOINT SCORE

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The reasons for revision surgery in total knee arthroplasty (TKA) differ. In some primary cases of instability or bone deficiencies, there is an indication for a hinged prosthesis as well. We used a hinged knee prosthesis for revision and in primaries since 2001. The evaluation is clinical (Forgotten Joint Score, FJS) and radiological. Two prostheses have been used: the RT-Plus Solution and from 2008 also the RT-Plus Modular (Smith & Nephew Orthopaedics, CH). From January 2001 to July 2015, 2904 primary prostheses were implanted. Less than 10 percent was unicompartimental. The revision rate was 3.1% (91 revisions from our own cohort and 10 cases from elsewhere). In 35 revisions (8 males, 27 females) with the RT-Plus, the modular version was implanted 12 times. Mean age was 73.7 years (54-87 years); mean time to revision was 72.5 months (2-312); 3 patients died in follow-up. Mean FJS was 55 (48-85). Complications were a patella dislocation and 2 fractures. The other 66 revisions were partial revisions of an insert, tibial component or an uni. In 30 primaries in 24 patients (12 males, 12 females), the modular prosthesis was used 11 times. Mean age was 71.8 years (50-84); 4 patients died in follow-up. Mean FJS was 81.5 (61-98). Complications were 2 fractures and 2 late infections. This rotating hinged knee prosthesis gives reliable results, with a high level of mobility and good pain reduction in difficult cases of primary and revision surgery. The complication rate seems acceptable for this kind of demanding surgery.

Abstract no.: 44291

SURGICAL OUTCOME OF THE SELECTIVE POSTERIOR SPINAL FUSIONS FOR OSSIFICATION OF POSTERIOR LONGITUDINAL LIGAMENT IN THE CERVICAL SPINE.

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Introduction: It is widely known that laminoplasty (LP) and anterior cervical fusions have been carried out for the patients with ossification of posterior longitudinal ligament (OPLL) in cervical spine. But postoperative kyphosis and development of the ossification at the segmental lesion after surgery sometimes cause aggravation and revival of the symptoms. Recently, several authors reported good results of the posterior cervical spinal fusion (PSF) for patients with OPLL . Purpose: The purpose of this study was to assess surgical outcomes of the selective spinal fusions for OPLL in the cervical spine. Method: Twenty seven patients with OPLL (mean age 68 years) who underwent surgical treatment with LP (17 patients) or PSF (18 patients) were included in this study. Radiological change of the alignment in C2/C7, range of motion and postoperative improvement rate of JOA score were assessed. Result: The mean change of alignment at last follow-up period were $2.8\pm 6.5^{\circ}$ (LP) and $1.6\pm 6.9^{\circ}$ (PSF) . Cervical range of motion were $8.6\pm 9.6^{\circ}$ (LP)、 $9.9\pm 7.6^{\circ}$ (PSF) . Recovery rate of JOA score were $55.7\pm 32.2\%$ (LP)、 $42.3\pm 25.4\%$ (PSF) . There were no significant difference of the clinical results between LP and segmental PSF for the patients with OPLL in cervical spine. Conclusion: We predict that mobility of the cervical spine at boundary of ossification was related to development of ossification. It was desirable to preserve as much as possible mobility in cervical spine, but segmental fixation in cervical spine may exacerbate alignment and decrease mobility. The PSF did not affect the postoperative results. It is necessary to observe long-term progress.

Abstract no.: 44292

IS BILATERAL SIMULTANEOUS TOTAL KNEE ARTHROPLASTY AS SAFE AS STAGED OR UNILATERAL PROCEDURE?

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Background: bilateral total knee arthroplasty as a simultaneous procedure is a subject of controversy and debated for many years. Simultaneous procedure has the definitive advantage of decreased anesthetic exposure to the patients, shorter hospital stay, shorter rehabilitation and physical therapy, convenient to family members and even cost effective. However this procedure threatens the major complications like pulmonary embolism and cardiac problems. So our study aims to establish that whether simultaneous procedure is as safe as stage or unilateral procedures. Methods: we reviewed 50 patients (100 knees) performed simultaneous bilateral total knee arthroplasty (SBTKA) from 2011 to 2015 under single anesthetic exposure. All the patients were reviewed extensively before surgery with notification of associated comorbidities, demographic profiles, blood loss during surgery, functional improvement of knee joints and major peri and postoperative complications. Results: the average age of patients in our study was 69.36 ± 5.49 year with 40% male and 60% female. Eighty percent of cases were ASA grade I and II with 24% of patients having hypertension, 20% diabetes mellitus, 16% COPD and 8% coronary artery disease. Average pre-operative hemoglobin was 13.47 ± 0.88 gm/dl, average post-operative hemoglobin was 9.82 ± 0.54 gm/dl, mean blood loss in both knees was 1239.6 ± 198.08 ml, average hospital stay was 8.72 ± 1.59 days. Knee Society Score (KSS) was improved from 37 ± 3.48 to 81.04 ± 3.58 within one year and there were no major pulmonary, neurological and cardiac complications noted. Conclusion: SBTKA seems safe, effective, less expensive and with no added major pulmonary and cardiac complications in properly selected patients.

Abstract no.: 44294

SURGICAL TREATMENT OF LOWER CERVICAL FRACTURE-DISLOCATIONS WITH SPINAL CORD INJURIES BY ANTERIOR APPROACH FIVE-TO 15-YEARS FOLLOW-UP

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Purpose Up to present, there is no consensus on treatment denominator for lower cervical fracture-dislocations. Anterior approach surgery with directly decompression and reduction has been widely accepted. However, large sample size, long-term follow-up study to assess the clinical efficacy of anterior approach is rarely seen in the literature. Methods From January 2000 to January 2010, 312 patients with lower cervical spine fracture-dislocations with spinal cord injuries treated by anterior approach were retrospectively analyzed. 218 cases (70%) were data integrity and obtained follow-up. All cases underwent skull traction for cervical immobilization and avoiding the secondary spinal cord injury, then anterior discectomy and reduction were performed. If the reduction failed, corpectomy was performed for further reduction. Results The follow-up time was 8.3 years in average, range from 5 to 15 years. Complete reduction was got in 178 cases (81.7%), and 40 cases (18.3%) obtained more than 90% reduction. The postoperative radiologic indexes of all patients were higher than the preoperative ones ($P < 0.05$), but there was no statistical difference between post-operation and the final follow-up ($P > 0.05$). The cervical spine normal intervertebral height and physiological curvature were maintained, and there were no plates or screws associated complications observed. 163 cases (74.8%) presented with neurological functional recovery, and the remaining 55 patients (25.2%) had no significant changes of neurological function. Conclusions For lower cervical fracture-dislocations with spinal cord injuries, satisfied clinical outcomes can be obtained by choosing anterior surgery approach. By restoring the normal structure of cervical spine and promoting neurological functional recovery, anterior approach achieved good long-term curative effect.

Abstract no.: 44295

RESULTS FROM THE SURGICAL RESECTION OF SEVERE HETEROTOPIC OSSIFICATION OF THE HIP. A CASE SERIES OF 26 PATIENTS.

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Introduction: Surgical resection of heterotopic ossification (HO) around the hip joint is often challenging. The aim of our study was to evaluate clinical and radiological outcomes following surgical resection of Brooker's type III & IV HO of the hip. Methods: We retrospectively reviewed clinical and radiological data, between November 2006 and January 2013, of all patients who underwent surgical resection of severe HO of the hip. The combined radiation (700cGy preoperatively) and indomethacin regimen was used to prevent heterotopic ossification recurrence. Results: Twenty six patients (22 males and 4 females) were included in our study. Mean patient age was 47.38 years (range 24 – 72). The HO was graded as Brooker grade III in 3 patients (11.5%) and Brooker grade IV in 23 patients (88.5%). Mean time interval between HO development and resection was 40.8 months (range 13 – 156 months). Mean follow-up was 21.4 months (range 11 – 30 months). There was no severe HO recurrence. Complications included one intraoperative injury of a femoral artery branch, one intraoperative femoral neck fracture treated with intramedullary nailing, one sciatic nerve injury and one superficial infection treated conservatively. Conclusions: Surgical resection of severe HO of the hip along with preoperative radiation and indomethacin provides excellent results, however the complication rate is relatively high. Careful evaluation of the preoperative CT scan provides valuable information and wide exposure is required to identify all neurovascular structures that may be involved.

Abstract no.: 44296

**HYALINIZATION OF INTEROSSEOUS MEMBRANE OF FOREARM : A
CASE REPORT**

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Introduction: The interosseous membrane of the forearm serves as the attachment site for various muscles of the forearm & transfer forces from radius to ulna. Hyalinization of this membrane can grossly affect the mobility of the forearm and also result in pain & deformity. This is a very rare entity and has not been previously described in literature. The correct diagnosis and further management can result in amelioration of the presenting symptoms. Case report: A 25-year-old female housewife came with chief complaint of pain and restriction of movement of the Lt forearm and wrist since 9 years and tingling numbness over little fingers since 9 years. On examination there was swelling of 3x3x2cm over interosseous membrane in distal fourth ulna, a correctable deformity of 10 degrees at PIP joint of little finger & restriction of supination. Investigation: USG Showed hypoechoic mass over interossei and periosteal reaction over distal fourth ulnar cortices. MRI confirmed the sonography finding. Histopathological picture revealed long fascicles of densely hyalinised fibroblastic cells with variable vascular proliferation, confirming the diagnosis of hyalinization of the interosseous membrane. Surgical excision of the mass and Darrach's resection of distal ulna was done to regain supination and to reduce the impinging on flexor carpi ulnaris. This led to correction of deformity, improvement of movements & neurological complaints. There was no recurrence in the follow period of 15 months. Conclusion: Hyalinization of the interosseous membrane of the forearm is a rare entity which we came across and treated successfully with excellent functional outcome

Abstract no.: 44297

TREATMENT IN INFECTED FRACTURES: MULTIPLE SURGERY, MULTIDISCIPLINARY TEAM

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Surgical treatment in open fractures is crucial as limited bone penetrability by antibiotics and biofilm considerably limit the efficacy of general therapy. Since infection produces bone necrosis, bone resection followed by reconstruction is mandatory for aseptic healing. The purpose of this study is to evaluate the amount of work required by treatment in bone infections. Authors retrospectively analyze 32 patients with infected fractures of the limbs operated in our hospital between 01.01.2010-01.06.2015; the criteria used for this analyze were: age, gender, pathology, type of injury, number of surgical procedures, number and type of anesthesia, mean time of hospitalization, local and systemic complications, multidisciplinary cooperation. Mean age was 42 yrs. (14- 62 yrs.); high energy trauma were responsible for the fracture in 16 cases; 6 patients were polytrauma, 9 of them had diabetes;the fractures were open in 15 cases: there were 2 cases type I, 2 cases type II, 11 cases type III, compartment syndrome complicated the initial injury in 5 cases The type of stabilization was internal in 16 cases; the medium value of the number of surgical procedures was 6, including lavages under general anesthesia (1-110 interventions).Multidisciplinary teams were needed in all cases. The mean period of hospitalization was 6.6 weeks (2 weeks-12.3 weeks). Infected fractures require complex treatment, meaning multiple steps surgery, interdisciplinary trained team with a flexible attitude and prolonged hospitalization. Due to all these characteristics, and despite the progress of modern medicine, infected fractures still remain a challenging problem for trauma specialists

Abstract no.: 44299

IS DISTAL LOCKING NECESSARY IN STABLE INTERTROCHANTERIC FRACTURES? A RANDOMIZED, PROSPECTIVE, COMPARATIVE STUDY.

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INTRODUCTION: Intramedullary nailing is commonly used in the treatment of intertrochanteric fractures. Wide disagreement still remains on the necessity of the distal locking screw in stable fractures. **METHOD:** We enrolled 150 patients over the age of 65 with intertrochanteric fractures (AO/OTA 31-A1 and A2). Patients were randomly divided into two groups for intramedullary nail treatment either with or without distal locking. Intra-operative variables such as the operation time, volume of blood loss, total fluoroscopy time, total length of incision were examined. Post-operative complications, costs of the implant and clinical outcomes were also recorded and compared between the two groups. **RESULTS:** A total of 75 patients in the locking group and 74 in the unlocking group completed one year of follow up. In the unlocking group the operation time (32.5 ± 6.6 min), blood loss (160.5 ± 50.6 ml), fluoroscopy time (49.4 ± 4.6 s), total length of incision (11.7 ± 2.8 cm) were significantly decreased compared to the locking group (41.3 ± 8.0 min, 180.7 ± 48.8 ml, 55.6 ± 8.1 s, 13.7 ± 3.2 cm) ($p < 0.05$). We found an overall high tight pain rate in the locking group, yet no statistically significant differences between the two samples as regards complication rates and fracture unions. Implant costs were significantly higher in the locking group ($p < 0.05$). **CONCLUSIONS:** Our results suggest that intramedullary nails can be successfully implanted without distal locking in intertrochanteric stable femur fractures. Distal unlocked nails showed concrete advantages in reducing blood loss, operation time, fluoroscopy exposure time, size of the incision and implant costs.

Abstract no.: 44300

MOBILITY, MORBIDITY AND MORTALITY IN NONAGENARIANS WITH HIP FRACTURES TREATED CONSERVATIVELY AND SURGICALLY.

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Aims: Firstly, to analyze and compare the mobility, morbidity and mortality in nonagenarians with hip fractures treated both conservatively as well as surgically. Secondly, to perform a comprehensive literature search, collating, summing and comparing results. **Methods:** Sixty-five nonagenarians were identified over a three-year period using our hospital hip fracture database and studied. Follow up ranged from between one and five years from time of admission. We reviewed various parameters of all patients aged between 90 and 99 years admitted after sustaining a neck of femur or intertrochanteric fracture. This information was readily accessible from the digitalised patient information systems. **Results:** Treatment consisted of either conservative management (23 patients) or surgery (42 patients). Sixty-three patients were ambulant pre-morbidly based on the New Mobility Score but only 31 remained ambulant. Significantly more conservatively managed patients were found to have deterioration in their pre-morbid ambulatory status compared to surgically managed patients. The overall incidence of morbidities during hospital admission was 42% (43.5% in conservative group, 40.5% in surgical group). One-year mortality was 15.4% (30.4% in conservative group, 7.1% in surgical group) and 43.1% at time of final review (34.8% in conservative group, 47.6% in surgical group). Death was not significantly affected by ASA or treatment modality. **Conclusions:** Surgery significantly increased the chance of regaining pre-morbid mobility. Therefore, surgery (specifically bipolar hemiarthroplasty for neck of femur fractures) should be advocated in nonagenarians with hip fractures with our study also showing a low one-year mortality rate.

Abstract no.: 44302

MINIMALLY INVASIVE PLATE OSTEOSYNTHESIS OF MIDSHAFT CLAVICULAR FRACTURES WITH SUPERIOR ANTERIOR CLAVICLE PLATE.

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Introduction: The clavicle is a membranous bone. The main arterial supply to the clavicle is primarily periosteal. Recent studies have shown a high prevalence of symptomatic malunion and nonunion after nonoperative treatment of midshaft clavicular fractures. Thus, operatively treated cases have increased. However, some complications have been described. These complications may partly be caused by extensive periosteal stripping of the fracture site. This study aims to assess the outcomes of midshaft clavicular fractures treated by our minimally invasive plate osteosynthesis technique(MIPO). Method: Under general anaesthesia, the patients was placed in a beach chair position. The C-arm was placed to take anteroposterior, caudocranial, and craniocaudal views of the clavicle. A small longitudinal incision was made the distal end or proximal end of the clavicle. Fracture reduction was performed indirectly. Superior anterior plate was inserted, then incision was made the other side. The plate was temporarily positioned against the clavicle and stabilized with a Kirschner wire on each side of the fracture. C-arm imaging in three positions was used to check fracture reduction. Fracture fixation was performed using the appropriate number of cortical screws and locking head screws. Between January 2012 and March 2014, fourteen patients were treated with MIPO technique. The average age was 47.5 years (range, 16-79years). Outcomes and complications of clinical treatment were reviewed. Results: There were no nonunions, but one man of 79-year-old was delayed union. There were no deep infections. Seven plates were removed by their hopes. There were no cases that required new incisions.

Abstract no.: 44303

FUNCTIONAL OUTCOME AFTER PLATING PROXIMAL HUMERAL FRACTURES

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The purpose of this study is to evaluate the results after open reduction and internal fixation of proximal humeral fractures (PHF). The authors performed a retrospective study evaluating 46 patients operated between 1.01.2009-1.06.2015 for closed displaced mean age: 44 years (20-66), with a 24 months follow-up. According to Neer's classification, 14 had two-part fractures, 24 had three-part and 8 had four-part fractures. All these fractures were operated using open reduction and internal fixation with plates (standard plates – 12 patients, locked plates - 34 cases). Evaluation, using Neer criteria, showed excellent results in 34 patients, satisfactory results in 7 cases and unsatisfactory results in 5 cases (these with four-part fractures). The results were significantly better when analyzing the patients had two or three part fractures. Mean time to union was 18 weeks (16-26weeks) Septic complications appeared in 2 cases. Open reduction and internal fixation is a method with very good results in proximal humeral fractures with two or three part fractures. In fractures with four fragments, results after surgical reconstruction of the proximal humerus are inconstant and shoulder arthroplasty is to be discussed as a valuable alternative.

Abstract no.: 44305

HOMOLATERAL MONTEGGIA AND GALLEAZZI FRACTURES: A CASE REPORT

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Introduction : The association of homolateral Monteggia and Galeazzi fractures is very rare in trauma. The authors report a case in a 52 year old male traffic accident victim. Methods : A 52 year old man was admitted to emergency department after a traffic accident. The examination found a Monteggia fracture associated with a homolateral Galeazzi involving a radial head fracture – dislocation. The patient was operated with reduction and fixation of the ulna fracture, resection of the comminuted fractured radial head. Inferior radioulnar instability was treated by blocking the joint with a screw for three weeks. Results : The evolution is good. The elbow and wrist are stable. The patient has recovered good mobility of the elbow and wrist. Discussion : A precise diagnosis and appropriate therapeutic management is required for this rare association in trauma. It is very important to restore exactly the anatomy with reduction and solid fixation. In our case, the radial head fracture was so comminuted that we couldn't save it. If the inferior radioulnar instability persists, we propose temporary stabilization with a K wire or screw. Conclusion : The combination of homolateral Monteggia and Galeazzi fractures is very rare in trauma. This association requires a precise diagnosis and appropriate therapeutic management.

Abstract no.: 44307

THE BIOMECHANICAL EFFECT OF BONE QUALITY AND FRACTURE TOPOGRAPHY ON LOCKING PLATE FIXATION IN PERIPROSTHETIC FEMORAL FRACTURES

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Optimal management of periprosthetic femoral fractures (PFF) around a well fixed prosthesis (Vancouver B1) remains controversial. The aim of this study was to highlight the effect of bone quality and fracture topography on the biomechanics of a locking plate for a Vancouver B1 fracture. A previously corroborated simplified finite element model of a femur with a cemented total hip replacement stem was used in this study. Canal thickness ratio (CTR) and fracture topography were altered in several models and the effect of these variations on the von Mises stress on the locking plate as well as the fracture displacement was studied. Increasing the CTR led to reduction of the von Mises stress on the locking plate as well as the fracture movement. In respect to the fracture angle with the medial cortex, it was shown that acute angles resulted in lower von Mises stress on the plate as opposed to obtuse angles. Furthermore, acute fracture angles resulted in lower fracture displacement compared to the other fractures considered here. Fractures around the tip of the stem had the same biomechanical effect on the locking plate. However, fractures more distal to the stem led to subsequent increase of stress, strain, and fracture displacement. Results highlight that in good bone quality and acute fracture angles, single locking plate fixation is perhaps an appropriate management method. On the contrary, for poor bone quality and obtuse fracture angles alternative management methods might be required as the fixation might be under higher risk of failure.

Abstract no.: 44310

BIOMECHANICAL EVALUATION OF THE FRACTURE FORM IN VANCOUVER TYPE B1 PERIPROSTHETIC FEMORAL FRACTURE TO BE DIFFERENT WITH CEMENT STEM AND CEMENTLESS STEM

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BACKGROUND : The fracture form in Vancouver type B1 periprosthetic femoral fracture will be different with the fixed style between bones and the stem like cement stem and cementless stem. The purpose of study was performed an experiment to prove those difference. **METHODS :** The experiment set up a stem that using for total hip replacement on bone model of elderly femur .We added lateral rotational force using a torque wrench on the stem axis , and simulated periprosthetic femoral fracture. Positions of the fracture line was classified using Gruen zones Classification. We made three kinds of models , 18 in total , using Kyocera medical 910Perfix stem (fit and fill type, a proximal fixed type cementless stem and cement stem of the same shape) . CLP model : set a cementless stem performed only press fit in the bone model. CL model : set a cementless stem fixed on Epoxy resin-based glue. C model : set a cement stem fixed on DePuy CMW bone cement. **RESULTS :** Fracture line of CLP model was located only in proximal 1/3 (zone 1 , 7) and anterior surface of the stem. CL model fracture line was located proximally from zone 2 , 6, and around of the stem. C model fracture line was located distal part from zone 4 and around of the stem. **CONCLUSIONS :** When Vancouver type B1 fracture is diagnosed preoperatively, there are sometimes that we noticed during an operation with Vancouver type B2 fracture . Therefore we think that attention is necessary because there is possibility of Vancouver type B2 in preoperative fracture form in other of the result.

Abstract no.: 44313

**RESTORATION OF THE FEMORAL OFFSET AND MODULARITY:
REALITY OR FICTION**

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The use of modular stems is still debated and controversial. Some authors have highlighted a number of disadvantages of modular prostheses including: the high costs, the tendency to fracture, the fretting and corrosion, the increased production of debris. Other authors have emphasized the possibility to adapt the prosthesis to the morphometric differences of patients, to allow better accuracy in restoring the anatomy and biomechanics of hip joint. The advantages of the modular devices appear to be more evident in patients with dysplasia of the hip. In our study we compared 60 patients, all with unilateral dysplasia of the hip operated with 30 modular prostheses (PROFEMUR®, Wright® Arlington, Tennessee, USA) and 30 with normal femoral stems (SYMAX®, Striker® Kalamazoo, Michigan, USA). The preoperative HHS (Harris Hip Score) was 44 (23-66), the postoperative 96 (76-100) in the 30 patients operated with modular prostheses and 87 (72-94) in the 30 patients with normal femoral stems. The worst HHScores were seen in patients in whom the offset was not restored properly. On the contrary, the best scores have been reached in patients in which that value is closer to the "target" value (offset value of the contralateral hip). Restore the offset determining the correct tension of the abductor muscles of the hip implies a better functioning of the joint and have to be a primary objective of the THA surgery.

Abstract no.: 44314

THE USE OF PATIENT REPORTED OUTCOME MEASURES IN PRIMARY TOTAL KNEE ARTHROPLASTY

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Background:All patients undergoing Total Knee Arthroplasty (TKA) in England are offered preoperative and postoperative EUROQuol 5D (EQ-5D), Visual analogue scale (VAS) and Oxford Knee Score (OKS) questionnaires to assess health gain achieved from the procedure. We aimed to assess if patient age, gender, co-morbidities & index of deprivation influenced patient reported outcome measures (PROMs). **Methods:**The PROMs data from a tertiary NHS hospital were analysed between January 2012 and September 2014. A total of 1328 patients underwent TKA within the search period. **Results:**Mean post operative improvement was shown by all scoring tools; VAS 5 (-5-20), EQ-5D 0.3 (0.07-0.57) and OKS 16(9-23). Increasing number of co-morbidities per patient did not result in significantly worse VAS, EQ-5D or OKS. Females experienced a significantly greater improvement than males in VAS and OKS. Increasing age was not demonstrated to have a significant impact on the VAS, EQ-5D score or OKS. VAS score improved in individuals with all co-morbid conditions except for those with stroke where no change was seen. EQ-5D score improved most in those with arthritis and least in those with depression. OKS greatest gain was shown in those with stroke and smallest in renal disease. Increased deprivation scores had no significant effect on outcome. **Conclusions:**This study shows, multiple co-morbidities do not have a significant effect on outcome following TKA. Also, females demonstrate significantly greater health gains than males, as shown by VAS and OKS score. Ultimately PROMs data must not be viewed in isolation as we may get diminished views of intervention effect.

Abstract no.: 44315

SHORT-TERM OUTCOMES WITH A NOVEL KINEMATIC-RETAINING KNEE SYSTEM.

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Aim of this multicenter retrospective study is to assess clinical and radiographic outcomes after Total Knee Arthroplasty (TKA) with the Physica Kinematic Retaining (KR) knee. This implant has a unique design with a convex lateral tibial plateau. Between October 2013 and November 2014, 60 patients (60 knees) underwent TKA with Physica KR at two different centres. A standard para-patellar or a mid-vastus approach were used in 24 (40%) and 36 (60%) cases. There were 32 women and 28 men, with a mean age and BMI of 63 (range:44-73) years and 29 (range:21-36) kg/m². Primary diagnosis was mainly osteoarthritis (95%). Clinical and radiographic assessments were carried out preoperatively, and postoperatively at 6, 12, 18 and 24 months, using the Knee Society Score (KSS) and standard radiographs. Mean Knee Society Score increased significantly from 55 (range:21-77) preoperatively to 94 (range:86-100) at last follow-up. Patients reported high levels of satisfaction for their surgery outcomes at all follow-ups, indicating also significant early improvements in terms of joint mobilisation, functional recovery and pain relief. X-rays analysis showed that all implants presented good stability, without any signs of loosening, radiolucent lines or migration. Neither cases of revision nor implant failures were reported. No postoperative complications have been observed such as infections, periprosthetic fractures or joint instability. Short-term clinical and radiographic outcomes of the Physica Kinematic-Retaining Knee System have been so far encouraging. By reproducing the natural kinematics of the knee joint, Physica KR has ensured a prompt functional recovery and pain relief, even in high-demand patients.

Abstract no.: 44320

IMPACT OF SOCIAL MEDIA ON HEALTHCARE DELIVERY

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Introduction: The popularity of social media has grown exponentially in recent years. Social media platforms such as Facebook, Twitter and WhatsApp, to communicate and network have become commonplace amongst healthcare professionals. Recently, some examples of unprofessional behavior have been highlighted that is a cause for concern for the ethicality and confidentiality of material being uploaded onto the Internet. Therefore, healthcare workers might be unknowingly exposing themselves to potential major legal implications. Aim: The aim of this study was to deconstruct the online social networking behavior of national health service (NHS) staff working in our trust. In addition, we sought to explore whether online interaction had a direct impact on healthcare provision in particular decision-making, staff awareness of trust guidelines and in general adherence to published guidelines. Methods: An online survey invitation was deployed to NHS staff via hospital Intranet to three hospitals. Additionally, the departmental WhatsApp group was audited to extract any relevant administrative or patient related questions. Results: 295 NHS staff participated of which 16.8% were consultant tier, 16.4% training doctors, 28.4% nursing staff and 35.1% non-clinical staff. Only 2% used social networks for patient communication. Interestingly, 13% are unaware of their social media security settings or how to restrict them and 25% are unaware of local trust policies. Conclusion: use of social media is a promising prospect to improve communication, for personal development and for sharing information. However, there is a danger of overstepping confidentiality boundaries, which can compromise our patient's trust in us as healthcare providers.

Abstract no.: 44322

THE FUNCTIONAL OUTCOME FOLLOWING SURGICAL MANAGEMENT OF ACUTE ACROMIOCLAVICULAR JOINT INJURIES (DISLOCATIONS) USING SUTURE ANCHOR AND TRIPPLE ENDOBUTTON TECHNIQUES

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Introduction: Acromioclavicular joint injuries account for around 40-50% of athletic shoulder injuries with an overall incidence of 4 in 1,00,000 general population. Methods: A Randomised Control Study involving 40 patients (between 18-50 years age) with Rockwood type III-V injuries were treated with either Triple Endobutton technique or Suture Anchor fixation between January 2012-January 2014. The Triple Endobutton technique comprises of a no. 5 fibrewire suture that is tensioned and secured with 2 metallic endobuttons against the cortices of the clavicle and the 1 endobutton for coracoid. In Suture Anchor fixation technique we used one 5 mm suture anchor for coracoid tensioned to one endobutton on clavicle with no. 5 fibrewire sutures. The preoperative and postoperative anteroposterior, zanca, axillary views were taken and the coracoclavicular distance was measured. The functional outcomes were measured at 3,6,12 & 24 months using Constant Morley score. Statistical analysis was done using Unpaired T test. Result: Constant Morley score at Short term follow up was better with Suture Anchor fixation (Constant score -95.6) than Triple Endobutton fixation (Constant score-90) while outcomes at 1 to 2 years were statistically insignificant between both groups. Conclusion: Both the techniques of acromioclavicular joint fixation are safe, simple, have low morbidity, and with near normal anatomical stability of acromioclavicular joint but Suture Anchor fixation offers better functional outcome over Triple Endobutton technique at short term follow up although long term follow ups are statistically insignificant between two groups with less surgical complications and low morbidity.

Abstract no.: 44327

C-REACTIVE PROTEIN IN PATIENTS WITH LUMBAR DISEASE

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Introduction:We measured the serum concentration of (CRP) by a high-sensitive method in patients with lumbar herniation. The level and type of herniation were evaluated. Thus, purpose of this study is to test whether HSCRP can stand as an objective tool to predict recovery in patients undergoing lumbar discectomy. A study group of 50 cases of lumbar disease and control group of 50 normal subjects, matched with the study group. Both the study and control groups were subjected to evaluation with the help of modified Oswestry Low Back Pain Scale . The preoperative blood samples were analyzed to assess the HSCRP concentration. There was significant positive correlation between preoperative HSCRP level and postoperative score Cases with HSCRP level showed better recovery (score improved > 10 points), while those with HSCRP level showed poor recovery . A study group consisting of 50 cases of established lumbar disc disease and control group of 50 normal subjects, matched with the study group. Both the study and control groups were subjected to detailed evaluation with the help of modified Oswestry Low Back Pain Scale both pre and postoperatively at 4 months, 8 months and 1-year. The preoperative blood samples were analyzed to assess the HSCRP concentration.**Results:**The significantly high concentration of serum hs-CRP might indicate a systemic inflammatory response to impingement of the nerve root caused by disc herniation and might be a predictor of recovery after operation.

Abstract no.: 44328

HIP-SPINE SYNDROME IN THE ETIOPATHOGENESIS OF AVASCULAR NECROSIS OF THE FEMORAL HEAD

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The combination of pathology of the lumbosacral spine and the hip is called a hip - spine syndrome. One of the manifestations of such an alliance may be avascular necrosis of the femoral head (AVN) and the transition of the lumbar vertebra. The aim of the study was to analyze the frequency of occurrence of a combination of AVN and other degenerative diseases of the hip with the transitional vertebra and the identification of cause and effect relationship between them In Vreden Russian scientific research institute of Traumatology and Orthopaedics during 2015 were analyzed by X-ray in patients with degenerative diseases of the hip joint in the number of 617 people. Of these, 184 (30%) were diagnosed with idiopathic avascular necrosis - I group in 6 % (40 patients) AVN diagnosed in conjunction with the secondary coxarthrosis - II group and in 64 % of patients (393 patients), respectively - diagnosed idiopathic coxarthrosis - III group A total of 617 studies in 230 (37%) of patients diagnosed transitional vertebra. Patients with an AVN incidence of vertebral transition was 63% (116 of 184 patients). The incidence of transitional vertebrae in group II was 20 % (8 patients). In patients with idiopathic coxarthrosis incidence transition vertebra was 10% (38 of 393 patients) Thus, the transitional vertebra as the most demonstrative X-ray pattern, which is one of the links of the hip - spine syndrome can affect the etiopathogenesis AVN and other degenerative diseases of the hip joint.

Abstract no.: 44329

CLINICAL SYNDROMES IN CRUSHING TRAUMA

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Due to high energy agents, complex crushing trauma became a challenging problem , being related to work accidents and motor vehicle accidents. Due to the high rate of complications, early diagnosis and correctly conducted treatment are needed. This retrospective study analyses 80 patients admitted in our hospital between 01.06.2009-01.01.2016 with a diagnosis including “ crushing”. The main clinical aspects of these cases were: fracture, crushing without fracture, open fracture, compartment syndrome (with or without fracture), acute peripheral ischemia. The authors describe the algorithm for diagnosis (including laboratory findings and complementary examinations) and treatment (following MESS Score) for these cases In 45% of crushing’s of the shank compartment syndrome appeared, in 85% of the cases with fracture .Overall, fFractures appeared in 88% of the cases, but open injuries only in 78% of the cases. 50% of the crushing’s produced complex trauma (vascular or nervous injury), acute peripheral ischemia appeared after 15% of the crushings.The most important therapeutic problems are discussed concerning this patients: surgical treatment, general treatment, multiple steps therapy. Crushing is a severe trauma that has important consequences on the bones and on the soft tissue, that requires a prompt and correct treatment both in the initial treatment and the following stages of treatment. Also, the flexible and complete evaluation of the patient and the treatment of associated injuries lead to a positive local and general evolution.

Abstract no.: 44331

MALALIGNMENT OF ATLANTOAXIAL ARTICULATION FOLLOWING FRACTURE OF THE ODONTOID

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Atlantoaxial articulation is without intervertebral disks and rely solely on intactness of transverse ligament for stability in sagittal plane. Atlantoaxial instability therefore can be considered as natural progression of the odontoid fracture. We retrospectively reviewed results of sixteen patients of the odontoid fracture whose complete records were available for analyses. There were 12 male and 4 females. Average age was 30 with range of 5-65 years. Six patients presented with fresh injury while five presented late with average of 8 months duration. Five patients were diagnosed to have os odontoideum. Attempted reduction through preoperative crutchfield skull traction failed in 2 patients showing dysplastic facet of axis and a hypertrophied dens preventing reduction. Four patients underwent posterior fusion comprising of Gallie fusion and transarticular screws two each. Four patients underwent direct anterior odontoid screw fixation, two had fixation with anterior plating while six patients underwent anterior transarticular atlanto axial fixation. Four patients with normally aligned facets, during the course of various surgical procedures underwent inadvertent rotary displacement seen in postoperative radiographs. Apparently reduced odontoid fracture, if fails to be aligned to within 1-2 mm of accuracy should be suspected for malalignment of its facet joints. It is suggested to have high degree of suspicion for rotational malalignment of C1 C2 facet joint while treating patients with odontoid fracture. During anterior fixation, manual probing of anterior boundary of C1 C2 facet joints will help identifying any rotational malalignment which may easily be managed with mild manual rotational thrust to neck.

Abstract no.: 44332

TOTAL HIP ARTHROPLASTY IN CROWE IV: A SYSTEMATIC REVIEW OF THIS HARD CHALLENGE AND OUR EXPERIENCE

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The Developmental Dysplasia of the Hip (DDH) is the main cause of osteoarthritis in young patients. In the most serious cases of the disease (Type 4 according to the classification of Crowe) total hip arthroplasty (THA) seems to be the necessary solution and most reliable way to restore the correct biomechanics of the joint and to eliminate the pain. There are many difficulties in the implant of a hip prosthesis in a patient with DDH: the young age of the patients, the anatomy of the femur extremely altered and a high failure rate. In the literature so much techniques described how to recreate the proximal part of a dysplastic femur and to avoid the palsy or the paralysis of the sciatic nerve: the use of external fixators, osteotomies of shortening. This review aims to provide an updated and more or less exhaustive list of therapeutic protocols accepted today, while recognizing that they are being continuously updated in relation to experience gained. Finally, we report our experience of 15 patients operated with shortening osteotomy (8 transversal osteotomies and 7 z-shape osteotomies), all with excellent clinical and radiological results.

Abstract no.: 44333

**RETURN TO SPORT ACTIVITIES AFTER MEDIAL DISPLACEMENT
CALCANEAL OSTEOTOMY PLUS FLEXOR DIGITORUM LONGUS
TRANSFER**

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Medial displacement calcaneal osteotomy plus flexor digitorum longus transfer is a common treatment for the management of adult flatfoot in association with posterior tibial tendon dysfunction. In literature there is a lack of information concerning patients' sports and recreational activities after this surgical procedure. Purpose of this study was to assess the rate and type of sports activities in patients before and after medial displacement calcaneal osteotomy plus flexor digitorum longus transfer and to correlate the radiographic outcomes and the level of sport activities. Methods: 42 patients (mean age at surgery: 36,4 years, range 16-67 years) were evaluated with a minimum follow-up of 24 months. Pre- and postoperative sporting activities were assessed, and patients completed SAFAS score. We also measured and compared Meary Index and Calcaneal Pitch on pre and post-operative weight-bearing foot x-ray of each patient. Results: Before surgery, 27 of 42 (64,3%) patients were engaged in sport and recreational activities, spending an average of 1,4 hours/week; postoperatively, 36/42 (85,7%) participated, spending an average of 3,5 hours/week, resulting in a good return to activity rate. Meary Index ranged from 8,5° to 6° at final-follow-up; Calcaneal Pitch improved from 16,9° to 19°. At SAFAS scoring system, good satisfaction rates were assessed, concerning symptoms tolerance (86,40%), pain tolerance (89%), daily living performance (96%) and sportive performance (86,73%). Conclusion: The majority of patients returned to sports and recreational activity after Medial displacement calcaneal osteotomy plus flexor digitorum longus for posterior tendon tibialis transfer. Radiographic evaluation showed an improvement in flatfoot deformity.

Abstract no.: 44334

POSTERIOR SHOULDER DISLOCATION WITH IPSILATERAL HUMERAL SHAFT FRACTURE; A CASE SERIES AND REVIEW OF LITERATURE

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Introduction: Posterior dislocation of the shoulder is a rare entity and represents approximately 2–5% of all traumatic shoulder dislocations. A combination of humeral shaft fracture with ipsilateral posterior glenohumeral dislocation is an even rarer event, with only a few confirmed reports in the literature. In most of these reports, the shoulder dislocation has been diagnosed late, which led to unsatisfactory patient outcome. High index of suspicion and early diagnosis by adequate clinical radiological examination is required to prevent osteonecrosis of the humeral head and ensure satisfactory joint functional recovery. Objectives: We report three cases and a review of the literature. Methods: The mechanism of this complex injury is detailed and the treatment modalities are discussed. Our aim is to highlight the importance of this rare co-existence. Results: A high index of suspicion is necessary to diagnose posterior dislocation of the shoulder as most concentration is on the humeral shaft fracture. Conclusions: Consideration of this condition, coupled with thorough and appropriate physical and radiological examinations, could lead to improved recognition of such cases. Delayed diagnosis has a poorer prognosis.

Abstract no.: 44335

HETEROTOPIC OSSIFICATION IN THR: INCIDENCE AND ETIOLOGICAL FACTORS IN MODERN HIGH VOLUME ELECTIVE ARTHROPLASTY SETTING.

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Heterotopic ossification (HO) can cause post-operative problems to patients who undergo total hip replacement (THR). Many factors have been implicated in the manifestation of HO. The purpose of this retrospective controlled study was to examine its incidence in a modern arthroplasty unit and assess which factors are associated with HO. We investigated patients who had THR from 2008 to 2012. Minimum follow up was 12 weeks from surgical intervention and consisted of radiological assessment while clinical outcome was documented with Oxford and satisfaction scores. Patients with HO and controls were compared using Fisher's exact test, chi-square test and binary logistic regression analysis. From 2305 patients, 148 (6.4%) presented with HO. According to Brooker classification 49% were grade 1, 28% grade 2, 16% grade 3 and 7% grade 4. Male gender ($p < 0.001$), anterolateral approach ($p < 0.001$) and increasing age ($p = 0.04$) were linked with higher incidence of HO. Operation time ($p = 0.07$) reached near significance. The risk of HO was two times higher in men ($p < 0.001$) and where the anterolateral approach was used ($p = 0.002$), while it increased by 2.8% for every yearly increment in age ($p = 0.003$). Our results revealed a trend towards HO patients having lower satisfaction scores ($p = 0.099$), although 12month Oxford scores were similar in both groups. In conclusion, increased age, anterolateral approach and male gender are independent determinants of HO whereas type of fixation (cemented, uncemented, hybrid), anesthesia and previous contralateral hip surgery with HO are not. Incidence in a modern arthroplasty unit was considerably lower compared to reported literature.

Abstract no.: 44337

TOTAL HIP ARTHROPLASTY WITH NONUNION OF THE FEMORAL NECK

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Introduction Hip replacement in recent decades has become the most successful operation for the treatment of hip pathology. However, in the presence of arthroplasty femoral neck nonunion causes considerable difficulties for the surgeon. **Objectives** To evaluate the results of total hip replacement and analyze the causes of possible complications. **Methods** A total of 176 patients operated on about 2012 to 2015 on the nonunion of the femoral neck with a scale Harris, statistical method and X-ray to determine the stability of the implant components in a year or more after the arthroplasty. Patients for various reasons is not fulfilled in a timely manner treatment of hip fracture. **Results** The functional outcome in a year averaged 83 points, which was significantly lower in idiopathic arthroplasty. And directly correlated with the age of the patients and the degree of recovery of limb length. Marked by a strong inverse correlation with the duration of the existence of a false joint. In 7 patients showed instability with cementless acetabular component fixation. 3 patients in the early post-operative period was marked by periprosthetic fracture of the proximal femur. In 4 patients had a dislocation of the femoral head at various times after surgery. In 6 patients with acetabular component is installed protrusion. The results of arthroplasty patients with pseudarthrosis of the femoral neck on functional status and survival of the implant was significantly inferior in patients with idiopathic osteoarthritis.

Abstract no.: 44340

MALPOSITIONED PEDICLE SCREWS – INCIDENCE AND THE PROGNOSIS

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Prevalence of malpositioned pedicle screw is reported to vary from 10-42%. Transpedicular fixation from single surgical unit at LN Hospital from 2006 to 2015 were reviewed for CT based accuracy of the screw placement, incidence of repositioned screws and the clinical progression of such patients for any screw induced insult to neural tissue. The study comprised of 115 patients with paraparesis due to spinal tuberculosis (56), trauma (51) and neurologically intact degenerative disease of spine (8). The average age of the patients was 33 years and average follow up 35 months. Twenty-three screws (4.9%)were found to have breach and translation between 2 and 4 mm (8 medial, 15 lateral), while sixteen screws (3.4%) showed breach and translation of >4 mm (11 medial, 5 lateral). Among malpositioned screws, 71% were dorsal while 29% lumbar. All laterally translated screws in thoracic spine showed good distal purchase through costovertebral articulation. Spinal canal and its contents were viewed under direct vision in all patients and no dural injury or CSF leak visualized. Twelve malpositioned screws were revised within 3-7 days. Four patients with no neurological deterioration, despite screws traversing the spinal canal were not revised and showed no long term ill effect. Breach of medial wall and screws traversing the canal should not necessarily mean penetration of dura due to the screw's eccentric push over the slippery and mobile cord segment. However it does compromise the cord canal ratio in various proportions and should be treated accordingly.

Abstract no.: 44341

OPTIMAL IMPROVEMENT IN FUNCTION AFTER TOTAL HIP AND KNEE REPLACEMENT: HOW DEEP DO YOU KNOW YOUR PATIENT'S MIND?

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Osteoarthritis (OA) of the hip and knee causes pain and loss of joint mobility, leading to limitations in physical function. When conservative treatment fails total hip and knee replacement is a cost-effective surgical option. Patients have high expectations regarding functional outcome after these procedures. If such expectations are not met, they may still be dissatisfied with the outcome of a technically successful procedure. Recently, numerous studies reported that psychological factors can influence the outcome of total knee replacement (TKR) and total hip arthroplasty with total hip replacement (THR). We conducted a prospective study on a consecutive sample of 280 patients affected by hip or knee OA who underwent total joint replacement. At patients' admission, Harris Hip Score (HHS) and Knee Society Score (KSS) were used to assess pain and function. Furthermore, SF-36, Mini-Mental State Examination (MMSE), Symptom Checklist-90-R (SCL-90-R), Coping Orientation to Problems Experienced (BRIEF-COPE) and the Amsterdam Preoperative Anxiety and Information Scale (APAIS) were administered. Patients had clinical and radiographical follow-up at 1, 3 and 6 months post-operatively. The HHS and KSS values before surgery showed a linear correlation with both SCL-90-R and MMSE. None of the investigated variables influenced post-operative HHS and KSS scores; however, the improvement of functional scores resulted conditioned by SCL-90-R values, VAS score, schooling and MMSE. Psychological factors and mental status in primary total hip and knee replacement can affect outcome and patient satisfaction. Strategies focused on identification and facing of these conditions must be considered to improve outcome of total replacement.

Abstract no.: 44343

HIP JOINT ANATOMICAL SHAPE VARIANTS AS A RISK FACTOR FOR DEVELOPING OSTEOARTHRITIS IN LATVIAN POPULATION ANDRIS DZERINS¹; MATISS ZOLMANIS²; PETERIS STUDERS, MD^{1, 2} 1 RIGA STRADINS UNIVERSITY, FACULTY OF MEDICINE, LATVIA 2 HOSPITAL OF TRAUMATOLOGY AND

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Introduction: Hip OA frequently occurring in the absence of arthritis in other large joints suggests that there are morphologic factors specific to the hip that lead to joint destruction. Materials and methods: We retrospectively examined radiographs of 100 patient hips with Tonnis Grade I/II signs of OA contralateral to hips that had been treated with total hip arthroplasty (Arthritic group) and 100 patient hips aged at least 65 years with Tonnis Grade 0/I contralateral to hips that had been treated with unipolar hemiarthroplasty due to a dislocated femoral neck fracture (Control group) in Hospital of Traumatology and Orthopedics, Latvia. In both groups alpha angle, lateral center edge angle, neck shaft angle, acetabular index was measured and the presence or absence of coxa profunda, protrusio acetabuli, Cam type impingement and crossover sign was determined. Results: Mean alpha angle in the Arthritis group was significantly higher comparing to the Control group $56.10 \pm 10.60^\circ$ vs. $48.72 \pm 6.82^\circ$ ($p < 0.001$). Mean lateral center edge angle (CEA) did not significantly differ in both groups but there were significantly more ($p = 0.001$) cases of acetabular dysplasia ($CEA < 25^\circ$) in the Arthritis group ($n = 11$) than in Control group ($n = 0$). More hips ($p < 0.001$) in the Arthritis group ($n = 46$) had femurs with Cam type sign comparing with the Control group ($n = 17$). All other quantitative and qualitative parameters did not differ between both groups. Conclusion: Results suggest that Cam type femoroacetabular impingement and mild acetabular dysplasia are associated with the development of subsequent OA in Latvian population.

Abstract no.: 44344

PROSPECTIVE, RANDOMIZED TRIAL TO EVALUATE THE EFFICACY OF FLOSEAL AND TRANEXAMIC ACID AFTER PRIMARY TOTAL KNEE ARTHROPLASTY

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Introduction: Total knee arthroplasty (TKA) is the gold standard treatment for advanced osteoarthritis refractory to nonoperative management; however, the procedure involves approximately 2,000 mL of perioperative blood loss, which often results in complications and necessitates transfusion. Thus, research has been pursued for minimal blood loss with use of various hemostatic agents, such as Floseal and Tranexamic acid (TA). So far, both methods showed to be effective compared to control groups, but no study compared Floseal against TA. **Methods:** We performed a prospective randomized controlled trial on the use of Floseal or tranexamic acid in patients undergoing unilateral TKA. A total of 80 TKA patients were enrolled in three groups: TA group, Floseal group and control group. Drain output, hemoglobin level, transfusion rates, and complications were accessed. **Results:** Both Floseal and TA showed to have better results than the control group for all studied variables. No difference was observed between Floseal and TA. Regarding complications, one patient presented a superficial infection (control group) and two patients presented deep vein thrombosis (one Floseal and one TA). **Conclusion:** Floseal and TA showed to be effective in controlling blood loss after total knee arthroplasty. The superiority of one over another is uncertain.

Abstract no.: 44345

SEPTIC ARTHRITIS SECONDARY TO IV DRUG ABUSE.

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Intro: Septic arthritis of the hip in modern era in absence of previous surgery is uncommon. Case report: We present a 32 year old female with history of intravenous drug abuse who was positive for Hep b and C and had been injecting the femoral region for past two years. She presented with a 10 week history of radiating leg pain, dull ache and stiffness around the hip initially been treated for Sciatica and been treated symptomatically with initial casualty visits. Pt had been afebrile all along with no back or buttock pain. Investigation showed X ray of hip with joint destruction with ultrasound showed on fluid or soft tissue mass. Fluid aspirated from hip turned out to be positive for Staph Aureus. Flucloxacillin and fusidic acid was started with skin traction for a period of 8 weeks. ESR came down from 114 to 84 after the therapy. Follow up X ray showed complete ankylosis of hip with stiffness clinically and partial weight bearing with improved symptoms. Conclusion: High index of suspicion is necessary in such cases with prolonged pain and stiffness in IVDU cases.

Abstract no.: 44348

OUTCOME OF LIGAMENTOTAXIS AND PERCUTANEOUS SCREWS FOR NAVICULAR FRACTURES

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BACKGROUND: The navicular bone plays an important role in maintaining the medial longitudinal arch of the foot. Navicular fractures are relatively uncommon. Operative treatment of displaced fractures is at high risk for complications. The purpose of this study is to evaluate the clinical outcome of managing navicular fracture with closed Ligamentotaxis and percutaneous cannulated screw fixation. **METHODS:** Between 2012 and 2014, 12 displaced tarsal navicular fractures were treated in a prospective study. All fractures were evaluated with plain radiographs and computed tomography. Ligamentotaxis was achieved via external fixator till the intertarsal ligaments (calcaneonavicular and dorsal talonavicular ligaments) are exhausted and navicular length regained. Cannulated screws are inserted as per preoperative radiologic planning. Patients were evaluated through Tegner activity level and the foot and ankle outcome score (FAOS). **Results:** All patients were followed up for a mean 18.4 months. Union was obtained in all patients. At 12 months follow-up, the mean Tegner activity level was 7.3 and the mean FAOS score was 86.4 at 12 months follow-up. Complications included one ipsilateral deep vein thrombosis and one patient of mild talonavicular arthritis that was accepted for the patient. Hardware removal was performed for 7 patients at a mean of 13.5 months. No other secondary surgery was necessary for any patient. **Conclusion:** Displaced fractures of the tarsal navicular can adequately be treated with Ligamentotaxis and percutaneous screw fixation. This minimally invasive technique entails less postoperative morbidity and allows for early regain of function.

Abstract no.: 44352

UNICOMPARTMENTAL KNEE ARTHROPLASTY: PERFORMANCES IMPROVEMENTS THROUGH IMPLANT DESIGN AND CORRECT SURGICAL TECHNIQUE. A RETROSPECTIVE REVIEW OF 737 CASES.

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The practice of Unicompartmental knee arthroplasty (UKA) has been steadily growing. This surgery has undeniable advantages provided by this practice, however there are still question about its reproducibility and the possibility of making its technique less “surgeon related”. We present here a retrospective analysis. All cases had been performed by the author and the principles expressed by Dr. P. Cartier (Implants orthogonality; resurfacing; Cartier angle respect; etc.) had been always followed. We had two patients groups: Group 1 included 676 implants on 636 patients operated between January 1st 1997 and December 31st 2010 employing a first generation implant. For all patients we checked the Knee Society Score and the implant survival. Survival curve showed a revision rate of 2.5% during the first 3 years, followed by a stabilization (flat survival rate) until 10 years F.U. and then by a further decrease of 2.5%. Group 2 included 102 UKA implanted on 96 patients, operated between May 1st 2010 and July 31st 2014 employing a second generation implant with an improved surgical technique. KSS was collected also for the patients belonging to this group together with the implant survival curve. At the latest follow up on December 31st 2015 survival rate was 99%. We concluded that the employment of a second-generation implant design and of an improved surgical technique with more guided and standardized instruments can avoid the early failures seen in Group 1 and lead to a better long term survival of the implant.

Abstract no.: 44358

EARLY EXPERIENCE AND INITIAL OUTCOMES WITH PATIENT SPECIFIC SPINE RODS FOR ADULT SPINAL DEFORMITY

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Background: The main objectives of this retrospective case series were to describe the process of preoperative planning for patient specific spine rods used in adult spinal deformity, with analysis of its initial outcomes. Methods: A retrospective case-series was performed on 18 consecutive ASD patients (10F, average age 66) meeting strict inclusion/exclusion criteria, treated with posterolateral spine fusion and lumbar or thoracolumbar osteotomy with use of patient specific rods. Data was extracted including demographic and surgical variables; and preop, predicted (via surgical plan), and postop spinopelvic parameters. Outcome analysis of continuous data included assessment of preoperative, planned, and postoperative variables; evaluation of a treatment effect as difference between postoperative and preoperative values of all studied characteristics; and assessment of correspondence between planned and achieved results as a difference between postoperative and planned values. Results: Mean (M) postoperative spinopelvic parameters: SVA, M=21.83mm; LL, M=62.6°; TK, M=44.9°; PI, M=58.4°; PI-LL, M= -4.1°; PT, M=17.7°. Treatment effect: LL 33.3°, PT -14.3°, TK 7.2°, PI-LL -33.3°, and SVA -75.1mm. Mean correspondence (postop parameter – planned parameter): SVA, M=7.5mm; LL, M=6.6°; TK, M=8.1°; PI, M=0.1°; PI-LL, M=-5.0°; PT, M=-2.8°. Conclusions: The approach of surgical planning for patient specific spine rods is an effective method for ASD correction, yielding excellent correction and initial postoperative spinopelvic alignment. On average, the surgical plan slightly underestimated the amount of PT relaxation and LL improvement obtainable by posterior fusion and osteotomy. SVA and PT continue to be difficult to simultaneously predict through this approach, but are adequately approximated.

Abstract no.: 44360

NEGATIVE PRESSURE WOUND THERAPY USE IN CASES OF INFECTION AND COMPLEX WOUNDS AFTER TOTAL KNEE ARTHROPLASTY

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Introduction: The treatment of wounds by negative pressure wound therapy (NPWT) is growing for complex surgical incisions complications, despite the lack of evidence. The objective of this study was to evaluate the use of NPWT in cases of infection and complex wounds after total knee arthroplasty (TKA). Methods: A total of 8 patients who underwent the use of NPWT (PICO, Smith and Nephew) after TKA were evaluated. There were three cases of primary arthroplasty and five cases of revision arthroplasty. In four cases the patients had infection associated with dehiscence of the wound and in 4 cases only infection. We considered as favorable outcome patients who had resolution of infection and wound closure. Results: All patients treated with the use of NPWT showed favorable results both for infection control and to wound healing. Three patients were treated for 14 days and 5 patients for 7 days. No patient had recurrence of skin dehiscence or infection after treatment. Conclusion: The use of NPWT appears to be effective in treating infection, dehiscence and wound complications after TKA. Despite the initial favorable results, clinical studies with the high level of evidence should be performed.

Abstract no.: 44363

COMBINED RECONSTRUCTION OF THE POSTERIOR CRUCIATE LIGAMENT AND MEDIAL COLLATERAL LIGAMENT USING A SINGLE FEMORAL TUNNEL

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Purpose: Lesions of the medial collateral ligament (MCL) are the most common knee ligament injuries and lesions associated with the anterior cruciate ligament (ACL) or the posterior cruciate ligament (PCL) in knee dislocations should be reconstructed to prevent failure of the central pivot reconstruction. The purpose of this study was to evaluate the outcomes of combined PCL/MCL reconstruction using a single femoral tunnel with a minimum two-year follow-up. Method: We did a retrospective study with thirteen patients with combined PCL/MCL injuries, submitted to reconstruction technique for the PCL and MCL using an Achilles tendon allograft, with a single tunnel in the medial femoral condyle, thereby avoiding tunnel conversion. Results: All patients achieved a range of motion of at least 100 degrees. The mean loss of extension and flexion values compared to the contralateral side was 1.0 ± 1.9 degrees and 9.0 ± 9.6 degrees, respectively. Our results included 26 reconstructions with three (11.5%) failures, two in the PCL (15.3%) and one in the MCL (7.6%), in three different patients. In the final evaluation the mean IKDC subjective score was 71.63 ± 16.23 , the mean Lysholm score was 80.08 ± 13.87 , and the mean Tegner score was 5.15 ± 1.52 . Conclusion: PCL/MCL reconstruction technique using a single femoral tunnel and an Achilles tendon allograft can be done safely because it avoids convergence in the medial femoral condyle. The technique is reproducible because there is no need for specific guides and results can be considered satisfactory.

Abstract no.: 44366

THE DIRECT ANTERIOR APPROACH PROVIDES EXCELLENT EARLY CLINICAL OUTCOMES AND IMPLANT POSITIONING EVEN IN THE LEARNING PHASE

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We retrospectively reviewed our first fifty THAs done through the DAA and compared them to the last fifty THAs done through the Hardinge approach. Skin-to-skin time was a mean 98 minutes in the DAA group versus 81 minutes in the Hardinge group. Transfusion rate was 55% in the DAA group and 30% in the Hardinge group. We had no fractures in the DAA group and 2 in the Hardinge group, one affecting the greater trochanter the other affecting the calcaneus. Length of stay was 3.9 days in the Hardinge and 3.7 days in the DAA group. There was a better PMA score in DAA group at 6 weeks and 3 months. There was no difference at 6 months and 1 year. Cup abduction angle was 42.3° (38°-50°) SD 4.1° in the DAA group and 44.1° (31°-65°) SD 6.3° in the Hardinge group. All the cups in the DAA groups were within the safe zone of 35°-50° versus 10 outliers in the Hardinge group. Leg length discrepancy (LLD) was similar in both groups averaging 1mm. The DAA group had 1 patient having more than 5 mm LLD, versus 15 patients in the Hardinge group. At the latest follow-up, we had no dislocations in either group and no signs of early loosening. There were two cases of HO in the DAA group versus 4 in the Hardinge group. We conclude that the DAA provides better implant positioning and better early clinical outcome than the Hardinge approach, even in the learning curve phase.

Abstract no.: 44367

PROXIMAL FEMORAL DEROTATION OSTEOTOMY FOR IDIOPATHIC EXCESSIVE FEMORAL ANTEVERSION. IS IT A COSMETIC PROCEDURE ONLY?

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Aim: Purpose of this study is to assess the symptoms caused by excessive femoral anteversion and the outcomes of femoral derotation osteotomy. **Methods:** We reviewed data on patients who underwent proximal femoral derotation osteotomy for symptomatic in-toeing gait caused by femoral anteversion. Only symptomatic patients were considered for corrective derotation osteotomy. Degree of femoral anteversion were confirmed on computed tomogram (CT) Scan. **Results:** Thirty five extremities were operated in 21 patients with average age of 13.3 (8-18) years. Mean follow-up was 16 months (6– 36 months). Mean femoral anteversion angle was 40.8 (28–53) degrees. External rotation of extended hips improved significantly, from 30 degree to 51.8 degree ($p < 0.0001$). Mean foot progressing angle improved from 15.2 degree internally rotated pre-operatively to 7.7 degree externally rotated. Intoeing completely resolved in all except 2 patients. 13 out of 21 children complained about tripping and frequent falling while running and playing sports, 8 patients had hip pain while 13 children had knee pain preoperatively. Tripping, falling and hip pain resolved in all patients post-operatively, while 3 patients whose primary complaint was knee pain failed to improve post surgery. 18 of the 21 parents were satisfied with the decision to perform surgical correction. **Conclusion:** Excessive femoral anteversion can present with unexplained hip or knee pain refractory to conservative treatments. Careful assessment of lower limb malalignment is a valuable tool in such circumstances and derotation proximal femoral osteotomy can certainly be a procedure of choice in carefully selected cases.

Abstract no.: 44369

**CLINICAL OUTCOMES AND PIVOT SHIFT ASSESSMENT OF PATIENTS
SUBJECTED TO ANATOMIC OUTSIDE-IN ANTERIOR CRUCIATE
LIGAMENT RECONSTRUCTION WITH SINGLE-BUNDLE HAMSTRINGS
AUTOGRAFT**

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Introduction: Anatomic single-bundle anterior cruciate ligament reconstruction has yielded good functional results, but there is concern about persistence of rotatory instability post-operatively. The purpose of this observational study is to demonstrate that patients subjected to anatomic outside-in ACL reconstruction with single-bundle quadruple hamstrings autograft exhibit good subjective and objective results. We hypothesized that even with good functional outcome, patients still have residual rotational instability. Materials and Methods: An observational prospective study was conducted with patients subjected to ACL reconstruction in a tertiary public health care institution. Patients with acute or chronic ACL injury and no other surgical associated lesions (with exception of meniscal tear with indication of partial meniscectomy) were subjected to ACL reconstruction with single-bundle hamstrings autograft using outside-in technique for the femoral tunnel. Clinical outcomes were assessed by mean \pm standard deviation of objective and subjective International Knee Documentation Committee (IKDC). Pivot shift test, cosmetic complaints, failure of the procedure and postoperative radiographs were assessed. Results: Fifty-nine men and nine women aging 26.1 ± 6.4 years were followed-up for 33.9 ± 6.1 months. Subjective and objective IKDC scores improved in all patients, but 38.2% of patients still showed a positive pivot shift test. Five patients complained about mild lateral pain and three patients experienced unaesthetic scar at that site. Conclusion: Anatomic outside-in technique for ACL reconstruction yields good functional outcomes although some patients remain with rotatory instability of the knee. The lateral incision made to drill the femoral tunnel does not seem to impair clinical outcomes.

Abstract no.: 44371

REDUCTION AND DORSAL STABILIZATION OF BURST FRACTURES OF THE THORACIC AND LUMBAR SPINE USING A PERCUTANEOUS MINIMAL INVASIVE SYSTEM

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Background: Dorsal stabilization of instable spine fractures is most common operating fracture treatment. The advantage of a percutaneous minimal invasive system versus open procedures is reduced access morbidity, minimal blood loss, less infection rate and reduced operation time. Aim of this study was to evaluate the reduction of the spine fracture and quality of pedicle screw positioning with minimal invasive technique. Methods: 136 patients with burst fractures of the thoracic and lumbar spine were treated with bisegmental dorsal stabilization using a minimal invasive system between 2009 and 2014. We measured the reduction of the fractured vertebrae comparing the pre- and postoperative CT-Scan using the bisegmental spine angle in sagittal view and the positioning of the pedicle screws. A malpositioning was defined as a screw not exactly in or perforating the pedicle by more than 2 mm according to Gertzbein. Results: 48 A3.1, 44 A3.2 and 44 A3.3 fractures were treated with total 590 pedicle screws. 47 screws (8%) were malpositioned. No screw had to be replaced. Average reduction in nine thoracic fractures was achieved from $8,2^{\circ} + 3,1^{\circ}$ preoperatively to $11,3^{\circ} + 6,4^{\circ}$ kyphosis, in 82 thoracolumbal (Th11-L2) fractures from $2,5^{\circ} + 6,0^{\circ}$ kyphosis to $5,6^{\circ} + 5,7^{\circ}$ lordosis and in 45 lumbar fractures from $6,9^{\circ} + 10,3^{\circ}$ to $14,5 + 8,8^{\circ}$ lordosis ($p < 0,001$, respectively). Discussion: In this study, adequate reduction of burst fractures of the thoracic and lumbar spine using a minimal invasive system for dorsal stabilization could be achieved. High accuracy of pedicle screw placement was shown.

Abstract no.: 44372

THE SAFE AND OPTIMAL USE OF THROMBOEMBOLIC DETERRENT STOCKINGS IN TRAUMA AND ORTHOPAEDICS

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Introduction: Thromboembolic Deterrent Stockings (TEDs) have been demonstrated to reduce the risk of venous thromboembolism, a particular concern in orthopaedic patients. However, their efficacy, and indeed the avoidance of complications, is partly dependent on their correct usage (including correct fitting and positioning). Thus, the aim of this study was to determine compliance with established guidelines about correct usage. **Methods:** This was an observational study, conducted on the orthopaedic wards of a tertiary centre in London. Data was collected prospectively, on two separate days in January 2016. Patients and relatives were interviewed, their stockings, notes and drug charts reviewed. Patients were excluded if they were not wearing TED stockings or were unable (or their relatives unable) to answer interview questions. **Results:** Of the 47 patients in total, seven were not wearing stockings due to clinical contraindications (e.g. peripheral vascular disease). Two of the remaining 40 (5%) were not wearing stockings despite their indication; in both cases due to patient choice. Of the 38 patients wearing TED stockings, none were provided with an information leaflet. 22 (57.9%) had undergone stocking/skin inspection within the last 24 hours. 30 (78.9%) were fitted with the correct size, with 17 (44.7%) wearing them correctly positioned. VTE risk assessment has been undertaken for 37 patients (97.3%); and stockings prescribed on the drug chart for 32 (82.4%). **Discussion:** This study has revealed shortfalls in the usage of TED stockings, particularly in the provision of patient information and in positioning. An education programme may prove a potential solution.

Abstract no.: 44374

TRANEXAMIC ACID FOR BLOOD LOSS MANAGEMENT IN PRIMARY HIP AND KNEE ARTHROPLASTY: A RESTROSPECTIVE STUDY

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Introduction: Total knee replacements (TKRs) and total hip replacements (THRs) are associated with significant blood loss. The antifibrinolytic agent, tranexamic acid, is being increasingly used to reduce this. The aim was to determine blood loss following these operations, in the presence of tranexamic acid administration. Methods: A retrospective study was undertaken in a London teaching hospital, between the 24th of April and the 9th of October 2015. All TKRs and THRs, in which tranexamic acid had been administered, were included. Haemoglobin and haematocrit levels were recorded, both pre and post-operatively. Additionally, true total red blood cell loss was calculated for each patient, as a function of their height, weight and change in haematocrit. Finally, the prevalence of venous thromboembolism was recorded. Results: 28 TKRs and 23 THRs were performed, with concurrent use of tranexamic acid. Of the patients undergoing TKR, the mean Hb drop was 21.4g/L and Hct drop 0.066, with a mean calculated total red blood cell loss of 185.2 mls. Of the patients undergoing THR, the mean Hb drop was 27.9 and Hct drop 0.079, with a mean calculated total red blood cell loss of 265.3mls. None of the patients suffered a venous thromboembolic event. Discussion: The administration of tranexamic acid to patients undergoing TKR or THR resulted in low mean drops in haemoglobin, haematocrit and calculated total red blood cell loss, with no incidence of venous thromboembolism. Thus, it has been demonstrated as a safe and effective technique in minimising blood loss in these operations.

Abstract no.: 44376

HIP ARTHROPLASTY INFORMATION ON THE WEB: A QUALITATIVE AND QUANTITATIVE ANALYSIS OF COMMERCIAL AND INDEPENDENT WEBSITES

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Background: Direct to consumer (DTC) advertising, targeting the public over the physician, is an increasingly pervasive presence in medical clinics. Increasingly this is in the format of online interaction rather than traditional print and television advertising. Methods: We analysed patient focused webpages from the top five companies supplying prostheses for total hip replacements, comparing them to the top ten independent medical websites. Comparison was made for quantitative quality using the JAMA benchmarks and DISERN criteria, and for readability using the Flesch-Kincaid grade level; the Flesch reading ease; and the Gunning Fog index. Content was analysed for information on type of surgery and surgical approach. Results: There was a statistically significant difference between the independent and DTC websites in both the mean DISERN score (Independent 74.6 (SD: 4.77); DTC 32.2 (SD: 10.28) ($p = 0.0022$)) and the mean JAMA score (Independent 3.45 (SD: 0.49); DTC 1.9 (SD: 0.74), ($p = 0.004$)). The differences between the readability scores were not statistically significantly. The commercial content was found to be heavily biased in favour of the direct anterior approach and minimally invasive surgical techniques. Conclusion: We demonstrate the quality of information on commercial websites is inferior to that of the independent sites. The avocation of surgical approaches by industry to the patient group is a concern. This study underlines the importance of future regulation of commercial patient education webpages.

Abstract no.: 44377

RADIOFREQUENCY MICROTENOTOMY (RFM) IN TREATMENT OF CHRONIC ACHILLES TENDINOPATHY (CAT)– OUR EXPERIENCE

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Introduction: CAT due to chronic inflammation and tendinous degeneration, limits patients mobility and everyday activities. Surgical treatment is indicated when conservative treatment fails. The aim of this work is to evaluate the results of RFM in CAT. Material and Methods: 6 patients were treated between 2012 and 2014. Conservative treatment was attempted for a minimum of 6 months. Pre and post operative results were evaluated using the visual analogue scale (VAS), the Short Form questionnaire (SF-36) and the AOFAS scale. Results: Mean follow-up was 15 months. 4 (67%) patients were male and 2 (33%) female. The average age was 45 years. All patients reported a significant improvement in pain after 3 months. The mean value obtained on the VAS before the operation was 8.6 (7-9) and 2.6 (1-4) after ($p < 0.01$). The mean AOFAS score before surgery was 38 (24-50), after two months 78 (70-82) and after 6 months 88 (84-90) ($p < 0.01$). All patients reported a significant improvement in quality of life, were satisfied with the results and would accept to repeat surgery. There were no major complications and no cases required re-intervention. Discussion/Conclusion: RFM provides improvement in pain, functional outcomes and quality of life in patients with CAT resistant to conservative treatment. Functional results, patient satisfaction rate and pain relief in this study were similar to those reported in the literature. However, there was a lower rate of complications and faster functional recovery. RFM is a simple, effective, well tolerated and minimally invasive procedure with quite satisfactory results.

Abstract no.: 44379

OPEN REDUCTION AND INTERNAL FIXATION OF NON-UNION OF ISOLATED PROXIMAL FIBULAR FRACTURE

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Introduction: Isolated Proximal fibular fracture following indirect injury is relatively rare and usually these injuries settle with time. In the literature there is no described treatment of non-union of proximal fibular fractures. Case discussion: We hereby report a case of 51-year-old female treated successfully with surgical fixation of non-union of Proximal fibular fracture. This lady sustained a fracture of Proximal fibula as a result of direct injury due to fall. The patient was treated non-operatively for seven months with splints and above knee cast. Pain at the fracture site persisted inspite of all treatment whereas serial radiographs and MRI at six months showed non-union of the Proximal fibular fracture. NCV studies for common peroneal nerve were normal. Finally at seven months after thorough assessment and discussion, we decided to treat it surgically. The fracture was fixed with 6.5mm partially threaded cancellous screw inserted antegrade through the fibula head. At six weeks follow-up patient had no pain and she was fully mobile independently. Discussion: I cannot find any such case or study whereby fixation of Proximal fibular fracture was carried out for non-union. In many cases where the fracture does not heal by bony union, patients become symptom-free as fibrous union is sufficient to alleviate the symptoms. This was a rare case where we had to operate and fix the fracture due to ongoing pain from the fracture site despite exhausting all the nonoperative treatment modalities. We believe this is the first described surgical treatment for non-union of Proximal fibular fracture.

Abstract no.: 44380

IMPLICATIONS OF ADOPTING GET IT RIGHT FIRST TIME (GIRFT) FOR TOTAL HIP REPLACEMENTS

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Introduction: GIRFT aims at streamlining primary Total Hip Replacement (THR). It also proposed the use of Orthopaedic Devices Evaluation Panel (ODEP) 10A* rated cemented THR. Aim: Purpose of this study was to assess the effects of adopting GIRFT on surgical time, length of stay, changes to the implants and number of cases per surgical list. Methods and materials: Prior to adopting GIRFT, primary THR was predominantly uncemented. Age, sex, Body Mass Index (BMI), American Society of Anesthetiss (ASA), closure technique and surgical time of 50 consecutive primary uncemented THR were analysed to identify the appropriate statistical methods. Threshold increase in surgical time was set at 20 minutes. Minimum sample size was calculated to be 19. Prospective data on 60 uncemented THR and 30 cemented primary THR were analysed. Inclusion criteria – primary THR for arthritis by single surgeon. Exclusion criteria – previous hip surgery, complex primary and abnormal anatomy. Results: No differences in age, sex, BMI, ASA and length of stay between the two groups. Surgical time for cemented THR was increased (28 minutes, $p < 0.001$). Implants used changed from 7A*/5A* uncemented THR to 10A* (18/30) and 7A*(12/30). Reduction in number of cases per surgical list due to the increase in surgical time (3 instead of 4). Discussion: GIRFT compliance improved from 0% to 100% cemented. 0% 10A* rated implants to 66% 10A* rated implants. However, there is potential for financial loss when the savings in the implants used is offset by the reduction in the number of surgeries performed.

Abstract no.: 44382

FIX AND REPLACE; NOT JUST FIX OR REPLACE: COMBINED OPEN REDUCTION INTERNAL FIXATION AND TOTAL HIP ARTHROPLASTY FOR ELDERLY PATIENTS WITH ACETABULAR FRACTURES.

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Introduction: Acetabular fractures are common in elderly patients resulting from low energy trauma. This study looked at the early results of Fix And Replace approach to elderly patients with acetabular fractures. Methods: This study presents data on 10 patients managed with Fix And Replace approach to acetabular fractures over a period of 2 year. Patients aged 65 year or above were included. Modified Stoppa approach was used to fix anterior column when required and Kocher Langenbeck approach for posterior column fixation and total hip arthroplasty. Patients were allowed to weight bear as tolerated. Outcomes included Oxford Hip Scores, EQ5D, time to full weight bearing, radiological healing and complications. Results: Average age was 79 years. Mean follow up was 12 months (8 – 16 months). 5 patients required combined Stoppa and Kocher-Langenbeck approach while remaining 5 patients had only Kocher-Langenbeck approach. On average patients were able to fully weight bear on affected side at 3 week. Average post operative hospital stay was 12.5 days (5 – 28 days) and except 2 all were discharged to their home. Oxford Hip Scores were 43.6 pre-injury and 41 at 6 month post operative while EQ5D VAS scale (0 – 100) was 84 pre-injury and 80 at 6 months post operative. Post operative complications included hip dislocation in 2 patients and chest infection in 2 patients. Conclusion: Fix And Replace approach to acetabular fractures in elderly patients is a viable option but require careful patient selection and a multidisciplinary approach to achieve better outcome.

Abstract no.: 44387

EVALUATION OF RESULTS OF METAL INTERFERENCE SCREWS FOR FIXATION OF SOFT TISSUE GRAFTS IN ARTHROSCOPIC ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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Abstract Background: Anterior Cruciate Ligament is the most common ligament to be injured and arthroscopically reconstructed in knee. The fixation of graft plays a major role in the success of the reconstruction. The options of fixation are mainly aperture fixation and distal fixation. Aperture fixation is increasingly used even for soft tissue grafts in view of its good results. In developed countries the soft tissue grafts are fixed with bio absorbable screws but in India we are using metal interference screws to fix the graft due to the financial constraints. Purpose: This study is to evaluate the relevance and results of Soft tissue graft fixation in arthroscopic ACL reconstruction with metal interference screws. Methodology: 50 patients with isolated complete rupture of ACL with symptomatic instability are included in the study. Multiligament injuries or with associated intra or extra articular injuries are excluded. All patients underwent Arthroscopic ACL reconstruction with Hamstring Graft and fixed with metal interference screw on both tibial and femoral sides by a single surgeon. Their results are assessed in terms of Latchmann test IKDC score at intervals of 3 wks, 6 wks , 3 months, 6 months, 1 year. Results :Mean age : 35 yrs Male:Female 3:2, Mean follow up duration is 11/2 years no patient is lost to follow up, Latchmann –ve in all patients, IKDC improved from a mean of 42 to 97 by 1 year. Conclusion : Metal interference screw for fixing soft tissue graft in arthroscopic ACL reconstruction is a good viable option.

Abstract no.: 44388

ARTHROSCOPIC DIAGNOSIS OF PATHOLOGICAL CHANGES IN THE SYNOVIAL MEMBRANE OF THE KNEE JOINT IN JUVENILE RHEUMATOID ARTHRITIS

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Introduction. Among the various manifestations of JRA leading place takes synovitis of the knee joint. The inflammatory process that develops in the synovial membrane, determines the main features of the clinical picture. Materials and methods. In total about 55 JRA were conducted diagnostic knee arthroscopy 55 pediatric patients. The average age of the patients was 9.7 years. The median observation period - 61 months (21 - 90). The average value of the state of the knee on a scale Lysholm-Tegner in the preoperative period was 52 points (50 - 56). Results. No statistically significant relationship between the duration of the disease and the detection of pathological changes in the synovial membrane of the knee has not been revealed. When analyzing the frequency of pathological changes detected in each of the departments of the joint revealed that children with JRA most often affects the medial, upper volvulus and the intercondylar notch (87.3%, 80.3% and 78.9%, respectively). Thus, 11.3% (8) of the cases identified macroscopically local synovitis, in 70.4% (50) cases - widespread and 18.3% (13) - diffuse. Just 1.4% (1) of the cases it was found mediopatellar pathological synovial plica, while not clinically identified specific for this disease symptoms (negative tests mediopatellar folds, extensor, flexion, rotation-valgus and holding - test). Conclusions. Children with JRA most often affects the synovium of the knee in the medial (87.3%), upper volvulus (80.3%) and the intercondylar notch (78.9%).

Abstract no.: 44389

A SYSTEMATIC ANALYSIS OF THE REASONS FOR PROSTHETIC FAILURE AFTER TOTAL HUMERUS REPLACEMENT WITH THE MUTARS™ SYSTEM FOLLOWING RESECTION OF PRIMARY OR SECONDARY MALIGNANT BONE TUMORS

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Our goal was to systematically evaluate the reasons for the first endoprosthetic failure (EF) following resection of the total humerus and reconstruction with the MUTARS™ system. We performed a retrospective analysis of the files of 22 consecutive patients with bone sarcomas (n=18) or bone metastases (n=4) treated between 1999 and 2011. Failure modes were classified according to Henderson et al. The median duration of surgery amounted to 270 minutes. The median reconstruction length was 28 cm. The median follow-up amounted to 32 months. Seven patients suffered from an EF after a median interval of 2 months. The prosthesis survival probability amounted to 65% after 5 years. The most common failure modes were infection and soft tissue failures (n=3 each), followed by a tumor recurrence (n=1). The duration of surgery had no influence on the development of EF (p=0.898). There was a trend for a correlation between the length of reconstruction and EF (p=0.063). Patients undergoing local radiation treatment had a significantly higher probability for EF (71% vs. 14% after one year, p=0.042). The resection of the whole humerus and the reconstruction with a total humerus replacement is a feasible alternative to amputation for patients with locally advanced bone sarcomas or bone metastases, however patients need to be informed about the high risk of EF. More than two thirds of the patients in our cohort had to undergo removal of the prosthesis or secondary amputation following local radiation therapy, so that alternative treatment options should be evaluated for these patients.

Abstract no.: 44390

A RETROSPECTIVE STUDY OF PRE-OPERATIVE ANAEMIA IN HIP AND KNEE ARTHROPLASTY

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Introduction: Pre-operative anaemia is associated with an increased risk of morbidity, mortality and allogenic transfusion. This is a particularly concern of knee and hip arthroplasty, due to the accompanying blood loss. Thus, the aim was to evaluate the prevalence and consequences of pre-operative anaemia. **Methods:** A retrospective study was carried out in the orthopaedic department of a London teaching hospital, between the 7th of April and the 9th of October 2015. Consecutive elective Total Knee Replacements (TKRs) and Total Hip Replacements (THRs), performed by the authoring surgeon were included. Baseline and postoperative haemoglobin, the administration of allogenic transfusion and the time-period between pre-operative bloods and operation were recorded. **Results:** 36 TKRs and 25 THRs were observed. The mean male and female pre-operative haemoglobins were 139.5g/L (sd 11.7) and 126.9g/L (sd 13.5) respectively. 4 of the males and 11 of the females were anaemic pre-operatively, according to the WHO criteria (20.0% and 27.5% respectively). 5 patients with pre-operative anaemia required transfusion (33.3%); 2 patients without pre-operative anaemia required transfusion (4.3%). Pre-operative bloods were taken a mean of 27.1 days (sd 20.9) before operation. **Discussion:** This study has demonstrated a high proportion of patients undergoing knee or hip arthroplasty to be anaemic pre-operatively, which confers an increased risk of allogenic transfusion. Furthermore, it has revealed a short time between pre-operative phlebotomy and operation. Thus, we recommend pre-operative bloods to be performed a minimum of 28 days prior to surgery, in order that tailored investigations and treatment for anaemia can be performed.

Abstract no.: 44396

MANAGEMENT OF STIFF KNEE WITH ARTHROSCOPIC OR OPEN ARTHROLYSIS – RETROSPECTIVE ANALYSIS OF 43 CASES

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INTRODUCTION:Arthrofibrosis of knee is a major complication associated with high energy injuries around knee and other varied aetiologies. Management of stiff knee is a real challenge to orthopaedic surgeon and there are no definitive guidelines. Purpose of the study is to retrospectively analyse functional outcomes following knee arthrolysis with arthroscopic, arthroscopic assisted open and open arthrolysis techniques. **MATERIALS AND METHODS:**Retrospective Study conducted at Ganga Hospital from Jan 2010 to Jan 2013. Forty three Patients with knee arthrofibrosis were graded according to Shelbournes criteria and were managed with one of the three techniques (Arthroscopic arthrolysis (19), Arthroscopic assisted open arthrolysis (18) and open arthrolysis (6)) depending on severity of arthrofibrosis. All patients post operatively were subjected to aggressive physiotherapy protocol under good analgesia to sustain range of movements achieved intraoperatively. **RESULTS** Mean follow up duration was 17.06months (Range 6 to 30 months). Mean flexion in arthroscopic arthrolysis group (Shelbournes Grade 2 and 3) improved from pre operative flexion of 66.32 to 112.63 degrees at final follow up. In Patients who were managed with arthroscopic assisted open arthrolysis (Shelbournes Grade 3) and open arthrolysis (Shelbournes Grade 4) flexion improved from mean of 38.33 to 84.73 and from mean of 16.67 to 70.83 degrees respectively.**CONCLUSION:** Managing knee arthrofibrosis warrants proper grading and individualised approach to obtain satisfactory results. Early arthrolysis (<6 months) carries better outcome with arthroscopic technique. Arthroscopic and arthroscopic assisted open arthrolysis provide encouraging results in grade 2 and grade 3 arthrofibrosis. **KEY WORDS** Arthrofibrosis, arthrolysis, arthroscopic, open

Abstract no.: 44397

THE USE OF SODIUM BICARBONATE TO REDUCE THE PAIN OF LOCAL ANAESTHESIA IN CARPAL TUNNEL SURGERY

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Introduction: Carpal tunnel surgery is mainly undertaken under local anaesthesia as a day case procedure. This study aimed to assess if the addition of sodium bicarbonate reduced the pain patients suffered during local anaesthetic administration for elective day case carpal tunnel surgery. Methods: Consecutive patients who were undergoing day case carpal tunnel surgery were either injected with either . 5ml of 1% lidocaine and 5ml of 0.5% chirocaine or 9ml of 1% lidocaine with 1 in 200,000 adrenaline and 1ml of 8.4% sodium bicarbonate. Results: 22 patients in the control group with a mean age of 53.4 and 17 females and 5 males. There were 21 patients in the sodium bicarbonate group with a mean age of 53, 14 females and 7 males. The mean anaesthetic pain score in the control group was 5.6 (Range 0-10), and in the sodium bicarbonate group 3.6 (Range 0-7) (P=0.022). The number of times patients felt pain during local anaesthetic injection in the control group was 2.6 (Range 0-5) and in the sodium bicarbonate group 1.6 (Range 1-3) (P=0.003). The pain during the surgical procedure in the control group was 0.45 (Range 0-3) and in the sodium bicarbonate group was 0.62 (Range 0-6) (P=0.821). Conclusions: The group receiving sodium bicarbonate had significantly less pain during the anaesthetic injection and felt pain significantly less times during the injection. There was no difference between the 2 groups of pain during the operation.

Abstract no.: 44398

ANTEROLATERAL LIGAMENT RECONSTRUCTION: INDICATIONS, SURGICAL TECHNIQUE, EARLY FUNCTIONAL RESULTS AND COMPLICATIONS

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Introduction: Recent anatomical and biomechanical studies showed the presence and importance of the knee anterolateral ligament (ALL). It would function as a secondary stabilizer to the anterior cruciate ligament (ACL) in controlling the anterolateral tibial rotation. The aim of this study is to describe the technique used for ALL reconstruction, indications, complications and early functional results. **Methods:** The combined ACL and ALL reconstruction is performed with the use of a triple semitendinosus tendon and a single gracilis, so the reconstructed ACL would be quadruple and the remaining portion of the gracilis would be used for the ALL reconstruction. The fixation of the ALL on the tibia is done with the knee close to full extension and neutral rotation. **Indications for combined reconstruction were:** revision ACL reconstruction, high-grade pivot-shift at initial examination, patients at high risk of re-rupture of the ACL. 25 patients have been operated so far with at least 12-months follow up. **Results:** None of the patients experienced rupture of the graft so far. The IKDC ranged from 83.9 to 89.2. As complications, 18 patients complained of a lateral discomfort on the incision area on the lateral epicondyle. This discomfort lasted on average three months. One patient had a pull-out of the femoral anchor. **Conclusion:** The reconstruction of the ALL associated with the ACL reconstruction showed good short-term functional results with low index of complications and should be considered in the surgical arsenal of knee surgeons, especially in cases of anterolateral instability.

Abstract no.: 44399

EFFICACY OF ORAL MONTHLY IBANDRONATE IN POST MENOPAUSAL OSTEOPOROSIS TREATMENT

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Introduction: Post menopausal osteoporotic fractures are major cause of socio-economic burden to an individual as well as to society. It is a preventable disease. Various pharmaceutical agents have been described for treatment of osteoporosis, biphosphonates are considered to be as gold standard. Among various biphosphonates, we evaluated the efficacy of once monthly Ibandronate for the treatment of post menopausal osteoporosis. Materials & Methods: Total 152 postmenopausal osteoporotic females with T-score <-2.5 , between age group 50- 75years, satisfying our inclusion criteria's, were enrolled. All patient were treated by giving monthly dose of 150 mg of Ibandronate along with calcium and Vit D. Bone mineral density and bio-markers were measured at base line. Bio-markers level were studied at 3 monthly interval than at 6 monthly interval and finally at 9 monthly interval while BMD was repeated after 18 months. Adverse outcome was accessed in terms of occurrence of a fracture or death. Results: BMD at hip (0.73 ± 0.08 gm/cm² to 0.88 ± 0.11 gm/cm²) and spine (0.63 ± 0.08 gm/cm² to 0.77 ± 0.07 gm/cm²) were significantly ($p<.05$) higher from baseline, although increase in BMD at wrist (0.63 ± 0.18 gm/cm² to 0.66 ± 0.01 gm/cm²)was also observed but it was not significant as compare to baseline. Value of CTX was significantly lowered down from baseline($p<.05$). We observed seven cases of wrist, five cases of hip and spinal fractures. 7 deaths were observed, two were after osteoporotic hip fracture morbidity. Conclusion: We observed significant increase in BMD at hip and spine with use of ibandronate among post menopausal females. It can be used to reduce socio-economic burden and morbidity associated with osteoporotic fractures.

Abstract no.: 44404

A SYSTEMATIC ANALYSIS OF THE REASONS FOR PROSTHETIC FAILURE AFTER PROXIMAL HUMERUS REPLACEMENT WITH THE MUTARS™ SYSTEM FOLLOWING RESECTION OF PRIMARY OR SECONDARY BONE TUMORS

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We sought to evaluate the reasons for the first endoprosthetic failure (EF) and the functional outcome following resection of proximal humerus bone tumors and reconstruction with MUTARS™ megaprotheses. We retrospectively analyzed the files of 118 patients with locally aggressive (n=7), primary malignant bone tumors (n=79) or bone metastases (n=32) treated between 1998 and 2013. Failure modes were classified according to Henderson et al. The functional outcome was evaluated with the American Shoulder and Elbow Surgeons (ASES) score. The mean duration of surgery was 186 minutes. The mean excision length amounted to 14 cm. The mean follow-up was 48 months. 21 patients suffered from an EF after a mean interval of 13 months. The prosthesis survival probability was 80% after 5 years. The most common failure mode was infection (n=10), followed by soft tissue failure (n=5), structural failure (n=4) and tumor progression (n=2). Duration of surgery, humerus excision length, coating of the prosthesis or method of stem fixation had no impact on prosthesis survival probability (p=0.792/0.139/0.224/0.624, respectively). Extraarticular resection, preoperative radiation treatment and the presence or development of metastasis in patients with primary sarcomas were significantly associated with a higher risk for EF (p=0.008/0.026/0.009, respectively). The mean ASES score was 67 points. Patients undergoing preoperative radiotherapy, extraarticular resections and patients with primary sarcomas and metastatic disease appear to be at a higher risk for EF. The functional outcome following proximal humerus replacement appears to be comparable to the outcome of patients undergoing shoulder replacement due to arthritis or proximal humerus fracture.

Abstract no.: 44405

LUXATIO ERECTA FEMORIS: AN ANTERIOR INFERIOR HIP DISLOCATION SIMULATING SHOULDER DISLOCATION: A RARE CASE REPORT

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Introduction: Inferior hip dislocation is a rare entity. Only a few cases have been reported. Case Report: A 26 year old male suffered inferior hip dislocation sustained trauma as a result of road traffic accident. He presented with severe left hip pain and was not able to move his hip. His left hip was in flexion and abduction while thigh was lying over the abdomen. After giving intravenous analgesia, radiograph was performed which showed inferior dislocation of the left hip, femoral head was inverted and lying lateral to the ischium. Under general anaesthesia reduction was performed by applying traction and internal rotation of the flexed hip with counter traction over the pelvis. Check x-ray showed congruent hip reduction. He was immobilized on a Thomas knee splint for six weeks, then gradual weight bearing was allowed. At the end of three years follow-up, the patient has no signs of avascular necrosis or any complication. Conclusion: Due to increase in high velocity trauma, unusual presentation of injuries are common. Patient with the presentation of flexion and abduction of hip along with thigh over abdomen should be considered for inferior hip dislocation.

Abstract no.: 44409

ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION IN YOUNG ATHLETES

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Introduction: Reconstruction for anterior cruciate ligament (ACL) injuries in children is controversial and may be a challenge for the surgeon, considering the risk of interfering with patient's growth. However, it has been consistently presented as the best option in active young patients. This work aims to present technics for ACL repair described for this age group, discuss their expected benefits and inconveniences, as well as our outcomes. **Methods:** 13 patients were included with an average age of 13 years and 7 months. 3 different technics were performed (2 physeal-sparing, 1 intraphyseal and 10 transphyseal), according to age and bone maturity. Patients were submitted to a strict rehabilitation protocol and periodic radiographic evaluations. Results were compared according to Lisholm and IKDC scores and SF-12 questionnaires. **Results:** Average follow-up was of 15 months. No re-tears or re-interventions were documented. Lisholm score was in the excellent / good interval in 94% of knees. Average IKDC score was 84,3 and results of the SF-12 were 55.0 ± 3.2 for physical and 57.2 ± 3.4 for mental aspects. All presented normal walking pattern and returned to sport activity without report of growth disturbances. **Conclusions:** ACL Reconstruction in Children, presented good radiological and clinical results in our study group. However, having a short follow-up time, all patients should maintain surveillance until the end of their expected growth period. If all technical aspects are respected, ACL Reconstruction in Children can control stability and preserve the meniscus. The risks associated with epiphysiodesis, however, should not be forgotten.

Abstract no.: 44411

DOUBLE-PLATING ULNAR FIXATION IN COMPLEX FRACTURE-DISLOCATION OF THE PROXIMAL ULNA AND RADIUS

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Complex fracture-dislocations of the proximal ulna and radius represent a challenge even for expert orthopaedic surgeons. The aim of this study was to analyze the indications and clinical results of double-plating fixation in complex articular fractures of proximal ulna. We studied 5 out of 38 patients affected by proximal ulna and radial fracture-dislocation affected by complex ulnar fracture with involvement of the anteromedial metaphysis including the coronoid process in the sagittal plane. In accordance with the Proximal Ulnar and Radial Fracture-Dislocation Comprehensive Classification System PURCCS classification these 5 patients presented the following lesions: 4 AI, 3 BIII CIII, 4 BII, 4 AI, 5 BIII CI. In these patients was performed a fixation of the ulnar diaphysis with a posterior plate associated to fixation with the anteromedial plate for the coronoid fracture. Patients were followed-up clinically and radiographically for a mean of 35 months (12-71). The clinical evaluation was performed with MEPS, DASH-score and m-ASES. At the last follow-up, the mean MEPS, DASH-score and m-ASES were 99, 4 and 90, respectively. The mean extension-flexion and pronation-supination were 11°-139° and 89°-83°, respectively. The complications observed were: 1 ulnar sensitive neuropathy and 1 dehiscence of the surgical wound. The double-plating fixation may be necessary to treat the complex ulna fractures with the involvement of the sagittal plane of the anteromedial coronoid. In accordance with our results, this technique represents a valid therapeutic alternative to obtain a stable osteosynthesis of the proximal ulna that permits an early rehabilitation and faster recovery elbow function.

Abstract no.: 44418

REMOVAL OF IMPLANTS AFTER OPEN REDUCTION AND INTERNAL FIXATION OF MALLEOLAR FRACTURES IMPROVES CLINICAL OUTCOMES. A COMPARATIVE ANALYSIS OF 63 PATIENTS

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Introduction: The frequency of implant removal after ankle fracture surgery appears unclear. We reviewed prospectively collected data on operated ankle fractures for incidence of implant removal and factors implicated with it. **Methods:** Sixty-three adult ankle fractures operated over 2 years were prospectively followed. Charts and follow-ups were reviewed for complaints attributable to hardware like deep persistent pain, stiffness and limited mobility. Implants of symptomatic patients (study group) were removed. Outcomes 2 years postoperatively were compared to patients in whom implants did not require removal (controls). Olerud Molander Ankle Score (OMAS) and a 10-point Visual Analogue Scale (VAS) were recorded in both groups. Differences between demographic, fracture and operative details were evaluated. **Results:** Among 63 operated ankle fractures, 28 (44.44%) underwent hardware removal (study group). Mean OMAS and VAS of study group preoperatively and 2 years postoperatively were 73 and 5.2; and 91.5 and 1.6 respectively which were comparable to controls 3 years after fixation. The study group had a greater; mean age, number of female patients, co-morbidities, smokers, mean time to surgery and hospital stay. All 7 tension band wires to fix medial malleoli and all 5 antero-posterior screws inserted for posterior malleolus fixation required removal and were consequently, a part of the study group. **Conclusions:** Predictable improvement in pain and function can be expected after hardware removal from the ankle. By identifying predisposing factors for implant removal after ankle fracture surgery, patients at-risk can be counselled at the time of fixation.

Abstract no.: 44420

A CASE SERIES OF PERIPROSTHETIC FRACTURES OF THE DISTAL FEMUR

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Introduction: Periprosthetic distal femoral fractures are occurring in increasing numbers. They provide both surgical and anaesthetic challenges. Despite this, there is very little research into outcomes and mortality. This study aimed to assess the 30 day and 1 year mortality for patients presenting with a periprosthetic distal femoral fracture. **Methods:** Periprosthetic distal femoral fractures were identified from a hospital database and through radiographic reviews of ICD-10 codes for distal femoral fractures. Following identification, a retrospective case note and radiographic review was undertaken. **Results:** 67 patients presented with a distal femoral periprosthetic fracture between 1st January 2008 and 1st March 2015. There were 55 females and 12 males. The mean age was 72.0 (range 63-98). There were 65 periprosthetic fractures of total knee replacements and 2 with unicompartamental knee replacements. 45 patients underwent open reduction internal fixation, 14 patients underwent revision arthroplasty, 6 patients underwent conservative treatment and 2 patients had intramedullary nailing. The mean wait to surgery was 5.2 days (range 7hrs to 20.4 days). . The mean length of stay was 14 days (range 1-49). The 30 day mortality was 3.0% (2 patients), and the 1 year mortality was 10.4% (7 patients). **Conclusions:** Periprosthetic distal femoral fractures are becoming a more common orthopaedic presentation. Whilst they had low mortality rates in this case series, they occur in a complex group of patients and these patients often had a long wait for surgery, and had a long length of stay compared to many other acute orthopaedic presentations.

Abstract no.: 44421

FOUR YEAR RESULTS WITH A MINIMUM OF THREE YEAR FOLLOW UP OF A MODULAR TRABECULAR METAL CUP IN MANAGEMENT OF ACETABULAR RECONSTRUCTION FOLLOWING ADVERSE REACTION TO METAL DEBRIS WITH ALVAL FROM SINGLE SURGEON IN THE UNITED KINGDOM.

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Reconstruction of acetabulum in patients with significant acetabular bone deficiency remains a major challenge. The system we reviewed utilises internal augments within acetabular shell to allow optimal placement an additional external augment to gain maximum purchase in bone. We performed a retrospective review of our 20 patients who have undergone either complex primary hip replacement or revision hip arthroplasty using this system with augments (8 primary and 12 revisions). Minimum follow up was 24 months. average Harris hip score improved from 55 preoperatively to 76 postoperatively. 18 cups demonstrated no lucency. There were two failures resulting in further surgery. One insulin dependent patient presented with a late infection 6 months post revision requiring a further 2 stage revision. A second patient sustained an early catastrophic dislocation of the entire cup and augment assembly around a peri-acetabular fracture. Both were revised successfully. Delta One revision cup system utilising modular augments effectively manages complex primary and gross bone loss in revision situations. Internal cup augments add a useful dimension for the management of complex deformity. The system leads to high patient satisfaction providing solid construct in the face of significant bony deformity. Further review and assessment of long term outcomes is recommended.

Abstract no.: 44424

'EXPERIMENTAL STUDY OF VARIOUS CONFIGURATIONS OF TENSION BAND WIRING ON A MODEL OF PATELLA, AND INTRODUCING 'HORIZONTAL FIGURE OF EIGHT' TENSION BAND WIRING WITH CLINICAL RESULTS'

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A study was done to test the strength of various configurations of tension band wiring (TBW) and report clinical results of Horizontal Figure of Eight TBW (H-8 TBW) (Sonanis and Bhende modification). A model of fractured patella was mounted on a Nene tensile testing machine and TBWs were tested in different positions of Kirschner wire. Strength of various knots securing the ends of wires were also analysed. Since 1986, H-8 TBW was used clinically in 42 patients (40 fractured patella, 2 greater trochanteric osteotomies). Mean age was 59 years (21-97) and patients were followed up to 18 months. Experimentally H-8 TBW (0.8mm wire) could resist distraction force of 700 N at 5mm opening. Placement of the two Kirschner wires at the mid way between centre and edge of patella at the level of fracture site achieved maximum compression and rotational stability. Crimping method of gripping the ends of wires was the most secured method (120 N). Clinically bony union using H-8 TBW was achieved in 41 patients. Complications seen were superficial infection in 3 patients, wire pain in 7, and 1 death. We conclude that crimping was the best method for securing ends of TBW, and H-8 TBW achieved optimum and best secured fixation.

Abstract no.: 44425

ANATOMICAL VARIATIONS OF THE HUMERAL TROCHLEAR NOTCH ANGLE: MRI ANALYSIS OF 78 ELBOWS

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Little is known about anatomical variations of the humeral trochlear notch angle, nor do we know whether the cartilaginous layer modifies the trochlear bony contour. Our aim was to assess the variability of the bony and cartilaginous trochlear notch angles. We assessed 78 healthy elbows (39 patients, 19 females and 20 males) with a mean age of 28 years (range 21-32). High-definition MRI coronal scans at the level of the flexion-extension axis were performed. The cartilage thickness, the notch angle and trochlear width were calculated at the level of the deepest point of the trochlear sulcus, the edge of the lateral and medial ridge. Patient height was used as indirect measurement of humerus length. Pearson correlation and Student's t-tests were performed. Mean cartilage thickness was 1.00mm (range 0.62-1.83), with significant differences between the medial trochlear ridge and the other landmarks. The notch angle ranged from 124° to 156° (mean 142°) with no differences between the bony and cartilage layers. Trochlear width ranged from 1.57 to 2.75 cm (mean 2.24) and correlated with humerus length. No correlation emerged between the trochlear notch angle, trochlear width or humerus length. The only significant difference between sexes was the width value, with a wider trochlea in males. The trochlear notch angle varies considerably, determining anatomical variations in trochlear shape which ranges from less concave to more concave types. Moreover the cartilaginous layer does not modify this angle at the level examined. These findings may be relevant to anatomical implant design for distal humerus hemiarthroplasty.

Abstract no.: 44428

'FEMORAL HEAD NECK RATIO' AND ITS EFFECT ON THE TOTAL HIP REPLACEMENTS

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Auto-CAD study is done to observe the effects of head neck ratio (HNR) in joint replacements. Total hip replacement joints were reconstructed on CAD with increasing diameter of the head keeping neck diameter constant in 1997. Simulation was done and Range of Movement (ROM), impingement and stability of the hip joint was noted. A graph was plotted with HNR on X-axis and ROM on Y-axis. It was observed that as the HNR increases the ROM of the joint is increased, impingement is reduced and stability is also increased. It is also observed that diameter of the head and neck is more important than considering only head diameter of the hip joint. The graphical analysis confirms that different diameters of the head may have same HNR depending on the neck diameter. So even in smaller diameter head the HNR may be more due to smaller diameter neck and may be more advantages than larger diameter head with bigger neck having smaller HNR. We conclude that HNR is more important than the head diameter alone in hip replacements.

Abstract no.: 44430

TOTAL KNEE ARTHROPLASTY FOR NAIL PATELLA SYNDROME

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Introduction: Hereditary osteo-oncodisplasia or nail-patella syndrome (NPS) is a rare disorder. The patellas are hypoplastic or absent. The main orthopedic complaint of these patients is patellar instability associated with pain and functional limitation. Objectives: Our aim is to present a brief literature review for the nail-patella syndrome, alongside a clinical case treated successfully in our institution. Methods: 47 years old, female, with NPS and osteochondritis dissecans of the external femoral condyle of the left knee. Clinically presented knee pain, due to knee osteoarthritis, and was proposed for total knee arthroplasty (TKA). The preoperative study, surgical technique and postoperative outcome are presented. Results: TKA was performed with Nexgen prosthesis in February 2014. The surgery and postoperative period went well. Currently, no pain, blockage or instability are referred. Physical therapy is still maintained with slow but gradual improvement in joint mobility. Conclusions: Although there is no cure for osteo-oncodisplasia, several treatments have been useful in the symptomatic treatment of changes in the knees. A patellectomy is indicated in cases of unfavorable evolution, patellofemoral osteoarthritis, pain and significant functional limitation. TKA, although rarely described in the literature for treating these patients, appears to be indicated in selected cases, where there is severe osteoarthritis, even if the patella is absent, as in the case here described. The treatment was effective and the patient improved not only quality of life but also pain and joint mobility. The patient's motivation and collaboration with physical therapy colleagues, combined with an uneventful surgery, positively influenced clinical outcome.

Abstract no.: 44433

THUMB DUPLICATION – OUR SURGICAL RESULTS. A RETROSPECTIVE REVIEW OF 29 THUMBS

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Introduction: Thumb duplication is a common congenital abnormality of the hand, described as a failure of formation/differentiation affecting the radial-ulnar axis of the hand plate. Objectives: Reporting our experience in treating thumb duplication. Methods: 28 patients (29 thumbs) with different degrees of polydactyly of the thumb were included. 16 male and 12 female. All surgically treated in our institution between 1996 and 2013. Clinical, functional and aesthetic results were evaluated. A subjective evaluation regarding patient and/or parents satisfaction was performed. All complications were reported. Results: Mean age (at the time of surgery) of 15.8 months (7- 52 months - 1 adult excluded). The mean postoperative follow up was of 8 years (1.5 to 17). The series included type I (n=2), type II (n=5), type III (n=3), type IV (n=13), type V (n=3), type VI (n=1) and type VII (n=2) duplications. One infection was reported, and four cases were reoperated due to instability or mobility deficits. A nail ridge was also reported after a Bilhaut-Cloquet procedure. Most cases referred a significant clinical improvement and 83% were satisfied or very satisfied with the results and would accept to repeat surgery. Conclusions: Surgical outcomes in Thumb Polydactyly are satisfactory. Surgery is mandatory whenever there is joint deformity and should be performed at an early age. The technique is rigorous and demanding and should be individualized to each patient. We believe that surgical strategy depends on the level of duplication. The Wassel classification is a simple and useful tool to guide our decision.

Abstract no.: 44434

**EXTENSIVE CLUBFOOT SURGERY VIA CINCINNATI APPROACH:
LONG-TERM RETROSPECTIVE EVALUATION OF 73 CLUBFEET.**

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In 1989, the senior author began treating resistant clubfeet with subtalar release described by Simons. The present study demonstrates the long-term evaluation of this large cohort of patients. In our hospital, extensive peritalar release via Cincinnati approach was first performed in 1989. Between that time and May 1993, 129 patients underwent this procedure. Of these, 14 patients with 22 teratologic or neuromuscular clubfeet were excluded, leaving a group of 115 patients with 167 clubfeet. Of this group, 66 patients (94 feet) were lost to follow-up. The rest of the patients were invited by phone for a personal clinical and radiological evaluation. Surveys included ICFSG, Laaveg&Ponseti, Magone and other scores for clubfoot surgery. This study presents results in 49 patients with idiopathic clubfeet who returned for examination. 49 patients (73 clubfeet), average age 23,4 years old were evaluated. 22 clubfeet (30%) required subsequent surgery at the time of follow-up, with only one patient requiring triple arthrodesis. Much lower scores were detected for patients who underwent additional surgeries ($p \leq 0,03$). Evaluation of the same group of patients using different rating scales showed significant divergence in classification of results. Conclusions: Study presents the long-term results of 49 patients with idiopathic clubfoot treated by just one surgeon using a typical protocol. 22 clubfeet (30%) underwent subsequent surgery. The rate of additional procedures in our group is lower than in most (but not in all) previous long-term studies. Significance: This study demonstrates that extensive clubfoot surgery, if it is done properly, provides good and excellent results.

Abstract no.: 44437

GENDER DIFFERENCES IN THE PRE-SARTORIAL SOFT TISSUES OF THE KNEE: AN MRI EVALUATION

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Introduction: It is often noted amongst knee surgeons that the pre-sartorial soft tissue in women is more abundant than men. This study aims to characterize whether such observations transpire into a proven finding that has not previously been confirmed in the literature. **Methods:** A retrospective evaluation of 80 randomly generated knee MRI's, using a standard protocol, was carried out. There were two trained independent observers, blinded to BMI, pathology and patient demographics to eliminate confounding. The pre-sartorial soft tissue thickness measurement was carried out at the midpoint of the anterior-medial aspect of the tibia on the axial view at a consistent point. The sample was randomly sequenced for each observer. Each observers measurements were then matched and respective gender/ demographics identified. For each gender distribution, mean measurements, standard deviation and assessment of statistical significance for differences was carried out. **Results:** There was a M:F distribution of 1:1.4, the overall mean measurement of 8.69 (SD 3.71) for males and 13.75 (4.401) for females was observed. There was a statistically significant difference between males and females ($P < 0.002$) **Conclusion:** Based on our limited but randomized and blinded MRI study; we have found that the subcutaneous pre-sartorial soft tissue layer in females is significantly larger than males, independent of age, BMI and pathology. The clinical significance of this finding is yet to be delineated

Abstract no.: 44438

STUDY OF DIAPHYSEAL FRACTURES WITH FLEXIBLE/ELASTIC INTRAMEDULLARY NAILING IN CHILDREN - A PROSPECTIVE STUDY OF 50 CASES

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Introduction: Pediatric Diaphyseal fractures are a common emergency in the Accident / Emergency department. Different modalities of treatment ranges from – 1) Closed Reduction and Casting 2) Open reduction & Plating osteosynthesis and 3) External fixator. Study of Closed Diaphyseal Fractures with Flexible Intramedullary Nailing in children (6 - 16 years) with mean age of 9years. Methods and Results: The study included 40 males and 10 females with 15 Tibia Diaphyseal fractures, 8 Radius-Ulna fractures and 25 Femur Diaphyseal fractures & 2 Humerus Diaphyseal fractures. Results were good as Fractures united - Clinically at mean time of 10 weeks, Radiologically at mean time 20 weeks Nails were removed after mean time of 24 weeks With minimal postoperative complication, no angular deformation or limb length discrepancy. Conclusion: Treatment was Biological Fixation with minimal complications. It had psychological, social, educational & economic advantages over the conventional conservative treatment

Abstract no.: 44441

OPERATIVE MANAGEMENT OF PAEDIATRIC SUPRACONDYLAR FRACTURES: A THREE YEAR EXPERIENCE AT A BUSY DISTRICT GENERAL HOSPITAL.

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Introduction: Paediatric supracondylar fractures are common childhood injuries and risk damage to both vascular and neurological structures, requiring prompt specialist assessment. These fractures are regularly seen, especially during summer months, as such, national guidelines have been issued to optimize their management. Working at a busy district general hospital, the authors reviewed departmental data to evaluate our experience of operative management of these fractures. Methods: Retrospective review of notes for all children under 15 years diagnosed with a humerus supracondylar fracture and treated by manipulation under anaesthetic plus Kirschner wire fixation, between June 2012 and October 2015. Patients identified from a trauma database maintained by the department. Demographic data (fracture type, Garden classification), operative data (time to surgery from diagnosis, out of hours operation) in addition to post operative complications were collected and analysed. Results: Fifty-eight children (median age 5, ages 2-13) with Gartland I, II, III supracondylar fractures (3 (5%); 24 (41%); 31(54%), respectively) were identified; Fifty-seven (98%) were extension type. Ninety six percent of patients underwent surgery within 24 hours of diagnosis (median 12 hours). Sixteen patients (28%), all with displaced (Gartland III) injuries, were operated on out of hours lists by consultants and specialist registrars, 10 and 6 respectively. Overall sixteen complications were identified (including pin site infection, neuropraxia, prolonged physio and loss of reduction), 4 patients required further operations. This incidence was not out of keeping with current published data suggesting good practice at this busy unit.

Abstract no.: 44444

12 YEAR SURVIVORSHIP AFTER CEMENTED AND UNCEMENTED MEDIAL AND LATERAL UNICOMPARTMENTAL KNEE ARTHROPLASTY

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Introduction: It is widely accepted that unicompartmental knee arthroplasty (UKA) has a lower morbidity with a lower risk of serious complications, including infection, and is significantly less expensive. Despite this, results of knee replacement registries have shown that UKA has a significantly higher revision and failure rate than current state of the art TKA. Our prospective study focuses on the twelve year survivorship and describes the clinical and functional outcome of cemented and uncemented Uniglide-Prosthesis for medial and lateral compartment arthritis (OA). A consecutive series (N=1121) of 240 medial (reached > 12 Years) and 82 lateral (reached > 12 Years) implantations performed for mono-compartmental osteoarthritis were recorded and updated since 1991 to the present using the Knee Society Scoring System (KS & FS) as a validated outcome measure. Kaplan-Meier analysis was done to calculate the 12 year survival rates using the endpoint of revision for any reason. Results: There were a total of 11 cases in the medial group and 5 cases in the lateral group which were revised due to failures for any cause, giving a cumulative survival rate at twelve years of 94.74 % for medial OA and 90.08 % for lateral OA. KS (21-to-94) and FS (55-to-84) increased stat. sign. ($p < .01$) from pre-to postoperative, as well as the range of motion (106-to-122 degrees) and walking ability. Pain was significantly reduced in both groups. Conclusion: Based on our findings we believe that UKA offers a safe and effective solution for the treatment of medial and lateral osteoarthritis.

Abstract no.: 44446

A COMPARATIVE ANALYSIS OF STEP-WISE SURGICAL TIMES IN KNEE REPLACEMENT WITH PATIENT SPECIFIC GUIDES AND CONVENTIONAL TECHNIQUE.

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Introduction: Patient specific matched guides have become increasingly popular in knee replacement surgery. This study aimed to compare the step wise operative times in knee replacement surgery using patient specific knee guides and conventional technique and to assess if the former offers any advantage. Methods: This was a prospective study. All patients undergoing knee replacement using patient specific guides (Signature Vanguard, Biomet; PS group) and conventional guides (Vanguard, Biomet and MRK, MatOrtho; Non PS group) were included in the study. The age, BMI and ASA in both groups were noted. The timing at different stages of knee replacement surgery were also noted viz. skin incision (SI), bone preparation (BP), final alignment (FA), placement of implants (PI) and skin closure(SC). The time interval between the different steps and total surgical time was compared. Results: There were 41 patients in PS group and 34 in Non-PS group. Both groups were comparable in terms of age, BMI and ASA grade. The time between BP to FA was 3.1 minutes less in PS group compared to non PS group but this difference was not statistically different. The time interval in other steps (SI to BP, FA to PI and PI to SC) and total surgical time was not statistically significant. Conclusion: Though, patient specific matched guides give marginal time advantage at the stage of bone preparation to final alignment with trial implants when compared to conventional technique, the difference is statistically not significant.

Abstract no.: 44447

EFFECTS OF CLOCKWISE ROTATIONAL TORQUE OF IMPLANT ON UNSTABLE INTERTROCHANTERIC FRACTURES

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A comparative study was performed to assess the effects of the rotational torque of the implant onto the fracture configuration in an unstable right and left inter-trochanteric fractures. The clockwise rotational torque during screw insertion can lead to a potentially unstable fixation in left sided DHS fixations as compared to the right sided ones. The unstable fixation is revealed as an anterior spike of the proximal fragment in intertrochanteric fixations due to clockwise torque. Eighteen out of 69 unstable left-sided fractures showed an anterior spike compared with none in 58 right-sided fractures. The study highlights the importance of appropriate corrective measures needed to prevent malfixation in unstable left sided fractures treated with a DHS.

Abstract no.: 44450

MEDIUM TERM RESULTS OF A NEW CEMENTED SHORT-STEM IN TOTAL HIP ARTHROPLASTY.

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Aim of this prospective study is to evaluate functional recovery and implant stability of the Friendly Short stem in THR. 96 patients (100 hips) underwent THA with this cemented short-stem; they were 63% women, with a mean age and BMI of 73 ± 6 years and of 27 ± 4 kg/m². Most patients were retired (87%) and led a moderately active lifestyle (79%). Underlying pathology was mostly primary coxarthrosis (94%). Radiographic and clinical evaluation (Harris Hip Score, HHS) were performed preoperatively, and postoperatively, at 45 days, and at 6, 12, 24, 60 months. Oxford Hip Score (OHS) was performed at the same time-points and at 36 and 48 months. Despite old age, all patients reported remarkable early recovery, especially in terms of joint functionality, with mean flexion of $101.7^\circ\pm 8.9^\circ$ already at 45 days, with respect to a mean preoperative value of $77.7^\circ\pm 11.1^\circ$. Pain relief was also observed to improve very rapidly [HHS pain: preoperative 9.6 ± 4.2 , 41.4 ± 3.6 at 45 days; OHS pain: preoperative 0.2 ± 0.5 , 3.4 ± 0.8 at 45 days]. Significant improvements were also observed in terms of clinical outcomes, with mean HHS and OHS increasing from 36.0 ± 11.3 and 10.9 ± 4.9 , preoperatively, to 78.6 ± 9.9 and 34.0 ± 7.4 , at 45 days. These preliminary results were confirmed at 4 to 5 year follow-up (HHS: 96.4 ± 6.1 ; OHS: 46.5 ± 3.1). X-rays demonstrated good implant stability; there was only 1 case of non-progressive 1-mm RLs but no osteolytic areas, subsidence or loosening. Absence of fatigue fractures in the cement mantle proved good stress distribution. No revision or implant failure occurred up to 5 years.

Abstract no.: 44451

NEONATAL CLUBFOOT POPULATION IN A 5-MILLION CITY: A TOTAL SCREENING DURING 2 YEARS.

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Congenital clubfoot is a well-visualized pathology and its identification is not a problem. The prenatal ultrasound screening also allow detecting fetal clubfoot. These two factors made this survey possible. The research includes 196 neonates with a total of 302 clubfeet. All feet were initially evaluated during the first day of life. The initial clubfoot severity evaluated according to Pirani and Dimeglio scales. Patients with Dimegliol type of clubfeet were excluded from the study. The following criteria were analyzed: severity, gender, unilateral/bilateral involvement, family history, prenatal clubfoot visualization. Female/male ratio was 1:2,16. Unilateral/bilateral clubfoot ratio was 1:1,13. Left/right ratio in unilateral clubfoot group was 1:1,79. Family history was positive in 24 of 196 patients . Clubfoot was prenatally detected in 98 patients. Most of clubfeet had DimegliolII-III types (88%) and only 12% were DimegliolIV. In bilateral cases the right foot was more severely affected than the left one in 64 % of the patients. 48 clubfeet in 34 patients were evaluated at birth and on the 7th day of life, no treatment was performed in this group. The deformity increased significantly in 96% of cases. Conclusion: Clubfoot was more often observed among boys. In cases of unilateral clubfoot, the right foot is involved more often than the left one. Most patients do not have any family history. The most severe clubfoot type (DimegliolIV) was found much more rarely than DimegliolIII-II types. Comparative evaluation demonstrates that clubfoot severity progressed significantly in 96% of affected feet during the first week of life.

Abstract no.: 44453

RECONSTRUCTION OF CHRONIC DISTAL BICEPS RUPTURE USING SEMITENDINOSUS TENDON AUTOGRAFT

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Chronic distal biceps ruptures are uncommon and their reconstruction is technically challenging. Proximal biceps muscle retraction, shortening of the musculo-tendinous unit and adhesion formation make direct reattachment to bone difficult and the results are considered inferior than acute ruptures. The aim of this case report was to evaluate the results of anatomic reconstruction of a chronic distal biceps rupture using a semitendinosus autograft tendon through a single anterior approach. We report a case of 40-year-old male, who experienced sharp pain in his forearm and elbow after lifting a heavy object 5 months before coming to our consultation. History and physical examination raised suspicion with MRI imaging determining a distal biceps tendon tear with subsequent confirmation at surgery. Surgical repair was performed for the chronic distal biceps tendon using a semitendinosus autograft tendon through a single anterior incision. The semitendinosus tendon autograft was attached to the bicipital tuberosity by using the Endo-button technique and then secured to the biceps stump with a side to side suture technique. The patient was evaluated with regard to satisfaction, pain, range of motion and strength. He was fully satisfied with the procedure and was able to return to his pre-injury employment and physical activities. No complications were encountered. Late reconstruction of distal biceps rupture through a single anterior approach using semitendinosus tendon autograft is an effective and safe technique for this challenging problem. Although a demanding procedure with a prolonged rehabilitation period, it is an excellent alternative for patients with high functional demands.

Abstract no.: 44455

USE OF MODIFIED FULKERSON TIBIAL TUBERCLE OSTEOTOMY IN PATIENTS WITH PATELLOFEMORAL INSTABILITY AND OSTEOARTHRITIS

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Introduction: Many operative techniques have been described to realign the patella using tibial tubercle osteotomy in Patellofemoral malalignment syndrome. One of the main challenges for the knee surgeon has been to determine the correct procedure for the correct indication in this difficult knee condition. Fulkerson tibial tubercle osteotomy (anteromedialization) has been popular but has resulted in unfavourable results in certain groups of patients. We would like to present the operative technique we adopted, a modification to Fulkerson osteotomy, which we used in a specific group of middle aged patients with patellofemoral instability and patellofemoral osteoarthritis. This technique has resulted in significant improvement in symptoms in this group of patients. Discription of the operative procedure: The procedure involves longitudinal incision over the Tibial tuberosity. Osteotomy of the Tibial tubercle was followed by medialisation as per the preoperative measurement of Tibial Tuberosity to Trochlear Groove (TTTG) distance and distalisation of the tubercle as per the measurement of Patella alta (using Caton Deschamps index), followed by lag screw fixation. Discussion: Clinical and radiological assessment of Patellofemoral joint is very important in understanding the pathoanatomy of this rather difficult condition. Magnetic Resonance (MR) scan and plain lateral radiographs form good adjuncts to the understanding the TTTG, patellofemoral arthritis as well as patella alta. Distalising and medialising tibial tubercle osteotomy is more commonly used for young patients with patellar instability. But we would like to emphasise that this technique is very useful in middle age population with symptoms and signs of patellofemoral arthritis as well.

Abstract no.: 44457

A COMPARATIVE STUDY BETWEEN LATERAL 1/3RD CLAVICLE FRACTURES MANAGED CONSERVATIVELY AND SURGICALLY

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Introduction: Fractures of the clavicle is one of the most common injures of human skeleton. It has been traditionally treated non-operatively. The present study was undertaken to compare the results between fractures treated conservatively and surgically. Methods: Thirty adult patients with clavicular fractures(Robinson Classification Type 3B)were included in this study. Sixteen(group-1) lateral 1/3rd clavicle fractures, were fixed with reconstruction plate&screws, K-wires and TBW and fourteen(group-2) Type 3B were treated conservatively with shoulder arm pouch and immobilizer. Results: In Group-1, 16 fractures united at 6-10 weeks. 1 patient had a superficial infection, 1 had hypertrophic scar and 1 patient had an implant breakage. 1 patient had restriction of shoulder range of motion (< 120° forward flexion). In Group-2, 6 fractures united at 12 weeks, 6 had nonunion, one required surgery due to pain, and 2 had delayed union. 11 patients had a malunion with visible external deformity in seven. One patient opted for surgery at the end of 12 weeks. 5 patients had restriction of shoulder ROM (<120° forward flexion) 4 improved over a period of 6 months after vigorous physiotherapy and 1 had continued restriction. The functional outcome according to Constant and Murley score after fracture union were excellent, good and fair in 12, 3 and 1 patients respectively in group-1, while 7, 3 and 4 patients in group-2. Conclusion: This study shows rigid fixation for fresh lateral 1/3rd third clavicle fracture gives immediate pain relief, prevents the development of shoulder stiffness and non union and is cosmetically more acceptable.

Abstract no.: 44462

IMPROVING ORTHOPAEDIC SERVICE DELIVERY THROUGH THE DUTY SURGEON

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Introduction: The Duty Surgeon represents a new model of care. The aim of implementing this service was to have more senior support for both the on-call junior doctor and other medical staff, making quick and effective management plan for patients with any orthopaedic issue. Method: A prospective study in a busy district general hospital (catchment area, 600,000) during September 2015 to February 2016. Results: 317 calls received. 157 calls between 8am-1pm shift and 160 during 1pm-5pm. Post-introduction of the duty surgeon service, the weekly A&E attendance of patients with any orthopaedic issue decreased from 27 to 21 patients, the average waiting time for advice given improved from 34 to 26 minutes. Also, the 24 hours length of stay emergencies on the observation bay in A&E decreased from 7.1 to 5.7 patients on Monday to Friday admission. This data suggests that service was improved as a direct consequence of more support offered by the senior orthopaedic doctors. Conclusion: Trauma and Orthopaedics at William Harvey Hospital is a very busy specialty requiring junior doctor cover for trauma calls and non-admission related Orthopaedic jobs, also senior support in making quick and effective decisions regarding the management plan for any patients with Orthopaedic issues. Our recommendations would be to extend the duty surgeon shift from 8 am - 5 pm to a 12 hours shift with a look of any impact on contracts, participation in rota, accurate data recording and standards of answering the phone or giving advice more efficiently.

Abstract no.: 44464

**EXPERIENCE OF USE VENOSPONDYLOGRAPHY DURING
VERTEBROPLASTY AND PEDICLE SCREW
POLYMETHYLMETHACRYLATE AUGMENTATION.**

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Introduction: Vertebroplasty is an effective method for treatment of severe back pain, caused by osteolytic spinal lesions. The use of polymethylmethacrylate increases the strength of pedicle screws fixation in osteoporotic vertebral bodies. However, the introduction of cement in the perforated screws as well as vertebroplasty can be complicated with extravertebral bone cement leakages. Purpose: To investigate the results of use venospondylography during vertebroplasty in patients with osteolytic spinal lesions and pedicle screw polymethylmethacrylate augmentation in patients with osteoporosis and various diseases of the spine. Methods: 37 patients (26 women and 11 man aged from 24 to 70) with osteolytic lesions in the spine (35 hemangiomas, 1 plasmacytoma, 1 multiple myeloma) were operated on using a vertebroplasty. 19 patients (13 women and 6 man aged from 45 to 73) with osteoporosis and various diseases of the spine were operated on using cement augmentation of pedicle screws. In all cases venospondylography was performed for the prediction of cement pathways in the vertebral body. Results: Two cases paravertebral iohexol leakages were observed in venospondylography during the vertebroplasty, while the tip of the needle according to fluoroscopy visually located in the projection of the vertebral body. Two cases massive epidural iohexol leakages were observed in venospondylography during the installation of perforated pedicle screws. To prevent extravertebral bone cement leakages in the described cases, it took reinstall vertebroplasty needle and perforated pedicle screws. Conclusion: The use of venospondylography during vertebroplasty and pedicle screw polymethylmethacrylate augmentation reduce the risk of extravertebral bone cement leakages.

Abstract no.: 44466

INTRAOPERATIVE NAVIGATION AIDS IN DECREASING SPINAL CORD MONITORING EVENTS

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Introduction Intra operative O-Arm ® allows 3 dimensional navigation and has many documented benefits including lower radiation dose to the surgeon and assistant, more accurate pedicle screw placement and ability to aid minimally invasive surgery. Utilisation of the O-Arm allows accurate and precise single pass screw insertion and mitigates multiple pedicle passes. To our knowledge O-Arm has not been investigated for adult posterior spinal surgery with spinal cord monitoring. **Methods** Between 2005-2015, a single surgeon in two centres was analysed for adult posterior spinal surgical cases. We divided the cases before and after O-arm was first utilised. Spinal cord monitoring included somatosensory evoked potentials (SSEP) and motor evoked potentials (MEP). Events were categorised as Green (No events), Amber (Warning), Red (Danger) and Black (Technical difficulty) **Results** 669 consecutive posterior spinal surgical cases identified. Age and sex were well matched (57y v 59y). Pre-O-Arm: 355 (53%) cases had 10.3% SCM events (Green 89.2%, Amber 6.4%, Red 3.9%, Black 0.002%) Utilising the O-Arm 314 (47%) cases had 6.3% SCM events (Green 86.2%, Amber 2.8%, Red 3.5%). **Conclusion** Mitigating neurological injury in the perioperative period is of high importance in adult posterior spinal surgery. The O-arm intraoperative navigation has allowed the development of accurate and precise single pass pedicle screw insertion and to guide osteotomies with an ultrasonic bone cutter. There is a decrease from 10.3% SCM events to 6.3% with O-Arm use. Spinal cord monitoring in addition to O-Arm use is an excellent addition to the spine surgeons armamentarium.

Abstract no.: 44467

PHYSICAL METHODS IN THE DIAGNOSIS OF ACUTE PATELLAR INSTABILITY

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Primary diagnosis of lesions of the medial patellar stabilizers in case of the knee joint injuries is very important in the prevention of habitual dislocation of the patella, since spontaneous elimination of dislocation occurs in up to 50% of cases and initial treatment may be inadequate. Materials and methods: 142 patients with acute knee injuries were examined using clinical and MRI methods. The average age (Me, (25% - 75%)) of the patients was 16.6 (14,7-22,2) years. Results: lesions of medial patellar stabilizers were detected with MRI in 23 (16.2%) cases. The most frequent localization of lesions of the medial patella-femoral ligament (12 cases – 75%) was the area of its attachment to the patella. “Fork”-test (isolated pain along the medial surface of the patella during its bilateral palpation with two fingers) was positive in 28 (19,7%) cases, an apprehension test - in 23 (16.2%) cases. The sensitivity of the "fork"-test was 0,87 (95% CI 0,73-1,00), specificity - 0,93 (95% CI 0,89-0,98), accuracy - 0.92 (95% CI 0,88-0,97) . The sensitivity of the apprehension test, according to our data, was 0.74 (95% CI 0,56-0,92), specificity - 0.95 (95% CI 0,91-0,99), accuracy - 0,92 (95% CI 0,87-0,96). Conclusion: a thorough clinical examination of patients with knee joint injuries, including easy to perform “Fork”-test and apprehension test, is highly sensitive and should be carried out in full that will reduce the rate of misdiagnosis of knee pathology.

Abstract no.: 44468

CONSERVATIVE TREATMENT OF ACUTE PATELLAR DISLOCATION

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Acute traumatic patellar dislocation (ATPD) occurs in 5-50 cases per 100.000 yearly. Recurrences after ATPD occur in 10-40% of cases. Materials and methods: 111 patients (average age 15 (13-19,5) years) with ATPD were divided into 2 groups. Main group (n=51): plaster splint fixation up to 5-7 days, then circular cast fixation with patella centration and dorsal compression in the intercondylar groove of the femur up to 5 weeks. Control group (n=60): fixation with plaster splint for 3 weeks. There was no statistically significant difference between the groups in age, affected side and the time of observation: 38,1 (22,4-64,8) months. Results: significantly better results (Lysholm-Tegner scale) were obtained among patients of the main group: 84.3% good and excellent results against 75.0% in the control group, $U = 1164$, $p < 0,05$. Meanwhile, among main group patients in 15,7% of cases extensional contracture was detected (up 20 degrees), which was not found among the control group patients. The recurrences of patellar dislocation were observed in the main group in 5 (9,8%) cases, the average time after the primary dislocation was 21 months; in the control group – 17 (28.3%) cases (more often, $p < 0,05$), the period after the primary dislocation was 7 (3-21) months (shorter, $p < 0,05$). Conclusion: conservative methods are still effective in treatment of patients with ATPD. We prefer longer fixation with lower rate of recurrences and higher rate of contracture, but higher clinical results. One should use primary surgical treatment of ATPD only in case of complications.

Abstract no.: 44469

NON-ANCHOR MPFL RECONSTRUCTION IN PATIENTS WITH LATERAL PATELLAR INSTABILITY

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Surgical treatment of lateral patellar instability remains a topical issue of modern orthopedics, particularly in patients with incomplete growth of the skeleton. Materials and methods: 89 patients with lateral patellar instability (98 knee joints, 106 operations) were divided into 2 groups. Main group: proposed method (with soft-tissue fixation of the graft) of reconstruction of medial patella-femoral ligament with use of m. gracilis autograft, 16 patients, 17 knees. Control group: other surgical techniques, 73 patients, 81 knees. There was no statistically significant difference between the groups in age, gender, affected side, and before operation Lysholm-Tegner score. The average time of follow-up was 33.1 (14,2-64,8) months. The features of soft-tissue fixation are the following: 1) it allows use of shorter (16 cm) graft; preserves native MPFL fixing points and, therefore, proprioceptive sensitivity and shorter rehabilitation; lower risk of iatrogenic growth disorders; the absence of elements for removing in case of revision surgery. Results: average Lysholm-Tegner score (Me, 25% -75%) in the long-term postoperative period was 87 (82-90) in the main group, in control group - 83 (76-86) ($p < 0,05$). There were no complications of surgery, no recurrences of the dislocation of the patella among main group patients while we observed 10 cases (10,6%) of redislocation among control group patients. Conclusion: use of anatomical soft-tissue fixation of m.gracilis autograft for MPFL reconstruction allows to obtain better results with low risk of complications.

Abstract no.: 44474

LATERAL RETINACULAR RELEASE IN PATIENTS WITH LATERAL PATELLAR INSTABILITY

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Isolated lateral retinacular release is still widespread method of surgical treatment of patients with lateral patellar instability. Objective: to determine indications for its performance. Materials and methods: 43 patients with lateral patellar instability operated with the use of isolated lateral patellar retinaculum release. The average age of patients was 15 (12-19,5) years. In the preoperative period quadriceps pull-test was performed and assessed. Results: the estimation was made with use of the Lysholm-Tegner scale. Unsatisfactory results were observed in 6 (14.0%) cases, satisfactory - in 10 (23.3%) cases, good - in 19 (44.2%) cases, excellent - in 8 (18.6%) cases. There was a strong correlation between the results of treatment with quadriceps pull-test results ($\rho=-0,59$, $p<0,05$), medium strength correlation was revealed with tilt-test results ($\rho=0,65$, $p<0,05$) and the frontal patellar mobility test results ($\rho=-0,44$, $p<0,05$). Treatment results of patients who had the value of quadriceps pull-test 10 mm or less were significantly better than those of patients whose test results exceed 10 mm ($U=31$, $p<0,05$). The rate of postoperative recurrences of patellar dislocation was 7 cases (16.3%). Conclusion: we consider it appropriate to use an isolated lateral retinacular release only when there is evidence of a syndrome of lateral patellar hyperpression (positive patellar tilt-test, frontal mobility of the patella less than 1 quadrant, value of quadriceps pull test less than 10 mm).

Abstract no.: 44475

FIXATION OF PROXIMAL HUMERUS FRACTURES USING TRIGEN ANTEGRADE INTRAMEDULLARY NAIL

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Displaced proximal humerus fractures with a vascularized, attached head fragment require reduction & internal fixation. optimal surgical treatment remains controversial. Intramedullary nailing enables closed reduction & minimal disruption of soft tissues. Objective: to evaluate radiographic and functional results of the Trigen Nail in fixation of displaced proximal humerus fractures Neer type II, III and IV. Methods: A retrospective study of 19 patients with unilateral displaced proximal humerus fractures were treated with reduction & stabilization using a short, Trigen IMN between 2012 and 2016 .Exclusion criteria included minimally displaced fractures and pathological fractures .Patients were evaluated at 2 and 6 weeks postoperatively and at 3-month intervals until fracture union confirmed. Functional evaluation was assessed with the use of the ASES and Constant scores .The patients had an average follow-up of 24 months (15-36). The mean age was 60 years (37-84 y).13 patients were males and 6 were females. 7 of the fractures involved the dominant extremity.10 patients were 2-part fractures, 5 were 3-part fractures and 4 were 4-part fractures. Results: All patients had bone union except one who had tuberosity failure. 15 (82%) patients had satisfactory-to-excellent and 4 had poor Constant scores. 6 (30%) patients had impingement of a nail tip. Other complications included AVN (n=1), locking screw back-out (n=1), and screw penetration into the joint (n=2) Conclusion: Trigen Nail provides a stable fixation with minimal soft tissue dissection for displaced proximal humeral fractures. It enables early mobilization and functional recovery. Key words ; fracture fixation, intramedullary; humeral fractures.

Abstract no.: 44476

TWO STAGE ANTERIOR/POSTERIOR DEFORMITY FUSION: SELECTIVE LUMBAR FUSION ALLOWS SPARING OF LUMBAR MOTION SEGMENTS IN DOUBLE MAJOR ADOLESCENT IDIOPATHIC SCOLIOSIS.

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The literature suggests that there is increased back pain when the lowest instrumented vertebra (LIV) is below L3 and a distal LIV leads to decreased range of movement (ROM). Traditionally the LIV has been selected on a Standing AP radiograph using Harrington's stable zone (HSZ). Purpose: In adolescent idiopathic scoliosis (AIS), a 360° approach to double major curve, can save lumbar motion segments by selective LIV fusion compared to HSV. Retrospective radiographic review 2314 consecutive scoliosis deformity correcting surgeries from 2006 to 2012 with minimum 2 year follow up identifying all AIS with front / back two stage surgery and stratified by Kings Classification 1&2. Outcome Measures: Preoperative demographics. Preoperative: standing radiograph Cobb, Harrington Stable Vertebra, Supine Bending Radiograph (SBR) Cobb. Postoperative radiographs: Correction Rate (CR), Supine Bend Flexibility (SBF) and Supine Bending Flexibility Index (SBFI), LIV intervertebral cobb. Mean HSV was compared to actual LIV. Results: 58 anterior/posterior King 1&2 AIS (2.6%). 82% female, mean age 14.5y. Preoperative Cobb Main Thoracic (MT) 62.7°, Thoracolumbar (TL) 59.1°, Flexibility 31.8% (MT), 50.4% (TL). Postoperative CR was 68.6% (MT), 79.3% (TL). SCBI of 277.9% (MT), 177.9% (TL). The mean HSV 4.63, mean LIV 3.1. LIV intervertebral Cobb 4.57°. Conclusion Two stage anterior and posterior AIS correction can save a mean of 1.53 lumbar mobile segments and create an almost perfectly parallel LIV intervertebral cobb of 4.7° supporting selective lumbar fusion in front/back 360° surgery.

Abstract no.: 44479

THE MANAGEMENT OF ANKLE FRACTURES IN OCTOGENARIAN AND NONAGENARIANS. WHAT IS THE OPTIMUM MODE OF TREATMENT?

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Introduction: The rapidly growing elderly population is living longer, active lifestyles with significant comorbidities. This poses a very difficult management decision for the clinician with regards the optimum mode of treatment. Modern literature challenges the conservative approach to elderly ankle fractures. Our aim is to investigate the outcome of ankle fractures in patients aged over 80 years of age by treatment modality. **Methods:** We retrospectively reviewed all consecutive ankle fractures in patients over 80 years with a Weber B/C injury at our level 1 trauma centre over 5 years. Patients with conservative management (manipulation and casting) were compared with open reduction and internal fixation (ORIF) and external fixation (ex-fix) as a mode of definitive treatment. **Results:** We reviewed 35 fractures with 9 Ex-Fix, 6 ORIF's and 20 managed conservatively. Conservative management provided the shortest hospital stay at 19.5 days compared to ORIF (47 days, $p=0.068$) and Ex-Fix (52 days, $p=0.014$). ORIF provided good reduction at a cost of wound infections and need for further procedures. Ex-fix had the highest risk of mortality, wound infections and risk of malunion (33%). Conservative management experienced malunion and residual talar shift in 25% but avoided the surgical complications. **Conclusion:** A patient-by-patient assessment is key to assess function and physical demands. Physiological over chronological age should be considered alongside pre-morbid state. For low demand and frail patients conservative therapy is a logical choice. ORIF can be considered in the more active and independent as long as the risks are fully understood.

Abstract no.: 44481

**INTERTROCHANTERIC VALGUS OSTEOTOMY IN A FEMORAL NECK
NON-UNION IN THE YOUNG**

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Introduction: Non-union among post surgical fixation of femoral neck fractures occur in 10 to 30 percent of cases. This occurrence raises a dilemma between a salvage procedure versus an early hip replacement. Literature is replete in describing osteotomy and fixation techniques as treatment for non unions. However, the advent of improved hip replacement materials and techniques increased the longevity of prosthesis and established a good argument in favour of replacement. This paper revisited and validated the important role of retaining the native hip joint. Methodology: The patient is a 43 year old male who fell from a 20 feet height, X-rays showed a complete and displaced transcervical femoral neck fracture AO 31-B1. He underwent closed reduction and fixation with multiple screws. Subsequent visits showed radiographic non union, backing out of screws, and progressive varus angulation of the femoral shaft angle. There was also pain on weight bearing. Patient underwent an intertrochanteric valgus osteotomy with dynamic hip screw fixation five months after the first surgery. Discussion: Valgus osteotomy was first described by Pauwels in 1930. It follows the principle of reorienting the fracture line from a vertical into a more horizontal position in relation to the femoral shaft. In this maneuver, shear forces are converted to compressive forces. The varying choices of fixation were all described with good outcomes. Crucial in this surgery are accurate measurement of the angle and level of osteotomy and the pretensioning of the side plate prior to application of the femoral shaft screws.

Abstract no.: 44482

**WHAT AN ORTHOPEDIC SURGEON SHOULD KNOW ABOUT SCREW
“CUT OUT”?**

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Introduction: Intramedullary nailing is the gold standard surgical treatment for peritrochanteric hip fracture. Aim: Establish the incidence of screw "cut-out" as a complication, determine a mechanical or biological cause of this complication and evaluate the impairment in physical function in these patients. Method: We retrospectively analyzed 589 patients with peritrochanteric hip fracture. We found 9 cases of "cut out" that required new surgical treatment. We collected demographics data, functional parameters (BARTHEL Index), laboratory parameters (Vitamin D), radiological parameters as Tip-Apex Distance (TAD) and Parker Ratio (PR)). Results: We found a worst BARTHEL score and lower blood level of Vitamin D in the "cut out" group. Radiological results in "cut out" group showed TAD > 25 mm in 5 cases and TAD < 25 mm in 4 cases. All the cephalic screws were in a middle position as PR. The incidence of screw "cut-out" was 1.35%. We detected a possible mechanical cause in 50% of cases and biological in the remaining 50%. Patients in the "cut out" group reduced their BARTHEL score 18.75%. Conclusion: We detected a low incidence of screw "cut-out" in our series in comparison to the literature, however, screw "cut out" had an important reduction in patient's physical function. We recommend improving the surgical technique and improving the biological environment (Vitamin D).

Abstract no.: 44483

RIVAROXABAN FOR VTE PROPHYLAXIS IN PRIMARY TKR; A REDUCED RATE OF THROMBOTIC EVENTS COUNTERACTED BY AN INCREASED RATE OF BLEEDING RELATED RE-OPERATIONS

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Thromboembolic events post total knee replacement (TKR) have significant patient morbidity and mortality. The change in NICE guidelines of rivaroxaban for 14 days post TKR has significant logistical advantages compared with low molecular weight heparin (LMWH). RCT meta-analysis has shown reduced DVT rates with direct factor Xa inhibitors compared with low molecular weight heparin and no increased rate of major bleeding complications. All primary TKRs were reviewed over a ten year period using electronic records and coding, 5 years where LMWH was used and 5 years where rivaroxaban was used. A total of 4981 TKRs were identified. 1552 were carried using LMWH and 3429 using a rivaroxaban. In the LMWH group there was a 1.99% rate of DVT; 90% progressing to PE. In the rivaroxaban group there was a 0.50% rate of DVT; 76% progressing to PE. No patients in the LMWH group required manipulation under anaesthesia for stiffness. 116 patients in the rivaroxaban group required manipulation under anaesthesia; a rate of 3.38% 4 patients in the LMWH group required open or arthroscopic washout of the joint within 4 months, a rate of 0.26%. 78 patients in the rivaroxaban group required open or arthroscopic washout; a rate of 2.27%. There was an infection rate of 0.98% in the LMWH group and 0.88% in the rivaroxaban group. Whilst the introduction of rivaroxaban has seen a reduction in the thromboembolic event rate post TKR this is counteracted by an increase in the rate of bleeding related re-operations.

Abstract no.: 44485

**CORRELATION OF PAIN, FUNCTION AND RADIOLOGIC GRADING WITH
SYNOVITIS IN PATIENTS WITH TOTAL HIP REPLACEMENT FOR
PRIMARY OSTEOARTHRITIS**

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Introduction: Although osteoarthritis has been considered a non-inflammatory disease, there is mounting evidence regarding the role of the synovial membrane in the pathogenesis and progression of the disease. However, the correlation of pain and functional symptoms with the presence and severity of synovitis hasn't been widely studied in primary hip osteoarthritis. Material and method: The study included a consecutive series of 72 patients diagnosed with primary hip osteoarthritis and undergoing total joint replacement. Hip pain and function were assessed using the Visual Analog Scale and the Lequesne Index. Hip osteoarthritis was radiologically graded according to the Kellgren and Lawrence classification. The results of the subjective assessments and radiologic evaluation were correlated with the macroscopic severity of synovitis observed intra-operatively, graded as follows: grade 0 no synovitis (translucent, slender villi), grade 1 mild synovitis (with thin, opaque villi), grade 2 moderate synovitis (with thicker villi), and grade 3 severe synovitis (with severe hypervascularization and synovial proliferation). Results: We found a strong positive correlation between synovitis severity and hip pain, as well as between synovitis and radiologic grades. Lequesne index scores were in the moderate and severe range (5-10) for 87.5% of patients, and in the very severe range (11-13) for the remaining 12.5%. These functional scores showed a moderate positive correlation with the severity of macroscopically graded synovitis. Conclusion: The presence and severity of synovitis correlates with the radiologic severity of osteoarthritis, as well as with hip function and pain in primary osteoarthritis.

Abstract no.: 44486

**BLOOD TRANSFUSION RATE WITH AND WITHOUT TRANEXAMIC ACID
IN HIP REVISION SURGERY**

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The purpose of this study was to assess the efficacy of Tranexamic Acid (TA) in reducing transfusion requirements in patients undergoing revision hip arthroplasty. We prospectively included 125 consecutive patients who underwent a hip revision surgery at a single institution. Patients were non-randomized divided in two groups in order to analyse blood loss. Group 1, 61 patients who received 1000 mg dose of TA 20 minutes before the skin incision and a second 1000 mg dose after the skin suture. Group 2, 64 patients in which TA was not utilized. There were no statistic significant difference between groups considering age, sex, surgical features, preoperative Haemoglobin (Hb) and Haematocrit (Hc) levels. The average transfusion was 1.6 units (range 0 to 6 units) in the Group 1, and 2.7 units in Group 2 (range 0 to 6 units) ($p = 0.001$). Patients of the Tranexamic Acid group received 81 blood units of which 20 were autologous and 61 allogenic. Patients of Group 2 received 139 blood units of which 33 were autologous ($p = 0.001$). On average 51 % of the patients of the TA group did not received allogenic blood transfusions, as 83 % of the patients in the non TA group received allogenic blood transfusions ($p = 0.001$). We found a global 40 % decrease of blood transfusion rate in patients who received Tranexamic Acid during hip revision surgery. This fact should have positive effects on reducing costs, length of stay and transfusion related risks.

Abstract no.: 44487

MODIFIED TENSION GUIDE FIXATION (TGF), GEXFIX EXTERNAL FIXATOR IN PROXIMAL HUMERUS FRACTURES

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Proximal humerus fractures account for 4% of all fractures, and are the third most common fracture in the elderly. Available treatment options for these types of fractures include conservative treatment, prosthetic joint replacement, and synthesis, including plating, nailing and external fixation. Primary goals of treatment are to achieve early mobilization and to restore limb functionality. We describe a series of 31 patients who suffered from proximal humerus fracture, described with the Neer and the Hertel classification systems, which were treated with a modified Tension Guide Fixation (TGF), Gexfix, in our institute from 2009 to 2015. Mean age 63.4 years old, 9 females and 2 men. Minimum follow up was 8 months. The patients underwent a subjective and objective assessment using the Constant-Murley and the QuickDASH score. In our modified technique, we mount the external fixator by placing the pins on the humeral shaft. After fracture reduction, we introduce the K wires distally to the fracture, advancing them obliquely as far as the medial margin of the humeral head. Pins and K-wires are then connected to an external rod. We believe the modified TGF is a valuable option for proximal humeral fractures, considering the age of the patients, and the frequent comorbidities they are affected by. Stable reduction can be achieved avoiding several complications of open surgery, and we are able to avoid the transfixation of the rotator cuff as in the classic TGF, thus allowing an early mobilization, less discomfort for the patient, and a better and faster functional recovery.

Abstract no.: 44489

OUR EXPERIENCE WITH UNCEMENTED THA FOR FRACTURE NECK OF FEMUR.

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Primary total hip arthroplasty (THA) is the current recommendation for treatment of displaced intracapsular fractures of the neck of femur in active patients with low co-morbidities. In this retrospective study, we share our experience of using fully coated hydroxyapatite THA for treating these fractures. One hundred and thirty one patients with the mean age of seventy-four years underwent uncemented total hip arthroplasty for fracture neck of femur between 2008 and 2015. Male to female ratio was 1:4. 71% of the patients were ASA grade 2. Radiologically, 8% were Dorr A bone, 84% B, and 8% C. 62% were operated on within 36 hours. The average operating time was 1' 27" (0'42"- 2'57"). The average drop in haemoglobin was 19g/l. The average length of stay was 9 days. There were 3 readmissions within 28 days but none were related to surgery. The only intraoperative complication was stem fracture. There were 4 calcar and 3 greater trochanteric fractures treated with wiring. All were mobilized fully weight bearing with no problems post operatively. In the first 30 days there were no mortalities and one patient had dislocation. The use of uncemented THA in this group of patients is controversial but this study suggests it is a reasonable option. The main concern is intraoperative fracture, which occurred in 5% of patients. This study suggests that if it occurs it can be treated easily and safely at the time of surgery and causes no postoperative problem.

Abstract no.: 44490

PROXIMAL FIBULAR RESECTION IN PATIENTS WITH MULTIPLE OSTEOCHONDROMAS

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Proximal fibula osteochondromas are found in the vast majority of patients diagnosed with Multiple Osteochondromas (MO). They are often of considerable size and might cause severe distortion of the normal anatomy. Common clinical problems associated with MO are pain, skeletal deformity, neurovascular compression, and functional impairment. A retrospective study was conducted in a cohort of patients with MO who underwent en bloc resection of the proximal fibula including osteochondromas between December 2003 and July 2012. The study consisted of 45 patients (52 knees). Mean age was 19.0 years (range, 6-68). Pain (94.2%) and peroneal nerve palsies (44.2%) were the most reported indications. The proximal fibula was removed using a lateral approach. "Sleeve preparation" of the LCL and the biceps femoris was conducted in 86.5%. Forty patients (47 knees) were seen for follow-up examination after a mean period of 53 months (range, 4-116). Postoperative complications had occurred in 11.5%, including temporary peroneal nerve palsies in 9.6%. The function and stability of the knee was good. The dial test in all patients remained negative. The varus stress test was grade 1 in seven knees while the remaining knees had grade 0. 93% was satisfied after surgery. Histological examination revealed no malignant transformation. Proximal fibular resection is not without risk due to the adjacent neurovascular structures, most notably the peroneal nerve. In this series, no permanent lesions of these structures were found. The vast majority of patients were satisfied with the result of surgery, while stability and function of the knee was preserved.

Abstract no.: 44491

FRACTURE DISLOCATION OF THE TALUS: A CASE REPORT

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Introduction : Fractures of the talus are rare, resulting of violent trauma. In displaced fractures, evolution is marked by the high risk of necrosis. We report a case of fracture-dislocation of the talus. Methods : A 62 year-old man was admitted to emergency department after traffic accident. The examination revealed a fracture dislocation of the talus. The patient was operated with reduction and stabilization by pinning. Results : The surgical suites were good, without skin necrosis, or sepsis. With 24 months follow up, there is a necrosis of the talus, but without loss of height of the bone. It's well tolerated by the patient. He presents an ankle edema, a rare pain especially during prolonged walking. Discussion : Due to the bad vascularization, displaced fractures of the talus often evolve into osteonecrosis. This risk is increased when dislocation is associated. The surgical treatment should be urgent. In our case, even if it was a fracture dislocation, the evolution was good after two years. Conclusion : Displaced fractures of the talus face the risk of bone necrosis. An urgent and appropriate treatment is required to avoid and delay the necrosis and to preserve the function of the ankle

Abstract no.: 44492

HARVEST OF THE GRACILIS TENDON DOES NOT AFFECT POST-OPERATIVE KNEE FLEXION STRENGTH AFTER ARTHROSCOPIC LATERAL ANKLE LIGAMENT RECONSTRUCTION

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Introduction: Lateral ligament reconstruction of the ankle using an autogenous gracilis tendon is the stronger technique to stabilize the instability ankle than the Brostrom repair whose strength depends on quality of the ruptured ligament. Clinically, patients resumed full activity around 3 months after surgery. Although donor site morbidity is disadvantage of the technique using a gracilis tendon, it is not yet clear whether harvest of the gracilis tendon affects post-operative knee flexion strength after lateral ligament reconstruction of the ankle. Methods: Fifteen patients (4 men and 11 women, average age 30.8 years old) were assessed with an isokinetic knee muscle strength 3 months after arthroscopic lateral ankle ligament reconstruction using an autogenous gracilis tendon. We investigated the side-to-side ratio in the peak torque in the quadriceps (extensor) and hamstrings (flexor) at 60 deg./sec., 180 deg./sec. and 300 deg./sec. with a Biodex dynamometer (Biodex Medical Systems, Shirley, NY). Statistical analysis was conducted with t-test. Results: There were no significant differences at any angular speed 3 months after surgery. Conclusions: Harvesting the gracilis tendon appears not to affect knee flexor muscle weakness in the period of return to sports activities after arthroscopic lateral ankle ligament reconstruction. Donor site morbidity should not be overestimated.

Abstract no.: 44495

PRE-OPERATIVE DOPPLERS ARE USELESS IN PREVENTION OF DEEP VENOUS THROMBOSIS OR PULMONARY EMBOLISM AFTER TOTAL JOINT REPLACEMENT

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Post-operative deep venous thrombosis (DVT) and subsequent pulmonary embolism (PE) remain a serious complication after total joint replacement. The aim of this study was to assess the utility of pre-operative dopplers as a tool to screen and reduce DVT/PE rate. Between January 2014 and December 2014, 211 elective primary hip and knee arthroplasty were identified from our prospective institutional database as two consecutive cohorts. In the first cohort, 115 cases, all underwent routine pre-operative doppler screening and in the control cohort, 96 cases, only patients with prior history of DVT or PE underwent pre-operative dopplers. Patients were followed for a minimum of 3 month post-operatively. In the cohort with pre-operative dopplers, none of the pre-operative dopplers were positive for DVT, including three patients that had a history of prior DVT. 34 patients in this group (29%) underwent post-operative dopplers within 3 month after index surgery. Only one patient (no prior history of DVT) developed symptomatic DVT/PE (0.8%) after total knee arthroplasty. In the control cohort, 3 of which (3%) had symptomatic DVT, one of which had PE (1%) during hospital stay, all after total knee arthroplasty. There was no statistical difference for rate of symptomatic DVT/PE between the two groups ($p=0.3$). There was no correlation between DVT and age, gender or BMI. Utilization of routine pre-operative dopplers for all patients did not lower the rate of symptomatic DVT/PE and are not helpful in early detection and prevention in asymptomatic patients prior to routine total joint replacement.

Abstract no.: 44497

**INPATIENT FALLS RESULTING IN A FRACTURED NECK OF FEMUR:
WHAT WE CAN DO TO PREVENT THEM**

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Background: Inpatients who fall and sustain a fractured neck of femur (#NOF) have a significantly higher mortality rate than those who sustain a #NOF in the community. We reviewed inpatient falls resulting in #NOF at our trust to determine factors that contribute to the fall and identify preventative measure. Methods: A retrospective study of root cause analyses of all inpatients who sustained a #NOF in our trust over a thirty-nine month period. Each root cause analysis identified 'areas to be improved' and 'recommendations' and from this data we determined recurring factors that contributed to falls and recommendations to prevent future events. Results: 64 inpatients who fell during this thirty-nine month period had a full root cause analysis completed. Only 14% of these had all necessary measures in place to prevent a fall. 39% did not have a complete falls risk assessment on admission. 40% did not have their falls risk assessment repeated following a change in condition, e.g. developing delirium. 31% did not have the appropriate supervision recommended by their falls risk assessment. 9% received sedation which contributed to their fall. Conclusions: This study identified only a small proportion of inpatients who fell sustaining a #NOF had the necessary measures in place. We recommend that: 1. Patients should have a complete falls risk assessment on admission. 2. Falls risk assessments should be repeated if the patients' condition changes. 3. Patients should be appropriately supervised based on the recommendations of their falls risk assessment. 4. Prescribe sedatives cautiously.

Abstract no.: 44499

INTERLEUKIN-6 (IL-6) FOR THE ASSESSMENT OF THE ADEQUACY OF SURGICAL TREATMENT OF WOUNDS

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Determine utility and information capability of the IL-6 level check in the evaluation of adequacy surgical treatment of wounds. The study was conducted among 18 patients with open fractures of the tibia. Primary debridement and external stabilization were carried out according to the established protocol. IL-6 was measured on the day1 , day3 and day5. At the day1 the IL-6 level was within 250-330 pg /ml in all patients. On the 3d day: group1 (9patients) showed no clinical signs of inflammation (CSI) with level of IL-6 decreased (7-20 pg / ml), group2 (4patients) developed CSI of surgical wound and the level IL-6 remained at the same level as at day1, underwent for second look; group3 (5patients) had no CSI but level of IL-6 remained as high as at day1. On the day 5 in groups1 and 2: no CSI, IL-6 level was from 7-20 pg /ml; group3: all 4 patients developed the CSI in surgical wounds, underwent the second look, 1patient with no CSI showed decreasing of the IL-6 index up to (7-20 pg / ml). The Interleukin – 6 level on the day1 after surgical treatment of wounds does not provide information on adequacy of the surgery, but it serves as a base line index to monitor. Decreasing of level IL-6 (up to “normal values”) on the day3 may indicate adequacy of the surgery. Retaining IL-6 at the high level on day3 after surgery could prompt for the second look, even in the absence of CSI.

Abstract no.: 44500

FRONT/BACK SCOLIOSIS DEFORMITY CORRECTING SURGERY IS A POWERFUL TOOL IN SELECTIVE LUMBAR FUSION FOR STIFF DOUBLE MAJOR CURVES BY SAVING DISTAL MOTION SEGMENTS.

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Selective proximal lumbar fusion has clinical benefits to the patient. A supine bending radiograph (SBR) can be utilised to stratify the flexibility of the thoracolumbar (TL) and MT curves in double major adolescent idiopathic scoliosis (AIS). Utilising a two stage anterior/posterior fusion can save lumbar motion segments proximal to the Harrington Stable Zone (HSZ). Purpose We compared the distal LIV and the HSZ across a novel method of stratification into 4 categories of flexibility for double major curves. Patient Sample: 2314 consecutive scoliosis deformity correcting surgeries from 2006 to 2012 with minimum 2 year follow up identifying all AIS. Methods: Preoperative demographics, Cobb, HSZ, Supine Bending Radiograph (SBR) Cobb. Postoperative: Correction Rate (CR), Supine Bend Flexibility (SBF) and Supine Bending Flexibility Index (SBFI), Stratification of flexibility into quartiles. Results: 58 anterior/posterior King 1&2 AIS (2.6%). 82% female, mean age 14.5y. Preoperative Cobb Main Thoracic (MT) 62.7°, Thoracolumbar (TL) 59.1°, Flexibility 31.8% (MT), 50.4% (TL). Postoperative CR was 68.6% (MT), 79.3% (TL). SCBI of 277.9% (MT), 177.9% (TL). The mean HSV 4.63, mean LIV 3.1. LIV intervertebral Cobb 4.57°. Quartiles for flexibility: 4th (>64%), 3rd (53-64%), 2nd (39-53%), 1st (0-39%). The null hypothesis is retained comparing the distribution of HSV ($p = 0.744$) and LIV ($p = 0.548$) across all quartiles. Conclusion The mean numbers of level saved showed no significant difference comparing the stiffest curves to the most flexible. This shows the independent power of a two stage procedure regardless of stiffness and flexibility.

Abstract no.: 44502

ARE CHECK X-RAYS REQUIRED IN LOWER LIMB ARTHROPLASTY

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Check x rays play an important role in elective lower limb arthroplasty; both to detect post operative complications, and to give the operative surgeon the opportunity to assess their work. Recently, our institution has questioned their merit, and if they need to be done at all. We therefore retrospectively reviewed 315 elective total hip replacement (THR) and 375 total knee replacements to ascertain the average delay for the x ray to be performed, and saw if they altered management. 71.4% of THR's were performed on the same day in recovery, compared with 78.9% TKR's. There was one case of immediate post operative dislocation, and one periprosthetic fracture detected on the post op radiograph in the THR group, giving a detection rate of 0.63%. There was one dislocation in the TKR group, giving a detection rate of 0.26%. Management was altered by the check x ray in all of these cases. Although the rates of complications are rare following elective arthroplasty, the check x ray is essential to ensure they do not go undetected. We advocate their continued use in clinical practice.

Abstract no.: 44503

THE INFLUENCE OF ORIENTATION OF THE EXETER FEMORAL STEM CENTRALISER ON STEM ALIGNMENT IN THE CORONAL PLANE

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Introduction Femoral stem centralisers were introduced to prevent end-bearing, ensure neutral position within the femoral canal and achieve optimal cement mantle. One cause of a suboptimal cement mantle is varus malalignment which may lead to loosening and failure. The aim of this study was to assess the effect of the orientation of the winged Exeter stem centraliser on the varus-valgus alignment of the stem. **Methods** Twenty stems were cemented into twenty identical model femora utilising standard entry point, femoral canal preparation and anteversion. A centraliser was attached to each stem in one of three orientations. In group 1, one wing was aligned parallel to the lateral cortex. In groups 2 and 3, the centraliser was rotated 90 and 180 degrees to the orientation of group 1, respectively. Plain radiographs were obtained. Coronal alignment measured. **Results** Average coronal alignment in group 1 was 2.5 degrees valgus compared with 1.3 and 0.3 degrees valgus in groups 2 and 3 respectively. A paired t-test showed a significant difference in alignment between the three groups where stems in group 1 were significantly more valgus than groups 2 and 3. **Conclusions** This study shows that when the centraliser wing is aligned parallel to the lateral cortex of femur, the tip tends to point more medially which assists in avoiding varus malalignment of the stem. We recognise the limitations of this small sample analysis. We recommend a larger radiological prospective study and whether there may be a case for appropriately sized centralisers rather than a standard centraliser size.

Abstract no.: 44506

MULTILEVEL ANTERIOR LUMBAR INTERBODY FUSIONS OBVIATING THE NEED FOR 3 COLUMN OSTEOTOMY SHOW LOWER NEUROLOGICAL COMPLICATIONS ACCORDING TO SCOLI-RISK-1 CRITERIA

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The Scolio-RISK-1 prospective multicentre international study of adults undergoing correction for complex spinal deformity has shown a 26.2% perioperative risk of neurological decline. Our surgical technique of first stage anterior lumbar interbody fusion (FS ALIF) obviates the need for 3CO and obviates the need to pass the neurological structures intraoperatively. Methods: Utilising the Scolio-RISK-1 criteria for high risk spinal deformity and determine the neurological complications. The primary outcome measure was the decline in American Spinal Injury Association (ASIA) Lower Extremity Motor Scores (LEMS) at hospital discharge or at six weeks follow-up. Spinal Cord Monitoring (SCM) changes were recorded Results: A total of 96 consecutive patients were prospectively followed. PSF first(65). FS ALIF(31). 3CO (37). ALIF (48). PSF only(35). 3 stage/540deg(10). 4.16% of total cohort sustained a neurological injury. 3.1 % from posterior only surgery. 1.04% associated with a 3CO. No neurological injuries associated with FS ALIF. 4 SCM warnings. 2.08% in PSF Only and 2.08% in FS ALIF with no postoperative clinical manifestations. Conclusions Greater Perioperative neurological injury was noted in posterior and 3CO procedures but no injuries were identified with First stage ALIF's. The Scolio-RISK-1 criteria for "high risk" spinal deformity procedures highlights the danger of perioperative neurological decline. Older age, thoracic instrumentation and 3 column osteotomy were seen as major risk factors.

Abstract no.: 44511

THE EFFECT OF THE INTERCONDYLAR NOTCH WIDTH INDEX ON ANTERIOR CRUCIATE LIGAMENT INJURIES: A COMPARATIVE STUDY

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Introduction: Several radiographic parameters such as the posterior tibial slope angle and intercondylar notch width have been described in the literature as radiological risk factors associated with ACL injury. Controversy still exists on the role of intercondylar notch width as some studies advocate a possible relationship between a narrow intercondylar notch width and the risk of ACL injury while the rest suggest that there is no relationship between these two parameters. The purpose of this study was to evaluate the relationship of the intercondylar notch width with ACL injury by analyzing MR images. Methods/Results: We evaluated MR images of 45 patients, 30 men and 15 women, who underwent ACL ligament reconstruction. The average age was 26.2 years (17-42). The control group included 45 patients, 30 men and 15 women, with an intact ACL documented in MR images. The mean age of the control group was 29.1 years (16-46). We calculated for all patients and controls the Notch Width Index (NWI) - ratio of the width of intercondylar notch to the width of distal femoral condyles at the level of the popliteal groove. NWI was superior in men ($0,255 \pm 0,024$ vs $0,251 \pm 0,023$), not with a statistically significant difference. NWI in males with ACL rupture was $0,245 \pm 0,023$ and in the intact ACL group was $0,265 \pm 0,024$ ($P < 0,01$). NWI in females with ACL rupture was $0,239 \pm 0,023$ and in the intact ACL group was $0,263 \pm 0,024$ ($P < 0,01$). Conclusion: We found a significant relationship between a narrow intercondylar notch width and ACL injury in our patient group.

Abstract no.: 44512

HOVERBOARDS: A NEWLY EMERGING CAUSE OF MUSCULOSKELETAL TRAUMA

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Introduction: The commercialisation of the dual wheel self-balancing motorised standing platform or 'hoverboard' has led to increasing use of these electronic transportation devices. These products allow users to travel up to 7mph (15kph) and as far as 12miles (20km) on one single battery charge. This has rendered them both a desirable tool for commuting and leisure use. The growing popularity of these devices have resulted in a surge of acute hospital attendances following traumatic musculoskeletal injuries sustained by users. We seek to report on this previously undocumented and newly emerging phenomenon. **Methods:** We prospectively identified cases requiring specialist Orthopaedic intervention within our institution over a 3-month period (10/10/2015 – 10/01/2016). A literature search was performed using keywords 'hoverboard', 'revobot', 'glidder', 'segway' and 'electric scooter'. **Results:** 5 patients were identified during a 3-month period. The Male:Female ratio was 4:1. The average patient age was 32.2 years. The primary injury sustained involved the upper limb in all cases. 80% of patients sustained injuries to their dominant side. 40% of patients required operative treatment. 60% required inpatient stay on a surgical ward. **Conclusion:** As the popularity of 'hoverboards' continues to grow so does their impact on healthcare. Users are placing themselves at risk of serious injuries that may require hospital admission and operative intervention. We report these cases in order to highlight the impact that these futuristic devices are having on cost and provision of healthcare. We advocate the dissemination of this knowledge to address the impact on public health.

Abstract no.: 44515

THE USE OF CEMENTLESS BIPOLAR PROSTHESIS IN PRIMARY MANAGEMENT OF UNSTABLE BASI-TROCHANTERIC FRACTURES IN ELDERLY PATIENTS (SHORT-TERM FOLLOW UP)

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Hardware failure after trochanteric fracture treatment is one of the most disabling complications. Although the dynamic hip screw (DHS) and the proximal femoral nail (PFN) are considered the standard for trochanteric management but still they carry a remarkable incidence of failure. The primary use of cementless bipolar prosthesis may eliminate the fear of such failure offering an end of the road solution for risky patients. Between December 2013 till June 2015, 68 basi-trochanteric fractures were treated by a cementless bipolar prosthesis in Assiut University Hospital-Egypt. We used the modified Hardinge approach in the lateral position. Regular neck cut was done; augmentation of the trochanteric interval by cerclage wires was carried out in all procedures prior to prosthesis application. Patients were allowed to walk with a walker on the first postoperative day with partial weight bearing. Hospital stay ranged between 2-4 days. Follow up visits at 2 weeks for staple removal, 6 weeks and 6 months for radiological and functional follow up (Haris Hip score). There were 3 cases that had dislocations that needed only closed reduction, 2 cases with superficial wound infection and 4 patients were lost in the follow up. The maximum follow up period was 18 month with an average period of 9 months. On a short-term follow-up cementless bipolar prosthesis appears to be a tempting solution for primary management for basi-trochanteric fractures in order to overcome metal failure in regular treatment modalities.

Abstract no.: 44518

SCHEUREMANN KYPHOSIS – DISTAL JUNCTIONAL KYPHOSIS AND THE ASSESSMENT SPINOPELVIC PARAMETERS, LOWEST INSTRUMENTED VERTEBRA AND RISK FACTORS

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Introduction Distal Junctional Kyphosis (DJK) can be a major complication requiring surgery after Scheuremann Kyphosis Deformity (SKD) correction. Spinopelvic parameters eg. lumbar lordosis predictably reduce with reduced thoracic kyphosis. The LIV has also been identified as a possible association with DJK; the first lordotic vertebra (FLV) and sacral sagittal vertebra (SSV) are used to identify the optimal LIV. Methods 62 consecutive SKD were identified between 2006-2014. 30 posterior fusion only(PFO) and 32 anterior/posterior fusion(APF). Two groups DJK Present (DJKP) and DJK Not Present (DJKNP). Preoperative data: age, thoracic kyphosis (TK), spinopelvic parameters; Pelvic incidence(PI), Lumbar lordosis(LL), Pelvic Tilt(PT), Sacral Slope(SS), Sacral Vertebral angle(SVA). LIV correlated with FLV/SSV. Correction rate(CR) and Flexibility(F) Results DJK Present (n=14) 22.58% of SKD corrections(16.7% PFO, 28.1% APF). Only 1 patient required revision surgery from the PFO group. CR: 51.9%(DJKP) vs 45.86%(DJKNP). Non parametric independent Mann Whitney U test Comparing DJKNP vs DJKP: Spinopelvic parameters,(P>0.05); Preop TK(85.46,87.86); Postop TK(46.15,41.86); Preop LL (69.08,72.0); Postop LL (52.96, 49.64); Preop PI:LL (0.71,0.65); Postop PI:LL (0.92,0.93). DJK occurred when LIV was at FLV(42.9%), >FLV(42.9%), <FLV(14.3%) and when LIV was at SSV(28.6%), >SSV(64.3%), <SSV(7.1%). DJK was spared when LIV was at FLV(47.9%) or at SSV(41.7%). **Conclusion** APF is associated with higher incidence of DJK. Both groups had a predictable decrease in lumbar lordosis and the PI:LL ratio improved. A CR >50% has been associated with DJK which is corroborated in this data. Spinopelvic parameters did not influence the development of DJK but did change predictably. FLV/SSV does not influence DJK.

Abstract no.: 44519

TRANEXAMIC ACID REDUCES BLOOD LOSS DURING JOINT REPLACEMENT IN OBESE PATIENTS

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The aim of this study was to evaluate the effect of Tranexamic acid (TXA) on change of haematocrit (HCT) and packed RBC (PRBC) blood transfusion in morbid obese patients. Between January 2014 and December 2014, 117 primary hip and knee arthroplasty were identified from our prospective institutional database. 72 patients (33%) were considered morbid obese with body mass index (BMI) ≥ 35 . TXA was given intravenously (IV) as one gram prior to incision and one gram at the time of femoral preparation in THA or cementation in TKA, not exceeding 10mg/kg. In cases where IV TXA was contraindicated, topical was used. In the non-TXA group, 40% were transfused versus 14% in the TXA group, which was statistically significant ($p=0.0001$). The mean pre- and post-operative HCT was 37.4 ± 4.3 and 28.2 ± 3 in the transfused patients without TXA. The average drop in HCT was 9.3 ± 4.3 . The mean pre- and post-operative HCT was 34.3 ± 4.1 and 27.4 ± 1.9 in the transfused patients without TXA. In the morbid obese patients, 45 did not receive TXA, 17 had transfusion with average drop in HCT of 9.6 ± 3.9 ; 29 received TXA and 2 had transfusion with average drop in HCT of 5.9 ± 3.1 . The transfusion and drop in HCT was significantly less for morbid obese patients that received TXA ($p=0.0001$). TXA reduced the transfusion rate (26%), more evident in morbidly obese patients.

Abstract no.: 44521

PERI-IMPLANT FRACTURES

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Introduction: Peri-implant fractures are on the increasing trend in recent past. The demographic development with high life expectancy, the increase in osteoporosis, the rising activity of the elderly population and the increased indications for surgical treatment, using the wide arsenal of modern implants, foretell that peri-implant fractures is a real complication that we have to solve. As the number of implants placed grows, the number of associated fracture will increase. The treatment algorithms are manifold but general valid rules for severe fractures are not available, such unsystemized treatment is unpredictable. Discussion: We know that the original placement of the implant may predispose to later fracture, the long-term presence of the implant after bone healing may change the structure of the bone, on the other hand implant removal can lead to a serious complication such as refracture. The exact incidence and frequency of different peri-implant fractures has not been established. The most commonly occurring peri-implant fractures are proximal and distal femoral fractures. Treating a peri-implant fracture, several important factors are to be considered. Pre-existing implants narrow down implant selection and the gapped areas after fixation are prone for stress risers and fracture, sometimes the implant itself may interfere.

Abstract no.: 44524

SURGICAL TREATMENT OF NEUROMUSCULAR SCOLIOSIS USING THE LUQUE - GALVESTON TECHNIQUE- OUR EXPERIENCE

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Severe scoliosis is a very common condition in children with neuromuscular diseases (NM).it is caused by muscle imbalances, structural abnormalities of the spine and unknown factors. Pelvic obliquity is normally associated. The goal of surgery is to obtain and maintain a balanced column on a well-positioned pelvis.Were evaluated retrospectively (clinical consultation , analysis of radiographs and telephone) 61 patients operated between 2006 and 2014 , using Luque - Galveston technique.were included Patients with neuromuscular scoliosis with a follow up of more than 1 year and only underwent posterior approach.They were measured by preoperative and postoperative radiographs, magnitude of the spine curve and pelvic obliquity. From the clinical process we obtained time of surgery, amount of blood loss and duration of hospital stay.The magnitude of the curve has been corrected on average 30,49° and pelvic obliquity about 11°.The average surgical time was 3 hours and 10 minutes and average blood loss was 1100 ml.The average hospitalization time was 14 days. Most common postoperative complications were: death (3), pneumonia (4), liver abscess and esophageal perforation (1). As late complications we registered minor equipment failures, protrusion material, osteolysis iliac screws (7), decubitus ulcers. the infection rate reported was 32.8% (20 patients).Correction of the curvature and pelvic tilt proved to be satisfactory when compared with the existing literature .More encouraging values were obtained with regard to blood loss and duration of the surgery.This procedure appears to be effective and appropriate for this group of patients.

Abstract no.: 44525

**OSTEOCHONDRAL RESURFACING FOR DISTAL RADIUS CHONDROSIS
IN PROXIMAL ROW CARPECTOMY**

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Wrist joint arthritis in young patients constitutes a challenging problem for hand surgeons. Most of these arthritic conditions are post-traumatic in origin, where either the distal radius articular surface, or the carpal bone articular cartilage, or both could be affected. Solutions available are very limited especially when both articulating surfaces are affected, where wrist fusion or denervation are the only cure. Proximal row carpectomy (PRC) is a simple, motion preserving procedure that improves pain and strength, but this procedure is abandoned when the lunate fossa is severely arthritic or defective. In this article we present a new technique of preserving motion in conditions of post-traumatic wrist arthritis affecting the radio-carpal joint. We performed osteochondral resurfacing of the lunate fossa using osteochondral grafts from the available distal lunate articular cartilage. we resect the whole proximal row through dorsal approach to the wrist joint with great caution not to further damage the intercapral articulating surfaces thus preserving the distal lunate articular cartilage, which in turn is used as an osteochondral graft to resurface the lunate fossa in a press fit manner. This new technique has several advantages, the most important of all that it provides a congruent articulating surface between the head of the capitate and the distal articulating surface of the lunate which could even present an advantage over the conventional PRC. This new technique will provide a new articulating surface in challenging situations of post-traumatic wrist arthritis.

Abstract no.: 44526

HIGH REVISION RATE OF THE REJUVENATE MODULAR NECK FEMORAL STEM AT 3 – 5 YEARS FOLLOW-UP

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The purpose of this study was to assess the mid-term clinical results and survivorship of this implant. Between June 2009 and July 2012, 73 total hip arthroplasty (THA) in 63 patients with the Rejuvenate modular neck implant were performed by a single surgeon and prospectively followed. Average age was 63.2 ± 12.6 years (28 to 86). Elevated metal ion ($= 2 \mu\text{g/L}$), pain, or positive MRI findings were indication for revision surgery. At an average follow-up of 4.2 ± 0.6 years (3.0-5.5), 57 hips (48 patients, 78%) were revised at mean of 3.2 ± 1 years (1-5.5); and 6 other have been scheduled for surgery. The Kaplan-Meier survivorship was 22 % at 5.5 years. 51 of 57 hips undergoing revision (89%), had elevated preoperative serum Co levels, 24 (42%) had elevated preoperative Cr. The average serum Co and Cr ion levels prior to revision surgery were $10 \pm 8 \mu\text{g/L}$ (0.3 to 40) and $2.3 \pm 1.5 \mu\text{g/L}$ (1 to 7.4), respectively. There was a significant correlation between revision surgery and younger age ($p=0.0137$). 52 hips underwent MRI evaluation, 22 hips (42%) had positive findings correlated to pain ($p=0.025$): 11 hips demonstrated adverse local soft tissue reactions such as fluid collection, capsular thickening, osteolysis, or synovitis, and 11 hips showed evidence of pseudotumor. At mid-term follow-up, 86% of the Rejuvenated modular neck stems have been revised or awaiting revision. Given these findings, all patients with a Rejuvenate modular neck stem implant should be followed closely and advised of impending failure.

Abstract no.: 44527

SIMPLE ALGORITHM FOR LAUGE-HANSEN CLASSIFICATION OF ANKLE FRACTURES

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Lauge-Hansen classification is one of the most popular classification systems for ankle fractures. It has the advantage over other classifications of describing the mechanism of injury and different stages of injury progression. Since its description by Lauge-Hansen in 1950, it has been one of the commonest used classifications especially in academic research and teaching. However, in clinical practice, it's not commonly used in daily communication between orthopaedic surgeons owing to its complexity. Instead, Weber classification is more commonly used. We have developed a simple algorithm to classify ankle fractures according Lauge-Hansen Classification. This algorithm is applicable for isolated lateral malleolus and bimalleolar fractures. It includes the 4 major types (supination external rotation, supination adduction, pronation external rotation and pronation abduction). This algorithm doesn't include different stages of each type for simplicity. It classifies most ankle fractures into the 4 main groups, which will explain the mechanism of injury, position of the talus and acting forces at the time of injury. Reversing this mechanism when manipulating the fracture or doing an open reduction internal fixation can aid in fracture reduction. Detailed staging of each type is not practically needed when treating these injuries.

Abstract no.: 44528

**ASSOCIATED PATHOLOGIES FOLLOWING LUXATIO ERECTA HUMERI:
A RETROSPECTIVE ANALYSIS OF 31 CASES AND DIAGNOSTIC
ALGORITHM**

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Introduction: Inferior shoulder dislocation in fixed abduction, also known as luxatio erecta humeri (LEH), is a rare injury with little data available. Therefore, the primary aim of this study was to evaluate the clinical outcome of this type of injury with special emphasis on associated pathologies. Secondary, we aimed to develop a diagnostic algorithm to detect all potential associated pathologies typically seen with this injury. Methods: A total of 31 patients (11 females, and 20 males), who have been treated for inferior shoulder dislocation between 1992 and 2015, were included in this study. Results: Associated pathologies after LEH were found in 81% of the cases. Nineteen of these patients presented with secondary bony pathologies. Six patients revealed rotator cuff injuries diagnosed by magnetic resonance imaging. Six patients exhibited pathological findings at the capsule-ligament complex. Seven patients presented with neurological findings following inferior shoulder dislocation. All neurologic symptoms except one axillary nerve palsy dissolved during the follow-up period (1 to 11 months). Five patients underwent surgical treatment of the affected shoulder. Inferior shoulder dislocation is a rare condition presenting with a high number of associated injuries. According to our findings, we suggest the presented diagnostic algorithm to detect for all potential secondary pathologies associated with inferior shoulder dislocation. Beside a thorough clinical examination, this algorithm comprises of immediate standard radiographs in two planes, computed tomography (CT) scanning and MRI of the shoulder as soon as possible. In the case of neurologic deficiencies, a determination of nerve conduction should be performed.

Abstract no.: 44529

SLIPPED CAPITAL FEMORAL EPIPHYSIS: CLINICAL AND RADIOGRAPHIC OUTCOMES AFTER IN SITU FIXATION

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Introduction: Slipped capital femoral epiphysis (SCFE) is a disorder of the hip defined as the displacement of the femoral head relative to the femoral neck. Is the most common hip complaint in adolescents. Treatment pursues to stabilize the epiphysis from further slippage, and in situ fixation (ISF) using a single cannulated screw has long shown efficiency. Residual deformity may however lead to femoroacetabular impingement or osteoarthritis of the hip in the medium-to-long-term. The aim of our study was to review SCFE patients treated by ISF, to evaluate clinical and radiological outcomes according to initial Southwick slip angle. Methods: We retrospectively reviewed 44 hips (37 patients) that underwent ISF, between January 2008 and December 2014. There were 28 males and 16 females with a mean age of 12.6 years (7-17 years). We did a clinical and radiological assessment using the non-arthritic hip score (NAHS) and measuring the alpha-angle and Tonnis classification, respectively. Results: Mean preoperative Southwick angle was 27,9° (10–53°). Slip severity was 68.2% stage I (n = 30), 27.3% stage II (n = 12) and 4.5% stage III (n = 2). Mean age at last follow-up was 16.3 years, for a mean follow-up of 3.9 years. Mean alpha angle at follow-up was 64.4°(45–87°). The clinical (NAHS) and radiological (Tonnis Classification) assessments were significant worse (p<0,05) for the increased SCFE grade. Conclusion: SCFE treated with ISF led to femoroacetabular impingement. However, in smaller displacements, the consequences were milder.

Abstract no.: 44530

PROXIMAL JUNCTIONAL KYPHOSIS IN SCHEUREMANN KYPHOSIS

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Introduction Proximal junctional kyphosis is a major complication of Scheuremann kyphosis deformity (SKD) correction. Risk factors include curve correction rate >50% or improper upper instrumented vertebra (UIV) selection. PJK is defined as an increase in 10 degrees comparing the post-operative and pre-operative XR at the cranial end plate of the UIV to the cranial end plate 2 vertebra above. **Methods** 62 consecutive patients undergoing correction of SKD between 2006-2014 were analyzed. Two groups were stratified Group 1 (PJK+) and 2 (PJK-). preoperative data were well matched. UIV compared to maximum Cobb level (above, at, below) and type of surgery (APF,PFO) **Results** 75.8% PJK incidence (n=47) with POF (51.1) and APF (48.9%). Both groups showed significant differences between preop and postop TK and LL but no significance between Group 1 and 2. Curve CR and Flexibility was not significant at 50% cut off between groups by Kruskal Wallis test. UIV above the Maximum Cobb showed 85.1% of PJK cases. 4.8% (n=3) required revision surgery (100% in PFO group). 88.7% used hybrid construct with hooks at top level and screws below. **Conclusion** Radiological defined PJK shows a high proportion of cases were at risk (75.8%). Of note there was no significant difference whether the case was performed in single stage PFO or two stage APF. However actual revised cases (4.8%) for PJK were only from the PFO group (10% of cases). Interestingly the majority of cases were identified when UIV was above the maximum cobb. Spinopelvic parameters did not influence PJK.

Abstract no.: 44533

THUMB HYPOPLASIA - OUR EXPERIENCE

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Thumb hypoplasia is characterized by failure in the development of the thumb, encompassing a range of medical conditions ranging from a slight shortening to its complete absence. Conservative treatment is accepted in type I thumbs (Blauth) . Types II and III-a have a compromised function and need for surgical reconstruction . Types III-b , IV and V are the main indication for pollicisation. We present the results of 30 patients with varying degrees of hypoplasia, treated in our institution between 1996 and 2013. The average age at the time of initial evaluation in cases treated conservatively , was 3.4 years and 5.3 years in the ones treated surgically. 6 patients were treated conservatively , 10 underwent reconstruction of the hypoplastic thumb and 13 underwent pollicisation of the indicator. In 84.8 % of patients we obtained good or excellent outcome in the evaluated parameters. The aesthetic results were quite satisfactory in most patients. 85.1 % of patients were satisfied or very satisfied with surgical result and 90.2 % would do it all over again. The most commonly encountered complications were minor cosmetic deformities , hypertrophic scars and force deficit in the new thumb. In 3 patients we found a less ideal thumb position . It was also necessary to re- operate the patient by excessive finger growth. We must take into account the enormous functional importance of the thumb, especially the fact that it allows gripping. The main goal of surgical treatment for these patients is to get a stable and functional thumb

Abstract no.: 44534

BILATERAL MEDIAL DISTAL FEMORAL HEMIEPIPHYSIODESIS OF GENU VALGUM: EARLY SURGICAL CORRECTION USING A MODULAR THREE HOLE L-PLATE

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Valgus alignment of the lower extremities is normal in a child aged two to eight years, having maximal amounts of physiologic valgus at age two to four. By age eight years, there should be little or no change in alignment of the lower extremity and preparation for treatment of what is deemed excessive physiologic valgus may be made at this age. Growth modulation techniques are utilized for angular deformity correction in the skeletally immature patient. Of essence is the delay in the timing of surgical intervention so as to avoid the possibility of overcorrection. A 4-year old male with observed “knock-knees” and ambulation discomfort due to “kissing of the knees” of one year duration with whom a bilateral hemiepiphyodesis of the medial distal femur was performed using a 3-hole L plate is presented. Mini three-holed L-plates (2.7 mm) designed for adult metacarpals and metatarsals were extraperiosteally applied under fluoroscopic guidance. Serial follow ups at 3, 5, 9, 12, 18, and 24 months after were documented, with improvements of the valgus deformity. To the author’s knowledge, there is a limited number of reported cases demonstrating possible treatment outcomes of the use of temporary growth modulation in children less than 8 years, let alone the use of a 3 hole modular L plate designed for adult metacarpals. This report presents a novel, promising, and viable alternative in the growing and dynamic practice of temporary growth modulation in a specific pediatric age group.

Abstract no.: 44537

FRACTURES OF THE HUMERAL SHAFT WITH PRIMARY RADIAL NERVE PALSY – DOES THE TYPE OF TREATMENT INFLUENCE NERVE RECOVERY?

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Introduction: Due to the anatomy of the radial nerve, adult humeral shaft fractures are associated with primary radial nerve palsy in up to 18%. Nevertheless, the optimal type of treatment still remains controversial and the decision whether or not an additional early exploration of the radial nerve is indicated, has to be made. The purpose of this study was to assess the influence of surgical treatment, injury mechanism and fracture type on recovery in patients with humeral shaft fractures and primary nerve palsy. Methods: Fifty-five patients with humeral shaft fractures and primary radial nerve palsy who underwent either ORIF and plate osteosynthesis or intramedullary nailing, between 1994 and 2013, were reviewed. All patients were assessed radiographically and clinically. Muscle strength with a manual muscle test was graded. Results: A total of 35 males and 20 females with an average age of 46.5 years were included. Thirty-five patients were treated with ORIF using dynamic compression plate- or angular stable plate-fixation. Twenty patients underwent treatment with closed reduction and interlocking intramedullary nails. In 8 of those patients additional surgical exploration of the radial nerve was performed. In the remaining 12 patients no further surgical investigation of the nerve was considered necessary. Clinical evaluation and muscle strength with a manual muscle test showed no differences. The type of surgical treatment, ORIF or intramedullary nailing, revealed no significant influence neither on the time to onset of nerve recovery nor the time to total recovery in humeral shaft fractures with primary radial nerve palsy.

Abstract no.: 44540

ELBOW DENERVATION. A SIMPLE OPTION FOR PAINFUL PROBLEMS

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The elbow joint is a common site for traumatic and degenerative disorders. Chronic elbow pain still represents a challenge for upper limb surgeons, especially when it affects young individuals. Such pain causes a huge impact on strength, motion, and ability to work and perform daily activities. When symptoms are severe and the damage is irreversible, choices could be joint fusion or replacement arthroplasty. Joint denervation is a possibility when the main complaint is pain with available functional range of motion. The purpose of the operation is to achieve pain relief by selective neurotomy without impairment of function and with preservation of mobility. Elbow denervation shows particular promise where the joint is non-weight bearing and easily exposed. It may be indicated in a wide variety of pathologies. Its effectiveness is predictable, and we can mimic denervation by local anesthetic injection. It can be used for chronic pain, either alone or combined with bony surgeries. The successful surgical treatment of pain requires that there is useful movement at the joint, no obvious inflammation or oedema, positive blockade tests and accurate knowledge of peripheral neuroanatomy. Elbow denervation offers an outpatient, ambulatory operative approach that is joint sparing and rehabilitation free.

Abstract no.: 44541

C1-C2 POTTS DISEASE: A UNIQUE PICTURE OF SPINE TUBERCULOSIS

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Study Design: Case report and literature review. Objective: To report the case, clinical course, management, and outcome of a 49 year old female who was diagnosed with Pott's Disease at the C1 – C2 level. Case Presentation: We present a 49 year old female seamstress who experienced gradual onset lower and upper extremity weakness and numbness, bowel and bladder incontinence, and progressive right neck pain of two months duration. Open biopsy of the C2 level was then performed revealing chronic granulomatous inflammation with Langhan's type Giant cells and caseation necrosis. Patient was started on anti Koch's treatment and underwent posterior decompression, occipitocervical fusion and instrumentation C0 to C6. Neurologic status was then monitored regularly postoperatively, with marked improvement of neurologic status, disappearance of cervical pain, and eventual return to previous functional occupation as a seamstress.

Abstract no.: 44546

HIP PRESERVATION SURGERY FOR A NEGLECTED FEMORAL NECK FRACTURE IN A 15 YEARS OLD HEMIPLEGIC CEREBRAL PALSY CHILD.

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The term 'neglected' refers to a subacute femoral neck fracture presentation of at least 30 days after the injury. The management of these fractures is controversial and several techniques had been described. We present a clinical case of a 15 years old hemiplegic cerebral palsy children (Gross Motor Function Classification System (GMFCS) level I), that falling during sport activities sustained a femoral neck fracture initially misdiagnosed as hip bruise. Three months after the injury the patient take a hip standard radiograph due to pain and hip function worsening showing a neglected femoral neck fracture classified as Sandhu type 2. At the time of the index surgery a hip flexion contracture was observed. We performed an antero-lateral hip approach with muscles preservation and a T shape capsulotomy with postero-lateral flap preservation, in order to open and freshening the fracture. The fractures was fixed using three cannulated screw with a transverse one in the calcar. After fracture fixation autologous stem cell concentrate was injected in femoral head and applied in fracture gap as a gelled membrane prepared using RegenExtracell® BMC protocol (RegenLab, Le Mont-sur-Lausanne, Switzerland). 6 months after the surgical procedure a complete fracture healing without any complications was obtained. An improvement in hip function and pain was clinically evident. Neglected hip fracture are difficult to treat and careful and complete patient evaluation is need for correct treatment choice. The use of stem cells is an important aid for hip preservation surgery in neglected feral neck fracture.

Abstract no.: 44551

CHARCOT NEUROATHROPATHY IN THE WRIST – A CASE REPORT

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Introduction: Charcot's neuroarthropathy(CN) has been recognised for over 130 years; however it still remains a major cause of morbidity for patients with diabetes mellitus. The condition usually affects major weight bearing joints such as the foot and ankle. However a rarer and more unusual complication is when CN affects the hands and wrist. Case report: A 56-year-old woman with significant renal, vascular and neurogenic complications of diabetes mellitus presented with a three month history of progressive 'dinner fork deformity' of her left wrist. There was no history suggestive of trauma. The opposite right hand exhibited typical complications of diabetes which included peripheral gangrene, loss of sensation and previous finger amputation due to ischaemia. X-rays of the left wrist showed 'diabetic involvement' (Charcot wrist) with a pathological fracture of the distal radius and ulna. The left wrist was immobilised in a 'total contact cast' to prevent further progression of the deformity. The casts were changed on a two weekly basis, mainly to check the skin condition. Conclusion: CN in the wrist is an extremely rare condition however a high index of suspicion should be maintained in patients with systemic complications of diabetes. Effective glycaemic control and multidisciplinary involvement with a proactive approach to identify and treat complications of diabetes, especially those related to the musculoskeletal system, may help to reduce the severity of complications. Early recognition is crucial, as off-loading of the affected joint by using a total contact cast for 2-3 months may help to improve function.

Abstract no.: 44552

COMPLICATIONS ASSOCIATED WITH UNSTABLE PELVIC FRACTURES SEEN IN THE COMBAT ENVIRONMENT

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INTRODUCTION: Battlefield related pelvic fractures occur predominantly due to improvised explosive devices (IED). This injury pattern is unique, and it is unknown whether the traditional Young Burgess classification can be used to predict transfusion requirements in this patient population. **METHODS:** A retrospective review was performed of all coalition soldiers entered into the Joint Trauma Theater Registry from 2009-2012 with an ICD-9 diagnosis of pelvic ring injury. Two independent orthopedic surgeons reviewed the CT and radiographs for each patient and classified the pelvic fractures according to that of Young and Burgess. The associated injuries, estimated blood loss, blood product use, and intensive care unit stay was determined for each group. **RESULTS:** There were 329 coalition soldiers with a diagnosis of pelvic ring injury identified. Eight-five patients had complete sets of radiographs and CT scans available for review. Of these patients, 49% had an unstable pelvic fracture injury pattern. There were no significant differences noted in the distribution of associated injuries between pelvic fracture subtypes ($p=.05$). The patients' mean estimated blood loss was 2.5 liters for APC3 injuries, and the patients had a mean of 58 units of PRBCs transfused (APC3). ICU length of stay was longer for patients with unstable pelvic ring injuries ($p<.01$). **CONCLUSION:** The Young and Burgess classification system is useful in predicting blood transfusion requirements in pelvic fractures sustained in the battlefield.

Abstract no.: 44553

ANALYSIS OF COALITION SOLDIERS SUSTAINING TRAUMATIC AMPUTATIONS SECONDARY TO BLAST INJURY DURING OPERATION ENDURING FREEDOM

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Introduction: The improvised explosive device is the primary wounding mechanism for casualties seen in Operation Enduring Freedom. Patients often sustain devastating traumatic amputations. These injuries are like nothing seen in the civilian sector of healthcare. This is a retrospective analysis of patients sustaining IED blast injuries that presented with traumatic, lower-extremity (LE) amputations. Methods: Retrospective analysis of 1060 patients with an ICD-9 diagnosis of traumatic amputation was collected from the Joint Theater Trauma Registry from 2009-2012. The Injury Severity Score, admission Glasgow Coma Scale, hematocrit, ISS, 30 day mortality, and major complications, including DVT, PE, infection, acute renal failure were evaluated. Kaplan-Meier survivability at 30 days was evaluated against the number of amputations each patient sustained. Results: Ninety-three percent of all patients survived at 30 days. As the number of amputations rose per patient, the mortality increased. The mean ISS for these patients was 22.1, with a presenting GCS of 11. Patients presented with a mean hematocrit of 36.3. 235 patients sustained bilateral lower extremity amputations. Admission GCS was found to be a statistically significant predictor of mortality at 30 days ($P=0.000$). As the number of limbs amputated increased, a statistically significant increase in major complications including DVT, PE, infection (both acinetobacter and fungal), and renal failure was found ($P<.05$). Conclusion: Coalition soldiers sustaining traumatic amputations sustain major complications. Admission appears to be an independent predictor of mortality. As the number of amputations rises, the complication rate increases in proportion.

Abstract no.: 44557

DECOMPRESSION ALONE OR WITH POSTERIOR INSTRUMENTATION IN LUMBAR SPINAL STENOSIS: CLINICAL AND IMAGING RESULTS

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INTRODUCTION: Lumbar stenosis is a common cause of back pain. It is due to degenerative phenomons that narrow the spinal canal. Surgery is the treatment of choice for many patients and it consists on decompression eventually associated with instrumentation and arthrodesis. Our purpose is to compare clinical and radiological outcomes of a case series treated with laminectomy alone and laminectomy with arthrodesis. **MATERIALS AND METHODS:** 36 patients (19 female, 17 male) with spinal stenosis were surgically treated at our institute from December 2011 to May 2013. The mean age was 71 years. The diagnosis of spinal stenosis was confirmed by a CT or MRI. X-ray in AP, standard lateral and dynamic lateral views were obtained in all patients before the surgery. Laminectomy alone was performed in 8 patients, whereas in 28 patients posterior instrumentation was added. After the surgical treatment all patient were clinically and radiologically evaluated. Moreover, those patients with a follow-up longer than 18 months of follow-up were submitted also to a stand-up MRI. VAS scale and Oswestry Disability Index were collected. **RESULTS:** No significant difference was observed in clinical and functional outcome between two groups. No signs of instability or adjacent segment disease were observed in stand-up MRI. **CONCLUSION:** Spinal stenosis is an extremely heterogeneous disease. Both laminectomy alone and laminectomy with posterior instrumentation improves patient quality of life. We think that more studies are needed to clearly identify those patients who will take most advantages from posterior instrumentation and arthrodesis.

Abstract no.: 44558

ARE OUR PATIENTS ABLE TO WALK IN THE MIDTERM AFTER FEMORAL NECK FRACTURE TREATMENT?

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Bipolar Hemiarthroplasty (BH) or screw fixation (SF) are good options to treat femoral neck fractures. Aim: Analyze the physical function and mortality of patients treated with either BH or SF beyond 3 years after surgery. Material and Methods: We did a retrospective study of 133 patients with femoral neck fracture. 72 were treated with BH (Zimmer Versys) and 61 with SF between 2009-2012. We evaluated mortality, physical function using Functional Ambulation Classification (FAC) and complications. Results: Of the 133 patients, 76% were women. The mean age was 82,2 years in BH group and 73,2 years in SF group. The overall mortality at 4,6 years of follow-up was 47.2% in group BH and 22,9% in group SF. The FAC score decrease from 4.51 pre-fracture to 3.67 points at final follow up in the BH group. 56% of patients had same preoperative FAC score, and 20% decrease in one point. In the SF group, FAC score decrease from 4.71 pre-fracture to 3.87 points. 65% of patients had same preoperative FAC score, and 15% decrease in one point. Complications: In BH group, 26.6% had groin pain and two patients required new surgery (2,8%). In SF group, 18% required new surgery, 5 patients need hemiarthroplasty and 6 patients need screw removal. Conclusion: Functional outcome was similar to preoperative status beyond three years, either with BH or SF. Mortality beyond three years was higher in BH (47.2%) vs. SF (22,9%). New surgical treatment was higher in SF group (18%) vs. BH (2,8%).

Abstract no.: 44562

THE RESULTS OF CERCLAGE WIRING IN DISPLACED ACETABULAR FRACTURES.

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Introduction Cerclage wiring in internal fixation of acetabulum has been used in some selected cases. In this study, we are to present our experience of this technique and evaluate the results retrospectively. **Methods** From June 2009 to Decemer 2013, 23 patients (23 hips, mean age of 50.1 years old) who had cerclage wiring for acetabular fracture in our hospital were evaluated. Patients were operated on the average 5.7 days after injury and the mean follow up duration was 23.5 months. Seven hips were T- fracture, ten hips were both column fracture, three hips were anterior column fracture, one hip was anterior column fracture with posterior hemitransverse fracture and two hips were transverse fracture with posterior wall fracture. **Results** Average operation time was 160 minutes and all fractures complete healed within 12 weeks with no secondary displacement or loss of reduction. Anatomical reduction was achieved in 12 hips and imperfect reduction was achieved in 6 hips. Poor reduction that showing more than 3mm displacement was in 5 hips. At last the follow-up, the clinical results were excellent in 15 hips, good in 5 hips, fair in 1 hip and poor in 2 hips. No intraoperative complication occurred. However, postoperatively 3 hips had a lateral femoral cutaneous nerve symptom and 2 hips had THA conversion surgery. **Conclusion** The cerclage wiring technique can provide maintenance of fractured fragment while plate fixation and also fixation of the fragment. It also minimize gluteal muscle injury and produce relatively good functional results.

Abstract no.: 44565

CHANGE OF FUSION MASS GRAFTED WITH LOCALLY HARVESTED AUTOGENOUS BONE

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Introduction: PLIF is a widely accepted surgical technique but the change of fusion mass in PLIF using only locally harvested autogenous bone are not yet reported. Methods: 46 patients having spinal stenosis with lumbar disc herniation were enrolled. They got operation through wide decompression, discectomy and PLIF using locally harvested autogenous bone. Roentgenographic assessment was executed to evaluate the change of fusion mass at 2 weeks, 3 months and final follow up more than 2 year after operation. At each time, simple radiographs and computed tomography with 1mm thin section were taken to calculate fusion mass using PACS. Also, preoperative and postoperative visual analog scale (VAS), Korean Oswestry Disability Index (K-ODI) was measured for the evaluation of functional results. Kim and Kim clinical result was checked for validation of clinical satisfaction. Results: Fusion rate was 94% at final follow-up. Mean volume of fusion mass was 2863.99mm³ after operation. It decreased to 2262.55mm³ at operative 3 months but decreased volume of fusion mass at posteoprative 3 months maintained to last follow-up with 2147.99mm³. All patients were improved after operation in terms of VAS, K-ODI and Kim-Kim criteria. Conclusions: PLIF using only local autogenous bone is an alternative good method to get solid arthrodesis in degenerative lumbar spinal disorders treated with wide decompression and concomitant discectomy. Keywords: Posterior lumbar interbody fusion, local bone, fusion mass, Computed tomography

Abstract no.: 44566

INITIAL EVALUATION OF A 3D-PRINTED VERTEBRAL BODY FOR SINGLE-LEVEL ANTERIOR CERVICAL CORPECTOMY AND FUSION

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Introduction: To provide an early evaluation on 3D-printed artificial vertebral body (AVB) compared to conventional titanium mesh cage (TMC) used in single-level anterior cervical corpectomy and fusion (ACCF). **Methods:** 44 patients with cervical spondylotic myelopathy requiring ACCF were included in a prospective, non-randomized trial and either an AVB or TMC was used. Clinical results were quantified using the Japanese Orthopedic Association (JOA) scale, the VAS scale, and the Odom's criteria. Radiologic outcome metrics included fusion status, subsidence rate, and cervical sagittal alignment. **Results:** 22 patients underwent ACCF with AVB implanted and the other 22 patients underwent ACCF with TMC. There were no baseline differences between the two groups. At the 6-month follow-up, the two groups had similar neurological function and level of pain. Both had a recovery rate of approximately 70% on the JOA scale and nearly 95% of patients in each group had a good or excellent outcome according to the Odom's criteria. However, the AVB group showed less loss of height at the fusion levels than the TMC group ($p < 0.05$) and a lower rate ($p < 0.01$) of severe subsidence (defined as those $> 3\text{mm}$). All patients achieved fusion and no difference was observed in sagittal alignment. **Conclusion:** Both groups had similar short-term clinical outcomes but the AVB group demonstrated a lower rate of severe subsidence and less loss of height on the fusion levels. Therefore, 3D-printed AVB may be safely used as an alternative to conventional TMC, especially in patients who are at increased risk for development of severe subsidence.

Abstract no.: 44567

EFFECTIVENESS AND IMPACT OF DRY MODELS BASED SIMULATION TRAINING IN ORTHOPAEDICS.

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Background: There is increased popularity in simulation based training. The aim of this study is to evaluate the effectiveness and impact of simulation based training in orthopaedics. Methods: Trainees were given a questionnaire on their confidence level with basic orthopaedic trauma surgery and oncall scenario knowledge pre, immediately post-course and 6 weeks post-course. They were given lectures on common oncall scenarios followed by dry bone workshops on common trauma operations. Responses were graded on a Likert scale of 1-5 (1 = not confident, 5 = very confident). Results: A total of 19 pre-higher surgical training trainees attended the course. A total of 14 pre and 6 weeks post-course questionnaires were received. Of the 14 trainees, 5 were foundation trainees, 7 were core surgical trainees and 2 SHO not in core surgical training. Pre-course questionnaire showed 7% of the participants felt very confident, 43% of the participants felt confident and 50% felt neither confident nor not confident. Immediate post-course questionnaire showed 79% of participants felt confident and 21% of the participants felt neither confident nor not confident on common oncall scenarios and trauma operations. Six weeks post-course questionnaire showed 14% of the participants felt very confident, 57% of the participants felt confident and 21% felt neither confident nor not confident. Conclusions: After the training both immediately and 6 weeks post course, we found simulation based training improved confidence. The trainees felt more comfortable in performing basic orthopaedics skills under supervision. Our report supports the use of simulation based orthopaedic training.

Abstract no.: 44572

RESIDUAL LOWER LIMB VALGUS DEFORMITY AND DISCREPANCY IN FIBULAR HEMIMELIA: TECHNICAL NOTES ON A CASE TREATED USING MONOAXIAL EXTERNAL FIXATOR

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Fibular hemimelia (FH) is considered the most common congenital longitudinal deficiency of the long bones. Usually, it is observed in association with many other deformation (lower limb discrepancy, valgus deformity of the knee, foot finger abnormalities are the most common), sometimes defining a syndromic disease. Therefore, FH has a wide range of clinical appearance that obviously guide the treatment decision making. Limb preservation surgery and amputation are the two surgical strategies used in FH. Limb preservation surgery shows good outcomes but is demanding for the patient and very often it could not restore lower limb normal appearance and function. We present and discuss the surgical results and pitfalls observed in a clinical case treated of lower limb residual deformity and discrepancy using a monoaxial external fixator (MEF). R.I. after the first surgical procedure at 5 months old for a type 2 FH, was conservative treated until skeletal maturity at age 17. A residual valgus foot deformity and a lower limb discrepancy was observed. Using a MEX a 10 cm lengthening was obtained, with an evident improvement in the lower limb alignment. However, a further surgical procedure on both the bone and soft tissues was required considering the implant breakage due to high torsional forces generated also by the persistence of an underestimated fibular residual. Patient careful evaluation is required to tailor FH treatment. MEF could be satisfactorily in the treatment of FH, even if the patient might know the needs of possible further surgeries and the possibility of residual deformities.

Abstract no.: 44573

ISOLATED CASE OF MIDFOOT DISLOCATION: A CASE REPORT

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A purely midtarsal joint dislocation is extremely rare. Few isolated cases reported in literature are associated with osteochondral fractures. Case report: ET, 55, male, was rushed to the ER due to pain and deformity of the foot. Patient was involved in an accident, someone stepped on his forefoot when he was running. Patient had an obvious deformity (foot in supination, midfoot and forefoot in adduction). Xray of the foot and ankle were taken, which showed medial displacement of the midfoot, affected were the cubocalcaneal, and tarsonavicular joints. Closed reduction was difficult despite the absence of significant swelling. Reduction was achieved by traction with application of lateral force on the midfoot and countertraction on the leg. Reduction was stable and was confirmed with post-reduction X-rays. CT scan showed no fractures. Patient was maintained on posterior splint for 6 weeks. On follow-up, he was able to ambulate with minimal pain and assistance. Discussion: Midtarsal joint lies on a plane perpendicular to the longitudinal arch of the foot, acting as a single unit with respect to the hindfoot. The mechanism of injury is a forced plantar hyperflexion of the forefoot with the hindfoot and ankle joint in neutral/dorsiflexed position. In this case, aside from the forefoot plantar hyperflexion, there was an added supination force that resulted to the combined plantar and medial displacement. With a stable post-reduction, and in the absence of osteochondral fractures, surgery was ruled out. Ordinary splint immobilization and non-weight bearing was deemed the appropriate treatment for this case.

Abstract no.: 44574

**THE RESTORATION OF FEMORAL OFFSET AND CLINICAL OUTCOME:
A CASE-CONTROL STUDY**

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Introduction: Femoral offset (FO) is represented by the perpendicular distance from the center of the femoral head to the long axis of the femur. It is involved in abductor function and its respect in Total Hip Arthroplasty (THA) seems to be associated with better outcome. Methods: We retrospective evaluated all THA performed between 2011 and 2014. Inclusion criteria were follow-up longer than 24 months and primary THA, exclusion criteria were follow-up shorter than 24 months and presence of a contralateral THA. Among the 234 patients that meets inclusion criteria pre- and post-operative XR were revalued. We considered as “respected” a FO when the difference between the THA and native side was no higher than 5 mm. On the other hand when this difference was higher than 5 mm we considered the FO as “not respected”. 23 patients presented a “non respected” FO and were matched with 23 patients with a “respected” FO. VAS and Harris Hip Score (HHS) were collected. The statistical analysis is conducted through Student’s t test and Fisher’s exact test for categorical data. Results: Although a greater number of patients with “respected” FO showed a higher HHS no statistically significant difference was observed between two groups, as well as no difference was observed regarding VAS. Conclusions: Despite the observation that restoration of FO is associated with better hip function and lower wear rate It is still unclear its correlation with clinical and functional results.

Abstract no.: 44576

USING THE MODIFIED DELPHI METHOD TO ESTABLISH A CHINESE CONSENSUS OF THE SURGICAL STRATEGY TOWARD MULTI-LEVEL CERVICAL SPONDYLOTIC MYELOPATHY

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Introduction: Cervical spondylotic myelopathy (CSM) is characterized by neurological dysfunction matching the radiographic pattern of spinal cord compression. Current literature is insufficient to support an evidence-based algorithm for the best treatment strategy, particularly in multi-level CSM. A nationwide survey was conducted and followed by a consensus-building process to develop recommendations on surgical decision-making for multi-level CSM. **Methods:** A systematic review was performed following standard protocols to identify key issues of debate to be included in the survey. The items were reviewed by three independent experts before administered via email to 30 spine surgeons. A modified Delphi approach was then used to create a consensus guideline in three rounds. **Results:** Respondents had on average been 24 (range 15-36) years in practice and had performed on average 99 (range 65-253) surgeries for CSM last year. Participation rate was 100% for the initial survey, and 83%, 80%, and 67% for the three Delphi rounds, respectively. Consensus was defined as >80% agreement. **Conclusion:** Consensus was achieved regarding the indications and preferred techniques for posterior decompression in CSM with or without developmental stenosis, and the particular techniques when posterior fusion is indicated. Consensus was not achieved regarding indications for posterior fusion in laminoplasty patients with high spinal cord signal on T2 MRI and indications and staging for anterior decompression in laminoplasty patients who had a concomitant single-level disc herniation occupying greater than 50% of the canal. In the absence of high-level evidence, these statements will help spine surgeons choose the appropriate treatment for their patients.

Abstract no.: 44588

RELIABILITY AND VALIDITY OF THE ADAPTED CHINESE VERSION OF THE EARLY ONSET SCOLIOSIS-24 QUESTIONNAIRE (EOSQ-24)

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Introduction: Early onset scoliosis (EOS) can cause various health problems due to its negative effects on the developing lung. Recurring hospitalization and surgeries are often required. Radiographic parameters are insufficient to be used alone to evaluate disease severity and the outcomes of various modalities of treatment. EOSQ-24 was specifically developed for this patient population and has been validated to reflect health-related issues of importance to children with EOS and caretakers. However, it has not been transculturally adapted and validated for Chinese subjects. Methods: Translation and cross-cultural adaptation was performed according to published guidelines by an expert committee. The Chinese versions of the EOSQ-24 was applied to 60 (31 male, 29 female) patients, 42 of whom had undergone surgery. The average age was 7.8 years (2 to 15y). Data quality was assessed by mean, standard deviation, and floor and ceiling effects. Reliability was evaluated by internal consistency using Cronbach's α , item-item correlations, and item-total correlations. The discriminative validity was assessed based on comparisons between various demographic and clinical parameters. Results: In our study, the item response rate was 100%. All items and domains showed very good global internal consistencies (Cronbach's alpha 0.962 and 0.944 respectively). Only one item showed low corrected item-total correlation ($r=0.287$) and Cronbach's alpha did not increase when this item was removed. EOSQ-24 was found capable to discriminate patients with different curve severity ($p=0.046$) and ambulatory status ($p=0.02$). Conclusion: The Chinese adaptation of EOSQ-24 exhibits favorable psychometric properties and excellent reliability, validating its use in this population.

Abstract no.: 44590

3D-CT NAVIGATION GUIDED INTERNAL FIXATION OF PELVIC RING FRACTURE

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percutaneous iliosacral or transiliac-transsacral screw is a popular technique to treat pelvic ring fracture. it is a technically procedure to treat pelvic fracture. however, it is a technically and requiring a preoperative planning to avoid serious complications. traditional procedure is under fluoroscopic guidance, but many authors reported some complications with intraoperative fluoroscopy. therefore, we use a high-quality intraoperative fluoroscopy delivered by the O-arm (Medtronic Sofamor Danek, Memphis, TN, USA) in some surgery for internal fixation of pelvic ring fractures. this technology provide superior localization and accuracy of screw placement more safety than traditional procedure. here, we report the use of O-arm for the accurate placement of iliosacral or transiliac-transsacral screws in the treatment of some pelvic ring fractures with 3D-CT navigation and our results.

Abstract no.: 44597

IS RADIATION EXPOSURE KILLING OUR RESIDENTS?

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Introduction: Occupational exposure to ionizing radiation is an accepted risk of workers in the healthcare industry. Radiation exposure has been linked to several conditions including cataracts, skin carcinoma, leukemia, thyroid carcinomas, and sterility. We analyzed the fluoroscopy time utilized by residents performing cephalomedullary nailing of extra-capsular proximal femur fractures. Materials and Methods: We analyzed 353 cases performed at one academic institution for extra-capsular proximal femur fracture, the amount of fluoroscopy time, type of fracture, involvement of residents and the level of training. Chi square and Anova test were used for the analysis. Results: As expected, subtrochanteric fractures (173.6 sec +/- 63.4) took longer than intertrochanteric fracture (124.93 sec +/- 73.8) ($p < 0.001$), as well as the use of long (174.3 sec +/- 118) vs short nails (103.3 sec +/- 65.9) ($p < 0.001$). We also found that a PGY-2 took the longest fluoroscopy time to perform these cases, even when there was a senior resident present. Conclusion: This study demonstrates that orthopaedic surgery residents and attending physicians need to remain aware of the harmful effects of ionizing radiation and comply with personal protective equipment usage. Furthermore, attending surgeons and senior residents should be cognizant of accumulating fluoroscopy time and assume a more active role when fluoroscopy time reaches maximum recommended dosages. As cases increase in complexity, senior residents and attendings should perform the majority of these cases.

Abstract no.: 44601

COMPLICATION INCIDENCE IN TOTAL HIP ARTHROPLASTY: DOES SEASON INFLUENCE THE OUTCOME?

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Purpose: The purpose of this study was to analyze the influence of the season when a total hip arthroplasty was performed on the development of adverse events. **Methods:** A retrospective query of the Medicare standard analytical files database was performed for total hip arthroplasty stratified by yearly season. 4 groups were created for each year of the study period 2010-2012. Year quarter 1 - winter, quarter 2 - spring, quarter 3 - summer and quarter 4 - fall. Complications were tracked and analyzed at the 2 - year follow up through identification of ICD-9 codes. Mean complication incidence was compared among treatment groups through ANOVA or Kruskal-Wallis analysis. **Results:** A total of 394,670 total hip arthroplasty surgeries were performed between 2010 and 2012. There was no significant difference in mean complication incidence when THA were stratified by season ($p=0.96$ in 2010, $p=0.97$ in 2011 and $p=0.37$ in 2012). The most common complication each season throughout the entire study period was mechanical complication (range 0.28% - 1.02%) except among those surgeries performed in winter 2010, where pneumonia was more commonly reported (0.81%). Pneumonia and acute renal failure were the other two diagnoses most commonly recorded during the follow up period but did not exceed 1%. **Conclusion:** The total incidence of complications following THA was low and did not differ based on season when the surgery was performed. Specific complication rates vary by season but further research is required to compare the incidence of each specific complication by season.

Abstract no.: 44602

CLINICAL AND RADIOLOGICAL RESULTS OF MODERATE HALLUX VALGUS TREATED PERCUTANEOUSLY BY M1 ISHAM-REVERDIN AND P1 AKIN OSTEOTOMIES.

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Introduction : The aim of this study is to evaluate the radiologic and clinical results at two year FU minimum of moderate hallux valgus treated percutaneously by M1 Isham-Reverdin and P1 Akin osteotomies. Material and methods It is a retrospective study of 57 feet operated between 2003 and 2011. The inclusion criteria were : moderate hallux valgus with angles M1-M2 $<15^\circ$, M1-P1 $<40^\circ$, mobile and congruent joints. Results Mean FU was 35 months (24-82). M1-P1, M1-M2, DMAA, DM2A, and P1-P2 angles were improved. The mobility of M1-P1 joint was decreased. More on dorsal (20°) than plantar flexion (10°). But 90% of the patients were satisfied. The Kitaoka score improved from 60 to 90/100. Complications as superficial skin burns and metatarsalgia were noted. Discussion This is very significant improvement for M1-P1 and DMMA angles. The M1-P1 joint stiffness is very well tolerated. The perioperative pain was decreased compare to a conventional surgical approach

Abstract no.: 44605

PREVALENCE STUDY OF ADOLESCENT IDIOPATHIC SCOLIOSIS IN TEN-, ELEVEN-YEAR OLDS FOR 10 YEARS

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Purpose: School screening for adolescent idiopathic scoliosis (AIS) was conducted for 10 years and the prevalence of scoliosis as well as the size and types of curvature were investigated. The outcomes and existing research results were comparatively analyzed and the usefulness of the moire topography as a screening tool was evaluated. **Materials and Methods:** Moire topography was used in screening of 413,351 10- and 11-year-old from 2002 to 2011; simple standing entire spine x-rays of selected examinees were taken. When the Cobb angle was 10° or higher, the condition was deemed to be scoliosis, and the size, location, and types of curvature were recorded. **Results:** The average prevalence over the 10 years was 0.4% (0.3%-0.5%) and the trends in yearly prevalence did not change significantly. The ratio of boys-to-girls prevalence rates for the 10 years was 1.0:3.8. The rate of those with scoliosis whose curvature was 10°-19°, 20°-29°, and 30°-39° was 71%, 24%, and 4%, respectively. King-Moe type III accounted for the largest portion at 45%, followed by type IV at 35%, type II at 11%, type I at 7%, and type V at 5%. **Conclusion:** The prevalence of scoliosis in the subjects was similar for the 10 years but differed from previous research results. The size, location, and types of curvature were similar to those reported in previous research. The differences in prevalence from existing research are considered to be due to the screening method used. Therefore, conduction of additional research on effective screening tests is necessary.

Abstract no.: 44606

THE EFFICACY OF THE CAUDAL EPIDURAL BLOCK IN PATIENTS WITH CHRONIC LOW BACK PAIN ACCORDING TO THE CONTRIBUTION OF NEUROPATHIC PAIN COMPONENT

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Background: About 30% patients complained by chronic low back pain are known neuropathic component dominant and research of such patients is rare for chronic low back pain effect of caudal epidural block. Method: A controlled prospective study was performed ninety eight patients who complained for chronic low back pain more than 3 months in 50~70 years old. The patients were divided into neuropathic dominant group and control group through LANSS(Leeds Assessment of Neuropathic Symptoms and Signs) questionnaire and DN4(Douleur Neuropathique en 4). The patients were received caudal epidural block treatment and measured the back and leg symptoms through VAS (visual analogue score) after 2, 4, 6 weeks. Result: There were no significant differences in back VAS(BVAS) and lower extremity VAS(LVAS) each weeks between neuropathic dominant group and control group in lumbar area pain with lower extremity VAS 3 points or less group ($p>0.05$). There were significant differences between neuropathic dominant group and control group in Lumbar area pain with radiating pain below gluteal fold group statistically in BVAS of 2 weeks and 4 weeks ($p=0.01, 0.01$) but no statistically differences in LVAS ($p>0.05$). There is no difference between the two groups in BVAS and LVAS in 6 weeks ($p>0.05$). Conclusion: Chronic low back pain with radiating pain patients is dominated neuropathic component, and caudal epidural block improve patient symptoms in low back pain. However the effect was found to stay in short duration.

Abstract no.: 44607

CORRELATION BETWEEN SAGITTAL ALIGNMENT AND ADJACENT FRACTURE AFTER PERCUTANEOUS VERTEBROPLASTY OR KYPHOPLASTY

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Background : It is still under debate and sagittal alignment related research are still missing. The purpose of this study is to analyze the relationship between sagittal alignment and adjacent vertebral fracture(AVF) after percutaneous vertebroplasty(VP) or kyphoplasty(KP) Methods : We retrospectively analyzed AVFs in 132 patients treated with VP or KP for osteoporotic vertebral compression fracture at thoracolumbar region(T10-L2). The patients were followed up for at least 1 years. Spinopelvic alignment (well balanced, compensated balanced, unbalanced), sagittal vertical axis(SVA), thoracolumbar vertical axis(TLVA), pelvic incidence, thoracolumbar kyphotic angle(T10-L2) and wedge ratio of previous fractured vertebra were assessed. Patients who developed radiologic AVF during follow-up were grouped into the AVF group and the rest who did not show radiologic AVF assigned to the control group. Results : There were 7 male and 125 female patients. The mean age was 70.3(range 60-79) and the mean follow up duration was 29.7(range 24-32) months. The mean BMD(T-score) was -3.1 ± 1.2 and the mean BMI was 23.4 ± 4.1 . The age, BMD and BMI showed no significant difference between two groups. 26 patients(19.7%) had subsequent AVF. In AVF groups, there were 15 patients with unbalanced spinopelvic alignment and the mean SVA was 47mm(range 0-75) and the mean thoracolumbar kyphotic angle was 27.8° (range 11-32). Significant differences($p < 0.05$) were found between the AVF and control groups in regard to unbalanced spinopelvic alignment, SVA and thoracolumbar kyphotic angle. Conclusion : Unbalanced spinopelvic alignment, SVA and the thoracolumbar kyphotic angle were related to AVF after percutaneous VP or KP.

Abstract no.: 44615

RESTORATION OF FOREARM OSTEOANATOMY AFTER FIXATION OF PAEDIATRIC FOREARM FRACTURES WITH TITANIUM ELASTIC NAILS : ARE WE YET BEYOND THE LEARNING CURVE ?

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Introduction - Restoration of the Osteoanatomy of the Forearm in Paediatric Forearm fractures is an Important Determinant of Functional Outcome. Material & Methods - 23 Pediatric Forearm Fractures fixed with Elastic Nails were Retrospectively Analysed. 13 Surgeries were Performed by a fellowship Trained Consultant and 10 surgeries were performed by Senior Resident Doctors. Clinical & Radiological Criteria were used to evaluate the functional outcome. Restoration of Lateral Radial Bow, Anterior Ulnar Bow, Width of the Interosseous space, Size of the implant initial post Surgery splinting position and range of pronation-supination were the criteria which were evaluated. Results All 13 of the patients who were operated upon by the fellowship trained consultant had an Excellent functional outcome. The Functional outcome of the Patients operated upon by the Senior Residents was Excellent in 18% of the Cases, Good in 80% of the cases and fair in 12% of the Cases. Conclusion - Restoration of Structural Anatomy of the forearm in children with an accurate reconstruction of the lateral radial bow, restoration of the anterior ulnar bow, maintenance of the Interosseous space, initial Splinting in Full Supination and early mobilisation were found to be the criteria pertinent for Excellent Functional Outcomes in Paediatric Forearm Fractures treated with Titanium Elastic Nailing

Abstract no.: 44619

PENETRATION INTO THE MEDIAL COLLATERAL LIGAMENT ON TIBIAL PLATEAU OSTEOSYNTHESIS USING A LATERAL PLATE.A CADAVER STUDY.

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Introduction: To evaluate the likelihood of screw penetration into the medial collateral ligament (MCL) during tibial plateau osteosynthesis, when using a LCP proximal tibial plate. **Method:** Ten cadaveric knees, embalmed with the method of Thiel were used. A LCP proximal tibial plate with two proximal screw holes to allow positioning of subchondral screws was applied to the lateral aspect of the proximal tibia. The proximal 6.5 mm screws were placed in subchondral bone and the position checked with fluoroscopy. Following screw positioning, the medial side of the proximal tibia was assessed for MCL screw penetration. **Results:** Screw penetration into the medial collateral ligament occurred in 30 % of specimens for both the posterior and anterior holes. When a screw that was 5mm longer than the tibial plateau width was used, the posterior screw penetrated the MCL in 60 % of the specimens and in 50 % of specimens when an anterior screw was used. **Discussion:** Careful subchondral positioning of screw placement is necessary to avoid penetration of the MCL during lateral plating of the proximal tibia. Screws that are longer than 50 mm have increments of 5mm in length and there is a higher chance of MCL penetration when bicortical purchase is required. Additionally, external oblique fluoroscopic images of the knee can underestimate long screws.

Abstract no.: 44620

MULTIDRUG RESISTANCE SPINAL TUBERCULOSIS- DIAGNOSIS AND THERAPEUTIC OUTCOME.

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Introduction: Multi-drug resistant TB (MDR-TB) is defined as M. tuberculosis resistance to isoniazid and rifampicin with or without resistance to other drugs. The diagnosis and management protocols for MDR-TB are well established for pulmonary tuberculosis, there is paucity of clinical data for spinal tuberculosis. Methods: Patients on ATT presented with lack of clinico-radiological response at 5-6 months appearance of new lesion/ persistence of abscess or wound dehiscence or on appearance of discharging sinuses (suspected drug resistance) were included . Drug-culture was prepared, the lesion was debrided and tissue was submitted for histology, molecular diagnosis and drug sensitivity testing(DST) . The second line ATT was initiated following DST or failure to document resistance . Patients were followed up at 6,12,18,24 months radiologically and laboratory investigations. Results: 30 cases met the defined inclusion criteria and treated. All showed Histological confirmation of diagnosis while Bacteriological growth was obtained in n=14 (46.7%) cases. The drug resistance was demonstrated in 9 cases (mono-drug resistance (n=2), MDR (n=6) extensively drug resistance (n=1) . 30% cases were proven drug resistance , 16.6% sensitive organism (paradoxical reaction) while 53.3% were probable drug resistance in TB spine . Healing response was assessed in n=15 cases, 9(60%) patients showed no residual disease activity at follow-up on contrast MRI and PET scan . Conclusions: The clinical suspicion of drug resistance based on our criteria is sound in identifying confirmed or probable drug resistance in 83.3% cases. Healing was demonstrated clinico-radiologically on treatment with second line ATT.

Abstract no.: 44621

REVISION TOTAL HIP ARTHROPLASTY FOR ANKYLOSIS OF THE HIP JOINT CAUSED BY SEVERE HETEROTOPIC OSSIFICATION

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Heterotopic ossification is a common complication following total hip arthroplasty. We experienced a case of ankylosis of the hip joint caused by severe heterotopic ossification following total hip arthroplasty. A 78-year-old man had undergone cement total hip arthroplasty for osteoarthritis of the left hip 14 years previously at a different hospital. He experienced a gradually progressive disturbance of gait and a limitation in the range of motion of the hip joint from 5 years previously. At the initial visit, ankylosis of the hip joint was noted. Radiographs showed marked heterotopic ossification around the hip joint and loosening of the acetabular cup. Therefore, revision surgery was performed. We removed the heterotopic ossifications around the hip joint, removed the cup and fibrous tissue, and performed impaction bone grafting with an autograft and allograft. We first changed the femoral head and then cemented polyethylene cup because femoral neck motion was still limited and because it appeared difficult to change the femoral head after cup implantation. Intraoperative gram staining of the joint fluid was negative; however, bacterial culture revealed the presence of *Staphylococcus caprae*. He was treated with a course of oral antibiotics, and his C-reactive protein level reduced 4 months after the surgery. Several authors have reported risk factors, such as previous heterotopic ossification of soft tissue, hypertrophic osteoarthritis, ankylosing spondylitis, type of implant, and type of surgical approach used. No previous report has described the involvement of infection. In the present case, heterotopic ossification may have been influenced by infection.

Abstract no.: 44622

MODIFIED ANTEROLATERAL APPROACH FOR INTERNAL FIXATION OF HOLSTEIN-LEWIS HUMERAL SHAFT FRACTURES

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Introduction: Treatment of Holstein-Lewis humeral shaft fractures with plating technique through anterolateral approach is often difficult due to limited distal osseous fixation. We modified the anterolateral approach to achieve sufficient distal fixation by minimal splitting of the brachioradialis muscle and assessed its efficacy for treatment of Holstein-Lewis humeral shaft fractures. **Methods:** Eighteen patients with Holstein-Lewis humeral shaft fractures who underwent open reduction and internal fixation with plate and screws using modified anterolateral approach for a minimum follow-up period of 12 months were investigated. We analyzed the union rate, elapsed time to union, postoperative complications, range of elbow motion. Clinical outcomes were evaluated with Mayo elbow performance score system. **Results:** With our modified anterolateral approach, minimum six cortices fixation for distal fragment could be achieved in all cases. The average union time was 10.5 weeks (range, 8-12 weeks). Four cases of preoperative radial nerve palsy were revealed as contusion or stretching of the intact nerve and resolved completely by three months. The mean elbow range of motion was 3 of extension and 135 degrees of flexion. The average Mayo elbow performance score was 96 points; 15 cases ranked as excellent and 3 as good. There were no non-union or metal failures. **Conclusion:** The humeral shaft fractures can be treated successfully by open reduction and internal fixation with plate and screws. Modified anterolateral approach is easily accessible method to stabilize Holstein-Lewis humeral shaft fractures without compromising the range of elbow motion, and to explore or protect the radial nerve.

Abstract no.: 44628

RESULTS OF THRA WITH 36MM-METALLIC FEMORAL HEAD COUPLED WITH 1ST GENERATION HXLPE AS A BEARING SURFACE IN LESS THAN OR EQUAL TO 40YEARS OLD. -MINIMUM 5-YEAR RESULTS -

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The purpose was to evaluate the Mid-term results of the use of 36 mm metallic femoral head coupled with 1st generation HXLPE in patients with the age of less than or equal to 40 years-old. This retrospective study included 15 cases (14 patients) sustained hip pain needed Total Hip Replace Arthroplasty. We used cementless stem (FMT, Zimmer, Warsaw, Indiana) at 9 cases and cement stem (Versys, Zimmer, Warsaw, Indiana) at 6 cases. We used Trilogy (Zimmer, Warsaw, Indiana) in all cases as an acetabular cup and Longevity (Zimmer, Warsaw, Indiana) in all cases as a HXLPE. Mean acetabular cup size was 54.26mm. Mean HXLPE liner thickness was 7.57mm at pole and 4.07mm at 45° direction. Mean Harris hip score was 90(86-95) and all cases obtained more than 15 scores in Merle d'Aubigne and postel method at recent follow ups. All femoral stem showed stable fixation status. Mean acetabular cup Inclination was 49.5o and Anteversion was 22.1o. During follow ups, there was no complication including dislocation, osteolysis, infection and plastic fracture. Bedding-in wear rate was 0.081 ± 0.034 mm/yr. And Steady-state was 0.053 ± 0.016 mm/yr. Concerns remained in using HXLPE to active patients. But we checked a good results in terms of functional scores and wear rates. And, there was no major complication during minimal 5 years check ups. So, the authors thought THRA with 36mm- metallic heads on 1st-Generation Highly Cross-linked Polyethylene as a bearing surface could be a good option in less than or equal to 40 years old patients.

Abstract no.: 44629

MYCOPLASMA HOMINIS SURGICAL SITE INFECTION FOLLOWING SPINAL INSTRUMENTATION: A CASE REPORT AND LITERATURE REVIEW

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Mycoplasma hominis is a rare cause of surgical site infection (SSI) following spinal surgery. Being an atypical organism, it is not identifiable on Gram stain nor does it respond to typical broad-spectrum antibiotics. It is a colonizer of the genitourinary tract but can cause postoperative infections, including of the musculoskeletal system. We describe a rare case of *Mycoplasma hominis* infection following spinal instrumentation. We also performed a literature review of *Mycoplasma hominis* infections following spinal instrumentation. We present a case of a 63-year-old man who developed a deep SSI caused by *Mycoplasma hominis* after undergoing posterior instrumentation, fusion and decompression from L2 to S1 for spinal stenosis. Notably, he developed a urinary tract infection on post-operative day (POD) 3, and was treated with broad-spectrum antibiotics after cultures returned negative. *Mycoplasma hominis* was only detected on POD 18. He received 4 weeks of doxycycline with no recurrence of infection. To our knowledge this is the third reported case of SSI caused by *Mycoplasma hominis* following spinal instrumentation. A delay in diagnosis is common due to its atypical nature; hence a high index of suspicion is required, particularly in patients who have recently undergone trauma, infection or manipulation of the genitourinary tract. The infection can cause prolonged hospitalization and may necessitate debridement and implant removal.

Abstract no.: 44630

PATIENT REPORTED OUTCOMES IN TKA AMONG CURRENTLY AVAILABLE PRODUCTS: A LARGE SAMPLE PROSPECTIVE WORLDWIDE STUDY

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Introduction: Despite numerous implant and surgical improvements, approximately 80% of TKA patients are satisfied. This study collected patient reported outcome measures (PROMs), including a new PROM, to investigate reasons for dissatisfaction and establish a contemporary reference dataset against which to compare new implant systems. Methods: From October 2011-March 2015, 845 patients implanted with currently available products from three manufacturers were prospectively enrolled across 22 sites in this non-randomized, worldwide study. Evaluations included pre-op, <1 year, 1-year, and 2-years including five PROMs. Results: Demographics were typical for TKA. Means (SDs) for KOOS sub-scores were: ADL: 85.5 (15.8), Symptoms: 78.4 (17.1), Sport/Recreation: 55.9 (30.5), Pain: 85.0 (16.8), QOL: 70.5 (23.2); for OKS (0 to 48 scale) and Patient's Knee Implant Performance (PKIP: 0-100 scale) were 40.4 (7.4) and 72.7 (19.0), respectively. PKIP satisfaction (0-10 scale) was correlated with KOOS ADL (R-square=48%), KOOS Pain (R-square=50%), and OKS (R-square=53%). Some configurations demonstrated greater covariate adjusted change from baseline for some outcomes, such as PKIP; PKIP covariate adjusted change from baseline decreased in the following configuration order: CRRP, PSFB, PSRP and CRFB. Mean (SD) PKIP satisfaction for CRRP, PSFB, PSRP, and CRFB was 8.3 (2.1), 8.1 (1.8), 7.8 (2.1), and 7.5 (2.2), respectively. Using pre-op PKIP satisfaction and days post-op as covariates, the adjusted means were 8.3, 8.0, 7.8, and 7.6, respectively. Conclusion: These results provided a large reference dataset of outcomes for TKA subjects implanted with commonly implanted knee configurations and helped elucidate factors associated with patient dissatisfaction (functional outcomes, pain, and implant configuration).

Abstract no.: 44634

EARLY OUTCOMES WITH A NEW PRIMARY TKA SYSTEM VS. CONTEMPORARY TKA: INTERIM RESULTS OF TWO WORLDWIDE, MULTI-CENTER PROSPECTIVE STUDIES

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Introduction: Patient reported outcomes (PROMs) with the new ATTUNE primary, cemented, multi-radius TKA system designed to improve anteroposterior and patellofemoral kinematics that included instruments designed for enhanced ease of use were compared to outcomes of currently available TKAs in a parallel cohort (CURRENT-TKA). Methods: From October 2011-March 2015, 22 investigators prospectively enrolled 845 patients implanted with CURRENT-TKA (from multiple manufacturers), and between November 2012-May 2015, they enrolled 1137 patients with ATTUNE®. Demographics were similar. Operative times, clinical outcomes, PROMs, and complications were compared. Outcomes were covariate adjusted and the first 10 ATTUNE subjects for each surgeon were excluded (211 subjects) as learning curve cases. PROMS were assessed preoperatively, between post-op and 1-year, 1-year and 2-years. Results: Mean outcomes were similar for the early interval (between post-op and 1-year) for CURRENT-TKA vs. ATTUNE, except for PKIP stability and satisfaction, both of which were better for ATTUNE. The following mean outcomes were statistically better for ATTUNE at the latest follow-up interval: KOOS (ADL: 88.9 vs. 85.7; Symptom: 81.9 vs. 78.3; Sport/Rec: 62.6 vs. 56.5; Pain: 88.2 vs. 84.8; QOL: 73.3 vs. 70.3), WOMAC (Pain: 90.2 vs. 87.5; Stiffness: 80.2 vs. 76.8; Function: 88.9 vs. 85.7), New OKS (41.7 vs. 40.4), and PKIP (Overall: 74.5 vs. 71.7; Confidence: 8.4 vs. 8.0; Stability: 8.6 vs. 8.3; Satisfaction: 8.2 vs. 7.9). All PROMs comparisons demonstrated a mean difference which favored ATTUNE. Conclusion: ATTUNE had improved outcomes across a broad range of PROMs compared to currently available TKA implant designs. Longer follow-up is ongoing.

Abstract no.: 44635

TREATMENT OF THE CONSEQUENCES OF BILATERAL HIP FRACTURE-DISLOCATION. CLINICAL CASE.

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Methods: In our service was admitted a 61 years old patient for total hip replacement of the right hip. At age of 33 and 37 years patient has suffered the road accidents and as a result he got severe multiple injures of both hips - posterior dislocation of the femoral head with acetabular fractures. Left hip, traumatized in the first accident, was associated with sciatic neuropathy. In the second accident, occurred subtrochanteric fracture of the left femoral bone. At 6 months, after the first accident, was performed left hip fusion and the inspection of sciatic nerve. Subtrochanteric fracture was treated by osteosynthesis with Kuncher nail. On admission was established the diagnosis: Posttraumatic coxarthrosis of the right hip, grade IV. Left hip joint fusion. Vicious consolidation of the left femoral bone in the subtrochanteric region. Paralytic equinus of the left foot. First was performed left subtrochanteric correction osteotomy and, after the eight months, right total hip arthroplasty with uncemented prosthesis. **Results:** The final assessment follow-up at 19 months of the joint arthroplasty showed improvement of the Harris Hip Score from 23 to 92.5 . In the same time, assesment of the left join fusion showed improvement of the Harris Hip Score from 54, 5 to 69.5. **Conclusions:** Posttraumatic deformities in both hips are an important biomechanical disorder with marked disability in current activities. Removing deformities through justified biomechanical orthopedic-surgical procedures, increase the quality of life of these patients, decreased pain, increased joint mobility and stability.

Abstract no.: 44636

COGNITIVE AND MENTAL DISORDERS IN PATIENTS WITH END-STAGE OSTHEOARTHROSIS OF LARGE JOINTS

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Introduction. Osteoarthritis makes up for 24.9% of registered diseases of the locomotive system in Russia. Its main clinical manifestation is long-lasting pain. S. Tyrer believes that half of the patients with chronic pain suffer from mental disorders of depressive type, though the incidence of depression in the population does not exceed 3-5%. Methods: 83 patients were included in the study, 58 (69,88%) women and 25 (30,12%) men, middle-aged 63,82±10,39, coxarthrosis stage 3 in 55.42%, gonarthrosis in 44,58%. Patients have had osteoarthritis for an average of 10,28±6,99 years. The mental status of all patients was evaluated using the dementia severity scale (MMSE), the anxiety and depression scale (HADS) and alexithymia, using the Toronto Alexithymia Scale (TAS-26). Results. Using the MMSE scale, cognitive disorders were found in 42,17% patients, average age 71,71±7,61 years, length of disease 8,57±10,16 years. The HADS scale showed anxiety of various severity in 62,7% patients, average age 64,27±5,82 years, length of disease 11,45±7,15 years. Anxiety level was directly proportional to an increase in disease duration (p=0,02). Depressive disorders were found in 21,68% patients, average age 65,69±9,45 years, average length of osteoarthritis 12,23±9,24 years. Depression is directly proportional to an increase in the average age and duration of osteoarthritis (p=0,05). According to TAS-26 31,32% of the patients had alexithymia- risk factor of psychosomatic diseases (p=0,03). Conclusion. A significant proportion of mental disorders in patients with end-stage osteoarthritis of large joints requires the inclusion of well-validated tests for the screening of mental disorders and the psychological correction in therapy.

Abstract no.: 44637

DEVELOPMENT OF AN ALGORITHM FOR MANAGEMENT OF SUPRACONDYLAR FEMORAL PERIPROSTHETIC FRACTURES AROUND TKA PROSTHESES

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Introduction: Comminution, bone loss and osteoporosis make supracondylar periprosthetic femoral fractures difficult to treat. Treatment using open reduction internal fixation (ORIF) usually necessitates primary (or secondary) bone grafting. Biological plating using minimally invasive surgical (MIS) technique is now possible due to the advent of angular-stable implants, with minimal morbidity. Good patient selection and technique are paramount. Base on the results of our series, we have defined an algorithm to successfully treat each case. Methods: 46 patients with comminuted periprosthetic distal femoral fractures were operated over 6-years (Oct 2006 – Sep 2015). All were fixed with a distal femoral locking compression plate (DF-LCP). 25 underwent ORIF with primary bone grafting, while 21 were treated by closed reduction and internal fixation using MIS biological fixation. Clinico-radiological follow-up was recorded up to an average 42 months. Results were assessed. Results: Average time to union for the group was 5.6 months. Patients of ORIF group took longer (average, 6.4 months) than MIS group (average, 4.6 months). Three patients of ORIF and one in MIS group had poor results. Average knee scores were higher for CR group at 6 months, but nearly identical at 12 months, with similar eventual ROM. Discussion: Locked plating of comminuted periprosthetic distal femoral fractures permits stable rigid fixation and early mobilization. Biological plating minimizes morbidity and may obviate need for primary bone grafting. Based on our results, a treatment algorithm has been developed.

Abstract no.: 44639

IS THE PFNA-II BEST SUITED FOR THE TREATMENT OF UNSTABLE INTERTROCHANTERIC FRACTURES IN THE ELDERLY: RESULTS AND CONCERNS IN A SERIES OF 89 PATIENTS

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Introduction: Unstable intertrochanteric femoral fractures in the elderly are complicated by posteromedial comminution, osteoporosis, and associated medical comorbidity. Proximal femoral nail (PFN) scores over dynamic hip screw (DHS) by providing intramedullary support, permitting early ambulation & weight bearing. However, the PFNA-II design also causes complications. We present results of 89 fractures operated using Synthes PFNA-II, describing key concerns. Methods: 89 consecutive patients (mean age, 79 years) with unstable intertrochanteric fractures were operated using the short Synthes PFNA-II system, from Dec 2009 to Nov 2014. Patients having fracture extending into subtrochanteric region/shaft were excluded. Clinicoradiological data (fracture reduction, lateral wall thickness, tip-apex distance (TAD), late collapse leading to coxa vara/retroversion, thigh pain and abductor lurch) was recorded. Follow up visits were conducted at least till fracture union, and data analyzed. Results: 84 fractures were available for final evaluation. Complications included fracture malreduction (3), prominent/painful hardware causing trochanteric/thigh pain (8), abductor lurch (2), superficial infection following hematoma (1) & late varus collapse (1). 2 patients had screw cutout, 1 penetration into the joint. These 3 were considered failures. All the rest united at a mean of 3.5 months (range, 3-6 months). Conclusions: The PFNA-II is an efficient implant in the very elderly patient with unstable intertrochanteric fracture, permitting early return to weight bearing and function. The spiral blade permits adequate purchase in osteoporotic bone, even if imperfectly placed (TAD>25mm). However, this PFN design causes painful proximal hardware prominence and persistent abductor lurch (in short Indian female population) and needs careful selection.

Abstract no.: 44640

FACTORS THAT MUST DICTATE BETWEEN FIXATION AND REPLACEMENT IN SURGICAL MANAGEMENT OF UNSTABLE INTERTROCHANTERIC FRACTURES IN VERY ELDERLY: STUDY OF 220 PATIENTS

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Introduction: Unstable intertrochanteric femoral fractures in the elderly population having co-existent co-morbidity can be treated with the DHS, PFN or hip arthroplasty. We retrospectively compared mortality, morbidity and results following results using all three treatment methods & identified factors that should govern the appropriate surgical option. Methods: Hospital records from Dec 2006 to Nov 2014 were reviewed. 220 patients with unstable intertrochanteric fractures matched for demographics and co-morbidity (ASA grade III or IV) were selected amongst the population base for the study, and divided into three treatment groups (DHS, PFN and BA). These groups were then compared for intra-, peri- and post-operative results. Subgroup and regression analysis was used to define significant findings. Results: The DHS group had highest complication & re-operation rates. The hip arthroplasty patients had surgical complications, but got back to activities of daily living and weight bearing quickly, and were the most satisfied group. Duration of hospitalization and time-to-weight-bearing was least in the PFN group, though some complained of persistent abductor lurch and thigh pain. No differences existed between the PFN and BHA groups at 6 months. Conclusions: DHS fixation should probably be avoided in this fracture type as it is associated with the highest complication rate, and subsequent morbidity. PFN is effective and attention to surgical technique can provide the best results. Bipolar hemiarthroplasty is best suited for very morbid patients needing urgent ambulation, but require well trained surgical skills.

Abstract no.: 44642

3- AND 4-PART PROXIMAL HUMERUS FRACTURE FIXATION USING MINIMALLY INVASIVE SPLIT DELTOID APPROACH IS SAFE AND EFFECTIVE

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Introduction: 3- and 4-part fractures of the proximal humerus need good rotator cuff (in addition to open reduction and internal fixation (ORIF)) to obtain good clinical results. The split deltoid approach is minimally invasive (MI) and provides excellent access to the rotator cuff. We present results of our series of 48 proximal humeral fractures operated through the MI split deltoid approach, the advantages and concerns. Methods: 48 consecutive patients (mean age, 38 years) with 3- or 4-part proximal humerus fractures presenting to us between Nov 2007 & Oct 2014 were operated using the split deltoid approach and fixed using proximal humerus locking plates. Fractures of the humeral head were excluded. Rotator cuff sutures were routinely taken and tied to the plate. Clinicoradiological follow up was recorded regularly and assessed. Results: All but 2 fractures united at a mean of 3.5months (range, 2-5months). At 3 months, average range of motion achieved was 100° of flexion, 90° of abduction & 30° of internal & external rotation; which improved to 120° of flexion, 110° of abduction & 40° of internal & external rotation at 12 months. Our complications included superficial infection (1), implant cutout (1), varus collapse (2), deltoid atrophy following axillary nerve injury (1), and greater tuberosity escape (3) leading to poor results. Conclusions: Early ROM & return to near-normal function are possible following the minimally invasive split deltoid approach for 3- and 4-part fractures. Restoration of biomechanics of the tuberosities (greater and lesser) is critical.

Abstract no.: 44647

STRUCTURE OF CARDIOVASCULAR DISEASE IN PATIENTS WITH ENDOPROSTHESIS LARGE JOINT

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Introduction: the incidence of perioperative cardiovascular complications during surgery in patients with cardiac pathology may reach 20-40%. The risk of such complications depend on the patient's condition prior to surgery, the urgency, the volume and duration of surgery. Methods: a record analysis of 79 patients, who underwent total arthroplasty, of average age 65,3 years, 24% male, 76% female. Selection criterion - the presence of cardiovascular disease. Results: 96% of patients had hypertension (HBP), which doubles the risk of venous thromboembolic complications during surgery. HBP step 1 in 11,8%, 2 in 63,2%, 3 in 25% of patients. HBP stage 1 in 7,6%, 2 – 77,6%, 3 - in 15,8% of patients. High cardiovascular risk was detected in 95% of patients. Exertional angina functional class (FC) 1 in 18,2 %, FC 2 in 81,8% of patients. Chronic heart failure (CHF) was observed in 33% patients, I stage in 26,9%, IIA stage in 31%. CHF FC 1 in 26,9%, FC 2 – 69,2%, FC 3 –3,8. 100% of patients had reduced cardiac ejection fraction (EF). There was an inverse correlation between patient age and ejection fraction ($r=0,8768$, $p<0,05$). 63% had a disorder of renal glomerular filtration rate. Second degree anesthetic risk was observed in 51.9%, third degree in 48.1% of patients. Conclusion: most of the patients had hypertension with organ lesions. 1/3 of the patients had exertional angina, 21% had heart rhythm disturbances. All had a lower EF. Thus, patients who underwent arthroplasty of large joints, revealed a high prevalence of cardiovascular disease.

Abstract no.: 44652

TWO CASES OF IPSILATERAL DISTAL RADIUS FRACTURE AND SCAPHOID FRACTURE TREATED WITH PERCUTANEOUS METHODS

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INTRODUCTION : Simultaneous fractures of the distal radius and scaphoid are uncommon with incidence of only 5 % which are usually high energy trauma with rapid force loading of an outstretched radially deviated dorsiflexed wrist. Question arises which fracture to treat first once the fixation is achieved in one fracture the treatment of second fracture risks the disruption of fixation of first fracture. **CASE:** We describe 2 cases of young adults who sustained injury to wrist after a RTA and had chief complaint of pain and swelling in wrist. O/E there was tenderness over distal radius and tenderness at anatomical snuff box with marked swelling in both the cases. AP and LAT Xrays showed intra-articular distal radius fracture & fracture right scaphoid TYPE B2. Patient were planned for operation. Case1 was treated with closed reduction and pinning of scaphoid and Distal radius was reduced and fixed with 3 K wires followed by Joint spanning with traction scaphoid further did not displace and got reduced with the help of ligamentotaxis. Percutaneous two K wires were given in the scaphoid, Both parallel to each other in the long axis of the bone. Case 2 was treated with traction and first scaphoid was reduced and fixed with herbert's screw later distal radius was reduced with 3 K wires & joint was spanned. **Results:** Bony Union was achieved at the end of 8 & 9 weeks in respective cases, no sign of AVN of scaphoid was seen. Function of was regained at the end of 10 weeks. Patient returned to his job after 3 months of injury

Abstract no.: 44660

USE OST TENDON IN THE TREATMENT SUBACROMIAL IMPINGEMENT SYNDROME

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Introduction: periarticular tissue diseases range from 40 to 80% of all diseases of the shoulder joint and rank second in the structure of orthopedic diseases. The most common cause of pain in the shoulder joint is the subacromial impingement syndrome. The standard introduction of glucocorticosteroid in periarticular tissue is risky, so one of the most promising treatments for diseases of periarticular tissues is intra-articular and subacromial introduction of hyaluronic acid such as Ost Tendon (40 mg / ml). Methods: the study involved 10 patients of average age $56,2 \pm 10,07$ years. All were diagnosed with subacromial impingement syndrome, there was no damage to the rotator cuff. Eight patients received conventional treatment prior to the study, without improvement. Pain was assessed by VAS. Quality of life was assessed using the SF-8 questionnaire. NSAID was administered in standard tablet dosages, Ost Tendon (40 mg / ml) was injected twice into the subacromial space with 1-week interval. The patients were surveyed during the first and second injections, 3 months after the first injection and 6 months after the start of the study. Results: average survey results before the study: VAS 70 ± 7.07 points, quality of life SF-8 PCS8= $31,66 \pm 4,34$, MCS8= $32,27 \pm 5,07$. After 3 months, VAS - $21,5 \pm 17,95$, quality of life SF-8 PCS8 $45,44 \pm 3,97$ MCS8= $50 \pm 6,85$. One patient felt no relief. After 6 months: VAS $11 \pm 17,60$, SF-8 was without change. Arthroscopic subacromial decompression was performed on one patient. Conclusions: data shows the effectiveness of subacromial injection of Ost Tendon.

Abstract no.: 44661

FUNCTIONAL & RADIOLOGICAL OUTCOMES OF INTRAMEDULLARY NAILING & BISPHOSPHONATE THERAPY IN CHILDREN WITH METABOLIC BONE DISEASE.

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Aim: To study the functional & radiological outcomes of intramedullary nailing & bisphosphonate therapy in children with metabolic bone disease. **Methods:** 18 long bones in 11 children (7 – 16 years of age) with metabolic bone disease (9 Osteogenesis imperfecta; 1 fibrous dysplasia; 1 hypophosphataemic rickets) underwent corrective osteotomies & intramedullary rodding for repeated fractures & deformity. Six Rush rods, 6 Sheffield rods and 6 Fassier-Duval telescoping rods were implanted in 18 long bones (12 femurs / 6 tibiae) between January 2008 & December 2015. Average osteotomies required were 2 & average healing time was 10 – 12 weeks. Non-telescoping rods survived for a mean of 25 months, while telescoping rods survived for a mean of 37 months. Revision surgery was required in 6 patients (33%) for rod cut-out (4 Rush & 2 Sheffield). One tibial FD male component migrated proximally while 2 FD rods and 1 Sheffield rod got bent. There were no superficial or deep infections. Two patients developed knee stiffness. Ambulatory status improved and fracture incidence reduced markedly following combined treatment with bisphosphonates & intramedullary rodding. 10 children (90%) were on regular bisphosphonate therapy. **Conclusion:** Despite high rate of revision surgery (33%) & minor complications, children with metabolic bone disease benefit with combined treatment with bisphosphonates & intramedullary rodding.

Abstract no.: 44664

LATE RESULTS OF THE M.PERONEUS BREVIS TRANSPOSITION FOR THE ACHILLES TENDON DEFECTS

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Results of m. peroneus brevis (MPB) transposition in the treatment of patients with Achilles tendon (AT) defects have been analyzed. 106 patients with AT defects were operated on from 2000 to 2015 by MPB transposition in Teuffer A.P. modification. There were 38 fresh cases and 68 old re-ruptures in patients from 25 to 72 years, 80 males and 26 females. In fresh cases MPB transposition was indicated in advanced degenerative changes in AT if the defect was longer 2 cm at the flexed knee. Postoperative immobilization was performed by plaster splint from toes to the tibial tuberosity for 3 weeks. Then sutures were removing and plaster bandage with walking platform was applied and patient ordered the full weight-bearing during next 3 weeks. Then the immobilization was over and the rehabilitation program starting. 7 patients had local complications (5 – hematomas, 2 – superficial wound infections) without consequences. Re-rupture was occurred in one case in patient who have 72 years old. Functional results have been assessed by AOFAS score after 6 months in 73, 12 months in 48, from one to ten years – in 26 patients. Average range of function was 84, 92 and 96 points respectively. MPB transposition is preferable for degenerative ruptures and AT defects. Degenerative changes in AT don't influence on reparative process and immobilization longstance. The optimal tension of m. triceps surae profilaxes it's hypotrophy and promote the fast recovery to professional and sport activity.

Abstract no.: 44667

A DOUBLE BLINDED RANDOMISED COMPARATIVE STUDY OF CORE DECOMPRESSION ALONE VERSUS CORE DECOMPRESSION + BMAC (BONE MARROW ASPIRATE CONCENTRATE) FOR THE TREATMENT OF PRE-COLLAPSE STAGE OF NON- TRAUMATIC AVN OF FEMORAL HEAD

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Osteonecrosis of Hip is an incapacitating disease. There have been no meta-analysis or blinded Randomised Controlled Trials to provide an ideal treatment for the same. The purpose of the study was to compare the functional and radiological outcomes of non traumatic osteonecrosis of hip Stage I, II (Ficat & Arlet) treated with Core Decompression alone versus Core Decompression and Bone Marrow Aspirate Concentrate (BMAC) injection. A prospective study was conducted at our institution from January 2011 to January 2015. It was a double blinded randomised control trial. A total of 31 patients with 40 hips were included in the study out of which 18 hips underwent Core Decompression alone and the rest 22 hips underwent Core Decompression with BMAC as per randomisation. They were reviewed at 1, 3, 6,9,12 months and assessed radiologically and Harris Hip Score was calculated. On statistical analysis using student t test, there was a statistically significant improvement in Harris Hip score in patients who underwent core decompression with BMAC as compared to core decompression alone. There was reduced incidence of progression to collapse in Core decompression with BMAC group (6.67%) as compared with Core Decompression group (23.53%). Bone Marrow Aspirate Concentrate is safe, efficient and a less technically demanding modality for the treatment of non-traumatic avascular necrosis of femoral head in pre-collapse stage. Taking the functional and radiological outcomes into consideration with pain relief, delayed/ reduced progression to collapse, Core Decompression with BMAC is a better treatment modality than Core Decompression alone.

Abstract no.: 44669

UNSTABLE INTERTROCHANTERIC VERSUS DISPLACED FEMORAL NECK FRACTURES TREATED WITH CEMENTLESS BIPOLAR HEMIARTHROPLASTY IN ELDERLY PATIENTS; A COMPARISON OF 80 MATCHED PATIENTS

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Introduction: While hemiarthroplasty is considered the treatment of choice for displaced femoral neck (FN) fractures in elderly patients, the best treatment option for unstable intertrochanteric (IT) fractures is still controversial. This case-control study aimed to compare the clinical results between hemiarthroplasty for unstable IT fractures and that for displaced FN fractures in osteoporotic elderly patients. Methods: We identified 80 patients who underwent cementless bipolar hemiarthroplasty for unstable IT fracture (AO/OTA type 31-A2.2/3 and 31-A3). Their results were compared to the matched control group of 80 patients with displaced FN fractures (Garden type 3 and 4) treated with cementless bipolar hemiarthroplasty. Results: Operative time was significantly longer for the IT group than for the FN group (97.3 min vs. 79.3 min, $p = 0.016$). However, the two groups did not significantly differ regarding other clinical results, postoperative care and complication, and length of hospital stay. No statistically significant differences in walking status and Harris Hip score 6 months after operation were observed between the groups. No significant difference in cumulative mortality was observed between the two groups ($p = 0.836$), with a 1-year survival rate of 80% (95% confidence interval [CI], 71.8 to 87.5) in the IT group and 82% (95% CI, 73.1 to 89.4) in the FN group. Conclusions: Hemiarthroplasty for unstable IT fractures in osteoporotic elderly patients may be a viable treatment option with clinical results and mortality comparable to those of hemiarthroplasty as the treatment of choice for a displaced FN fracture in these patients.

Abstract no.: 44672

CUSTOM-MADE HEMI-ARTHROPLASTY FOR GIANT CELL TUMOR OF THE PROXIMAL HUMERUS

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Introduction:Giant cell tumor of bone is a benign,aggressive tumor that typically is located in the epiphysis of long bones.Previously these tumors were primarily treated with amputation, which resulted in the complete loss of hand function.Currently,tumor resection and prosthetic replacement are widely used in our country as well as others.Case:A young lady of 25 years presented to us with sudden onset of severe pain over left shoulder and arm following an alleged history of low energy trauma.On examination of the limb uniform swelling over the upper 1/3rd of the left arm over the area of deltoid muscles was found.Movement at the shoulder was painful & restricted.Xray of the left arm revealed a large lytic and expansile lesion over proximal part of the humerus involving the epiphysio-metaphyseal area & a pathological fracture of surgical neck of the humerus.MRI scan revealed a mass in the proximal humerus with significant bone destruction with cortical breach,making the tumor extra-compartmental.Soft tissue infiltration was present with well-circumscribed margins.Open biopsy diagnosed the lesion as giant cell tumour of the proximal part of the.Treated with Wide excision of the mass along with the adjacent soft-tissues and the biopsy tract followed by shoulder joint reconstruction,level of excision of the proximal humerus was 5cms above the lesion healthy bone.Custom made prosthesis was used to reconstruct the joint.post-operative physiotherapy was started under supervision at 4 weeks.At the end of 8 weeks patient gained good ROM.At the end of 3 years,patient is doing well without any complaints and without any recurrence of tumour

Abstract no.: 44674

SURGICAL RESULTS IN CARPAL TUNNEL SYNDROME BY MID-PALMAR MINI-INCISION TECHNIQUE

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Objectives: This study aims to determine safety, functional and symptomatic efficacy of median nerve release by mini incision at middle palmar region in patients diagnosed as carpal tunnel syndrome. **Methods:** Carpal tunnel release by mini-incision at the mid-palmar region in 74 hands of 63 patients were performed at Orthopedics and Traumatology Clinic of Tavas State Hospital between January 2011 and October 2011. Patients were evaluated by Boston Carpal Tunnel Questionnaire, grip strength and pinch strength measurements and patient satisfaction preoperatively and at postoperative 3rd month. The pre- and postoperative mean values for these assessment criteria were statistically analysed by Wilcoxon test and t-test. **Results:** At postoperative evaluation, there was statistically significant increase in Boston Carpal Tunnel Questionnaire scores, grip strength and pinch strength measurements and patient satisfaction compared with preoperative values. Pillar pain was present in 94.5% of patients. No complications other than pillar pain were encountered. **Conclusion:** Decompression of median nerve by mini-incision at the mid-palmar region protects the cutaneous branches of ulnar and median nerves, and it is a safe, effective and easy applicable method.

Abstract no.: 44676

GENETIC POLYMORPHISM OF COAGULATION FACTORS IN MONOLATERAL AND BILATERAL KNEE ARTHROPLASTY

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Introduction: the treatment results of 61 patients were analyzed, with 92 knee arthroplasty, 30 with monolateral and 31 with bilateral gonarthrosis. Search genetic factors of coagulation at patients during total knee arthroplasty. Methods: the polymorphism of 8 coagulation factors was studied. 3,92% of the patients were discovered to have a prothrombin mutation F2:20210G>A. Leiden mutation F5:1691G>A was not detected. Polymorphism of the F7:10976_G>A clotting factor was detected in 7,84% patients, Polymorphism F13:G>T – in 26,09% of the patients. Polymorphism of the fibrinogen FGB:-455G>A was detected in 25% of the patients, for a distribution of 5-10% in the general population. Polymorphism ITGA2:807C>T - α -2 integrin was detected in 41,30% of the patients, whereby in the population, polymorphism can be found among 35% of the patients of Caucasus race. Polymorphism ITGB3:1565T>C - β -integrin was detected in 16,30% of the patients, who carry the resistance mutation gene to therapy using aspirin found in 100%. Polymorphism of plasminogen inhibitor PAI-1 was detected in 44,57% of the patients, for a frequency in the general population of 20%. Results: the average number of mutations in all patients was $3,00 \pm 1,04$. The average number of mutations in patients with bilateral endoprosthesis was higher than in the group with monolateral and amounted to $3,15 \pm 1,16$. In the group with monolateral endoprosthesis the average number of mutations was $2,83 \pm 0,89$ ($p = 0,05$). Thus, patients with bilateral gonarthrosis were the largest group of genetically determined risk of venous thromboembolic complications.

Abstract no.: 44679

COGNITIVE IMPAIRMENT IN HIP FRACTURE PATIENTS WITHOUT UNDERLYING NEUROLOGIC DISEASES; RISK FACTORS AND RELATIONSHIP TO EARLY FUNCTIONAL RECOVERY

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Introduction: The aim of this study is to investigate the risk factors of cognitive impairment in hip fracture elderly patients with no underlying neurologic diseases, and to find out its effect on functional recovery postoperatively. Methods: From August 2012 to August 2013, a total of 39 patients older than 65 years of age, who underwent hip fracture surgery and were followed up for a minimum of 1 year at our institute, were enrolled. All patients were assessed with Mini-Mental State Examination-Korea (MMSE-K) after admission. We divided into cognitive normal group (MMSE-K \geq 24) and cognitive impairment group (MMSE-K $<$ 24). WOMAC (Western Ontario and Mc Master University) score and Harris hip score were used for the assessment of functional recovery at 6-month follow-up. Results : Sixteen patients (41.0%) were classified as the cognitive impairment group. The number of underlying diseases was only the statistically different factor between the two groups. The functional decline was less in the cognitive normal group on the evaluation of functional outcome. The risk factors for the cognitive impairment in hip fracture elderly patients were old age, high body mass index, and the number of underlying diseases, especially an endocrinologic disease like diabetes. Conclusion : Cognitive impairment in elderly patients may have a negative effect on functional recovery after hip fracture surgery. So, we recommend the routine evaluation of cognitive function in hip fracture elderly patients even with no underlying neurologic disease.

Abstract no.: 44680

PREDICTORS OF COMPLICATION FOLLOWING ANKLE ARTHRODESIS FOR ARTHRITIS

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Introduction: Current evidence is unclear whether arthroscopic arthrodesis can achieve rates of fusion and deformity correction whilst reducing some of the complications seen with open arthrodesis. This study determines the rates and potential risk factors for complication following ankle arthrodesis using the open and arthroscopic techniques.

Methods: We retrospectively reviewed 79 consecutive ankle arthrodeses (29 Open, 50 Arthroscopic) performed at our institution over a 5 year period. Causes and risk factors for the development of a complication within 12 months (average follow up) were examined using univariate and multivariate analysis. Data was collected on technique (open vs arthroscopic), age, gender, BMI, ASA, indication, duration of surgery, length of in-patient stay (LOS), time to clinical and radiographic fusion (TTF), pre and post operative coronal and sagittal deformity. **Results:** A total of 14 of 79 (18%) patients developed a postoperative complication. The most common complications were non-union (n=5, 6%), delayed union (n=3, 4%) and infection (n=2, 3%). Patients who developed a complication had a lower BMI (p=0.009). The complication rate was significantly higher when open arthrodesis was performed (31% vs 8% for arthroscopic surgery, p = 0.008). The degree of deformity correction was not associated with the development of a complication. Logistic regression analysis identified that open ankle arthrodesis and low BMI were the strongest predictors of developing a complication. **Conclusions:** Complication rates are not uncommon following ankle arthrodesis. When variables are accounted for, the arthroscopic technique and a higher BMI appear to be independently associated with a lower rate of complication.

Abstract no.: 44683

HELICOIDAL BLADE TI-HAC COATED: AN ORIGINAL CONCEPT OF GLENOID BASE FIXATION FOR REVERSED SHOULDER PROSTHESIS.

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The goal of the study was to validate the use of a different concept of fixation of the glenoid base with a helicoïdal blade to ensure a stable fixation while achieving preservation of the glenoïd bone stock. 45 reversed total prothesis of the shoulder, performed for cuff tear pathology and arthropathy (except 2 cases of fracture) were reviewed clinically with standards X-ray with a 12 to 24 months follow-up. In all cases, the use of the helicoïdal blade was possible despite the patient size and the glenoïd wear. In one case, it was responsible for a horizontal non displaced fracture which did not compromise the implantation. In all cases, the fixation was obtained. There was no loosening or radiolucent line along the base. The primary stability permit to reduce the number of the screws. We also analyzed the position of the implant and the presence of inferior glenoid notch.

Abstract no.: 44687

**RISK-BENEFIT ANALYSIS OF TREATMENT OF UNSTABLE
INTERTROCHANTERIC FRACTURES IN 72 ELDERLY PATIENTS WITH
CEMENTLESS BIPOLAR HEMI-ARTHROPLASTY**

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Background: Surgical management of unstable intertrochanteric fractures in the elderly (age > 70yrs) with medical comorbidity remains controversial. Internal fixation methods show high failure rates, with severe complications during re-surgery. Bipolar hemiarthroplasty (BHA) has recently demonstrated success, minimizes peri- and post-operative morbidity & permits early rehabilitation. Cementing imposes cardiac strain and may induce fatal embolism. We present risk-benefit analysis of the cementless BHA in treating 72 such fractures. Methods: Hospital records of surgically treated elderly patients (age>70 yrs) with unstable intertrochanteric fractures were retrospectively reviewed (Dec'07 to Nov'15). 268 records (of 221 patients) were identified and analysed. 72 patients treated with cementless BHA were analysed for peri-operative complication risk (minor, major non-fatal and fatal), and post-discharge re-surgery risk. Data from internal fixation and cemented BHA groups were compared to the index group. Results: Operative times, blood loss and requirements, hospital stay were statistically comparable. Internal fixation group had higher peri-operative complication risk (fractures, failure of fixation, loss of reduction, collapse), and significantly higher re-surgery risk. Cemented BHA group had significantly higher minor & major fatal intra-operative and post-operative (dislocation, loosening, infection) complication risk. Cementless BHA group had high risk of minor non-fatal intra-operative complications (fracture). Re-surgery risk (after discharge) was low in the BHA groups. Conclusion: BHA has low post-operative re-surgery risk, but high intra-operative non-fatal complication risk. Precise surgical technique can prevent intra-operative complications, and cement must be used with caution.

Abstract no.: 44688

TYPE II INFECTED KNEE ARTHROPLASTY: DO NOT WAIT UNTIL YOU LOOSE ALL YOUR BONE STOCK! A CASE SERIES

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Background: Periprosthetic joint infection is considered one of the major complications related to this surgery with a 1 to 2 per cent worldwide incidence. It represents a challenge to the surgeon as well as an economic burden due to the multiple surgeries expected. The infected knee arthroplasty is classified into four types according to its presentation. In type I and type III, the acute presentation with the local signs makes the diagnosis easy. In type IV which represents accidental positive cultures following revision surgery done for other causes than infection, the diagnosis is also not a problem. As regards type II, the delayed onset as well the chronicity of the infection can cause delay in diagnosis. Moreover, the increased rate of osteolysis associated with this type cause significant loss of the bone stock around the prosthesis with subsequent early prosthetic loosening. This loss of bone stock can affect any future revision surgery. Patients and methods: We are presenting an approach for the diagnosis of this type of infection and we are presenting a case series of twelve patients who suffered from type II infection following their knee arthroplasty. Results: Eleven patients were infection free at the last follow up. The last patient had arthrodesis of his knee due to persistent infection Conclusion: it is recommended that any painful knee replacement should be followed up with serial radiographs to detect any progressive osteolysis. The rapid rate of osteolysis should always raise the suspicious of infection which should be investigated in every case.

Abstract no.: 44689

THE TREATMENT OF PERIPROSTHETIC INFECTION OF HIP ARTHROPLASTY

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We treated 22 patients with an infected hip arthroplasty from 1999 to 2014. The postoperative infection was detected in patients with BHA in 9 patients, THA in 9 patients and revision THA in 4 patients. The diagnosis of infection was based on clinical symptoms, laboratory findings, radiological findings and culture of the joint aspirate. The diagnostic indices and pathogenic organism of the infection, method of primary revision surgery for infected prosthesis, method of final treatment and the occurrence of reinfection after revision THA were investigated. All patients had higher level of CRP with local pain around hip joint. The subsidence of the stem was found by imaging studies in 20 patients. Bacteria were identified in the joint aspirate culture in 18 patients. Total removal of the implants was performed in 19 patients. The rest of 3 patients could not be operated because of poor general condition, whose infection was not eradicated. Out of 19 patients with revision surgery, debridement with insertion of antibiotics-loaded cement spacer was performed in 15 patients, debridement with insertion of antibiotics-loaded cement beads in 2 patients, and implant removal only in 2 patients. The infection was eradicated in 17 patients, of which 13 patients underwent further revision THA without reinfection. In order to eradicate infection, removal of implants and debridement with insertion of antibiotics-loaded cement spacer or beads were effective in our cases. Furthermore, all the revision THA were not infected regardless of the drug resistance of the pathogenic bacteria.

Abstract no.: 44690

PREVENTION OF DISLOCATION WITH THE DUAL MOBILITY CONCEPT DURING THA REVISION WITH SEVERE BONE LOSS, ABOUT 123 CASES

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Introduction: The main causes of total hip arthroplasty (THA) revisions are loosening and instability. Use of a dual mobility cup cemented in a acetabular reconstruction cage device limits the risk of instability and does not hinder the acetabular fixation during THA revisions. The objective of this study was to analyze a retrospective series of 123 THA révisions with antiprotusio cage and dual mobility socket. Methods: At a mean follow-up of 12 years , we analyzed a continuous series of 123 revisions using a reconstruction device (87 Kerboull cross-plates, 12 Burch-Schneider antiprotrusio cages, 24 custom-fit Novae ARM cages associated in all cases with a Novae Stick dual mobility cup cemented into the cage). The mean age at the surgery was 69.2 years old. Results: PMA score increased from 9.6 ± 3.06 preoperatively to 14.6 ± 1.9 at the follow-up. 9 early dislocations occurred and one late dislocation. At the last follow-up, the X-rays showed nine hardware failures, including one cross-plate fracture, one hook fracture, and one flange fracture. Analysis of the radiological position of the cup showed a mean lowering of 13 mm and a 7 mm lateralization compared to the preoperative position. 2 revisions for aseptic loosening and 3 for septic loosening were performed. Discussion: This study confirms the advantage of dual mobility cups during acetabular reconstruction cemented in antiprotrusio cages as a way to limit, without eliminating, the risk of dislocation. Therefore cemented fixation of dual mobility cups in cages appears to be a reliable short-term option.

Abstract no.: 44691

THE CONVENTIONAL ANTEROLATERAL VERSUS THE MINIMALLY INVASIVE DIRECT ANTERIOR APPROACHES FOR TOTAL HIP REPLACEMENT.

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Background: The anterolateral approach (modified Hardinge) has been commonly used for many years in primary total hip replacement with good results. The interest in the minimally invasive approaches including the direct anterior approach started many years ago with the goal to minimise the soft tissue damage especially of the muscles and the tendons. Material and methods: The patients were divided into two groups: group one (DAA) being the minimally invasive direct anterior approach which included twenty hips in eighteen patients and group two being the anterolateral approach (ALA) which included twenty two hips in twenty patients. The pathological diagnosis was osteoarthritis in all patients. Results: The early postoperative clinical assessment at 6 weeks showed that 90% of patients in group I had negative Trendelenburg sign while 54.5% of group II ($p=0.017$). There was no statistically significant difference between both groups as regards the preoperative and the postoperative Oxford scores at the last follow up. Conclusion: The DAA offers earlier functional recovery compared with the conventional ALA. The midterm functional results of both groups are equal. Each approach has got its specific complications. The DAA offers better exposure of the acetabulum than of the femur which could affect the position of the stem.

Abstract no.: 44693

CLASSIFICATION AND TREATMENT FOR PAINFUL HIP PROSTHESIS

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Over the last ten years, the authors performed 2825 total hip arthroplasties. Eighty of these (2.8%) included a revised hip femoral stem procedure. The condition of prosthesis just before stem revision were as follows : problems with the stem in 37 cases, painful prosthesis in 22 cases and other issues in cases. Pain in painful hip prosthesis was classified into 5 categories. The first was pain originating from trouble between the component and the bone, for example osteolysis, stress shielding, and/or osteoporosis. The second was pain originating from problems between the components, for example high frictional torque in the joint surface, ceramic fracture, taper problems and breakage of fixation between shell and liner. The third was pain originating from soft tissues around the artificial joint, for example too much leg lengthening. The fourth was pain originated from infection, especial rheumatoid patients who had positive CRP. And the fifth was pain from unknown causes. Diagnosis was difficult because of intact X-ray examinations, however not only bone scintigraphy, Gallium scintigraphy but echography and bone mineral density and bone markers were useful for treatment. Treatment was classified in two categories, either conservative or operative. The conservative treatment included not only NSAIDs but drugs for osteoporosis including teriparatide. Operative treatment included replacement of broken components and total hip revision surgery.

Abstract no.: 44697

A SYSTEMATIC REVIEW OF PLANTAR PLATE REPAIR IN THE MANAGEMENT OF LESSER MTPJ INSTABILITY

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abstract background: plantar plate as a major structure that maintains MTPJ stability has only recently gained attention Anatomical plantar plate repair can directly address the pathology with repairing the plantar plate rather than relying on indirect reduction of the MTPJ with osteotomy or tendon transfer techniques. purpose: to determine the effectiveness of plantar plate repair in the management of patients with lesser MTPJ instability. methods: different databases were used to search and identify studies that have assessed the effectiveness of plantar plate repair. The protocol of this review was based on the standards presented in the Cochrane Handbook and recommendations in the Preferred Reporting Items for Systematic reviews and Meta-Analysis (PRISMA) statement. results: six case series were included in this systematic review (162 Patients). As Chinese is the first language of the main author of this review. Five English studies and one Chinese study were included. Participants of five included studies received Weil osteotomy and directive plantar plate repair whereas in one study the participants received plantar plate repair with FDL tendon transfer. conclusion: favorable outcomes of plantar plate repair have been reported in all of the included studies. However, these results should be interpreted with caution because of inherited limitations of the included studies. Most of the included patients had combined procedures that could have biased outcomes obtained. Future studies with large number of participants that solely validate the effectiveness of plantar plate repair in the management of lesser MTPJ instability are warranted.

Abstract no.: 44698

OXYGEN REACTIVE SPECIES AND GLUTAMATE ARE COUPLED TO ORTHOPAEDIC PAIN? INVESTIGATION IN CHRONIC AND ACUTE PAIN SCENARIOS

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Introduction: Oxygen reactive species (ROS) and glutamate may interfere in pain clinical presentation. Our aim was to correlate the levels of ROS in serum and cerebrospinal fluid (CSF) to chronic, acute and no pain orthopaedic situations. The levels of CSF glutamate were also correlated to pain. Methods: 40 patients were divided in three groups: I. knee osteoarthritis (OA) and chronic pain (n=15); II. candidates to reconstruction of the anterior cruciate ligament and no pain (n=13); and III. patients with ankle fracture and acute pain (n=12). Pain was assessed by visual analog scale (VAS) and WOMAC questionnaire. ROS and glutamate levels were determined by fluorimetry. Results: There was a statistically significant difference when VAS and WOMAC were compared: patients with knee OA had worse scores in comparison to acute and no pain groups. On the other hand, there was not statistically difference in ROS levels in serum (p=0.24) and CSF (p=0.2). Glutamate release in CSF of patients with acute pain is higher in comparison to chronic and no pain situations (p=0,01). Discussion: Our study could not confirm the relationship among ROS levels and chronicity of pain. Glutamate is linked to acute pain and may constitute an initial step of processing or a potential target to pain management.

Abstract no.: 44699

POSTOPERATIVE FEVER AFTER HEMIARTHROPLASTY IN ELDERLY PATIENTS WITH FEMORAL NECK FRACTURE: THE NECESSITY OF ROUTINE WORKUP?

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Introduction: Postoperative fever (POF) is a very common finding following hemiarthroplasty (HA) for femoral neck fracture in elderly patients with co-morbidities. The purpose of this study was to determine which fever workups following HA could be beneficial in this group of patients. **Methods:** Consecutive 272 patients aged 70 years or older who underwent HA for femoral neck fracture were enrolled. POF was defined as any recorded body temperature $\geq 38^{\circ}\text{C}$ in the early postoperative period. **Results:** Of 272 patients, 135 patients (49.6%) developed POF. A total of 428 routine diagnostic tests were performed in all patients with POF, of which only 57 tests (13.3%) were positive. Urinalysis (UA) showed the highest positive rate (21.9%), followed by urine culture (UC) (14.3%), chest x-ray (CXR) (12.6%), and blood culture (BC) (1.1%). The most common febrile complication was pneumonia (12.6%) diagnosed by infection specialist based on CXR and symptoms, and urinary tract infection (8.1%) was the second most common complication, diagnosed by urologist based on UC and symptoms. POF after POD 2 was only the risk factor for positive CXR (OR 3.86, $p=0.016$) and UC (OR 5.04, $p=0.019$). POF after POD 2 (OR 6.93, $p<0.0001$) and multiple fever spikes (OR 2.92, $p=0.026$) were independent predictors of infectious febrile complications. **Conclusions:** Routine workup of elderly patients with POF following HA for femoral neck fracture is not warranted. In elderly patients with fever occurring after POD 2 and multiple fever spikes, CXR and UA should be investigated to rule out common febrile complications.

Abstract no.: 44700

THE VALIDITY AND RELIABILITY OF THE TURKISH VERSION OF THE OLERUD MOLENDER ANKLE SCORE IN PATIENTS WITH MALLEOL FRACTURE

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Introduction:The aim of this study was to evaluate the test-retest reliability and the validity of the self-reported questionnaire Olerud-Molander Ankle Score(OMAS) in subjects after malleol fracture.**Methods:**The OMAS was adapted for use in Turkish by forward/backward translation. The final Turkish version of this questionnaire was administered to 90 patient participated in this study.The OMAS questionnaire was repeated 7 days later in 25 patients after to evaluate test-retest reliability. Test-retest reliability was assessed using Spearman's rank correlation and the intraclass correlation coefficient(ICC). The reliability of the measurement was assessed using Cronbach's alpha coefficient.Concurrent criterion validity was evaluated using the five subscales of the Foot and Ankle Outcome Score(FAOS) and global self-rating function(GSRF), which is a five-grade Likert scale with the alternatives:"very good", "good", "fair", "poor", "very poor". Before analysis of the results the five groups according to GSRF were reduced to three: "good", "fair" and "poor".**Results:**The test-retest reliability correlation coefficient obtained was $r=0.85$ and $ICC=0.91$. Overall Cronbach's alpha coefficients ranged between 0.48 to 0.68, except for the support question of 0.31.The correlation coefficients versus the five subscales of FAOS ranged between $\rho=0.72$ to 0.79 ($p=0.000$) and GSRF was $\rho=-0.76$ ($p=0.000$).**Discussion:** According to results of this study, the Turkish version of OMAS was reliable and valid scale used as an outcome measure after an ankle fracture.

Abstract no.: 44703

**RISK FACTORS FOR RADIOGRAPHIC PROGRESSION OF
OSTEOARTHRITIS AFTER MENISCUS ALLOGRAFT
TRANSPLANTATION**

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Purpose: To identify risk factors predicting radiographic progression of osteoarthritis after meniscus allograft transplantation (MAT) using multivariate logistic regression. **Methods:** Inclusion criteria were consecutive patients who underwent medial or lateral MATs from January 2005 to September 2012 by one surgeon. Exclusion criteria were lack of post-operative magnetic resonance image, loss to follow-up for a minimum of 3 years, and simultaneous surgery on articular cartilage or the anterior cruciate ligament. According to the change of Kellgren–Lawrence (KL) grade at the mean final follow-up of 56.2 months, the enrolled MATs were sorted into the no progression of osteoarthritis (NOA) and progression of osteoarthritis (POA) groups. Multivariate logistic regression was used to analyze risk factors, including age, sex, body mass index, time from previous meniscectomy to MAT, extent of previous meniscectomy, previous anterior cruciate ligament reconstruction, knee alignment angle, KL grade, side of transplanted meniscus, Outerbridge grade, posterior repair technique, and relative percentage of extrusion. **Results:** In comparison between the NOA (n = 38) and the POA (n = 31) groups, significant risk factor for radiographic progression of osteoarthritis after MAT was medial MAT compared with lateral MAT. Medial MAT compared with lateral MAT was also a significant risk factor (adjusted OR: 3.763, 95% CI: 1.212–11.683). **Conclusions:** Patients need to be counseled about the increased risk of osteoarthritis progression following MAT over time, particularly for medial MAT.

Abstract no.: 44705

ARTHROPLASTY IN TROCHANTERIC NON-UNION IN THE ELDERLY.

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Reported failure rate of osteosynthesis of Inter-trochanteric (IT) fractures is 3%-12%. These patients and also those where non-operative treatment has failed will require hip arthroplasty. Our study objective was to do a retrospective analysis of all patients operated for IT non-union with hip arthroplasty in regards to intra-operative technical challenges, post-operative complications and functional outcome. Retrospective analysis of twelve elderly patients who underwent hip arthroplasty during March 2013-May 2015 for trochanteric non-unions was done. There were five males and seven females. Nine patients had failure of osteosynthesis (proximal femoral nail-6 and sliding hip screw plate-3) and three patients had failure of non-operative treatment. Nine patients underwent uncemented long-stem bipolar hemi-arthroplasty, one patient underwent long-stem cemented bipolar hemi-arthroplasty and two patients underwent total hip arthroplasty. Parameters recorded were intra-operative time, blood-loss, complications, Harris hip score, abductor power and ability to walk with or without support. Radiological evaluation was done. There was one perioperative death and three patients were lost to follow-up. Remaining eight patients had an average follow up of 16 months. There was no dislocation, infection or revision. Harris hip score improved from a mean of 29.33 to 73.25. Six patients had abductor power of four & above. Asymptomatic trochanteric migration <2cm happened in one patient. Five patients walked without support, one with cane and two with a walker. IT fracture non-union secondary to treatment failure in the elderly can be effectively salvaged by hip arthroplasty with long stemmed femoral component but requires careful handling of the trochanter for good results.

Abstract no.: 44709

A RARE CASE OF BRAIN METASTASIS FROM A PRIMARY MYXOFIBROSARCOMA

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Purpose: Myxofibrosarcoma (MFS) is one of the common sarcoma, mainly occurring in the subcutaneous tissue of the extremities of elderly patients. In addition to pulmonary metastasis, osseous or lymph-node metastasis are seen. We report an extremely rare case with brain metastasis. **Case:** A 68-year-old man presented with a 5-year history of progressive left proximal lateral calf tumor invading to the skin. He had no history of antecedent trauma or constitutional symptoms. MRI revealed a subcutaneous elastic hard tumor. We removed the tumor with marginal margin because of the benign pathology by the needle biopsy, but the postsurgical pathology showed MFS. Therefore, postoperative radiation therapy (standard schedule with 25 x 2.0Gy, 5 fractions a week) was performed. However, the recurrent tumors were repeatedly observed nevertheless additional surgeries during 11 years after that. Finally, the tumor metastasized to the right parietal region without obvious lung metastasis. The patient died from the multiple brain metastases and the worsened general condition at 11.5 years after initial surgery. **Discussion:** To the best our knowledge, this is the fourth case of MFS metastasizing to the brain parenchyma in English literatures. Since little is known about intracerebral metastasis, additional cases will be provided more accurate information.

Abstract no.: 44710

HIP REVISION SURGERY: 20 YEARS FOLLOW UP

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Introduction: The goal of our research was to establish the significance of the difference between various endoprosthesis models in terms of the length of the duration of the implants as well as in terms of other complications, by analyzing clinical characteristics of the revisions hip endoprosthesis. Methods: The research included 354 revisions hip endoprosthesis done on the Clinical Hospital Centre Osijek, Department of Orthopaedic Surgery from 1994 through 2014. 31% were male, and 69% were female. 54% were cement endoprosthesis; 41% were uncemented, and the remaining 5%. Charted were the duration of the endoprosthesis, the reason for the replacement, the type of the replacement endoprosthesis, and the possible complications related to the replacement. Results: The average duration of the endoprosthesis before replacement was 120 months, with a range of 2 to 456 months. The cement endoprosthesis had a duration of 105.5 months, while the uncemented implants had an average duration of 76.4 months. The reasons for replacement of the implants were most frequently aseptic loosening (81.9%), followed by septic loosening (13.0%), with remaining reasons amounting to 5.1%, without significant differences between cement and uncemented models. The KAR type of revision hip endoprosthesis was most frequently used (33.9%), followed by the Wagner type (33.6%), followed by the S-ROM type (21.7%). To great extent 267 (75.4%) there were no post-operative complications after. Migration occurred in 7.4%, luxation in 7.3%, migration and luxation together in 1.7%, infection in 3.8%, and remaining complications occurred in 4.4%.

Abstract no.: 44714

SPORTS ACTIVITY AFTER LOW-CONTACT-STRESS TOTAL KNEE ARTHROPLASTY – A LONG TERM FOLLOW-UP STUDY

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Objectives: The purpose of this study was to provide comprehensive long-term data about sports activity levels in patients following TKA and to determine whether pre-operative function, pain and specific performed sports were associated with the functional outcome. **Method:** A review of our prospectively collected arthroplasty database identified 236 patients that fulfilled the inclusion criteria. These patients were asked to provide specific information regarding exercised types of sports before surgery and after a minimum of 10 years following TKA. Pre- and postoperative function and pain were evaluated by the use of Tegner-, WOMAC- and VAS Score. **Results:** After a mean follow-up of 14.9 years, the evaluated scores revealed a significant improvement regarding pain and function (VAS 1.42±1.8; preoperatively 6.93±1.8; Tegner 3.04±1.5; pre-operatively 2.18 ±1.5). Furthermore, we found an association between pre-operative Tegner- and WOMAC Score and functional improvement following surgery. Age was a significant negative predictor for both pre- and post-operative function. Specific sport activities have decreased according to the impact of sports. 71.3 % of the patients continued practising low-impact sports, 43.7% continued their intermediate-impact sporting activities. The worst result could be observed for high impact sports. 83.3% stopped practising it following TKA. **Conclusion:** Although long-term pain reduction and improved function can be generally expected following TKA, greater improvements could be observed in more active patients with less functional limitations and pain before surgery. Notwithstanding these benefits it must be stated that the ability to perform sports has decreased following TKA according to the sports impact.

Abstract no.: 44716

EVALUATION OF THE RENAL FUNCTION OF ORTHOPEDIC INPATIENTS: UTILITY OF THE ESTIMATED GLOMERULAR FILTRATION RATE AND THE ESTIMATED CREATININE CLEARANCE.

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Background: Non-steroidal anti-inflammatory drugs (NSAIDs), which are frequently used to control musculoskeletal pain, also have severe side effects such as renal dysfunction. We have therefore conducted this survey to assess the renal function of patients in our department. Methods: The subjects were 135 patients who were at least 18 years of age, out of the total of 143 patients in this department in April 2012, and we evaluated their renal function by calculating estimated Glomerular Filtration Rate (eGFR) from blood tests upon admission. For the 116 cases for which there was data on height and weight, we calculated the estimated creatinine clearance (Ccr) and body mass index (BMI). From the eGFR and estimated Ccr values, we evaluated the degree of renal dysfunction and investigated any correlation with other factors. We also investigated whether NSAIDs were prescribed for patients who had existing renal dysfunction. The analysis was performed using the EZR statistics software package. Results: Twenty-two cases corresponded to G3a or above according to the severity classification for chronic kidney disease, and among these 6 had normal serum creatinine values. Conclusions: There were many latent chronic kidney disease cases among the patients in our department. The estimated glomerular filtration rate is useful for accurate evaluation of renal function.

Abstract no.: 44718

PROSPECTIVE STUDY OF EFFICACY OF TENS NAILING IN FRACTURE SHAFT HUMERUS IN ADULTS

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Concepts in the management of fracture treatment of humerus is changing to keep pace with the increasing severity and complexities of the fracture. Choice of surgical interventions ranges from plate osteosynthesis to Intramedullary nail that have their own merits and demerits. The aims of the study was to assess the outcome of biological , minimally invasive treatment of Diaphyseal fractures of humerus treated by TENS nailing. This is a prospective study of 20 adult patients with closed diaphyseal fracture of humerus treated with closed reduction and internal fixation with TENS nail between 2010 to 2013. The fracture union was assessed clinically and radiologically . The functional result was evaluated with DASH scores, Results : Majority of fracture (75 %) united in 10 weeks followed by 25% in 16-20 week and 5 % in 20-24 week. The complications encountered in our series were non union in 4 , Superficial infection in 2 , 1 implant failure and stiffness of the elbow in 2 cases. DASH Scoring done at 6th month revealed that 65 % of the patients scored the points in the range of 10-30. 10 % of them were in the range of 51-60 and patients with non union were not able to be evaluated. Conclusion : we conclude that TENS nailing in Diaphyseal fracture of humerus in adults is an viable mode of fixation in a select number of cases.TENS provides relative stability but maintains the biological environmen at the fracture site which merits over open reduction

Abstract no.: 44719

EXOSTOSECTOMY, ULNAR LENGTHENING AND RADIAL CORRECTION OSTEOTOMY IN MASADA TYPE I DEFORMITY IN PATIENTS WITH MULTIPLE OSTEOCHONDROMAS.

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Introduction: Multiple Osteochondromas (MO) is a rare autosomal dominant disorder characterized by the presence of osteochondromas. Forearm involvement due to MO is found in a considerable number of patients. This study aimed at retrospectively describe and assess the results of surgical treatment for forearm osteochondromas and deformities. Secondly, we did evaluate patient general and cosmetic satisfaction, and QoL. Methods: 124 forearms (97 patients) were included. Range of motion of forearm, elbow, and wrist at pre- and postoperative at 2, 5 and 10 years were reviewed. In a cross-sectional part a questionnaire focusing on patient general and cosmetic satisfaction, pre- and postoperative pain, and quality of life was sent to all patients. Patients were grouped by indication for surgery (I: pain, II: functional impairment). Results: Median follow-up period was 41 months (range 7.5-139 months). In group I pain score significantly decreased after surgery ($p < 0.001$). In group II function increased significantly and was retained over all follow-up periods. In comparison to baseline parameters in healthy national cohort, the present adult MO population scored significantly lower in four dimensions of the RAND-36. No improvements were found for cosmetic complaints. Conclusions: On the basis of our findings, the assessment of our indication for surgery in MO of the forearm is stated justifiable. Significant improvements were made in pain complaints and range of motion by excision of osteochondromas or corrective procedures. As the quality of life in MO patients is clearly affected, forearm involvement has a significant contribution to the comprehensive issues MO entails.

Abstract no.: 44723

VISUALIZATION OF THE ANTERIOR CRUCIATE LIGAMENT USING THREE-DIMENSIONAL COMPUTED TOMOGRAPHY

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Introduction: MRI has been the golden standard for the diagnosis of the anterior cruciate ligament (ACL) injuries. However, the extent and the types of ruptures are difficult to distinguish by MRI. Recently, 3D-CT has emerged as a useful diagnostic tool to confirm the continuities of tendons. The aim of this study is to evaluate ACL using the 3D-CT. Methods: The study consisted of 14 patients who underwent CT scan of the knee between December 2014 and December 2015. There were 9 male and 5 female patients with a mean age of 24.7 years. 11 patients were scanned post ACL reconstruction as a means of confirming the tunnel position, 2 patients were scanned before the revision surgery for the re-rupture of the ACL, and one patient was scanned as the ACL rupture using MRI was ambiguous and thus required further evaluation by CT scan. Results: In the images were the ACL was scanned post surgically, ACL was clearly visualized. This was more apparent in cases were only the PL bundle was reconstructed to augmentation the remaining AM bundle. The reconstructed PL bundle was clearly distinguishable from the AM bundle. In the case were ACL rupture was ambiguous using MRI, ACL continuity was clearly observed using 3D-CT, and therefore, the surgery was avoidable. Conclusion: We visualized ACL using 3D-CT. High resolution 3D-CT images enables clear visualization of the reconstructed bundles as well as a clearer view of the ACL on comparison with the MRI and thus, can be a useful diagnostic tool.

Abstract no.: 44724

MORE THAN ONE SPINAL OR OTHER PATHOLOGY: A REPORT ON 15 PATIENTS

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On so many occasions we face the problem of finding more than one pathology what confuses the situation is the presence of two spinal pathology giving rise to identical clinical feature sometimes two pathology. One spinal and one non spinal pathology like osteoarthritis of the hip or painful peripheral neuropathy and positive MRI for disc prolapsed or as in one of my cases a strongly positive MRI for disc prolapsed of broad base osteochondroma arising from the lamina above. I shall discuss the cases collected and how to spot the pathology generating the symptoms, so that we can avoid the confusion and misdiagnosis.

Abstract no.: 44726

MODIFIED TECHNIQUE FOR TENSION BAND WIRING OF COMMINUTED PATELLAR FRACTURES

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Introduction: The purpose of our report is to evaluate a new fixation technique for comminuted patellar fractures using a double “figure of eight” tension band wiring. Material and method: Two cases with severe comminuted fractures categorized as 45-C3 AO Classification for reconstruction - with a follow up exceeding one year. Osteosynthesis procedure used 1.25mm cerclage wire with two double tension band wires proximally circled through the quadriceps tendon and distally through the patellar ligament in a typical figure-of-eight structure. Good clinical evolution was the result (Kujala clinical score around 72 at follow-up) even with an accelerated postoperative rehabilitation protocol. No complication or implant failure was noted. The modified technique was tested with simulation under FEA – finite elements analysis (ANSYS software) for mechanical stability with maximum displacement and deformation of bone components at different (30, 60 and 90) degrees of flexion angle compared with other techniques: patellar rings, sunflower, anti gliding loops. Results showed a good stiffness of the construct with no significant failure load differences. Conclusion: This modified fixation technique using a double tension band wiring and requiring no special hardware, was followed by good clinical outcomes for comminuted patellar fractures and is valuable for patients wishing to initiate early functional activity.

Abstract no.: 44727

OSTEOPOROTIC DISTAL FOREARM FRACTURES - STABILIZATION WITH AN ANGLE STABLE MINIMAL INVASIVE POLYMER

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In progressed osteoporotic disease conventional operative treatment of fractures often leads, especially in presence of long segment comminuted fractures to unsatisfactory results. Through a small incision a Dacron-balloon-catheter is inserted into the medullary canal after reaming with a flexible cannulated drill. The balloon is filled with a liquid plastic-monomer. Curing of the monomer using blue light (wavelength 436 nm) is achieved creating a customized intramedullary rod. The balloon adapts to theirregular shape of the medullary cavity. After the curing process an angle-stable locking screw or a plate may be used in combination with the implant to increase stability. Nine female patients with distal forearm fractures with an average age of 77,6 years were treated from 09/2011-06/2014. 3/9 distal radial fractures were treated with the Polymer in a retrograde fashion in combination with a locking screw. 1/9 patients was operated with a Hybrid-Osteosynthesis consisting out of the polymer and an angle stable palmar plate. 3/9 radial fractures obtained an extraarticular external fixator without the polymer. 2/9 patients were treated with palmar plate in combination with an external fixator. Mean follow up was 150,6 days. In all fractures bone healing was documented radiologically. Treatment of osteoporotic distal forearm fractures using an intramedullary polymer implant is suitable to manage long segment fractures. The radiolucent polymer allows radiological visualization of the entire bone and facilitates radiation therapy in select cases. Stability may be increased either with locking screws placed at any position of the implant as determined by anatomical safe zones or with plates.

Abstract no.: 44729

MISSILE INDUCED LIMB INJURIES

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For the last thirty five years, I gained the experience of handling thousands of war wounded soldiers and civilians, the injuries varies from minor soft tissue injuries to extensive bone, soft, nerve and vessel injuries. The author developed new approach in handling the war wounded in regards to primary bone graft, primary skin graft and primary closure based on solid rules. Also a new staging system was developed according to many thousands of missile induced limb injuries handling the retained missile will be discussed clearly. The rule of external fixation and the indication for internal fixation as delayed procedures will be discussed. Finally when to amputate and when to preserve the limb will be delivered too.

Abstract no.: 44731

DO WE NEED TO REMOVE THE BIOPSY TRACT IN PATIENTS UNDERGOING SURGERY FOLLOWING NEO-ADJUVANT CHEMOTHERAPY FOR PRIMARY BONE TUMORS? AUTHORS: MAJEED ABDUL, KHAN SA, POUDEL R, RASTOGI S, BAKHSHI S

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Introduction: During limb salvage surgery for malignant bone tumors, it is not infrequent to encounter a poorly placed biopsy scar. Whether this biopsy scar needs to be removed in patients receiving neo adjuvant chemotherapy is yet to be established.**Methods:** Retrospective analysis of excised tumor specimens was done for patients operated between 2006 and 2014 at our tertiary care centre.**Results:** Out of 133 patients who underwent wide or radical excision following neo-adjuvant chemotherapy, 16 were excluded. Of the remaining 117 patients, 97 patients (82.9%) were diagnosed with Osteosarcoma and 20 (17%) with Ewing's sarcoma. Limb salvage was done in 86 patients while 31 went for amputation as the primary procedure. The average age of patients at the time of performing biopsy was 16.4 years and the male: female ratio was 1.3:1. The most frequent site to be biopsied was distal end femur (50%), followed by proximal end tibia (16.7%) and humerus (10%). On examination of the histopathology blocks/slides, it was seen that tumor seeding was present in only one specimen. On retrospective analysis it was seen that this patient was a diagnosed case of Osteosarcoma of the distal femur and had undergone upfront amputation following failure of response to neoadjuvant chemotherapy. Eleven patients (18.3%) did not have any viable tumor tissue in the whole of the biopsy specimen. Nine patients (15%) who underwent limb salvage surgery had local recurrence but none of them had tumor seeding in the biopsy tract of the specimen received after the index procedure.

Abstract no.: 44734

PERCUTANEOUS NEGATIVE SUCTION DRAINAGE OF LARGE TUBERCULAR PSOAS ABSCESS

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Introduction: One third of World population is thought to be infected with Tuberculosis and one fourth of them live in India. Most of the spinal infection presents with para vertebral abscess and some of them become too large due to prevailing poor socio-economic and health conditions in India. **Materials:** This is a study of 19 cases of percutaneous negative suction drainage of large psoas abscesses. There were 7 males and 12 females with age ranging from 28 years to 70 years. The study was performed from July 2005 to June 2015. **Method:** A 16 gauge negative close wound suction drain is introduced in the abscess as an OPD procedure under sedation and aseptic conditions. The drain is kept until the whole abscess is drained out. The amount of aspirate varies from 800 ml to 1400 ml. Aspirate was investigated for TB PCR and TB culture and sensitivity. None of the patient required surgical drainage. One patient developed sinus at drain site which healed in due course of time. All patients were given anti-tubercular treatment. **Discussion:** This procedure does not have inherent risks of CT radiation, anesthesia and surgery. The anti-tubercular treatment becomes more effective after drainage of abscess. This procedure ultimately reduces the morbidity and mortality of the patients. **Conclusion:** Percutaneous negative suction drainage is an efficient, easy, safe, effective and cheap procedure for drainage of large psoas abscess and can be done as a day care procedure under sedation and local anesthesia.

Abstract no.: 44736

INTRAMEDULLAR POLYMER FOR RAPID STABILIZATION OF PATHOLOGICAL PELVIC FRACTURES

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Introduction: Progress in oncological therapy leads to an increase of pathological fractures. Pathological pelvic fractures usually require extensive surgical interventions. The use of conventional implants often is not to the utmost satisfaction of the surgeon due to the reduced bone quality. The photodynamic polymer can be used minimal-invasive to stabilize the tumor-associated fractures. In combination with metal implants it provides a counter bearing for the stabilization of larger bony defects. Material and Methods: The method used integrates the properties of light cured (photodynamic) plastics, used successfully for decades in dentistry, filled into Dacron balloon-catheters. Through a small incision in Seldinger-technique a balloon catheter is inserted into the marrow cavity which has been previously expanded with use of a flexible cannulated drill. The balloon is filled with liquid plastic monomer, and using a system of visible blue light at a wavelength of 436 nm, is converted into a hard polymer. Results: So far four female patients suffering from an anterior or posterior pelvic ring fracture at an average age of 68 years (57 - 75) were treated. 2 patients had a multiple myeloma, one patient suffered from breast cancer and one patient had a traumatic anterior pelvic ring fracture without tumor. In one patient the polymer was combined with sacral rods and an internal fixator to the lumbar spine. Conclusion: The patient-customized implant is characterized by its high restoring force and its excellent rotational stability. With the presented implant a stable situation could be achieved. Postoperative mobilization and nursing care improved.

Abstract no.: 44737

A TECHNIQUE TO TREAT IMPENDING COMPARTMENT SYNDROME

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Introduction: Fractures around knee are caused by high energy mechanism and they may be associated with many complications. Review of literature revealed the incidence of compartment syndrome from one-fourth to one-third of complex intra-articular fractures around knee. Compartment syndrome could be caused by pressure from within like bleeding and edema, from inside or outside or both. Acute compartment syndrome develops rapidly over hours or days. Materials and methods: Authors are presenting a study of 12 cases of intra-articular fractures around knee with impending compartment syndrome. The study was performed from April 2011 to June 2015. Percutaneous negative suction drain was put in knee joint under sedation and local anesthesia in emergency room under all aseptic condition. It could be disastrous, if impending compartment syndrome could not be treated properly in time. Discussion: Negative suction, not only sucks the blood from joint but also from the compartment and from the joint where blood is going to be collected. Ultimately it will reduce compartment pressure and will prevent damage to the surrounding muscles and nerves, which is the usual complication of compartment syndrome. Conclusion: Percutaneous negative suction drainage technique is a safe, simple and effective to prevent disastrous complication of compartment syndrome.

Abstract no.: 44739

EFFECT OF EARLY CORRECTION ON LEG- FOOT PROPORTION

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Untreated Clubfoot is shorter than a normal foot. The normal leg length foot length ratio in a new born child is 1:1. This proportion changes with growth, especially after the child starts weight bearing on the foot. Early clubfoot correction should bring back the leg length foot length ratio to near normal before the child starts walking on the corrected foot. We present a pilot study of 22 cases of clubfoot treated with plaster casting. Twelve children were treated within less than ten months of birth. We measured the leg length and the foot length clinically on fixed reference points at every month in unilateral and bilateral clubfeet until full correction and then until the child started walking. Measurements were also taken for ten children already walking on deformed feet and were corrected by casting. The difference in leg length foot length ratio after full correction in walking children persisted while those corrected in first ten months of birth showed restoration of normal leg length foot length ratio in bilateral cases. Unilateral club feet in non walking group showed restoration in two patients out of five but persisted in walking feet. Since the foot grows faster than rest of the body and attains the adult size well before skeletal maturity, this study supports the fact that clubfeet must be corrected before the child starts walking as it restores the normal growth of the foot. The disproportion between the size of feet in unilateral club foot may or may not persist.

Abstract no.: 44741

IMPACT OF VIRTUAL REALITY BASED GAMING SYSTEM ON RECOVERY COURSE OF NEUROLOGICALLY CHALLENGED CHILDREN

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INTRODUCTION: Given the incidence of paediatrics therapy in loss of motor coordination and upper body strength, the need has arisen to consider more self-managed, home based rehabilitation approaches. Virtual reality technology is currently used as a part of advanced physical rehabilitation assessment and therapy alongside conventional therapy.**MATERIAL AND METHOD:** 18 neurological challenged children (age 5-10yrs) were taken for the study. Half of them (09) was managed with conventional therapy while remaining were treated by virtual reality based gaming system. Data collected with each game was sent to IIT-Bhuvneswar for analysis and correlated clinically. Outcome was assessed at 4, 8 and 12 week as with Fugl-Meyer scale.**OBSERVATION:** Children managed with reality based gaming system recovered faster and more accurate in terms of reaction time, joint attention, visual perception and problem solving attitude. Also rehabilitation with amusement depicted a good compliance.**CONCLUSION:** This Concept of combining action execution and observation with automatic individualized training through non-immersive virtual reality based gaming system gives an extra edge in management of these differentially abled children. Still a long term followup with more advance games is the intriguing field of research.

Abstract no.: 44745

THE RESTORATION OF HIP KINEMATICS IN A NON-MODULAR STEM IN REVISION ARTHROPLASTY

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Introduction: One contentious issue with the use of a 'non-modular' revision system is the perceived lack of the ability to restore hip kinematics such as offset, leg length discrepancy and stability. The aim is to evaluate the capability of a non-modular stem (KAR™) in restoring the hip offset and leg length. Methods: This was a retrospective study of all KAR™ stem in our unit between 2006 and 2014. Hip offset and leg length measurements were calculated using Xray template system (TraumaCad™). Patients with contralateral hip that had arthroplasty were excluded, leaving a total of 34 cases for final analysis. Results: The mean age was 68 (range 38-88 years) with an average follow-up of 3 years (range 1-8 years). 49% of the patients had satisfactory hip offset restoration (defined as +- 10 mm of the opposite side). There was a tendency to over-correct hip offset by 40%. Leg length discrepancy was adequately restored in 78% of the cases (defined as +- 10 mm of the opposite side). There were no complications related to dislocation. Discussions: Most 'modular' systems claim to offer restoration of hip biomechanics. One such study achieved hip offset and leg length restoration in 66% and 78% respectively. Our study demonstrated that a 'non-modular' system can also achieve control of hip kinematics to a certain degree. There was a tendency to over-correct hip offset to confer additional stability in revision. Conclusions: Contrary to popular beliefs, 'non-modular' system allows restoration of hip kinematics without compromising primary stability in revision.

Abstract no.: 44746

THE PATIENT SPECIFIC TEMPLATE FOR THE FEMORAL NECK CUT AND THE ADJUSTMENT OF STEM ALIGNMENT IN SHORT STEM

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Objects:To validate the utility of the patient specific templates (PSTs) that were designed for the indication of the femoral neck cut and stem alignment. **Methods:** Sixty primary THAs by short stems (MiniHip: 25 and Optimys: 35) with PSTs were included. Preoperative planning was made in all cases with 3D-templating software. Two types of PST were designed; one for the level and direction of the femoral neck cutting for stem valgus and flexion alignment, and the other for the stem anteversion. They were made of ABS with 3D printer. Twenty primary THAs, which were operated without PSTs in the immediately preceding term, were used as a control. Stem alignment, anteversion, valgus and flexion angle, and longitudinal position were measured by postoperative CT with the same software. Precision and accuracy of the PST were respectively evaluated by root mean square error (RMSE) and standard deviation (SD) by comparing between the PST and control groups. **Results:** The average of errors, RMSE and SD of the PST group were as follows; -4.7, 4.7 and 4.7 degrees for anteversion, -1.1, 2.5 and 2.6 degrees for valgus, 2.4, 2.0 and 2.0 degrees for flexion, 1.4, 2.8 and 4.7 mm for longitudinal position, respectively. Those of the control group were respectively -0.1, 6.8 and 6.9 degrees for anteversion, -0.7, 4.5 and 4.6 degrees for valgus, 0.8, 2.9 and 2.9 degrees for flexion, 0.8, 5.5 and 6.9 mm for longitudinal position. **Conclusion:** The alignment of the short stem could be controlled by PST with the higher precision and accuracy.

Abstract no.: 44750

FUNCTIONAL OUTCOME FOLLOWING “NO RECONSTRUCTION” IN PATIENTS UNDERGOING PERIACETABULAR (TYPE-II) PELVIC RESECTION AUTHORS: KHAN SA, RASTOGI S, POUDEL R, BAKHSHI S
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Introduction:Limb salvage in malignant pelvic lesions is poorly reported in world literature. A lack of consensus in surgical techniques along with a difficult anatomical location makes them the one of the most challenging lesions. The main aim of our study was to evaluate the functional outcome in patients undergoing limb salvage for malignant lesions of the Pelvis without any reconstruction following Enneking’s Type II pelvic resection. **Methods:** We retrospectively evaluate the results of limb salvage in Malignant lesions of the Pelvis. A total of 49 cases of different malignant Pelvic lesions treated at our Centre (over a period of eight years) were included in the study. All patients were classified as “no reconstruction” following pelvic resection. Patients were evaluated for age, type of tumor, survivorship and functional outcome using the MSTS scoring. **Results:** There were 35 males and 14 females in the study. 27 patients had Chondrosarcoma, 8 had Ewings Sarcoma, 4 patients had malignant GCT, 3 patients had MFH, 5 had Osteosarcoma and one patient had Myeloma and Clear Cell sarcoma each. Post excision, hip was not stabilized by any prosthesis. The mean follow-up in the study was 49.5 months. The average age was 37.8 years. **Oncological survival:** after seven years a total of 24 patients were alive and they were evaluated for MSTS scoring and gait evaluation. The median MSTS score was 70% (17% to 100%).

Abstract no.: 44757

LOW ENERGY DISTAL FEMORAL FRACTURES: SPECIFIC FEATURES AND CLINICAL OUTCOMES BY MINIMALLY INVASIVE LOCKING PLATES

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Hypothesis: This study suggests that low energy distal femoral fracture regardless of age and bone quality has a specific fracture pattern. The clinical outcomes of the treatment by minimally invasive locked plating will be affected by these specific features. Methods: 34 patients with low-energy distal femoral fractures (mean age 69.6 years) treated with minimally invasive locked plating were enrolled. Fracture pattern at trauma, clinical and radiological evaluations during the follow-up period were analyzed. All patients were followed for a minimum of 12 months postoperatively. Results: The majority of fractures (76.3%) were extraarticular type and the comminuted fracture configuration was in 19 patients (55.8%), biomechanical fracture pattern was spiral in 10 patients (71.4%) among 14 linear fractures. The mean time to union was 19.1 weeks (range 14-30). Eight patients (23.5%) were shown as delayed union. Four patients (11.7%) developed implant failure. The mean knee range of motion was 116.7 degrees (range 50-140) and the Oxford knee scores averaged 34.4 (range 16-48). Conclusions: Low energy fracture showed extraarticular comminuted fracture and noncomminuted linear fracture was spiral which looks simple. But the minimally invasive locked plating in these group result in significant delayed union and metal failure. The use of low screw density in the proximal fragment, long plates, a proximal uppermost cortical screw can lower the risk of implant failure in the low energy fractures.

Abstract no.: 44758

**FUNCTIONAL OUTCOME IN CHILDREN UNDERGOING RESECTION-
ARTHRODESIS FOR MALIGNANT TUMORS AROUND THE KNEE JOINT
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BAKHSI S**

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Background: In view of lack of available resources and poor socio-economic status, Knee arthrodesis following wide excision of malignant tumors around the knee still forms an important means of limb salvage in many developing countries. Methods: We retrospectively evaluated the results of knee arthrodesis following wide excision of bone sarcomas in and around the knee joint in children (that is less than 18 years of age at the time of presentation). The study included 32 cases of knee arthrodesis. Our inclusion criteria was a minimum follow-up of 4 years following the primary procedure. Patients were evaluated for age, type of tumor, survivorship and functional outcome using the MSTS scoring and the knee function. Knee function was evaluated using the Knee Society Score. Results: There were 21 males and 11 females in the study. 25 patients had Osteosarcoma while 7 had Ewings Sarcoma. Knee arthrodesis following tumor excision was achieved using different methods using autograft, morcellised allograft, non-vascularized fibular grafting, turnoplasty (using the remaining tibia or femur) and mother's fibula. Dynamic Compression Plates were used in 17 children (prior to advent of LCP) while the Locking Compression Plates were used in 15. The mean follow-up in the study was 48.6 months. The average age was 14.7 years. Oncological survival: after 4 years a total of 21 patients were alive. The median MSTS score was 60% (5% to 80%). The average Knee Society Score was 60. 11 children required multiple procedures at an average of 19.4 months after the primary surgery.

Abstract no.: 44760

TRAUMA THEATRE UTILISATION AUDIT: A UK DISTRICT HOSPITAL EXPERIENCE

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Introduction: This audit project was conducted to identify how the trauma theatre was utilised and to define inefficiencies in its use, which, could be contributing to poor utilisation. **Method:** Data was obtained retrospectively from the period of November 2014 to January 2015 from ORMIS (Operating Room Management Information System), a software to collect all relevant data in theatres. The data included was from weekday trauma theatre lists only. From this data, the total number of trauma operations, number of empty trauma lists, reasons for delayed lists and theatre utilisation was identified. **Results:** A total of 82 trauma cases were operated on over 3 months. The number of delayed cases were 40 (48.78%). The most common reasons for delay were lack of investigations, ward related issues and lack of appropriate consent for the procedure. In total, 524 minutes of lost operating time was logged due to the delay between cases during the utilised trauma lists. The average utilisation of trauma theatre was 59%. **Conclusion:** Many of the delays were avoidable and could potentially save precious time and money. Emphasis should be laid on ordering the appropriate investigations, consenting procedures, meticulous record keeping in delayed cases, earlier theatre start times, greater structure to be placed on the morning meeting amongst trauma theatre staff and prospectively auditing of the data over 6 months. **Implications:** Considering the running cost of a theatre in the NHS is £8 per minute, this equates to a wasted cost in excess of £17,000 per annum per theatre.

Abstract no.: 44761

A NOVEL FEATURE SELECTION ALGORITHM BASED ON BONE MICRO ARCHITECTURE ANALYSIS TO IDENTIFY OSTEOARTHRITIS

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OBJECTIVE: Algorithms based on fractal analysis (FA) have shown to be capable of identifying differences in trabecular bone structure. Thus, a feature selection algorithm is being applied in order to determine region of interests (ROIs) that enable an optimum discrimination between patients with and without osteoarthritis (OA). **METHODS:** The study included 66 cases and 86 controls. Subchondral bone micro architecture (BMA) was assessed by using both FA and a Shannon Entropy (SE) algorithm. For FA, the distinct parameter Bone Structure Value (BSV) was defined. The selected area of the proximal tibia involved a matrix of 3x8 ROIs, whereas a 2x2 matrix was defined for each condyle of the distal femur. **RESULTS:** By combining BSV and SE, the odds ratio (OR) increased significantly from 3.08 (95% CI: 1.78-5.30) to 14.82 (95% CI: 6.69-32.83) when using 15 features, and to 39.75 (95% CI: 15.41-102.51) based on 10 features. By using the selected 10 features the accuracy was found to be 0.86. This showed to be a significant improvement compared to the accuracy achieved when calculating a single mean value for the 3x8 ROIs of the proximal tibia alone (0.62 vs. 0.86). **CONCLUSIONS:** The application of a feature selection algorithm in accordance with BMA analysis methods showed a significant improvement with respect to the discrimination. This novel algorithm for the assessment of BMA may not only be useful in OA subjects but also for the early prediction and assessment of other degenerative bone diseases like osteoporosis and rheumatoid arthritis.

Abstract no.: 44763

A PROSPECTIVE STUDY COMPARING THE CLINICAL, RADIOLOGICAL AND FUNCTIONAL OUTCOMES BETWEEN VARIABLE ANGLE AND FIXED ANGLE VOLAR LOCKING PLATE FOR DISPLACED INTRA-ARTICULAR DISTAL RADIUS FRACTURES AUTHOR: MAJEED ABDUL, KOTWAL PP, TRIKHA VIVEK

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AIM : Open reduction and internal fixation(ORIF) became the mainstay of treatment of displaced intra-articular distal radius fracture. Volar locking plates has gained popularity due its capacity to provide stable fixation even in osteoporosis and communiton. Recently variable angle plates have been introduced and claimed to be providing great versatility in fixation. In this prospective, non randomized study we evaluated the clinical, radiological and functional outcomes of displaced intraarticular distal radius fracture following fixation with variable and fixed angle locking plates.METHOD: We treated 20 patients with displaced intra articular distal radius fracture with 2.4mm volar locking plates. Patients in group 1 (n=10) treated with variable angle plates and in group 2 (n=2) with fixed angle plates. Clinical, radiological and functional outcomes were measured at an average 12 months.RESULT: No significant difference noted between two groups in terms of radial inclination, volat tilt and dorsal tilt, wrist range of motion, grip strength.CONCLUSION: Treatment with variable angle and fixed angle locking plates provide satisfactory clinical, radiological and functional outcomes for displaced intra articular distal radius fractures.

Abstract no.: 44764

HIP ARTHROPLASTY IN HIGHLY DISLOCATED HIPS

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Background: Developmental dysplasia of the hip (DDH) is the most frequent disease of this joint. Early degenerative changes occur in the effected people manifested by subdislocation or dislocation in childhood period and arthrosis in adults. When the symptoms and complaints are frequently the best way of treatment is total hip arthroplasty that in severe dysplasia of the hip is a technically a challenging procedure. Aim: We bring our experience aiming to explore the efficiency of release and balance soft tissue technique on total hip arthroplasty for severe DDH. Between 2010 and 2013, 9 patients with unilateral and 1 with bilateral high dislocated hip were treated. The mean age at the time of surgery was 34 years old. We evaluated pre-operatively all patients by the modified Merle d'Aubigne scale and by Crowe classification. The mean follow-up was 31,3 months (1-5 years). We released the adductor tendon then extra-rotator tendons for opening the joint and a release of ilio-psoas tendon was performed. After these procedures the remove of femoral head and preparation of true acetabulum was done and the femoral stem inserted press-fit. In only one case we have shorten the femur under the metaphyseal level. Results: The mean hip dislocation was 4,1 cm (2,4- 11,4). Devided by Crowe classification 4 hips were type IV, 4 type III and 2 type II. We have evaluated all the cases pre-operatively and 1 year post-op by the modified Merle d'Aubigne scale and the results are: Pre-op: Pain 3.1; Walking 3.1; ROM 2.2, 1 year post-op: Pain 5.8; Walking 5.4; ROM 5.1. All the patients had not neurologic problems of sciatic nerve. At 3 year follow-up all the patients had improved the gluteal function.

Abstract no.: 44765

RETROSPECTIVE REVIEW OF PATIENTS WITH ATYPICAL BIPHOSPHONATE RELATED PROXIMAL FEMORAL FRACTURE

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Patients may be at an increased risk of atypical proximal femoral fractures with prolonged bisphosphonate use. This was a retrospective review of patients who sustained a subtrochanteric fracture of the femur in our department between April 2009 and March 2014. The radiographs were reviewed for features of atypical femoral fractures as described by the American Society of Bone Mineral Research. 185 patients were coded according to the National Hip Fracture Database as having sustained a subtrochanteric fracture of the femur. Of these, 26 patients had radiographic findings consistent with an atypical subtrochanteric fracture. 5 patients were excluded as their histology confirmed malignancy. 12 patients were taking bisphosphonates on admission. All 12 patients were females taking alendronic acid on admission, who sustained the fracture as the result of minimal or no trauma and underwent long gamma nail fixation. The mean age was 71.6 years (range 62-79 years). The mean length of time on bisphosphonates prior to admission was 8.33 years (range 3-25 years). 9/12 patients had pre-existing symptoms for between 5 days and 2 years prior to admission. 1 patient sustained a broken gamma nail 14 weeks post-operatively requiring revision. The mean time to discharge from theatre was 16 days (range 5-57 days). The mean time to radiological union in the patients in whom there was evidence was 15 weeks. In this small group of patients, management of this fracture pattern can be complex with the potential for delayed or non-union and prodromal symptoms are common.

Abstract no.: 44766

RISK FACTORS FOR FIXATION FAILURE OF INTERTROCHANTERIC FRACTURES TREATED WITH HIP NAILING IN ELDERLY PATIENTS

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Purpose: The purpose of this study is to investigate clinical and radiological risk factors of fixation failure after hip nailing for intertrochanteric (IT) fractures in elderly patients in comparison with patients with no fixation failure. **Methods:** Consecutive 151 patients aged 60 years or older who were treated with hip nailing for IT fractures and followed up for a minimum of 6 months, were finally enrolled. They were composed of 122 females and 29 males with a mean age at index surgery of 79 years (61~99). Based on preoperative 3-D CT in all patients, the fracture type, the presence of comminution of greater trochanter (GT), and basal neck fracture type were confirmed. **Results:** Fixation failure occurred in 6 patients (3.9%); 4 cut-outs occurred in thread screw-type nail group, and 1 cut-through and 1 breakage of nail in helical blade-type nail group. All cases with fixation failure were basal neck fracture type and showed the continuity of medial cortex, but the discontinuity of anterior cortex was revealed in 5 cases (83%). On comparative analysis with 145 cases without fixation failure, high BMI, basal neck fracture type, posterior position of lag screw, and discontinuity of anterior cortex were evaluated as the risk factors for the fixation failure. **Conclusions:** When hip nailing for IT fractures in elderly patients, high BMI, basal neck fracture type, inadequate reduction of anterior cortex, and posterior position of lag screw within the femoral head would be risk factors for fixation failure perioperatively.

Abstract no.: 44768

PSEUDOTUMOR AFTER TOTAL HIP ARTHROPLASTY

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Introduction: Pseudotumor is a rare complication after total hip arthroplasty (THA). It is more frequent in metal on metal combinations, however, pseudotumors can also occur with other material combinations. The pseudotumors are rarely involved in systemic conditions, however this can generate a serious and life threatening situation. The authors present a literature review, based on 2 large pseudotumors. Methods: CASE1: Female, 82 years. THA revision with ceramic on polyethylene combination 20 years before. The patient presented fever, anorexia and weight loss for 6 weeks and a massive painless swelling in the thigh, slowly growing for about two years. Percutaneous biopsy excluded infection or malignancy. CASE2: Male, 74 years old. THA revision seven years before, with a metal on polyethylene combination. A large peri-prosthetic, asymptomatic tumor was identified. It was decided to wait until compression of adjacent structures, began to cause pain. Results: Tumor excision and arthroplasty revision were performed in both cases. CASE1: Early instability occurred, resulting in hip luxation and acetabular cup dislocation. Revision was performed. After 9 months, the patient is well, capable of performing daily activities and load with external support. CASE2: At 5 months post surgery the patient is asymptomatic and walks with external support. Conclusions: CASE1 is very rare, given the serious systemic manifestations. In CASE2, since conservative treatment was accepted, one might question whether early revision would avoid extensive acetabular osteolysis and a more demanding surgery. The cases presented, although not treated at an early stage, had good clinical and functional outcomes.

Abstract no.: 44772

NEW STRATEGY OF CLOSED SUCTION DRAINAGE AFTER PRIMARY TOTAL HIP ARTHROPLASTY

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Background: The purpose of this study was to evaluate management of closed suction drainage in primary total hip arthroplasty (THA). Materials and Methods: 100 patients (100 hips) were treated by closed suction drainage applying negative pressure immediately after THA (group I). The remaining 100 patients (100 hips) were treated by the same drainage system, but the negative pressure was not applied in the first 24 hours after THA and then negative pressure was applied (group II). Results: The mean total drain output was different between the two groups (group I: 597 ± 200.1 mL, group II: 403 ± 204.1 mL; $p < 0.05$). Reported drain output from immediate postoperative to postoperative day one was 369 ± 125.5 ml in group I and 221 ± 141.3 ml in group II ($p < 0.05$). The change of Hg from immediate postoperative to 24 hours after THA was lower in group II (group I: 1.5 ± 0.62 g/dL, group II: 1.1 ± 0.73 g/dL; $p = 0.004$). The mean unit number of blood transfusions was 1.0 (range, 0.0 – 5.0) in group I and 0.3 (range, 0.0 – 2.0) in group II ($p < 0.05$). There was no difference in HHS between the two groups at postoperative 1 year or last follow-up ($p = 0.073$). Conclusion: The minor change in drain system management can reduce perioperative blood loss after primary THA and the need for transfusion.

Abstract no.: 44773

PATELLAR SUBSTITUTION IN TOTAL KNEE ARTHROPLASTY. DOES IT IMPROVE THE RESULTS?

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Introduction: Controversy exists about the benefit of replacing the patella in total knee arthroplasty. Several studies comparing surgical techniques with and without patellar implant showed no difference in the medium and long term functional and clinical assessments. Material and methods: 211 TKA with minimum follow-up of 2 years in a multicenter study of hospitals in Spain and Italy were analyzed. Patella was replaced in 50 cases. Mean age was 70.6 years; 30.3% were male. The two groups didn't differ in age, sex or BMI. In all cases we have used the same prosthetic model (Apex Knee Replacement). Outcomes assessments were analyzed with the AKS (knee and function), Womac (pain, stiffness and functional capacity) and SF 12v2 scores (physical and mental scales). Statistical evaluation was performed using Chi square test, Anova test and Repeated Measures General Linear Models. Results:AKS knee score showed a greater improvement in patella unsubstituted group: 256.7% vs. 122.9% in the substituted. Improvement in the AKS function score was 132.8% in unsubstituted vs 82%. Womac-pain score improvement was 95.6% vs 79.3% . Womac stiffness score improvement was 95.9% vs 79.7% and Womac-functional capacity 94.6% vs 81.6%. In SF12v2 we also found a better improvement in the unsubstituted group both in the physical scale (129.6% vs 58.8%) as in the mental scale (68.4% vs 8.8%). All these changes were statistically significant (p <0.001). Conclusions:TKA show more improvement in outcome scales at two years follow-up in cases where prosthetic patella implant has not been performed. Apex Group MBA Institute

Abstract no.: 44775

HISTOLOGICAL STUDY OF ATRAUMATIC PERIPROSTHETIC FRACTURES: DOES ATYPICAL PERIPROSTHETIC FRACTURE EXIST?

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PURPOSE: is it possible a correlation between some periprosthetic femoral fractures and atypical fractures? **CASE:** we present a case of a 77-years-old woman with atypical periprosthetic femoral fracture. The patient had a history of long-term bisphosphonate use. We performed an open reduction, a synthesis of the fracture and a histological exam. The patient stopped the bisphosphonate (BF) therapy. Three months later, before starting the teriparatide treatment, the patient had a re-fracture so we did a second osteosynthesis and began a teriparatide therapy. After six months, the radiography showed a bone healing at the fracture site. **RESULT:** The histological examination confirmed the diagnosis of atypical femoral fracture. **CONCLUSION:** At first, the fracture showed a delayed union which led to a new surgery, as often happens in BF-related atypical fractures. Appropriate treatment (BF suspension and teriparatide beginning) permitted fracture healing. The atypical characteristic of the fracture was confirmed by histological exam. Some periprosthetic femoral fractures in patients treated with BF, especially in long time therapies, should be suspected as atypical fractures and a specific medical treatment should be performed, as well as a correct surgical treatment

Abstract no.: 44776

EARLY RESULTS USING THE CORIN UNITY TKR - THE FIRST IMPLANT TO GO THROUGH BEYOND COMPLIANCE

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Total knee arthroplasty (TKA) has seen progressive growth over the last decade with increased levels of expectation. New implants are subject to increased scrutiny. The Unity TKA is a new implant that seeks to meet these demands. All new devices need to meet minimum performance requirements as defined by the MRHA, but is also the first implant to be included in the Beyond Compliance database providing a real time reflection of performance. We prospectively evaluated the first 30 consecutive Unity TKR's from a single centre. Pre- and post-operative assessments were made including Oxford Knee score, WOMAC and EQD5. Two year follow up is reported and reported to Beyond Compliance. 27 patients with complete outcomes were available to be reported. Mean pre-operative scores were Oxford-19.1, WOMAC-44.5 and EQ5D-0.36. At two years follow up there have been no revisions. Mean post-operative Oxford-38.1, WOMAC-76 and EQ5D-0.76. Mean pre-operative arc of movement was 76 degrees and post-operative arc was 114 degrees. The Unity TKA exhibits very promising results in terms of patient satisfaction and functional level. Unity is the first implant to be scrutinised by the Beyond Compliance group. The group itself work to assess the relative risk of any new product, and the rate at which it should be introduced to market. Data is available to surgeons, to the manufacturer, and to independent assessors to provide real-time monitoring of the implant's performance. It is likely that evidence such as this will be required to introduce and develop future innovations in arthroplasty surgery.

Abstract no.: 44778

ANALYSIS OF SPUR AT THE BICIPITAL GROOVE USING 3D-CT

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The purpose of this study was to analyze the anatomical parameters of the bicipital groove and the spurs around the groove using 3D-CT. Among the patients taken a shoulder 3D-CT at this hospital, patients of the proximal humeral fracture involving the bicipital groove were excluded. One hundred eleven were enrolled (59 men and 52 women). Mean age was 55.4 years. The cases were grouped into two groups according to the age. The number of group I (below 45) and group II (over 45) was 22 and 89, respectively. The width, depth and medial wall angle of the bicipital groove were measured in the narrowest axial image. Using 3D-CT and axial images, the spur around the bicipital groove was checked and measured. The average width of the groove of men and women was 11.92mm and 10.6mm, respectively ($p = .000$). The average depth of men and women was 4.92mm and 4.32mm, respectively ($p = .000$). The average medial wall angle of men and women was 60.79° and 60.77° respectively ($p = .99$). The incidence of spur was 18.2% in group I and 48.3% in group II. The spur was more frequently found at the lateral ridge of the groove than medial one. The width and depth of the bicipital groove was larger in men. The spur at the medial ridge of the groove was more frequent in men. The spur at the lateral ridge was more frequent in general than medial ridge.

Abstract no.: 44780

RANDOMIZED CONTROLLED STUDY ON THE PROPHYLAXIS OF VENOUS THROMBOEMBOLIC EVENTS IN PATIENTS UNDERGOING TOTAL KNEE ARTHROPLASTY: COMPARISON OF ASPIRIN AND RIVAROXABAN

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Background: The aim of this prospective randomized trial was to compare the prevalence of thromboembolic events with aspirin and rivaroxaban, for the prevention of venous thromboembolism after total knee arthroplasty (TKA). **Methods:** 156 patients (119 primary TKAs) were enrolled for the randomized controlled trial. Group A consisted of 61 patients (78 TKAs) who were allocated to receive 300 mg aspirin, while Group R consisted of 58 patients (78 TKAs) who were allocated to receive 10 mg of the factor Xa inhibitor rivaroxaban. To detect venous thromboembolism, multidetector computed tomography was performed on postoperative day 10. **Results:** 28 (35.9%) were associated with the development of venous thromboembolism in Group A, compared with four (5.1%) in Group R ($P < 0.001$). The prevalence of pulmonary embolism was 20.5% for Group A and 5.1% for Group R ($P = 0.004$). There were three pulmonary embolisms in the central portion of the pulmonary artery in Group A, compared with none at this location in Group R. Seven cases of pulmonary embolism combined with deep vein thrombosis of the lower extremities were seen in a single patient in Group A, whereas only one case of a pulmonary embolism combined with deep vein thrombosis was seen in Group R. **Conclusions:** The prevalence of thromboembolic events after TKA is significantly higher in patients who receive aspirin than rivaroxaban. There was a stronger tendency for the pulmonary embolism to involve a more central portion of the pulmonary artery and to coexist with DVT of the lower extremities.

Abstract no.: 44782

IMPROVEMENT OF GAIT AFTER TOTAL HIP ARTHROPLASTY FOR HIGHLY DISLOCATED HIP

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Background: Total hip arthroplasty (THA) for these patients are expected to restore gait pattern by establishing better joint stability and biomechanics, but no study have investigated about objective change in gait parameters after THA for these patients. Methods: Between 2012 and 2013, 11 patients with highly dislocated hip underwent unilateral THA. There was 6 patients with DDH sequelae and 5 patients with septic hip sequelae. Spatio-temporal gait analysis was performed preoperatively and at 12 months after THA. The gait patterns were analyzed by several parameters such as cadence, speed, stride length, step length, step time, initial double support (IDS), terminal double support (TDS), stance phase and swing phase. Also dynamic range of motion (ROM) of hip joint and ground-reaction forces (GFR) were recorded. Clinical outcome was evaluated by using the Harris Hip Score (HHS). Results: For operated limb, the mean period of TDS significantly increased from 8.6 % to 11.3 % respectively ($p=0.038$). As IDS, single support and TDS improved, mean period of stance phase increased from 54.4 % to 60.1 % of gait cycle and swing phase was relatively reduced from 45.4% to 39.9% ($p=0.005$) On the other hand, there were decrease in cadence, speed, step length on the affected limb postoperatively ($p>0.05$). There were increase in sagittal plane motion and decrease in transverse and coronal plane. Conclusions: Although the patients showed improvement in gait analysis and clinical outcomes, but do not reach normal hip joint level and showed little residual antalgic gait pattern after THA.

Abstract no.: 44783

VASCULAR INJURY PREVENTION IN HIP REVISION USING THE ARTERIOGRAPHY IN ACETABULAR DEFECTS PAPROSKY TYPE III

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INTRODUCTION: The acetabular defects Paprosky type III and particularly where the penetration intrapelvic occurs substantially alter the anatomy of the hip. In many of these cases there is a medialization implants associated with its loosening it difficult to know the relationship with vascular structures and the risk of injury in revision surgery. Performing a selective arteriography allows us to assess the relationship of the implants to the iliac artery. **OBJECTIVES:**We present our experience in patients with hip revisiion type III acetabular defect Paprosky. These patients underwent preoperative selective arteriography **METHODS:** We present 8 patients, 5 women and 3 men with a mean age of 76 years who had a prosthetic loosening Paprosky type III and those who underwent preoperative selective arteriography. All patients were operated by sticking crushed cancellous allograft contribution (Slooff technique) along a Burch-Schnaider ring and cemented cup. Clinical follow-up was performed by Merle d'Aubigné Scale and radiographic follow. The mean follow-up of these patients was 12 months. **RESULTS:** Preoperative arteriography showed an intimate contact between the acetabular component and the iliac artery in 3 cases. In these cases, revision surgery was performed in conjunction with the vascular surgeon. In any case there was no intraoperative or postoperative complications. Clinical evaluation through follow-up was 15 points (MD). Radiographic evaluation shows good incorporation of the graft without loosening of the components at the end of follow-up. **CONCLUSION:** The use of arteriography in planning hip revision surgery in III acetabular defects is essential to prevent vascular lesions.

Abstract no.: 44784

THE SAFETY AND FEASIBILITY OF MINIMALLY INVASIVE PLATE OSTEOSYNTHESIS (MIPO) OF THE POSTERIOR ASPECT OF THE HUMERUS: A CADAVERIC STUDY

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Purpose: This study aims to determine the feasibility of applying the MIPO technique via the posterior approach to the humerus and observe the tension of the radial nerve in different elbow position. **Methods:** Descriptive study of 10 fresh cadavers (20 humeri). Two separate incisions, one proximal and one distal, were made on posterior aspect of the humerus with torso in prone and shoulder in abduction. Identify the radial nerve at the proximal incision and measure the distance which the nerve can be elevated from the bone with the elbow in flexion and extension. A 10-hole extra-articular distal humeral LCP was inserted through the submuscular tunnel, and one screw was fixed on each side of proximal and distal humerus. The tunnel was then explored to identify the entrapment of the radial nerve and observe the anatomical relationship of the nerve to the bone. **Results:** No entrapment of the radial nerve and its branches was found. The distances which the radial nerve can be elevated with elbow in extension are more than flexion ($p < 0.01$). The distance from posterolateral corner of acromion to axillary nerve was 38.7-61.6 mm (average 47.9 mm). The radial nerve crossed the posterior surface of the humerus in 40.2-54.6% of the total humeral length. **Conclusion:** MIPO of the humerus using the posterior approach is a feasible option for treatment of distal humeral shaft fracture. To reduce the risk of radial nerve injury, careful dissection is required and elbow should be kept in extension during plate insertion.

Abstract no.: 44785

POST-OPERATIVE BIOPHYSICAL STIMULATION IN ROTATOR CUFF SURGERY

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The biophysical stimulation after rotator cuff repair can be an important therapeutic support, which controls the inflammatory joint reaction in surgical site, limiting the catabolic effects of pro-inflammatory cytokines and promoting the healing of the bone-tendon complex. Our study included 31 adults <65-yrs-old patients with reparable and not withdrawn rotator cuff tear, with BMI <30Kg/m², not in treatment with corticosteroids, not suffering from infectious, rheumatic, autoimmune or systemic diseases. All patients were treated by arthroscopic repair in combination with mini-open repair, through bone perforation in the greater tuberosity's cortex with crimson duvet technique and reattachment of the tendon to the bone by anchors. The patients were classified in 3 randomized groups, two of which followed a standard rehabilitation protocol combined with biophysical stimulation (a group with pulsed electromagnetic fields and the other with capacitively coupled electric fields) and one of which followed only a standard rehabilitation protocol. The 6 months follow-up evaluation included a clinical and physical examination with VAS and Constant Score, considering shoulder functional recovery and pain, and X-ray and MR images examination, considering tendon integrity and retraction (foot-print coverage), muscular atrophy, fatty infiltration and shoulder joint degeneration. The ANOVA test indicates that for Constant Score there are marginally significant differences ($p = 0.08$) at 2 months and significant ($p = 0.03$) at 6 months among the 3 groups. There are not significant differences for VAS instead. The analyzed data allow us to conclude that biophysical stimulation has a positive effect in the treated shoulder function.

Abstract no.: 44786

ARTHROSCOPY-ASSISTED REDUCTION AND PLATE FIXATION OF AVULSION TIBIAL FRACTURE OF ANTERIOR-INFERIOR TALOFIBULAR LIGAMENT IN OPEN ANKLE FRACTURE

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Tibial avulsion fracture of anterior inferior tibiofibular ligament (AITFL) with ankle fracture should be fixed when the instability of syndesmosis is apparent. In cases of ankle open fracture, open reduction and internal fixation (ORIF) of avulsion tibial fracture of AITFL cannot be carried out when the open wound is close to the fragment. We performed an arthroscopy assisted plate fixation in such situation. An 18-year-old man injured his ankle because of motor vehicle accident. There was an open wound at the anterolateral aspect of his ankle and the length was about 5cm after irrigation and debridement. Radiographs showed segmental fibula fracture, medial malleoli transverse fracture and tibial avulsion fracture of AITFL. The tibial avulsion fracture of AITFL was covered by skin, however, the remained open wound was too near to fix the fragment by ORIF. Under ankle arthroscopy, the fragment was fixed with a small hook plate passed through the anteromedial portal. External rotation test was performed arthroscopically to confirm the disappearance of the instability of syndesmosis. The open wound was closed with full thickness skin graft from his groin. Skin graft was successfully engrafted within 2 weeks, and the fracture healing was obtained at the 3 months follow-up visit. No wound complications were found. After 2 years from the injury, American Orthopedic Foot and Ankle Society ankle scale was 100/100 and he returned fully to sports activity. We concluded that this technique would be safe and useful fixation method for the tibial avulsion fracture of AITFL.

Abstract no.: 44790

SINGLE-USE INSTRUMENTATION TECHNOLOGIES IN KNEE ARTHROPLASTY: STATE OF THE ART AND OUR EXPERIENCE.

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BACKGROUND: The surgical site contamination and the resulting periprosthetic infections are an important cause of morbidity and socio economic impact. In total knee arthroplasty, the single-use instrumentation is developed to simplify the surgical procedure, to reduce the chance instruments contamination, to improve the operating room efficiency and reduce overall costs (low cost of instruments washing and sterilization, and personnel management). Surgical single-use instrumentations on the market are complete with all you need for the surgical procedure, as cutting guides, conventional or PSI (patient-specific instrumentation), femoral cutting block, recutting block, trials components, alignment rod, inserts and impactors. In recent years was introduced PSI (patient-specific instrumentation), made using preoperative imaging. It decreases the operative time and the blood loss without violating the intramedullary canal, and allow preoperatively to plan the patient's component size, position, and alignment. **MATERIALS AND METHODS:** We started a monocentric, randomized, prospective clinical study to evaluate costs, operative time, radiographic results and adverse events, using either the single-use instruments or the conventional re-usable metal instrumentation. **RESULTS:** In the first year of use, we noticed an average of 30 minutes saved for each surgical procedure. Moreover, we avoid surgery cancellation or delay, due to un-sterile, missing or dysfunctional instruments. **CONCLUSIONS:** We think that this technology is the first step to develop implants entirely customized for each patient and it will have an always more relevant role in knee surgery

Abstract no.: 44791

THE SHORT STEM: STABLE FIXATION IN OLDER PATIENTS

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INTRODUCTION: We present our experience of using a femoral short stem in older patients comparing it with results in patients younger than 70 years. **PATIENTS AND METHODS:** Prospectively collected data of 138 patients who underwent 148 primaries THA, with an GTS-Biomet conservative stem. Fifty-seven patients (60 THA) were over 70 years-old at the time of surgery, with a mean age of 75.42 years (range, 70-87 years) and mean body mass index of 28 (range, 20-39). The remaining 81 patients (88 THA) who were under 70 years-old formed the control group. In this group, the mean age was 57.45 years, the mean BMI was 28 and mean follow-up was 27.31 months. We compared the two groups in terms of preoperative demographic variables and preoperative Merle D'Aubigne hip score (MD) and WOMAC score. **RESULTS:** We had one calcar fracture, which required a fixation with a screw. No cases of clinical or radiologic loosening were reported. The statistical treatment of the results shows that no differences between patients younger than 70 and older than 70 years who underwent a short femoral stem **CONCLUSIONS:** In conclusion, our experience in the use of conservative stems GTS-Biomet in patients over 70 years has shown very good results comparable with the results of patients younger than 70 years, and comparable with the results of conventional THA stems. With growing interest in bone preservation techniques, Further investigation-through long-term prospective and randomized studies and commitment into short-stem designs can proceed in patients of all ages and bone quality.

Abstract no.: 44792

FUNCTIONAL OUTCOME OF INTRAMEDULLARY NAILING OF LOWER LIMB LONG BONES IN SOUTHERN NIGERIA: 5 YEARS EXPERIENCE.

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Introduction: Intramedullary interlocking nailing is a gold standard for treatment of femoral diaphyseal fractures, but adapted for tibial fractures too. Image intensifier is expensive and readily not available in poor resource regions. The aim of this study is to document our experience with intramedullary nail in treatment of lower limb fractures and the functional outcome in University of Calabar Teaching Hospital. Methods: It's a Prospective Case series carried out from 2010 to 2015. Structured questionnaires were administered to patients from point of admission to discharge. The Surgical Implant Generation Network (SIGN) implants and instrumentation were used. Data analysed using SPSS. Result: Fifty-five (55) patients were included in the study. There were 40 males and 15 females giving a percentage of 72.7 and 27.3 respectively. The mean age was 33.24 years with a range of 15–60 years. Seven had open fractures. The number of femoral and tibial fractures was 45 and 18 respectively. Traders were most commonly affected (30.9%). Antegrade surgical approach was used for 21 patients with femoral fractures while 16 patients had retrograde approach. All 18 tibial fractures had antegrade approach. Average time to union was 6 months and knee flexion on discharge was $>95^\circ$. By 12 months of follow-up all subjects had full knee function. None had anterior knee pain. Wound infection rate was 5.5%. Conclusion: Intramedullary nail fixation of diaphyseal lower limb fractures has good outcome with less complications.

Abstract no.: 44793

MINIMALLY INVASIVE SURGERY IN REVERSE SHOULDER ARTHROPLASTY FOR CUFF ARTHROPATHY: FIRST 100 CASES WITH A TISSUE SPARING ANTERO-SUPERIOR APPROACH.

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INTRODUCTION: We describe an anterosuperior approach that preserve the subscapularis tendon to perform reverse shoulder arthroplasty (RSA). We don't detach the anterior portion of the deltoid and perform a humeral osteotomy in situ. **OBJECTIVE:** We wanted to evaluate the clinical and functional results and the presence of any complications on our first 100 implants. **METHODS:** We considered our first 100 consecutive RSA implanted with anterosuperior approach and by the same surgeon. The mean follow-up period was 41,2 months. The average age was 75 years old (range 61–88 years). **RESULTS:** On average, the operative time was 50 minutes and the incision length was 7,2 cm. We report no case of dislocations or nerve injury, 2 cases of traumatic mobilization, 1 case of infection and 1 acromion fracture 3 month after surgery. **CONCLUSION:** We are glad to evidence no major complications comparing with the other surgical approaches. Our surgical approach provides a greater tissue sparing. To make the procedure easier, we develop a dedicate instrumentation that reduces the operating time. The humeral "in situ" osteotomy guaranteed the right version of the implant. We preserve the subscapularis and the deltoid, so that the patient can start earlier the rehabilitation. Saving these anatomical structures provide stability of the implant. We have no case of nerve damage. The soft tissue respect makes easier also the choice of the thickness of the implant and so the right deltoid tension. The relatively small incision and reduced surgical times may also reduce the risk of infection.

Abstract no.: 44794

PFC VS ATTUNE - FUNCTIONAL OUTCOMES

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Background: Total Knee Arthroplasty is now the most commonly performed elective orthopaedic procedure. However, it continues to perform significantly less well in patient satisfaction scores than Total Hip Arthroplasty, despite improvements in surgical techniques and implant design in recent decades. Patient satisfaction levels are persistently around 80-85%, and persistence of pain and poor function are reported by the majority of unsatisfied patients, and may occur despite successful surgery. The Attune (Depuy Synthes – Warsaw, Indiana, USA) Total Knee Arthroplasty system claims to improve outcomes by minimising pain and improving function. Aims and Objectives: To assess whether the Attune knee offers improved outcomes for patients undergoing Total Knee Arthroplasty. Methods: 80 consecutive patients undergoing TKA with the PFC implant compared against 90 consecutive patients having the Attune knee. Preoperative and 6-month postoperative WOMAC and SF12 scores were the primary outcome measure. Range of movement at 6 months was a secondary outcome measure. Results: As expected, both knees reported a statistically significant increase in PROMs pre vs post-operatively (p value 0.005 for SF12, 0.000 for WOMAC). The Attune knee resulted in a greater improvement of both subjective and objective PROMs but the difference between the two groups was not statistically significant. (p = 0.811, 0.087 respectively). There was a significantly larger improvement in Range of Movement in the Attune group compared to the PFC group. (p = 0.016) Conclusions: The Attune knee gives better outcomes in terms of absolute ROM but patient reported outcomes are similar to that of the PFC knee.

Abstract no.: 44796

ATELOCOLLAGEN ENHANCE THE HEALING OF ROTATOR CUFF TENDON IN RABBIT MODEL

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The purpose is to verify the effect of atelocollagen on tendon-to-bone healing in rabbit supraspinatus tendon. A tear of the supraspinatus tendon was created and repaired in 36 New Zealand White rabbits, after which they were randomly separated into 2 groups (18 rabbits per group: 15 for histological and 3 for biomechanical testing): (1) implantation of sheet type of atelocollagen in transosseous suturing as an experimental group (group 1) (2) suturing only as a control group (group 2). The biomechanical tensile strength test was performed at 12 weeks and the histological evaluation was performed at 4, 8, and 12 weeks. Immunohistochemical stain for collagen I & III were performed. The histological studies showed that the fibers in the group 1 were more parallel than group 2. The histological score was not significantly different between two groups at 4 weeks, but that of the experimental group was significantly more superior than that of control group at 8 weeks ($p < 0.05$) and 12 weeks ($p < 0.01$). At 12 weeks, the failure load was significantly higher in the experimental group than in the control group ($p < 0.05$). This study showed the enhancement of rotator cuff healing after implantation of atelocollagen assessed by histological and biomechanical test in a rabbit model of supraspinatus tendon tear. The use of atelocollagen with transosseous suturing led to better tendon-bone healing than only suturing.

Abstract no.: 44798

EVALUATION OF ACCURACY OF PATIENT SPECIFIC PRE-CONTOURED PLATES IN ACETABULAR FRACTURE FIXATION

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Prospective randomized case control study was conducted in year 2012-13. 21 patients were included, 10 were distributed in “case” group and remaining 11 in “control” group. Displaced acetabulum fractures with displacement ≥ 3 mm in adults were included. Open fractures, associated Moral-lavallee lesions, patients with > 3 weeks old fracture were excluded. In case group, patient-specific real 3D model of fractured acetabulum was generated and used for contouring plates pre-operatively. They were compared on blood loss, Surgery time, Post-operative reduction on x-ray and CT. Blood loss in “case” group was found to be less than “control” with mean of 620 ml and 720 ml respectively but was statistically insignificant ($p > .05$). Surgery time - Surgery time was found to be more in control group than case group, with mean of 132 minutes and 120 minutes . Anatomic reduction was achieved in 4 patients of “case” group and only 1 patient in “control” group. On applying Chi square test, results did not meet the level of significance. Post operative residual displacement on CT - Reduction on CT was better in case than control, with mean displacement of 4.75 mm and 7.60 mm but this difference was statistically insignificant. Reduction achieved as evaluated on CT – Reduction achieved was found to be remarkably high in “case” group than “control’ group suggesting better efficacy of pre-contoured plates in “case” group with means of 8.36mm and 2.99 mm in case and control group respectively which was statistically significant

Abstract no.: 44800

HEALING OF KNEE OSTEOCHONDRAL DEFECTS AFTER TREATMENT WITH BIOREACTOR-ENGINEERED TISSUE GRAFTS IN SHEEP - 7 T MRI EVALUATION

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Introduction: 7T MRI provides excellent visualization of the repair tissue (its maturation), and its relationship to adjacent native articular cartilage and bone. The aim of this study was to use this non-invasive powerful diagnostic tool to evaluate the healing of osteochondral defects after treatment with bioreactor-engineered tissue. Materials and methods: 8 skeletal mature sheep were randomly assigned to two groups: NC (n=4), treated with autologous three-dimensional osteochondral grafts engineered in perfusion bioreactor from nasal septum chondrocytes seeded on bilayered scaffold, and CFS (n=4), treated with bilayered scaffold only. Acute osteochondral defects (6,5 mm in diameter, 5 mm deep) were created on both condyles in sheep stifle joint and autologous grafts (NC group) and scaffolds (CFS group) were implanted. 12 months after surgery animals were sacrificed and osteochondral tissue blocks were obtained for analysis. MR imaging was performed with 7T MR imaging system. High-resolution anatomical images were obtained using a PD-weighted spin-echo sequence (MSME, TR/TE = 2400/10 ms) with a slice thickness of 0.7 mm and in-plane isotropic pixels of 70 μ m (matrix size 200x200, FOV = 14 mm). Modified MOCART score was used to evaluate healing of the defects. Results: Mean modified MOCART score was $64,17 \pm 19,34$ SD in NC group compared to $56,25 \pm 25,6$ SD in CFS group. Conclusion: Tissue engineered grafts enable better healing of osteochondral knee defects compared to treatment with scaffold only when scored with modified MOCART score. Acknowledgement: Funding for this research has been received from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No. 278807, BIO-COMET and from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 681103, BIO-CHIP.

Abstract no.: 44804

**VALGUS EXTENSION OVERLOAD - POSTERIOR ELBOW IMPINGEMENT
TREATMENT AND RESULTS**

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Introduction: Important valgus forces across the elbow occur mainly in the throwing or overhead athlete. Combined valgus torque on the ulnar collateral ligament of the elbow (UCL) and impingement caused by repeated compression movements at the olecranon fossa, are responsible for the Valgus Extension Overload (VEO) syndrome. Our aim is to present our arthroscopic treatment results for posterior elbow impingement (PEI) in athletes. Methods: 6 athletes with PEI diagnosed during sporting activity were included. Clinical diagnosis of VEO was confirmed by radiographic tests. Additional studies were done with CT scan and MRI. Patients with significant UCL injury were excluded. All arthroscopies were performed by the same surgeon. All athletes had a minimum follow up of six months. Range of motion was rated as well as the grip strength of the wrist and fingers that were measured with Jamar dynamometer. Elbow function was classified according to the "Modified Andrews Elbow Scoring System" (MAESS). Pain was assessed according to the Visual Analogue Scale (VAS). Results: At cutoff all athletes were asymptomatic and returned to their previous activity with recovery of strength and range of motion. There was an average time required to return to training of four weeks and to return to competition of seven weeks. Conclusions: VEO is a common condition in sporting activities involving valgus stress and full elbow extension. Arthroscopy of the elbow although technically demanding, proves to be crucial for proper treatment, and return to play at previous competitive level.

Abstract no.: 44807

RADIUS OF PROXIMAL ARTICULAR SURFACE AND GREATER TUBEROSITY IN THE PLAIN RADIOGRAPHY OF ROTATOR CUFF DISEASE

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The size of rotator cuff tear progress and the muscular atrophy in the chronic cases results a difficulty in the repair or an increase in the risk of re-tear. We planned to analyze the proximal articular surface and the greater tuberosity of the humeral head in the plain radiography and study the relationship between the muscle atrophy in MRI. Two hundred forty seven cases were included in this study that the status of the supraspinatus was confirmed by the operation at our hospital. A software in this study was programmed in Korean company (TechHime, Korea). After saving the plain AP shoulder radiograph as DICOM file, the radius of the circle apposed at the superior half of articular surface of head and the distance between the center of circle and the farthest point of the greater tuberosity were calculated by the software. In the analysis using the intact 93 cases, the average radius of the rotation center was 25.3mm in men, 22.3mm in women. The average height of the greater tuberosity from the rotation center was 4.3mm in men, 4.2mm in women, with no statistical significance. In the analysis using 247 cases, the correlation between the reparability of supraspinatus and the greater tuberosity height, the fatty infiltration, and the muscular atrophy was confirmed. The decrease in the distance between the rotation center and the greater tuberosity of the humeral head can suggest the muscular atrophy and the difficulty in the repairing the cuff to the original footprints.

Abstract no.: 44808

DIFFERENCES IN INTRAMEDULLARY FITTING PATTERN BETWEEN FIT-AND-FILL TYPE SHORT STEM AND TAPERED SHORT STEM

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Introduction: Short stems could preserve proximal bone stock and achieve physiological proximal loading. However, it is unclear how fitting patterns of short stem are achieved intramedullary. The objective was to evaluate differences in intramedullary fitting pattern between fit-and-fill type short stem (MiniHip; Corin, UK) and tapered short stem (Optimys; Mathys, Switzerland). Methods: Fifty patients who were underwent THA with MiniHip (Group M) and fifty patients with Optimys (Group O) were enrolled between 2013 and 2014. Intramedullary fitting patterns were analyzed by 3D templating software (ZedHip; LEXI, Tokyo). After the location and alignment of stem were extracted from postoperative CT, we reproduce the location and alignment in preoperative CT by CAD stem model. The area with CT value over 600 HU on CAD stem surface was defined as contact with cortical bone. We calculated the contact area with cortical bone. We divided CAD stem surface into 7 parts according to modified Gruen's zone classification. The frequency of contact and contact area in each zone were compared between the 2 groups. Results: The frequency of contact in Zone 1 to 7 (Group M/O) was 68/30, 20/28, 62/94, 94/96, 60/72, 98/96, 100/100% and there were significant differences in Zone 1 and 3. The contact area was 0.04/0.01, 0.02/0.01, 0.08/0.39, 0.55/0.56, 0.06/0.10, 0.60/0.42, 1.14/0.61cm² and there were significant differences in Zone 1, 3 and 7. Conclusions: Fitting pattern of MiniHip was contact at medial- and lateral-proximal and distal portion and that of Optimys was contact at medial and lateral-distal portion.

Abstract no.: 44810

**ANTERIOR CERVICAL DECOMPRESSION AND FUSION (ACDF)-
FACTORS THAT IMPACT THE SAGITTAL PLANE CORRECTION**

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BACKGROUND: Anterior cervical decompression and fusion (ACDF) is the treatment of choice for Cervical degenerative disc disease that causes neurological symptoms include radiculopathy and myelopathy. ACDF can be done by different techniques, with anterior plating(ACDF-CPC) and stand-alone cage (ACDF-CA). The purpose of this study is to detect the factors that impacts the Sagittal plane correction. **METHODS:** A retrospective study of 67 patients (93 level)underwent to ACDF in Hamad General Hospital, Doha, Qatar. **RESULTS:** There were 31 cases in ACDF-CA group (41 level, 19 Males, 12 Females. , Average age 46.9 years), and 36 cases in ACDF-CPC (52 level, 24 Males, 12 Females, Average age 48.6Years). Most of the cases done by neuro-spine surgeon 42 cases(62.6%) ,whereas 25 cases(37.4%) done by ortho-spine surgeon. The most affected level was C5-C6 in (46.2%), C6-C7 in (24.7%), C4-C5 in (21.3%), and C3-C4 in (8.8%) strong statistical correlation between post op sagittal plane correction (cervical lordosis, segmental lordosis, disc high, cage subsidence) and pre-op sagittal plane and type of procedure (ACDF-CA, ACDF-CPC) p-value <0.001 and 0.004 respectively. No significant correlation between post op sagittal plane correction and age, gender, level of procedure or spine surgeon(neurosurgeon, orthopedic) **CONCLUSION:** Anterior cervical decompression and fusion is a successful procedure that achieved significant correction in the sagittal plane. The most important factors that impact the sagittal plane correction are pre-op sagittal plane parameters and type of procedure (stand alone cage or cage with plate).

Abstract no.: 44812

CLASSIFICATION OF AO TYPE C INTRA-ARTICULAR DISTAL RADIAL FRACTURES BASED ON THE ARTHROSCOPIC FINDINGS

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Introduction: We have treated AO type C distal radial fractures with combination of arthroscopy and locking plating. We examined results based on the arthroscopic findings. **Methods:** The subjects are 54 patients aged less than 50 years (average 32.9), C1 in 11 cases, C2 in 13, and C3 in 30. We surveyed the number of intra-articular fracture fragments, the degree of displacement (gap, step), and soft tissue injuries (TFCC, SLIL, LTIL). Each parameter was assigned a numerical value according to the degree of damage. For bony fragments, 2 fragments were scored as 1 point, 3 fragments 2 points, and ≥ 4 fragments 3 points. A gap or step of 0-1 mm as 0 point, 1-2 mm 1 point, and ≥ 2 mm 2 points. A TFCC injury, SLIL, LTIL injury of at least Geissler grade III scored 1 point. **Results:** The arthroscopic findings were 2-7 bony fragments (mean 3.1), gap 0-6 mm (mean 1.8), and step 0-4mm (mean 1.2). TFCC injuries were seen in 29 cases, SLIL in 27, and LTIL in 16. The mean score was 1.8 points for bony fragments, 1.3 for gap, 0.9 for step, 0.6 for TFCC injury, 0.6 for SLIL injury, and 0.3 for LTIL injury, with a mean total score of 5.5 points. The mean score was 3.2 points for C1, 3.7 points for C2, and 6.9 points for C3 fractures, significantly higher for C3 than for C1, C2 fractures. **Conclusions:** Arthroscopic procedures were considered necessary for C3 fractures with high score.

Abstract no.: 44814

USE OF FIBULA AS STRUCTURAL GRAFT IN MANAGEMENT OF LONG BONE SEGMENTAL DEFECT – POST TRAUMATIC , POST SURG EXCISION OF NEOPLASM AND OSTEOPOROTIC FRACTURES

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APOLLO HOSPITALS, DHAKA (BANGLADESH)

Introduction :In comminuted metaphyseal diaphyseal fracture using intramedullary fibula as strut graft improves the inherent stability and strength of the bone, this helps in early union and deformity prevention and implant failure. In osteoporotic bone where the bone has got weakened and gets fracture, fixing this kind of osteoporotic fractures is a big challenge as the capacity of implant to get hold on bone is very poor and these kind of fracture need to be augmented with bone, fibula as a structural graft improves the inherent strength and provides stability to the implant .Non-vascularized fibula strut graft and cancellous bone grafting provides a reliable means of treating such conditions in developing countries. **Materials :**We would like to share our experience as regards use of non -vascularized fibula in management of segmental defects in long bones. We operated about 20 cases during period from JULY 2007 to Nov 2015 .We had a gamut of cases where there was a significant amount of bone loss either in fracture patients or in patients with excision of tumour resulting in significant bone void .We also had patients with osteoporotic fractures where cortices were pencil thin . All these case were managed by harvesting ipsilateral fibula and augmenting the bone defect . Post op healing was good with good functional recovery in all the operated cases. **CONCLUSION :**Autologous Free, Non-Vascularized Fibula is a usefull addition to the armamentarium of Orthopedic Surgeons in developing countries attempting to manage bone loss or bone weakening irrespective of etiology.

Abstract no.: 44819

**FACTORS AFFECTING GREATER TUBEROSITY RESORPTION AFTER
COMMUNUTED PROXIMAL HUMERAL FRACTURES**

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For proximal humeral fractures, greater tuberosity resorption often occurs, and leads to poor clinical outcomes. This study was conducted on 51 patients who underwent surgery for proximal humeral comminuted fracture to analyze the factors that affect greater tuberosity resorption. Twenty five patients whose status was analyzed by pre-operative 3D computed tomography were enrolled (15 men and 36 female). The surgery methods used were closed reduction for 8 of the subjects, open reduction for 25, and hemiarthroplasty for 18. Mean age was 61.2 years. The dissociation of the greater tuberosity and the humeral head, and the neck-shaft angle were examined by plain radiography. The degree of greater tuberosity resorption was measured in the final follow-up. The proximal bone fragment displacement, volume, area were measured using CT. Finally, resorption of the total bone fragments were observed in three patients. Resorption of more than half of the bone fragment was not observed in the subjects who underwent closed reduction surgery, and was observed in 20% of the subjects who underwent open reduction surgery and in 33% of the subjects who underwent hemiarthroplasty. No statistical significance was found in the differences between the results of the analysis of the fragment surface area, area ratio, and volume by computed tomography. There was 3.93 times higher risk with initial neck shaft angle more than 140°. After open reduction and hemiarthroplasty, greater tuberosity resorption was observed in 20-33%. No statistically significant factors were identified in the analysis of the factors of greater tuberosity resorption besides op procedure.

Abstract no.: 44820

LEG LENGTH DISCREPANCY AND ANGULAR DEFORMITY AFTER FLEXIBLE INTRAMEDULLARY NAIL FIXATION IN PEDIATRIC FEMORAL SHAFT FRACTURES

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Purpose: Femoral fracture is one of the most frequent fractures in children and complications occurs such as malunion and leg length discrepancy after internal fixation using flexible intramedullary nail. We analyzed quantitative data including age, pattern and location of fracture for angulation and leg length discrepancy. **Materials and Methods:** 30 cases were analysed who underwent internal fixation using flexible intramedullary nail for femoral shaft fracture. Using a simple radiography, duration of union and angulation were measured. Leg length discrepancy was evaluated by scanogram. By measuring each 2 times at an interval of 1 week by 2 observers. T-test and lineal regression analysis were used for ststiscic analysis. **Result:** The more younger patients, and transverse rather than oblique fractures, the more angulation were occurred significantly, the fracture location have no significant difference. Leg length discrepancy showed 6.39mm on average and cases of overgrowth over 5mm being represented, age of all the child patients was below 9 years old. As a result of statistical analysis, it was observed that the age is younger, leg length discrepancy was prone to be occurred. Fracture form and location has no significant difference. **Conclusion:** It is important to understand of overgorwth for femoral shaft fractures according to age, pattern, location. the LLD and angulation need to protected by bayonet position between fracture fragments. And It also need close follow up during growth.

Abstract no.: 44822

MANAGEMENT OF RESISTANT, RELAPSED AND RIGID NEGLECTED CLUB FOOT BY JESS FRAME

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Introduction: Congenital club foot is the deformity of foot present at birth in which there is equinus at heel, entire hindfoot in varus, the midfoot and forefoot adducted and supinated, medial subluxation of navicular on head of talus with internal torsion of tibia. Neglected Club foot is that has not been taken care of until nine months of age. Aims: To determine the role of JESS frame in relapsed, resistant and rigid neglected clubfeet, in achieving correction of deformity, radiological alignment and overall functioning of the foot. Materials and Methods: This was a prospective study which was undertaken at Dr. D.Y. Patil Medical College and Research Center from October 2013 to December 2015 which included 30 patients from age group old 25 months to 72 months which were treated surgically with JESS fixator. Results: Results were analyzed on Functional rating system suggested by Lehman, Atar. In our series, there were excellent results in 53.33% cases and good results in 36.66% cases. 10% of cases had fair results. There was no poor result. Conclusion: In view of the present study, it is concluded that JESS frame is an excellent treatment for the management of rigid, relapsed and resistant club feet. It has the advantage of no skin necrosis, no infection, no shortening of foot, no scarring, no pseudarthrosis. Resultant foot is more supple than by surgical release.

Abstract no.: 44828

DETERMINATION OF BONE MASS AND HIP AXIS LENGTH OF CONTRALATERAL SIDE IN PATIENTS WITH HIP FRACTURES

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Introduction: Bone mineral density is highly correlated with a low bone mass. With the increase in life expectancy of the population, the incidence of fractures has grown and this has become a major public health problem. Aims: To determine bone mineral density and hip axis length of the opposite hip (uninjured side) and to correlate with incidence of cervical and trochanteric hip fractures. Materials and Methods: This was a prospective study conducted in Dr. D.Y. Patil Medical College and Research Center from Decemeber 2013 to October 2015 which included 27 patients of both sexes and were above the age of 50 years. Patients with bilateral cervical or trochanteric hip fractures were excluded. Results: Results were analyzed using T- score system. B.M.D at proximal femoral region-Mean T-score was -2.8 , ranging from -4.1 to -1.4 with a standard deviation of 0.75 . B.M.D. at femoral neck region-Mean T-score was -2.8 , ranging from -3.9 to -1.6 with a standard deviation of 0.63 . Mean BMD at intertrochanteric region in patients with hip fractures was 0.565 ranging from 0.427 to 0.77 with a standard deviation of 0.098 and mean T-score was -2.6 , ranging from -4.6 to -0.7 with a standard deviation of 0.89 . The mean hip axis length of patients with hip fractures was 10.03 cm, ranging from 8.95 to 11.7 with standard deviation of 0.69 cm. Conclusion: We conclude that the patients with hip fractures have significantly lower bone mass in proximal femur, femoral neck region and intertrochanteric region.

Abstract no.: 44830

RECONSTRUCTION OF SOFT TISSUE DEFECT AFTER SEVERE FINGER TRAUMA USING FREE TISSUE TRANSFER

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(Purpose) Because digits are exposure site, it is necessary to select the reconstruction procedures from a stand point of function and cosmesis. When tissue loss in fingers happens, remarkable disorder occurs both in function and appearance. Tissue defect in joint lesion will lead to occurrence of joint contracture. We use free tissue transfer to reconstruct these lesions. (Materials) 44 patients suffered complex injuries in their 46 digits. There were 40 male and 6 female. The age were 13 to 62 years old. We used wrap around flap(WAF, 2nd toe) for 15 digits, hemipulp flap for 7 digits, venous flap for 22 digits, dorsal ulnar artery perforator flap for 2 cases. In all cases pedicle used were less than 3cm. We used short pedicle especially in cases of tissue transfer from toe. (Results) All cases survived but partial necrosis happened in 4 cases of venous flap. All amputated digits that revascularized with flow through venous flap survived. Pinch with thumb was possible in all cases of WAF. 6 finger tip were reconstructed with venous flap and five of these showed nail growth. (Discussion) Hemipulp flap and WAF are effective in both appearance and function of finger tip. Flow through venous flap transplant in joint lesion prevent joint contracture. Dorsal ulnar artery perforator flap can be done under conduction anesthesia. Selection of operative procedure should be determined taking into consideration of each characteristics of operative procedures.

Abstract no.: 44833

CLINICAL RESULTS OF GREATER TUBEROSITY FRACTURE OF HUMERUS

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Introduction: We reviewed clinical results of greater tuberosity fractures of humerus. Material and Methods: We retrospectively evaluated 17 shoulders in 16 patients from 2011 to 2015, which were able to follow up more than 3 months. We treated 7 of them operatively (Group O) and 10 cases conservatively (Group C). Fractures associated with dislocation were 5 in group O and 1 in group C. Surgical treatment consisted of rotator cuff repair, osteotomy, Latarjet, and open reduction internal fixation with plates (one case each), and anchor suture repair (Group SA) and open reduction internal fixation with screws (Group S) (2 cases each). We assessed both groups the range of motion, JOA score, and complications, respectively. Results: Patients in group SA had displacement of the fragment and patients in group S had severe instability, so both of them underwent additional surgery. Among group C, 9 cases healed with union but one case had displacement. Conclusion: We experienced displacement of the greater tuberosity in some cases both in group O and group C. We need to make treatment decisions thoroughly according to patients' age, past medical history, size of the fragment, and history of dislocation. It is also important to think of rehabilitations after surgical treatment.

Abstract no.: 44835

A RARE OCCURRENCE OF ISOLATED CAPITATE TUBERCULOSIS IN PAEDIATRIC AGE

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Introduction: Primary Tuberculosis of wrist joint is rare, generally affects adults, mostly starts as synovitis and quickly involves other carpus and end as arthritis. We here present a case of isolated involvement of Capitate bone in a skeletally immature patient. No such case has ever been reported in literature. Material and method: A 12 year old male presented to us with swelling and a non-healing sinus in the dorsum of the wrist joint of 5 months duration. Blood examination revealed anemia, elevated E.S.R and a positive Mantoux test. Radiograph of the wrist at presentation suggested osteopenia of carpal bones with a lytic lesion of Capitate. MRI showed increased signal intensity in Capitate with surrounding soft tissue edema in T2 weighted images. Results: Intra-osseous tissue histology confirmed the diagnosis of bone tuberculosis. Patient was treated with antitubercular therapy for 1 year. The sinus healed and lesion resolved. No signs of reinfection were seen in 1 ½ year follow up.

Abstract no.: 44836

THE USE OF EXTRA ARTICULAR STABILISATION IN PRIMARY ACL SURGERY IN A HIGH DEMAND ATHLETIC POPULATION WITH HIGH GRADE PIVOT SHIFT TEST; A COHORT STUDY

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Introduction: The Macintosh procedure seeks to redress antero-lateral instability as an adjunct to ACL reconstruction, stabilising the knee laterally. We describe a cohort study of early to medium term outcomes, in a high-demand athletic patient population of extraarticular augmentation with primary hamstring ACL reconstruction to a control group without. Methods: We identified patients undergoing primary ACL reconstruction & Macintosh procedure with minimum 2 year follow up. All patients presented with acute ACL tear and both 3+ Lachmann and clinical grade 3 pivot shift test both clinically and at EUA. These patients were compared to age, sex and activity matched cohort of ACL reconstructions without Macintosh. The patients were followed up clinically with the use of the modified Lysholm Tegner score to measure patient outcomes. Results: 96 patients underwent surgery with hamstring autograft and Macintosh procedure with 192 control patients. 94 (98%) of cases reported instability to be "never" or "rare" upon Lysholm Tegner scoring compared to 173 control patients (90%). 98% patients returned to high level sport within 12 months of surgery. in comparison to 95% of control patients. Conclusion: We report good early to mid term outcomes for a high demand athletic population with grade 3 pivot shift undergoing ACL reconstruction and Macintosh procedure. It is important to identify this cohort early and plan surgery accordingly.

Abstract no.: 44837

ASSESSMENT OF NEURO VASCULAR STATUS IN LIMB TRAUMA

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Introduction: Neurovascular injuries and compartment syndrome associated with fractures continues to be a significant cause of morbidity. Accurate assessment and documentation of the NV status in patients with a fracture is important in diagnosis, subsequent management and in cases of litigation. Aim: To evaluate the documentation of NV status in patient notes. Method: Over the week of 2nd November we inspected all trauma patients with an upper or lower limb fracture for documentation of NV status. Documentation in both upper and lower limb fractures. We interviewed staff on the wards and in ED on their understanding of assessing the neurovascular status of a limb. Results: Over 1 week 29 patients notes were reviewed 6 upper limb and 23 lower limb fractures, Of the 6 upper limb fractures, these are the number of patients of which each of the following were documented Colour in 1 Warmth Nil Capillary refill in 3 Radial pulse in 1 Ulnar pulse nil Pain score nil Radial, Ulnar & median nerves separately (motor) 2 patients Anterior Interosseous nerve (motor) 1 Radial, Ulnar & median nerves separately (sensory) 2 Of the 23 lower limb fractures, these are the number of patients of which each of the following were documented Colour in 6 Warmth Nil Capillary refill in 6 Dorsalis pedis pulse in 7 Posterior tibial pulse Nil Pain score in 1 Peroneal or Tibial Nil Conclusion: Poor understanding of how to accurately assess neurovascular status by doctors and nurses. Poor documentation of neurovascular status in notes.

Abstract no.: 44838

RADIOLOGICAL EVALUATION OF THE EIGHTH THORACIC VERTEBRA ROTATION IN THE PECTUS EXCAVATUM

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Objective;The main objective was to find the difference between the rotation of the eighth thoracic vertebra in symmetric and dissymmetric pectus excavatum in children. **Material and Methods;**An analysis of pre-operational 82 CT in children with the pectus excavatum deformity was made . Patients were divided into two groups depending on the chest deformation ; the first one consisted of patients with symmetric pectus excavatum , there were 48 patients (9 girls , 39 boys), the mean age was 12,8 years (4-16), the average Haller index was 3,6 (2,2-7,1); in the second group with dissymmetric pectus excavatum there were 35 patients (8 girls, 27 boys), the mean age was 11,8 years (7-17),the average Haller index was 2,9 (2,4-5,8).**Results;**In the first group the rotation of the eighth thoracic vertebra was found in 60,4% (29 patients) , with mean rotation angle of 6,29 (2,6-32), the average Haller index was 3,7(2,2-7,1), In the second group there were 45,7 % (16 patients) with the mean rotation angle of 4,72 (2,4-10,5), the average Haller index was 5(2,4-4,9). **Conclusion;**The rotation of the eighth thoracic vertebra is significantly more common in symmetric pectus excavatum in children than in dissymmetric deformity.

Abstract no.: 44839

MAGNETIC RESONANCE IMAGE FINDINGS IN THE EARLY POST-OPERATIVE PERIOD AFTER CERVICAL LAMINOPLASTY

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Introduction: Magnetic resonance imaging(MRI) is frequently performed in the early postoperative period when a symptom is persistent or deteriorates after cervical laminoplasty. However, the scope of acceptable postoperative changes in MRI findings in symptomatic patients has not yet been determined. We evaluated the characteristic findings from MR images obtained within 1 week after cervical laminoplasty. Materials and methods: This study was conducted with 18 patients who underwent C3-6 open-door cervical laminoplasty. Cervical MR images were obtained 5 to 7 days and 3 months or later after surgery. Twelve patients were male, and 6 were female. The mean age at the time of surgery was 73 years(47-88years). The mean postoperative follow-up duration was 10 months(3-36months). The Japan Orthopedic Association(JOA) score was evaluated before surgery, at 1week after surgery, and at the latest follow-up. The dural sac area was measured on the T2-weighted axial MR images at the intervertebral disc level from C3 to C6 by using image measurement software(ImageJ). Results: The mean JOA score of the subjects increased from 9.2 before operation to 10.5 at 1week after operation and to 12.5 at the latest follow-up. The mean dural sac area increased at each level from 133% to 144% at 1week after surgery to 145% to 184% at the latest follow-up. On the MR images obtained at 1week after surgery, residual hematoma was observed, which mostly appears homogeneous high signal intensity on T2-weighted MR images, in all the subjects. However, none of the subjects developed cord compression, and all showed symptom improvement.

Abstract no.: 44842

RISK OF URINARY RETENTION IN PATIENTS UNDERGOING THA WITHOUT AN INDWELLING URINARY CATHETER

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The objective of this retrospective cohort study was to determine the risk factors for post-operative urinary retention (POUR) following total hip arthroplasty under spinal anesthesia. Consecutive patients undergoing primary total hip arthroplasty without pre-operative or intra-operative catheterization under spinal anesthesia were identified in our database. All patients were monitored post-operatively for urinary retention on the basis of symptoms and the use of bladder ultrasound scans performed by hospital nursing staff. If necessary, straight catheterization was performed up to two times prior to indwelling catheter insertion. 180 patients were included in the study. 6 patients requiring indwelling catheter insertion for intraoperative monitoring were excluded. 76 patients experienced post-operative urinary retention and required straight catheterization. 14 of those patients ultimately required placement of an indwelling catheter. One patient who was not catheterized developed a urinary tract infection versus none of the patients who were catheterized. The only predictors of using any type of catheterization after surgery were the LOS and the amount of fluids given during surgery. Categorical variables were analyzed with use of chi-square testing. Continuous variables were analyzed with the use of the Student t-test. Logistic regression was performed. Age over 70 years, length of hospital stay, intra-operative intravenous fluid volume and a history of urinary retention were all significantly associated with POUR requiring catheterization. No significant association was found between catheterization and gender, body mass index, American Society of Anesthesiologists class, history of polyuria, history of incontinence, post-operative oral narcotics use, surgical duration, or discharge location.

Abstract no.: 44843

RESULTS OF MINIMALLY INVASIVE TREATMENT OF FRACTURES OF THE UPPER EXTREMITY IN CHILDREN

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Introduction: Fractures of the forearm and shoulder are the most common injuries of the musculoskeletal system in children. Material and method: From 2002 to 2016, on the basis of 6th City clinical hospital we have performed 681 operations with the use of image intensifiers in pediatric patients with fractures of the upper extremity. The average age of the patients was 8,1 years. The reasons for surgery: fractures of the surgical neck and shaft of the humerus 59 cases, supra- and transcondylar fractures of the humerus 219 cases, forearm fractures 275 cases, fractures of the wrist 87 cases, multiple injuries 31 cases. Fractures of the surgical neck of the humerus were treated by fixation with Ilizarov nails (through the lateral epicondyle of the humerus; through the acromion; through the diaphysis of the humerus). The humeral shaft fractures were treated by intramedullary fixation with Ilizarov nails, which were inserted intramedullary through the lateral epicondyle of the humerus. Transcondylar fractures were treated with closed reduction and fixation with wires. Bone fragments in forearm fractures were stabilized by the use of nails, which pass through the olecranon or the metaepiphysis of the radius. Results: The clinical results in 97,9% of cases were excellent or good and poor in 2,1% of the cases. The poor results were due to ulnar neuritis in 14 patients and inflammation of the skin around the wire in 4 patients. Conclusion: Minimally invasive surgical treatment of fractures of the upper extremity in children is a highly effective method of treatment.

Abstract no.: 44848

MEDIUM TERM OUTCOMES OF A MENISCAL AUGMENTATION DEVICE TO ARTHROSCOPIC MENISECTOMY: A COHORT STUDY

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Introduction: Symptomatic irreparable meniscal tears are commonly treated with arthroscopic debridement. However the procedure predisposing the patient to osteoarthritis. Meniscal augmentation has been suggested to restore meniscal architecture, as it permits vascular ingrowth and the tissue regeneration with meniscus like qualities, We compare the medium term outcomes of meniscal augmentation to those undergoing arthroscopic debridement and meniscectomy for persistent knee pain. **Methods:** International Knee Development Committee (IKDC), Knee Injury Osteoarthritis Outcome Score (KOOS) and Visual analogue score (VAS) were measured. MRI analysed the integration of the meniscal augment to residual meniscal tissue. Arthritic progression was also measured, using the Kellgren Lawrence classification. **Results** 23 patients (12 medial and 11 lateral menisci), average age of 34.2 (range 25-42), were prospectively recruited. 11 patients underwent meniscal augmentation whilst 12 underwent arthroscopic debridement. Average follow-up was 27.4 months. Statistical analysis was carried out using an unpaired Student T Test and a Mann Whitney U test. Our medium term results for both KOOS and IKDC demonstrate that there is no difference between the group receiving meniscal augmentation and those receiving arthroscopic meniscectomy, $p=0.07$ and $p=0.87$ respectively. However some patients demonstrated marked improvement with meniscal augmentation, without pain or mild discomfort requiring analgesia with a concomitant return to pre-morbid sporting levels of activity. **Conclusions:** We conclude that it is important to carefully select which patients will benefit from meniscal augmentation. Additionally our sample size is small and a larger randomized controlled study, with longer follow up is required to establish fully the benefits of meniscal augmentation.

Abstract no.: 44849

MINIMALLY INVASIVE TREATMENT SUPRA- AND TRANSCONDYLAR FRACTURES OF HUMERUS IN CHILDREN

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Introduction: Shoulder fractures are one of the most common injuries of the humerus in children. Materials and methods: Us from 2005 to 2016, was operated on 242 children with fractures of the with supra- and transcondylar fractures of humerus in "6thCity clinical hospital of Minsk". Average age of patients is 5,2 years. In the treatment of these injuries following methods were applied: closed reduction with plaster immobilization in 63 (26%) patients; skeletal traction for olecranon - in 17 (7,1%); closed reduction with percutaneous osteosynthesis while Kirschner wires under control image intensifiers - 160 (66,1%) cases; open reduction with internal fixation with nails - 2 (0,8%) (one of them with the revision the neurovascular bundle). Results: Nearest result of the application of methods of treatment were studied in all patients with rehospitalization for further treatment. These outcomes in all cases were positive unsatisfactory observed. Long-term results in terms of up to two years were studied in 227 (93,8%) patients. Only obtained excellent and good outcomes. Conclusions: The close reduction using of image intensifiers with pin fixation is the method of choice in the cases of treatment the supracondylar and transcondylar fractures with dislocation the fragments of humerus, especially if the fracture is unstable. This method should be recommended for practical using in such cases.

Abstract no.: 44852

ARTHROSCOPIC DIAGNOSIS OF SYNOVIAL CHONDROMATOSIS THE KNEE IN CHILDREN

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Introduction. Diagnosis sinoialnogo chondromatosis children in the early period presents considerable difficulty. Materials and methods. We operated on 8 children with synovial chondromatosis. The median age was 9.1 years. When synovial chondromatosis arthroscopic changes in medial meniscal section identified in 8 cases, the medial - 6, the upper volvulus - 7, lateral - 4, in the lateral meniscal department - 5, in the intercondylar clipping - 8 in the posterior section - in 1 case. In 3 cases, the synovium determined maturing chondroma, chondroma in 5 cases have been identified and the diagnosis was verified on the basis of pathological studies of the synovial membrane. Results. Microscopic examination of the synovium notes hypertrophy and hyperplasia of synovial villi. In all observations we noted the picture of moderate reactive inflammation. The synovium contains plots chondroid and hyaline cartilage rounded shape. Nodules of hyaline cartilage constructed high degree of maturity. Cell densities in different areas of non-uniform and generally in the central portions hypercellularity more nodes than in the periphery. Cellular atypia not sharply defined, though it is possible to observe cells "chubby", rounded, elongated and hyperchromatic nuclei. The chondrocytes are located singly or grouped. A modest nuclear polymorphism, dual-cell and two-cell gap. On the periphery of the cell formation are small, elongated, to the center - rounded, larger sizes. Conclusions. Arthroscopic diagnosis pathological examination of the synovial membrane helps to verify the diagnosis of synovial chondromatosis.

Abstract no.: 44854

ARTHROSCOPIC METHOD OF DIAGNOSIS OF SYNOVITIS OF THE KNEE JOINT IN JUVENILE RHEUMATOID ARTHRITIS

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Introduction: Juvenile rheumatoid arthritis (JRA) is considered to be one of the serious diseases of the musculoskeletal system, which is based on progressive systemic disruption of connective tissue. Materials and methods: A total of 83 operations performed 73 childrens with lesions of the knee joint in JRA - 68.7% (57) of diagnostic arthroscopy, 26.5% (22) of arthroscopic and 4.8% (4) subtotal anterolateral synovectomy of the knee.. For more accurate determination the severity and extent of the lesion of the synovium, we used developed a method for determining the prevalence of pathological changes in the synovial membrane of the knee joint with JRA, in which to determine the optimal combined macroscopic and microscopic prevalence of synovitis of the knee joint cavity was divided into 7 sections. Results: Using the developed method (34) to 91.2% (31) of cases will more accurately assess the prevalence of the process in the joint and in 14.7% (5) of the cases - reveal not only pathognomonic pathological symptoms of rheumatoid process, but also signs of subclinical synovial chondromatosis, having no visual symptoms. Conclusions: The proposed new method of determining the prevalence of pathological changes in the synovial membrane of the knee in children with JRA using combined arthroscopic and pathologic evaluation of pathological changes in the synovial membrane in the seven sections of the joint allows you to accurately determine the extent of the pathological process in the synovial membrane having a macroscopically only local manifestations.

Abstract no.: 44856

LONG-TERM RESULTS OF THE CONTRALATERAL HIP AFTER HIP ARTHROPLASTY FOR PATIENTS YOUNGER THAN 40 YEARS OLD

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Idiopathic osteonecrosis of femoral head (ION) and developmental dysplasia of hip (DDH) are the main causes of secondary osteoarthritis (OA) of hip in Japan. Total hip arthroplasty (THA) and hemiarthroplasty are undergone for young patients when OA had progressed. It is important to improve functions of bilateral hips because patients of these diseases frequently are involved bilateral hips. The purpose of this study is to evaluate the status of the contralateral hip after hip arthroplasty for young patients. We retrospectively reviewed 16 hips of younger than 40 years old who had undergone THA or hemiarthroplasty between 1976 and 2007. All patients were involved bilateral hips. The mean age at surgery was 33.0 years. For clinical outcome, Merle d'Aubigne score was evaluated. Kaplan-Meier analysis was evaluated for the survival rate of contralateral hip. Eight patients did not undergo hip arthroplasty in contralateral hip at final follow-up. Five patients underwent hip arthroplasty in contralateral hip, three patients underwent joint-conserving surgery. The mean period of the surgery for contralateral side was 13.2 years. The Merle d'Aubigne score was improved from 11.8 to 12.3. The survival was 60% at 20 years. In our series, the survival rate of contralateral hip at 20 years is 60%. The long term results of the contralateral hip is superior to the natural history of ION. The Merle d'Aubigne score was improved after hip arthroplasty. Hip arthroplasty affects the contralateral hip to maintain the joint function without operation.

Abstract no.: 44858

SYNOVECTOMY IN THE TREATMENT OF SINOVITIS OF KNEE JOINT IN JUVENILE RHEUMATOID ARTHRITIS

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Introduction. Dissatisfaction with the results of conservative treatment of patients with lesions of the knee joint in juvenile rheumatoid arthritis indicate the need for measures aimed at prevention of deformities and contractures, preservation and restoration of mobility of the knee. Materials and methods. During the period from 2005 to 2016 based in Minsk City Clinical Center of Traumatology and Orthopaedics, we performed 22 (84.6%) arthroscopic and 4 (15.4%) subtotal anterolateral synovectomy of the knee in 26 patients aged 3 to 16 years with synovitis in juvenile rheumatoid arthritis. The median age was 9.1 years. Male patients was 16 (61.5%), female - 10 (38.5%). Arthroscopic intervention performed on arthroscopic complexes STRYKER (USA) 4-access: lower and upper anterolateral and anteromedial. Results. The observation period after arthroscopic synovectomy was 7.0 months (4.0 - 21.5). Mean state knee scale Lysholm-Tegner preoperative score was 52 (50 - 56), after - 90 points (88 - 95). Excellent results were observed in 59,1% (13) patients, good – 40,9% (9) patients. Term follow-up after open synovectomy was 49.0 months (23.0 - 77.5). The average value of the state of the knee joint before surgery was 52 points (46 - 55), after - 85.0 points (73.5 - 89.0). Excellent results were observed in 1 patient, good - in 2 patients and 1 patient - unsatisfactory. Conclusions. Arthroscopic synovectomy of the knee joint, in children with juvenile rheumatoid arthritis, is a minimally invasive surgical method, which in most cases can get an excellent or good clinical results.

Abstract no.: 44859

PREOPERATIVE TRANEXAMIC ACID ADMINISTRATION IN TOTAL HIP ARTHROPLASTY MAY END THE USE OF POSTOPERATIVE DRAIN SYSTEM

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Introduction: We use preoperative autologous blood donation (800 cc) and postoperative retransfusion drain system for primary total hip arthroplasty (THA) at our institution. Postoperative drain has limitations such as risk of wound infection and increasing burden on patients. Hence, we attempted using tranexamic acid (TXA) for reducing blood loss. We investigated the efficacy of TXA and considered whether to cut off postoperative drain. **Method:** Between May 2015 and February 2016, among 135 cases of THA, 88 consecutive cases underwent THA using modified Watson Jones approach with the patient lying in the supine position and cementless fixation. Of these cases, 43 were in the TXA administration group (1000 mg TXA parenterally, just before the procedure) and 45 in the non-administration group. Sex, height, weight, and body mass index did not differ between the groups. We investigated operative time, intraoperative blood loss, postoperative drain ischesis, total blood loss (sum of intraoperative and postoperative blood lost), and the presence of perioperative allogenic transfusion. **Results:** There were no differences in operative time and intraoperative blood loss, and no cases required allogenic transfusion. Meanwhile, postoperative drain ischesis and total blood loss showed a significant difference. The average total blood loss in the administration group was 771 ml and in the non-administration group was 1100 ml. **Discussion:** The results showed that TXA had an inhibitory effect on postoperative bleeding. Total blood loss was compensated only in preoperative autologous blood donation in the administration group, thereby indicating that postoperative drain may be cut off in primary THA.

Abstract no.: 44861

RESULTS OF SURGICAL TREATMENT OF LESIONS OF THE KNEE IN CHILDREN WITH JUVENILE RHEUMATOID ARTHRITIS INTRODUCTION.

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Introduction. JRA is a chronic inflammatory disease of the poly etiology with a complex autoimmune pathogenesis, leading to joint destruction. Materials and methods. In total about 81 JRA was conducted surgery on the knee joint 71 pediatric patients - 67.9% (55) of diagnostic arthroscopy, synovial biopsies sighting; 24.8% (20) of arthroscopic and 4.9% (4) arthrotomy front-side synovectomy of the knee joint. Of these, 12.3% (10) cases require repeat surgery due to the significant expression of arthritis and / or its resistance to conservative treatment - 40% (4) was performed arthroscopic, 40% (4) arthrotomy subtotal front -lateral synovectomy, 10% (1) - tenotomy rear thigh muscle groups, Ilizarov assembly and a 10% (1) - dismantling of the Ilizarov fixator. The average age of patients was 11 years (6 - 14). Males was 45.1% (32), female - 54.9% (39). Results. Surgical treatment in 71 patients with lesions of the knee joint in JRA average value status of the affected joint on a scale Lysholm-Tegner in the preoperative period was 52 points (50 - 56) in the near and long-term postoperative - 90 points (88 - 92). Excellent results were seen in 56.3% of patients (40), good - at 40.8% of the patients (29), satisfactory - in 1.4% of patients (1), and 1.4% of patients (1) - unsatisfactory. Conclusions. Surgical treatment of lesions of the knee joint in JRA is effective, and in 97.1% of cases give good or excellent results.

Abstract no.: 44862

SUDDEN ONSET OF FOOT DROP CAUSED BY LIGAMENTUM FLAVUM HEMATOMA IN THE LUMBAR SPINE: A CASE REPORT

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Introduction: Ligamentum flavum hematoma (LFH) is a rare cause of spinal stenosis, but has been detected more often since magnetic resonance imaging (MRI) became popular. According to most of the few previous reports, neurological symptoms due to LFH progress slowly, and spinal instability is involved in the pathogenesis. Here we describe an extremely rare case of LFH with rapid progression of symptoms from the onset. Case report: A 61-year-old woman presented to her local doctor complaining of acute lower back pain and left buttock pain without obvious cause. She had no relevant past medical history. Degenerative L5 spondylolisthesis was revealed by radiography and MRI, but LFH was not indicated. Foot drop developed on the 5th day after onset, and she was referred to our hospital on the 11th day. Sagittal T2-weighted MRI showed a hyperintense posterior intraspinal lesion at L3/4 that was continuous with the ligamentum flavum and was hypointense on sagittal T1-weighted images. Because her symptoms progressed, microscopic bilateral decompression via a unilateral approach was performed on the 12th day. Bilateral en bloc resection of the ligamentum flavum was done, and the resected ligament was found to contain hematoma covered by a capsule. Postoperatively, her symptoms improved immediately and there were no complications. Histologic examination of the surgical specimen revealed fibrous thickening and partial calcification of the ligamentum flavum, as well as internal hemorrhage. Conclusion: We encountered the sudden onset of foot drop due to LFH of the lumbar spine. Early surgical resection resulted in complete recovery.

Abstract no.: 44863

TREATMENT FOR PERIPROSTHETIC FEMORAL FRACTURE OF VANCOUVER TYPE B

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Introduction: Relating to the aging population, there is increase in the number of cases of periprosthetic femoral fracture (PFF). For the strategy to treat PFF of Vancouver classification type B, it is crucial to assess the prosthetic loosening and bone stock. The purpose of this study was to report the strategy and outcome of the treatment for PFF of Vancouver type B. **Methods:** Twelve cases with PFF of Vancouver type B treated in our hospital from 2010 to 2014 were included in this study (2 males, 10 females and the average 78 years). The average follow-up period was 27 months (11-35 months). Vancouver sub-classification, operative procedure and bone union were evaluated. **Results:** According to the intraoperative findings, of the 12 cases, four were classified as B1 (no prosthetic loosening), six as B2 (prosthetic loosening) and two as B3 (prosthetic loosening and poor bone stock). However preoperatively, two of six B2 were misclassified as B1. Osteosynthesis were performed for B1 cases and revision of the prosthesis was performed for B2 and B3 cases. As the preoperative diagnosis between B1 from B2 was difficult, revision surgery was prepared in all cases. In evaluation at 6 month post-surgery, bone union were revealed in all cases. However, one case of B3, which underwent revision without impaction bone graft, showed excessive sinking of the stem. **Conclusion:** Preparation of the revision surgery is crucial for the treatment for PFF of Vancouver type B, as the preoperative assessment to distinguish between B1 and B2 is difficult.

Abstract no.: 44864

INCIDENCE AND MORTALITY OF BONE CEMENT IMPLANTATION SYNDROME IN FRACTURE NOF PTS AT WEXHAM PARK

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Introduction: Hip fracture is one of the most common reasons for frail, older people to require an operation under anaesthetic. The average age of a patient with a hip fracture is 83 years old. The number of people in the UK aged 85 and over is growing and the number of hip fracture cases continues to rise in line with this expanding group of people. Aims and Objectives: To identify risk factors in pts, with NOF related to BCIS, Identify the incidence of BCIS at Wexham Park Hospital, To compare our data with national data Data Collection: NHFD, Case notes Results: Total No of NOF Total January 2014 – March 2015 – 370 Total Extra-capsular NOF – 176 Total Intra-capsular NOF - 194 Intra-capsular NOF Cemented Hemi 87, Un-cemented Hemi 44, Screw fixation 16, Cemented THR 10, Un-cemented THR 30, No surgery 4, Hybrid 3. Mortality in 30 days: 14 inter-trochanteric 3 Subtrochanteric 3 I/C undisplaced, 5 I/C Displaced (10 in NHFD data) 20/370 Jan 2014-March 2015 5.4% NHFD 2014: WEX 30 mortality in 2011-2013 8.3%, WEX 30 mortality in 2014 5.4% Conclusion our audit suggests that 3/97 pts had possible severe BCIS. All 3 had cemented Thompson hemiarthroplasty done. All pts were ASA 3. Cementation was not 3rd generation. Recommendations: Joint working group to create local guidelines. Tick box for high risk factor to be incorporated in pathway/booklet

Abstract no.: 44865

FUNCTIONAL OUTCOME OF OPEN REDUCTION AND INTERNAL FIXATION FOR PELVIC FRACTURES: A REPORT OF 13 CASES

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Definitive fixation of pelvic fractures is mandatory. Our objective is to evaluate the functional outcome, morbidity, mortality in comparison to the type of pelvic fracture, type of internal fixation and associated injuries. Between 2012 and 2016 we operated on 13 cases with pelvic fractures. Data collected were Tile classification, Abbreviated Injury Score (AIS), 6 months cumulative mortality rate, type of internal fixation, duration of surgery and timing of definitive surgery. The average AIS was 4. Out of the 13 patients 6 had unstable pelvic ring injuries, 7 had stable pelvic ring. All patients underwent open reduction and internal fixations. 9 patients had only posterior stabilization via Extended posterior approach. 3 patients had both anterior and posterior stabilisations, 1 patient had only anterior stabilization. One patient developed infection treated with wound debridement. Two patients had nerve injuries pre-operatively recovered completely. One patient partial recovery. Pelvic pain is the most common symptom in 7 patients. 8 patients returned to work. One patient with grade 3 bed sore required long term treatment and skin grafting. At follow-up of 1 year, there was increased morbidity and mortality who underwent both anterior and posterior internal fixations even though clinical and radiological outcome was better. Internal fixation is recommended for AIS <4 without involvement of pelvic ring fractures helps in early rehabilitation and good functional recovery with minimal complications. Pelvic fractures with AIS >4 and with unstable pelvic ring injuries are treated with temporary stabilization initially and with definitive fixation after 14 days of injury.

Abstract no.: 44866

FIXATION OF ACUTE DISTAL BICEPS TENDON RUPTURE.

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Introduction: Distal biceps tendon rupture is an injury typically reported in the dominant extremity of a middle-aged men. The present study consists of a clinical follow-up of patients with distal rupture of the biceps brachii tendon treated with the use of our modified single-incision technique. Materials: Between 2014 and 2015 , 29 patients presented with traumatic rupture of the distal biceps brachii tendon, reinserted to the radial tuberosity by our developed modified single-incision technique. All the patients suffered acute distal biceps tendon rupture. All patients were males in their fourth to sixth decade of life (30 to 64 years), and 63% of ruptures occurred in the dominant upper extremity. Postoperative management involves elbow splinting in a position of flexion with gradual range of motion exercises 2-4 week following repair with a return to the full activities by 2 months. Results: There were no postoperative complications and no repeat ruptures. Late results were estimated after 3 and 12 months after the surgery in 25 patients who underwent modified single-incision technique. Functional outcomes were assessed with the DASH outcome questionnaire and Mayo Elbow Performance Score. Excellent results with regard to both elimination of pain and recovery of strength and function have been obtained after our technique for distal biceps tendon repair. All patients were satisfied with the results and returned to normal activities of daily life in 2.5 months. In fact, our modified operative 1-incision technique has good and excellent results, without any postoperative complications.

Abstract no.: 44871

USE OF TERIPARATIDE AFTER SURGERY OF PROXIMAL HUMERUS FRACTURE

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Introduction: Currently, some studies describe the role of teriparatide in fracture healing in humans. In proximal humerus fractures, little is known about the role of teriparatide. This study aimed to assess whether administration of teriparatide postoperatively enhance fracture healing in humerus fractures.**Method:** Four postmenopausal women (73 to 89 years of age) who had been operated on for proximal humerus fracture were studied. Two of them received hemiarthroplasty, while the other two received intramedullary nail and locking angle plate, respectively. The fractures were classified according to the Neer classification system. There were one 2-part fracture, two 3-part fractures and one 4-part fracture. Teriparatide was prescribed 1 to 8 days postoperatively. Radiological evaluation included callus appearance in all cases, bone union in open reduction internal fixation cases, and bone density of greater tuberosity in hemiarthroplasty cases. **Results:** Callus appeared 2 weeks postoperatively in all cases. The mean time from surgery to bone union was 9.5 weeks (7 to 12 weeks). In hemiarthroplasty, bone resorption of the greater tuberosity occurred soon after surgery, but it was improved thereafter. **Discussion:** The current cases revealed callus appearance and bone union than the past reports. Tuberosity healing is critical for good clinical outcomes after hemiarthroplasty for proximal humeral fractures. It was reported that the tuberosity resorption appear at a rate of 20%. In the current cases, even though temporary bone resorption of the greater tuberosity occurred postoperatively, it was improved with use of teriparatide. **Conclusion:** Teriparatide enhanced bone healing in proximal humerus fractures postoperatively.

Abstract no.: 44872

ILIZAROV APPLICATIONS TO BENIGN BONE TUMORS

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Introduction: The usefulness of Ilizarov external fixator was investigated for the treatment of benign bone tumors. Materials and Methods: We treated 29 limbs of 27 patients with deformity and different LLD due to benign bone tumor. There were 20 males and 7 female with a mean age of 11 years. We used Ilizarov of different bone tumors. The etiologies were osteochondroma in 9 patients, Olliers disease in 5 patients, fibrous dysplasia in 8 patients and GCT in 5 patients. Result: The outcomes of the results were satisfactory in case of all these benign bone tumors. Conclusion: Preservation and bone degeneration by means of distraction osteogenesis constitutes a highly conservative limb saving surgery. Patients with good defects of less than 10 cm, a great deal of preserve healthy tissue and good prognosis are good candidates for these methods.

Abstract no.: 44876

WRIST TUBERCULOSIS MIMICKING LUNATOMALACIA

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Background: Tuberculosis of wrist joint is very rare. The disease usually involves adult age group. On most occasions it starts with synovial involvement and then involves bones rapidly. In absence of synovial swelling and constitutional symptoms the diagnosis of the disease is very difficult. Tuberculosis is a great imposter and radiological picture may mimic more commoner disease. If high index of suspicion is not kept, the disease can easily be misdiagnosed and treatment may be delayed. Materials and methods: We present a case of 30 year old female who presented with painful left wrist for last 7 months.. The examination of wrist joint showed tenderness over dorsum of wrist. . The X-ray of wrist joint showed decreased height of lunate, with mild sclerosis and no osteopenia in surrounding bones. Preliminary diagnosis of Kienbock's disease was made. . Results: Intra-osseous tissue histology confirmed the diagnosis of bone tuberculosis, revealing caseous necrosis surrounded by epithelioid and giant-cell (Langerhans) follicles. The patient was started on multidrug chemotherapy for 1 year. The wrist became non tender and regained full range of painless motion in 3 months. Subsequent radiographs showed no increase in height but mineralisation became homogenous. At 1 ½ years follow up there are no signs of reinfection and patient is completely symptom free. Conclusion: Tuberculosis radiologically may mimic any other disease and usual Phemister triad of osteopenia, destruction and joint space reduction may be lacking. High index of suspicion, early and complete evaluation including timely MRI and biopsy helps in getting a favourable result

Abstract no.: 44878

SYMPTOMATIC FLEXIBLE FLATFOOT DISORDER IN CHILDREN

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Flexible flatfoot is a common disorder presenting the patients with tiredness, foot-swelling, and discomfort on running. Often in late adulthood these symptoms become more frequent affecting subtalar joint and expressed with pain. To prevent the consequences, correction must be considered when the disorder is still flexible. Between June 2009 and December 2014, 143 patients were operated for flatfoot correction. The average age was 13 years old (10-17). The presence of painful points and functional limitation during daily-living activities were reported by the patients. Were excluded the patients that had flatfoot disorder due to tarsal coalition, post-trauma, neurologic and rigid flatfoots. We performed the arthroreisis intervention in all the patients bilaterally in the same time using a conic screw inserting it through sinus tarsi into the talus in order to function as a lever arm to calcaneus and restricting its movement to valgus. As protocol we check x-ray the day after operation and 2 months after it. The screws were removed after 1,5 years and after 1 year another control was done. All other patients had good results, normal walking, running without tiredness or pain and full range of motion. The plantar arch and the talar-first metatarsal angle in X-ray images were evidentially improved. 1,4% infections and 1 mobilization of the screw in the firsts months after interventions were registered as complications. We consider the calcaneo-stop technique with trunk conic screw as a useful technique, mini-invasive, simple, reliable and stable that can improve the quality of life and normalize walking in the symptomatic flatfoot children.

Abstract no.: 44879

MAGNETIC RESONANCE IMAGE FINDINGS IN THE EARLY POST-OPERATIVE PERIOD AFTER MICROSCOPIC BILATERAL DECOMPRESSION VIA A UNILATERAL APPROACH

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Introduction: Magnetic resonance imaging (MRI) is useful for the detection of spinal canal lesions such as insufficient decompression and epidural hematoma after microscopic bilateral decompression via a unilateral approach (MBDU). MRI in the normal early postoperative phase can also show subclinical disc bulge and hematoma. We evaluated the characteristic findings from MRI obtained within 1 week after MBDU. **Materials and methods:** This study was conducted with 20 patients who underwent single-level MBDU after January 2012. Lumbar MRI scans were obtained 5-7 days and 3 months or later after surgery. Of the patients, 10 were male and 10 were female. The mean age at the time of surgery was 71.6 years (48–90 years). The mean postoperative follow-up duration was 8 months (3–30 months). The Japan Orthopedic Association (JOA) score was evaluated before surgery, at 1 week after surgery, and at the latest follow-up. The dural sac area was measured on the T2-weighted axial MRI by using image measurement software (Image J). **Results:** The mean JOA score of the subjects increased markedly from 13.3 before operation to 20.1 at 1 week after operation and to 24.4 at the latest follow-up. The mean dural sac area increased from 256% (114%–550%) at 1 week after surgery to 308% (146%–664%) at the latest follow-up. **Conclusion:** On the MRI obtained at 1 week after surgery, no significant difference was observed in the improvement of the mean JOA score in the presence or absence of dural sac compression by epidural hematoma.

Abstract no.: 44881

SACROILIAC TUBERCULOSIS: A NEGLECTED DIFFERENTIAL OF REFRACTORY LOW BACK PAIN

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Introduction : Osteo- articular tuberculosis accounts for 1-3% of which 5-8% involves sacro-iliac joint. Isolated sacroiliac involvement is very rare. It usually presents as vague back pain. Plain radiographs are often inconclusive. We present a series of 35 patients presented with sacroiliac tuberculosis. Methods : 35 patients were diagnosed of sacroiliac tuberculosis from January 2008 to December 2011. After a thorough history and clinical examination, patients were taken up for X-rays and MRI scans. Ultrasound guided needle aspiration was done from suspected area. After histological confirmation of the diagnosis, patients were treated with Anti tubercular therapy. Results: Persistent low back pain and difficulty with walking were noted in all patients. There were 21 males (60%) and 14 females and the age ranged from 22 to 55 years (mean: 27 years). Most of the patients (91.4%) had unilateral disease (32 patients). Results of conservative management were good. 21 (60%) of our patients achieved bony ankylosis at the end of study. 9 patients did not respond to conservative management where surgical debridement was done. 4 of these cases had MDR tuberculosis. Conclusion : Sacroiliac tuberculosis must be kept as a differential in all refractory low back pain particularly in endemic areas. MRI is very helpful in early diagnosis of disease. In the early stages of the infection aspiration using a closed needle biopsy is recommended. An open biopsy is essential when the aspirate yields no growth. Open debridement should be done in those not responding to conservative management.

Abstract no.: 44882

**MICROFRACTURE AND MOSAIC CHONDROPLASTY IN KNEE
CARTILAGE DEFECTS TREATMENT**

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Introduction. Treatment of knee joint weight-bearing surface chondral defects is a challenge. Abrasion, subchondral tunnelization and microfracture as methods for regeneration stimulation came into wide use. But they stimulate formation of coarse-fibered cartilage, therefore a considerable interest is focused on transplantation and mosaic chondroplasty, which provide hyaline cartilage formation. Purpose. To compare the mid-term treatment results of femur weight-bearing surface cartilage defects using arthroscopic mosaic osteochondral autologous transplantation versus microfracture. Methods. We analyzed surgeries of 64 patients, who underwent treatment in Orthopedic&Trauma Center, Kyiv Regional Clinical Hospital, from 2009 to 2013 . Patients inclusion criteria were grade III and IV chondral defects (ICRS), located on weight-bearing surface of medial or lateral femur condyle, 1.5 - 4 cm in diameter. There were 28 male (44%), 36 female patients (56%) with average age 44 ± 20 years. The First group had arthroscopy and microfracture (33) and the Second group underwent arthroscopic mosaic osteochondral autologous transplantation (31 patients). Results. Functional outcomes were evaluated using Lysholm Scale and IKDC in 12, 24 and 36 months. 3 years postsurgery the First group showed the average Lysholm score 69.2 (56-78), IKDC score A-11(33%), B-17(52%), C-4(12%), D-1(3%). The Second group's average variables 3 years postoperatively were: Lysholm score - 76.3(58-82), IKDC score A-12 (39%), B-16 (51 %), and C-3 (10%). Conclusion. Microfracture in mid-terms after surgery is insignificantly less clinically effective, comparing with arthroscopic mosaic osteochondral autologous transplantation. Both approaches appears to be effective and mini-traumatic methods with good functional outcomes.

Abstract no.: 44885

FINITE ELEMENT ANALYSIS OF IMPLANT LIFESPAN AND FRACTURE LINE STABILITY OF MALLEOLAR SCREW AND NEW DESIGN TENSION PLATE IN THE FIXATION OF MEDIAL MALLEOLAR FRACTURES

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Displaced medial malleolus fractures are considered unstable and typically require open reduction and internal fixation for anatomic reduction and early joint range of motion. Although many techniques are used to treat medial malleolus fractures, screw fixation methods are still reliable. In this study the authors compared the results of malleolar screw versus tension plate techniques in terms of fracture stability and implant lifespan during the ankle joint motions. Three-dimensional solid modeling of the ankle joint was carried out using virtual finite element modeling. Medial malleolus fracture applied to the reference model obtained in a computer environment. Two different models were created according to fixation method (screw versus tension plate). Dynamic and nonlinear analysis was performed during stand up, plantar flexion and dorsiflexion position. Maximum equivalent stresses (MES) and lifespan cycles of implants as well as the amounts of displacements of distal fragment were evaluated. The MES on implants increased during the plantar flexion. Implant lifespan of screw fixation method was approximately 12 folds lower than tension plate model during the plantar flexion. And also fragment displacements were lower in plate fixation in all types of motion. The results of the study showed that, new design tension plate fixation system is more stable and strong implant when compared with conventional screw fixation. It may be possible to early weight bearing and joint range of motion in patients with medial malleolus fracture.

Abstract no.: 44886

A PROACTIVE APPROACH TO HIGH RISK DELIRIUM PATIENTS UNDERGOING TOTAL JOINT ARTHROPLASTY

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Delirium is a common complication among elderly patients undergoing total joint arthroplasty (TJA). The lack of identification of high risk patients prior to surgery may lead to an increased number of delirium complications during recovery. The Centers for Medicare and Medicaid Services has considered delirium as a never-event, implying that it can be measured and prevented. We developed a protocol to identify and prevent delirium in patients undergoing TJA. In a pre-operative assessment, all patients were screened and scored on criteria such as age (2 points if >75 years), history of forgetfulness (1 point), history of agitation or visual hallucinations (1 point), history of falls (1 point), history of post-operative confusion (5 points), and inability to perform higher brain functions (1 point). Patients were also scored on performance in a simple mental exam (2 points if they scored <4/6 in the mental exam). The patients were classified as low risk if they scored from 0 to 2, medium risk if they scored from 3 to 4 and high risk if they scored more than 5. The protocol was initiated in patients who were identified as high risk. 422 out of 7659 consecutive TJA patients from August 25, 2010 to December 31, 2015 were identified as high delirium risk. Only 5 (1.18%) patients suffered post-operative delirium, 2 (0.47%) were drug induced and 3 (0.71%) were related to pre-existing conditions. This protocol is effective in diminishing delirium incidence in high risk patients by making hospital staff aware and implementing simple guidelines.

Abstract no.: 44888

OUTCOME OF MUSCLE TRANSFERS FOR IRREPARABLE ROTATOR CUFF TEARS

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Between 1993 and 2015, we treated a total of 34 patients who had an irreparable rotator cuff tear by muscle transfer surgery. For irreparable posterosuperior cuff defect, we performed latissimus dorsi transfer (Gerber or Habermeyer procedure) in 15 patients, combined latissimus dorsi and teres major transfer (modified L'Episcopo) in 3, teres minor transfer (Paavolainen) in 8, and subscapularis transfer (Cofield) in 5. For irreparable subscapularis tear, we performed pectoralis major transfer in 3 patients. Eight of the 34 procedures were combined with hemi- or total shoulder arthroplasty because of secondary glenohumeral arthritis. No patients had a reverse shoulder arthroplasty, as it had not been approved in our country before 2014. The outcome of surgery was evaluated with the Constant score, UCLA score, and/or Japanese Orthopaedic Association Shoulder Score 1 to 10 years postoperatively. More than a half of the patients were satisfied with the result of surgery. However, some patients who had had latissimus dorsi transfer complained weakness of shoulder elevation and/or external rotation. Combined latissimus dorsi and teres major transfer showed good functional result only when the humeral head was stabilized with the use of bipolar hemiarthroplasty. Teres minor transfer to the infraspinatus insertion improved the shoulder function but only in some degree. Generally, the outcome of muscle transfer in patients with irreparable rotator cuff tear is acceptable, but rather unpredictable in terms of muscle power. Muscle transfers would work better if combined with reverse shoulder arthroplasty in which the humeral head is stabilized with the semi-constrained architecture.

Abstract no.: 44891

ARTHROSCOPIC BRIDGING REPAIR USING HUMAN DERMIS ALLOGRAFT CAN BE AN OPTION FOR IRREPARABLE ROTATOR CUFF TEARS

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Although remarkable advances in the surgical technique of rotator cuff tears (RCTs) over the last 15 years offer the opportunity to effectively repair most of the lesions, there are still many conditions where limitations of reparative surgery are evident, with irreparability rate up to 30%. And surgical treatment of the massive irreparable RCTs is still challenging, with failure rates ranging from 20% to 90%. 23 patients underwent arthroscopic bridging repair using human dermis allograft (ABR-HDA) for the treatment of the irreparable RCTs. Mean follow-up was 31.4 months. Clinical outcome was evaluated using Korean Shoulder Scoring System (KSS). MRI was performed postoperatively at a mean 6.5 months. Twenty patients (20/23, 87.0%) were satisfied with their procedure. Patients showed significant improvement in KSS score from 65.6 ± 8.9 preoperatively to 75.8 ± 13.2 postoperatively ($p = 0.003$). Sixteen patients (16/23, 69.6%) had full incorporation of graft into native rotator cuff remnant in MRI. Retear rate of graft varied according to preoperative types of the involved cuff: supraspinatus only (1/9, 11.1%), supraspinatus and subscapularis (4/6, 66.7%), supraspinatus and infraspinatus (1/7, 14.3%), and supraspinatus, subscapularis and infraspinatus (1/1, 100%). Recent two cases showed intact graft and subscapularis after secure fixation of subscapularis using open repair despite the previous high re-tear rate when severely retracted subscapularis tear was combined. To date, no patients have had an intraoperative or postoperative complication from the graft procedure such as infections and allograft rejections. ABR-HDA can be an option in treatment of selected cases with massive irreparable RCTs with safety and patients' satisfaction.

Abstract no.: 44893

MEDIAL OPENING-WEDGE HIGH TIBIAL OSTEOTOMY USING A LOCKING TITANIUM PLATE WITH OR WITHOUT AUTOGRAFTS

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To evaluate the knee scores, radiological assessment results, deficit correction, patellar height change, bone healing time, and weight bearing time postoperatively in patients undergoing high tibial osteotomy (HTO) with/without autologous iliac bone grafting. A retrospective examination of treated controls from a randomized controlled study was performed on 63 knees of 58 patients aged 46–59 years who underwent HTO with locking open wedge osteotomy plates. The patients were divided into two groups: Group A, HTO with autologous iliac bone grafts (n = 31); and Group B, HTO without autologous iliac bone grafts (n = 32). Clinical and radiological data were evaluated prospectively at the preoperative consultation, and then 6, 9, and 12 weeks, and 6 months and 1 year, after the surgery (and then annually). There were no significant differences in the radiological assessment, deficit correction, patellar height change, bone-healing time, and weight-bearing time between the two groups at any time after surgery. The knee scores changed positively in both groups (p<0.001). There was no difference in the results of patients undergoing HTO with open wedge osteotomy titanium locking plates with/without autografts, and comorbidities resulting from autografts are eliminated by using locking plates.

Abstract no.: 44897

TOTAL HIP ARTHROPLASTY IN CROWE'S GRADE IV DYSPLASTIC HIPS – OUR EXPERIENCE

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Introduction: Management of Crowe's grade IV developmental dysplasia of hip in adult is challenging surgery. Treatment guidelines are not well defined in term of ideal implant, position of acetabulum and operative technique. Operative management is difficult because of hypoplastic femoral medullary canal and shallow acetabulum filled with soft tissues. Altered anatomy of neurovascular structures also pose a risk of being injured during surgery. Aims: The goal of this study was to evaluate late results of total hip arthroplasty (THR) in adults with Crowe's grade IV developmental dysplasia of hip after a minimum of 5 years follow-up. Material: 45 THR in 40 patients were performed for painful hip dysplasia between 2003 and 2012. These 45 procedures were performed in 40 patients mean aged 32 +/- 14 years [17-56]. 29 patients (32 hips) were males and 11 patients (13 hips) were females. Non cemented THR was done in all cases with mean follow up of 6 years. Of the 45 hips, 6 were neglected, dislocated hips with proximal migration of femoral head. In such patients sub-trochanteric osteotomy was done to bring the femoral head up to the level of Acetabulum. 5 patients (5 hips) were lost to follow up; consequently, the functional results were evaluated for 40 hips (35 patients). Harris hip score was used to evaluate the functional and clinical results. Results and Conclusion: Harris hip score improved in all patients. We concluded from this series that total hip replacement should be considered in all patients with painful dysplastic hip.

Abstract no.: 44900

ONE STEP AUGMENTED AMIC KNEE CARTILAGE REPAIR TECHNIQUE

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While performing an arthroscopy of the knee, cartilage injuries, of any grade, have a whole reported frequency between 57.3% and 66% of cases. Orthobiologics are based on the use of mesenchymal stem cells that can mainly be obtained from bone marrow or adipose tissue. In order to increase the results of the recently developed single stage chondral repair techniques delivering to defect site a larger number of multipotent cells to improve defect filling and repair, the augmented single stage procedures have been introduced. These techniques represent an evolution of the standard AMIC procedure, where a collagen membrane is used to repair and resurface chondral defects. In the augmented techniques the use of PRP or bone marrow concentrate is added to the collagen membrane. In this paper, we present the initial experience with the innovative "one step" joint resurfacing for repair of full-thickness cartilage defects of the knee, completed by chondral defect debridement, bone marrow iliac crest aspiration through power driven aspiration cannula, defect's sizing through aluminum template use, microfractures, ChondrogideTM bi-layer collagen membrane sizing and soaking with bone marrow concentrate obtained through closed centrifugation and, finally, resurfacing of the chondral defect with collagen membrane, bone marrow concentrate and fibrin glue. The surgical technique is safe, lasts 15-20 minutes, is completed all inside the OR and doesn't need cellular expansion. Randomized controlled clinical trials will confirm the initial clinical and imaging good results.

Abstract no.: 44901

**PRIMARY HEMIARTHROPLASTY FOR UNSTABLE
INTERTROCHANTERIC FRACTURE IN ELDERLY**

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Prosthetic replacement for unstable intertrochanteric fractures is a treatment option to avoid complications associated with internal fixation and allow immediate full weight bearing mobilization. We evaluated the clinical and radiological outcome following the use of modular standard cemented bipolar prosthesis for unstable intertrochanteric fracture in elderly patients. Forty patients of unstable intertrochanteric fractures (AO/OTA type 31-A2 & A3 and Evans type III or IV fractures) were treated with cemented hemi-arthroplasty. Out of the 40 patients, 35 patients were available at the latest follow up. There were 25 females and 10 males with mean age of 74 years (range 70-82 years). The mean follow up was 5.5 years (range 4-10 years). The average duration of surgery was 55 min (range, 45 min-90 min), average blood loss was 410 ml (range, 290-520 ml) and average blood transfusion was 1.5 units (range, 0-3 units). The patients were started full weight bearing with support at an average 3 days after surgery (range, 2-7days). There was no infection, dislocation, radiographic loosening, osteolysis, stem migration or periprosthetic fractures. None of the patients needed revision surgery. Seven patients developed trochanteric bursitis, two deep vein thrombosis and one heterotopic ossification. The mean Harris Hip Score at 3 months, 6 months, 12 months and at the final follow up were 66 (range 53-74), 78 (range 55-83), 82 (range 60-92), and 84 (range 65-94) respectively. A hemi-arthroplasty with standard cemented modular bipolar is a successful treatment option in unstable osteoporotic intertrochanteric fractures in elderly patients with age more than 70 years

Abstract no.: 44902

A CLINICAL STUDY TO EXAMINE THRESHOLDS OF JOINT SPACE WIDTH AND JOINT SPACE AREA FOR IDENTIFICATION OF KNEE OSTEOARTHRITIS

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OBJECTIVE: Although clinical indications of osteoarthritis (OA) can vary among different definitions there is no general consensus about the threshold below which the joint space width (JSW) and the respective joint space area (JSA) can be certain indicators for the state of OA. Therefore this study evaluates these limits to reveal quantitative information about OA indicators. **METHODS:** The study included 101 cases/125 controls. All images were acquired in PA direction and standardized positions. The minimum JSW/A were calculated by using the i3a software. 3 physicians assessed the radiographs by using the Kellgren & Lawrence Score. A knee was assigned to the Case group, if at least two physicians assessed it as being affected by OA. **RESULTS:** Considering the minimum JSW, an odds ratio of 5.63 (CI: 3.17 - 9.99) with an accuracy of 70.35% and a sensitivity of 70.30% was obtained. Every subject that has a minimum JSW below 3.4mm belongs to the Case group. With respect to the minimum JSA, the odds ratio is 3.60 with an accuracy of 65.49% and a sensitivity of 65.35%. Results also show that every subject with a minimum JSA below 50mm² is being considered to have OA. **CONCLUSION:** Based on this study it can be concluded that a JSW below 3.4mm and a JSA below 50mm² at the knee joint are strong indicators for OA. Thus, for clinical assessments it is suggested to consider these threshold values for diagnostic purposes.

Abstract no.: 44903

GAP NON-UNION OF TIBIA (TIBIALIZATION OF FIBULA) BY ILIZAROV TECHNIQUE

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Aims: How to cover a long defect which is more than 10cm in tibia because of infection and gap, tumor resection, traumatic loss, which is very difficult to treat by conventional method and that's why we have treated more than 10 cm defect by tibialization of fibula with Ilizarov technique. Materials and Method: We treated 27 cases in different hospitals of Bangladesh since January 1995 to till January 2014 by Ilizarov technique for centralization of fibula. Results: Here we are putting a series of 27 cases of which 95% were excellent 5% were good. Discussion and Conclusion: A well plan step by step Ilizarov technique to cover large defect in tibia is an excellent method in challenging cases of large bone defects. Excellent results can not be achieved with conventional methods but can be easily achieved with Ilizarov technique for centralization of fibula and fibula can grow within 1-2 years like tibia.

Abstract no.: 44907

PAEDIATRIC GENU VARUM: TREATMENT OPTION- A COMPARITIVE STUDY

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Introduction: Genu varum is a common presenting complain. It causes alterations in normal biomechanics of the knee causing not only cosmetic but also fuctional impairment. Genu varum does not get corrected normally after 4 years and so is regarded pathological. No single technique works best in all cases. We evaluated various treatment modalities - growth modulation, illizarov and osteotomy. material and methods: 35 knee deformities from age 4-16 years were evaluated in our study. Those presenting before physeal closure with adequte growth remaining were treated with figure of 8 plate. Older individuals were treated with illizarov or opening wedge osteotomy. patients were followed for 3 years. results: fig of 8 plates wee able to acheive good correction in all cases with minimal and manageable complications however rebound growth after removal was important problem affecting a significant group. High tibial osteotomy had an advantage of single step correction but amount of correction that could be achieved was limited. Illizarov had an advantage of post op correction of deformities, larger deformities could be corrected and height of patient could be adjusted by placement of hinges. conclusion: we concluded that no single method is ideal in all cases and a careful selection of cases pre-operatively is required. growth plates are good if adequate growth is remaining and over-correction is always useful. minor degree of varum deformities could be corrected with high tibial osteotomy and plate fixation as it allowed early rehablitation and illizarov was better method when degree of correction required is large.

Abstract no.: 44908

ONE STEP KNEE OSTEOCHONDRAL LESIONS RESURFACING WITH COLLAGEN MEMBRANE AND ADIPOSE STROMAL CELLS

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GOAL: Stromal vascular fraction (SVF) can be easily harvested in large quantity from adipose tissue and has been clearly demonstrated to possess high regenerative capacity. We report on the one-step technique combining adipose stem cells with a bilayer collagen scaffold in the treatment of patients with grade III-IV osteochondral defects of the knee. MATERIAL & METHODS: The surgical procedure consists of several steps: 1. Arthroscopic debridement. 2. Withdrawal of 60 ml or more of liposuction aspirate. 3. Quick isolation and concentration of the stromal-vascular fraction of fluid and cells. 4. Sizing of the defect with aluminum template. 5. Cutting the bilayer Chondro-gide™ membrane to the right size and shape. 6. Microfractures onto the bed of the defect. 7. Soaking the cropped Chondro-gide™ membrane with the stromal vascular fraction obtained. 8. Resurfacing of the defect with soaked collagen membrane and fibrin glue. 9. Knee passive ROM. 10. Final intra-articular injection of ASCs. RESULTS: Patients have, from short to mid term follow-up, showed and maintained significant improvements in all scores and no adverse reaction has been noted. CONCLUSIONS: This proposed procedure is simple, quick and low cost. The follow-up MRI's have showed a nice coverage layer of the defect with an early return to the presence of the natural chondral lamina.

Abstract no.: 44910

UNILATERAL DVT AFTER UNICOMPARTMENTAL KNEE REPLACEMENT DUE TO MAY THURNER SYNDROME

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Deep vein thrombosis (DVT) is a dreaded complication after knee arthroplasty. Unilateral deep vein thrombosis is a rare presentation and can occur due to the compression of left common iliac vein by overlying right common iliac artery also known as May-Thurner syndrome. A 51 years old female underwent bilateral unicompartmental knee replacement and complained of unilateral calf pain and swelling. On radiological investigation extensive left sided deep vein thrombosis with significant compression and narrowing of left common iliac vein between overlying right common iliac artery and L5 lumbar vertebra seen. Patient was started on anticoagulants and inferior vena cava filter was placed to prevent complications of DVT. Patient was discharged in stable condition and has no complications. The case presents a rare complication of unicompartmental knee arthroplasty and importance of early diagnosis and treatment.

Abstract no.: 44913

CLINICAL OUTCOME OF INTRAMEDULLARY NAILING FOR MID-DISTAL SHAFT HUMERUS FRACTURE

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INTRODUCTION:Fracture Shaft of humerus is one of the common fracture with a bimodal distribution with an incidence of 3 to 5%.It can be treated with plate osteosynthesis or by intramedullary nailing.Plate osteosynthesis is the standard modality used as the results are excellent but post operative radial nerve palsy is a major problem.**AIM OF THE STUDY:**This prospective study has been done to evaluate the outcome of intramedullary nailing in humeral shaft fracture, the post operative follow up and complications of the procedure.**MATERIALS AND METHODS:**Between June 2014 and July 2015, 24 patients with fracture of shaft of humerus were treated with intramedullary nailing. All the fractures were closed injuries. Fractures with open wound, radial nerve injury, vascular compromise, proximal humerus fractures were excluded from the study.Clinical outcome measurements included fracture healing, radial nerve recovery, and elbow and shoulder discomfort. All patients underwent intramedullary nailing and follow up done at 4,8,16 weeks,6 months and 1 year.**RESULTS AND CONCLUSIONS:**Primary union was achieved in 23 of 24 patients operated with mean time to union was 14.3 weeks. There was 1 case of post operative radial nerve palsy which recovered after 3 months without any intervention. There was 1 case of non union for which nail removal, followed by plating and bone grafting was done. Due to nail impingement and rotator cuff injury, 4 patients had decreased range of motion at the shoulder joint. In conclusion, intramedullary nailing is a good option for humeral shaft fractures with minimal exposure but impingement is the one major complication

Abstract no.: 44918

IDENTIFICATION OF NEUROPATHIC PAIN COMPONENT IN PATIENTS OF VARIOUS AGE WITH KNEE OSTEOARTHRITIS

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Introduction. Osteoarthritis-induced pain is a result of nociceptor stimulation, associated with local tissue damage and inflammation. Recent data suggest the presence of neuropathic pain symptoms in patients with osteoarthritis. The aim of this study was to estimate the structure of pain syndrome, reveal the presence of neuropathic pain (NP) component, symptoms and signs of NP in patients suffering from knee osteoarthritis. Material and methods. We've examined 44 patients with knee osteoarthritis of the II-III stages by the Kallgren-Lawrence scale aged 47-85 years (average age 66.1 ± 1.5 years). To assess the NP component, we used screening scales painDETECT, LANSS, DN4 questionnaires. To assess intensity of pain, visual analogue scale (VAS) was used. Besides WOMAC and EuroQol-5D questionnaire were applied. Results. 4.6% of patients with knee osteoarthritis examined by painDETECT were likely to have the NP component. LANSS scale: 25% were probably to have NP. DN4 scale: 31.2% probably had NP. Moderate to significant correlations were found between intensity of pain by VAS data and Neuropathic Pain Scales (painDETECT, LANSS, DN4) data ($p < 0.05$). It was established that higher results of screening by painDETECT and DN4 positively correlate with a disturbance of physical function tested by WOMAC ($p < 0.05$). PainDETECT data have moderate to significant correlations with EuroQol-5D questionnaire ($p < 0.01$). Burning pain ($p < 0.01$), pins and needles ($p < 0.05$) can be associated with a more severe pain in patients with knee osteoarthritis. Conclusions. Thus, in patients with osteoarthritis the pain syndrome may reveal NP features. Identification of these would promote a targeted treatment strategy.

Abstract no.: 44919

THE ANATOMIC FOOTPRINT OF THE TIBIALIS POSTERIOR TENDON INSERTIONS

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Introduction The tibialis posterior tendon (TPT) is characterized by a complex “footprint” at the tarsal and metatarsal bones. Precise anatomic knowledge about the dimensions and insertions of the TPT can help to optimize the surgical procedures for adult acquired flatfoot reconstruction. This study aimed to analyze the insertional footprint and variations of the TPT. **Methods** Forty-one formalin-fixed lower leg specimens had been dissected. The skin, subcutaneous tissue and the muscles were removed with a scalpel from the lower legs. The TPT was preserved and carefully analyzed. After dissection, the insertion sites were marked with ink. Each course and footprint of the TPT was documented by photograph. **Results** The TPT inserted with its main tendon at the tuberosity of the navicular bone in 100% of specimens. In 80,4% of feet a tendon strip connected the navicular tuberosity with the medial cuneiform bone. The course of the tendon continued towards plantar dividing into several strings which inserted at up to eight bones of the foot. In 87,8% there was an additional footprint at the lateral cuneiform bone. More distally several tendon strips inserted at the calcaneus, the cuboid bone, the base of the 2nd, 3rd, 4th and 5th metatarsal. **Discussion** Surgical treatment of adult acquired flatfoot deformity is demanding due to the complex anatomy of the foot. Tendon transfers are frequently used to reconstruct the medial arch of the foot. Anatomic reconstruction of the TPT should be performed with profound knowledge of the insertional anatomy to restore normal foot function.

Abstract no.: 44921

**DYSMETRY OF LOWER LIMBS AFTER HIP ARTHROPLASTY:
IMPORTANCE OF INTRA-OPERATIVE ASSESSMENT**

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Dysmetry of lower limbs after a total hip arthroplasty is still today one of the most common complications. The versatility of the current surgical techniques offer the possibility to reproduce in a prothesised hip the same characteristics of the physiologic one, preventing dysmetry. It was conducted a multicentric study involving Garibaldi Catania Hospital and S.Giovanni Calibita Hospital -Fatebenefratelli in Rome. Patients affected by arthritis were included and patients with controlateral prosthesis, dysplastic, rheumatologic or traumatic hips were excluded. The study involved 77 patients aged between 65 and 80 years (mean age 70 years), 32 men and 45 women. Dysmetry cases greater than 1 cm were 12. Clinical and radiographic check-up were performed (AP load x-rays) at 3-6-12-18 months post-op. Analysis of radiological parameters mentioned above showed that among 77 patients, 12 had a hypermetria of the operated extremity, with values between 10 and 13 mm (11.8 mm average value). An appropriate preoperative planning significantly reduces the risk of complications and allows the orthopaedic surgeon to plan the correct choice of prosthetic elements, so to obtain appropriate femoral and acetabular offset, improvement of lever arm of abductor muscles and therefore limb eumetria. Despite having clear this purpose, the need for intra-operative stability can lead to a variation of these anatomical parameters. Our study pointed out that an appropriate pre-operative planning and intraoperative measurements can reproduce the anatomy and morphometric parameters and can reduce dismetry.

Abstract no.: 44923

LOCKED INTRAMEDULLARY NAILING VERSUS DYNAMIC COMPRESSION PLATING FOR HUMERAL SHAFT FRACTURES

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Purpose. To compare functional outcomes, union and complication rates in patients treated with locked intramedullary nailing or dynamic compression plating for humeral shaft fractures.**Methods.** 32 men and 2 women with humeral shaft fractures were randomised to undergo locked antegrade intramedullary nailing (IMN, n=16) or dynamic compression plating (DCP, n=18). Patients with pathological fractures, grade-III open fractures, neurovascular injury, or fractures for more than 2 weeks were excluded. Fractures were classified according to the AO classification system (one in A1, 6 in A2, 12 in A3, 6 in B1, and 9 in B2). 28 were injured in road traffic accidents. The functional outcome (according to the American Shoulder and Elbow Surgeons [ASES] score) and rates of union and complication of the 2 groups were compared.**Results.** All patients were followed up for a minimum of 24 months. In the respective IMN and DCP groups, the mean ASES scores were 45.2 and 45.1 ($p=0.69$), the complication rates were 50% and 17% ($p=0.038$), and the non-union rates were 0% and 6% ($p=0.15$). In the IMN group, 2 sustained iatrogenic fractures during nail insertion; 2 had transient radial nerve palsies; one underwent nail removal for shoulder impingement; and 3 had adhesive capsulitis. In the DCP group, one underwent re-operation for implant failure; one had a superficial infection; and one developed adhesive capsulitis.**Conclusion.** The complication rate was higher in the IMN group, whereas functional outcomes were good with both modalities

Abstract no.: 44929

A CLINICAL STUDY OF AUTOLOGOUS BONE MARROW GRAFTING AS A SUBSTITUTE FOR OPERATIVE BONE GRAFTING

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Objectives:To Treat Delayed Unions, Non Unions, Simple Bone Cysts With Autologous Bone Marrow Grafting. To Assess The Applicability Of Bone Marrow Grafting As A Substitute For Operative Bone Grafting, Clinically And Radiographically.**Methods:** In This Study 20 Cases Have Been Treated during April 2010 To July 2012**Results:**In Case Of Delayed Union And Non-Union The Results Were Graded As Excellent, Satisfactory, And Failure As Per Hanson And Eppright(1996) Criteria Whereas In Case Of Simple Bone Cyst Results Were Graded As Excellent, Satisfactory, And Poor According To Modified Garceau And Gregory(1954)Criteria. Out Of The 5 Delayed Union Cases 3 Had Excellent Results And 2 Had Satisfactory Results.Out Of 7 Non-Union Cases 2 Had Excellent Results,3 Were Satisfactory And 2 Were Failure. Out Of 8 Cases Of Simple Bone Cyst 7 Cases Were Excellent And One Was Lost To Follow Up.**Conclusion:** Autologous Bone Marrow Grafting Can Be Effectively Used In The Treatment Of Delayed Unions, Non-Unions And Simple Bone Cysts. The Bone Marrow Graft Is An Excellent Substitute For Operative Bone Grafting In Above Mentioned Conditions, But Its Applicability In Conditions Which Require Open Surgery Is Limited. It Is Safe,Easy,Time-Saving And Involves Minimal Trauma & Can Be Repeated Easily If Necessary. It Avoids Complications Which Are Seen In Conventional Bone Grafting.Although Bone Marrow Grafting Doesn't Promote Healing More Rapidly Than Would Standard Operative Grafting It Has Many Distinct Advantages Over The Latter. It Can Be Done In Cases Which Are Not Fit For Open Bone Grafting Because Of Poor Condition Of The Overlying Skin.

Abstract no.: 44931

EXPERIENCE OF SUPRACONDYLAR CHEVERON OSTEOTOMY FOR GENU VALGUM IN 115 PEDIATRIC KNEES

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Purpose: Medial close wedge Coventry type osteotomy is commonly performed procedure for pediatric Genu valgum. However this osteotomy has some inherent problems, a wedge resection causes shortening of affected site. An additional plate for stabilization causes increase in soft tissue dissection and surgical time. A cheveron osteotomy is an alternative procedure, not requiring any internal fixation due to its inherent stability. We started this study with aim to analyze the results of Cheveron osteotomy, too see if the osteotomy was stable enough without implants, time required for healing of osteotomy, post-operative range of motion, limb length discrepancy and to evaluate any other complication.**Methods:** This study was conducted to evaluate the efficacy of cheveron osteotomy in cases with genu valgum in our department from 2005-2012.. 75 children with 115 knee deformities were included in the study. Patients were followed upto minimum 3 years post surgery. Clinical and radiological assessment was done on all subsequent visits.**Results:**Preoperative mean valgus angle was 21 degree (12-30 degree). The mean post-operative angle was 6.5 degree. The difference was statistically significant. The mean tourniquet time was 26 minutes and mean surgical time including plaster cast application was 38 minutes. Mean blood loss was 75 ml. The mean time to union was 10.3 weeks.**Conclusion:** Supracondylar cheveron osteotomy is simple, stable, low cost osteotomy for surgical correction of genu valgum. The osteotomy provides excellent clinical, radiological and functional results in short surgical time and has an added advantage of omitting the need of second surgery.

Abstract no.: 44932

EARLY CLINICAL RESULTS USING A BIPHASIC BONE GRAFT SUBSTITUTE AFTER INTRALESIONAL CURETTAGE IN BENIGN BONE TUMORS OR CYSTS

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Introduction: We aimed to evaluate the early clinical results using a biphasic bone graft substitute for bone defect reconstruction after curettage of benign bone tumors or cysts. Methods: We prospectively reviewed 22 patients (F/M: 11/11, mean age 29 (7-68) years) who underwent curettage of 23 benign bone tumors or cysts and bone defect reconstruction with a biphasic (60% calcium sulfate/40% calcium phosphate) bone graft substitute (CERAMENT™|BONE VOID FILLER (BVF) or CERAMENT™|G) at our orthopedic oncology center from July 2014 until August 2015 (minimum 6 months follow-up). Results: Most frequently treated were uni- or multicameral bone cysts (n=8) and enchondromas (n=5) with an average size of 12 (2-33) mL. The proximal femur (n=6) and the proximal humerus (n=5) were most frequently affected. CERAMENT™|BVF was used in 17 cases and CERAMENT™|G in 6 cases. Free mobilization was allowed postoperatively (n=9) or after 13 (2.5-39) weeks judged by radiographic and clinical examination. The biphasic material showed radiographic signs of resorption in all cases visible from around 6 weeks, and in 1 case it leaked into the soft tissue. Eighteen patients experienced no postoperative complications, while 4 patients had 5 complications (1 fracture (after relevant trauma), 1 superficial infection, 1 deep venous thrombosis, 1 delayed wound closure (>7 days), and 1 transitory nerve palsy). Conclusion: We found that intralesional curettage and bone defect reconstruction with a biphasic bone graft substitute seems to produce clinical results comparable with our conventional treatment with cancellous bone allografts and a low rate of product related postoperative complications.

Abstract no.: 44933

CUT-OFF POINT OF THE POSTOPERATIVE MECHANICAL ALIGNMENT OF THE LOWER LIMB REQUIRING FOR THE OPTIMAL POST-OPERATIVE CLINICAL SYMPTOMS IN PATIENTS RECEIVED TOTAL KNEE ARTHROPLASTY EVALUATED BY AKAIKE INFORMATION CRITERIA

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The aim of this study was to examine the cut-off point of the post-operative mechanical alignment of the lower limb influenced the postoperative symptoms who underwent conventional total knee arthroplasty (TKA). The 87 painful medial knee OA patients with Kellgren-Laurence grade 4 scheduled for primary TKA were enrolled in this study. We performed TKA using intramedullary femoral guides and extramedullary tibial guide. The whole-leg standing radiographs were taken before and one year after surgery. On radiographs, femoro-tibial angle (FTA), Hip-Knee-Ankle angle (HKA) and the mechanism axis percentage (MA%; defined as the percentage in which the mechanical axis bisects the total width of the tibia) were measured. The clinical symptoms were evaluated by the patient-oriented outcome measure, the Japanese Knee Osteoarthritis Measure (JKOM). The cut-off values of post-operative radiographic parameters that divided patients into two groups in terms of the post-operative outcome were calculated using Akaike Information Criteria (AIC). The MA% was revealed to be able to establish the cut-off value using AIC, while the FTA and HKA were not. The 44 of 87 patients were classified into the MA% inliers group (40-60%), while the remaining 43 patients were classified into the MA% outlier group (< 40%, 60% <). The JKOM scores one year after surgery in MA% inliers group were significantly improved in comparison to those in MA% outlier group (p<0.05). In conclusion, the post-operative MA% within the range from 40 to 60 should be shown to obtain the better post-operative outcome in patients who underwent TKA.

Abstract no.: 44934

DELAYED THA FOR FAILED ACETABULAR FRACTURES: THE INFLUENCE OF INITIAL FRACTURE MANAGEMENT ON OUTCOME AFTER ARTHROPLASTY – A PROSPECTIVE COMPARATIVE ANALYSIS

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We aimed to compare the midterm clinical, functional results and component survival after total hip arthroplasty (THA) in patients with failed acetabular fractures following initial surgical or non-surgical fracture treatment. 47 patients underwent cementless THA following failed surgical or non-surgical treatment of acetabular fractures. 27 were initially treated by surgery (group 1) and 20 had non-surgical treatment (group 2). Intraoperative measures, clinico-radiological, functional outcome and component survival were compared between the 2 groups. The mean surgical time, blood loss and need for blood transfusion were significantly less in group 1 (P value < 0.05). Additional reconstructive procedures to address acetabular defects were needed in a significantly high number of patients in group 2 (group 1 – 11 and group 2 -15, P = 0.03). Acetabular component survival with aseptic loosening as the end point was 100% in group 1 and 95% in group 2. Mean Merle D'Aubigne (9.7 to 15.1 in group I and 7.4 to 14.5 in group II) and Oxford scores (16.7 to 41.9 in group I and 9 to 41.5 in group II) showed significant improvement and were similar between both groups (P = 0.12). The complication rate was significantly high in group 2 [group 1 – 8, group 2 – 16 (P < 0.001)]. Conclusions: THA for failed acetabular fractures is greatly facilitated by initial internal fixation. Failed non-surgical treatment in associated fracture patterns present with acetabular defects requiring prolonged surgery, blood loss and complex reconstruction.

Abstract no.: 44938

COMPLICATIONS OF VOLAR PLATING OF DISTAL RADIUS FRACTURES (576 CASES)

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Introduction: The current trend in treatment of displaced distal radius fractures favours volar plating. However, recent studies question both the clinical advantage and the cost effectiveness of this treatment modality. An alarming number of complications ranging from 5 to 30% have previously been reported. The aim of the study was to estimate the complication rate of volar plating of distal radius fractures in correlation to surgeon experience, type of plate (VariAx® and AcuLoc®) and AO-fracture type. Material: We reviewed all cases operated with a volar locking plate at Aarhus University Hospital between February 2009 and June 2013. Surgeon experience was categorized as orthopaedic consultant, 2nd-5th-year resident, or 1st-year resident. Correlation coefficients between complications, surgeon's experience, type of volar plate and type of fracture(AO) were estimated. Results: 576 patients (median age 63, 78% females) presenting with distal radius fractures were operated with a volar plate by 21 consultants, 27 2nd-5th-year residents and 16 1st-year residents. Within the mean observation time of 3.2 years (min=1.0; max 5.4) 69 reoperations were performed including 44 plate removals. We observed 30 nerve complications, 4 flexor tendon ruptures, 12 extensor tendon ruptures, 3 cases of complex regional pain syndrome, 5 disturbances of the distal radius ulna joint or scapholunar dissociations and 2 deep infections. No correlation was found between complication rates and type of plate or surgeon experience. We observed significantly more intraarticular fractures in the complication- than in the no-complication group($p<0.01$). Conclusion: The reoperation rate was 12%. Only type of fracture was related to complications.

Abstract no.: 44939

ROLE OF ANTIBIOTIC IMPREGNATED BONE CEMENT ROD IN CONTROL OF BONE INFECTION AND ASSESSING ITS ROLE IN UNION IN CASES OF INFECTIVE NON-UNION OF LONG BONES.

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Introduction: Infection is favored by devitalization of bone and soft tissue and loss of skeletal stability. The aims of treatment are salvage of the limb, fracture healing without infection and restoration of function. Aims: To assess the effectiveness of Reinforced Antibiotic impregnated Bone Cement (RABC) rod in control of bone infection and to assess the rate of union using Reinforced Antibiotic impregnated Bone Cement (RABC) rod. Materials and Methods: It was a prospective study carried out at Dr. D.Y. Patil Medical College and Research Center Pune from August 2013 to November 2015 which included 11 patients of established infected non-union of long bones involving bones of upper and lower limbs. All the patients were treated using a reinforced antibiotic bone cement (RABC) rod. Results: Out of 11 patients seven patients experienced no recurrence of infection. Four patients continued to have draining wounds but the discharge was significantly reduced. In two cases it was a thin watery fluid and in two other cases the discharge persisted as a purulent discharge, which was greatly reduced in volume. Six cases showed complete union at six months or earlier. Two cases showed significant callus formation. In three cases there was no callus formation at fracture site till six months. Conclusion: Although the case material in this case series is limited to a small group of patients, we conclude that RABC is the treatment of choice for infective non-union of long bones.

Abstract no.: 44940

PREOPERATIVE ACETABULAR INTEGRITY, IS IT IMPORTANT FOR GOOD FUNCTIONAL OUTCOME OF TOTAL HIP REPLACEMENT?- A SHORT TERM RETROSPECTIVE EVALUATION OF ATRAUMATIC AVN HIP AND POST ACETABULUM FRACTURE SEQUEL

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Avascular necrosis of femoral head (AVN) and post traumatic sequelae are very common indications for total hip replacement (THR). While AVN involves the femoral head, sparing the acetabular anatomical integrity, sequelae of acetabular fractures often lead to compromised bone stock and anatomy. The present retrospective study answers the question that whether or not the integrity of acetabulum is a factor in the final outcome of the hip replacement surgery. The present study includes 50 AVN hips and 32 post acetabulum fractures who underwent THR in our institute. They were assessed for functional outcome using standard Harris hip score and their quality of life was assessed using Short musculoskeletal functional assessment (SMFA) and SF 36 scores. The mean HHS in AVN hips was 87.04 and in acetabulum fractures, it was 84.25 with no statistically significant difference between the two. Both the quality of life scores did not yield any statistically significant difference between the two groups either. Hence, the conclusion out of this study is that there is no role of acetabular pathology in the final outcome of total hip replacement.

Abstract no.: 44942

OPEN REDUCTION VERSUS IN-SITU FIXATION OF NEGLECTED LATERAL CONDYLE FRACTURES: A COMPARATIVE STUDY

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Introduction :management of neglected fracture of lateral condyle of humerus is controversial. Careful neglect and conservative management with early ulnar nerve transposition and ostetomy, in-situ surgical fixation and accurate open reduction and internal fixation, are all recommended as treatment options. Since the functional loss is not severe; in situ fixation of the fragment provides a good alternative. There have been proponents of both surgeries with a very limited data on comparison on both procedures. We here present our experience of 45 patients – 22 treated with anatomical reduction and 23 treated with in situ fixation with no attempts of anatomical restoration and tried to evaluate the results of two surgeries. Materials and method: neglected fractures of lateral condyle were surgically treated with two different techniques. Patients were followed for minimum of 2 years These patients were studied in terms of functional scores and radiological union. Results : radiological union was better in anatomical reduction group with 1 non union compared to 5 in in situ group. However functional results and elbow range was better in in-situ fixation group. The surgical time was 57 min in in-situ fixation compared to 73 min in anatomical reduction group. Complication rate were found to be high in open reduction group. Conclusion : In situ fixation of neglected lateral condyle fractures is an effective technique for treatment of these difficult fractures presenting late compared to anatomical fixation. Radiological union though is less successful compared to open anatomical reduction, but these have better functional outcome.

Abstract no.: 44948

QUANTITATIVE BONE MINERAL CHANGES EVALUATED BY DEXA AFTER BONE DEFECT RECONSTRUCTION USING A BIPHASIC BONE GRAFT SUBSTITUTE AFTER INTRALESIONAL CURETTAGE IN BENIGN BONE TUMORS OR CYSTS

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Introduction: Dual energy x-ray absorptiometry (DEXA) produce quantitative measurements of bone mineral density (BMD) at various skeletal sites. We aimed to document early changes in BMD in patients receiving bone defect reconstruction with a biphasic bone graft substitute after intralesional curettage. Methods: We prospectively reviewed 8 patients (F/M: 3/5, mean age 40 (18-68) years) who underwent intralesional curettage of 9 benign bone tumors or cysts in the appendicular skeleton with subsequent bone defect reconstruction with a biphasic (60% calcium sulfate/ 40% calcium phosphate) bone graft substitute (CERAMENT™|BONE VOID FILLER (BVF) or CERAMENT™|G) at our orthopedic oncology center from July 2014 until August 2015 with a minimum of 6 months follow-up. Results: The most commonly treated lesions were uni-/multi-cameral bone cysts (n=3) and enchondromas (n=3) with an average size of 17 (6-33) mL. The most commonly affected regions were the proximal femur (n=3), and the proximal humerus (n=2). CERAMENT™|BVF was used in 6 cases and CERAMENT™|G was used in 3 cases with an average amount of 17 (4-56) mL. The mean postoperative BMD was 2.70 g/cm² (CI95%: 2.11-3.30), 1.44 g/cm² (CI95%: 1.14-1.76) at 6 weeks, 1.28 g/cm² (CI95%: 0.94-1.61) at 3 months, and 1.21 g/cm² (CI95%: 0.84-1.58) at 6 months. Conclusion: In this small prospective series of 8 patients receiving bone defect reconstruction with a biphasic bone graft substitute, we found that the defect site BMD decreases in the first three months, probably corresponding to the resorption of calcium sulfate, without any further significant decrease from 3 to 6 months.

Abstract no.: 44955

A RARE CASE OF OBTURATOR INTERNUS PYOMYOSITIS IN A YOUNG CHILD, REFERRED AS SEPTIC ARTHRITIS OF THE HIP.

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Introduction: Pyomyositis is a rare infectious disorder of skeletal muscles characterized by pain and swelling of inflammatory sites. It is often difficult to make a differential diagnosis between pyomyositis and septic arthritis of the hip. Pyomyositis predominantly affects quadriceps or gluteal muscles and there are a few papers about affected obturator internus muscle. We report a rare case of obturator internus pyomyositis, referred as septic hip arthritis. Case Report: A 9-year-old boy presented to another hospital with a painful left hip and fever, following minor trauma. On the 5th day of the onset, he had a temperature of 39 degree, the left hip pain and inability to walk. He was diagnosed with septic hip arthritis and referred to our hospital. On our first examination, he fixed his left hip in flexion and external rotation position. And his severe hip pain restricted extension and internally rotation. Laboratory examination revealed WBC of 7800/ μ l, CRP of 16.4mg/dl and ESR 71mm/1hr. Normal MRI demonstrated slightly increased signal in the left internus obturator region. Gadolinium-enhanced MRI clearly demonstrated ring enhancement of internus obturator and cavities in the ischium. Blood cultures grew Staphylococcus aureus. We diagnosed his condition as pyomyositis of internus obturator. After diagnosis, continuous intravenous antibiotics led to reduced inflammatory response and MRI free of abnormalities. Conclusion: We report a rare case of obturator internus pyomyositis in a child. Our experience reveals that Gadolinium-enhanced MRI was very useful to diagnose obturator internus pyomyositis.

Abstract no.: 44956

RELATIONSHIP BETWEEN HAND FUNCTIONS AND BALANCE IN CHILDREN WITH CEREBRAL PALSY

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Introduction: This study was planned to examine the relationship between hand function and balance in children with Cerebral Palsy(CP). Methods: 15 diparetic or hemiparetic CP children, between the ages of 5-15, was included in the study. They were at Level I, II or III according to Gross Motor Function Classification System(GMFCS), applied Neurodevelopmental Therapy(NDT). Intensive NDT were applied to increase the functional and motor skills for 8 weeks. Evaluations were repeated before and after treatment. MACS for functional hand using skills, 10 meter-walk test, 1 minute-walking test and Pediatric Balance Scale for balance capabilities of children with CP were used. Results: Mean ages of the patients were 120.40 ± 31.69 months and 7(46.7%) were female, and 8(53.3%) were male. 8(53.3%) patients were diparetic, 2(13.3%) were right hemiparetic and ve 5(33.3%) were left hemiparetic. According to the distribution of the pre-treatment MACS, 7 patients for level I, 7 patients for level II and 1 patient for level III were in the study, and after treatment all patients were in Level I. Although improvements were detected in hand function and balance scores after treatment, hand using skills and balance scores were not correlated. Conclusion: It is known dexterity and balance in children's with CP could be improved with proper treatment and and clinical recommendations, and good functional hand using is effective on development of balance, positively. It is important to evaluate children and disability and interventions improving the functionality is required, while rehabilitation programs are planned.

Abstract no.: 44957

DUAL MOBILITY CUP IN FEMORAL NECK FRACTURES FOR HIGH RISK PATIENTS.

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Dislocation is the most frequent complication when displaced femoral neck fractures are treated by hip replacements. The type of arthroplasty to be used in this clinical setting is still controversial above all in high-risk patients with obesity, cognitive impairment and neurologic diseases. Dual mobility cups have been reported to have a low dislocation rate when used to manage these situation. From January 2013 to November 2015, 68 displaced femoral neck fractures were treated using a dual mobility cup as the acetabular component. There were 49 females and 19 males. The mean age at operation was 69,5 years (range 49÷86). All the patients were operated via posterior approach with adequate capsular repair. The study cohort was classified according to the following 5 risk factors known to be associated with dislocation: femoral neck fractures, obesity, cognitive impairment, neurologic diseases and revision surgery. Twenty-four patients knew a single risk factor, whereas 16 patients presented two risk factor and only six patients three or more of them. None of the patients was lost to follow-up. One obese patient (BMI>40) had early postoperative infection followed by multisystem organ failure leading to die. One intraoperative femur fracture occurred. For the whole series, there is no revision for dislocation. The use of dual mobility cups has modified and improved our approach to femoral neck fractures in high-risk patients. Further experience is needed before extending the application of this implants, to assess the cost-benefit ratio including complications of a longer procedure with its potential acetabular complication.

Abstract no.: 44968

MORSELIZED BONE GRAFTING IN TOTAL HIP ARTHROPLASTY WITH DYSPLASTIC HIP

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Total hip arthroplasty is a standard treatment for patients with symptomatic osteoarthritis secondary to developmental dysplasia of the hip. Better long-term survival have been observed among patients who have undergone anatomical hip reconstruction. However, as a result of deficient acetabular bone loss, autogenous bone grafting was performed to improve acetabular coverage. In acetabular reconstruction in patients with dysplasia at our institution, we routinely place the cup at the anatomical hip center or slightly high hip fixation aiming at cup-CE angle 0 degree. The purpose of this study was to evaluate the 5- to 11-year follow-up result of dysplastic hip with cementless cup without bulk bone or reconstruct-ring. There were 101 primary THA. We examined the clinical and radiographic evaluation. Cup coverage and hip center were measured as cup-CE angle and horizontal and vertical distance. The minimum cup-CE angle was -2° (mean, 20.3°) and tended to be high hip center and many bone graft. No cup revisions were required, and there was no radiographic loosening. All cases uses morselized bone only and no need for bulk bone. Low CE angle, even if lower than 0° , as long achieved good press-fit fixation, not only long-term results are obtained, remodeling of the bone can be expected.

Abstract no.: 44972

ROLE OF DIFFERENT TREATMENT MODALITIES IN THE MANAGEMENT OF PLANTAR FASCITIS: A DOUBLE BLIND, RANDOMIZED CONTROLLED STUDY

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Introduction: Although many treatment modalities including rest, stretching, strengthening, change of shoes, arch supports, orthotics, night splints and anti-inflammatory agents have been advocated for plantar fasciitis, there is no report in the literature which compares the independent effectiveness of each treatment modality without the concomitant use of any other one. Methods: A double blind, randomized controlled study was undertaken where 100 patients of plantar fasciitis were divided into four groups with 25 patients each. Patients in four groups received analgesics, hot water fomentation and silicon heel pads, plantar fascia stretching and calf stretching exercises respectively. Heel pain was evaluated using Foot Function Index (FFI) and disability using Foot and Ankle Disability Index (FADI). Clinical evaluation was done weekly upto a period of 3 months. Results: Mean age of patients was 41.9 ± 12.2 years with median duration of symptoms being 12 weeks. Both FFI and FADI showed statistically significant improvement at 3 months in all the four groups (p value < 0.0001 for all groups). However, group 3 (plantar fascia stretching exercises) was observed to show best results in terms of heel pain reduction (FFI) as compared to other groups (ANOVA, p value 0.0483). No statistically significant difference was found amongst the four groups in terms of disability (FADI) (ANOVA, p value 0.164). Conclusion: Plantar fascia stretching exercises provide maximum relief from heel pain in patients with plantar fasciitis.

Abstract no.: 44976

RELATIONSHIP BETWEEN PAIN INTENSITY AND ANXIETY RELATED SURGERY ON PATIENTS PLANNED LUMBAR SURGERY

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Introduction: The aim of this study was to investigate preoperative pain intensity and anxiety level related to surgery in patients scheduled to lumbar surgery. Methods: Forty eight lumbar surgery scheduled patients due to various reasons were included in study. Patients' socio-demographic and clinical informations were noted and a questionnaire was formed to investigate concern situation related to surgery. Additionally the State-Trait Anxiety Inventory (STAI-I) was used to measure preoperative state-trait anxiety and Visual Analog Scale(VAS) was used to investigate preoperative pain intensity. Results: The mean age of patients (M:19, F:29) was 58.02 ± 12.59 years. 34(70.8%) of the patients diagnosed with lumbar disc herniation, 9 (18.8%) patients with lumbar spinal stenosis, 4 (8.3%) patients with spondylolisthesis and 1 (2.1%) with spondylitis. The mean pain intensity was 5.13 ± 3.42 at rest, 7.23 ± 3.11 in activity, 5.35 ± 3.81 in sleep. The mean STAI-I score was 45.66 ± 17.71 . It was observed that as pain intensity increases, state of anxiety also increases. A moderate correlation was found between pain intensity in activity and STAI-I state-trait anxiety score ($p=0,029$, $r=0.315$). Conclusion: We believe it is important that to be informed the patients about surgery is reduced anxiety, before surgery.

Abstract no.: 44977

LEVEL OF BONE MINERAL DENSITY IN CHILDREN

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The purpose: determine the age factors and value the age dynamics of mineralization bone tissue in children. The material and methods: study was organized in 64 children (4-11 years), youth and girl (12-14), selected at outpatient and observation dispensary or pertaining to the prophylaxy (and 127 patients) with orthopedic pathology with suspicion on osteopenic condition (43). Except clinical examination, was conducted x-ray examination Ultrasound densitometry and method double energetic x-ray densitometry (DXA) of the lumbar segment of the spine, proximal segments offemoral bone. The results and discussion: accumulation of bone mineral density of bone tissue at boys and girls in all explored area occurs unevenly. The total value of growth of density of bone in all explored area at boys for period from 6 to 17 years above, than at girls. On the basis of obtained values of MBDT, by using the equation of linear regression and calculated expected part of trendlines was determined peak of the bone mass at girls (14-17 years). From 14 at girls and from 15 years at boys MBDT of whole skeleton above, than in group of the checking for 6,0% and 6,4% accordingly. By comparing MBDT of lumbar segment of the spine and neck of the femoral bones at youth from group of the study with youth from group of the checking at age from 13 to 17 years difference value is obtained from 1,0 to 4,0%. Conclusion: early diagnosis of osteopenia states allows timely drug correction of pathology, which in turn helps to reduce the risk of distortions and fracture, reduce treatment costs.

Abstract no.: 44984

EXTERNAL SKELETAL FIXATOR AS ACCURATE FRACTURE REDUCTION DEVICE, BEFORE INTERNAL FIXATION. WHEN AND WHERE EXTERNAL FIXATION CAN BE USED AS DEFINITIVE METHOD OF FRACTURE TREATMENT?

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Introduction. External skeletal fixation has already become as routine temporarily method of fracture bone fixation. External skeletal fixation (especially hybrid devices) has also been accepted in many developed countries as important method in the treatment of complex articular fractures (knee, ankle, elbow). In some indication external skeletal fixation is recognized as definitive treatment method. Objectives. The goal of this paper is presented possibility of using of already applied external fixator as a tool - as accurate reduction device, before internal fixation and to present indications when and where external fixator can be used as a definitive treatment method. Material and methods. One week after external fixation, external fixator device, if need, was used as accurate reduction device on the new and simple method. Once, desirable fracture reduction achieved, internal fixation is very easy with no need for prolonged fluoroscopy control. Results. Transforming of external into internal fixation in femoral fracture treatment, was short - average operation time was 34 minutes (23-52). Mean fluoroscopy time was 4 sec (2-18). Intraoperative blood loose was 80 ml (40-200). There are presented indications when and where external skeletal fixation can be as definitive method of treatment of tibia, radius and humerus. Conclusion. From results obtained it can be concluded that high mobile external fixator is suitable for routine fractures fixation but also to be used as accurate reduction device during the transformation of external to internal fixation. External fixation can be used as definitive treatment method in certain indications.

Abstract no.: 44987

MANAGEMENT OF CLUBFOOT BY JOSHI EXTERNAL STABILIZING SYSTEM

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Background And Objectives: Many Patients Come To Orthopaedic Department With Neglected Ctev, Plaster Of Paris Drop Out Cases Or Failed Surgical Procedures. We Aimed To Study A Short Term Follow Up Of 16 Patients With 4 Bilateral Cases Treated With Jess. Regarding Cosmetic, Functional And Anatomical Outcome. Methods:16 Children Underwent 20 Jess Procedures At Department Of Orthopaedics From September 2011 To September 2012, Patients Were Followed Up Regularly. Three Dimensional Correction Was Achieved By Use Of The Distractor Device. Results : Excellent Results Were Obtained In 15 Feet, Good Results In 2 Feet And Fair In 1, Poor In 1. Most Common Complications Encountered Was Pin Tract Infection Which Eventually Healed On An Out Patient Basis Without Any Residual Sequelae. Interpretation And Conclusion : The Joshi's External Stabilization System Frame Is Ideally Suited For Child In Whom Clubfoot Deformities Remain Uncorrected By Plaster Of Paris Cast And Manipulations As Well As Recurrent / Relapse Club Foot. The Parents Learn The Distraction Technique Easily And Were Compliant. Once The Jess Frame Is Removed, Casting Is Done Which Protects Osteopenic Bone And Maintains Correction Achieved And Also Allows Gradual Weight Bearing. The Procedure Is Less Invasive And Results Are Good, Irrespective Of Severity Of Deformity

Abstract no.: 44995

WHICH FEMORAL FRACTURES WILL NEED DYNAMIZATION DURING THE SURGICAL TREATMENT?

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Introduction. Dynamization, especially axial one, is recognized as method which encourages bone union. Objectives. Dynamization is happened in about 20-25%, according to the literature. However, we still don't know in advance, which patient will need dynamization. The goal of this paper is to show one new implant (extramedullary nail) which has feature spontaneously to become axially dynamic 6 weeks after the operation, if union is delayed. Material and methods. We analyzed series of 849 patients with 871 fractures treated by the use of extramedullary nail, one selfdynamizable internal fixator for proximal, diaphyseal and distal femur fractures treatment. Results. The average operative time was 44 minutes (23-119), average fluoroscopy time was 12 seconds (6-92) while average blood loss of 90 milliliters (60 to 250 milliliters) when minimally invasive technique used. None of the patients developed complications during the intraoperative period. Healing time was 3.9 months (3-9). Healing was achieved in 99.1%. Superficial infection developed after 7 fixations (0.9%) while deep infection developed in 8 patients (1.0%). The screw breaking occurred 6-18 weeks after 19 fixations (2.6%). Cut out phenomenon happened in 24 cases. Spontaneous axial dynamization was observed in seventy-one patient (23.8%), 5 millimeters on average (2 to 12 millimeters). Conclusion. Extramedullary nail, as a selfdynamisable internal fixator, is one effective method and device for the treatment of femoral fractures but at the same time can be regarded as one suitable tool to define the need for axial dynamisation.

Abstract no.: 44998

OSTHEOSYNTHESIS FOR TRAUMATIC C2 SPONDYLOLISTHESIS IN A PEDIATRIC PATIENT AND ASSISTED WITH NAVIGATION

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Most of Vertebral fractures in childhood are treated conservatively. There is surgical indication when craneo-cervical instability, progressive neurological compromise, displaced odontoid fractures, displaced or angled Hangman fracture, > 20 ° of kyphosis, thoracolumbar fractures with kyphosis > 20 ° , multiple compression fractures or anterior wedging > 50% . MATERIAL AND METHODS: A male patient 6 years old was attended at the emergency department with severe neck pain after a trampoline accident. He suffered a functional impotence because of the pain but without neurological deficit. The radiological image shows articular fracture of C2 pars bilateral, Levine type I. MRI doesn't show any disco-ligamentous pathology and confirms the fracture. Initially we went for conservative treatment with Philadelphia collar type, having a good lineup in radiographs. Unfortunately 4 weeks later the patient suffered another fall and the radiographic study showed a displacement of the previous fracture , now described as C2 Fracture Levine type II. RESULTS: We performed osteosynthesis surgery of the fracture with cannulated screws ,partially threaded, through miniopen approach assisted by navigation type O-Arm and neurophysiological control. Clinical Reviews were satisfactory with fracture healed. DISCUSSION: The fracture displacement in this patient was the indication for surgery. In this case we prefer to make a fixation of the fracture by cannulated screws, thus avoiding a C2-C3 fusion, with a good functional outcome. By using navigation we get detailed and real-time images during surgery, which allows us greater precision, reduce the surgery length and lower radiation which together is an advantage for the patient.

Abstract no.: 44999

OSTEOMYELITIS BURNS IN THE FIRE OF REGENERATION

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Introduction: Chronic osteomyelitis is very common in Bangladesh. We have treated 155 cases during the last 30 years. Of these, 85 were severe. Severity was measured by two parameters. 1. Cierny-Mader classification, 2. Local status (sequelae) such as: a. The length of gap created after debridement, b. Shortening due to growth arrest and gap closure, c. Growth arrest, d. Formation of involucrum, e. Presence of deformity. These cases were treated as follows: 1. Thorough debridement; removal of sequestrum, curetting cavity. 2. Acute docking, if acute docking is not possible, then gradual docking is done. 3. Condyrodiastasis or corticotomy and application of Ilizarov frame. Gaps were closed by bone transport. Lengthening was done as required. Deformities were corrected by the Ilizarov frame. 4. Pan-diaphyseal osteomyelitis with pathological fractures were treated by only the stable fixation of Ilizarov with full weight bearing and motion. Conclusion: Radical removal of all dead tissues, lengthening of bone and bone transport have given excellent results. Children tolerate multiple lengthening very well. Bold resection and bone transport have revolutionized the treatment of chronic osteomyelitis. Recurrence is not due to resistant organism but to inadequate debridement.

Abstract no.: 45007

**EVALUATING THE RELIABILITY OF RADIOGRAPHIC MEASUREMENTS
IN CLUBFOOT**

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A prospective study on 65 children with 91 clubfeet was conducted to determine the reliability of radiographic measurements of the foot in children with clubfoot in terms of correlation with clinical assessment and reproducibility of measurement. The degree of rigidity of the forefoot adduction, hindfoot varus and heel equinus for each clubfoot was rated. Radiographic measurements of the talocalcaneal angle in antero-posterior and lateral views, talo-first metatarsal angle and tibiocalcaneal angle were made. Only the talo-first metatarsal angle showed values significantly affected by the degree of rigidity of the corresponding deformity ($p < 0.01$), thereby making it the only measurement that correlates well with the clinical assessment. In clubfeet that corrects 100% on passive stretch, the angular measurements differed significantly from corresponding measurements made on normal feet ($p < 0.001$), signifying that clinical assessment does not correlate with radiographic measurements. To determine the degree of reproducibility of radiographic measurements, interobserver and intraobserver agreement was measured. All four angles studied proved to be highly reproducible.

Abstract no.: 45012

COMPARISON BETWEEN RADIAL HEAD RESECTION AND OPEN REDUCTION AND INTERNAL FIXATION IN TREATMENT OF DISPLACED RADIAL HEAD FRACTURES

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Background: Radial head and neck fractures are common injuries of the elbow. Displaced radial head fractures treated by resection usually lead to a good functional outcome. The purpose of this study was to assess the functional results after open reduction and internal fixation of displaced radial head fractures. Methods: We conducted a study which included 29 patients with Mason type II and III radial head fractures. Patients were randomly assigned in two groups: group I treated using open reduction and internal fixation and group II which underwent radial head resection. Patients were clinically and radiologically assessed for twenty-six months after the injury, using Mayo Elbow Performance Score (MEPS) and Disabilities of the Arm, Shoulder and Hand (DASH). Results: Radiological changes were evaluated at the level of the elbow and wrist. Group II had a higher incidence of proximal migration of the radius, heterotopic ossification and degenerative changes, loss of supination, pronation and extension. The clinical results were satisfactory in 70% of the group II patients and in 60% of cases it was measured an increased valgus angulation of the elbow. Conclusions: Our data suggest that treatment of Mason II and III radial head fractures by terms of open reduction and internal fixation, offers better function compared to partial or complete resection

Abstract no.: 45014

STUDY OF OPEN ACROMIOPLASTY FOR SHOULDER IMPINGEMENT SYNDROME: A PROSPECTIVE STUDY OF 30 PATIENTS

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Subacromial impingement syndrome (SIS) is a frequent cause of shoulder pain. Acromioplasty is defined as the surgical removal of the anterior hook of the acromion to relieve mechanical compression of the rotator cuff during movement of the glenohumeral joint. Aim of study was to assess outcome of open acromioplasty in shoulder impingement syndrome and to evaluate the functional outcome of patients undergoing open acromioplasty. Functional outcome was assessed using the DASH (Disabilities of the Arm, Shoulder and Hand) score and pain was assessed using the VAS (Visual Analog Scale). In our study, mean pre operative DASH score was 47.06 with SD of 11.66 which improved to a mean of 18.06 with a SD of 16.86 postoperatively after 6 months. The mean preoperative VAS was 7.9 with a SD of 1.21 which improved to a mean post operative VAS score of 2.7 with a SD of 1.31 showing a mean improvement of 5.13 after 6 months post operatively. In our study of 30 patients, 24 patients (80%) showed excellent result, 3 (10%) showed good results, 1 patient (3.33%) showed a fair result while 2 patients (6.66%) showed poor results. Open Acromioplasty in our study showed promising results in the management of the same, thereby improving the VAS score, DASH score and the overall functional outcome. The patients showed improved functioning in overhead abduction with minimal or no pain at a short term follow up. Open acromioplasty thus became the treatment of choice as it required less skill, had a short learning curve and provided an economic management in our set up with minimal instrumentation and complications.

Abstract no.: 45018

PROSPECTIVE STUDY OF THE MANAGEMENT OF FRACTURES OF DISTAL END RADIUS USING EXTERNAL FIXATOR IN ADULTS

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Background & Objectives: Preservation of the articular congruity is the principle prerequisite for successful recovery following distal radius fractures. The main aim of this study is to evaluate the results obtained by treatment of distal end radius intra-articular fractures by external fixation. **Methods:** In a prospective controlled study, 25 cases of unstable distal end radius fractures with intra-articular extension were treated with uniplanar bridging static type of external fixation using the principle of ligamentotaxis. Mean age of the patients was 43.6 years, External fixator was applied for a mean duration of 6 weeks and cases were followed up for an average of 9.08 months post operatively. **Results:** Assessed as per modified De merit point system of Gartland and Werley for functional results at the end of 6 months of follow up. Excellent to good functional result was noted in 72%. **Conclusion:** External fixation and ligamentotaxis provides better functional and anatomical results in comminuted intra-articular distal radius fractures. The successful use of external fixator for distal end radial fractures requires careful assessment of fracture pattern, appropriate patient selecting, meticulous surgical techniques appropriate choice of fixation, judicious augmentation with internal fixation and bone grafting, careful post operative monitoring and aggressive early institution of rehabilitation.

Abstract no.: 45022

SURGICAL TREATMENT FOR PEDIATRIC ATLANTOAXIAL INSTABILITY WITH PEDICLE SCREW FIXATION: A LONG-TERM RETROSPECTIVE STUDY

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Objective: To explore the clinical effect of atlantoaxial pedicle screw fixation and fusion for pediatric atlantoaxial instability . Method: From January 2010 to January 2013, 21 cases suffered from atlantoaxial instability were undergone atlantoaxial pedicle screw fixation surgery and fusion in our hospital. There were 12 males and 9 females, with the average age of 8.6 years old. 10 cases were odontoid process fractures, 8 cases were congenital dissociate odontoid process, 3cases were combined atlas and axis fractures. All patients suffered from the atlantoaxial subluxation and atlantoaxial instability. All patients had various degrees of occipital neck pain 、 limited mobility and neurological dysfunction .Patients were treated with posterior atlantoaxial pedicle screw fixation and fusion .Atlantoaxial reduction, neurologic recovery, and bone fusion rate were assessed. Result: The postoperative radiographs showed good position of all screws and satisfactory atlantoaxial reduction . There were no spinal cord or vertebral artery injury after operation. The average blood loss was 210 ml , with the average operative time of 152 minutes. All cases were followed up for an average of 46.6 months(range , 37 to 69 months). All cases got bone fusion at 6-12 month postoperative. There was no looseness or breakage of screw-rod. The JOA score was improved from 7.5 ± 2.6 to 14.1 ± 1.8 postoperative. Conclusion Atlantoaxial pedicle screw fixation for the treatment of pediatric atlantoaxial instability is reliable and effective .

Abstract no.: 45023

A NOVEL MINI INVASIVE TECHNIQUE FOR INTERNAL FIXATION OF POSTERIOR CRUCIATE LIGAMENT AVULSION FRACTURES

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Introduction: Displaced tibial avulsions of the posterior cruciate ligament (PCL) often require an open surgical approach for internal fixation. Midline dorsal, posteromedial and arthroscopic assisted approaches have been described. **Objectives:** The purpose of this paper is to describe a new minimal access technique for screw fixation of displaced avulsion fractures of the (PCL). **Methods:** The technique involves making a 2.5 - 4 cm transverse incision along the posterior knee crease using fluoroscopy. The surgical access is created between the two heads of the gastrocnemius and maintained using a lumbar micro-discectomy retractor. The fracture is reduced and fixed using 4 mm screws. The length of the incision, surgical time and difficulties were recorded. Radiological outcome and functional outcome scores were assessed at 1-year post surgery. **Results:** 14 males and 8 females underwent the procedure. The mean length of the incision was 3.3 cm (range: 2.5 – 4 cm). The mean surgical time was 40 minutes (range: 25 – 50 minutes). No difficulties were encountered and no conversion to conventional open procedure was required. A CT scan taken at 6 months showed union in all patients. The mean IKDC score was 86.4 (83.9 – 90.8) at 1-year post surgery. **Conclusions:** The new minimal access technique achieves excellent results using a much smaller and cosmetic incision without increasing complications.

Abstract no.: 45024

CONTRIBUTION OF CARTILAGE TO SIZE AND SHAPE OF DISTAL HUMERUS: MRI ANALYSIS OF 78 HEALTHY ELBOWS

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Little is known about cartilage thickness of distal humerus and how it affects the shape of articular surface. Our aims were to assess the cartilage thickness and verify if the cartilage layer modifies the bone profile. We assessed 78 healthy elbows (39 patients, 19 females and 20 males) with a mean age of 28 years (range 21-32). High-definition MRI scans at the level of the flexion-extension axis were used. Cartilage thickness was measured in 19 different points of the articular surface: 13 on the trochlea and 6 on the capitellum in axial and coronal view. Bone diameters in sagittal view were evaluated at the medial and lateral trochlear ridges, trochlear groove and capitellum. The articular surface width was also assessed. Patient height was utilized as indirect measurement of humerus length. Pearson correlation and Student's t-tests were utilized. Cartilage thickness showed a significant variation (range 0,68-1,01mm) independent of gender and side. The cartilage thickness was thinner at the medial and lateral edges, whereas it increased at the level of the trochleocapitellar and trochlear grooves, the lateral trochlear ridges and the center of the capitellum. The bone diameter of medial and lateral ridges, trochlear groove and capitellum measured 25.1, 20.7, 16.8, 20.2 mm, respectively. The mean width of the articular surface was 42,8 mm (range 36,5-50,2mm). No significant correlation was found between cartilage thickness and bone dimensions. Cartilage thickness is not uniform and modifies the morphological shape and diameters of the humeral articular surface. These findings may be relevant to anatomical prosthesis design.

Abstract no.: 45027

A COMPARISON OF THE RESULTS OF MEDIAL AND POSTERIOR SURGICAL APPROACHES IN SUPRACONDYLAR HUMERUS FRACTURES IN CHILDREN

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Objectives This study compares results of the supracondylar humerus fracture patients which operated with medial exposure and triceps incised in reversed v fashion posterior exposure. Patients and methods 33 patients(20 males, 13 female, average age: 8, 3) have been treated with medial exposure were compared with 34 patients(19 male, 15 female, average age: 7, 5) treated with posterior exposure. Median follow-up period of first group was 35,04 months(range 17-76 months) and of the second group was 36,04(range 16-65 months). We evaluated the radiographies by using Baumann angle, carrying angles and lateral humerocapitellar angles and we measured the range of motion of the elbows bilaterally. We used Flynn's criteria for evaluating the measurements. **Results** There was no difference between groups when we compared sex, age, follow-up periods, Baumann, humerocapitellar and carrying angles. If we evaluated the patients according to Flynn's criteria; for medial group, 29 patients were excellent(%87.8), two patient was good(%6.06), one patient was medium(%3.03),and one patient was bad(%3.03); and for posterior group 29 patients were excellent(%85.3), four patients were good(%11.8), and one patient was bad(%2.9). **Conclusion** We saw that the results between the medial exposure group and the posterior exposure group were similar. According to experience surgical exposure type must be choosen.

Abstract no.: 45029

VASCULAR INJURY AFTER SUPRACONDYLAR FRACTURES OF THE HUMERUS IN CHILDREN

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In developing countries patients often come late and facilities for immediate vascular repair are not available in many hospitals. we report our experience in managing 22 cases of supracondylar fractures of the humerus in children in whom the radial pulse was not palpable due to vascular injury .The hand was pink and capillary refilling was present. CT angiogram was obtained in all cases .All of these were managed without any attempt to explore the vessels. Edema and compartment syndrome was managed using corticosteroids. Fasciotomy was not done in any case. All cases responded well and amputation was not needed in any of our patients. The supracondylar fracture was treated by closed reduction or percutaneous k-wire fixation. It is proposed that even without Vascular surgery limb can survive if handled properly as there are lot of collateral vessels and anastomosis around the elbow.

Abstract no.: 45030

**OUTCOME OF MANAGEMENT OF IDIOPATHIC CLUB FOOT BY
PONSETI METHOD**

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INTRODUCTION: Management of idiopathic club foot by ponseti method.**METHODS:** 30 patients underwent the ponseti method during the period of from July 2012 to May 2014, patients were followed up regularly at monthly intervals. The severity of foot deformities were graded as per Pirani's scoring system.**RESULTS:** Good results were obtained in 27 patients, 3 patients developed recurrence of the deformity due to non-compliance of the use of orthotics.**CONCLUSION:** Ponseti method is safe and cost-effective treatment for congenital idiopathic club foot and radically decrease the need for extensive corrective surgery.

Abstract no.: 45032

TERIPARATIDE MIGHT HAVE SOME KIND OF INFLUENCES ON THE VERTEBRAL COMPRESSION FRACTURES : A CASE REPORT.

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Background: Older patients with kyphosis tend to suffer from osteoporosis. In such cases, vertebral fractures can easily occur. Purpose: To report a feature of vertebral fracture on the MRI image and the characteristics of the vertebral body deformation in a patient previously used teriparatide for a year. Case Report: We present a case of vertebral fractures (Th10 and L3) occurred at different timings after prescribed teriparatide for a year in a 76-year-old woman with kyphosis (because of the previous vertebral fractures of Th6-9, Th11-L2, L4) and Rheumatoid Arthritis on long-term corticosteroid therapy. The timing of the L3 fracture was 46 months, and the Th10 fracture was 50 months after her final using of the teriparatide. In the two (Th10 and L3) compression fractures, features on different image than her previous compression fractures (Th6-9, Th11-L2, L4) are as follows. ①In the MRI image, the signal changes in a wide range of the vertebral body is remarkable than normal compression fracture. ②In the X-ray image, collapse area of the vertebra was only upper or lower surface of the vertebral body, and less the degree of collapse of the vertebral body as a whole. Conclusion: We found a characteristic findings on the image in two vertebral fractures occurred at different timing in the same patient. Teriparatide might have some kind of influences on the vertebral compression fractures.

Abstract no.: 45033

SECOND GENERATION LOCKED PLATING FOR COMPLEX PROXIMAL HUMERUS FRACTURES IN VERY ELDERLY PATIENTS.

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Objectives: The objectives were to assess the functional outcome and complications after second generation locked plating of 3 and 4 part proximal humerus fractures in active elderly patients > 70 years. **Methods:** Fixed angle locked plating (PHILOS) using the anterolateral deltoid split approach augmented with traction cuff sutures were performed in 29 patients with displaced 3 and 4 part proximal humerus fractures. Minimum of 7 locking head screws including 2 calcar screws were used. In cases with a comminuted medial calcar, an endosteal fibular strut was used. Subchondral metaphyseal bone voids were filled with injectable calcium phosphate cement. Radiological outcome (union, head – shaft angle, tuberosity reduction), functional outcome assessment (Constant and ASES scores) and complications (loss of reduction, nonunion and osteonecrosis) were assessed. **Results:** The fracture united in 22 of the 26 patients available for follow up at a mean of 27 months (12 – 40 months). 6 patients developed complications requiring revision surgery. 5/6 patients with complications were treated with arthroplasty. Follow up age adjusted Constant (63.1 ± 11.9) and ASES scores (62.58 ± 7.5) showed the extent of functional improvement post surgery. Patients with fractures having a non-comminuted medial calcar and valgus displacement had better functional scores and fewer complications. **Conclusion:** Osteosynthesis with second generation locked plating techniques provide acceptable outcome in very elderly patients with complex proximal humerus fractures with minimal complications.

Abstract no.: 45034

**EFFICACY OF EPIDURAL PERINEURAL INJECTION OF AUTOLOGOUS
CONDITIONED SERUM IN UNILATERAL CERVICAL RADICULOPATHY:
A PILOT STUDY**

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Study design – Prospective randomized pilot study Objective – Evaluation of the efficacy of epidural perineural injection of autologous conditioned serum (ACS) vs. methylprednisone (MPS) in unilateral cervical radiculopathy patients. Background – Cervical radiculopathy is often treated by non-operative and operative means. Guided injections of steroids have been used previously. We used ACS, an orthobiologic derived from patients own blood in patients of unilateral cervical radiculopathy. Methods – 40 patients were equally allocated into ACS and MPS groups and were injected with 2.5-3 ml of ACS or MPS respectively under image guidance into the perineural area of the affected nerve root. They were followed up for 6 months with Visual Analogue Scale (VAS) for pain, Neck Pain Disability scale (NPDS) in hindi language, neck disability index (NDI) and Short Form of Health Survey – 12 (SF-12). Results – Patients who had received injections of ACS and MPS both had improvements in the scores of the evaluation tools. The improvement in the ACS patients was gradual and sustained over the entire study period while that in the MPS group had some deterioration over time. No major complications were noted amongst the two groups. Minor complications were noted in both the groups. Conclusions – ACS can be considered an equally good or better modality of non-operative management in patients of unilateral cervical radiculopathy as methylprednisone. The safety profile is good and the improvement seen is sustained over time. Thus, it may be offered to affected patients before offering them surgery.

Abstract no.: 45035

MANAGEMENT OF FLOATING SHOULDER WITH ISOLATED FIXATION OF CLAVICLE

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INTRODUCTION: A prospective review on the outcomes of ten floating shoulder injuries, ipsilateral scapular neck and clavicular fracture, treated with open reduction and internal fixation of the clavicle alone using locking compression plate. **METHOD:** All patients were operated and fixation done at clavicle alone with help of LCP through antero-inferior incision. Physical examination and radiological examination done at regular interval. At an average follow up period of 2.3 years (range:1-3 years) functional outcomes were rated using Rowe's score. **RESULT:** Radiological union of all fractures occurred at an average of 2.7 months (range: 8-12 weeks). Excellent result was seen in eight cases and good in two. **CONCLUSION:** Internal fixation of clavicle alone with LCP restored stability of shoulder and allowed early range of motion exercises. All cases gained good and Excellent function.

Abstract no.: 45038

USE OF ULTRASOUND IMAGING GUIDANCE FOR ASPIRATION AND STEROID INJECTION IN TREATMENT OF FOOT AND ANKLE GANGLIONS

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Introduction:This is a prospective study to assess the treatment efficacy of injecting steroid after aspiration of ganglion cyst content with the assistance of ultrasound (USG) imaging guidance. **Materials and Methods:**From 24th April to 16th June 2012, we treated 16 patients with this method of using USG guidance to aspirate its content to maximally collapse it, then injected 1 ml Depomedrol. Patients were then assessed by USG imaging at 4 weeks and 4 months after injection for their pain improvement (VAS score) and volume reduction. **Results:**Sixteen subjects (11 female) were recruited with average age 54.06 (25 to 82 years). 68.8% patients had pain at the ganglion site with pain VAS (Visual Analogue Scale) average of 2.66 (1 to 8). The average volume of the ganglion cyst by USG measurement at (length x width x depth) was 7.66 ml (0.22 to 29.8 ml). At 4 weeks, the volumes were markedly reduced to an average of 1.62 ml (0.038 to 9.36 ml). These volumes reduction by Wilcoxin Signed Ranks test showed a p value of 0.001. At 4 months, the mean volume was 1.54 ml. The pain VAS scores pre-injection was of mean 2.66 (out of 10); at 4 week it was 1.03; at 4 month it was 1.0; thus with a change showed a p value of 0.058. **Discussion and conclusion:** Local aspiration and replaced by steroid injection into the cyst under ultrasound guidance is a safe and effective treatment modality for foot and ankle ganglions.

Abstract no.: 45040

ROLE OF CT ANGIOGRAPHY OF VERTEBRAL ARTERY TO DETERMINE THE CAUSE OF EARLY DEATH AFTER CERVICAL SPINAL CORD INJURY

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OBJECTIVE: To investigate the distribution of time of early death in the patients with cervical cord injury (CCI) with additional help of CT Angiography. **METHODS:** The clinical data of 12 cervical spinal cord injury patients, including demographics, mechanism of injury, cervical cord injury level and severity, associated injury, radiographs, CT Angiography, management, the time from injury to hospitalization, the time since closed reduction and the time from injury to death were retrospectively analyzed so as to detect the time and cause of early death. **RESULTS:** Among 12 cervical spinal cord injury cases, 9 patients died in early stage. 86 of the 126 patients (68.3%) died within 48 hrs. after closed reduction; 12 patients died after 2 days to two weeks after CCI, so 98 patients died within two weeks after CCI, and 12 patients (9.5%) died after four weeks after CCI. **CONCLUSION:** The most common cause of CCI is fall from height. The peak time of death is within two weeks after CCI particularly 48 hrs after reduction. Secondary Respiratory failure with Brain infarct possibly consequence to dislodge vertebral artery thrombosis may be the leading cause of early death in patients with CCI as seen in CT Angiography of vertebral artery.

Abstract no.: 45045

**RETROSPECTIVE EPIDEMIOLOGICAL EVALUATION OF
OSTEOARTICULAR INFECTION AT THE MARTAGÃO GESTEIRA
HOSPITAL**

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Introduction: The Osteoarticular Infections are an inflammatory pathology of bacterial predominance, normally presents an acute stage, that attack the bones (osteomyelitis) and joint (septic arthritis). These infections has en circulatory dissemination that can compromise the person in a systemic way, depending on the pathogenicity of the invader and the first immune system of the host, must be diagnostic and treated fast en emergency bay the hospital guide and not ambulatory, because of the risk of developing septicemia. Objective : Evaluate the osteoarticular infection epidemiological profile of the Orthopedic service of the Martagão Gesteira Children's Hospital. Methods : This was a retrospective, observational and descriptive study. Where there were collected information of all patients with osteoarticular infection that were admitted and submitted to a surgical procedure at the Hospital from the age 0 to 16 years old in the period of January of 1995 to January of 2012. Results: We're found a total of 1057 cases,being 69% males and 31% females. The average age was 6 years and 4 months (SD: 4 years and 3 months). Affected area : 37% Hip/Femur, 29% Knee/Tibia, 12% Shoulder/Humerus, 5% Elbow/Forearm, 4% Ankle/Foot and 13% others areas. Pathogens : 83,4% S. aureus, 9% S. pyogenes, 3,1% H. influenzae , 1,5% P. aeuruginosa, 1,1% Salmonella, 1,8% Others. Conclusion: Was verified predominance of the male sex above the female (2:1) and the S. aureus was the principal pathogen isolated of the osteoarticular infection, and the most hematogenous area was the inferior members.

Abstract no.: 45046

ANALYSIS OF RELEVANT FACTORS INFLUENCING PROGNOSIS IN PILON FRACTURES: A REVIEW OF 228 CASES

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Introduction: The treatment of pilon fractures is still in debate due to high number of complications and the variety of methods of treatment. Methods: 228 cases of pilon fracture were enrolled in a retrospective study between 2003 and 2013. Demographic characteristics, time until union and Oviada score were analyzed by SPSS 18.0. Fracture patterns were classified according to AO/OTA classification. Patients were treated by angular stable plates, external fixator±K-wires/screws and divided in two groups: G1 – single stage surgery, G2 – two stage surgery. Follow-up of the patients was at 3, 6, 9 and 12 months. Results: Mean age was $52,34 \pm 13,85$ years, with a range between 18 and 84 years, 69,7% were males. According to the AO/OTA classification there were 10,96 % type A, 64,91 % type B and 24,13 % type C fractures. There was no statistical differences between groups in term of demographic data. 6% of G1 and 18,5% of G2 necessitate reintervention ($p=0,02$). We identify: 38,9% infections in G1 and 27,8% in G2 ($p=0,0009$), pseudarthrosis 35,3% in G1, 0% in G2 ($p=0,09$), secondary displacement 68,8% in G1 and 12,5% in G2, vicious callus 41,5% in G1 and 3,7% in G2, postoperative stiffness 36,4% in G1 and 12,1% in G2, arthritis 44,7% in G1 and 8,5% in G2. Conclusion: Two stage surgery offers better results with less complications rates in the treatment of pilon fractures.

Abstract no.: 45048

POSTERIOR SHOULDER DISLOCATION WITH COMUNITED FRACTURE OF HEAD HUMERUS DUE TO ELETRIC CURRENT INJURY:-AN UNUSUAL CASE REPORT.

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Introduction: Mechanism of shoulder fractures caused by low-voltage electric shock is different from high energy, may be due to tetanic muscle contraction involving upper extremities and shoulder girdles. This study presents case of right posterior shoulder dislocation with comminuted fracture of head of humerus caused by a 220 V electric shock without direct trauma and we discuss its patho - mechanical origin & outcome of surgical management. Case report: 56-year-old male sustained electric shock, had heavy convulsion without fall, felt left shoulder pain. On examination he had ecchymosis, swelling with restricted range of motion in left shoulder with entry burn on tip of right ring & little fingers. Radiography showed left shoulder posterior dislocation & five pieces fractures of the head of the humerus. Fractures operated by open reduction & internal fixation with lag screws. Post-operative period was uneventful and the patient gained full active range of motion in three months. The follow-up X-ray film showed good union Discussion: Few cases have been reported in literature in which fractures were caused directly by electric shock without falling, but typically involving bones surrounded by large muscle bulk, such as vertebrae, proximal femur, scapula, and proximal humerus. In literature, strong muscle pull is considered as likely explanation of the mechanism responsible for fractures due to electric shock. Conclusion: Fractures due to low-voltage electric shock are rare, it should be borne in mind that after electric shock the presence of pain, swelling, bone tenderness, and limitation of motion may be due to fracture.

Abstract no.: 45050

CLINICAL AND RADIOLOGICAL EVALUATION OF MULTIPLE LIGAMENT INJURY OF KNEE

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Multiple ligament injuries of the knee concern ruptures of the cruciate ligaments combined with damage to the collateral ligaments. The common mechanism of injury of multiple ligament injury of knee is Abduction, flexion and internal rotation of femur on tibia. MRI has several advantages. Its noninvasive, poses minimal risk, produces minimal patient discomfort and posterior cruciate ligament is easily seen on MRI. An accurate examination may be difficult even for an experienced examiner in this situation and it may be that an arthritic knee may not allow a complete examination. Clinical tests used in the diagnosis of meniscal and cruciate ligament damage have limitations and it may not be possible to elicit objective signs repeatedly, more so in a busy orthopedic clinic and being painful. The accuracy of various clinical tests with reference to MRI were found to be as follows. In ACL injury the Lachman test is the most accurate test with accuracy of 83.33% and sensitivity and specificity of 81.48% and 100% respectively. In PCL injury the posterior drawer test is the most accurate test with accuracy of 93.33% and the accuracy of sag test is 83.33%. In MCL injury valgus stress test has the accuracy of 93.33% and sensitivity of 85.71% and specificity of 100%. In meniscal injury the accuracy of the Mc Murray's test 96.67% and 86.67% for medial and lateral meniscus respectively. MRI gives a detailed picture of the internal structures and proves to be a better Non-invasive diagnostic tool in multiple ligament knee injuries. MRI has a high sensitivity and specificity in terms of identifying multiple ligament knee injuries.

Abstract no.: 45054

BIOLOX®DELTA COMPONENT FRACTURE RATE IS EXTREMELY RARE: RESULTS FROM THREE REGIONAL, NATIONAL REGISTRIES AND THE MANUFACTURER DATA-BASE

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., . (GERMANY)

Introduction: Since their introduction in total hip arthroplasty (THA) more than 40 years ago, ceramic bearings have been shown to reduce the problems related to wear, even with large-diameter bearings. Nevertheless, ceramics lack the ductility of metals. Thus, the main goal in the development and design of ceramic components for THA in the previous decade was to decrease their fracture incidence. Methods: In this study, three regional, national joint replacement registries have been analysed regarding ceramic component fracture by type of ceramic material, alumina and alumina matrix composite with the brand name BIOLOX®delta, respectively; and compared with the manufacturer data-base. Literature was also reviewed focusing on this topic and 5 publications identified. Results: The fracture rate of AMC ball heads and inserts reported by the registries was found to be of the same order of magnitude of that recorded by the manufacturer data-base: 0.001% and 0.021%, respectively. Discussion: The data from large databases contradict those reported from individual clinical studies, where the fracture rates of ceramic components are much higher. Indeed, in the case of such a rare event as the ceramic component fracture, the validity of clinical cohort studies, which involve a low number of patients treated by a restricted number of medical centers, is limited and includes a risk of misinterpretation. Conclusion: Based on this study, fractures of components of the latest generation of ceramics for arthroplasty have become an extremely rare event, in comparison with earlier-generation ceramic, but also with other implant components.

Abstract no.: 45055

**EPIDEMIOLOGICAL STUDY OF TREATED AT THE OR OF THE
MARTAGÃO GESTEIRA CHILDREN'S HOSPITAL, SALVADOR - BAHIA -
BRASIL**

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CORTIZO GARCIA, Fernanda CORTIZO GARCIA
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Introduction : By definition bone fracture is the lost of the structural integrity and the incapacity of transmitting weight during the movements. Children's bones are more elastic, have more resistant periosteum and grow cartilage then adults bones. This characteristics determinate a the difference of the type of injury, diagnosis and prognosis. Therefore, there are some advantages in a trauma like incomplete fractures and more capacity bone remodeling and healing. However there are some disadvantages associated because the patient is a child, the diagnosis maybe difficult by the lack of history and cooperation on the physical exam, and the risk of fractures on the epifisiary plate and possible compromise of the grow. Furthermore those patients don't always follow the recommendations of immobilization and don't accept the cast for long periods. The treatment is divide in two. The first is the closed, treatment of choice, consist in reduction of the fracture followed by cast. The Open treatment is necessary, it's a surgical procedure that involves general anesthesia and most of the time its associated with osteosynthesis.

Methods: retrospective study of patients treated at the hospital from January 2003 and December 2011. Were included patients until 14years old of another sex , with no exclusion criteria. Results: 1576 patients, 72,3% male, 1,7% Arm 29% Elbow , 50,5% Forearm, 0,4% Metacarpal, 13,3% Femur, 3% Tibia, 0,8% Akle; 27,7% female, 1,8% Arm 34,9% Elbow , 49,8% Forearm, 0,3% Metacarpal, 9,6% Femur, 2,1% Tibia, 1% Akle.

Conclusion: Was found predominance by de male sex, superior members

Abstract no.: 45060

MAJOR COMPLICATIONS IN ACHILLES TENDON SUTURE: TENDON AND SOFT TISSUE RECONSTRUCTION

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Complications after achilles tendon open surgery are not infrequent. A lot of reconstructive procedures have been previously described. The propeller perforator flap with associated tendon reconstructive procedures can give an effective and elegant solution to major complications. It's a very versatile flap that can be executed in one tourniquet time, allows free closure of the proximal wound and allows associated reconstructive procedures even extending the incision to the proximal part of the the triceps. We present a six cases serie using this technique, in three of them associated tendon reconstructive procedures were required: one free tendon graft and two FHL transfers. The mean follow up was 15 months with final evaluation by the surgeon and the patient of function with AOFAS score, aesthetic aspect of the limb and EVA pain score. None of them had major complications. One of them needed local wound treatment and another a skin graft. The evaluation was satisfactory for both the surgeon and the patient. This technique has to be considered in the presence of major complications in achilles tendon surgery because it's a safe and versatile flap with low morbidity .

Abstract no.: 45063

MODELLING CLINICAL GOVERNANCE IN MYANMAR: YANGON HIP FRACTURE AUDIT

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Introduction: Myanmar has been the sleeping giant of Southeast Asia, recently awoken by democratic reforms. Previous isolation has meant little data on local medical standards was available. This audit is the first of its kind, to assess standards for the treatment of hip fractures in Yangon General Hospital (YGH). Standards are from UK guidelines: (1) 90% of patients operated on within two days of admission, (2) 90% of patients with a hospital stay below 11 days. This audit assesses the standards of hip fracture care in YGH. Methods: Data was collected via questionnaire in outpatient follow-up clinics in summer 2015. Patients with a surgically treated hip fracture who attended outpatient follow-up were included - no exclusion criteria were applied. Results: 33 patients were identified. Standard (1): 15% of patients were operated on within two days of admission, mean time to surgery eight days (n=33). Standard (2): 23% of patients had a hospital stay below 11 days, mean stay 16 days (n=30). The main limitation is small sample size. Discussion: The results are significantly below the standards set. With 15% and 23% of patients being treated according to standards (1) and (2) respectively, there is clear room for improvement. Service improvement is a priority for the leadership at YGH. Modelling audit, as this hip fracture has done, gives a powerful lever for service development. Currently Yangon and Cambridge teams are working to introduce a hip fracture care pathway. A future audit will see if standards improve.

Abstract no.: 45064

BIOMECHANICAL EVALUATION OF VARIOUS METHODS REGARDING CEMENT AUGMENTATION IN SACROILIAC SCREW FIXATION OF OSTEOPOROTIC SACRUM FRACTURES

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Introduction: In the operative treatment of osteoporotic posterior pelvic ring fractures percutaneous fixation with cannulated sacroiliac screws is well-established. However osteoporotic bone quality might lead to risk of loosening. So cement augmentation of the iliosacral screws is more frequently performed and recommended. Aim of the present biomechanical study was to evaluate the primary stability of three methods of iliosacral screw fixation in human osteoporotic sacrum specimens. **Methods:** In total 15 fresh frozen human cadaveric specimens with osteoporosis were used (os sacrum). Three operation technique groups were generated: Screw fixation without cement augmentation (Group A), screw fixation with cement augmentation before screw placement (Group B) and screw fixation with perforated screws and cement augmentation after screw placement (Group C). One operation techniques was used on each side of the sacral bone to compare biomechanic properties in the same bone quality. Pullout tests were performed with a rate of 6mm/min. **Results:** Subgroup 1 (group A vs. group B): 594.4 N \pm 463.7 vs. 1020.8 N \pm 333.3, values were significantly different (p=0.025). Subgroup 2 (group A vs. group C): 641.8 N \pm 242.0 vs. 1029.6 N \pm 326.5, values were significantly different (p=0.048). Subgroup 3 (group B vs. group C): 804.0 N \pm 515.3 vs. 889.8 N \pm 503.3, values were not significantly different (p=0.472). **Conclusion:** Regarding iliosacral screw fixation in osteoporotic bone the primary stability of techniques involving cement augmentation is significantly higher compared to screw fixation without cement. To reduce complications of cement leakage, perforated screws are a promising alternative.

Abstract no.: 45066

CALCANEONAVICULAR COALITIONS: SURGICAL TREATMENT BY EXCISION, FAT GRAFT AND EDB MUSCLE REPOSITIONING.

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Introduction: Tarsal coalitions are birth defects that present a connection between two or more bones of the foot. Symptomatic coalitions that do not respond to conservative treatment require surgery. Although the gold standard is the resection, there is controversy about which interposition material allows the best results. We have been using a technique that involves the use of fat buttocks and replacement of the EDB muscle. Our aim was to evaluate the functional results, complications and personal satisfaction in a group of patients with symptomatic calcaneonavicular coalitions. **Methods:** All patients treated 2008 and 2014, were analyzed retrospectively. They were excluded patients with associated coalitions, previous surgeries and follow-up less than 12 months. We analyzed demographics data, type of coalition, symptoms that led to the consult, complications and personal satisfaction. Functional results were evaluated with the AOFAS midfoot score. We included 18 feet. The average age was 12 years. The mean follow-up was 30 months. **Results:** The AOFAS score improved from 57 to 93.3 points. 89% of patients were asymptomatic at their last control and satisfied. 4 postoperative complications occurred: 3 wound dehiscence and 1 soft tissue infection. Two patients presented partial re-ossification. **Conclusion:** CN coalition resection with fat graft interposition and EDB muscle repositioning can improve function and relieve pain with low rate of complications. The use of fat reduces the rate of re-ossification and repositioning the EDB muscle improves the aesthetic appearance. **Keywords:** Foot, teen, calcaneonavicular coalition resection. **Level of Evidence:** IV.

Abstract no.: 45067

EPIDEMIOLOGICAL EVALIATION OF THE RESISTENT CLUBFOOT AT THE MARTAGÃO GESTEIRA CHILDREN'S HOSPITAL

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Introduction: The pathogenesis of these lesions has not been fully elucidated. Initially, the procedure to minimize this deformity is the conservative, obtaining prominence two methods quite a lot used in orthopedic practice: Kite's method and Ponseti's method. The Ponseti's method has been more accepted and used. In this procedure fail, surgical treatment becomes necessary. Codivilla, in 1903. But, the final results were not so good and the need for new surgical procedure was evident. In 1992, an innovative surgical technique has to be realized. The access route from Cincinnati, as it is called, is having a greater acceptance due to their better aesthetic and functional aspects. Results: Most of the evaluated data and the obtained results agreed with literature. The male was predominant (67.3%), average age of operated patients was 32.1 months, average weight of children was 14kg and deformity was more common in the right foot (46.2%), unilaterally, while bilateral cases had little expressive results (9.9%). Was noted that the most access route used was Cincinnati(58.9%), exceeding the Codivilla's acess route (41.2%). Conclusion: Based on the results of this descriptive study and grounded in some records from the literature, talked about most affected gender, most prevalent age in surgical cases of patients with resistant congenital clubfoot, most common side t and which surgery provides better results. Was verified that the Cincinnati's access route was prevalent compared to Codivilla's, due to better post-surgical results presented and because incision allows a better visualization of structures that will undergo correction.

Abstract no.: 45068

EPIDEMIOLOGIC PROFILE OF SPORTS-RELATED KNEE INJURIES IN NORTHERN INDIA: AN OBSERVATIONAL STUDY AT A TERTIARY CARE CENTRE

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Background: There is no published epidemiologic study focusing on sports-related knee injuries from India till date. Objectives: To identify common injuries sustained by Indian athletes participating in different sports and to study various demographic features. Secondary objective was to investigate different factors which affect return to sport. Study Design: Cross-sectional study (Observational study) Study centre: Sports injury clinic, PGIMER, Chandigarh. Methods: Out of 465 athletes who presented to us with sports-related knee injuries over a 5-year-period, 363 athletes (from 24 different sports) with complete records were identified. Data was analysed for demographic features, type of sport, mechanism of injury, injury scenario, athlete's level of play, injury duration at presentation, injury patterns and type of management. Telephonic interviews were conducted with each athlete to enquire about return to sport and time lost in sport due to the knee injury. Factors associated with return to sport were investigated. Results: Soccer was the most common sport associated with knee injuries accounting for 30.6% of the injuries followed by kabaddi. Most common mechanism was non-contact (64.4%). Competitive injuries were significantly more than training injuries ($p < 0.0001$). Most common injury were ACL tears ($n=314$) followed by meniscus injuries ($n=284$) and most common combination of injuries were an ACL tear with medial meniscus tear ($n=163$). Only 39.8% athletes returned to sport. Mean duration of time lost in sport among those who returned to sport was 8.84 months. Return was significantly associated with BMI, level of competitiveness of the athlete and management ($p=0.017$, 0.045 & <0.0001 respectively)

Abstract no.: 45072

MALIGNANT TRANSFORMATION OF A SYNOVIAL CHONDROMATOSIS TO A CHONDROSARCOMA

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Introduction: Primary synovial chondromatosis is characterized by multiple hyaline cartilage nodules typically present in the subsynovial tissue. This neoplasm has a tendency to recur locally, however malignant transformation to chondrosarcoma is extremely rare. Herein we report the case of a chondrosarcoma which arised in a synovial chondromatosis six years following initial diagnosis. Case report: A 68-year old man diagnosed with synovial chondromatosis six years and local recurrence four years ago presented with severe pain and restricted range of motion of right hip. He had undergone subtotal synovectomy twice. When he presented to our center, x-ray showed multiple intraarticular calcifications and advanced osteoarthritis. MRI detected increased joint effusion, compared to previous imaging. Total hip replacement and subtotal synovectomy were performed. Histological specimens showed chondrosarcoma with irregular shaped lobules of cartilage varying in size and shape. The lobules were separated by fibrous septa and showed focal bone entrapment. The chondrocytes were atypical and showed a variation in size and shape with large hyperchromatic nuclei. The patient refused to undergo re-resection with hemipelvectomy. Staging was negative for local recurrence and metastasis at a follow-up of 15 months. Discussion: Malignant transformation of a synovial chondromatosis to a chondrosarcoma is very rare, with reported rates between 1- 6.4%. Atypical clinical presentation with multiple local recurrences within short time intervals and radiological signs of dedifferentiation as rapid increase in size or bone marrow invasion can indicate malignant transformation. Biopsy should be performed in any case in which imaging is suggestive of dedifferentiation and/or atypical clinical presentation.

Abstract no.: 45073

RETROSPECTIVE STUDY OF SUPRACONDYLAR FRACTURE: OPEN REDUCTION VS CLOSED REDUCTION TREATS AT THE MARTAGÃO GESTEIRA CHILDREN'S HOSPITAL.

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Introduction: the supracondylar fracture of the humerus represents the most common on the elbow of a child. Has more predominance on the male sex. The classification of this type of fracture is the Gartland and it's classified on the type I, II or III by the X- Ray of the injury elbow. The choose of the treatment is based on the classification and it's very controversial on the literature about the open or closed reduction and fixation. This fracture has a high potential of neuro vascular injury, being associated with complications on the postop. The cubitus varus and compartment syndrome are some of the prevalent complications. Objective: Compare the efficacy between the two methods of treatment, open or closed reduction, on the supracondylar fracture. Material and Methods: 13 patients divided in two groups by the choice of treatment, open or closed. The efficacy was evaluated according to the angles of movement on the elbow, esthetics facts and complications. Results: There wasn't any statistics significances about the efficacy between both the treatments. Conclusion: This study didn't demonstrate any significant difference in the amplitude of the movement or on the esthetic on the comparing between closed and open reduction.

Abstract no.: 45074

ASSOCIATION OF GENE POLYMORPHISMS IN COL1A1 AND COL12A1 GENES WITH ACL TEARS IN THE INDIAN POPULATION-A PRELIMINARY STUDY

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Context: Gene polymorphisms have increasingly been identified in white populations as a risk factor predisposing an individual to an ACL tear. This is the first study in a non-Caucasian population to look into genetic risk factors in ACL tear. Objective: To evaluate if there are SNPs in COL1A1 and COL12A1 genes that result in an ACL tear phenotype. Design: Case control genetic association study. Participants: 50 patients with ACL tear taken up for arthroscopic ACL reconstruction and 52 age matched patients with unilateral closed fractures of upper limb served as controls (Age: 18-45 years). Interventions: Venous blood samples taken from cases and controls while ACL tissue samples taken from cases only. Lymphocytes extracted from blood. ACL remnant tissue was removed at the time of arthroscopy and stored for DNA extraction. DNA isolated from lymphocytes and ACL tissue using commercial kits. By using RT-PCR amplification, COL1A1 and COL12A1 genes analyzed for SNPs using specific primers. rs970547 (AluI polymorphism), rs240736 of COL12A1 and rs1800012 and rs1107946 of COL1A1 gene tested. The RT-PCR amplification products were imported by Sequence Detection System (SDS) for the detection of SNP. Results: 1) AG, GG genotypes of rs970547 of COL12A1 significantly under-represented in the study group ($p=0.0361$ for AG and $p=0.0374$ for GG). 2) No significant difference in genotype and allele distributions in rs240736 of COL12A1 gene ($p=0.712$), rs1800012 ($p=0.5163$) and rs1107946 ($p=0.9711$) of COL1A1 gene. Conclusions: AG and GG genotypes of rs970547 of COL12A1 were significantly under-represented in ACL tear patients in the Indian population.

Abstract no.: 45077

TOTAL HIP REPLACEMENT IN DEVELOPMENTAL DYSPLASIA: IS THE STEMMED CUP A VALID OPTION?

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Choice of performing total hip arthroplasty in patients with symptomatic osteoarthritis due to developmental dysplasia is undisputed. Anatomic abnormalities and the patients' young age must be considered in preoperative planning. To improve quality of life and implant survival, socket should be located as near as possible to the anatomical acetabular location to restore the anatomical center of rotation. Bone stock could be a problem for the implant stability in anatomical reconstruction, that's why, to improve the primary stability, we choose a stemmed cup. Iliac stem is positioned in axis with weight-bearing lines. It allows an optimal stability in the iliac bone relieving the stresses from damaged acetabular region and is very useful in case of deficiency of the acetabular roof. In more severe dysplasia the femoral head and morcelized bone grafts taken from the patient femoral head has been employed to improve bone stock. More than one stem length is available; short stem can be chosen in the mild dysplastic hips . The cannulated instrumentation made implantation safer and easier. In our statistics 92 cases were performed (23 bilateral). 65 patient were reviewed (79 implant) Average age is 45,4 years (range 38-65). Mean follow up is 12,9 yy. (6 to 22 years). We find a good or excellent results in 93,9%. Failure and the revision of the component was performed in 2 cases. The good mid-long-term results reported confirm that stemmed cup is valid solution in case of developmental dysplasia of the hip when conventional cups are not indicated

Abstract no.: 45080

TITANIC ELASTIC NAIL TREATMENT ON THE FEMUR FRACTURES IN CHILDREN'S AT THE MARTAGÃO GESTEIRA CHILDREN'S HOSPITAL

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Introduction: The diafisary femur fracture on children is a very severe pathology and not very common, because of the formation of a strong periostial epicondral. It presents many etiology so facts such as : car accidents, domestic accidents and fall by own height. It's more prevalent on the male sex at the age of 2 and 12 years old. Mortality is rare. Objective: Evaluate the efficacy of the use of titanic elastic nail on the treatment of the femur fracture on children. Methods: Retrospective and documental study by de collection of revision of the charts. This study was made on the period of September to October 2012 by charts of 6 patients submitted to surgical treatment with titanic elastic nail on the period of April to June 2008. The indication for the use of this titanic elastic nail was patients with 5 to 14 years old with fracture between subtrochanteric and subcondylar femur areas. Results: The average period between the injury and the surgery was 21,8 days, with a minimum of 9 days and maximum of 32 days. The trauma was high energy in 4 cases and low energy in 2 cases, the most affected side was the left (4). Proximal fractures was 2 cases, 1/3 middle 2 cases and 1/3 distal 2 cases. Conclusion: The use of the titanic elastic nail on the treatment of diafisary fractures of the femur is in accordance with the literature. However it needs more studies.

Abstract no.: 45081

OUTCOME OF OPEN REDUCTION AND INTERNAL FIXATION OF INTRA-ARTICULAR CALCANEUS FRACTURE

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the treatment of intra-articular fractures of the calcaneus remains controversial . different approaches and methods of fixation are used aiming at anatomical reduction and achieving good functional outcome .22 patients with 25 calcaneal fractures (3 patients were bilateral) were operated by open reduction and internal fixation through extensile lateral approach in fayoum university hospital from september 2014 to september 2015 .patients were evaluated in term of associated injuries and x ray ap , lateral and axial views . ct scan was done to assess the amount of comminution and articular depression . using essex leproseti classification 17 fractures were joint depression type and 8 fractures were tongue type . using sanders classification , there were 5 fractures type 2 , 16 fractures type 3 and 4 fracture type 4 . patients were followed up clinically and radiologically for at least 24 weeks and maximum follow up period were 66 weeks with a mean of 39.4 ± 13.6 weeks . radiologically assessment was done by measurement of bohler and giessae angles . functional outcome was assessed using sofas ankle /hindfoot score . the mean allow up bohler angle was 22.56 ± 10.30 in degrees and the mean followed up gissane angle was 120.64 ± 9.76 in degrees . the mean aofas ankle /hind foot score was 80.64 ± 12.25 . open reduction and internal fixation using extensile lateral for intra articular calcaneal fractures allows satisfactory reduction , reliable fixation and early mobilization .

Abstract no.: 45082

A RARE CASE REPORT OF CONGENITAL PSEUDOARTHROSIS OF TIBIA MANAGED BY TWO STAGE MASQUELET TECHNIQUE.

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Introduction- Congenital psuedoarthrosis of tibia is a rare condition and surgical treatment is one of the most challenging problems in pediatric orthopedics because of the difficulty in achieving healing. Case report- 3yr old male child was brought to our OPD with complaints of difficulty in weight bearing over his left leg and deformity in lower third of left leg since 2yrs. We confirmed the diagnosis of congenital pseudoarthrosis of tibia by clinical examination and xray of left leg. We managed the case by two stage masquelet technique. In first stage excision of deaced periosteum and stabilized the defect with cement spacer and external fixation. After period of 5months once the biological membrane developed we took out the cement and autologous bone grafts placed and fixed with internal fixation. Conclusion-It is a simple and reliable technique without microvascular surgery. The induced membrane responds to both the mechanical and biological aspects of this disease, including complete excision of pathological periosteum, induction of a vascularized biological and bone grafting combined with internal fixation to achieve and maintain union. Long term follow up until skeletal maturity is required in order to secure treatment success.

Abstract no.: 45083

SCORING RISK FACTORS IN EARLY WOUND DEHISCENCE AND PROGRESSION TO DEEP INFECTION AFTER INSTRUMENTED SPINAL FUSION IN CHILDREN WITH NEUROMUSCULAR SCOLIOSIS

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Aims:1. Identifying and scoring risk factors that predict early wound dehiscence and progression to metalwork infection. 2. Results of wound healing, eradication of infection and progression to union with the use of vacuum dressing. 3. Compare results of serial washouts against early vacuum dressing in this group of children with significant medical co-morbidities. **Method :**A review of 443 patients (257 retrospective and 186 prospective) with neuromuscular scoliosis who underwent posterior instrumented correction and fusion between 2008 and 2013 at two institutions. 44 patients had early wound infection of which 27 had wound dehiscence requiring wound washout(s). Of these 27 patients, 12 had subsequent vacuum dressing. 1 patient was excluded from the study. Medical notes, clinical photographs and imaging were reviewed. Minimum follow up period was 14 months. **Results** This study shows that readmission to PICU, presence of viscerocutaneous devices (e.g. PEG, tracheostomy), concomitant infection, polymicrobial (gram negative) organism and hyperlordotic deformities are cumulative risk factors to developing early wound dehiscence leading to deep seated infections. All patients in our series went on to have a sealed, non-infected wound with union confirmed on CT. Patients who had multiple serial washouts (n 3-7), eventually required vacuum dressing. **Discussion:**By stratifying risk factors in patients with neuromuscular scoliosis, the occurrence of wound dehiscence can be predicted. With higher risk factor scores, early vacuum dressing is recommended as multiple serial wound washouts have poor results and with added morbidity to the patient.

Abstract no.: 45084

FETUIN-TREATMENT REDUCES PARTICLE-INDUCED OSTEOLYSIS IN MICE

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Introduction: Particle-induced osteolysis, a chronic inflammatory reaction, is the major cause of total joint arthroplasty failure. Fetuin-A accumulates in bone tissue and is a potent inhibitor of ectopic calcification (Jahnen-Dechent et al. 2011). Furthermore it influences the production of proinflammatory mediators (Wang et al.2012). In this study, the effects of fetuin-A treatment were examined in a murine calvaria-mouse-model. Methods: 28 male C57BL/6 wild-type mice were distributed into four groups. Groups 1 and 3 were treated with a calvaria-sham-operation. Groups 2 and 4 were treated with an application of 30µl ultra-high-molecular weight polyethylene particles (UHMWPE) on the calvaria. Groups 1 and 2 were treated with an intraperitoneal injection of NaCl, whereas groups 3 and 4 received an injection of 20mg bovine fetuin-A. A laborchemical analysis, a micro-CT scan for bone volume and a histomorphometric analysis of inflammation and bone resorption was performed. Results: fetuin-A application in UHMWPE-treated mice causes a reduction of osteolysis in comparison to NaCl-treated mice in the measurement of bone volume in the centre of the midline suture ($0.54\text{mm}^3 \pm 0.01\text{mm}^3$ vs. $0.51\text{mm}^3 \pm 0.04\text{mm}^3$; $p < 0.05$). A treatment with UHMWPE ($0.54\text{mm}^3 \pm 0.01\text{mm}^3$ (fetuin) and $0.51\text{mm}^3 \pm 0.04\text{mm}^3$ (NaCl)) induces a reduction of bone volume in both groups compared to sham-surgery groups ($0.59\text{mm}^3 \pm 0.03\text{mm}^3$ (fetuin) und $0.57\text{mm}^3 \pm 0.03\text{mm}^3$ (NaCl)) ($p < 0.01$). The eroded surface showed less bone-resorption in fetuin-treated mice($p < 0.05$). Discussion: A single dose of fetuin-A resulted in less bone resorption after particle-treatment. Therefore, fetuin-A may have an osteoprotective function during the process of aseptic loosening.

Abstract no.: 45088

THE ROLE OF WELL MOLDED FIBERGLASS RISSER CAST IN THE TREATMENT OF ADOLESCENT IDIOPATHIC SCOLIOSIS DURING GROWING AGE

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Introduction: Patient's compliance in wearing Milwaukee braces is crucial for the effectiveness brace treatment in adolescent idiopathic scoliosis (AIS) when the apical vertebra is placed proximal to T7. The aim of this study is to verify how lighter fiberglass brace casts act on the vertebral deformity and on patient's compliance in the use of braces. We also evaluated changes of the rib hump and Cobb angle with this treatment. Material: We evaluated 32 female patients (12 ± 2 years), affected by AIS, with Cobb angle averaging $28^\circ \pm 10^\circ$. Patients were divided into two groups. One group treated with brace cast for six months (renewed every two months), followed by the use of a Milwaukee brace (n = 16). The second group included 16 patients managed with a Milwaukee type thoracolumbar brace only. This treatment was repeated every year, up to the complete skeletal maturation of the patients. The Brace Questionnaire was administered to all the patients. Results: Patients treated by fiberglass brace cast showed a significantly higher compliance to subsequent treatment with a Milwaukee brace, as demonstrated by the better results at the Brace Questionnaire. Conclusion: Despite the limitations of the study related to the small study population and the relatively short term follow-up, these preliminary results suggest that the use of a lighter brace cast allows a better compliance to a following brace treatment. Furthermore, this treatment improves the remodelling of the rib hump

Abstract no.: 45091

PES ANSERINUS SYNDROME DUE TO TIBIAL SPURS IN CHILDREN: A REPORT OF THREE CASES & REVIEW OF LITERATURE

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Osteochondroma represents the most common bone tumour. Osteochondromas of the proximal tibial metaphysis can sometimes present as a “rose thorn” or a spur, which in children can rarely give rise to irritation of the pes anserinus bursa. We describe the clinico-radiographic features of proximal tibial metaphyseal osteochondromas giving rise to pes anserinus bursitis in three children, including unusually bilaterally symmetrical osteochondroma in one of the cases. There is paucity of literature on the natural history and management strategies of proximal tibial osteochondromas presenting as pes anserinus syndrome particularly in the paediatric population.

Abstract no.: 45094

IN VITRO ANALYSIS OF OSTEOSARCOMA TUMOR SUPPRESION BY ZOLENDRONIC ACID ELUTED ALLOGRAFT

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Reconstruction of tumor damaged tissues has long been one of the biggest concerns in the world. In the meantime, bone tissue reconstruction after tumor resection is very important. Amongst the wide range of bone graft substitutes, allografts are considered as proper choice for hard tissue reconstruction used in clinical surgery. Zoledronic acid, a bisphosphonate drug, is a group of pyrophosphate analogues which bind avidly to calcium phosphate bone mineral surfaces and its major action is to inhibit bone resorption. In this study, local delivery of bisphosphonate at tumor site was appraised by using an acellular allograft eluted with varied dose of zoledronic acid solution. In this regard, with the aim of assessing the inhibitory role of the loaded allografts on osteosarcoma cell lines in vitro release profile of the specimens was extracted. The results showed that sustain release of zoledronic acid in the cell culture medium could have a profound inhibitory effect on the growth of the osteosarcome cells so that by increasing the primary amount of drug loading, the longer release period is obtained. Moreover, by in vitro resorption study of the loaded allografts, it was concluded that bisphosphonate loading can have a significant effect on reduction of weight loss and degradation of the allograft in comparison to uneluted one

Abstract no.: 45096

EVALUATION BETWEEN THE OBESITY AND THE GENU VALGUM IN INFANTS. EXPERIENCE OF THE MARTAGAO GESTEIRA CHILDREN'S HOSPITAL

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Introduction: This study quest to find a relation between the obesity and genu valgum at infants. Methods: Descriptive study with 53 patients of the hospital ambulatory with age between 2 to 14 years old. The criteria was the intermaleolar distance higher or equals to 6cm. Was collected data of indemnification and anthropometric (weigh, height, BMI) Was analyzed the variables of, sex, age, height, IMD and Z score. Was calculated the correlation between Z score and IMD, and weight and IMD by the correlation coefficient of Pearson. Results: The average age was 4.16 years and 71,7% was the male sex, IMD was 9,19cm, height, weigh and BMI - 1,07m, 23,9kg and 19,07kg/m². The obesity children's was 20,8% being only 41,7% in normal nutritional stage. The correlation between Z score and IMD , $r= 0,006$. Conclusion: This study couldn't prove a direct relation of obesity and genu valgum, but was able to relate the excess of weight and genu valgum. Therefore open space to more studies.

Abstract no.: 45100

FIXATION OF PEDIATRIC FEMORAL FRACTURES WITH TENS NAIL VS ENDERS NAIL : A COMPARATIVE STUDY

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BACKGROUND: Non operative of pediatric femoral fractures are associated with complications such as malrotation, angulation and limb length discrepancy. Operative management of such fractures are gaining popularity. Elastic intramedullary nailing is preferred to the other surgical techniques like plating, Rigid intra medullary nail. This study compares the results of TENS and Ender nail in pediatric femoral shaft fracture. **Materials and Methods:** : Hospital based prospective study of 50 pediatric patients with ages between 5 to 15 years admitted with mid shaft femoral fracture to government hospital mysore during November 2012 to November 2012 . Patients were put into 2 groups of 25 cases each by double blind randomization technique. Elastic nails were inserted by the retrograde approach after close reduction under fluoroscopic guidance. When close reduction was not possible, open reduction was done. Among the 50 patients, TENS were done in 27 patients, and Ender nails were done in 23 patients. Patients were followed up for a period of 2 years. **Results:** There is no significant difference between the 2 groups regarding functional and radiological outcome in the 2 years follow up. No statistical difference was found in regard to fracture union, weight bearing and complications **Conclusion:** As there is no difference between the two groups, Ender nail is a good alternative to TENS as it is of lower cost.

Abstract no.: 45101

MARTAGÃO GESTEIRA CHILDREN'S HOSPITAL GUIDE FOR THE TREATMENT OF DIAFISARY FEMUR FRACTURES

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Introduction: The femur fractures are a side chapter on the treatment of the fractures on children. This pathology is very common in our ambulatory and take most of the beds available on the service. To dynamize the beds minimizing the waiting line for the others pathology. **Objective:** present a guide for the femur fracture treatment on children minimizing the time of admission and getting better results with the conservator treatment. **Methods:** It's based on the implementation of a Guide for the treatment of femur fractures on children at our hospital. It took under consideration the age of the patient and the centimeters of shortening. For the patients from 0 to 2 years old it's recommended the use of cast Spp, until 1,5cm of shortening uses Spp for 30 days. Patients from 3 to 8 years old with shortening higher then 1,5cm use Buck Traction for 15 to 21 days and after that period use the S3pd for 45 days. Patients from 9 to 13 years old, use of compression plate, exterior fixators and/or titanic elastic nail. **Results:** was treated 193 children , 78,3% male and 21,7% female, on the period of January 2003 - December 2011. Most of the patients were treat conservatory and 12 was treat with titanic elastic nail and others with exterior fixator. The complications found was : overgrow, rotational deviation, bone infections and pseudoarthrosis. **Conclusion:** The conservatory treatment with traction and/or Spp and S3pd still continues to be the gold standard treatment in our service.

Abstract no.: 45103

CAN SPINOPELVIC PARAMETERS PREDICT THE SAGITTAL BALANCE IMPROVEMENT IN CORRECTIVE SURGERY OF SCHEUERMANN KYPHOSIS?

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Introductions: Sagittal alignment and related parameters including sagittal spinopelvic parameters (SSPs), have gained attention in spinal deformity outcomes. Scheuermann kyphosis (SK) is the most common cause of sagittal deformity in children and adolescent, and restoration of the sagittal balance is the target. This study is designed to evaluate the reliability of SSPs to control the correction of the sagittal alignment after surgical treatment for SK. **Methods:** 22 patients affected by SK were selected. Radiographic parameters included sagittal vertical axis (SVA), thoracic kyphosis (TK), thoracolumbar kyphosis, lumbar lordosis (LL), pelvic incidence (PI), sacral slope (SS) and pelvic tilt (PT). Postoperative radiographic parameters were checked to confirm the restoration of sagittal alignment and were compared to the preoperative values. **Results:** On average, patients did not experience significant changes in SS and PT compared to the preoperative values, and as expected no significant differences were recorded for PI. TK passed from an average $78.6^\circ \pm 11.2^\circ$ preoperatively to an average $45.8^\circ \pm 4.4^\circ$ ($p = 0.003$). LL passed from an average $74.5^\circ \pm 9.5^\circ$ preoperatively to an average $53.5^\circ \pm 9.8^\circ$ ($p = 0.01$). No significant differences were found in SVA. At follow-up, a nonsignificant loss of correction in TK of $3.6^\circ \pm 4.1^\circ$ was observed. **Conclusion:** SSPs are good indicators for sagittal alignment when the thoracolumbar or lumbar spine are involved. However, according to our study results, we do not suggest the use of spinopelvic parameters to evaluate the sagittal alignment for diseases like SK where only the thoracic spine is involved.

Abstract no.: 45106

EPIDEMIOLOGIC EVALUATION OF GENU VALGUM AND FLAT FOOT ON CHILDREN. EXPERIENCE OF THE MARTAGÃO GESTEIRA CHILDREN'S HOSPITAL

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Introduction: It's known that inferiors members angles deformities are the most common complains on children treated at our hospital and very often associated to foot deformity (flatfoot). There isn't specific studies in the literature that makes correlation between both, despite we see in the practice. Objective: Demonstrate the association between the genu valgum and the flatfoot on children treated at the Martagão Gesteira Children's Hospital orthopedics service. Methods: Was accomplished a descriptive study with 44 children from both sex, age between 2 and 14 years old with an intermaleolar distance higher or equal 6cm in the period of 5 month (January 2013 to May 2013). Was used the The Student T Test as well as the Kruskal-Wallis Test, with an estimated confidence of 95%. Results:The average age was 3 years old. 70,50% male, average weight 17,70kg, average height was 84,0cm, with a max variation until 153,0cm. The intermaleolar distance had a minimum value 6,50cm to a max of 16,00cm. There weren't a significant statistics comparing the gender, age or weight with the intermaleolar distance. 100% of the patients presented flexible flatfoot with bilateral deformities. Conclusion: This study demonstrated the association between the genu valgum and flatfoot.

Abstract no.: 45110

BIOBALL IN REVISION HIP SURGERY FOR RECURRENT DISLOCATIONS IN SELECTIVE PATIENTS

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Background: Recurrent dislocation is a challenging problem particularly in elderly patients with multiple co-morbidities. Bioball (Merete Medical GmbH) is a modular neck adaptor that allows fine adjustment of offset, version of the femoral component as well as leg length, without the need for revision of a well fixed femoral component. We present a small series of select patients who underwent revision hip arthroplasty using Bioball to reduce the morbidity associated with major surgery. Indications: Patients with more than three dislocations, with well-fixed un-cemented femoral prostheses, with significant co-morbidities. Methods: Five patients underwent revision surgery between November 2013 and December 2014. Age Range 45-86 years. Rates of dislocation ranged from three to six episodes. Four of the patients were found to have retroverted acetabular component; one had a loose acetabular component. Each had a Bioball adapter applied to restore correct anteversion and lateralization of the stem. One revision of the acetabular component was performed in the situation of the loose cup. Results: There were no cases of dislocation or complications since revision surgery. All patients were satisfied with the results of their surgery. Radiological review confirmed satisfactory outcomes. Conclusion: The authors suggest that in a small subset of patients revision with a Bioball adapter may be an option in revision hip surgery. This may be a suitable alternative in the elderly population. We have demonstrated in a small series of patients revision with Bioball for dislocation in the short term is a successful procedure with no recurrence of dislocation.

Abstract no.: 45113

**DISTAL LOCKING OF TIBIAL INTRAMEDULLARY NAILS: SURESHOT™
DISTAL TARGETING SYSTEM VERSUS FREE-HAND TECHNIQUE**

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Introduction: Over the time, insertions of the distal locking screws of intramedullary nails remains challenging and time consuming. The free hand technique under fluoroscopic control is still the most popular method, but involves considerable radiation exposure of both the patient and the surgical team. In this study, we compared the free-hand technique with SURESHOT™ Distal Targeting System for insertion of distal locking screws. Methods: 32 patients (mean age 41.6) with closed tibial diaphyseal fractures were treated with intramedullary nailing. All nails were locked with two screws distally and the procedure was performed by the same doctor. We compared intraoperative distal locking time, radiation exposure time and accuracy for the two techniques. Results: The SURESHOT™ system and the standard free-hand technique were used in 16 (group 1) patients and respectively 16 (group 2) patients. The average time of insertion of both distal interlocking screws was 427.9 (312-920) s in group 1 and 1162.7 (521-1936) s in group 2. Mean radiation exposure time was 1.9 (1-7) s in group 1 and 22.8 (5-41) s in group 2. The accuracy was 98.05% in group 1 and 86.2% in group 2. Conclusion: The SURESHOT™ Distal Targeting System significantly decreases duration of exposure to ionizing radiation, reduces distal locking time and has proved to be accurate with a fast learning curve.

Abstract no.: 45114

EPIDEMIOLOGICAL PROFILE OF PATIENTS WITH CEREBRAL PALSY SUBMITTED TO SURGICAL TREATMENT FOR THE CORRECTION OF THE CLUBFOOT AT THE MARTAGÃO GESTEIRA CHILDREN'S HOSPITAL ORTHOPEDIC SERVICE

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Introduction: Cerebral Palsy is a term used to describe an injury to an immature brain, determining motor alterations such as posture and movement disturbances. In a musculoskeletal view, there can be an increase in the clinical stage because of muscular contracture and articular stiffness. The equinovarus of the ankle, valgus and varus are the most common. The clubfoot is a deformity most common that requires treatment in patients with cerebral palsy. Methods: It's an observational and retrospective study. We collected the data from charts of patients with cerebral palsy and clubfoot at our service, in the period of January 2013 and January 2014, getting a total of 173 patients, in which 53 fulfilled the criteria. Results: The average age was 7,42 years old with a variation of 0,58 to 15,33 years old. Male gender prevailed with 54,7%, there were 60,4% of bilateral affection and in unilateral 28,3% right and 11,3% left. The most common technique was the lengthening of the Achilles (41,5%) followed by VULPIUS 37,7%, and Cincinatti and Talectomy with Achilles lengthening 9,4% and the Hallux Valgus with Achilles lengthening 1,9%. Conclusion: This study demonstrates that the average age was 7,42 years old, with predominance of male sex and bilateral deformities and the surgical approach was Lengthening of Achilles.

Abstract no.: 45120

TITLE: TIMING OF IMAGING AND INTERVENTION IN CEREBRAL FAT EMBOLISM

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Introduction: The incidence of fat embolism after long bone fractures is common. Cerebral fat embolism can occur with predominant neurological symptoms. Still there is a dilemma about when to do diagnostic imaging and when to intervene for long bone fractures. Aim of the study: To analyze the patients with cerebral fat embolism following long bone fractures to know the timing of MRI imaging and surgical intervention. Materials and Methods: 18 males patients (diagnosed as cerebral fat embolism) from March 2011 to 2013 at level 1 trauma centre were analyzed retrospectively. Mode of injury, fracture pattern, treatment, co-morbidities, hospital stay, latent period, onset of first symptom, MRI findings, ICU stay and recovery in days was noted. Results: Average age was 29.6yrs. Femur followed by tibia fracture was the predominant pattern. Ist symptom was disorientation and drowsiness with a latent period of 22.6 hours. MRI findings were positive within 12 hours. All the patients were divided into two groups and compared. First group (11 patients) who underwent definitive interlocking without prior external fixator. Second group (seven patients) who had initial external fixator followed by definitive internal fixation. Statistically there is no major difference between the two groups regarding the recovery time after the appearance of symptoms. Conclusion: MRI must be done immediately following clinical suspicion. Timing of surgical intervention & whether external fixation or definitive fixation solely depends on the hemodynamic stability, respiratory stabilization –saturation >94%,Fio2<40% and when cerebral edema reduces.

Abstract no.: 45121

**EPIDEMIOLOGICAL EVACUATION OF THE LEGG-PERTHES DISEASE
ATE THE MARTAGÃO GESTEIRA CHILDREN'S HOSPITAL**

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Introduction: The Legg-Perthes disease is an auto limited affection that compromise the proximal femur epiphysis. The incidence is variable by the geography location, ethnicity and the etiology is still unknown. Knowing the epidemiological profile of the population is very important for the more efficacy on the treatment and knowledge of this pathology. Methods: Observational and descriptive study with horizontal cut. 497 children in with 15 presented the pathology between July and November 2013. Results: Average age was 9,12 to 2,85 years old, variation between 2 to 13 years olde. The patients superior then 8 years old was the most common affected. The male sex prevail with 86,7%, the right member 60% and the left 33,3% and the bilateral was 6,7%. The prevail treatment was the Aductors Tenotomy with after use of the Atlanta with 46,7% and the only use of Atlanta was 40%. The cast use was 6,7%. Conclusion: The objective of the study was reached because was observed and prevail of the genders age and side of deformity and choice of treatment. It's important to remember that the more we know the profile of the patients, the more best results we have, what gives the patients better quality of life.

Abstract no.: 45124

DRAIN AFTER TOTAL KNEE ARTHROPLASTY IN PATIENTS WITH HAEMOPHILIA: A NECESSARY PRACTICE?

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Introduction: There is controversy around using drain in total knee arthroplasty (TKA) especially in patients with hemophilia. Use of drain is proclaimed to reduce the rate of hematoma (which will impede rehabilitation), wound problem, limitation in range of motion and infection. We conceived this study to see if no-drain-protocol has any effect on the outcome of TKA in hemophilia. Methods: In a prospective study, we compared the results of drain-protocol (42 TKAs in 39 patients, mean age 35.5 years) with no-drain-protocol (38 TKAs in 27 patients, mean age 35.7 years). Peri-operative variables (the level of reported pain, rate of complications, estimated blood loss, ...) was observed in the two groups. The time (days) to regain a 90 degree of range of motion was also registered. Patients were followed for at least 12 months. Results: There was no statistical difference between two groups in terms of knee scores, blood loss, postoperative pain, fever, time to regain the range of motion and infection. Two patients in drain group and one patient in no drain group were re-operated because of peri-prosthetic joint infection. No patients needed blood transfusion in each group. Conclusion: Our study suggests that "no drain" protocol is safe after TKA in hemophilia. It decreases the cost of surgery and facilitates ambulation. Further prospective randomized study is necessary to determine the exact role of drain in TKA in hemophilia.

Abstract no.: 45125

CHEVRON SURGICAL APPROACH ON THE TREATMENT OF HALUX VALGUS ON CHILDREN AND JUVENIL. EXPERIENCE OF MARTAGÃO GESTEIRA CHIRLDERN`S HOSPITAL

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Introduction: Hallux valgus is a complex deformity that covers the entire first ray of the foot,. Currently, upper limit normal angle between the first and second metatarsals is 8° and 9°, between the first metatarsal and the first toe between 15° and 20°. When exceeded, often find the first metatarsal shortened and diverted varus while the first toe is deflected valgus and compensatory pronation. HVery controversial and etiologic basis pathology, but believed to be related to extrinsic and intrinsic factors. In children and adolescents this condition is rare and underdiagnosed , these patients often do not seek treatment until the pain limit your activity and the selection of shoes. Methods: Case study analyzing record book, 11 children with hallux valgus and underwent Chevron osteotomy in the period January 2010 to December 2013. Results: Of the 11 children 27.3% male and 72.7% female, average age 11.63 years (SD = 1,689), ranging from 10 to 15 years old. Regarding laterality of the affected foot, 27.3% patients had only the right foot affected, 27.3% patients had affected the left foot and 45.5% patients in both. Postoperatively, 72.7% children showed the first ray angles within acceptable values . All children had cosmetic correction and 90.9% children had relief of pain and suitability for footwear. Conclusion: This study showed that few children require surgical treatment for hallux valgus, more common in female and, affects most both feet. The Chevron osteotomy is fully applicable in cases intermetatarsal angle about 15° , remaining as excellent treatment option .

Abstract no.: 45127

**A PROSPECTIVE STUDY OF COMMINUTED RADIAL HEAD FRACTURES
TREATED BY RADIAL HEAD PROSTHESIS**

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Fractures of the radial head account for 33% of all fractures of the elbow. Most are simple to treat, but comminuted fractures pose a particular problem. Conservative treatment in this type of fracture leads to poor results, and internal fixation is seldom practical. Excision is not a suitable treatment for all comminuted fractures of the radial head. In elbows where instability can be predicted, a replacement arthroplasty of the radial head is more effective. The aim of this study was to present the results of metal radial head prosthesis. This surgical procedure was performed on 13 patients. The outcome was assessed using the Mayo elbow performance score. There were 9 excellent results, 3 good, 1 fair and zero poor, as graded by the Mayo score. The only significant complication occurred in one patient was transient posterior interosseous nerve palsy which recovered spontaneously. None of the patients had secondary instability of the elbow, osteoporosis of the capitellum, cubitus valgus, implant loosening or pain in the forearm and wrist. Our results were good using metal head prosthesis in comminuted fractures of the radial head.

Abstract no.: 45128

QUALITY AND EFFICACY OF POSTOPERATIVE AUTOLOGOUS TRANSFUSION OF NON-WASH BLOOD IN HIP AND KNEE ARTHROPLASTY

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Introduction: Total Joint Replacement (TJR) is associated with important post-operative blood loss. Both serious adverse events and burden costs secondary to allogenic blood transfusion promoted alternative techniques. During 2014-2015 the Italian Society of Orthopaedics and Traumatology (SIOT) promoted the application of Patient Blood Management protocols in TJR. By this, we evaluated the efficacy of a non-wash system for post-operative transfusion in elective primary hip and knee replacement. Methods: We conducted a prospective study between February 2014 and April 2015 on 40 patients who underwent total hip replacement (THR) (n=27) and total knee replacement (TKR) (n=13). Laboratory exams were taken before surgery, before autologous transfusion and on drain blood. Blood count, residual haemoglobin, tryglicerides were evaluated. Results: The mean value of reinfused blood was of 400 ml (250-600). No patients had adverse reactions. 18% of patients needed additional allogenic blood transfusion. Autologous blood resulted reduced in cells count almost of 50%. Lipidic concentration was almost equal to the patient blood. Emolysis was always lesser than 0,8, which is considered the border value to grantee a good quality of transfusion. Discussion: Post-operative autologous drain are simple to use devices and are associated with low costs. Increase in proinflammatory citokines seems not to be associated with systemic reactions. Autologous reinfused blood was in compliance with recommended standard. Efficacy regarding reduction of allogenic transfusion is not quite sure. Conclusion: our results agree literature when considering non-wash systems for autologous post-operative transfusion. Guidelines are necessary to obtain consense and improve outcomes.

Abstract no.: 45130

CENTRALISATION OF ULNA FOR LARGE GIANT CELL TUMOURS OF THE DISTAL END OF RADIUS AND FOR RECURRENT TUMOURS

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In developing countries we often come across cases of large Giant cell tumours of distal Radius due to late presentations. Sometimes the tumour recur after curettage and Bone grafting or excision and auto fibular grafting. We report our 26 such cases managed by wide excision and Centralisation of Ulna. After excision of the tumour the distal end of ulna was fixed to the center of the carpus after making a gutter by excision of lunate. A 3.5 mm dynamic compression plate was used to fix the bones. We had 17 female and 9 male patients in our series. Age ranged from 22 to 40 (Average 31) years. Followup ranges from 2 to 17 (average 8) years. Two patients had superficial infection which subsided with antibiotics and dressings. Two cases had recurrence and required below elbow amputation.

Abstract no.: 45131

PREVALENCE OF THE MUSCULOSKELETAL PAIN ON CHILDREN WITH OBESITY OR OVERWEIGHT. EXPERIENCE OF THE MARTAGÃO GESTEIRA CHILDREN'S HOSPITAL

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The obesity in childhood can be associated with countless physical and psychological complications, such as osteoarticular alterations that has as most common symptom musculoskeletal pain. The example had 56 children and adolescents between 8 to 17 years old with obesity and overweight that follows treatment at the University Federal Hospital of Bahia in the period of November 2009 to June 2010. The data was collected by interviewing, the data was musculoskeletal pain (back, knee and foot), age, time of appearance of symptoms and increase of weight. Was made and physical evaluation to classify the BMI. Prevalence the female sex 62,5% in those 73,2% obese and 26,8% overweight. Only 3 patients didn't complain about musculoskeletal pain. In the female the pain prevalence on the knee(62,9%) followed by back . In male 81% referred knee and foot pain. The 68% of the obese referred back pain, 65,9% knee pain. In overweight 80% referred knee and foot pain. Was noticed that the variable of back and knee pain was related to the gain weight, even so the correlation wasn't strong. Therefore we concluded that obesity has a very negative impact in the osteoarticular system of children and adolescent.

Abstract no.: 45134

PONSETI METHOD IN PATIENTS WITH CLUBFOOT THAT HAVE BEEN TREATED PREVIOUSLY

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Ponseti Method has become the gold standard for idiopathic clubfoot treatment, In the last years some authors have demonstrated satisfactory outcome in patients after walking age, and even good results in patients after failed surgical treatment. Methods: We retrospectively reviewed 19 clubfoot in 12 patients treated with Ponseti method, who had been previously treated and had residual deformity. 7 patients bilateral and 5 were unilateral. Affected side were 9 left and 10 right. Average age at treatment was 14,2 months (range 4 - 30 months). Previous treatment were: 1 foot had been treated by Ponseti method, 15 foot had been treated by casting (other than Ponseti technique) 2 had been treated by posteromedial release and 1 by posterior release and tibialis posterior lengthening. Results: An average of 4,6 casts, were required, (3-5) and 17 (89%) patients required percutaneous achilles tenotomy, 6 (31%) foot required anterior tibial transfer at , and 4 (23%) foot are planned for anterior tibial transfer, when they grow up (not older than 30 months) and 2 foot required posterior release. Minimum Follow up was 14 months, each foot was evaluated with Pirani score, before and after treatment. Score before treatment was 4,3 (range 1,5 – 6) and at last Follow up was 0,5 (0-1). Limitations of this study are few number of cases, different previous treatment, and short term follow up. Ponseti method was succesfull for correcting residual deformity for clubfoot after previous treatment, but required associated treatment such as anterior tibial transfer in 30% of patients.

Abstract no.: 45136

OSTEOLYSIS OF 2ND METATARSAL BONE- RARE PRESENTATION OF SKELETAL TUBERCULOSIS-A CASE REPORT

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Introduction: Skeletal tuberculosis constitutes up to 3% of extra pulmonary cases. 85% of patients with tubercular dactylitis are younger than 6 years of age. Tubercular dactylitis in adults is rare. CASE REPORT: A 20 year aged female a chronic pus discharging sinus over dorsal aspect of left forefoot above 2nd metatarsal bone since 3 months after sustaining a trauma.. General Examination revealed a moderate built and nourished female with palpable, enlarged right cervical and inguinal lymph nodes of size 2*3. Local examination of left foot revealed an indurated area (2*3 cms) over dorsum of left forefoot centered over distal ½ of 2nd metatarsal and a central sinus with bluish, granulomatous margins. Foot X-Ray revealed complete osteolysis of distal half of 2nd metatarsal of left foot. ESR was 95mm. Mantoux test 28 mm at 72 hours. FNAC revealed granulomatous lymphadenitis. An Open biopsy from the bone revealed epithelioid cell granuloma with giant cells and caseous necrosis. Bone culture was positive for Mycobacterium Tuberculosis. After TB and Chest consultation patient was started on ATT and at 1 month follow up all the scar had healed, lymph nodes were not palpable.DISCUSSION: Only 1/3rd of patients with tuberculosis of the bone are diagnosed with concomitant active pulmonary disease. Disseminated skeletal tuberculosis without primary foci is rare. Diagnosis of tubercular dactylitis is made on radiographic features and culture of Mycobacterium Tuberculosis.Tubercular dactylitis should be suspected in cases of long-standing pain and swelling or discharging sinus in the metacarpals and phalanges

Abstract no.: 45138

LONG TERM FOLLOW-UP IN THE TREATMENT OF CHRONIC ANKLE INSTABILITY: BROSTROM DIRECT REPAIR VS HEMI-CASTAING TENODESIS

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introduction:Chronic ankle instability is a condition of perception of giving way and persistent pain usually following multiple ankle sprains. In case of severe joint laxity, surgical treatment is recommended. The purpose of the present study was to compare the patients's outcomes considering Brostrom anatomical repair and lateral ligament reconstruction. Methods:40 patients underwent surgical treatment for chronic lateral ankle instability between 1997 and 1998: 20 patients underwent direct anatomical repair using Brostrom procedure; 20 patients underwent lateral ligament reconstruction using a split peroneus brevis tendon. Mean age at surgery was 22.6 years (18-40). Patients were assessed pre-operatively with Karlsson-Peterson score, Tegner activity level, Sefton stability scale, objective examination comprehending ROM, anterior drawer sign and talar tilt test. Telos Stress equipment was used for pre- and post-operative radiographic. The same protocol has been repeated 5 years, 10 years and 15 years after surgery Results: Mean point scales rating improved significantly from baseline ($p < 0.001$). Objective examination documented significantly reduction of anterior drawer sign and talar tilt test and complete ROM ($p < 0.001$). The average radiographic anterior talar translation and talar tilt stress decreased significantly at follow-up ($p < 0.001$) Conclusions: Most patients were satisfied with the results, but outcome at long-term follow-up was less favourable compared to short to mid-term with regards to activity level and joint stability. Patients were satisfied of the outcomes irrespectively of the surgical technique adopted; however, fifteen years after surgery, those patients which underwent lateral ligament reconstruction reported improved stability compared to patients who underwent direct

Abstract no.: 45139

EPIDEMIOLOGY OF TIBIA FRACTURES IN SINGAPORE

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Introduction: Existing literature on epidemiology of tibia fractures tend to focus on specific fracture sites or mechanisms. This study aims to provide a general epidemiological overview on the fractures of the proximal tibia, tibial diaphysis and tibial plafond in the urban population of Singapore. Methods: Retrospective review of clinical and radiological records encompassing a 3-year period, from 2012 to 2014 in a tertiary hospital in Singapore, which covers a population of 700,000 and located closest to the northern land checkpoint, one of the busiest in the world. Results: There were 215 cases of tibia fractures, of which, 67.4% were from the Singapore resident population. This ratio closely resembled the population of Singapore, where 29.2% are foreigners. 74.4% were males. The mean age of females were 64.1 years old while males were 40.1 years old. 68.4% underwent surgical intervention and the most common cause were road traffic accidents at 41.4%. Motorcyclists made up 78% of all road traffic accidents. 22.8% of all cases were open, most of which were Gustillo-Anderson Class III. Tibia diaphyseal fractures were most common and made up almost half of all tibia fractures. The most common AO Fracture Class was however, 41-B1. Conclusion: The incidence of tibia fractures is 10.1/100000 with a male-to-female ratio of 3:1. Incidence was higher in younger men and older women as seen in previous studies. The average age of patients with proximal and distal tibia fractures were on average 10 to 15 years older than tibial shaft fractures, showing an ageing trend.

Abstract no.: 45140

FUNCTIONAL OUTCOME OF PERCUTANEOUS RADIO FREQUENCY ABLATION IN OSTEIOD OSTEOMA

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Introduction:Osteoid Osteoma is a benign bone producing tumour.Male to female ratio is 2:1.Typical symptom is local pain. This pain is due to the fact that osteoid osteoma releases pro inflammatory prostaglandins and also contains sensory nerve fibers.Methods:It is a prospective study done at Sri Ramachandra Medical College,Chennai.Over a period of two years,with 24 patients with an age limit of 4-31 years.All patients underwent Computed tomography after which they underwent percutaneous radio frequency ablation on a day care basis.Results:In our study we had 24 patients out of which 17 (70.84%) were male and 7 (29.16%) were female.The mean age was 17.3 years.15 (62.5%) of the lesions was seen to be in the femur, 9 (37.5%) were in the tibia.The patients were assessed with visual analogue score and the mean VAS before the procedure was 7.5 and the mean 24 hours after the procedure was 0.8.We had primary clinical success in 24 patients with no recurrence.Conclusion:Radio frequency ablation is a very safe, simple and effective modality of treatment for Osteoid Osteoma with minimal complications and very high clinical success rate.But this is only when there is a proper diagnosis,early intervention,proper technique,instruments and duration of ablation.Surgical resection should be performed only if Osteoid Osteoma is percutaneously inaccessible.

Abstract no.: 45141

**EFFECTIVENESS OF TENDON SLIDING LENGTHENING TECHNIQUE
~MATSUO METHOD~**

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Introduction: Sliding lengthening technique (SL) was performed on the Achilles tendon by White in 1943, which is one of the common methods for equinus patients currently. On the other hand, Z-lengthening technique (ZL) was the most major method for tendon lengthening too, but this method has few recurrent and high percentage of heel deformation. Matsuo modified this sliding technique to have self-locking system, attempted in any part (finger flexor tendon, foot flexor hallucis tendon, psoas major tendon, hamstring tendon) and it has gained good performance. This system can prevent over-lengthening once lengthening distance is achieved. We compared Matsuo method with conventional ZL using the flexor digitorum profundus tendons and flexor hallucis longus tendons of Rabbit. Each Lengthening distance was 10 mm and overlapping distance was also 10 mm. Tendons were sutured with 4-0 Polypropylene. We performed biomechanical testing to investigate the failure load by traction force of 20 mm/min. Results: Matsuo method had significantly higher failure load than ZL. Discussion: The best advantage of the conventional SL is believed to be a good biomechanical for the continuity of the collagen fibers is maintained than ZL. However, Our most fear is that there is a possibility to produce a temporary over-lengthening in a number of cases when we slide without construction of the locking mechanism, such as a Matsuo method. Therefore, we believe this technique is better and secure for its strength and adjustability of lengthening distance.

Abstract no.: 45142

TRABECULAR METAL ACETABULAR COMPONENT ASSOCIATED WITH BONE-GRAFTING IN REVISION THA SURGERY.

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Trabecular Metal (TMT) has shown to be useful in revision total hip arthroplasty (THA), due to its good mechanical capacity and porosity which allow a rapid osseointegration. The aim of this study is to present our experience in the use of TMT acetabular components in association with bone-grafting. Data from 23 patients that underwent revision THA due to aseptic/septic loosening between 2009 and 2014 were analysed. A primary or revision TMT (Zimmer) acetabular component in association with bone-graft and sometimes augments was implanted in all patients. Bone-loss was categorized according to Paprosky classification. At the clinical follow-up (FU) HHS, VAS, SF-12 and WOMAC were evaluated. At the radiological FU migration, osteolysis, radiolucency, loosening and bone-graft reabsorption were evaluated. Further, a focused analysis was conducted in order to identify risk factors compared with our results. The mean patient age was 72.2 years (min=46-max=86). At time of mean FU (42 months) 20 patients were evaluated. Overall, no acetabular component or augment migration has been detected, even if partial bone-graft reabsorption has occurred. HHS=84.3, VAS-Pain=30, SF-12=41,8 (Physical) and 47,6 (Mental), WOMAC= 67,2. No case of implant failure or re-revision surgery. Clinical and functional results are influenced by elderly age and comorbidities. In all cases TMT implant osseointegration was evident. Primary implant stability, achieved using bone-grafting and augments, allowed the secondary implant stability, that lasted even in presence of partial bone-graft reabsorption. TMT acetabular components in revision THA have shown high reliability.

Abstract no.: 45145

ARTHROPLASTY IN CONTRALATERAL JOINT ARTHRITIS

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Introduction:Its not unusual for patients to have gross arthritis of a knee on one side and an equally involved hip or ankle on the other side. It makes one wonder which came first and caused the other. We looked at the incidence in a population attending a busy city hospital over a 2 year period. Methods:10 patients met the criteria of contralateral major joint involvement, secondary to trauma, dysplasia and inflammatory arthropathy. Results: All 10 patients benefited from arthroplasty of one or more joints in a staged manner. It is worth keeping this fact in mind and looking out for the same during the examination and assessment of a patient due for a joint replacement.

Abstract no.: 45146

EVALUATION OF THE KITE AND PONSETI METHODS ON CONSERVATOR TREATMENT ON THE CLUBFOOT AT THE MARTAGÃO GESTEIRA CHILDREN'S HOSPITAL

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Introduction: The clubfoot is one of the most common congenital deformities affecting the musculoskeletal system. Hipocrates was the first to leave written evidence about the clubfoot, in 400 BC, indicating manual manipulations without the use of force, followed by immobilization using bandages. Guerin, 1836, first to mention the use of plaster. Kite, 1932, published new method, more gentle manipulation that aimed at the correction of each component of the clubfoot separately, based on the support of the calcaneocuboid joint. 1950, Ponseti developed his own technique, a series of manipulations and immobilizations using plaster. However, the manipulations were based on the lateral surface of the Talus head and, when necessary, the tenotomy of the Achilles tendon. Comparative evaluation of Kite and Ponseti conservative methods will help analyze their effectiveness in relation to the principles of correctness of the osteo-articular, capsule and ligaments changes achieved. Methods: One hundred children born with the abnormality were divided in two groups. The first and the second groups were submitted to conservative treatment using Kite and Ponseti methods, respectively. At the end of the treatment, both groups were evaluated based on the classification of Pirani to verify if there was adequate correction of the deformity. Variables studied: correction of deformity, age, sex and laterality. Results: There were significant statistical differences between the effectiveness of Kite and Ponseti methods of conservative treatment. Conclusion: The present study shows that the efficacy of conservative treatment using the Ponseti method was 18% higher when compared to the Kite method.

Abstract no.: 45148

HOW ADEQUATE ARE OUR HIP RADIOGRAPHS IN FRACTURE NECK OF FEMUR PATIENTS? A GENERAL HOSPITAL EXPERIENCE.

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Aims:This study aimed to establish the adequacy of hip-radiographs performed on patients presenting with neck of femur fractures to the emergency department. In particular, this study looked at safety and cost-implications of these repeat radiographs on the patient and the radiology department respectively. **Methods:**We performed a retrospective study on 84 consecutive fracture neck of femur patients admitted to Sandwell Hospital from June to August 2015. We investigated the technical adequacy of AP (antero-postero) and lateral projections of radiographs and compared them to a set protocol of standards of an adequate hip x-ray. **Results:**We found that of the total 84 patients (M:F, 27:57), 48% of AP X-rays and 10% of lateral X-rays performed were inadequate and therefore did not meet the basic criteria. This meant that a large proportion of patients were undergoing repeated X-rays and in some cases required further investigations such as a CT (computed-tomography) scan. **Conclusions:**A significant proportion of hip x-rays that were being performed in the emergency department were clinically inadequate as per criteria used. This had two major implications, firstly on patient care as repeated x-rays would inevitably delay timely management along with over exposure of radiation to patients; and secondly, the cost-implications of multiple repeated x-rays and in some cases need for a CT scan due to poor technical quality. Furthermore, we discovered that there was no standards for assessment criteria for AP and Lateral hip x-rays in our radiology department. We therefore aim to implement a new set of assessment criteria for Hip x-rays and perform a re-audit.

Abstract no.: 45149

OUTCOME OF ISOLATED OLECRANON FRACTURES IN SKELETALLY IMMATURE PATIENTS: COMPARISON OF OPEN REDUCTION AND TENSION BAND WIRING FIXATION VERSUS CLOSED REDUCTION AND PERCUTANEOUS SCREW FIXATION

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Introduction: The olecranon fracture is an uncommon injury reported to incur many possible complications in children. The aim of this study was to compare the outcome of two different surgical techniques in isolated olecranon fracture. Methods: We retrospectively evaluated 22 children with isolated olecranon fracture treated by open reduction and tension band wiring fixation (Group A) versus closed reduction and percutaneous screw fixation (Group B). We compared the dislocation before and after surgery by radiography. At last follow-up visit, patients were evaluated with the short version of the Disabilities of the Arm, Shoulder and Hand outcome questionnaire (Quick DASH®). Results: Twelve patients were in Group A and ten in Group B. Overall, the mean age at the time of injury was 10.5 years (range 3.8–14.5). The two groups did not differ significantly in their demographics ($p > 0.05$). Both techniques showed good radiographic, clinical, and functional outcome (Quick DASH® 1.82 vs. 3.42) with no statistically significance difference ($p > 0.05$). All the children returned to previous activity. In four cases the extension of the elbow was slightly reduced (15–20°), with no statistically significant difference in the two groups. Conclusions: It is not contraindicated to operate skeletally immature patients with displaced olecranon fracture. However, results were essentially the same, and so either method is a satisfactory choice for pediatric displaced olecranon fractures, with equally acceptable radiological results, and similar rate of complications and clinical and functional outcome at final follow-up.

Abstract no.: 45151

MINI-EXTENSIONS FOR TREATMENT OF SEVERELY COMMINUTED METATARSOPHALANGEAL SERIAL FRACTURES

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Metatarsophalangeal serial fractures with severely comminuted articular joint surfaces are usually caused by high energy trauma like motor vehicle accidents or falls from high altitude, for example. Thus, open reduction and internal fracture fixation usually is not recommendable due to concomitant soft tissue damage. Delayed treatment, however, can lead to severe functional impairment and chronic pain. We report the case of an 18-year-old multiply injured male patient with severely comminuted and displaced intraarticular fractures of the metatarsophalangeal joints 2-4 with massive soft tissue swelling. Three days after trauma we reduced and stabilized the fractures by use of mini-extensions: an external fixator was mounted on the dorsal aspect of the first metatarsal bone using 2.5 mm Schanz screws and a longitudinal bar. At the distal end of the longitudinal bar we mounted a mediolateral bar about 5 cm distal to the toes. Then we inserted 1.25 mm K-wires percutaneously from medial to lateral into the distal metaphyses of the proximal phalanges 2-4. The K-wires were bent rectangularly at both sides about 3 mm over the skin surface and connected to the mediolateral bar distal of the toes with elastic rubber bands. By tensioning of the rubber bands closed reduction of the fractures was achieved in a gradual manner, and the fractures were stabilized dynamically so that the patient was able and instructed to move all joints of the injured toes actively. By use of the described mini-extensions all fractures healed within 8 weeks with excellent functional results.

Abstract no.: 45154

OUTCOMES OF ROTOGLIDE JOINT ARTHROPLASTY FOR HALLUX RIGIDUS

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Introduction: Hallux rigidus(HR) is a degenerative condition characterized by pain, reduced range of motion and proliferative osteophyte formation. Aim: To evaluate radiological and functional outcomes of patients undergoing Rotoglide Joint arthroplasty for treatment of moderate to severe HR. Methods: Between Jan 2013-Jan 2015, 31 toes in 27 patients with HR underwent Rotoglide implant arthroplasty. The Roto-glide Great Toe system, a 3-part Anatomical Great Toe system, incorporates a sliding and rotating meniscus. Patients were evaluated clinically and radiographically at 3,6,12 and 24 months. Post operative satisfaction and function were assessed according to American Orthopaedic Foot and Ankle Society Score (AOFAS). Results: Age range- 51 to 76 years. Mean follow-up -15 months (1-26 months). Mean preoperative AOFAS score improved from 34.7(17- 59) pre-operatively to 82.2 (61-93) at final follow up. Average MTP ROM improved from 5 degrees(5- 15 DF pre-op, 10 degree PF) to 35 degrees (30-50) postop. 1 patient revised at 12 months for severe ongoing pain and stiffness. Removal of implant, impaction bone grafting and fusion using plate and screws done. Another patient developed hallux valgus at 14 month and was treated with correction of hallux valgus with basal osteotomy. The MTP joint was not revised as joint looked satisfactory. However, the spacer was changed. One patient developed superficial infection, which settled with oral antibiotics for one week. Conclusion: Rotoglide total first MTP joint prosthesis yields good functional outcome and high patient satisfaction level with low early complication rate. Preservation of joint movement and good pain relief with early mobilization are advantages of this procedure.

Abstract no.: 45156

TREATMENT OF CONGENITAL IDIOPATHIC CLUBFOOT BY THE PONSETI METHOD. EXPERIENCE CHILDREN'S HOSPITAL MARTAGÃO GESTEIRA. PRELIMINARY ASSESSMENT. SALVADOR: FACULTY OF TECHNOLOGY AND SCIENCE-FTC; 2013. 41P.

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Introduction: Idiopathic Congenital Clubfoot (PTCI) is also known as talipes equinovarus or clubfoot. It is a congenital deformity, and complex three-dimensional foot, which compromises both the bony structures and soft tissues. It is clinically characterized by equinus and varus hindfoot, midfoot cavus and adduction of the forefoot. The goal of treatment is to get a PTCI plantigrade foot, painless, flexible, with good muscle strength and allows the use of common footwear, featuring a march close to normal. Thus, it was presented in law, United States of America, there are about fifty, the method described by Ignacio Ponseti technique conservative that has been widely disseminated and used. It is the method "gold standard" as choice for the treatment of PTCI in the world. This method involves manipulations with exchanges of serially fixed plastered inguinopodálicas weekly. Objective: To evaluate the efficacy of correction of clubfoot (PTCI) by Ponseti Method. Methods: We treated 96 children with the deformity of the PTCI Children's Hospital Martagão Gesteira by conservative Ponseti technique. At the end of the adopted therapy patients were evaluated and classified into groups by Pirani classification to verify the effectiveness of treatment for deformity correction. Also studied were the variables of age, sex and handedness. Results: The 80,21% children had conservador treatment and 19,78% treated with percutaneous tenotomy and 66,66% had correios of the abnormality.. Conclusion: This study demonstrates that the Ponseti method showed safety and efficacy for the correction of clubfoot(PTCI).

Abstract no.: 45159

THE ROLE OF SELECTIVE NERVE ROOT BLOCK IN THE TREATMENT OF LUMBAR RADICULAR LEG PAIN.

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Introduction: There is still controversy regarding the treatment of Lumbar radiculopathy. Common modalities include anti-inflammatory agent, bed rest, physical therapy and surgery. Present study was done to determine the clinical effectiveness of selective nerve block for lumbar radiculopathy with a mild neurological deficit. Materials and method: 34 patients with a minor sensory/motor deficit and a unequivocal MRI finding (28 disc herniation, 6 foraminal stenosis) were treated with selective nerve root block. All the patients were evaluated by Oswestry Disability Index of Fairbank at pre and post injection period with a regular interval. Methylprednisolone (80mg) with 0 .5 ml 2% lidocaine was administered in all cases under c-arm and confirmed by radioculogram. Results: From the total of 34 patients 29 patients (85.30%) showed improvement in their symptoms in 1st week. Out of these 29 patients, 21 patients (72%) had long term improvement and 8 patients (28%) showed short term relief. Statistically significant improvement at every stage of assessment was observed. Conclusion: Selective nerve root block is very effective in patients with predominant lumbar radicular symptoms and indicated where surgery is not appropriate for whatever reasons.

Abstract no.: 45163

COMPARATIVE EVALUATION BETWEEN CAPSULORRHAPHY WITH SIMPLE SUTURE AND WITH ANCHOR IN RABBIT HIP JOINTS [DISSERTATION]. SÃO PAULO: “FACULDADE DE MEDICINA DA UNIVERSIDADE DE SÃO PAULO”; 2010. 83P.

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Introduction: HDD (Hip Development Dysplasia) is one of the most important and controversial pathologies which affect children. The three-dimensional anatomy and complexity of the hip joint, and the little understanding of the potential of acetabular reconstruction after luxation or sub-luxation and the later effects on the child's gait and movement, raise various points of discussion. Little literature exists about the different types of capsulorrhaphy. Techniques which are less aggressive or decrease risk of luxation after surgical reduction must be researched. Methods: Thirteen New Zealand Albino (*Oryctolagus cuniculus*) male rabbits, twenty-six hip joints, were used. First, a pilot project was performed with three rabbits (six hip joints). The experimental group consisted of ten rabbits and was divided in two sub-groups: group 1 underwent capsulorrhaphy on both right and left hips with simple suture using polyglycolic acid absorbable thread, and group 2 underwent capsulorrhaphy with titanium anchors. After a four-week post-operation period, the animals were euthanized and the hip joints were frozen. On the same day the hip joints were unfrozen, a biomechanical study was carried out, evaluating the following parameters: rigidity, maximum force, maximum deformity and energy. Results: There was no relevant statistical difference in rigidity, maximum force, maximum deformity and energy between the simple suture and anchor groups. Conclusion: Through biomechanical analyses, using parameters of rigidity, maximum force, maximum deformity and energy, it has been shown that a capsulorrhaphy with simple suture and with an anchor has similar results in rabbit hip joints.

Abstract no.: 45166

CASE SERIES AND REVIEW OF LITERATURE IN CARPOMETACARPAL DISLOCATIONS

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INTRODUCTION: Isolated traumatic dislocation of carpometacarpal joints, are rare injuries in orthopaedic practice as the strong ligamentous attachments and carpal bone alignment readily resist displacement. Gray described this biaxial saddle joint as an articulation by reciprocal reception. Depending on which ligaments are the true key stabilizers for the involved joints and therefore need to be damaged to result in dislocation, and optimal treatment strategies for the involved carpometacarpal joint dislocations are the subject of continuing debate. Carpometacarpal joint dislocation management ranges from closed reduction with or without Kirschner wires and casting to ligament reconstruction. We give a review of the literature concerning traumatic dislocations of the various carpometacarpal joints in the hand and propose a treatment algorithm. **AIM OF STUDY:** To evaluate the outcome of results carpometacarpal dislocation in our setup. **MATERIALS AND METHODS:** We describe 11 patients who came with Carpometacarpal Dislocation to our hospital (PG department of Orthopaedics, Hi-tech medical college and hospital) who were treated with conservative / closed reduction internal fixation with K wire/Open reduction internal fixation with ligament reconstruction. **RESULTS:** We managed 2 cases of Carpometacarpal dislocation conservatively with Plaster Cast, 4 cases with Percutaneous pinning, and 5 with Open reduction and internal fixation with K-wires or Mini Plating with or without ligament reconstruction. **CONCLUSIONS:** The results were far better in cases treated with Open reduction and internal fixation when compared to cases treated conservatively or with percutaneous pinning because it offers better reduction and also prevents transfixing of the tendons.

Abstract no.: 45168

LATERAL OPENING WEDGE CALCANEAL OSTEOTOMY FOR CORRECTION OF PLANOVALGUS FOOT DEFORMITY IN CHILDREN A PROSPECTIVE STUDY

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A planovalgus foot is a common foot deformity in children. Although in most cases, flexible pes planovalgus in children resolves spontaneously, surgery can be necessary when conservative treatment fails and severe or more rigid pes planovalgus deformities associated with cerebral palsy or myelomeningocele are present. Objectives: The purpose of the present study was to evaluate the clinical and radiographic results of planovalgus patients treated with lateral opening wedge calcaneal osteotomy (LCL) with medial soft tissue procedure. Methods: A total of 18 patients who underwent LCL (18 patients, 28 feet) were included in the present study between 2010-2014. The etiology of the planovalgus foot deformity was idiopathic in 22 feet and cerebral palsy in 6 feet. Operative correction is indicated in the present study in symptomatic (pain or callus) children in whom conservative treatment had failed. The patients were evaluated preoperatively, postoperatively, and at the last follow-up visit, both clinically and radiologically, and the interval to union and postoperative courses were evaluated. Results: In 22 of the 28 feet, a satisfactory outcome was shown, and 6 had an unsatisfactory outcome. All 4 radiographic parameters were improved at the last follow-up visit in all patients. In terms of the interval to union and postoperative care, no case of postoperative deep infection or nonunion was encountered in the study with a mean time to union of 2.5 months. Conclusions: LCL is an effective procedure for the correction of pes planovalgus deformity in children, especially mild to moderate pes planovalgus deformities, with less satisfactory results in spastic severe deformity.

Abstract no.: 45172

SHOULD CLOSED ANKLE FRACTURE PATIENTS BE RECEIVING VTE-PROPHYLAXIS?

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Introduction: Venous thromboembolism (VTE) is a well-known complication of lower limb injuries. Its predisposition invariably increases in the population of ankle fractures. NICE guidelines have identified the need for prophylaxis in patients that are admitted however, there is no conclusive guideline with regards to management of patients that are not admitted to hospital, yet still fulfil risk criteria for VTE. Methods: Over a total 12 month period, 312 patients presented with closed ankle fractures to a major trauma hospital. The i) operative vs. non-operative management, ii) post-presentation and post-operative provision of prophylactic thromboprophylaxis, was identified. The incidence of thromboembolism in this cohort of patients was retrospectively investigated. Results: The mean age of the population was 48 years (range: 15-112 years), with 69% of patients managed conservatively, vs. 31% that were managed surgically, either by external fixation and/or internal fixation. Of this only 21% and 62% of patients conservatively and surgically managed, respectively received enoxaparin during their care, however, no patient developed any thromboembolism during a 6 weeks post-discharge period. Conclusion: A considerable number of patients that were managed conservatively and those surgically managed post-discharge, received thromboprophylaxis. In light of no patients having VTE complications, it is worthwhile considering a clear guideline to establish the need for prescribing prophylactic thromboprophylaxis medication in ankle fractures that are managed non-operatively or post-discharge in those managed operatively, particularly in light of costs and the risks of complications it holds.

Abstract no.: 45174

NEW CLUBFOOT SURGICAL APPROACH WITH CINCINNATI'S INCISION PRESENTATION AN APPROACHING TECHNIQUE

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The authors present a new surgical approach to one stage soft tissue release without internal fixation, for the correction of congenital resistant clubfoot utilizing that Cincinnati incision. Since the year 1990, the Cincinnati incision has been applied in the Service, due to its excellent cosmetic results. However, it was only in the year 2000 that all the modifications that culminated in this Operating Technique were finalized. The authors agree that this Technique, subdivided in sequential stages, permits ample release of soft tissue, mainly in the posterior lateral region of the hindfoot. This agile technique reduces operating time, thereby reducing the risks, be they anaesthetic or related to healing.

Abstract no.: 45178

COMPLETE LOCAL TUMOR CONTROL AFTER CURETTAGE OF CHONDROBLASTOMA

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Background: Chondroblastoma is an uncommon benign bone tumor with an incidence of 1% to 2% among all primary bone tumors. In the past, treatment for chondroblastoma has been highly variable leading to different rates of recurrences. Therefore we aimed to determine: 1) the rate of recurrence, 2) the complication rate, 3) and functional outcome after intralesional curettage of chondroblastoma. Hypotheses: Intralesional curettage with high speed burring and packing can avoid local recurrences. Patients and Methods: Experiences of 22 patients with chondroblastoma of the bone were retrospectively reviewed. The patient group consisted of 16 men; 6 women; mean age 24 years (range; 12-58 years) affecting in 15 the lower- (68%) and in seven the upper extremity (32%). Results: There was no local recurrence or malignant transformation. All patients underwent intralesional curettage followed by defect filling presenting in 19 patients (87%) excellent clinical and oncological results (mean MSTS 98.9). Complications were seen in two patients. Pain was the main symptom in our patients (n=16, 73%). Mean follow-up of all patients was 114 months (range, 25 to 480 months). Discussion: Aggressive curettage and packing provided excellent local tumor control and functional results in our patients with chondroblastoma. Malignant transformation is extremely rare, however, present in literature but was not seen in any of our patients.

Abstract no.: 45180

VALUE OF SHORT FORMS 36,12 AND 8 FOR THE EVALUATION OF SURGICALLY TREATED DISTAL RADIUS FRACTURES. A LITERATURE REVIEW

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Introduction:The treatment of distal radius fractures remains of highest interest for the orthopedic community. Healed incorrectly distal radius fractures result in the development of osteoarthritis and motion dependent pain. In the last 2 decades patient satisfaction after surgical interventions has gained growing interest. The aim of this study is to investigate the importance of subjective patient oriented evaluation of treatment success using short forms 36,12,8 after surgical treatment of distal radius fractures. The distal radius fracture was selected because of its high socio-economic importance. **Methods:**A collective literature search was performed with reference dates between 1. June 2004 and 1. June 2014 in the databases PubMed, Medline and Embase. English-language studies that had surgical treatment of distal radius fractures independent of the choice of operative strategy for subject and had either the short forms 36,12,8 as a scoring tool to assess the quality of life of patients included were investigated. **Results:** More than 2000 studies did not consider the short forms 36,12,8. A total of 16 studies were identified containing the short forms 36,12,8. The short form 36 was by far the most frequently used questionnaire. **Discussion:**The results of this review clearly document the great scientific interest in distal radius fractures and its surgical treatment options. Despite the seemingly increasing concern for quality of life after musculoskeletal surgery only few studies have been identified which have used the short forms 36,12,8. From these studies only few were of high methodological quality and only a minority of authors have gathered the opportunity to compare their short form results with validated population norms.

Abstract no.: 45181

15 YEARS RETROSPECTIVE EVALUATION OF POSTERIOR LUMBAR INTERBODY FUSION OF ADJACENT SEGMENTS

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INTRODUCTION: To determine the incidence of adjacent segment degeneration in postoperative posterior lumbar interbody fusion (PLIF) patients. The accepted aim of surgical management of spondylolisthesis, is decompressing neural elements and restabilizing the affected vertebral segments via PLIF with pedicle screw fixation.**METHODS:** Between 1994 and 1999 we treated 124 consecutive patients with PLIF and pedicle screw fixation. The mean age at the time of surgery was 36.5 years. The mean follow-up period was 18.7 years. PLIF and pedicle screw fixation treated Meyerding I-II grade isthmic spondylolisthesis at the L5-S1 levels. Follow-up examinations included the Oswestry Disability Index (ODI), the Visual Analogue Scale (VAS), and pre and postoperative spinal radiological (X-ray & CT) evaluations. **RESULTS:** Evaluations were based on ODI during the pre and postoperative period, scores indicated a marked improvement from an average of 358 to 224 points. Unfortunately, the average outcome ODI increased to 238 points after 5 years, 286 points at 10 years, 312 points at 15 years. X-ray and CT evaluations clearly indicated progressively increasing facet joint Osteoarthritis, degenerative disc disease (DDD) signs via intervertebral space narrowing, and an increased intersegmental lordosis of adjacent segments postoperatively over this retrospective fifteen (15) year follow-up. **CONCLUSIONS:** During postoperative PLIF follow-ups, patients had significantly better scores for both pain and daily function, but those benefits were reduced after fifteen (15) years. The rigid interbody fusion increases the mechanical stress on the surrounding vertebrae segments and progressively causes a proliferative degenerative vertebral pathology.

Abstract no.: 45182

PROFILE OF CLINICALLY DIAGNOSED PATIENTS WITH TIBIA VARA (BLOUNT'S DISEASE) IN THE MARTAGÃO GESTEIRA CHILDREN'S HOSPITAL

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Objective: Study the clinical profile of patients diagnosed with Blount's disease in Pediatric Orthopedics Clinic of Martagão Hospital Gesteira-BA. **METHODS:** We conducted a cross-sectional study with data collected from the patients 0-17 years and 11 months, with a diagnosis or history of Tibia Vara from June to November 2015. **Variables:** gender, age, race, family history of Tibia Vara, cerebral palsy, weight, height, body mass index, tibial unilateral involvement or bilateral, previous surgeries, leg, back, knee or foot pain, physical exercises, pain improves with exercise, the affected limb, difficulty of walking, spinal deviations, weight rating and age range. **Statistical analysis** was performed by the absolute and relative frequencies, mean and median, binomial test and Mann-Whitney test. The confidence interval was 95%. **Results:** Thirteen patients were included in this study with a minimum age of 2.5 years and a maximum fourteen years, 46% female patients, 54% male . 61.5%blacks, 23.1% mulatto,15.4% whites ; 15.4% normal weight, 38.5% overweight and 46.2% obese ,85% of patients with Tibia Vara were overweight for their age and height. **Conclusion:** Among the variables were statistically significant not have cerebral palsy, do not report pain in the feet or back pain, as well as being overweight. We also conclude that DIC is not influenced by the weight, nor the pain in the lower limbs is related to her.

Abstract no.: 45184

**TOTAL KNEE ARTHROPLASTY IN HEMOPHILIC STIFF KNEES:
COMPLICATIONS AND OUTCOME**

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Introduction: The latest stages of hemophilic knee arthropathy (HA) is usually accompanied by severe deformities and limitation of range of motion (ROM). Total knee arthroplasty (TKA) as a preferred treatment has its own challenges in this group of patients. We report the complications and outcome of TKA in our subgroup of hemophilic patients with stiff knee. **Methods:** Forty-eight patients with HA and severe limitation of knee ROM (<50) was retrospectively reviewed from of prospectively recorded database. All patients underwent TKA with usual anteromedial arthrotomy. To improve exposure, a quadriceps snip or a tibial tubercle osteotomy was used. Preoperative and follow-up status of range of motion, knee society score, WOMAC and SF36 quality of life scores was recorded. At least 12 months of follow-up was available during which any complications were recorded. **Results:** In forty-seven patients, a quadriceps snip was enough to give enough exposure. In one patient with severe lateralization of tibial tubercle and patellar maltracking a decision was made to do a tubercle osteotomy instead. The mean pre-operative ROM (34.35) was significantly improved at latest follow-up (85.310, $p < 0.005$). Five of the patients had a valgus deformity. In one patient, a bony avulsion of femoral origin of medial collateral ligament occurred which was managed with screw fixation. **Conclusion:** TKA in hemophilic stiff knee has a good impact on patient function. A quadriceps snip along with meticulous tissue handling, will give a good exposure and has minimal complications.

Abstract no.: 45185

FIVE YEAR RESULTS OF A PROSPECTIVE RANDOMISED CONTROL TRIAL OF NAVIGATED VS CONVENTIONAL TOTAL KNEE REPLACEMENT

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We report the five year results of a prospective randomised control trial of navigated versus conventional total knee arthroplasty. One hundred and forty patients listed for a total knee replacement were recruited and randomised to receive a PFC (dePuy) cruciate retaining prosthesis utilising either conventional intra and extra-medullary referencing techniques or computer-guided navigational techniques. Patients had pre-operative and post-operative CT scanograms to assess alignment. Subsequently they had plain X-rays for monitoring purposes. Surgeries were carried out by two knee specialists, who were familiar and comfortable with navigation techniques, thus eliminating any learning curve bias. Outcome scores, namely the Oxford Knee Score and SF-12 were used to assess patient satisfaction and wellbeing at regular intervals post-operatively. We report our most recent results from five years of follow up, gaining valuable insight into the safety and efficacy of navigation techniques over conventional techniques for total knee arthroplasty.

Abstract no.: 45187

PERI-PATELLAR STIFFNESS AFTER KNEE ARTHROPLASTY

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Introduction: The postoperative Physiotherapy plays a major role in the successful rehabilitation and outcome following Total Knee Arthroplasty. 1 in 5 knees develop peripatellar stiffness, which usually occurs in the 2nd month post-surgery. It manifests as knee swelling, stiffness in flexion beyond 90 degrees and dull anterior knee pain.**Methods:** 24 out of 100 knees performed in a city hospital over a period of 18 months were noted to have peripatellar stiffness. 11 males and 13 females. All patients underwent patellar mobilisation exercises and over 4 weeks successfully overcame knee stiffness and swelling. **Results:** It is important to be aware of this common postoperative occurrence and take immediate appropriate action in the form of easy patient friendly physiotherapy exercises for a good result and a satisfactory patient outcome.

Abstract no.: 45188

THE ROLE OF ANTIBIOTIC PROPHYLAXIS IN ONCOLOGICAL MUSCLE-SKELETAL SYSTEM: STUDY AND APPLICATION OF A RETROSPECTIVE STANDARDISED PROTOCOL

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Introduction: Post-operative infections represent a major concern in the hospital daily practice in terms of incidence and consequences. Antibiotics dramatically improved the control of infections, being used as a prophylaxis and as direct treatment as well. **Materials and methods:** We enrolled a total of 93 patients affected by different oncological pathologies involving the musculoskeletal system and statistically analyzed the relationship between risk factors and the occurrence of infectious complications after orthopaedic surgeries following different scheme of antibiotics administration. **Results:** Of the 93 patients enrolled, 36 (39%) carefully followed the prescribed antibiomatic therapy, and the absolute incidence of postoperative infections was 8,3% (absolute risk 0.083). 14,1% of the remaining 57 patients (61%) suffered from postoperative infection. The relative risk ratio of the two groups was 0,59. **Discussion:** The analysis of the collected data showed that 46 patients among the total of those who did not adhere to the prescriptions, specifically did not respect the timing of the drug administration. According to statistical correlations showed by comorbidities (diabetes, obesity, rheumatoid arthritis, ASA score, radiotherapy, etc.) there is a significant association between the timing of surgery, the ASA score and the increase in occurrence of infections at the site of surgery. **Conclusion:** A proper antibiomatic prophylaxis, its use and its outcomes must be weighed based on the global infective risk of different oncologic patients and therefore the treatment is best being carried out in a multidisciplinary environment (orthopaedics, infectious, disease, anesthesiologist, etc). This represents a preliminary study which features some initial findings regarding the role the antibiotics fulfill in the preventions of infective complications in patients undergoing oncological orthopaedic surgery.

Abstract no.: 45194

SCAPULO-THORACIC ARTHRODESIS

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We studied the technical scapulo-thoracic arthrodesis, the outcome and functional status of 7 patients with muscular facio-scapulo humeral dystrophy. We have realized 9 arthrodesis of scapula-thoracic joint. The arthrodesis was bilateral for tow patients. All patients was young age (20 to 30). All patient have a severe reduction of motion's shoulder (Jointe amplitude : 50°). The procedure for arthrodesis was : - Avivement for ribe and the anterior face of scapula. - Fixation with hooping reinforced by plate. - Spongios graft The follow up was 24 month, the functional result was good in 7 cases. In the anatomical result we have tow non union for arthrodesis.

Abstract no.: 45195

**USING HIGH-INTENSITY MAGNETIC STIMULATION IN OLDER WOMEN,
WHO UNDERWENT TOTAL KNEE ARTHROPLASTY**

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Introduction: despite the high efficiency of arthroplasty, surgery is highly traumatic and long degenerative processes in the operated limb often lead to disturbances which significantly reduce muscle strength and slow down the process of rehabilitation. Methods: two groups of women were included in the research: 1-control (n=31, average age 66,2), 2- main (n=3, average age 65,9). Each patient had a total endoprosthesis of the knee high-intensity magnetic stimulation was additionally used in the rehabilitation of group 2 patients in the topographic area of the femoral nerve, stimulating at a frequency of 4 - 10 Hz according to the developed algorithm. Indices of the M-response amplitude (A, Mv) and residual latency (L, ms) to stimulating electromyography of the quadriceps were evaluated before and after treatment in both groups; range of motion of the knee joint, as well as pain as per the visual analogue scale pain score (VAS). Results: it was observed that in both groups the amplitude of M-response before rehabilitation was on average $A=1,4\pm1,5$ mV, $L = 4,3\pm1,2$ ms. At day ten: Group 1 $A=1,8\pm1,5$ mV, $L = 4,7\pm1,2$ ms; Group 2 had higher indices, $A=2,9 \pm 1,3$ mV, $L=3,5\pm1,7$ ms. Range of joint motion in group 2 was more: $87,0\pm1,0$, compared to $76,0\pm1,1$ in control; VAS scale on day 10 showed $5,5\pm2,1$ points in group 1 and $3,2\pm1,8$ points in group 2.

Abstract no.: 45196

PRIMARY THRAS A MANAGEMENT IN FRACTURE DISLOCATION OF HEAD OF FEMUR- A CASE REPORT IN ADULT MALE.

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Introduction:Femoral head fractures may present in various patterns with or without associated fractures around the hip. This article reviews the current literature on the treatment options for femoral head fractures and presents modern operative techniques that have improved exposure of the fracture while minimizing associated risks such as avascular necrosis, heterotopic ossification, and neurovascular compromise. **Case report:** We received a 29 year old male in our casualty following RTA with injury to the Right hip with complaints of pain, swelling, tenderness and inability to move the right leg. On X-ray patient was diagnosed to have closed fracture femoral head with fracture acetabulum, pipkin type 4 with no compounding. On 3D CT reconstruction femoral head fracture with posterior lip acetabulum fracture (pipkin type 4, Thompson Eipstein type 5) was observed. Patient was operated with THR and spring plate fixation. Follow up was done at 3,6,9,12,16 months. At 16th month follow up he achieved a good harris hip scored of 86.8**Conclusion:** Nonoperative treatment may be indicated in some fracture patterns; however, many femoral head fractures are treated operatively. The orthopaedic surgeon must determine whether internal fixation or excision is best, should operative treatment be performed. This is usually based on location of the fracture and degree of comminution, joint stability, and articular displacement.. Knowledge of these advances will provide the orthopaedic surgeon with the appropriate tools for improved treatment of this less common injury.

Abstract no.: 45202

THE USE OF A SPRING PLATE FOR FIXATION OF POSTERIOR WALL FRACTURES OF THE ACETABULUM

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Introduction: Marginal posterior wall fractures are very often comminutive fractures and fixation of the small fragments may be difficult. The use of the screws fixation is associated with an increased risk of articular penetration. The aim of the study was to evaluate the potential benefits of a spring plate for small fragment fixation. Methods: Fourteen patients (11 men and 3 women) were included in the study. The average age of the patients were 43.2 years (range 21-60 years). 7 cases were diagnosed with simple posterior wall fracture, 2 cases with posterior wall and posterior column fracture and 5 cases with posterior wall and transverse fracture. All patients had a comminuted fracture of the posterior wall of the acetabulum. The treatment consisted in open reduction and internal fixation using a posterior approach. The small fragments of the acetabular wall were fixed with a plate that acted as a buttress plate. In 5 of the cases, we used an original spring plate (DePuy Synthes), in 6 cases we used a modified one-third tubular plate and in 3 cases a reconstruction plate. Results: The minimum follow up of the patients was 2 years. Outcome was very good in 8 cases, good in 5 cases and poor in one case. The worse outcome was recorded in a patient with posterior column fracture. There were no differences in results according to the type of spring plate used. Conclusion: Spring plate is an effective method to fix the small fragments in marginal posterior wall fractures.

Abstract no.: 45203

ASSESSMENT OF INTERLEUKIN- 6 AS A PREDICTOR OF FAT EMBOLISM SYNDROME IN LOWER LIMB LONG BONE FRACTURES

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Fat embolism syndromes occur in only 2-5 % of patients with long bone fractures. IL-6 is a part of an important family of mediators involved .Having a reliable marker of fat embolism would be of great clinical benefit and the aim of our study was to determine whether IL-6 is such a marker.A prospective study involving 117 patients with isolated long bone diaphyseal fractures from 2010 August to November 2012 were investigated for IL-6 marker levels at 6 hours,24 hours,48 hours and 72 hours following injury. In clinically established cases of fat embolism syndrome, chest radiographs and arterial blood gas analysis and platelet count was done. Urine examination was done for detection of fat globules. Results were analyzed using chi square test. 9.4 % patients with FES had serum levels of IL-6 raised in all 4 samples (greater than 100pg/ml).Serum level of IL-6 can be used as a predictor for FES in long bone diaphyseal fractures.

Abstract no.: 45205

THE ADULT SOFTS TISSUES SARCOMAS

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We studied 54 cases of adult soft tissue sarcoma treated between 2005-2015. The mean of age is 45 old years (20-75). The location was lower lumb in 65% of cases and upper lumb in 35% of cases. The essential symptom was pain and lump. The tumor measured between 4 cm and 25 cm. The imaging exam was X ray, CT scan, MRI, PET scan and ultrasound. An incisional biopsy was made in all cases. The histological type was : - Liposarcoma : 45% - Synovialosarcoma : 20% - Rhabdomyosarcoma : 15% - Auther : 20% The treatment was surgical in all cases. The chemotherapy was combined in 20% and radiation therapy in 70%. The follow up : was 15 month to 10 years. We had 60% of good result, 20% of recurrent tumor, 10% of amputation and 10% of death. The adult soft tissue sarcoma is a rare cancer but it is difficult to treat because the diagnosis can be a challenging. The accurate diagnosis and combined surgery, chemotherapy or radiation therapy were essential to successful treatment.

Abstract no.: 45206

RESULTS AND COMPLICATIONS IN TROCHANTERIC FRACTURES TREATMENT

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Introduction: Trochanteric fractures represent over 55% of proximal femur fractures. They occur in a bone area with an excellent blood supply. The treatment goal is to obtain a stable internal fixation of the fracture, a rapid mobilization of the patient in order to regain the initial level of activity. Material and method: The study was conducted on patients with trochanteric fractures treated with different osteosynthesis methods depending on the fracture's pattern (Dynamic Hip Screw, Proximal femoral nail, Gamma Nail, Dynamic Condylar Screw). The study was conducted over a period of 5 years. We used the AO classification in the initial evaluation of the lesions. Results: The results obtained were good in most cases. We encountered the migration of the implant in 5 cases, the rupture of the cervical screw of a DHS in 2 cases, 2 implant ruptures (Gamma Nail) due to fatigue of the material, 8 fractures consolidated viciously. Discussions: Trochanteric fractures represent an important aspect of the traumatology surgical practice because of the high incidence and the occurrence in old age. Patients are most affected by complications of the treatment: vicious consolidation, abnormal joint biomechanics, implant failure. Conclusions: Treatment of trochanteric fractures remains a difficult challenge because of the local osteoporosis, unstable fragments and implant migration. Multiple methods of internal fixation allow the reduction and fixation of complex trochanteric fractures, every implant having specific indications. Emergency treatment of the fractures and correct implant positioning are the most important aspects in addressing these lesions.

Abstract no.: 45211

THE ROLE OF THE VIRTUAL FRACTURE CLINIC IN THE MANAGEMENT OF FOOT AND ANKLE FRACTURES: A REVIEW OF PATIENT OUTCOMES

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Background: Foot and ankle fractures are a common presentation at A&E and are often able to be conservatively managed. Virtual fracture clinics (VFC) have been introduced by some hospitals to reduce the number of unnecessary outpatient fracture clinic appointments. Methods: 200 patients with foot and ankle fractures referred to the VFC over a period of 3 months from October 2015 to January 2016 were reviewed. 124 (62%) were female and 76 (38%) were male with ages ranging from 19 months to 94 years old. The number of clinic appointments and x-rays were collected for both patients discharged from the VFC and for those referred for follow up. A small subsection of patients were also followed up in order to collect data on patient satisfaction. Results: 5th metatarsal fractures were the most common foot injury seen and Weber B fractures the most common ankle injury. 58 (58%) patients with foot fractures were discharged from the VFC without follow up. Of these, only 3 (5.2%) patients needed to return to the clinic for further appointments and only 5 (8.62%) required more than one x-ray. 24 (24%) of patients with ankle fractures were also able to be discharged successfully without follow up. 94% of patients surveyed rated the service as good or excellent. Conclusions: The virtual fracture clinic at UHSM is safe and effective. Discharged patients have good outcomes with a very low percentage returning to clinic for further review or needing subsequent x-rays. In addition, patients are highly satisfied with the process.

Abstract no.: 45218

BOTULINUM TOXIN VERSUS SINGLE EVENT MULTI-LEVEL SURGERY (SEMLS) IN CHILDREN WITH LOWER LIMB DEFORMITIES IN SPASTIC CEREBRAL PALSY - A RANDOMIZED COMPARATIVE TRIAL

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Introduction: There has been an enormous progress in the management of CP over past two decades. Botulinum toxin (BTX-A) was introduced in the management of CP to delay surgery till the child has attained gait maturity. However it is known that BTX-A doesn't prevent the development of contractures and surgery would ultimately be necessary. Single Event Multi- Level Surgery (SEMLS) on the other hand involves one stage surgical correction of multiple deformities. This study aims to compare the functional outcomes following these two procedures. Methods: 50 children between 2-10 years of age were randomized into Group A (BTX-A injection) and Group B (SEMLS). Tone in limbs was measured using Modified modified Ashworth Score (MMAS). Each child was subjected to Observational Gait Analysis (OGA), gait was scored by the modified Physician Rating Scale (PRS) and functional improvement was done using the Gross Motor Function Classification System (GMFCS) at 3,6 and 12 months. Results: The adjusted mean PRS scores were higher in Group B compared to Group A at all the three follow up periods ($p < 0.05$). In Group A there was a statistically significant improvement in mean PRS scores at 3 and 6 months compared to the baseline, however at 1 year the difference was not significant where as Group B showed statistically significant improvement at all the three time points. Compared to the baseline, the MMAS scores were statistically significant improvement in both the groups at follow up. Statistically significant difference seen in GMFCS in Group B.

Abstract no.: 45220

TEST- RETEST RELIABILITY FOR UNILATERAL PERFORMANCE-BASED MEASUREMENTS IN PATIENTS WITH KNEE OSTEOARTHRITIS

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Introduction: Performance based measures (PBMs), mimicking activities of daily life, are increasingly used to evaluate the efficacy of joint replacement surgery. While most patients first encounter asymmetric; unilateral, joint disability and thus surgery, the recently recommended test-battery for research and clinical practice of knee osteoarthritic (OA) patients, assesses bilateral limb capacity only. There are unilateral tests described; however none evaluated for individuals with knee OA. Due to the increasing number of patients undergoing total knee arthroplasty (TKA), with high expectations on functional outcome, there is a need for good PBM tools. **Aim:** Test-retest reliability was evaluated for a set of three PBMs planned to be incorporated in a larger test-battery for OA patients undergoing TKA. Two of these tests were unilateral and not used in this patient group. **Methods:** Twenty-two subjects divided in two sample groups; OA pre-op (n=11) and TKA post-op (n=11) participated. A test battery including the 30-second chair stand test (30s-CST), the Balance and reach forward test (BRF) and the Step down forward test (SDF) was performed on two occasions. Reliability was assessed between test-sessions and inter-rater reliability was assessed using two raters on the same occasion. **Results:** ICC ranged from 0,65-0,98. Highest total ICC was found in SDF for the affected limb (0,95). **Conclusion:** All tests showed good reliability. Our test battery provides two reliable unilateral tests comparable with similar studies. Tests employ basic equipment only, can be performed in a clinical setting by one observer, and incorporated in a larger test-battery for this patient group.

Abstract no.: 45222

ACTIVE AND DYNAMIC EVALUATION OF FRAILTY – KEY ELEMENT IN PREVENTION OF FALLS IN THE ELDERLY PATIENTS

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Introduction: Falls are the main cause of accident-related mortality in older adults, associated with functional decline, disability and significant medical costs. Methods: In this study, we aimed to screen the elements that influence falls (malnutrition, cognitive status, depression, frailty) and seek their associations in elderly patients. We conducted a prospective study on 70 outpatients aged over 65 years old. We performed a complete geriatric assessment in order to evaluate the stage of frailty based on Fried criteria, Activities of Daily Living (ADL), Instrumental Activities of Daily Living (IADL), screening for depression (GDS), evaluation of the cognitive status (Mini-Mental-State) and nutritional status (MNA). A battery of physical performance tests (4 m gait speed test, dominant hand grip strength test, The Short Physical Performance Battery (SPPB)) was performed. Results: Clinical frailty was highly associated with malnutrition and depression. These patients scored poorly on the physical performance tests and the anthropometric measurements were suggestive for sarcopenia. We repeated the measurements after six months of nutritive supplementation, supervised physiotherapy for improvement in lean mass and equilibrium and psychological support, with significant improvement of quality of life in every patient. Conclusions: Active and dynamic evaluation of frailty allows implementation of proper measures to correct several less known risk factors for falls in elderly, such as malnutrition and sarcopenia.

Abstract no.: 45224

REVERSE SHOULDER ARTHOPLASTY AND LATISSIMUS DORSI TRANSFER - WHAT CAN WE EXPECT?

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Introduction:RSA cannot restore active external rotation. The combination of latissimus dorsi transfer with RSA has been reported to restore both active elevation and external rotation. Methods: We present a literature review and own results. Between 2004 and 2010, 13 patients (13 shoulders) were treated with RSA in combination with latissimus dorsi transfer in a modified manner. Results:The overall mean Constant-Murley Shoulder Outcome Score improved from 20.4 to 64.3 points ($p < 0.001$).The average degree of abduction improved from 45° to 129° ($p < 0.001$), the average degree of anterior flexion improved from 55° to 138° ($p < 0.001$) and the average degree of external rotation improved from -16° to 21° ($p < 0.001$).Conclusions:This modified technique, which avoids cutting the pectoralis major tendon and involves harvesting the tendon together with a small piece of bone, leads to good or even better functional results compared with the results reported in the literature, and also has high patient satisfaction and low failure rates.

Abstract no.: 45229

**IMPLEMENTING THE BRITISH ASSOCIATION OF SPINE SURGEONS
STANDARDS OF CARE FOR CAUDA EQUINA SYNDROME**

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Background: Cauda equina is a relatively rare but disabling condition. It causes misery to affected patients, which is reflected in the cost of managing the disability and litigation that results from it. It is possible that a proportion of established CES may be avoidable with appropriate and timely management. The British Association of Spine Surgeons have created standards of care which essentially suggest an expedited MRI scan to confirm or refute the diagnosis. Methods: We looked at the implementation of these standards through two audit cycles, one without the use of an integrated cauda equina pathway and one with the use of an integrated pathway. The study identified patients from the trauma data base with 40 patients suitable for inclusion in the first cycle and 60 in the second. Results: In the first cycle the mean time to MRI was 11 hours from presentation to a doctor at the hospital. After implementation of an integrated cauda equina pathway this had reduced the time to a mean of 5.5 hours. Conclusion: The use of an integrated cauda equina pathway and in particular a specific MRI request form can significantly expedite an MRI for suspected cases of cauda equina syndrome. Implications: Implementation of the British Association of Spine Surgeons guidelines is feasible.

Abstract no.: 45231

METAL ON METAL TOTAL HIP REPLACEMENT - REVISION RATES AND ASSESSMENT OF ACETABULAR INCLINATION ANGLE – A DISTRICT HOSPITAL EXPERIENCE

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Background: High failure rates of metal on metal (MoM) total hip replacements has led to the Medicines and Healthcare products Regulatory Agency (MHRA) issuing guidelines on the management of these implants. The incidence of metallosis and failure has been linked to increased acetabular inclination in previous studies. We report medium term results of a series of patients followed up in line with the MHRA guidelines. Methods: We present a prospective, single surgeon, single centre study of 130 consecutive patients who underwent Corail / Pinnacle uncemented MoM THR from April 2008 to January 2012, with a minimum follow-up of 46 months. In all patients, a 36mm metal head and liner was implanted via the anterolateral approach. Patients were recalled by letters and were reviewed and investigated with measurement of serum Cobalt and Chromium ions in all and Metal Artefact Reduction Sequence (MARS) MRI if indicated. We measured the inclination of each acetabular component and identified patients requiring revision for any reason. Results: The male to female ratio was 1:2 and mean age was 68.2 years. The mean acetabular inclination angle was 40 degrees. 4 patients required revision; 3 for subsequent peri-prosthetic fractures and 1 for metallosis. One patient with high metal ion levels, minimal symptoms and normal MARS MRI is being monitored closely. All patients are reviewed on an annual basis. Conclusions: Our series shows a relatively low revision rate for metallosis (<1%) compared to other series which may be related to a low acetabular inclination angle of 40 degrees.

Abstract no.: 45235

LONG-TERM RESULTS OF POSTERIOR FEMORAL ROTATIONAL OSTEOTOMY AT CHILDREN AND ADOLESCENTS WITH DDH

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A.A.SAKALOUSKI, A.V.BELETSKI, D.A.SAKALOUSKAYA, G.A. BRODKO, S.N.SERDJUCHENKO, DOSANOV B. Republican Scientific and Practical Centre for Traumatology and Orthopedics, Minsk, Belarus We have used our own technique of intertrochanteric osteotomy with posterior 45- 90° rotation of the proximal part of the femur in 52 cases (50 patients). The indications for surgery were severe damage or deformity of the superior segment of the femoral head and multidimensional deformity. The aims of the surgical intervention were elimination of load on the damaged or deformed superior segment of the femoral head, restoration of the femoral head centralization, restoration of articular surface congruity, normalization of the greater trochanter position, lengthening of the femoral neck and the limb. Before of the operation all the patients older than 10 years (74.3%) complained of pain in the hip and Trendelenburg test was positive in more than a half of them. The long-term results were studied in 5-23 years (the mean 8.1 years) after the operation. The mean value of the epiphyseal quotient increased to 83, the epiphyseal-neck quotient - to 88 against 62 before the intervention, the neck-diaphyseal angle became 133° after the operation. Before operation Viberg angle only in 8 cases was equal 20-25°, after - in 43 cases it became equal 20- 40°(average was 30°). Good and excellent long-term results were registered in 87 %. The merits of intervention are orientation of femoral head in three dimensions, absence of angle deformities and negative influence on the growth plate of femoral head, lengthening of femoral neck and limb.

Abstract no.: 45238

INCIDENCE OF SEPTIC ARTHRITIS AFTER ACL RECONSTRUCTION WITH AUTOLOGOUS AND ALLOGENIC GRAFTS: A META-ANALYSIS

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Introduction: No consensus exists regarding the optimal graft choice for an ACL reconstruction. Incidence of septic arthritis following ACL reconstruction is rare but may dependent on the graft type. Our meta-analysis assesses the difference in incidence of septic arthritis after ACL reconstruction across three groups of grafts: hamstring autografts, bone patellar tendon bone (BPTB) autografts and allografts of any type. **Methods:** A literature search was performed on PubMed and EMBASE databases. We identified 245 infected ACL grafts across 15 included studies that provided a breakdown of deep infection incidence by graft type. A meta-analysis was performed using a random-effects model to estimate the overall infection rates and those for different graft types. Summary risk ratios and 95% confidence intervals (CIs) were calculated and reported for each outcome. **Results:** We found an overall ACL graft infection rate of 0.6% (CI 0.3% – 1.3%). The incidence was highest in autologous hamstring grafts at 1.1% at (CI 0.8% – 1.6%). That of allografts and autologous BPTB grafts was similar at 0.5% (CI 0.2%–1.0%) and 0.4% (CI 0.2% – 0.7%), respectively. **Conclusions:** Septic arthritis after ACL reconstruction remains a rare (<1%) but a serious complication. Allograft rates of infection were not higher than those the autografts, contrary to the theoretical concerns. The reason for the apparently higher infection rate with hamstring autografts is unclear and requires further research. The results of our meta-analysis may aid informed discussions between surgeons and patients about the risk of infection after ACL reconstructive surgery and graft choice.

Abstract no.: 45239

WHICH HIP IMPLANT PERFORMS BEST AT RETAINING INDEPENDENT MOBILITY AT 1 YEAR POST INTRA-CAPSULAR NECK OF FEMUR FRACTURE?

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Background: We wanted to find out which implant performed best at retaining pre-fracture independent mobility or mobility with 1 stick outdoors at 365 days post fracture. Methods: At our institution multiple surgeons carry out hip fracture surgery, we analysed the data collected on our intra-capsular neck of femur patients. Inclusion criteria included all intra-capsular neck of femur fractures that were over 60 years of age. They had either a hemiarthroplasty (bipolar/uni-polar) or total hip replacement, and fixation was either cemented or un-cemented. The patient had to be independently mobile or mobile with 1 stick outdoors. There had to be followup data for mobility at 365 days. Exclusion criteria included all patients that had any previous hip surgery on the either of their hips. Results: 285 patients were independently mobile/mobile with 1 stick outdoors pre-fracture. The mean age was 84 with 225 females and 60 males. 215 (75%) patients maintained independent/1 stick mobility at 1 year post fracture. 70 (25%) patients lost at at least one level of mobility at 1 year. There were 12 different implant/bearing/ fixation methods used. The Corail bipolar uncemented hemi-arthoplasty performed best at maintaining independent mobility with 60 implants (28%) from this group. The Austin Moore uncemented hemi-arthoplasty was the poorest performing implant accounting for 21 implants (30%) that lost a level of mobility at 1 year followup. Conclusion: The Corail bipolar uncemented hemiarthoplasty for intra-capsular neck of femur fractures performs best at maintaining mobility independence at 1 year.

Abstract no.: 45241

PEDICLE SCREW FIXATION FOR DORSOLUMBAR SPINE FRACTURES

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We report our experience in managing 31 cases of dorsolumbar vertebrae fractures using pedicle Screw fixation .Distraction and Ligamentotaxis was used to reduce the fractures. Thus indirect decompression was done. We did not do any laminectomy in these cases.

Abstract no.: 45242

SOME ASPECTS OF RECOVERY TREATMENT OF FRACTURES OF LATERAL MALLEOLUS AND DAMAGE OF TIBIOFIBULAR SYNDESMOSIS

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When ankle joint is damaged usually the operative treatment is done without considering the necessity of saving the physiological relationship and movement in the area of tibiofibular joint. We have proposed the device that allows to save physiological movement between tibia and fibula on the level of tibiofibular joint while fixating lateral malleolus fractures and recovering tibiofibular syndesmosis, while saving the proper fixation of fragments and excluding additional immobilization. The data of myographic research we have provided, show that the usage of given method of fixation and methods of treatment in postoperative period that we have proposed, minimize the muscle hypotrophy and notably increase the effect of treatment. The evaluation of results of treatment was done with the help of mark-developed X-ray system, the analysis of dynamic angle-metric index in groups, by Kitaoka-scale.

Abstract no.: 45243

DIRECT POSTERIOR CRUCIATE LIGAMENT AVULSION REFIXATION WITH AN ANATOMIC ANKLE HOOK-PLATE

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The posterior cruciate ligament (PCL) is a strong ligament, and avulsion fractures of its tibial attachment are quite common. However, mechanically sufficient refixation of PCL avulsions can be challenging. Several direct and indirect refixation techniques and surgical approaches are described in the literature, but there are no standard guidelines for treatment so far. We report two clinical cases with displaced tibial avulsion fragments of the PCL too small for direct or indirect screw fixation. Therefore, we used an anatomically preformed locking hook-plate (Arthrex, Naples, Florida) which was primarily designed for refixation of the medial malleolus in ankle fractures. Before surgery we tested several locking ankle hook-plates with different configurations in a standard skeleton, and we found that the anatomic surface profile of the medial malleolus was quite similar to that of the PCL attachment at the posterior tibial head. We used a minimally invasive posteromedial approach described by Frosch. With the patient in the prone position, a 6 cm straight incision was made directly over the medial head of the gastrocnemius muscle. The muscle and the popliteal vessels and nerves were retracted laterally to expose the posterior joint capsule, which was incised longitudinally to expose the PCL avulsion fragments. After reduction of the fragments the described hook-plate was inserted with perfect fit to the bone surface. Both patients showed sufficient healing with no complications and return to sports within 4 months. Conclusion: anatomic ankle hook-plates can be used for successful minimally-invasive refixation of posterior cruciate ligament avulsions.

Abstract no.: 45246

USAGE OF COLLARED HYDROXYAPATITE COATED STEM FOR HIP ARTHROPLASTY IN ELDERLY: IS IT THE SOLUTION FOR SUBSIDENCE?

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Subsidence has been reported in uncemented total hip arthroplasty (THA). Usually subsidence is less than 2mm and stabilises at one year, if it is progressive it may be symptomatic and need revision. In 2011 we reported a subsidence rate of 6.3% using a non-collared fully HA coated stem. A retrospective radiological review of 176 patients' aged ≥ 70 years that had THA using a collared stem was conducted. Two independent investigators classified the Dorr type and subsidence (>2 mm significant). 12.5% of patients were Dorr A, 83.5% B, and 4% C. Mean age was 77.4 years and the male: female ratio was 7:15. Seven patients (4 Bs, 2 As, 1C) had subsidence of 2–3.2mm at one year who were all asymptomatic. One patient had a calcar crack, left untreated it subsided to 9mm before stabilizing at 4 years. There were three other patients with calcar cracks treated with wiring at time of surgery. None subsided. A fully HA coated collared stem when used in elderly patients had a 2% intraoperative periprosthetic fracture rate. If wired there was no associated complications. 4% of patients subsided more than 2mm but none were clinically relevant. Dorr canal type had no bearing on either risk of periprosthetic fracture or subsidence. The use of a fully HA coated collared-stem reduces the risk of radiological subsidence in THA in an elderly patient group. The concern of intra operative fractures is not a significant complication if identified and treated appropriately at the time of surgery

Abstract no.: 45247

LUMBAR DISCECTOMY- IS THE LEVEL CHECK BEING SAVED?

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Background: Several factors can contribute to wrong level spine surgery, including morbid obesity, thoracic location, presence of multiple lesions, transitional anatomy, congenital anomaly, age and diminished mineralisation of bone. In the literature 84% of cases involving wrong site spinal surgery over a ten year period resulted in indemnity payments. In a further study of 69 cases of wrong level surgery, it was reported that 99% were the subject of lawsuits. We wanted to assess our practice to see if the level check confirming the discectomy level with surgical instrumentation within the disc was saved on to the PACS (picture archiving communication system). Methods: Inclusion criteria included all patients undergoing primary discectomy procedures at L3/4, L4/5 and L5/S1. Exclusion criteria excluded all decompression procedures. A search was carried out using these criteria. Lumbar fluoroscopy images were reviewed to see if: 1) any images were saved 2) the correct image was saved Results: Over 10 years (2005 -2015), 415 primary discectomy cases were included. Age range 17-87. 353 (85%) had fluoroscopic images saved demonstrating the level with instrument in disc. 40 (10%) had images saved without instrument in disc and 22 (5%) had no fluoroscopic images. Conclusion(s): 85% success rate was achieved with further improvement required. This could be through radiographer education by including this presentation in their induction. Implications: This highlights an exposure of 15% to potential successful litigation if a claim were to ever be made. It highlights the importance of checking that the correct image is saved.

Abstract no.: 45252

NHS ORTHOPAEDIC LITIGATION - WHAT IS THE FINANCIAL BURDEN, TREND AND WHAT LESSONS CAN WE LEARN: A 10 YEAR ANALYSIS OF LITIGATION

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Background: The purpose of this study was to assess orthopaedic litigation in the NHS over 10 years looking at the financial loss, injuries (negligence) sustained and causation that resulted in these successfully litigated cases. In doing this we analyse the financial burden, assessing whether the situation is improving, and also learn valuable lessons on improving care. Methods: The study included all cases that involved orthopaedic litigation within English NHS hospitals, for patients over the age of sixteen. Results: Litigation is actually relatively uncommon within the NHS in England with 0.07% claims for the total number of consultant episodes over 10 years. However, it still remains costly at £251 million. Conclusions: Recent trends demonstrate promising results with a reduced number of claims, and more successfully defended closed claims which may be a reflection of subspecialisation within orthopaedics. However, spinal themes relating to delayed diagnosis and negligent surgery account for the 40 of the claims within the top 100 pay outs. Implications: Reducing litigation is vital in order to retain autonomy within the profession and can be helped by documenting what you did; the reasoning behind any decision you made; and what your notes say.

Abstract no.: 45253

ELASTIC STABLE INTRAMEDULLARY NAILING IN DISPLACED TIBIA FRACTURE. RESULTS AND COMPLICATIONS IN CHILDREN WEIGHING 50 KG (110 LB) OR MORE.

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Background: The main objective of this study is to retrospectively evaluate the clinical and radiographic outcomes of displaced tibia shaft fractures in children weighting 50 kg and more treated by Elastic Stable Intramedullary Nailing (ESIN) and to assess effects of increasing weight and age on treatment outcomes. Methods: Twenty-six children weighting 50 kg and more were surgically treated by ESIN for displaced tibia shaft fractures during study period. All patients underwent regular clinical and radiographic follow-up for at least 1 year after their index surgery. Results: The average patient age at the time of injury was 13.5 ± 1.3 years (range: 11.3 to 16.1). The mean patient weight was 57 ± 8 kg (range: 50 to 80). Mean follow-up was 23 ± 8 months (range: 12 to 38). Four (15.4%) complications were observed. Three were classified as minor, one as major complication. All patients were free of pain at last follow-up visit and returned to their previous sport and recreational activity. Conclusion: This study demonstrated, in contrast to data reported in femoral shaft fractures, that the use of ESIN for displaced tibia shaft fractures in children and adolescents weighting 50 kg (110 pounds) and more is not contraindicated.

Abstract no.: 45256

**EVADING LIMB AMPUTATION - ARTHRODESIS BY ILIZAROV DEVICE
AFTER MULTIPLE TOTAL KNEE ARTHROPLASTY FAILURES**

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Introduction: Periprosthetic infection after total knee arthroplasty remains a challenge for the orthopaedic surgeon and knee arthrodesis, while presenting some degree of discomfort to the patient, remains one of the last solutions against limb amputation. Methods: We report the case of a 63 old male patient that presented to our clinic in 2009 for bilateral gonarthrosis with right-side predominance for which he underwent total right knee arthroplasty. Postoperative evolution was uneventful until the first year follow-up when periprosthetic infection with *Klebsiella Pneumoniae* and multi-drug resistant *Staphylococcus aureus* occurred. A new surgical intervention was decided, with irrigation and debridement, followed by removal of the prothetic component and introduction of an antibiotic impregnated cement spacer. In 2011, after achieving complete clinical and biological remission of the infection, the spacer was removed and a LCCK revision prosthesis was inserted. In 2013 re-infection occurred leading to removal of the prosthetic component and re-insertion of an antibiotic impregnated cement spacer. Since the patient suffered significant bone loss and local conditions were unfavourable, being prone to infection, the ultimate solution was found in knee arthrodesis using Ilizarov external fixation technique with very good end results. Results: Recent follow-ups revealed no further problems in this patient, consolidation being achieved at 3.5 months with the Ilizarov removed at 4.5 months, with good functional results, occasional mild pain and constant clinical remission of the infection.

Abstract no.: 45261

THE OUTCOMES OF INTRA-CAPSULAR NECK OF FEMUR FRACTURES FOLLOWING INTERNAL FIXATION- A REVALIDATION STUDY.

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Background: The evidence suggests that for ambulatory patients > 60 years of age there is a 39% fixation failure. We wanted to look at our outcomes, looking at failure defined as revision, mortality, change in mobility and change in living accommodation status to see first hand what the true outcomes of intra-capsular neck of femur fractures are following internal fixation. Methods: We looked at all intracapsular fractures (116 patients) over the age of 60 at a large district general hospital collect for the national hip fracture data base. We looked at failure defined as revision, mortality, change in mobility and change in living accommodation status. Data captured also included patient demographics (age, sex), ASA, Garden's classification and Pauwels classification Results: Revision- 3.4 % at 1 year and 12% at 6 yrs, 34% Garden 3 & 4, Pauwels 2 & 3 accounted for 89% of failures. 1 superior screw : 2 inferior screws (16%) vs 2 superior screws : 1 inferior screw (12%) were the failure configurations. 9% mortality at 1 year. Significant reduction in mobility at 1 year (71% of non aid mobilisers). No significant change in residential status at 1 year (7.3% of independent residents lost this status). Conclusion(s): Our results of 3.4% compare better than the current evidence of 39% fixation failure. There is however a significant reduction in mobility at 1 year. Implications: Failure of the fixation due to non union/AVN is not as prevalent as the evidence suggests. However, the functional outcomes appear poorer.

Abstract no.: 45263

PERITALAR DISLOCATION : A CASE REPORT

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Introduction: Peritalar dislocation is a term that has been described as an injury involving a simultaneous dislocation to both the subtalar and talonavicular joints without a fracture of talar neck or tibiotalar disruption. It occurs most frequently with a medial dislocation and less frequently with a lateral, anterior, or posterior dislocation. The treatment for most peritalar dislocations is closed reduction, although surgical intervention may be a requirement in cases where reduction is unobtainable. The authors report a medial peritalar dislocation without fractures associated. Methods: A 51 year old man was admitted to emergency department after a scale fall. The examination found a closed medial peritalar dislocation, without fractures associated. A Closed Reduction was accomplished with immobilization by a cast. Results: After 6 weeks cast immobilization, followed by physiotherapy, the evolution was good. After 12 months follow up, the patient has regained a stable and painless ankle. Discussion : The peritalar dislocation is rare. It often results from high-energy trauma. The treatment for the majority of peritalar dislocations is closed reduction. Complications are directly associate with the severity of the injury. The prognosis of purely ligamentous injuries is excellent after early reduction. Negative prognostic factors include lateral and open dislocations, total talar dislocations, and associated fractures. In the case described, there is no fractures associated. Conclusion : The peritalar dislocation without fractures associated represents an uncommon injury. The treatment should be appropriated with early reduction, to avoid complications.

Abstract no.: 45264

EVALUATION OF RESULTS OF HOFFA FRACTURE OPERATED BY EARLY ORIF AND EARLY MOBILISATION

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Hoffa fracture a rare injury,tangential fracture of post part of femur condyle.may be isolated or part of high energy inter condylar fractures ,functional results after fixation are not very good in literature.between 2011 to 2015 11 cases of fracture distal femur were operated at my center by ORIF alone lag screw or with plate screw depending on fracture pattern.All followed 12 months .all united in 10.2 weeks average 10 to 16 weeks average full weight bearing at 8-10 weeks.main complication was pain stiffness .we achieved 85 % excellent 15 % good results,ct in all cases of intra articular fractures must and these injuries may be missed if we treat these injuries on only basis of x rays

Abstract no.: 45266

TRIPLE SUPERIOR SUSPENSORY SHOULDER LIGAMENT INJURIES

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Triple Superior suspensory shoulder ligament injuries Introduction: shoulder suspensory complex (SSSC) is composed of a ring of bone and soft tissues connect shoulder to trunk with superior and inferior struts. Double disruption leads to instability of the construct. Triple disruption of the SSSC is very rare. These injuries are challenging to treat and not much reported in literature. Methods: A retrospective, Case series of four trauma patients presenting to trauma centre with acute ipsilateral scapula and shoulder girdle injuries between 2011 to 2015. All patients advised operative management. Three patients underwent surgical treatment, one patient non-compliant with surgical advice and excluded from study. Three out of four (75%) presented after with isolated shoulder injuries and one patient (25%) has associated systemic injuries. Male: Female ratio 4:0 and mean age at presentation 39 (25-50) years. Results: All patients have acromion, glenoid and coracoid fractures. In addition they have either ACJ disruption or spine of scapula fractures. Two patients treated surgically with pre contoured plates and one has fixation with cannulated screws. Two (50%) patients have additional acromioclavicular reconstruction using LARS ligament. All patients were follow up in clinic at 2, 6, 12, 26 and 52 weeks. Outcome analysed using clinical, radiological measure and DASH scores. One patient (33 %) develops postoperative discomfort from metalwork and recovered after removal. At a mean follow up of 10 weeks (8-14) all patients (100%) achieved good functional outcome with an average DASH 7.58 (1.75-12.5) at one year.

Abstract no.: 45268

MOST COMMON FRACTURE ADMISSIONS IN ENGLAND

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Introduction: Admissions due to fractures are one of the commonest reasons for admission to hospital in England. There has been limited work on the number of fracture admissions. This study aimed to assess the number of orthopaedic admissions from fractures for patients in England dependent on age group. Methods: Data was taken from the Hospital Episodes Statistics database. Data is coded according to the ICD codes for diagnosis. Data was analysed on all admissions from 2004/2005 to 2013/2014. Results: Overall, the most common fracture that was admitted to hospital was hip fracture with 899,886 (31.17%), followed by distal radius fractures 446,019 (15.45%), and then ankle fractures 387,398 (13.42) and fractures of the hand 253,648 (8.79%). In the under 15s the most common fracture was distal radial fractures with 35.0% (121,340), followed distal humeral fractures which include supracondylar fracture with 13.6% (47,032) and hand fractures 9.1% (31,389). In the 15-59 age group the most common fracture admission was 23.5% (216,619) ankle fractures, 20.8% (191,530) hand fractures and 15.3% (141,259) distal radius fractures. In 60-74 year olds there were 30.0% (128,537) hip fractures, 18.8% (80,340) distal radial fractures and 16.9% (72,146) ankle fractures. In over 75 year olds, the most common fracture admission was 61.1% (728,714) hip fractures, 8.8% (104,545) distal radius fractures and 6.1% (72,279) proximal humeral fractures. Conclusion: There is a wide range of different fracture admissions dependent on age group. Hip fractures in the over 75s account by far the largest number of hospital admissions.

Abstract no.: 45274

DOUBLE DYNAMISATION (IN THE AXIS OF THE NECK OF THE FEMUR AND IN THE LONG AXIS OF THE FEMUR) IS IMPORTANT IN THE SURGICAL TREATMENT OF PERTROCHANTERIC FRACTURES

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Objectives. During the treatment of pertrochanteric fractures dynamisation in the axis of femoral neck is recognized as very important. Dynamisation in the long axis of the femur for pertrochanteric fractures is also important. Methods. We analyzed series of 30 patients with unilateral pertrochanteric fractures treated by the use of selfdynamisable internal fixator (SIF) developed by Mitkovic. That selfdynamisable device known as "Intelligent implant" has feature to become spontaneously dynamic in long axis of the femur if union is slower or absent 4-6 weeks after the operation. Subtrochanteric fractures where not included in this series. Results and Conclusion. The average operative time was 32 minutes (19-71) average fluoroscopy time was 11 seconds (6-33) while average blood loss was 60 milliliters (30 to 180 milliliters). None of the patients developed complications during the intraoperative period. Healing time was 3 months (2.5-6). Healing was achieved in 100% of patients. Superficial infection developed after 1 fixations (1%) while deep infection has not been registered. Cut out phenomenon has not been registered in this series. Spontaneous axial dynamisation was observed in 2 patients (6.7%) 2 and 5 millimeters. SIF is one effective method and device for the treatment of pertrochanteric femoral fractures but at the same time it can be regarded as one suitable tool to define the need for axial dynamisation. In our series we found that axial dynamisation during the surgical treatment of femoral fractures happened in 6.7% in our series of patients.

Abstract no.: 45275

**WHAT IS THE MORTALITY RATE IN PATIENTS OVER 60 YEARS OLD
CONSIDERED SUITABLE FOR VERTEBROPLASTY?**

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Background: Osteoporotic fractures are perceived to be pre-terminal events in the neck of femur, we wanted to look at our data on patients who were considered medically fit for vertebroplasty to see if the case was similar in the vertebral fracture group over 60 years old. Methods: We looked at a single surgeon series of patients over 60 years of age, that had a vertebral compression fracture with pain for greater than 6 months and were suitable for a general anaesthetic. The cause of death was identified from the death certificate. Results: There were 39 patients over 60 years old who had a vertebral compression fracture with pain for over 6 weeks. 6/39 (15%) mortality was identified with a range 6-53 months post procedure, with a mean of 25 months post procedure. The causes included prostate cancer, congestive heart failure, lower respiratory tract infection, urinary tract infection, intracerebral haemorrhage and multiple myeloma. Conclusion(s): The mortality rate in patients over 60 years old with a vertebral compression fracture considered suitable for a general anaesthetic and vertebroplasty demonstrated a mortality rate of 15% with a mean mortality time is 25 months post procedure. Causes of mortality were unrelated to the procedure. Implications: The vertebral compression fracture of a patient over 60 should also be considered a pre-terminal event.

Abstract no.: 45276

LONG-TERM RESULTS OF TRIPLE PELVIC OSTEOTOMY FROM ANTERIOR APPROACH IN ADOLESCENTS WITH DDH

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Residual dysplasia of the hip joint in adolescents (10-18 years) is complemented with a complex of biomechanical problems. Triple pelvic osteotomy (TPO) occupies the leading position in our clinic (152 cases - 54% of all the operations). We've using our own operative technique. The features of it are: only one approach (Smith-Petersen), pelvic bones osteotomies without detachment of periosteum, use of ischium osteotomy-osteoclasy, pubic paraacetabular osteotomy, angle-shaped ilium cut line, minimal pelvic muscles damage, avoidance of direct contact with large nerve trunks and vessels. TPO reorients the acetabulum in three dimensions and permits to get the angle of vertical correspondence between pelvic and femoral components of the joint up to 90°. After operation the Wiberg angle became on average 41° against --15 --+15 ° in the pre-operation period, the loading area increased in 1,5 times, the Sharp angle decreased on the average from 500 to 250, the angle of vertical correspondence increased on the average from 72 to 88°. Displacement of the acetabulum fomix into a nearly horizontal or horizontal position is the most important biomechanical result, as it considerably increases the joint tolerance to load. The system of Tschauner et al. has been applied to an estimation of the follow-up results. The long-termed results were good and excellent in 76% cases, satisfactory – in 18%, bad – in 6%. So, the triple pelvic osteotomy provides stability of a hip joint and can be the operation of a choice in cases of developmental dysplasia of the hip in adolescents.

Abstract no.: 45281

MORTALITY IN ASA4S AND OVER 90S UNDERGOING HEMIARTHROPLASTY FOR HIP FRACTURE

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Introduction: NICE guidelines recommend cemented implants in patients undergoing hemiarthroplasty for hip fracture. Nationally 82.3% of hemiarthroplasties are cemented. There are concerns about possible increased mortality in patients undergoing cemented hemiarthroplasty, especially those elderly and those with multiple medical co-morbidities. The aim of this study was to determine 30 day mortality in patient undergoing hemiarthroplasty who were ASA4 and in those over 90. Methods: A retrospective database review of all hip fracture admitted in a single centre between 30/11/2012 and 25/10/2015. Patients included were included were ASA 4 or over 90 and underwent hip hemiarthroplasty. Results: 67 patients, 46 males and 21 females. Mean age 83.8 (range 63-104). 54 (80.6%) underwent cemented hemiarthroplasty and there were 13 deaths at 30 days (24.1%). 13 patients underwent uncemented hemiarthroplasty. There were 2 deaths at 30 days (15.4%) ($p= 0.716$). 242 patients over 90 underwent hemiarthroplasty. 221 underwent cemented hemiarthroplasty. There were 14 (6.3%) deaths at 30 days. 21 patients underwent uncemented hemiarthroplasty. There were 3 (14.3%) deaths at 30 days ($p=0.173$). Conclusions: There were no significant differences in mortality in either group. In the ASA4 group there was a tendency for increased mortality at 30 days. Further large studies are required to determine if these patients should be undergoing cemented or uncemented hemiarthroplasty. Until this we recommend following NICE recommendations.

Abstract no.: 45282

TOTAL KNEE ARTHROPLASTY IN PATIENTS WITH VARUS GONARTHROSIS: THE RESULTS OF TIBIAL REDUCTION OSTEOTOMY

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Introduction: Varus gonarthrosis is the most common deformity seen in patients needing total knee arthroplasty (TKA). We conducted this study to assess the outcome of TKA and the effect of tibial reduction osteotomy in patients with different degrees of varus deformity. Methods: 124 patients (142 knees) with varus deformity were included in this study (mean age 67.8 years, severe varus in 32 cases). The medial bone defect was managed by reduction osteotomy when required, removing the medial tibial surface flush with the trial edge. Patients were categorized based on the severity of varus. Pre- and post-operative indices and scores were recorded. Results: The mean follow-up period was 48.8 months. The functional knee scores (clinical and functional KSS, WOMAC) and quality of life score (SF-36), as well as range of motion (ROM) and alignment were significantly improved in all patients. Although the functional KSS and WOMAC scores did not significantly differ preoperatively, the follow-up scores were significantly lower in patients with severe varus deformity (functional KSS 95.55 vs. 91.25, $p=0.000$ - WOMAC 10.39 vs. 11.17, $p=0.003$). This difference was not observed in other knee scores, the ultimate mechanical axis and ROM. We had no revision or re-operation during the follow-up period for tibial component problems. Conclusion: Reduction osteotomy is an effective method to get proper soft tissue balance and manage the bone defect in patients with varus deformity. This technique can be safely used in patients with severe varus deformity.

Abstract no.: 45283

ANTERIORLY DISPLACED SUPRACONDYLAR FRACTURES OF THE HUMERUS IN CHILDREN

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Anteriorly displaced supracondylar fractures of the humerus are rare as compared to posteriorly displaced. we report our observations about these fractures .We treated 31 such cases and observed many new facts about it. From history we came to know that these are caused when a child falls backwards or posteriorly , this is the reason why it is less common then anteriorly diplaced one which is caused by fall forwards or anteriorly.

Abstract no.: 45284

EFFECTIVENESS OF THE MANAGEMENT OF BONY DEFECTS IN FRACTURES WITH THE USE OF GENEX IN THE LOWER EXTREMITY – AN ABSORBABLE SYNTHETIC BONE GRAFT.

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Introduction; GeneX is a synthetic graft that contains Beta-tri-calcium phosphate and calcium sulphate. GeneX is an absorbable, osteoconductive scaffold used to manage bony defects. Objectives; This study's aim was to assess the effectiveness of GeneX as void filler in fractures that required grafting at the time of surgical fixation at a single level 1 trauma centre. Methods; Patients who received GeneX intraoperatively at a single level 1 major trauma centre were identified. Case notes and radiographs were reviewed to assess articular collapse, maintenance of the articular surface, reoperation and union. Results; There were a total of 69 fractures requiring the use of GeneX intraoperatively. Modes of fixation: circular frame (28), Plate (33), screws (6), TBW (1), Nail (1). Union was achieved in all but 2 cases: 1 Pilon fracture which required no further surgical intervention and 1 tibial plateau fracture which underwent BMAC. In the pilon (P) and tibial plateau (TP) groups 47 required articular segment elevation. In TP group two (5 %) had post op collapse after anatomical reduction intra- operatively, (1 plate, 1 circular frame). In the P group two(16 %) had post op collapse, one went on to non-union but patient deceased, other required no further surgery. Conclusions; GeneX in the use as void filler appears to be safe and effective in management of intra and extra-articular fractures through its osteoconductive properties as void filler in order to aid union in the management of lower limb fractures.

Abstract no.: 45286

LONG-TERM RESULTS OF OPERATIVELY TREATED INTRA-ARTICULAR DISTAL RADIUS FRACTURES IN ELDERLY PATIENTS.

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Background: Distal radius fractures are the most common fractures in humans and are therefore facing enormous relevance for healthcare systems. These fractures are typical injuries in elderly patients caused by unsteadiness in gait and osteoporosis. Long-term outcomes are important for elderly patients' independence. Methods: A total of 39 patients with a mean age of 61±15 years were included to this study. We separated our study group in middle-aged (<60y, mean=47±9y) and elderly (≥60y, mean=73±8y) patients. All patients were operatively treated with a volar locking plate system after intra-articular distal radius fractures and evaluated 2, 6 and 10 years postoperatively according to the Gartland and Werley score. For subjective evaluation the Short-Form-36 (SF-36) and the Disability of Arm, Shoulder and Hand (DASH) questionnaires were adopted. Results: Overall wrist function did not differ significantly 2, 6 and 10 years after surgical treatment. Elderly patients achieved in over 85% "good" or "excellent" results 10 years after surgery according to the Gartland and Werley score. Middle-aged patients achieved significant better results regarding the DASH-Score and the SF-36. Compared to age-matched data of Austrian and American norm populations no significant difference was found. Overall the SF-36 results 10-years postoperatively didn't differ significantly from the two- and six- and ten-year follow-up. Conclusion: Although the treatment of choice for intra-articular distal radius fractures in elderly patients is discussed controversial and has to be addressed individually, volar locked plate fixation is a useful and satisfactory therapy option in terms of function and HRQOL in a long-term view.

Abstract no.: 45289

DOES THE ACROMIAL INDEX PREDICT THE NEED FOR SURGERY AFTER ROTATOR CUFF TEAR?

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Purpose: Our hypothesis is that a smaller acromial index prevents patients requiring operative intervention for rotator cuff tears. **Method:** All shoulder MRI scans showing rotator cuff tears at our institution on patients over 60 years between 2010 and 2013 were reviewed. The acromial index (AI) was used as a surrogate measure of the acromial size. **Results:** 119 patients, 63 male and 56 female, with an average age of 69.6 years were reviewed. 49 patients proceeded to operative intervention (AI = 0.73) compared to 70 conservatively managed patients (0.69) [p=0.07]. The groups were closely age and sex matched. There was a statistically significant difference (p<0.0001) of the AI when comparing small (0.68) and large tears (0.73). The AI for large tears requiring surgery was statistically higher than those treated conservatively (0.76 Vs 0.71, p = 0.005). The AI was even higher when looking at patients who required Reverse shoulder arthroplasty or tendon transfers (0.78). **Conclusion:** There are a number of factors affecting whether a patient proceeds to surgery or not. AI does not predict whether you have a rotator cuff tear, but may be of influence when assessing the size of the cuff tear and whether or not conservative management will work for patients with large cuff tears. We feel the AI plays a part in the symptomology of patients with rotator cuff tears.

Abstract no.: 45290

OUTCOME OF SURGICAL TREATMENT OF 85 SUPRACONDYLAR FRACTURES OF THE HUMERUS IN ADULTS

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Introduction : Supracondylar fractures of the humerus are complex and difficult to treat regarding the anatomical particularities of the distal humerus. Methods : We report a retrospective study of 85 supracondylar fractures of the humerus in adults treated between 2000 and 2011. Fractures were distributed according to the AO classification and functional outcome was assessed using Ramadier and Lecestre score. Results : There was 50 male and 35 female patients with a mean age of 45 years. The left elbow was concerned in 52% of patients. 49% of fractures were type C2. Multiple fixation materials were used. Functional outcome was good in 60% of cases. Type of fracture is the most influencing factor on the outcome. Discussion : Supracondylar fractures of the humerus are complex articular injuries. When properly treated, the outcome is satisfying. Treatment is surgical and requires to respect some principles. The gold standard is open reduction and internal fixation using two plates which provides solide and stable sythesis permetting early reeducation. Reeducation influences greatly the final outcome of theses fractures. In elderly patients, arthroplasty is more and more used.

Abstract no.: 45291

ARE WE GETTING BETTER? LEVEL OF EVIDENCE IN KNEE ARTHROPLASTY LITERATURE OVER TIME

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With medical treatment commonly utilizing evidence-based medicine, demand for improved clinical literature is increasing. Our goal was to evaluate all total knee arthroplasty (TKA) focused literature from major journals over 15 years to determine if the quality of that literature has improved. For the years 1999, 2004, 2009 and 2014 we reviewed all journal articles related to TKA from The Journal of Arthroplasty, The Journal of Bone and Joint Surgery-American and The Journal of Bone and Joint Surgery-British. We identified 511 articles that met inclusion criteria and categorized them into four subtypes – therapeutic, prognostic, diagnostic, and economic. We assigned each study a level of evidence. There was a significant decrease in the percentage of level 4 studies published during the evaluation period (52.54% in 1999 to 30.47% in 2014, $p < 0.0004$). There was no significant change in the percentage of level 1 studies published (18.64% in 1999 to 17.60% in 2014, $p = 0.86$). The percentage of level 2 and 3 articles did significantly increase over the course of the evaluation period. Therapeutic studies were greater than 70% of the literature on TKA. We found a consistent rate of level 1 studies in the major TKA literature during the past 15 years. A significant decrease in the poorest quality studies (level 4) was found with the difference made up by more level 2 and 3 studies. Our findings demonstrate the difficulty associated with producing level 1 literature. The quality of TKA literature over the last 15 years is getting better.

Abstract no.: 45294

PATIENT SATISFACTION AFTER SIMPLE TRAPEZIECTOMY

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Introduction: Trapeziectomy is performed when persistent pain and loss of thumb function persist despite conservative management. Evidence regarding short and mid-term patient satisfaction is sparse. Method: QuickDASH scores, movement, strength, visual analogue scores and patient satisfaction were prospectively collected pre-operatively and at 3 months. At an average of 2 years (12 to 44 months) we assessed pain, function and patient satisfaction. Results: 24 patients, average age 66 years underwent a simple trapeziectomy without ligament reconstruction. By 3 months thumb range of movement had improved along with power. Average pain scores improved significantly ($p < 0.0001$) from 5.8 to 2 then rose slightly to 2.2 at 2 years. At 3 months QuickDASH significantly improved ($P < 0.0001$) from 60.9 to 32.6. Significant improvement continued to 2 years (20.2, $p = 0.02$). With regards to patient satisfaction 89% were satisfied and felt they had benefited from the surgery at 3 months and 83% would have surgery again. At the 2 years stage the benefited group rose to 95% yet only 73% would have the surgery again. Conclusions: Patient satisfaction after simple trapeziectomy is high with outcome scores improving significantly. We can assure patients by 3 months their pain, movement and function will have improved significantly with satisfaction levels over 90% in the mid-term. The post-operative pain and subsequent recovery may be prolonged however and these were the main reasons for only 73% of patients being willing to undergo surgery again.

Abstract no.: 45296

THE INCIDENCE OF PULMONARY EMBOLISM IN THE FRACTURE CLINIC OF A DISTRICT GENERAL HOSPITAL

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Background: The incidence of Pulmonary Embolism (PE) in hospital inpatients is so well recognised that risk assessment & prescription of prophylaxis is widespread. A dilemma remains as to whether the risk of those attending fracture clinic is high enough for PE to require similar assessment and prophylaxis. Methods: A large database search was undertaken at a District General Hospital covering 1/7/2010 to 30/1/2015 to identify new fracture clinics patients and PE patients. Cross-referencing was undertaken to exclude risk assessed inpatients, children and those who received prophylaxis. Results: Out of 12870 fracture clinic patients 90 were matched to the 775 PEs in the Trust. After all exclusion criteria applied however there were only 10 PEs linked directly to a fracture clinic attendance. These were split into 2 main groups. 1) Lower leg fractures- ankle(2), proximal fibula(1), metatarsal fractures (2 + 1 stress fracture) and tibial plateau S5 (1) and 2) The elderly frail- proximal humerus (1) distal humerus (1) and distal radius(1) Conclusion(s): The risk of sustaining a PE having attended a fracture clinic with an injury if you are an adult is low, 10/12870 patients or 2.25 per year. When clinic attendance is subdivided into injuries distal to the knee the incidence 6/2332 (0.3%). A patient information leaflet on PE risks is possibly all that is needed to balance this low risk. Implications: This work can give Trusts confidence to resist liberal use of chemical prophylaxis which is both difficult and not without risk in the outpatient setting.

Abstract no.: 45297

EWING'S SARCOMA OF THE SCAPULA : 08 CASES REPORTS

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introduction:ewing's sarcoma is the second most common malignant bone tumor of childhood and adolescence tumor. It may affect any bone, but it is frequent in the femur, ilium and the tibia.the scapula localisation is a rare entity methods :Here we are reporting a retrospective analysis of 08 patients diagnosed with Ewing's sarcoma of the scapula. The mean age was 26 years. The average time of follow-up was 38 months. results :All patients are still alive, .total scapulectomy was performed on 06 patients , the glenohumeral joint was preserved in 02 cases and gives an excellent functional result. The arm was fixed to clavicle by the mean of bone plate Two patients had considerable pain as a result of brachial neuropathy. All patients underwent resection without prosthesis reconstruction

Abstract no.: 45298

BIOMECHANICAL ANALYSIS OF WINDOW CONFIGURATION OF FEMUR UNDER DIFFERENT

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Introduction :For years , curettage and bone graft for bone tumors occurred in a window opens and drains the tumor and bone graft or cement is replaced by the lower limb geometry is usually circular . during an extensive search on pub med and other biomedical databases, they found no scientific base. Method and materials:According to the femur modeling and simulation results using analytical software-biomechanical (ANSYS) hypothesis initially followed the theoretical results against a defect with various forms of geometric triangles, circles, trapezoids and squares under the compression and bending was performed and results were recorded. Then on rabbit femur, no. 40 , 2-2.5 Kg, templates with a geometric model of the defect was caused by the effect of these two forces. The results :The analysis software in general, the more loaded than the trapezoidal window compression and bending strain was more tolerant. After trapezoids, in bending squares and in compression circles has the highest tolerance. In compression stress test under mechanical test machine on rabbit femur bone, trapezoid shape had the most tolerance. But in bending load a significant difference in strength between different shapes was not seen.

Abstract no.: 45303

ROLE OF PLATELET RICH PLASMA IN EARLY STAGES OF AVASCULAR NECROSIS OF FEMORAL HEAD: A PROSPECTIVE RANDOMIZED DOUBLE BLINDED COMPARATIVE STUDY

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No universally accepted therapy exists for the management of avascular necrosis of femoral head. Goal of treatment in early disease is to keep the joint from breaking down because severe pain and limitation in movements will occur within two years in the absence of treatment. Clinical result of core decompression is often variable. Aim of study was to evaluate the efficacy of Platelet-rich plasma (PRP) during core decompression in early stage of avascular necrosis of femoral head. Present study was a prospective randomized double blinded comparative study between use of PRP after core decompression and core decompression alone. 40 patients were randomized into two groups by computer generated algorithm table. Group A (PRP with core decompression) included 19 patients and group B (core decompression only) had 21. Analysis of data and results was performed by an independent observer other than that who did the intervention. No patient was lost to follow up. The improvement was statistically significant in both group ($p=0.000$) and the difference in improvement between the group also statistically significant ($p=0.002$). In group A the increase in necrotic area was less than that of group B which was statistically insignificant ($p=0.750$). Core decompression augmented with platelet rich plasma is more effective than core decompression only for relieving pain, improve functional status and delaying or cessation of progression in early stage of avascular necrosis of hip.

Abstract no.: 45304

**LONG-TERM RESULTS OF THE POSTERIOR ROTATIONAL FEMUR
OSTEOTOMY IN TREATMENT OF POSTSEPTIC MULTIPLANE
DEFORMITY IN CHILDREN**

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We used intertrochanteric osteotomy with posterior 45- 90° rotation of femoral head and neck proposed by Anatoly Sakalouski in 19 cases of multiplane deformity of femoral head in children with postseptic deformity. The indications for surgery were multidimensional deformities of the proximal part of femur with significant destruction of superior segment of femoral head with articular surface incongruity. The aims of operation were reconstruction of the maximal sphericity of a loaded segment of a femoral head, normalization of the greater trochanter position, lengthening of the femoral neck. Negative influence of the osteotomy on a function of a growth plate is not revealed in one case that is confirmed by a number of radiological parameters. The mean value of the epiphyseal quotient increased from 48 to 98. Its improvement was marked and further during all time till the moment of bone maturing. The epiphyseal-neck quotient increased to 99 against 58 before the intervention, the neck-shaft angle became 130 against 120°. The Viberg angle increased from 18 to 30°. The posterior femoral rotational osteotomy cannot eliminate the defects of the femoral head but allows maximal use of its intact segments. Advantages of operation are absense of negative influence on a growth plate, lengthening of the femoral neck, improvement of a congruity in a hip joint. The results were studied with the mean follow-up of 7 years 5 months (3 to 25 years). Excellent results were obtained in 8, good - in 8, fair - in 2, unfair - in 1 case.

Abstract no.: 45305

AN UNUSUAL CLASS OF ANKLE INJURIES FEATURING FIBULAR FRACTURES BOTH ABOVE AND BELOW THE SYNDESMOSIS: NOT INCLUDED IN DANIS-WEBER CLASSIFICATION

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Fractures of the ankle joint have been classified by Danis-Weber classification into three types according to the location of the fibular fractures in relation to the distal tibio-fibular syndesmosis. Lauge-Hansen classified these fractures on the basis of the deforming forces involved and the position of the foot at the time of injury. This study describes a previously un-reported new type of injuries around the ankle with a unique fracture pattern which can neither be explained by the Danis-Weber nor the Lauge-Hansen systems. These injuries are often associated with high-energy trauma or poly-trauma and characteristically have separate fractures of the fibula both above and below the level of tibio-fibular syndesmosis concurrently. In this study 13 patients were found to have this unique pattern of injury around the ankle. The age of the patients ranged from 26 years to 63 years. Seven out of 13 patients (54%) had separate fibular fractures below as well as above the level of tibio-fibular syndesmosis. Four (31%) had fibular fractures at the syndesmosis and above it. Two (15%) had fibular fractures at the syndesmosis and also below it. Twelve patients (92%) had additional fractures or injuries such as, ankle fractures and dislocation, tibia, metatarsals, even head-injury, signifying the high-energy nature of trauma. Seven patients (53%) had fixation of the fibula along with other fractures. After a mean follow-up of 28 months the mean functional outcome score was 76 (AOFAS system). Interesting findings were seen regarding the involvement of the syndesmosis associated with these unique fracture patterns.

Abstract no.: 45307

AN UNUSUAL LOCATION OF A CHONROBLASTIC OSTEOSARCOMA

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Introduction : Osteosarcoma is a malignant bone tumor that usually affects metaphyses of long bones. The chondroblastic variety represents 25% of all osteosarcomas. We report a case of a chondroblastic osteosarcoma of the distal tibia in a teenager. Case presentation : A 14-year-old boy with no medical history presented with a pain of his left leg. Plain radiographs showed a metaphyseal osteolytic lesion of the distal tibia. MRI showed an extension to the adjacent soft tissue and no epiphyseal involvement. A surgical biopsy was performed and the histology found a chondroblastic osteosarcoma. The patient had a wide resection of tibia and fibula along 12 cm from the tibio-talar joint. He had then received neoadjuvant chemotherapy. Finally a reconstruction of the distal tibia was made. No recurrence was noted at 18 months follow-up. Discussion : Chondroblastic osteosarcoma is a rare tumor. It usually affects long bones. The most affected regions are distal femur, proximal tibia and proximal humerus. The distal tibia is an unusual location for this lesion. In the reported case, the radiological aspect caused confusion with chondro-myxoid fibroma but the age of the patient but the extension to soft tissue was in favour of a malignant tumor. The management of this pathology is multidisciplinary and is based on surgery and chemotherapy whose progress transformed the prognosis of these patients.

Abstract no.: 45309

OUR METHOD OF FOREFOOT RECONSTRUCTION FOR HALLUX VALGUS

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We report our method of forefoot soft-tissue reconstruction for flexible pes planus transversus and hallux valgus using a transfer of the long extensor tendon of the fifth toe. The technique includes the adductor hallucis tendon transfer on the dorsum of the first metatarsal head and the formation of a new ligament between distal parts of the first and fifth metatarsals. The portion of the fifth extensor tendon is brought across the foot beneath the necks of the second, third and fourth metatarsals and then around the fifth metatarsal neck. After that, this tendinous graft is fixed in a tunnel drilled in the first metatarsal neck. The inclination of the tunnel from 10 to 30 degrees to the horizontal plane is used for derotation of the first metatarsal. The mobilization of the sesamoid bones and their recentralization under the first metatarsal head are performed. From 1998 till 2015 we performed 135 operations in 105 patients with flexible flatfoot and hallux valgus aged 16-55 years. Eighty four patients (109 feet) were evaluated at a mean of 5,4 years (range, 1-16 years) after surgery. Excellent results were achieved in 28 (25,7 %) cases, good – in 60 (55,0 %), satisfactory – in 16 (14,7 %), poor – in 5 (4,6 %) cases. So, analysis of outcomes of the surgical treatment in patients with hallux valgus deformity indicates high efficacy of our procedure using a transfer of the fifth extensor tendon.

Abstract no.: 45313

JET LAVAGE IN PRIMARY TOTAL KNEE ARTHROPLASTY, A COMPARATIVE STUDY

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Introduction: Radiolucent lines at the cement bone interface of the tibial plateau are a frequent finding in total knee arthroplasty (TKA). The clinical relevance of this radiographic finding is still unknown. Theoretically radiolucent lines may be initiative for aseptic loosening, till now there is no evidence for worse functional outcome for such a condition.

Methods: A prospective analysis was done for 420 primary TKA that were done during the period between January 2010 till January 2014 in 400 patients with arthritic knees. The cancellous bone was cleaned by Pulse lavage in 220 knees (group A) and by conventional syringe lavage in 200 knees (group B). These groups were further subdivided as rheumatoid patients (50 knees) and osteoarthritic patients (370 knees). The cement bone interface under the tibial plateau was divided into four zones according to the knee society radiographic evaluation system, and evaluated for the presence of radiolucent lines.

Results: All radiographs were evaluated, radiolucencies in all four zones were found in 16 cases of group A (7.2%) and in 60 cases of group B (30%) ($p < 0.01$). Cement penetration showed a median of 2.4 mm (group A) and 1.6 mm (group B) ($p < 0.001$). Cement penetration in rheumatoid knees showed a median of 2.3mm in both subgroups.

Conclusion: pulsed lavage of cancellous bone surface of tibial plateau is recommended as a standard procedure to improve cement penetration in osteoarthritic sclerotic knees that decrease the incidence of radiolucent lines and improve long term fixation rather than osteoporotic rheumatoid knees.

Abstract no.: 45317

CORRECTION OF MODERATE-SEVERE HALLUX VALGUS DEFORMITY WITH COMBINED PROXIMAL OPENING WEDGE AND DISTAL CHEVRON OSTEOTOMIES: A RELIABLE TECHNIQUE

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The mainstay of treatment for the surgical correction of hallux valgus is first metatarsal osteotomy, both proximal and distal sites. We present a technique of combining distal chevron osteotomy with proximal opening wedge osteotomy, for the correction of moderate-to-severe hallux valgus. We reviewed 45 patients (49 feet) who had undergone the double osteotomy technique. American Orthopaedic Foot & Ankle Society (AOFAS) and the Short Form(36) Health Survey (SF-36) scores were the patient outcome measures. Radiological measurements were performed to quantify correction. The mean group age was 60.8 years (44.2 to 75.3). Mean follow-up was 35.4 months (24 to 51). The mean AOFAS score improved from 54.7 to 92.3 ($p < 0.001$) and SF-36 score from 59 to 86 ($p < 0.001$). The mean hallux valgus and intermetatarsal angles were improved from 41.6° to 12.84.4° ($p < 0.001$) and from 22.1° to 7.1° ($p < 0.001$) respectively. Distal metatarsal articular angle improved from 23° to 9.7°. The mean sesamoid position improved from 6.8 to 3.5 as per Hardy's scale. Metatarsal length was unchanged. Overall complication rate was 4.1%. Our results suggest that double first metatarsal osteotomy is a reliable, safe technique which when compared with other metatarsal osteotomies, provides strong angular correction, excellent patient outcomes and low complication rate.

Abstract no.: 45319

COMPLICATED URINARY TRACT INFECTION RESULTING IN DISTAL AMPUTATION OF FOUR EXTREMITIES - A CASE REPORT

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Introduction: Peripheral symmetrical gangrene is a syndrome of unknown etiology. It is a secondary medical complication and affects two or more extremities symmetrically, with no obstruction of the great vessels. The fingers and toes are the most affected. This syndrome is associated with an high mortality rate (or amputation in surviving patients). We present a case of a patient with urosepsis which evolved into symmetrical peripheral gangrene of the four limbs, requiring amputation. Methods: Female, 56 years old, previously healthy, admitted at the emergency department with acute uncomplicated pyelonephritis. The next day the patient got worse and was admitted for urosepsis with multiorgan dysfunction, treated with antibiotics and high doses of corticosteroids and vasopressors. Progressive ischemia of the limbs initiated. She was then given prostaglandines and started hipocoagulation. The situation progressed to gangrene and mummification, aggravated by infection. At this point amputation was the unanimous option. Results: Amputation of the upper limbs at the forearm and amputation of the lower limbs below the knee. Currently, after physical therapy and prosthetic rehabilitation, the patient presents autonomous gait with prosthesis and waits prosthetisation of the upper limb. Total score in the functional independence score is 98 points. Discussion/Conclusion: Symmetrical peripheral gangrene is associated with septic shock and disseminated intravascular coagulation. Ischemia is caused by a combination of low perfusion and peripheral vasoconstriction, caused by septic shock and vasopressors. Several therapies may be used in this condition for modulating inflammation, vasoconstriction and coagulation. However, in severe cases, definitive treatment is amputation.

Abstract no.: 45320

PERIPROSTHETIC FRACTURES AFTER TOTAL INVERTED SHOULDER ARTHROPLASTY – OUR EXPERIENCE

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Introduction: The periprosthetic fractures after total Inverted shoulder arthroplasty (TISA) are rare and difficult to treat. Treatment depends on location of the fracture and fixation stability. This paper aims to review the literature and present 3 clinical cases. Methods: Patient 1, female, 78 years old, underwent TISA after humerus neck fracture non-union. After falling, a bone fracture associated with fracture of the humeral stem was detected. The previous humeral stem was replaced by a longer one. Patient 2, female, 78 years old, underwent TISA after humerus neck fracture non-union. After falling, there was type C. periprosthetic fracture and an osteosynthesis with plate and steel wires cerclage was performed. Intraoperatively partial section of the radial nerve was detected and neurorraphy was performed. Patient 3, female, 84 years old, underwent TISA after humerus neck fracture non-union. After a fall, there was a type C. periprosthetic fracture and osteosynthesis was performed with plate and steel wire cerclage. After, there was another fracture which resulted in removal of the material and replacement of the humeral stem for a longer one. Results: Fracture consolidation occurred in all cases. There has been no case of infection. Patient 2, experienced full recovery of neurological deficits secondary to the radial nerve lesion. In all cases there was good clinical and functional outcome. Conclusions: Favorable results were obtained regarding bone healing and stability of the prosthesis. The periprosthetic fractures after TISA are rare but their incidence has been increasing. Even being a technical challenge, good results are achievable.

Abstract no.: 45321

THE ANTEROLATERAL LIGAMENT RECONSTRUCTION AS PART OF THE ANATOMIC ACL RECONSTRUCTION: HAVE WE TAKEN IT A STEP TOO FAR? A CADAVERIC STUDY AND REVIEW OF THE LITERATURE

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Background: There has been a recent interest in the anterolateral ligament (ALL) of the knee, since its anatomical description and renaming in 2013. However, with differing descriptions of its origin and insertion, there should be concern that “anatomical reconstruction” of this ligament, may not produce the desired results. Purpose: We aim to show that the anterolateral ligament may not be important as a biomechanical structure. Study Design: Cadaveric dissection of ten human formalin-treated specimens with observations of its macroscopic appearance. Methods: Anterolateral structures of five female and five male cadaveric knees were dissected carefully. The presence of the ALL, its insertions and its appearance were observed. Results: ALL seen as a distinct structure in 60% of specimens, with the femoral insertion posteroproximal to the femoral insertion of the LCL. Conclusion: Our study supports the presence of an anterolateral ligament however, its flimsy macroscopic appearance brings into question its importance as a mechanical stabiliser of the knee. Clinical relevance: The ALL is already being surgically reconstructed in ACL-deficient patients in an attempt to anatomically recreate the biomechanics of the knee. Recent evidence has shown that it may have more of a proprioceptive role. This therefore would not support the theory of graft reconstruction to recreate its effect. Further work is required into this area to ensure we understand the function of the ALL before we try and “reconstruct” it in patients.

Abstract no.: 45324

PREVALENCE OF CONSTITUTIONAL TIBIAL BOWING IN INDIAN POPULATION AND ITS ROLE IN CAUSING KNEE PAIN

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INTRODUCTION:There is a greater incidence of constitutional tibia bowing in Indian population than the western population. It has long been hypothesised that this constitutional tibial bowing is one of the causes of early onset of knee pain in Indian population. We analysed 500 knees with knee pain who visited the Department of Orthopaedics at our institute.**OBJECTIVES:** To evaluate the prevalence of tibial bowing and its role in causing knee pain. **Methods:**We obtained standing long leg Antero-posterior (AP) skiagrams of all these patients and measured the angle between proximal diaphyseal and distal diaphyseal axis on these angles with the help of scan morph software (MATLAB,2009a). Incidence of tibial bowing was calculated and then pearson coefficient analysis was run to measure correlation .**RESULTS:** 52.4% of the knees had constitutional tibial bowing, tibia vara being more common than tibial extra articular valgus deformity. The most common location of deformity was at 32% of the tibial length. The mean was varus angle of 0.13 degrees. However there was no significant correlation between the patients with knee pain and the tibial bowing (p value>0.05). **Conclusions:**The prevalence of constitutional tibial bowing in Indian population presenting with knee pain at our institution was 52.4%. However there was no significant correlation between the age of presentation and the incidence of tibial bowing in these patients.

Abstract no.: 45326

MID-TERM CLINICAL AND RADIOLOGICAL RESULTS OF SURGICAL TREATMENT OF 100 TIBIAL PLATEAU FRACTURES

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Introduction : Tibial plateau fractures are a relatively frequent lesion that threatens the stability, the motion and the function of the knee. The aim of this study is to evaluate the outcome of surgical treatment of these lesions. Methods : This is a retrospective study of 100 patients operated for a tibial plateau fracture between 2008 and 2013. Results : We counted 70 unituberositar lateral, 16 bituberositar, 8 spinotuberositar and 6 posterior fractures. Percutaneous fixation was used in 32 cases, open reduction and internal fixation in 68 cases. Follow-up was 60 months on average. Clinical and functional outcome was good or very good in 82 patients. Discussion : This study confirms the efficacy of surgical treatment in the tibial plateau fractures to preserve a stable painless joint. The precocity of the surgery and the good choice of fixation material are important in order to obtain a good clinical and functional result. Ligamentous injuries are to be systematically explored and treated.

Abstract no.: 45327

PIVD IS IT ESSENTIAL TO OPERATE?

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200 cases of prolapsed inter vertebral disc were seen by the authors during last ten years. all were successfully managed non operatively using our new drug regimen of deworming ,calcium, vitamin D ,rest for 6 weeks,exposure to the sun light , anabolic steroids and diet rich in calcium ,vitamins and proteins. We have yet to see a case who does not respond to conservative treatment. Even cases of foot drop recovered.

Abstract no.: 45330

MORBI-MORTALITY IN PATIENTS AGED 90 YEARS AND OLDER FOLLOWING A HIP FRACTURE SURGERY

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Introduction: Population over 90 years old is growing rapidly and hip fracture remains a major health issue in this age group, despite efforts in prompt treatment. The aim of this study is to analyze mortality and complications in nonagenarians treated surgically for a hip fracture. Methods: Retrospective Study. Patients aged 90 years and older admitted for a hip fracture (neck, intertrochanteric or subtrochanteric) that was surgically treated were included. High-energy trauma, neoplastic or peri prosthetic/implant fractures were excluded. We recorded age, gender, type of fracture and surgery, length of stay (LOS), readmissions and overall mortality. ASA score and Charlson Comorbidity Scoring System (CCSS) were also recorded. Mortality was analyzed with a Cox-Regression to evaluate the difference between different variables. Results: 165 patients met the inclusion criteria. 132 of them were female (80%). Mean age was 93 ± 2.7 years. Most frequent co-morbidities were hypertension, hearth disease and diabetes. 53 were treated with arthroplasty and 112 with reduction and internal fixation. Mean LOS was 9.8 ± 5.6 days. 19 patients were readmitted in the first year postoperative, but only 3 related to the initial surgery (2 surgical site infection and 1 cut-through). Overall one-year mortality was 20%, (32/165). 4 patients died during hospitalization (2.4%) and 8 in the first 30 days (4.8%). Cox-Regression showed significant increase in Risk of death for the ASA score ($p<0.001$), CCSS ($p<0.001$) and age ($p<0.001$). Conclusions: Hip fracture is a high morbidity and high mortality disease. This statement is specially true in this specific population 90 years and older.

Abstract no.: 45331

SYRIAN TYPE EXTERNAL FIXATOR-IS IT EFFECTIVE IN OPEN FRACTURES?

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BACKGROUND: External fixation is the primary treatment of open fracture, and can be used as a definitive treatment in disasters and wartime. External fixator Syrian type is locally invented device by one Syrian doctor, three times cheaper than AO type external fixator, but less efficient in weight bearing bones. We aim to report our experience with this locally invented device, and its applicability on the patient as primary and definitive methods of treatment of open fractures. **METHODS:** A retrospective study of all open fractures (femur, tibia, Humerus) which operated in one field hospital, Aleppo, Syria, using a Syrian type of external fixator. **RESULTS:** Between 2011 and 2015 (955) orthopedic war injuries with open femur (334 cases), tibia (462 cases), humerus (159 cases) managed by a different type of external fixators. In 110 cases (51 humerus, 49 tibia, 10 femur) Syrian type external fixator used. Average age 28.9 years, most of them males 88.9%. Syrian type external fixator was a primary and definitive methods of treatment in 49.01% of open humerus fractures, 28.5% of open tibia fractures and it is failed in open femur fracture. **CONCLUSION:** Syrian type external fixator is locally invented, cheap, and acceptable methods of the treatment of the open fracture. Good results achieved in open humerus fractures (non-weight bearing) and poor outcome in the open femur and tibia fractures (weight bearing).

Abstract no.: 45335

DEMOGRAPHIC PROFILE OF INDIAN PATIENT WITH KNEE OSTEOARTHRITIS

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INTRODUCTION: The average life expectancy is rising in India and consequently there is an increase in diseases related to ageing such as knee osteoarthritis. There are an estimated 5 million people with activity limiting knee arthritis in India. The need of this population for a better mobility has resulted in an exponential increase in need for Joint Replacement surgery in the country. Another noticeable change is the increasing number of young and active patients, plagued by end stage knee arthritis from various causes who are now seeking an end to their constant pain and stiffness with associated suffering by opting to have a Joint Replacement. **MATERIAL AND METHOD:** This study was conducted in the department of orthopaedics, AIIMS, New Delhi, India over a period of 1 year from 2014 to 2015 and studied the demographic profile of the 250 patients. **RESULT:** Majority of the patients belonged to the age group of 40-50 years. Most of the patient have body mass index (BMI) <25. On kuppuswamy scale index maximum number of patient were from upper middle class. **CONCLUSION:** Our preliminary result differ that from the western studies which state that Osteoarthritis is a disease of upper class obese elderly people

Abstract no.: 45337

IS THERE A GENETIC PREDISPOSITION TO FROZEN SHOULDER? A SYSTEMATIC REVIEW AND META-ANALYSIS.

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Background: The aim of this study was to perform a systematic review and meta-analysis to assess the evidence suggesting a genetic link to Frozen Shoulder (FS). Methods: A systematic literature search of MEDLINE, EMBASE and CINAHL databases using relevant keywords revealed 5506 studies. Results: 7 studies were analysed. Three looked at rates of FS amongst relatives. One showed 11.6% prevalence in twin pairs and demonstrated a heritability of 42% for FS. A second study showed a positive family history of first degree relatives in 20% of patients with FS. A third study showed that 29% of patients with FS had a first degree relative with FS. Two studies evaluated racial predilection for FS. One reported significantly higher number of white patients (76%) with FS than black patients (24%). A second study showed that being born or having parents/grandparents born in British Isles were risk factors for FS. Four immunological studies looked into HLA-B27 and risk for FS, with 1 reporting significantly increased HLA-B27 in patients with FS. Meta-analysis of 2 of these studies with clearly defined controls showed significantly higher rates of HLA-B27 positivity in patients with FS. Conclusions: The limited evidence points towards a genetic link. Family history and racial predilection in this study indicate that a genetic predisposition to FS is present. Implications: There is an opportunity for genome-wide association studies to address definitively the molecular genetics of FS. This may eventually lead to better understanding of the pathogenesis of FS and development of novel therapeutic interventions.

Abstract no.: 45342

SURGICAL TREATMENT LONG-TERM COMPLICATIONS IN PATIENTS WITH IDIOPATHIC SCOLIOSIS

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Complications and their causes in the long-term period after spinal deformities surgery in patients with idiopathic scoliosis (IS) were analysed. We studied treatment results of 325 patients with IS (16-46 y.o.) after CD dorsal surgery using implantable «BelCD» instrumentation. All patients had spine growth final stage. The initial arcs were 42°-157°. 184 arcs were 41°-60° by Cobb. 133 arcs were 61°-90°, 76 – between 91°-120°, 44 - over 120°. Thoracic deformities (Lenke I) were in 145 patients, the combined (Lenke III) - in 109, the thoracolumbar (Lenke V) - in 68, thoracic (Lenke II) - 3. Long-term follow-up period started 3 years after surgery and lasted for 5-20 years. Clinically significant complications were in 88 patients (27%). Inflammatory septic process in the implanted area appeared in 14 patients after 3-7 years after the surgery and was associated with a previously infectious diseases occurred 2-4 months before (bronchitis-4, pneumonia-3, tonsillitis-2, pyoderma-2, pyelonephritis-2, abrasions-1); All patients had implant removal. PJC developed in 16 cases after 3-5 years post-op, caused by incorrect spine load and posture control. In 7 cases with PJC proximal fixation extension revision surgery was performed. 32 patients in 3-10 years after surgery had implant destabilization due to long incorrect spine load. Revision surgery was performed for 12 patients. In 26 patients implant was destroyed due to the back trauma. Revision surgery was performed in 18 cases. Revealed complications and their causes is reasonable to take into account for patients recommendations in the long-term period after surgery.

Abstract no.: 45343

THE INFLUENCE OF PRACTICE WORKOUTS ON THE YOUNG KNEE - IN CONSIDERATION OF ACL RUPTURES

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Introduction: One of most frequently injured structure of the knee is the anterior cruciate ligament (ACL), especially during stop-and go sports. Female athletes have a higher risk than men, 70% of those injuries are without contact. Based on those facts, there are lots of knee ligament injury prevention programs in literatures for avoiding exactly those injuries. Material und methods: In that retrospective trial, 93 out of 163 female players (basketball, soccer and volleyball) were selected and separated in groups of sport and independently to that in three groups of age. According to the parameters of EMG, Q-angle, Rolimeter, strength of the M. quadriceps and hamstrings, we compared the groups of sport and age among each other and in the single groups based on the dominant leg. The data is from a laboratory of walk- and movement analyses. Results: There are differences between the sport groups in preinnervation of the muscles, stability of the anterior cruciate ligament with Rolimeter, strength of flexors, independent of the dominant leg. Regarding the EMG results, there are no significant differences within the age groups. But there are differences within the sport and age groups between dominant and non-dominant leg in the EMG results, within the age groups at the ACL stability test with Rolimeter and Q-angle. Discussion: A combination in practice of strength, coordination and proprioception is recommended especially for young female athletes. The training should include a coordinative part for the different sports, because of the differences in strength and preinnervation.

Abstract no.: 45345

WHAT IS CAUSING READMISSION WITHIN 30 DAYS AFTER JOINT ARTHROPLASTY?

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Introduction: Readmission due to complications following total joint arthroplasty (TJA) can be devastating to both the physician and the patient. Our aim is to examine the main causes of readmission after TJA within 30 days after surgery. Methods: Using the ICD-9 diagnostics codes, we retrospectively reviewed readmissions from 7720 patients from 2011 to 2015 who underwent TJA. Results: The overall number of readmissions was 205 (2.66%). There were 111 (54.14%) TKA and 94 hip arthroplasties (28 PHA). The readmissions were either medical or surgical related. From the readmissions, in the surgical group (80 patients, 39.02%), the main causes were acute infection with 18 (8.78%), followed by hematoma with 13 (6.43%), periprosthetic fracture with 11 (5.36%) and mechanical problems with 11 (5.36%) patients. 29 (14.14%) patients required revision surgery. 125 (60.97%) out of the 205 patients were readmitted due to medical complications. These include atrial fibrillation with 19 (9.26%), followed by thromboembolic events with 12 (8.85%) and heart failure with 9 (4.39%) patients. Conclusions: The main causes of readmission after TJA within 30 days after surgery were medical related, with the leading cause being cardiac diseases. For surgical complications, acute infection and hematomas were leading causes. There are preventable causes such as infection or thromboembolic events. Many readmissions are not preventable, but some of them can be prevented with simple measures that save the patient from having to undergo further hospitalization and/or possible surgeries.

Abstract no.: 45346

TOTAL KNEE ARTHROPLASTY IN PATIENTS WITH HAEMOPHILIC ARTHROPATHY: LONG-TERM RESULTS

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Introduction: The knee is the joint more frequently affected by recurrent hemarthrosis, secondary to hereditary coagulopathies. Patients with haemophilic arthropaty refer pain, decreased range of motion (ROM) and severe functional limitations, that frequently lead to a knee arthroplasty (KA). This procedure is associated with high infection rates and mechanical failures. The purpose of this work was to evaluate the clinical and functional outcomes, survival rates and long term complications in patients that underwent KA for haemophilic arthropaty. Methods: Between 1990 and 2014, 19 knee arthroplasties were performed in 13 patients. All patients were treated with coagulation factor before and after the surgery. They were evaluated in terms of range of motion, blood loss and transfusion necessity. The KOOS score was registered. Complication rate, implant survival rate (Kaplan-Meyer curve) and the patient satisfaction were also evaluated. Results: Average follow-up was of 114 months. Two patients died of non orthopaedic complications. The average age at the time of surgery was 38 years. All patients were male. There was significant loss of hemoglobin during surgery. Two patients underwent transfusion. The average ROM at the last evaluation was of 88° and the KOOS score result was of 86.4 points. All patients evaluated are satisfied with the procedure and would accept to repeat it. Discussion/Conclusion: The KA was the treatment option even in young patients. The most frequent complication was infection; with superior rate compared to patients with knee arthrosis. Patients presented high clinical scores with important pain relief and ROM allowing for adequate function.

Abstract no.: 45348

IMPACT OF PRECISE SCREENING ON SURGICAL APPROACH TO A THORACOLUMBAR DISC HERNIATION TWO LEVELS ABOVE PREVIOUS FUSION CITE

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OBJECTIVE: Intervertebral disc herniation of the thoracolumbar junction is very rare and can present with cauda equine and conus medullaris syndrome. It may be present or can emerge as the complication of inadvertent surgical intervention to thoracic 12 and lumbar 1 disc herniation. We would like to emphasize the importance of imaging and preoperative detailed evaluation. **PATIENT/METHOD:** A 64-year-old female patient with a prolapsed (Th12-L1) intervertebral disc was admitted to our center for evaluation for surgical intervention. She had undergone L2-S1 transpedicular fixation and spinal canal decompression two years ago because of lumbar canal narrowing. Plain radiographs appeared normal. Lumbar MR images revealed prolapsed left paramedian intervertebral disc at the Th12-L1 level. Computerized tomography scan was also obtained to assess calcification. Eventually she underwent Th12 hemilaminectomy and medial facetectomy via posterior approach. **RESULT:** Right under the ligamentum flavum, degenerated disc material was encountered and we removed the disc with tiny pituitary punch forceps and a hook. Thecal sac began pulsating again and the somatosensory evoked potentials recovered soon after the surgery. VAS score progressed from 9 to 3 and she was discharged the other day, uneventfully. **DISCUSSION:** All was a one-hour-surgery without further instrumentation through a 3 cm incision. She did not necessitate blood transfusion or a surgical drain. **CONCLUSION:** This case emphasizes the importance of evaluating the patient with sufficient imaging tools to determine the most appropriate and the least invasive approach to the patient.

Abstract no.: 45349

TOTAL HIP REPLACEMENTS OUTCOMES OF PERIPROSTHETIC FRACTURES OF T

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Background Periprosthetic fractures of total hip arthroplasty (THA) represent a difficult treatment challenge. The aim of this study was to look at the outcomes of periprosthetic fractures of THA over a two-year period in a University Teaching Hospital. **Methods** A retrospective case notes analysis was performed. Forty-patients sustained a periprosthetic fracture between June 2013-June 2015. Fractures were classified according to the Vancouver classification. Our primary outcome measure was complications up-to 90 days post op. **Results** There were 26 females and 14 males with an average age of 80.3 (41-102) years. Thirty-six were cemented prosthesis while four were uncemented. The average time since the primary surgery was 3.24 years (95 days-14 years). There were seven B1, seventeen B2, three B3, and thirteen type C fractures. B1 and Type C fractures had surgical fixation while B2 and B3 fractures were revised. Patients had to wait an average of 5.5 days prior to obtaining surgical intervention and were discharged 21.7 days on average post operatively. Complications within 90 days was a single post-operative dislocation and two fixation failures; one traumatic, one secondary to inadequate proximal fixation. Inpatient mortality was 8.1%. **Conclusion** The Vancouver classification is a reliable guide to management of these fractures. Access to theatre for fixations was significantly quicker than in those requiring revision surgery. This however had no significant effect on post-operative LOS or patient morbidity and mortality.

Abstract no.: 45351

BIOCERAMIC MATERIAL "COLLAPAN" IN ONCOLOGIC RECONSTRUCTIVE HAND SURGERY

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Introduction: The treatment of the patients with oncological pathology is considered to be difficult due to the necessity to restore not only anatomical integrity but also hand function. Osteoplasty due to defects of hand bones is one of the important components of reconstructive surgery. Application for osteoplasty bioceramic materials recently is quite often used. Materials and Methods: The material is based on an analysis of results of treatment of 143 patients treated at the Hand Surgery Center in Chelyabinsk for the period 2007-2015 using "CollapAn" to replace bone defects wrist, metacarpals and phalanges, occurred after removal tumors or bone resection due to neoplastic diseases. "CollapAn" in the form of granules, plates, and gels was used. In order to fix the bones - the Ilizarov, Obukhov and Kataev fixators. Results: The results were assessed according to the principles of functional and cosmetic restoration of the limbs and from the standpoint of recurrence of cancer. Relapses require repeated surgical intervention, were found in 10 patients. The form and function of the hand in all the operated was restored in full. Conclusion: Osteoplasties bioceramic material "CollapAn" in combination with transosseous osteosynthesis has great prospects in oncology hand surgery.

Abstract no.: 45354

COMBINED POSTERIOR SHORT SEGMENT FIXATION AND ANTERIOR INTERBODY RECONSTRUCTION FOR COMPRESSION OR BURST FRACTURES AT LUMBAR SPINE

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We propose here, combined posterior short segment fixation and anterior interbody reconstruction for compression or burst fractures at thoraco-lumbar lesion. Especially, burst fractures with intact caudal endplates are best indicated. Although 2 approaches are required, this method allows good clinical and radiological outcomes, minimizing the level fused.

Abstract no.: 45358

AN AUDIT OF PROPHYLACTIC ANTIBIOTICS GIVEN FOR NECK OF FEMUR ARTHROPLASTY AT A LEVEL 1 TRAUMA CENTRE

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Introduction: The administration of prophylactic antibiotics is common practice in hip arthroplasties, and forms a core part of the Surgical Safety Checklist set out by World Health Organisation (WHO). Studies have shown that use of it in hip fractures significantly reduces the risk of i) overall wound infection ii) failure of primary surgery, therefore reducing the need extensive, expensive revision iii) post-operative urinary tract infections. The purpose of this audit was to identify compliance with specific local guidelines set out by a level 1 trauma centre, for the use of prophylactic antibiotics in arthroplasties that were conducted for neck of femur fracture patients. **Methods:** 50 patients with neck of femur fractures that consecutively underwent arthroplasty repair were identified. Data was collected, retrospectively, from paperless medical records, with regards to: i) type and dose of antibiotic given pre-operatively (taking into consideration meticillin-resistant *Staphylococcus aureus* (MRSA) and drug allergy status, body weight and renal function) ii) administration and dose of post-operative antibiotics. **Results:** Compliance to provision of pre-and post-operative antibiotic administration was found to be 76% and 92% respectively. Furthermore, only 28.5% of penicillin allergic or MRSA patients received appropriate antibiotics, with at least 14% of patients receiving sub-optimal doses. **Conclusions & Limitations:** The failure to achieve the desired 100% compliance has emphasised the need for awareness of both surgeons and anaesthetists to guidelines and improve communication between the two parties. Aside from small sample size, post-operative infection rates, the limitation of anaesthetists not always electronically prescribing drugs administered was identified.

Abstract no.: 45359

NERVE INJURIES IN TOTAL HIP ARTHROPLASTY WITH A MINI INVASIVE ANTERIOR APPROACH

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Introduction: Minimal invasive techniques in total hip arthroplasty (THA) have become increasingly popular during the last years. Our study aims to focus on nerve damages during the AMIS procedure and the possible explanations of these injuries. Methods: We reviewed all primary THAs performed with the AMIS technique using a traction table, over 5 years and recorded all intraoperative and postoperative complications up to latest follow-up, mainly focusing on nerve function impairment. Results: Our study included 1512 THAs performed with the AMIS technique in two major hip reconstruction centers (KAT General Hospital, Athens, Greece and University Hospital of Geneve, Switzerland), at 1238 patients (985 women – 253 men, mean age 65.24 years). Mean follow-up was 29.4 months. We observed 51 cases of transient lateral femoral cutaneous nerve neuropraxia (3.37%), 4 cases of femoral nerve paralysis (3 permanent – 1 transient, 0.26%) and one case of permanent sciatic nerve paralysis (0.06%). No case of obturator or pudendal nerve injury was noticed. Mean age of these cases was 68.97 years. Sciatic and femoral nerve injuries were confirmed by electromyography, showing axonotmesis of the damaged nerve. Conclusions: Neurological injuries are a rare but existent complication of THAs using AMIS technique. Possible explanation of the referred nerve injuries are direct nerve injury, extreme traction, hyperextension, extreme external rotation of the leg, use of retractors and coexisting spinal deformities. Controlled use of traction and hip extension, cautious use of retractors and potential use of dynamometers would be useful, so that neurological damage could be avoided.

Abstract no.: 45360

THE TREATMENT OF RECALCITRANT LARGE DEPOSIT CALCIFIC TENDONITIS OF THE SHOULDER: FROM PRIMARY TO SECONDARY CARE IN THE NHS - THE ROYAL DERBY HOSPITAL EXPERIENCE

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INTRODUCTION:Shoulder calcific tendinopathy is an uncommon cause of a painful arc. Numerous treatment modalities are available which include both surgical and non-surgical techniques. The aim of this study is to follow the treatment pathways of patients with recalcitrant calcific tendonitis from primary to secondary care, and to chart the functional outcomes of different treatments implemented. **METHODS:**Data was prospectively collected over a two-year period. Patient demographics, and symptoms were recorded. Oxford Shoulder Scores (OSS) were conducted in clinic. **RESULTS:**Sixty-six patients with a mean age of 51 years (range 20-77), and mean duration of symptoms of 29 months, were referred from primary care to the orthopaedic outpatients clinic. 14 patients were referred by GPs with the correct differential diagnosis, of which 45%(n=30) of all referrals had accompanying diagnostic imaging, such as radiographs and ultrasound prior to clinic attendance. 70%(n=46) of patients had either failed physiotherapy and/or steroid injections. 54 patients underwent surgical intervention, which included ultrasound barbotage(n=12), and arthroscopic excision of calcium deposits +/- subacromial bursectomy(n=42). 67%(n=8) of the barbotage cohort had to undergo further intervention. Over 60%(n=5) underwent an arthroscopic procedure for persistent symptoms. OSS improvement was demonstrated for patients undergoing arthroscopic treatment. (mean Pre-op OSS=40; Mean Post-op OSS=30). **CONCLUSIONS:** There is significant improvement in both function and patient satisfaction with definitive arthroscopic excision for cases that are refractory to conservative therapy. We believe that first line management in primary care is most likely sufficient for the majority of patients, however for the recalcitrant large deposit calcific tendinopathy referral should be considered early.

Abstract no.: 45362

FUNCTIONAL AND RADIOLOGICAL OUTCOME FOLLOWING CORACO-CLAVICULAR STABILISATION (ACU-SINCH) IN LATERAL END CLAVICLE FRACTURES AND ACJ DISRUPTIONS

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Introduction:Clavicle fractures and Acromioclavicular joint disruption accounts for approximately 4% of all fractures and 10% of shoulder injuries respectively. Surgical intervention is associated with good outcome in a selected group, as non-operative treatment is associated with delayed or non-union and chronic shoulder problems. Various treatment methods are described in the literature, commonest being hook plate. We evaluated the results of treating these injuries with Acu-Sinch that stabilises the clavicle to coracoid. **Methods:**We included 16 patients that presented to our hospital from 2014 to 2015 with displaced comminuted lateral end clavicle fracture and ACJ disruptions. ACJ injuries included were modified Rockwood Grade IV and above. The patients with ACJ injuries were treated with Acu-Sinch repair system alone and the patients with lateral end clavicle fractures were treated with plate augmented with Acu-Sinch. Postoperatively patients were treated in sling and underwent physiotherapy. All the patients were analysed at the final follow-up using DASH score and x-rays. **Results:**Of the 16 patients 13 had lateral end clavicle fractures and remaining had isolated ACJ disruptions. All the patients underwent surgery with Acu-Sinch repair system. Mean age of the patients was 38 years (24-55) and M:F ratio 4:1. At a mean follow-up of 14 weeks (12-16), all but three patients has returned back to their preinjury level of activities. All patients achieved radiological healing at 9 weeks (6-12). Three patients with lateral clavicle fracture developed capsulitis after surgery. There were no complications related to implant failure or bone healing.

Abstract no.: 45364

MINIMALLY INVASIVE PERCUTANEOUS PLATE OSTEOSYNTHESIS FOR LATERAL MALLEOLUS FRACTURES

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Introduction: Lateral malleolar fracture is a common fracture occurring either as a part of ankle joint trauma or as a concomitant injury to tibial plafond fractures. Open reduction and internal fixation is considered as the state of art for displaced lateral malleolar fractures to obtain congruent ankle mortise. But in certain conditions, soft tissue status together with patient comorbidities may impede this technique. MIPPO for lateral malleolus may be a suitable solution for ankle fractures with soft tissue problems and as a first stage protocol for pilon fractures. Material : through the period between May 2012 and May 2014, fifty-six patients with displaced lateral malleolus fractures either as a part of pilon fracture (thirty patients) or in cases of ankle trauma with bad soft tissue condition have been managed through the MIPPO approach. All patients have been evaluated as regard the grade of soft tissue injury, timing of surgery from trauma, duration of procedure, image intensifier exposure, time to union, post-operative ankle function and reported superficial nerve injury. Results: all patients had closed soft tissue injury. The average time for fixation was within ten hours since hospital admission, patients were admitted within 2 days of injury, the procedure took fifty minutes, average union rate was within 6 weeks, all patients had good to excellent ankle function according to ankle and foot scoring system, no superficial peroneal nerve injury was documented Conclusion: MIPPO for lateral malleolus as effective and safe technique provided that ankle mortise congruity is obtained.

Abstract no.: 45365

FLOOR AND CEILING EFFECTS IN PATIENT-REPORTED OUTCOME MEASURES AFTER PERIACETABULAR OSTEOTOMY

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Background: PROM are tools used measuring clinical outcome after operation for symptomatic acetabular dysplasia. Several patient-reported outcome measures (PROM) are used for hip conditions. To our knowledge though, the floor/ceiling effects, when applying the PROMs to patients before and after periacetabular osteotomy (PAO), have not yet been investigated. The aim of this study was to examine whether three frequently used PROMs suffer from floor/ceiling effects when used before and after PAO. Methods: Data from 650 hip surgeries (550 patients) from summer 2013 to winter 2016 was analyzed. The patients were invited to answer three questionnaires pre-operatively, 6 months, and 2 years post-surgery: Hip disability and Osteoarthritis Outcome Score (HOOS), Euroqol 5-Domain (EQ-5D) and Short Form Health Survey (SF-36). Descriptive analysis using STATA was applied. Floor and ceiling effect was defined as >15% of the patients scoring minimum/maximum score at a time point. Results: Neither floor nor ceiling effects using the HOOS on pre-operative measures was detected. At 6 month follow-up 2 of 5 subscales showed ceiling effect, at 2 year follow-up 3 of 5. Ceiling effect was detected for EQ-5D on 6 months and 2 year follow-up. Floor effect was detected in 1 of 8 subscales on the SF-36 pre-operative and ceiling effect in 2 subscales. At 6 months and 2 year follow-up, ceiling effects was present in 3 subscales and floor effect in 1 subscale. Discussion: Several subscales in the applied PROMs showed ceiling or floor effects. This may call for more specific PROMs when applying these to PAO.

Abstract no.: 45366

**PROTOCOL OF PLANNING FOR CORRECTIVE FEMORAL OSTEOTOMY
USING 3D TECHNOLOGY**

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Results of orthopedic operations are directly dependent on accuracy of the preoperative planning. At the present level of development of imaging technologies, the use of routine planning methods is insufficient, because projection blending and distortions cause errors and, consequently, limit predictability of results. Currently, the computer 3D modeling technology is actively introduced into all branches of medicine, including orthopedics. This promising technique allows to carry out an accurate topical diagnostics, to calculate parameter data and to implement the virtual planning and simulation of the upcoming osteo-reconstructive surgery. The objective of the research is to develop new methods of planning and implementation of corrective osteotomies of the femur in children with the use of 3D technology. The study includes 27 patients (32 hips) with hip joint abnormalities of dysplastic genesis aged from 5 to 18 years old. CT scans and a complex 3D software adopted by us were used for 3D modeling. Prototyping technique was used to create a custom template. As a result, the planning protocol was developed for planning of corrective osteotomy of the femur with the use of 3D modeling and prototyping techniques.

Abstract no.: 45370

COMPARATIVE ANALYSIS BETWEEN BIOLOGICAL PLATING AND PROXIMAL FEMORAL NAILING FOR COMMINUTED SUBTROCHANTERIC FRACTURES

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Comminuted fractures of the subtrochanteric region of the femur are challenging injuries and often result from high-energy trauma. Proximal femoral nails (PFN) have been accepted as the standard treatment for these fractures; although the invention of the locking compression plates (LCP) has made way for the 'Biological plating' technique to emerge as a viable option for these fractures. Comparative analysis of both the methods can be valuable for surgical decision making. Fifty six patients of comminuted subtrochanteric fractures of the femur were studied prospectively over four years. Twenty-five of them were treated with biological-plating using LCPs, preferably spanning at least thrice the length of the fracture segment. The rest 31 patients were treated using the cephalomedullary type PFNs. The surgical time was marginally higher in the plating group, but the fluoroscopy exposure was more in case of PFNs. The biological plating group had less blood-loss and better reduction of the comminuted fragments. Symptomatic improvement was better in the plating group and they could be mobilized with walker by the 2nd post-operative day, whereas nailing group complained of more post-operative pain. The nailing group also had more incidences of delayed-union and required secondary procedures like bone-grafting. Various complications in the PFN group were, screw cut-through, mal-reduction, mal-union, non-union and implant breakage etc. Biological plating group had one case of implant loosening and one case of surgical site infection. With better fracture healing, early recovery and fewer complications, the biological plating technique appears to be a very useful method for comminuted subtrochanteric fractures.

Abstract no.: 45372

WHAT HAPPENS TO RADIOGRAPH NEGATIVE SUSPECTED SCAPHOID FRACTURES?

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Introduction and Aim: Scaphoid fractures are the most common carpal bone fractures. It is vital to have early and confirmed diagnosis to avoid complications like non-union, mal union and avascular necrosis. According to the Royal College of Radiologists, Magnetic Resonance Imaging (MRI) is the preferred option when the diagnosis is in doubt. The sensitivity of plain film is not high enough to exclude a fracture. The aim of this audit was to evaluate the management of suspected scaphoid fractures. Methods: A retrospective audit was carried out and all consecutive patients with suspected scaphoid fractures between the period of August 2014 to December 2014 were included. Electronic patient notes were utilised to collect the data. Results: Twenty-four patients were included in the age range of 9 to 87 years. Sixty seven percent were female. Twenty (83.3 percent) had further imaging performed out of which, 11 (55 percent) were done within 2 weeks and 9 (45 percent) after 2 weeks. Five (25 percent) patients had MRI scan and 15 (75 percent) patients had CT scan. In total, 4 (20 percent) patients out of 20 were positive for scaphoid fractures. Conclusion: Although 11 patients underwent further imaging done at 2 weeks; there was a delay in 9 patients ranging up to 9 weeks and this led to significant proportion having further reviews and radiographs before having further imaging like CT or MRI. A low threshold for further imaging is essential in patients who have negative radiograph findings and positive clinical findings.

Abstract no.: 45373

CONSERVATIVE MANAGEMENT OF ODONTOID PEG FRACTURES IN THE ELDERLY

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Peg fractures are common injuries in elderly population and are associated with increased morbidity and mortality associated with increased age. The purpose of this study was to determine outcomes following peg fractures managed conservatively in the elderly population. A retrospective review of case notes from prospectively collected patients was undertaken including all patients with C2 fractures referred between June 2010-January 2015. Data was collected retrospectively assessing patient demographics, mortality rates, length of stay, cognitive status, type of odontoid peg fracture and time to mobilisation. 40 patients identified with an odontoid peg fracture. 15 male patients, 20 female patients. Mean age was 75.4. Fractures by location revealed: Type 1 n=1, type 2 n=25, type 3 n=9. All patients were managed conservatively, 4 patients in halo traction with the remainder being managed in an Aspen collar. Overall mortality n=15 (43%), with 30-day mortality 12.5% (n=5), 1-year mortality 15% (n=6), 2-year mortality 2.5% (n=1), 3-mortality 10% (n=4). The mortality rate of patients treated in halo traction was 75% (2 at one-year, 1 at 30-days). Management in an Aspen collar revealed a reduced length of stay (11.8 days Vs 11.3) and reduced time to mobilisation (1.5 days Vs 3.6) compared with those managed in a halo. Overall mortality in the Aspen collar group was 30% within 3 years (n=10). Our data supports the use of cervical immobilisation in elderly patients with odontoid peg fractures. This is supported by lower mortality rates, reduced length of stay and a more rapid mobilisation and length of stay.

Abstract no.: 45376

A CT BASED EVALUATION OF NONUNION OF SCAPHOID WAIST FRACTURES

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Introduction: Scaphoid waist nonunions are common and risk factors include displacement, delay of diagnosis and inadequate immobilization resulting in bone loss, cysts, sclerosis, fragmentation and SNAC deformity. We performed 3-D CT based study to assess fracture geometry. Methods: A retrospective analysis of all scaphoid waist non-unions with CT scans between November 2008 and July 2013. There were 83 patients (M/F 72:11; R/L 49:34). Injury to CT from 3 months to 20 years. 23 patients were excluded because of union (7 cases) and CT < 3 months of injury (16). Median age at the time of CT was 33 (15 -74) years. Scans was examined by two senior authors for fracture configuration, displacement, sclerosis, bone loss, cyst formation, scalloping and bone erosion, SNAC and collapse (humpback deformity) and corrected for interobserver variability. Results: 60 patients were eligible. Two main subtypes were noted. 1) Transverse fracture waist nonunions (13 cases) transverse to the long axis of scaphoid. Gradual loss of length with limited pronation but no flexion of the distal pole and either no or late mid-carpal collapse with associated atrophic, sclerotic or cystic changes. 2) Oblique waist fractures (47 cases) were oblique to long axis of scaphoid with rapid collapse and tended to develop sclerosis, cysts, scalloping or humpback deformity and usually within first 6 months of injury and hence, more symptomatic. Conclusion(s): We describe two subtypes of scaphoid waist nonunions based on their 3D configuration- transverse stable type and an oblique unstable type. This forms the basis of their management.

Abstract no.: 45380

THE "HIP-SACHS" LESION. AN ASSESSMENT OF DEPRESSED FRACTURES OF THE FEMORAL HEAD ASSOCIATED WITH FRACTURE OF THE ACETABULUM.

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Dislocation of the glenohumeral joint may result in depressed fracture of the humeral head, the Hill-Sachs lesion. Fracture of the acetabulum may result in depressed fracture of the femoral head (Hip-Sachs lesion). We aimed to establish the incidence of the lesion and identify which fracture patterns are most associated with it, and which imaging modalities best demonstrated it. We reviewed 134 consecutive patients referred for fixation of an acetabular fracture over a two year period. Sixteen patients did not meet our inclusion criteria. Radiographs and CT scans of 118 acetabular fractures were subsequently reviewed. We identified 31 Hip-Sachs lesions (incidence = 26%). There were 90 males and 28 females with a mean age of 53 years (range 17-102). The fracture pattern associated with the Hip-Sachs lesion involved the posterior elements in 84%, with only 16% occurring in isolated fractures of the anterior column. Four lesions were identified on plain anteroposterior radiographs (13%). All lesions could be identified on CT scans, and were best visualised on coronal imaging in 16 patients (52%), on sagittal imaging in 10 patients (32%), and on axial imaging in 5 patients (16%). The femoral head lesion commonly occurred adjacent to a major acetabular fracture line. To our knowledge this is the first large scale study designed specifically to assess depressed fractures of the femoral head associated with acetabular fractures. Further studies are required to establish the significance of the Hip-Sachs lesion and to determine any medium to long term sequelae associated with it.

Abstract no.: 45381

**STUDY PROTOCOL FOR A RANDOMIZED CONTROLLED TRIAL
COMPARING UNICOMPARTMENTAL WITH TOTAL KNEE
ARTHROPLASTY IN MEDIAL GONARTHROSIS**

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Introduction: After years of decline, unicompartmental arthroplasties (UKAs) are again starting to gain interest worldwide. While only 3.5 % of all knee replacements performed in Sweden 2013 were UKAs, 25% show medial osteoarthritis (OA) only. This may indicate that a greater percentage of these patients might be eligible for UKA instead of total knee arthroplasty (TKA). Reasons for discrepancy might be that UKAs are more technically demanding, requiring more surgical training, or that long-term survival of these implants reported inferior. Another reason for less UKAs might be the shortage of clinical studies evaluating possible advantages in terms of patient satisfaction and function. Suggested advantages of UKA over TKA include less pain, fewer hospital days and faster rehabilitation. **Methods:** This is a prospective randomized controlled trial (RCT), where 80 patients with medial knee OA, aged 50 years or more, scheduled for knee replacement will be randomized to either TKA or UKA. The primary endpoints are patient reported outcome measures (PROMs) and muscle mass measured by CT. Secondary endpoints are performance based measures (PBMs), muscular strength and 3D movement analysis. Outcome of the intervention was assessed short-term 6 months after surgery, and long-term after 24 months. **Discussion:** This is a presentation of a prospective RCT including detailed information on the planned study design. To our knowledge this is the first RCT comparing UKA and TKA from a patient's perspective. ClinicalTrials.gov Identifier: NCT 02563756.

Abstract no.: 45383

ARTHROSCOPIC BONY BANKART REPAIR WITH DOUBLE PULLEY TECHNIQUE

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Purpose: To evaluate outcomes of arthroscopic bony Bankart repair with double-pulley technique in patients with bony Bankart lesion. **Materials and methods:** From April 2008 to August 2012, 7 patients with traumatic bony Bankart lesion have been take arthroscopic Bankart repair with double-pulley technique by single surgeon. All of the subjects were male with average 33.7 years-old (range 21 to 60). In all patients, preoperative three-dimensional computed tomography imaging was performed and quantitative analysis of glenoid bone loss was performed. For the objective assessment of surgical outcomes, the preoperative and postoperative range of motion of the shoulder (forward elevation, external rotation, internal rotation) were investigated. Average 8.3 months (range 5-12 months) later from surgery, follow-up three-dimensional computed tomography was performed to confirm the reduction and restoration state of bony fragment. For the subjective assessment, preoperative and postoperative visual analogue scale (VAS) was used and for clinical assessment, Rowe score was used. **Results:** Preoperative average glenoid bone defect was 16.2% (range 8.9 to 23%) and through the follow-up images bony Bankart lesion was repaired completely in all cases. Using the VAS pain and subjective degree of instability was 4.8 (range 2-10) preoperatively but the mean was 1.8 (range 1-4) at follow-up. Rowe scores were shown excellent for 6 patients (85.7%), good for one patient (14.3 %) and average 91.2 (range 85-94) points respectively. **Conclusion:** Arthroscopic bony Bankart repair using double pulley technique for bony Bankart lesion showed satisfactory results radiologically, clinically, functionally.

Abstract no.: 45385

THE SILENT HIP, NECK ONLY PROSTHESIS IN PRIMARY HIP ARTHROPLASTY : A PROSPECTIVE STUDY- MINIMUM 2 YEAR FOLLOW UP.

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Aim : To assess the survivorship of the Silent neck only prosthesis in primary hip arthroplasty performed by a single surgeon with a minimum 2 year follow up. **Methods :** This prospective study was performed between October 2010 and March 2013. The Silent hip was implanted into 29 hips (28 patients), combined with a Gription acetabular component, with a ceramic against ceramic bearing surface. All patients were followed up for a minimum of 2 years. Prospectively collected Oxford Hip Scores and EuroQol 5D were used as patient reported outcome measure. **Results :** 24 males and 4 females made up the study population. The mean age was 44.3 years (36 – 52 years). The mean pre-operative Oxford hip score was 46.1 (38-49) reduced to 14.1 (12-17) post-operatively ($p < 0.01$). The EQ 5D improved from a mean of 0.05 pre-operatively to 1 post-operatively ($p < 0.01$). There was no radiographic evidence of loosening, subsidence, migration or radiolucency. There were no cases of revision. One patient (7%) developed a post-operative deep venous thrombosis and commenced on low molecular weight heparin. They subsequently developed a hematoma and required a wound washout and settled. **Conclusion:** Our findings suggest that the use of the Silent neck only prosthesis offers excellent patient reported outcomes and confers the benefits of conservation of proximal bone stock. This is especially useful in patients requiring primary arthroplasty a young age and those with proximal sub-trochanteric deformities. The study adds to a growing body of evidence supporting the use of short stem prostheses.

Abstract no.: 45386

NATIVE JOINT SEPTIC ARTHRITIS: OUR EXPERIENCE

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Background: Incidence of native joint septic arthritis is 4-10/100000 /year with high mortality up to 11%. Objectives: look into our institutional suspected/proven native joint septic arthritis incidence, management and final outcomes. Methods: Between November 2009 to March 2015 at our institute 359 patient were referred for suspected septic arthritis. Inclusion criteria: suspected or proven native hip and knee joints septic arthritis. Exclusion criteria: Previous surgical intervention for native joint, artificial joint arthroplasty any periarticular fixation with metal work. All the patients were clinically assessed and investigated as per guidelines. Plain radiographs, blood inflammatory markers, joint aspiration for gram stain, WBC count, crystals, Culture and sensitivity. Treatment included Surgical joint washout /debridement with intravenous antibiotics. All other co-morbidities and immunocompromised the patients were investigated. Results: Total- 53 patients 55 native joints Hip -9, Knee- 46 diagnosed with native joint septic arthritis. Average age- 57.81 years. Average blood WBC count- 12.83 SD+/- 4.57, neutrophil -9.79 SD-3.77 & CRP- 164.70 SD- 101.62. Joint aspiration fluid Gram stain- Gram +ve cocci- 23 Hip -5, Knee- 18, WBC count- >50000- 13, <50000- 42, Crystals-1. Patients with confirmed clinical, laboratory based septic arthritis underwent surgical joint washout, intra-operative samples for microbiology and long term IV antibiotics in consultation with microbiologists until patients became asymptomatic and inflammatory markers improved to normal. Incidence was high but at final follow-up all the patients had recovered fully and remained asymptomatic. Conclusion: By following the protocol/guidelines for native joint septic arthritis accuracy of diagnosis and treatment improved the final outcomes.

Abstract no.: 45387

SURVEILLANCE FOR DEVELOPMENT OF LUNG METASTASES AFTER PRIMARY SURGICAL EXCISION OF SOFT TISSUE SARCOMAS OF THE EXTREMITIES AND TRUNK WALL

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Aim: to evaluate a new surveillance program for intermediate- and high-grade soft tissue sarcomas (4 examinations a year: 2 low-dose chest CT-scan (without contrast) and 2 plain X-ray) for identification of lung metastases within the first 2 years postoperatively. **Methods:** We retrospectively assessed the medical files of all patients (n=116, mean age 59 (18-87) years, F/M=57/59) with STS of the extremities and trunk wall, who underwent surgery from 2010 to 2013. We extracted information on how lung metastases were detected during the first 25 months post-surgery. **Statistics:** Kaplan Meier survival analysis and 2x2 contingency table with chi2-test. **Results:** 19/116 patients experienced lung metastases within the first 25 months post-surgery (25 months lung metastases free rate 87%). Compared to X-ray, CT-scans led to a larger amount of suspicions of lung metastases (23/285 versus 6/278, p<0.002). Furthermore the suspicions on CT-scan seemed more accurate than on X-ray (16/23 affirmed versus 2/6 affirmed, p<0.103). The only cases where an X-ray finding of lung metastases was correct were in 2 cases where an X-ray was the first chest examination after surgery and radiotherapy. CT-scan (n=285) found a larger number of lung metastases than X-ray (n=278) did (16 (5.6%) versus 2 (0.7%), p<0.001). Three patients suspected lung metastasis themselves; 1 of them was affirmed. **Conclusion:** Bi-annual CT-scan the first 2 postoperative years after surgical treatment of STS, seemed to detect lung metastases better than plain x-ray, and therefore render regular X-rays between these CT-scans unnecessary.

Abstract no.: 45388

OUTCOMES AND COMPLICATIONS FOLLOWING STAR ® TOTAL ANKLE REPLACEMENT - A SEVEN YEAR FOLLOW-UP STUDY

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We have examined the outcomes of patients undergoing total ankle replacement and evaluated their associated morbidity and complications. Functional outcomes were assessed using the American Foot and Ankle Society Score – Ankle and Hindfoot Scale and associated morbidity and complications were determined through review of case notes. From 2004-2012, one surgeon undertook 43 total ankle replacements (9 females and 34 males). The average age of patients was 71 years for both groups with mean follow up 19.6 months (range 3-84). Pre-operatively, patients had an average AOFAS score of 35. Post-operative mean scores at 3 months were 74.5 and 77, 95.7, 90.3, 86, 96, 97 and 95 at 6 months, 1 year and yearly thereafter until 7 years ($p < 0.001$). There was a significant improvement in pain scores, from 7.3 pre-operatively to a mean of 37.5 post-operatively ($p < 0.001$). An improvement of function was also noted, from 28.4 preoperatively to 58.2 post-operatively ($p < 0.001$). In our series, there was one case of deep infection (treated with open washout, exchange of liner and resolution of symptoms), one superficial infection, one revision for dynamic varus deformity with fractured polyethylene liner and one isolated liner fracture. One medial malleolar fracture was identified in our case series that was managed conservatively with no further complications. 2 patients experienced lysis around the components – one tibial and one talar – and are being managed conservatively as they are asymptomatic. Overall reoperation rate was 7%. Our outcome measures reflect that of the published literature whilst having comparatively fewer complications.

Abstract no.: 45391

ARTHROSCOPIC REPAIR OF INTRATENDINOUS ROTATOR CUFF TEAR

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Purpose: To evaluate the clinical result of rotator cuff intratendinous(IT) tear patients treated with arthroscopic repair. Materials and Methods : From April 2011 to July 2014, 20 patients(5 male, 15 female) with rotator cuff IT tear were repaired arthroscopically and followed up over 14 months. Mean age of patients was 59.0 (48~66)years old and mean follow up period was 18.8 (14~36)months. The clinical results were evaluated by University of California at Los Angeles (UCLA) score, Society of the American Shoulder and Elbow Surgeons rating scale (ASES), VAS score and active range of motion(ROM) of shoulder. Follow-up MRI was obtained in 16 cases and they were graded by Sugaya classification to evaluate repaired rotator cuff. Results : Clinical improvement was achieved in all 20 patients. The UCLA score was from 16.3(\pm 3.34) to 31.2(\pm 3.34), ASES score was from 43.8(\pm 12.27) to 88.7(\pm 11.36), VAS score was from 6.8(\pm 1.38) to 1.2(\pm 1.38), postoperatively. Conclusion : In a symptomatic IT rotator cuff tear, the arthroscopic repair showed excellent clinical and MRI results.

Abstract no.: 45394

SMART PHONE USE IN ORTHOPAEDICS: LEGAL, ETHICAL AND PRACTICAL CONSIDERATIONS

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Background: The use of the SMART phone has revolutionised modern medical practice. The ability to take photographs using the phone in your pocket and then immediately edit, process and subsequently forward, all within minutes, is a valuable resource. However, it is perhaps this ease of use that has led to a failure to acknowledge the clear guidance that exists regarding information governance. This breach strikes at the core of good medical practice. Methods: We have surveyed 100 orthopaedic clinicians of various grades, assessing their use of SMART phones in current practice. We have also reviewed available guidance relating to patient identifiable photography and associated data storage protection, in an attempt to further clarify the dangers of current practice. Results: All 100 clinicians surveyed owned a smart phone capable of photography and subsequent data transmitting facilities. 4/100 (4%) failed to have any password protection to enter their device. 91/100 (91%) confirmed having patient photos or video, of whom, 59/91(65%) had at least one image with patient identifiable data. 85/100 (85%) had sent an item with patient identifiable data using a mobile application yet only 5/100 (5%) were aware of the user agreement implications. Conclusion: With recent media stories about breaches in celebrity privacy through hacking of online storage, our own concerns regarding current practices with the are magnified. Many of us are in breach of basic governance requirements, which is unacceptable. With simple modifications to phone protection and storage, the huge potential of SMART phones can continue to enhance current practice.

Abstract no.: 45398

**INJECTION IN THE MANAGEMENT OF CARPAL TUNNEL SYNDROME:
AN AUDIT OF CLINICAL PRACTICE.**

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Introduction: Carpal tunnel syndrome (CTS) is a common pathology believed to affect up to 5.6% of the general population. The UK National Institute for Health and Care Excellence (NICE) has issued guidance regarding injection of steroid (CTi) as a treatment and in Birmingham the clinical commissioning group (CCG) insist on this prior to surgery in most cases. The injection can be performed in primary care or by the surgeon. We wanted to establish clinicians' familiarity with CTi depending on their level of training and whether they were in primary or secondary care. Methods: an electronic questionnaire was sent to trainees, upper limb consultants and primary care physicians in the region. Responses were collated and analysed, and the findings distributed. Results: The majority of respondents routinely obtain nerve conduction studies prior to diagnosis of CTS but only 35% routinely perform CTi. Of those who inject, or are competent to inject, more than 75% injected in the correct location, identified on a virtual model. There was wide variation in composition of injectate. Conclusions: There is a degree of scepticism about the role of CTi in the long-term management of CTS in our region. Nevertheless, given the local CCG guidance the majority of surgeons know the correct area to inject despite not having had formal training in most cases.

Abstract no.: 45400

DISTAL FEMORAL VARUS OSTEOTOMY FOR EXTERNAL FEMOROTIBIAL GONARTHROSIS ON GENU VALGUM: LONG-TERM RESULTS AND REVIEW OF THE LITERATURE.

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Distal femoral varus osteotomy is a conservative treatment for external unicompartmental knee gonarthrosis in young patients with a symptomatic genu valgum. The purpose of our study is to report our experience with nine patients (10 knees) treated for external femorotibial gonarthrosis on genu valgum. Genu valgum resulted from femoral deformation in all patients. IKS scores were used for the clinical evaluation. Pre and post operative radiographies were used for radiologic evaluation. Goniometry was used to measure the axis of the loaded lower limb. All patients underwent osteotomy of the distal femur for varisation and plate fixation. Three patients required section of lateral patellar wing to stabilize a preexisting femoropatellar arthrosis. Mean follow-up was 8.25 years (99 months). The average knee score improved from 48.4 to 73.5 points at last follow. The average function score improved significantly from 49.5 to 72 points at last follow. The mean preoperative valgus was 14.4 °. The final correction was reduced to a mean valgus of 3.7 °, with a range of 2 ° to 5 °. This correction was statistically significant. There were no cases of nonunion. All patients were satisfied or very satisfied. These results and results reported in the literature demonstrate that distal femoral osteotomy for disabling genu valgum is an effective treatment if the correction is complete and osteosynthesis effective, providing long lasting results when femoral deformation is involved and osteoarthritis limited. The distal femoral varus osteotomy is an indication of choice in symptomatic genu valgum resulted from femoral deformation.

Abstract no.: 45401

SURVEILLANCE FOR DEVELOPMENT OF LOCAL RECURRENCE AFTER PRIMARY SURGICAL EXCISION OF SOFT TISSUE SARCOMAS AND BORDERLINE TUMOURS OF THE EXTREMITIES AND TRUNK WALL

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Aim: to evaluate a new surveillance program (4 outpatient visits a year: 2 with clinical examination (CE) only and 2 with CE preceded by focal magnetic resonance imaging (MRI)) for identification of local recurrence within the first 2 years postoperatively. **Methods:** We retrospectively assessed the medical files of all patients (n=232, mean age 57 (18-88) years, F/M=117/115) with STS (including borderline tumours) of the extremities and trunk wall, who underwent surgery from 2010 to 2013. We extracted information on how local recurrences were detected during the first 25 months post-surgery. **Statistics:** Kaplan Meier survival analysis and 2x2 contingency table with chi2-test. **Results:** 25/232 patients experienced local recurrence within the first 25 months post-surgery (25 months local recurrence free rate 92%). Compared to CE, local imaging (LI) mainly MRI led to a larger amount of suspicions of local recurrence (37/557 versus 8/703, p<0.001). Furthermore the suspicions from LI were more accurate than from CE (17/37 affirmed versus 0/8 affirmed, p<0.015). LI (n=557) finds a larger number of local recurrences than CE (n=703) (17 (3%) versus 0 (0%), p<0.016). 33 patients suspected local recurrence themselves; 8 of them were affirmed. **Conclusion:** Bi-annual LI (MRI) the initial first 2 postoperative years after surgical treatment of STS, will detect local recurrence better than CE, and therefore render regular CE between these MRIs unnecessary, but patients' own suspicion of local recurrence is still important.

Abstract no.: 45402

SOCIAL STATUS AND REPRODUCTIVE HEALTH OF PATIENTS WITH IDIOPATHIC SCOLIOSIS AFTER DEFORMITY SURGERY

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The aim of research was to determine social features and reproductive health of patients after IS deformity surgery. We studied 325 patients with the IS, 16-46y.o.(16-18y.o.-242, 19-46y.o.-83) after surgery with CD methodology using implantable «BelCD» instrumentation. The initial arcs angle was 42-157 degrees. There were 42 male, 283 female. Follow-up period was 5-20 years. All patients were satisfied with the surgery results (SRS-24) and are able to work, have received secondary or higher education, professional skills, especially mental work. According to professional opportunities, patients had similar to healthy colleagues level. Among 283 female officially married-228. 44 patients were married for 2-23 years before surgery, 16 of them divorced 2-5 years after marriage (causes were different, but also caused by scoliosis). 184 patients were primary married 1.5-7 years after surgery. 9 from 16 divorced patients married again in 1-5 years after surgery. 156 married female received babies 3-10 years after surgery. 82 had physiological delivery, 74-caesarean section (28 to 46 obstetric and orthopedic indications). In this group 12 female received second child after 3-7 years (8-physiological childbirth, 4-caesarean section); 1 patient had 3 children (caesarean delivery was at 5, 7 and 12 years after spinal surgery). 12 patients who had children before the surgery, gave birth to a second child after surgical treatment in 3-5 years (physiological delivery). 32 male from 42 were married officially. 26 of them married in 3-8 years after surgery. All married patients have 1 child. Thus performed surgery showed good social and reproductive background.

Abstract no.: 45403

THE INFRAPATELLAR BRANCH OF SAPHENOUS NERVE-ANATOMIC STUDY FOR DETERMINATION OF SAFE ZONES FOR SURGICAL INCISION AND CRYOTHERAPY OPTIONS AFTER TOTAL KNEE REPLACEMENT

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Introduction: Pain resulted of lacerated infrapatellar branch after total knee replacement is seen often. Treatment options are infiltration therapy and nerve exeresis. Cryodenervation shows good results for lumbar facet joint pain. Data about the value for knee pain are poor. Methods: A total of 30 knees (15 left and 15 right specimens) of 18 human cadavers were dissected. Age range was between 60 and 95 years. The gender distribution showed a predominance of females (n=13) to males (n=5). The relationship to the anatomical landmark the sartorius muscle was evolved. A microscopic investigation was performed additionally. Results: 4 different variations of the infrapatellar branch were identified. In relation to the sartorius we found an anterior type, a posterior type, a muscle penetrating type, and a pes anserinus type. Microscopically the specimens showed small nerve fibers without myelin. Less than 33% were sheated. Different nerve distances were seen to the patella midline with varying risk for surgical lesion .The mean distance for the pes anserinus type was 15 mm, for the penetration type, and the posterior type 20 mm, 40 mm for the anterior type. Regarding surgical incisions the anteromedial approach showed the highest risk for nerve lesions with 53.3%. For the midline incision the nerve is at risk in 46.7 % .The anterolateral approach showed a modest risk with 30.0 %. Conclusions: Incisions should consider the nerve course, anterolateral and midline incisions reduce the violation risk. The measured distances and the high rate of nerve fibers without myelin allow a successfull cryotherapy.

Abstract no.: 45404

REGIONAL UPTAKE AND VARIATIONS IN ORTHOPAEDIC ENHANCED RECOVERY PATHWAYS IN KNEE AND HIP TOTAL ARTHROPLASTY.

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This regional audit assessed variation in practice relating to the delivery of enhanced recovery (ER) pathways after lower limb arthroplasty. Aspects of pre-, peri- and post-operative ER delivery were assessed for 91 patients operated on by 25 surgeons in 5 centres in the Northern Deanery. A standardised ER pathway was utilised in 3 of 5 (60%) centres (51 cases) which was consistent both within and between surgeons in those centres. The exact ER pathway varied between these centres but consisted of pre-emptive pre-operative analgesia (Gabapentin +/- Lansoprazole/Dexamthosone: 47/51 cases (94%), spinal anaesthetic (48/51 cases (96%), Peri-operative local anaesthetic infiltration (48/51 cases (96%), tranexamic acid (47/51 cases (94%) and oral post-operative analgesia 43/51 cases (86%). In the remaining 2 centres (40 cases) the use of different elements of ER varied from case to case even for each individual surgeon. These centres had a lower rate of pre-emptive pre-operative analgesia (2/40 cases (5%), spinal anaesthetic (31/40 cases (78%), Peri-operative local anaesthetic infiltration (15/40 cases (38%), tranexamic acid (19/40 cases (48%) and oral post-operative analgesia 22/40 cases (55%). There is significant variation in the delivery of ER pathways between surgeons and units. A standardised ER pathway helps deliver consistent care within individual centres.

Abstract no.: 45406

A COMPARISON OF TWO DIFFERENT NAVIGATED HIP REPLACEMENT TECHNIQUES ON LEG LENGTH DISCREPANCY

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Introduction: Navigated hip replacements aim to improve component alignment and reduce leg length discrepancy. We hypothesised that a femoral array placed into bone or an external (pinless) reference marker made no difference to leg length discrepancy in patients undergoing total hip arthroplasty. Methods: Consecutive patients undergoing navigated total hip arthroplasty performed by the senior author were selected from either a femoral pin or a pin-less femur array. Radiographs were reviewed and pre-operative and postoperative leg length discrepancy was measured. The absolute difference between the intraoperative recorded change in leg length and the postoperative measured leg length was then used to give a "measurement error" between the two differing navigation techniques. Results: Following exclusions, a total of 162 patients were included. There was no statistical difference between either group's preoperative leg length discrepancy ($p = 0.524$). The mean intraoperative change in the pin and pinless group leg length was 3.7 mm (0-11) and 4.6 mm (0-14) respectively. There was no statistical difference in intraoperative leg length change between groups ($p = 0.262$). The mean change in leg length measure post operatively was 4.2 mm (0-13) (pinless group) and 4.1 mm (0-12) (pin group) ($p=0.656$). Conclusions: Our results suggest that there was no significant difference in leg length discrepancy between a pinless femoral array and an array that required pin placement in the femur. We recommend the use of a pinless femoral array in navigated total hip replacement that avoids associated issues with pinned arrays without compromising outcome.

Abstract no.: 45408

**MID TERM FOLLOW-UP FOR OPEN REDUCTION OF DEVELOPMENTAL
DYSPLASIA OF THE HIP THROUGH MEDIAL APPROACH**

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., . (EGYPT)

Between 2004-2009 we treated 25 hips for 20 patients diagnosed as developmental dysplasia of the hip by open reduction through medial approach of the hip. Teratologic hips and pathological dislocations were excluded. The age of the patients ranged from 9-16 months, 18 girls and 2 boys, 5 patients were bilateral and 15 were unilateral, follow up ranged from 6 to 11 years. Clinical assessment at final follow up obtained 23 hips as an excellent and two as a good. Radiological assessment according to Severin`s criteria were rated as class I in 20 hips, and as class II in three hips and as class III in two hips. 12% of hips (3 hips) needed further corrective surgery in form of innominate osteotomy especially patients older than 12 months. According to our study we believe that medial approach for open reduction of developmental dysplasia of the hip is safe technique, difficult procedure because the exposed area is narrow, less traumatic with minimal blood loss for low and high hip dislocation in children aged 9 to 16 months and both hips can be operated at same sitting

Abstract no.: 45413

ARTHROSCOPIC CAPSULAR RELEASE FOR FROZEN SHOULDER-OUR EXPERIENCE AND A LITERATURE REVIEW

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Introduction: Arthroscopic capsular release (ACR) has become the most popular method of treating refractory frozen shoulder (FS). The aim of this study was assessment of the results of ACR for the adhesive capsulitis refractory to conservative treatment or hydrodilatation. Methods: Retrospective analysis: 29 cases with primary/secondary FS treated between 2011 and 2015. Demographics: 14 women (48%) with mean age 48 (range, 37-62), 58% dominant arm. ACR technique: Beach-chair position, standard posterior and anterior working portals, removing the interval tissue, resection of middle glenohumeral and coracohumeral ligaments, ACR from 6 o'clock position carried up and posterior capsular release. Functional assessment (Constant-Murley score), Shoulder range of motion (ROM) and visual analogue scale (VAS) for pain were measured before ACR, and at 1, 3, 6 months follow up. Results: All but three of the patients yielded a significantly better functional outcome at 1, 3 months and maintained at 6 months follow-up (Constant-Murley from 22(13-28) to 80(56-90) ($p < 0.05$). ROM improved from an average of 70°/60°/10°/ buttock to 150°/145°/45°/ Th12 one month after ACR. Pain significantly decreased from an average of 8 until 1,8 (VAS) (range, 0-6) ($p < 0,01$). External rotation significantly improved to an average of 45° (range, 30-70°) ($p < 0,05$), flexion got better in 80°, abduction in 85° and maintained. Conclusion: This study shows that the surgical treatment of refractory FS with ACR appears to be a safe procedure that results in early pain relief and significant functional gain. This surgical technique was effective, with a significant ROM increase in all planes.

Abstract no.: 45415

FINANCIALLY MOTIVATED CHANGE OF TOTAL KNEE REPLACEMENT PROSTHESIS : A ONE YEAR FOLLOW-UP STUDY INTO EFFECT ON CLINICAL AND PATIENT OUTCOMES

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Introduction : In the climate of ongoing financial austerity, especially within the United Kingdom National Health Service, many decisions regarding orthopaedic prosthesis use are driven by value for money. This often equates to which supplier can offer the cheapest deal. The impact of changing prosthesis on patient outcome is not known. The question is whether this financially driven change and associated learning curve, impacts clinical and patient outcomes. Methods : During 2013/14, the primary implant for TKRs at our elective orthopaedic centre was switched from the Depuy PFC Sigma to the Zimmer NexGen. We prospectively analysed the final 50 PFC TKRs performed and the first 50 NexGen TKRs performed. Data was collected on length of stay, intra-operative complication, length of operation, postoperative complications, analysis of post operative xray, drop in haemoglobin (Hb) and transfusion requirements, re-admission and complications up to 6 weeks follow-up. The Oxford Knee Score was used as the patient reported outcome measure. Results : The only statistically significant change seen was in the mean operative time. This increased from 93 minutes (59 to 122 minutes) in the PFC group to 108 minutes for the NexGen group (63 to 137 minutes), $p < 0.01$. All other areas investigated showed no significant difference between the two groups. Conclusion : There was no significant difference in patient outcome when switching between the two knee arthroplasty systems. Despite the expected learning curve, perhaps reflected in slightly increased operative time, there appears to be no adverse impact on the patient.

Abstract no.: 45422

EXTENSION-BLOCK PINNING FOR TROJAN FRACTURE.

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Dorsal fracture-dislocation of the proximal interphalangeal joint is an unstable fracture that associates the anterior marginal fracture of the second phalangeal base and the dorsal dislocation of the proximal interphalangeal joint under the influence of the median band traction of the extensor apparatus. Stiffness and residual pain are frequent sequelae. Treatment involves choosing between Introduction: the various methods with the objective of providing stable reduction allowing early mobilization. We relate our experience concerning treatment by proximal interphalangeal extension-block pinning. It consists in reduction by external manipulation and stabilization by extension-block pinning. Materials and methods: We report a retrospective study in the trauma department of Nabeul hospital in Tunisia. This technique was used in 20 Trojan-type fractures. The average age of our patients was 28 years, with a predominance of males. In half of the cases, the fracture involved more than 40% of the second phalangeal articular surface. Results: The mean follow-up in this series was 3 years. Assessed based on functional, clinical, and radiological criteria, the results were good in 80% of the cases. The proximal interphalangeal joint was painless and the active mobility sector mean was greater than 82°. Discussion: The dorsal dislocation fracture of the proximal interphalangeal joint is an unstable lesion. Its treatment must provide stable reduction allowing early mobilization. Various therapeutic means are described. We opted for extension-block pinning, a simple and reproducible technique with encouraging results.

Abstract no.: 45425

BIG JOINTS ENDOPROSTHETIC REPLACEMENT RESULTS IN THE REPUBLIC OF BELARUS

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Big joints endoprosthesis replacements are successful in Belarus and are performed in all the regional centers and big cities. Since 2001, more than 50 thousand surgeries were performed, in the last five years – 30 thousand. We studied long-term results and possible complications. There is governmental record of patients who require joints replacement and the provision for it. In Belarus there are more than 230 thousands of patients with the hip and knee joints arthrosis, among them about 11 thousand (5%) require joints replacement and are registered. Every year in Belarus there is more than 5500 hip joint replacements and 1200 of the knee joint, which is about 0.7-0.8 per 1000 population. With the increased number of endoprosthesis replacement performed, increases the number of patients requiring revision surgeries. About 1600 of these surgeries were made in the last five years, which accounted to 5.3% of all the hip joint replacement. Hip surgery was done for 1450 patients (5.9%), the knee joint – 120 operations (2.3 percent). In 2015, the number of revision surgeries increased to 7%, among them 7.8% on the hip joint and 3.0% on the knee joints. Among patients with revision replacement of the hip joint there were 60% of women and 40% of men. Among the reasons for re-operation there were major complications by mechanical origin (over 50%), infections and inflammatory responses (25%). Other causes, such as broken bones, and fractures of the implant were less frequent.

Abstract no.: 45428

ROLE FOR THROMBOPROPHYLAXIS IN MANAGEMENT OF ACUTE TENDO ACHILLES RUPTURE? A SYSTEMATIC REVIEW OF LITERATURE.

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Introduction: The use of thromboprophylaxis for prevention of venous thromboembolism (VTE) in conservative and surgical management of acute tendo achilles (TA) rupture remains controversial. The purpose of this systematic review was to review the existing literature to assess the current use of thromboprophylaxis in TA rupture. **Methods** A detailed literature search was performed including both electronic and hand searches. The electronic search was performed using Ovid SP to include MEDLINE, AMED, EMBASE, Cochrane Library and Journals @ Ovid was performed from 1946 to 2016. Hand search included grey literature and reference checking. **Results** A total of 307 articles were identified following the initial search. A thorough selection process by two reviewers included nine quantitative studies. However, only four studies (433 patients) out of the nine studies (2740 patients) reported the efficacy of some form of thromboprophylaxis. Overall incidence of clinically and radiologically confirmed DVT was 254 (9.2 %) and PE was 11 (0.004 %) among 2740 TA rupture patients with or without prophylaxis. The mean age at the time of diagnosis of VTE was > 40 and with a higher incidence in men (80%). Despite usage of prophylaxis 117 (27 %) patients developed VTE. **Conclusions:** The results of systematic review suggests that there is no significant difference in incidence of VTE to support the usage of thromboprophylaxis in TA ruptures. However there is a slightly higher incidence of VTE among male patients aged 40 or more. Hence in these high-risk patients groups suitability of VTE thromboprophylaxis needs to be considered.

Abstract no.: 45430

SATELLITE CELLS CD 44 POSITIVE AFFECT MUSCLE REGENERATION IN OSTEOPOROTIC PATIENTS

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Introduction: Osteoarthritis and osteoporosis are strongly associated with specific muscle fiber atrophy characterized by an important imbalance between synthesis and deterioration of muscle proteins and cells. The potential mechanisms involved in the reduction of skeletal muscle mass converge on satellite cells, contributing to their failure in repairing damaged muscle fibers. We performed morphological and immunohistochemical studies to investigate muscle regeneration by satellite cells activity. Methods: we performed 20 muscle biopsies from osteoporotic women with hip fracture and 25 osteoarthritic women who underwent a Total Hip Arthroplasty in order to demonstrate that the regenerative properties of muscle stem cells are related to the same factors that could influence bone status. Thanks to immunohistochemistry, transmission electron microscopy and immuno-gold labeling we investigated the role BMP-2 on CD44 positive satellite muscle cells activity. Results: our study revealed that osteoporotic patients have lower number of BMP-2 positive fibers than osteoarthritic group expressing a lower number of CD44 positive satellite cells forming syncytia. The expression of BMP-2 assessed by immuno-gold analysis both in the peri-nuclear area and in the fiber body of satellite cells syncytia suggest the strict correlation between BMP-2 expression and muscle regeneration capability. Conclusion: poor skeletal muscle tissue regeneration capability is characterized by low or absent expression of BMPs, loss of satellite cells and loss of their ability to form cell syncytia. The finding that aged muscle tissue reduces the expression of bone-muscle crosstalk markers according to poor bone quality suggests that these two tissues are highly interconnected.

Abstract no.: 45431

MASSIVE BONE LENGTHENING BEYOND TWENTY PERCENT OF THE INITIAL BONE LENGTH

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Historic guidelines suggesting limits to the amount of limb lengthening, we report the results and complications of those patients in whom the initial goal of lengthening or transport exceeded 20% of the initial segment length. Our study represents 25 patient with 28 bone segments managed by Ilizarov External fixator in Orthopedic Department, Mansoura University mean follow-up of 42.5 months. Limb-length discrepancy was the primary indication in 10 segments, bone defect in 12 segments and mixed Limb-length discrepancy and bone defect in 6 segments, out of these cases there were 5 cases with composite soft tissue and bone defects. Lengthening ranged from 8-22 cm with a mean lengthening goal of 32% (ranged: 25-50%) of the original bone length was achieved; additional procedures were needed in 9 segments to augment regenerative and treat associated soft tissue problems, mean treatment times was 9.25 months with a healing index of 32 days/cm. By Paley's classification scheme, all had problems, in addition to an average of 1.2 obstacles and 0.8 complications per segment lengthened. Good to excellent results were achieved in 84%. The uses Ilizarov external fixator for massive Limb Lengthening and bone transport Beyond Twenty Percent of the Initial Bone Length provides good option but with prolonged period of frame application.

Abstract no.: 45434

IS THERE A ROLE FOR ORAL ANTIBIOTIC PROPHYLAXIS AFTER K-WIRING OF HAND FRACTURES TO PREVENT INFECTION?

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Background: Pin Site infection after k-wire fixation of fractures is a well described and common complication. We performed this study to evaluate if providing prolonged oral antibiotic prophylaxis following k-wire fixation of hand fractures leads to decrease rate of pin-site infection and chronic infection. Methods: We retrospectively reviewed 2 cohorts of patients treated in our institution by two consultants with k-wiring of wrist and hand fractures. One group had low dose oral antibiotics for 3 weeks, other group had no antibiotics. Results: We reviewed notes of 50 consecutive patients in each group. Despite lack of randomisation the groups were similar with regards to fracture type, number of wires, ASA, gender and age. No adverse reaction to antibiotic occurred. In group treated with prophylactic oral antibiotics, there were 3 (6%) cases of infection. In no antibiotic group, there were 8 (16%) cases of superficial infection. Difference was not statistically significant ($p=0.2$). No late infection nor osteomyelitis occurred and no patient required any surgery for treatment of infection. All cases of infection were treated with full dose oral antibiotics for one week. The wire had to be removed early due to infection in one patient in each group. Conclusion(s): Based on our study, prolonged oral antibiotic prophylaxis is not indicated after k-wiring of hand fractures, and despite small decrease in rate of pin site infection, the difference was not statistically nor clinically important.

Abstract no.: 45435

THE EFFECT OF AIR HOSE POWERED TOOLS IN A CLEAN AIR ENVIRONMENT

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Introduction: The use of clean air theatre is common place in modern orthopaedic surgery in reducing infection rate. However, it has been proven that there are various factors that could cause turbulence in the laminar flow one. This in turn diminishes the effectiveness of the clean air system. Objectives: To determine if air hose powered tools affect the effectiveness of the clean air system within an orthopaedic theatre compared to battery powered tools and control samples. Methods: The theatre was set up as a total knee replacement with sterile drapes over a flexed knee and the investigator fully scrubbed. There is a 5 minute idle time for the clean air environment to normalise before measurements. 15 cycles of consecutive measurements of particles with a particle counter in 3 conditions (control, air hose, battery). The particle counter is placed near the simulated surgical site and the tools operated over the knee. The results are then compared for significance. Results: There is a trend that both air hose and battery operated tools increase the number of particles near the simulated surgical site. This increase is significant in the air hose powered tool sample but not significant in battery powered tools sample. Conclusions: One should consider that using air powered tools might potentially increase the risk of infection in arthroplasty surgery although this risk will be difficult to quantify. It is therefore recommended that battery powered tools should be used in arthroplasty surgery.

Abstract no.: 45436

CERVICAL FRACTURE AFTER INTUBATION IN ANKYLOSING SPONDYLITIS

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Patients with ankylosing spondylitis are susceptible to spinal fractures. These fractures are mostly unstable due to the ossification of soft tissue support that lose their elasticity and can lead to dislocations and neurological damage. They have a significant morbidity and mortality, so early diagnosis is important. We present a 74 year old man with ankylosing spondylitis who suffered respiratory arrest at his home, there he was intubated and transferred to the Hospital. 24 hours later, after improvement, we proceed to extubation, the patient reported clinical dysphagia and neck pain, no findings on neurologic examination, CT and MRI revealed acute fracture C5-C6 type B3 and chronic odontoid fracture. We proceed to surgery using double approach with anterior osteosynthesis plate C3-C7 and subsequent posterior fusion C2-T3 supported by neuro navigation type O-Arm and intraoperative neurophysiological monitoring. Postoperatively the patient had a wound infection that was resolved with antibiotics and surgical washing. The patient progressed satisfactorily with clinical improvement and satisfactory radiographs control. **Discusión:** The incidence of vertebral fracture is four times higher in these patients than in the general population because of the progressive loss of mobility and secondary osteoporosis. Fractures are usually caused by low-energy trauma. In our patient forced intubation appears to be the cause, due to a mechanism of hyperextension and distraction. Early diagnosis is important in these patients as well as surgical treatment with good stability, which is necessary for a dual approach. The navigation allows greater precision, less radiation and decreases surgical time.

Abstract no.: 45438

INTEREST OF THE MEDIAL SHIFTED APPROACH IN KNEE ARTHROPLASTY SURGERY

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introduction:the anteromedial approach is most frequently used for knee arthroplasty surgery. Certainly, there are many benefits in this approach, but remains there some critics, such as, difficulties to close in case of wholesale knee, risk of cutaneous disunion in early reeducation and retractile scar across the extremities; The medial approach has helped alleviate some of these difficulties, but also raises others, such as stripping the extensor apparatus, risk of cutaneous necrosis in patella which support zone for prostration . Methods: that makes preferable the use shifted medial approach (skin is incised at the anterior midline from about 4 cm above the patella curving slightly medially on but not around the patella and extending to below the tibial tubercle exposing the quadriceps tendon and fascia). Results: allowing a good exposure of the knee without discovery of the extensor mechanism of the knee, a resurfacing of the patella without risk of cutaneous lesion, suture without tension and eliminate risk of cutaneous disunion in early reeducation and in end a good healing of skin.

Abstract no.: 45439

NEUROLOGICAL COMPLICATIONS ARISING FROM AN ULNOCARPAL MINI-OPEN TECHNIQUE FOR CARPAL TUNNEL RELEASE. A RETROSPECTIVE COHORT AGAINST THE STANDARD TREATMENT OF CARE.

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Introduction: Carpal tunnel syndrome is the most common compressive peripheral neuropathy affecting the upper limb. The standard treatment of care is a longitudinal section of the transverse ligament of the wrist through a volar hand-wrist open approach, although it frequently leads to either scar-related or both thenar and hypothenar pain. Objective: We sought to compare a mini-open ulnocarpal wrist approach with the standard approach in regards of neurological complications and relapses. Materials&Methods: We performed a retrospective cohort, gathering data regarding all patients primarily submitted to surgical release of the median nerve as a treatment for carpal tunnel syndrome, for 2 years. Failure on improvement of hand function was assumed whenever such was reported by the patient at the very first outpatient observation. Statistical analysis was performed with chi-squared, t-Student and ANOVA tests, following the principle of the central limit theorem, considering statistical significance whenever $p < 0.05$. Results: In this time period, 127 patients were submitted to carpal tunnel release. Post-operative observation was performed within 60 days in 95,2% of patients. Results: After exclusion criteria were applied, 125 procedures (60 minimally invasive ulnocarpal releases; 65 classical volar releases) were considered. Observed complications ran at 8,0% (15% e 1,5%, respectively; relative risk 5,565; $p=0,006$). Recurrence rate came at 4,0% (6,7% e 1,5%; relative risk 2,667; $p=0,144$). Discussion and conclusions: Several more complications were observed using a minimally invasive ulnocarpal approach, thus confirming the standard volar approach as the gold standard in carpal tunnel release.

Abstract no.: 45440

INFLUENCE OF ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION ON REPAIRED MENISCUS HEALING

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Objectives: The aim of this study was to assess the success and analyze the effect of concomitant anterior cruciate ligament reconstruction (ACLR) on meniscal repair outcomes. **Methods:** We prospectively followed 175 patients with meniscal suturing of the longitudinal tear operated 2008 to 2014. Age 27 (14–53) , 120 male (69%) and female 55 (31%). Medial meniscus tear was at 155 (88%) lateral at 22 patients (12%). At 87 (49,7%) patients was performed ACLR too, because of associate injury. First group had 87 meniscal suturing with ACLR (group A), and second group 88 meniscal suturing without ACL surgery and intact ligaments (group B). Follow up was 36 (7-66) months. Patients were monitored through regular physical examinations and in the end point we carried out Lysholm and Tegner functional tests, which had also been held before surgeries. **Results:** For group A Lysholm score before surgery was 58, after 92, Tegner questionnaire before surgery 6.6 after 5.5 . At group B Lysholm before surgery 61 after 92, Tegner before 6.0 after 5.3 . At group A we had 12 (13.7%) fault and in group B 15 (17,0.%) fault patients with a non repaired meniscal rupture that required meniscectomy. We didn't reapiated meniscal suturing. Overall meniscal repair success rate was 85% for both groups. At group A we have succes at 87,8% and in group B at 86,3% cases (p=0,551). **Conclusions:** Our outcomes showed that arthroscopic meniscal repair have nearly the same results if they have concomitant ACL reconstruction or not.

Abstract no.: 45442

TRENDS OF LITIGATION IN THE AREA OF FOOT AND ANKLE SURGERY

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Introduction:This paper aims to analyze the trends of litigation in the area of foot and ankle surgery conveyed between 1995-2012.**Objectives:**The purpose of this study is to analyze the litigation costs and trends that are associated with foot and ankle surgery in the UK in the hope that it will lead to improved medical practice, reduced costs and improved patient satisfaction. **Methods :**Claims relating to foot and ankle surgery were obtained from the NHSLA for a 5 year period(01/04/07-31/03/12).The data was arranged by instigating factor as well as by year of incident. **Results :**A total of 1204 foot and ankle surgery negligence claims were filed out of which 18 are listed as incidents,762(62%)have been closed and 423 remain open while 40% of cases were defended while the total cost to NHS was over £29 million.The highest total number of registered cases was generated by unnecessary pain,accounting for over 21% of claims and 10% of the total cost.Poor outcome accounted for 19% of claims and 22% of the total cost while amputation accounted for only 9% of claims but nearly 21% of total costs.**Conclusions:**Limitations of our data include the fact that claims are categorized by year of incidence so there is a natural time lag between the operation time and the time of a claim being filed.Nevertheless,an awareness of the weakest areas will hopefully lead to the continued development and improvement of surgery and surgical care which can in turn lead to improved patient outcomes at a reduced cost to the NHS.

Abstract no.: 45444

**FRACTURE DISLOCATION OF THE GLENOHUMERAL JOINT -
TREATMENT ALGORITHM FOR ACUTE INJURY**

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Background: Shoulder dislocations are common. When associated with fracture of proximal humerus, there is clinical dilemma if reduction under sedation is safe. Methods: Retrospective study assessing consecutive patients presenting with dislocation of glenohumeral joint with associated fracture humerus between 2007 and 2015. The radiographs and patients' records were examined. Number and size of fragments were recorded. Results: We identified 102 patients. Average age was 63. Seven dislocations were posterior, remainder were anterior. All posterior dislocations were reduced under general anaesthesia. 64 anterior fracture-dislocations had attempted reduction under sedation in Emergency Department. 9 of those were unsuccessful and in 5 of those cases significant displacement of humeral head occurred after attempted reduction. Conclusion(s): We propose pragmatic classification of fracture-dislocations of shoulder with therapeutic importance. Type I injury is anterior dislocation with Greater Tuberosity fracture. Regardless of the size of the tuberosity, those can be reduced safely under sedation- all 52 attempted manipulation under sedation were successful. Type II injury is fracture involving surgical neck with or without greater tuberosity fracture. Those injuries are somehow controversial, but our experience (fracture displacement in 4 of 11 cases when manipulation in AE attempted) suggest that patient has general anaesthetic. Type III is 4 part fracture dislocation and the reduction under sedation is contraindicated. In our series there was 1 case when manipulation in AE was undertaken, this was unsuccessful and associated with gross fracture displacement. Type IV is posterior dislocation with any fracture and those patients should not have reduction under sedation.

Abstract no.: 45445

**COMPLICATION FOLLOWING ELMSLIE TRILLAT PROCEDURE -
POPLITEAL ARTERY IATROGENIC INJURY**

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Introduction: A popliteal artery iatrogenic injury during patellofemoral realignment procedures is a rare but potentially serious condition. Our aim is to present a clinical case illustrating this complication. Methods: 29 year old female, with right knee pain because of a Patellofemoral Pain Syndrome (PFPS) associated with patellar subluxation. Results: The patient underwent surgical treatment with medialization of the anterior tibial tuberosity with 2 anteroposterior screws placed medially, at the level of the 2nd portion of the popliteal artery. At 3 weeks the patient had no vascular deficits but presented hypoesthesia of the leg. At 6 weeks pain and swelling appeared. Vascular Surgery detected a popliteal artery retrogenicular occlusion with deep peroneal artery thrombosis. A superficial femoral artery bypass was performed at this stage. At 12 weeks the patient maintains light peripatellar pain and leg edema. Hip and knee mobility are preserved. However, the patient walks with external support because of limited muscle strength and hypoesthesia of the leg. Functional range of MIF has 117 points and Barthel 91 points. Discussion/Conclusion: Although rare, iatrogenic injury to the popliteal artery is potentially serious and can, if not recognized, lead to irreparable consequences. In addition we found no other similar cases in the literature, describing ischemia settled in the subacute phase, what made the diagnosis more demanding. The necessary intervention to correct this kind of injury inevitably conditioned this patient's recovery.

Abstract no.: 45446

UTILITY OF USING ZERO TOLERANCE POLICY IN IMPROVING COMPLIANCE WITH THROMBOPROPHYLAXIS RISK ASSESSMENT TOOL

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Introduction: Patients admitted to orthopaedic wards commonly have multiple risk factors for developing Venous thrombo-embolism (VTE). Without prophylaxis, 40% to 60% of all patients undergoing orthopaedic surgery will suffer from deep venous thrombosis (DVT). Aims: To assess effectiveness of elective orthopaedics department at completing VTE Risk Assessment tool (RA) pre and post introducing a Zero Tolerance Policy (ZTP). Methods: A single-centre prospective complete audit cycle including all post-operative patients within an elective orthopaedic department was conducted, comparing compliance of VTE RA tool documentation against recommended NICE guidelines pre and post implementation of ZTP. The policy stated that 'a patient is not allowed to leave the ward to theatre without a documented VTE RA tool in the notes'. Results: A total of 32 patients were included in the study (21 in initial audit and 11 in re-audit). Evidence of a documented VTE RA tool in patients' records was present in 76% and 100% of cases pre and post intervention, respectively. An independent VTE assessment showed that appropriate treatment was prescribed in 20/21 cases pre-intervention and 10/11 cases post-intervention. Finally, 57% of patients were counselled about VTE risk (5% of them receiving written information) pre intervention compared to 72% post intervention (27% of them receiving written information). Conclusion: Employment of ZTP provided an effective measure to improve compliance with VTE RA documentation as per NICE guidelines. It also helped in improving patient counselling. However, the appropriateness of prescribing remained the same and concerns with regard to accuracy of documentation remains an issue.

Abstract no.: 45447

CONVENTIONAL CAST VERSUS FUNCTIONAL ANKLE BRACE AFTER OPERATIVE TREATMENT OF CLOSED UNSTABLE ANKLE FRACTURES - ASSESSMENT OF EARLY FUNCTIONAL OUTCOME

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Introduction: Ankle fractures are common injuries in our environment, frequently following a low energy trauma. They often occur as isolated bony injuries with or without associated ligament injury and joint disruption. Operative fixation is the modality of choice for unstable ankle fractures, in order to achieve acceptable stability and alignment. Early mobilization has been described as playing a key role in the early functional and eventual long term functional outcome of these injuries. As such, the form of post-operative immobilization and interval for post-operative active range of motion exercises, must be carefully selected. This study evaluates the early functional outcome of operative treatment of closed unstable rotational ankle fractures, after immobilization in a conventional cast and a functional brace. Patients and Methods: A prospective study of 41 patients with closed unstable ankle fractures, presenting within 2 weeks of injury. Results: Forty one patients completed the required minimum follow up period of 6 weeks; 20 (48.8%) patients had post-operative immobilization in a conventional cast, while 21 (51.2%) had post-operative immobilization with a functional brace. The primary outcome measure was ankle dorsiflexion lunge distance at 6 weeks using the Bennel et al technique. There was a significant difference in ankle dorsiflexion lunge distance at six weeks between the two groups, with better results in the functional brace group ($p = 0.03$, $t = -2.35$). Conclusion: Post-operative immobilization with a functional brace showed significantly better ankle dorsiflexion lunge distance at six weeks, and may influence the long term functional outcome.

Abstract no.: 45449

ACCURACY OF THEATRE LISTS: A QUALITY IMPROVEMENT PROJECT

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Introduction: an inaccurate theatre list will confuse and slow down a theatre team; at worst, it may contribute to wrong site surgery. Inaccuracy was occurring in our hospital when hand written listing forms were transcribed into electronic codes by the administrative staff compiling the list. Foot and ankle surgery presents a special risk because of the large variety of surgical sites and operations. We set out to improve this and audit the process. Methods: we recorded all operations for one month, comparing the listed procedure against the verified coding for the operation. Results: out of 47 operations in November 2014, the listed operation matched the final coded operation in only eighteen cases (38%). After this a laminated A3 card, explaining foot and ankle procedures and site codes, was given to the staff that compile theatre lists. Re-audit in August 2015 revealed that the listed operation matched the final coding in 28 of 39 cases (72%). Qualitatively, in many cases the discrepancy was smaller in the second group. Fisher's exact test showed a statistically significant improvement ($p < 0.005$). Conclusion: introducing a guide to coding significantly improved list accuracy. Surgeons could help further by using the site codes when listing patients.

Abstract no.: 45451

NEED FOR BOWEL MANAGEMENT PROTOCOL IN PATIENTS UNDERGOING JOINT REPLACEMENT

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Introduction: Bowel management following joint replacement is often neglected leading lot of patient distress. It is a widespread problem but there are no national guidelines for bowel management in orthopedic patients. There is a need of a guideline to ensure prompt and quick recovery of bowel habits before discharge. Aim: • Our aim was to evaluate the current practice of bowel management and formulate a protocol for management of constipation. Methods: We conducted a prospective study of 100 patients who underwent joint replacement procedures at our institute between September and February. The data were collected about, age, sex, type of surgery, bowel movements, prescription of laxatives, use of a high fibre diet and enema. The statistical analysis was done and calculating the mean and standard deviation for continuous variable and Fischer's exact test was used and the significance level was set at 0.05. Results: We found that the mean age of our group patients was 70.8 years (SD 8.2), there were 26 males and 24 females. Further, 50 patients underwent total hip replacement and 50 total knee replacements. More importantly, there was no correlation between constipation and pre operative fasting (p-Value 0.33), post operative fasting (p-Value 0.1822), type of surgery (p-value 1.00) and type of anaesthesia (p-Value 0.27). Conclusion: Laxatives are not prescribed in up to 46% of patients. Even more, about 88% of inpatients have one or more features of constipation. But following implementation of our bowel protocol, there was significant improvement in practice.

Abstract no.: 45453

OUTCOMES OF AMPUTATION FOR TREATING SARCOMAS OF THE LIMBS

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Introduction: At the present time, limb-salvage surgery is the most common surgical approach for treating sarcomas. However, when it isn't possible, amputation is needed. The aim of our study is to evaluate outcomes of sarcomas that underwent amputation. Methods: Retrospective and observational study, where patients with sarcomas of the extremities that underwent amputation between 2003 and 2015 were included. A total of 22 patients were identified, with a medium age of 61.7 years. Results: Tumours were mostly located on the lower limb (68.2%) and 40,9% in the hands and feet. Condrosarcomas constituted the most frequent histologic type (22.7%) and 68,4% were high grade tumours. Amputation was mainly performed with curative intent (95.0%) and transtibial amputation was the most frequent type performed (23.8%). Among the reasons for amputation, tumour extension was the most common (68.1%), followed by neurovascular invasion (19.1%) and palliation for ulcerated tumour (9.5%). Local recurrence was the motive in 38.0% of the patients. The medium survival time in this group was of 41.4 months. Only one patient had local recurrence (4.7%), but 57.1% of cases had distant metastases. Average functional outcome was 54.1%, and higher values of functionality were registered for upper limb amputees (64.1%) than lower limb amputees (48.2%). Conclusion: Factors which may indicate the need for amputation are tumour extension, neurovascular bundle invasion, ulceration to skin and local recurrence. Despite being a potentially disabling surgery, patients that cannot undergo limb-salvage surgery may benefit from amputation, controlling the disease and maintaining acceptable function.

Abstract no.: 45454

ULNAR NERVE ENTRAPMENT AT THE ULNAR NERVE TUNNEL. TO TRANSPOSE WIDELY OR NOT TO TRANSPOSE AT ALL?

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Introduction: Ulnar nerve entrapment at the ulnar tunnel is the second most common peripheral neuropathy, right after carpal tunnel syndrome. Surgical approaches differ, from the standard treatment of care, ulnar nerve release followed by anterior transposition, to novel minimally invasive approaches performed in outpatient surgery. Objectives: To compare outcomes achieved after either minimally invasive neurolysis or ulnar nerve transposition when treating ulnar nerve entrapment at the ulnar tunnel. Materials&Methods: We performed a retrospective cohort study with all 19 patients suffering from ulnar nerve entrapment at the ulnar tunnel who were submitted to surgery, for 5 years, in our institution. Minimally invasive neurolysis was performed in 5 patients, while complete ulnar nerve transposition was performed in 14. The observed ratio between ulnar nerve entrapment at the ulnar tunnel versus carpal tunnel syndrome was 1:78. Pre and post-operative nerve conduction study/electromyography data was collected and compared for outcome. Non-parametric tests were performed, assuming statistical significance whenever $p < 0.05$. Results: Minimally invasive neurolysis offered a better outcome on nerve conduction study/electromyography data, nearly achieving statistical significance ($p = 0,065$). None of the ipsilateral upper limb neurocompressive complaints (9 patients, 2 for minimally invasive neurolysis, 7 for ulnar nerve transposition), obesity (7 patients, 1 and 6, respectively) or Diabetes Mellitus (3 patients, all submitted to ulnar nerve transposition) were related with a worse outcome ($p = 0,134$; $p = 0,978$; $p = 0,459$). Conclusion: It seems that minimally invasive neurolysis offers a better outcome for ulnar nerve entrapment at the ulnar tunnel. This may be due to less aggressive surgery with better scarring.

Abstract no.: 45456

**PHLEGMASIA CERULEA DOLENS – TAKING IT TO THE LIMB-HITT – A
CASE REPORT**

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We present the case of a 68 year old female who presented to Orthopaedics with suspected upper limb compartment syndrome 48 hours after commencing warfarin for an ipsilateral upper limb midline associated Deep Vein Thrombosis (DVT). She underwent reversal of her anticoagulation and fasciotomies of her upper limb. After 24 hours she developed a cold arm, which overnight progressed into a painful, purple limb, with strong demarcation, and palpable pulses. Her CT Angiogram showed evidence of reduced, but present, arterial supply, but also showed Pulmonary Embolus (PE), renal infarct, bilateral renal artery filling defects, and thrombus in the aorta. Haematology opinion was sought, and the diagnosis of Heparin Induced Thrombocytopenia and Thrombosis (HITT) was made. Due to the nature of the disorder her original DVT had progressed and was causing complete venous outflow obstruction to the upper limb. The patient then went on to develop upper limb venous gangrene and required an above elbow amputation. She survived a short stay in Intensive Care and was discharged from hospital shortly afterwards. She continues to make a good recovery in the community. This case is of clinical importance because of the rarity of the condition in the upper limb, and the previously quoted high mortality rates associated with the diagnosis. By presenting this case we hope to educate other Orthopaedic Surgeons as to the difficulties involved with the management of this rare condition, the science behind it, and provide something to consider when reviewing a patient with a potential spontaneous compartment syndrome.

Abstract no.: 45457

THE MOST FREQUENT CAUSES OF FAILURE OF THE ACL AUTOLOGOUS REPLACEMENT

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PURPOSE OF THE STUDY Overview of the causes of BTB autograft failure after the primary ACL reconstructions. **MATERIAL** Between 2003 and 2013 we operated on 47 patients (16 women between age of 25 -48 and 31 men between the age of 25-46) and on each of them we performed a revision ACL replacement. **METHODS** 1. Firstly, we categorized causes of failure using surgical protocols and perioperative video records which were taken during most of the procedures. 2. Secondly, we evaluated the bone tunnel location on the side view X-rays of the knee. The technique described by Harner for femoral tunnels measurements and Stäubli's technique for tibial tunnels measurements. **RESULTS** 51,1% of patients suffered from a new trauma which turned out to be the most frequent cause of the instability of the knee. 48,9% of patients suffered from instability which was caused by insufficiency of the graft. This non-traumatic instability resulted from the incorrect surgical technique (in 42,5% of the cases) or from biological causes (in 6,4% of the cases). The most frequent surgical mistake was an incorrect bone tunnel placement in tibia and femur. **CONCLUSIONS** The failure of ACL autografts was most frequently caused by the new traumatic injury. The most common surgical mistake was an incorrect bone tunnel placement in tibia and femur. A malposition of femoral bone tunnel was the most repeated technical mistake. A malposition of tibial bone tunnel was generally less common and it influenced the failure ratio of ACL reconstruction less frequently.

Abstract no.: 45463

RESULTS OF PERCUTANEOUS MUSCULOFASCIAL RELEASE IN CHILDREN WITH HIP DYSPLASIA SECONDARY TO CEREBRAL PALSY AGED BELOW SIX YEARS

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Introduction: Increased muscle tonus can lead to hip dysplasia with subsequent dislocation in children with cerebral palsy. Especially hip adductors, hip flexors and medial hamstrings play a main role in developing hip dislocation. Hips with Reimer migration index (RMI) more than 40% require surgical treatment. In children with cerebral palsy we studied influence of percutaneous muscle release on RMI. Method: We retrospectively examined 43 patients with cerebral palsy from 2 to 6 years and 55 hips. GMFCS ranged from 3 to 5. Inclusion criteria were children aged under six years with an RMI more than 25%. RMI was measured in radiographs pre- and post operation with a follow up of 27.9 months (0-72 months). We performed percutaneous release of hip adductors, superficial hip flexors or medial hamstrings or combinations of these. Results: Altogether RMI could be improved from 42.5% to 37.8%. In GMFCS 3 patients RMI could be improved from 37.1% to 33.6%, in GMFCS 4 patients from 42.1% to 33.8% and in GMFCS 5 patients from 46.9% to 45.8%. Conclusion: Minimal invasive soft tissue balancing is an efficient possibility to avoid further hip migration in children with cerebral palsy aged under 6 years. Although operative hip reconstruction might be necessary in future, early percutaneous muscle release can reach a better situation for further reconstructive surgery.

Abstract no.: 45467

BICYCLE-SPOKE INJURIES OF THE FOOT IN CHILDREN.

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Bicycle spoke injuries of the lower extremities of children present a problem in management because of the "minor" appearance of the initial injury. The extent of the injury is not recognized and its potential harm is not appreciated. Injury usually results from the sudden, forceful trapping of the foot between the spokes and frame of bicycle. Fifty children were treated following bicycle spoke injury. All cases were thoroughly reviewed. Data collected included patient age, gender, position at the time of injury, site, type, and characteristics of the injury. Soft-tissue injuries were classified into grades 0 to 3. Mean age was 7 years. The right leg was injured in 30 children. Twenty six injured the antero-medial aspect of the ankle and lateral calcaneal region. Thirty nine children had deep abrasions, 21 had abrasion with skin defect. All children had edema and ecchymosis. Eighteen children had fractures. Greenstick fracture of the distal fibula was observed in 6 cases. All fractures were treated non-operatively and healed uneventfully. Soft tissue injuries healed well largely by secondary intention within up to 9 weeks. All fractures healed uneventfully. Marginal necrosis of the wound was noted in 8 patients, required a skin graft and flap reconstruction. No patient had functional impairment or residual tenderness of the foot. Bicycle-spoke injuries usually affected the ankle region, and the wound was usually deeper than it appeared on initial examination. Severity of soft-tissue injury was the determinant of overall function. Education on injury mechanism severity and preventive measures is important.

Abstract no.: 45469

ARE POST- ANKLE FIXATION REPEAT RADIOGRAPHS IN FRACTURE CLINICS NECESSARY?

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Aim: To audit the current practice of re-imaging post-operative ankle fixations in fracture clinic and its clinical relevance. **Methods:** A retrospective audit of all adult patients who had open reduction internal fixation for fractured ankle within a 6 months period. Data was collected from theatre management system, PACS images and clinic letters. These are then cross-referenced to identify practice and clinical significance. **Results:** A total of 51 patients were identified with 1 child excluded. Out of the 50 patients, 41 had a repeat radiograph during their fracture clinic appointment. Of the 41 patients, 22 of them had a check radiograph around the 2 week post-op period and 19 of them were performed around the 6-8 week mark. In total 9 patients had a clinical indication for repeating radiographs. There were 2 delayed unions which were treated non-operatively. None of the patients had further surgical intervention as a result of the follow up radiographs. **Conclusions:** We feel that there is a trend of requesting repeat radiographs in fracture clinic without concrete clinical indication. When it was recorded, the most common reason for re-imaging was for pain on examination. However, none of the patients who had post-op re-imaging required further surgery even though two of them had delayed union. We therefore propose that we should not routinely re-image post-ORIF ankles in fracture clinic unless there were strong clinical indications. The reduction of re-imaging will ensure radioprotection standards are met, improve efficiency and potentially reduce cost in fracture clinic

Abstract no.: 45473

REVISION TOTAL HIP REPLACEMENT WITH THE USE OF UNCEMENTED MODULAR DISTAL FIXATION STEM REVISION HIP SYSTEM OR RESTORATION MODULAR REVISION HIP SYSTEM FOR THE RECONSTRUCTION OF FEMUR. OUR RESULTS.

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Uncemented Modular Distal Fixation Stem Revision Hip System (MDFSRS) is a relatively new option for reconstructing segmental bone loss during hip revision surgery and femoral reconstruction. We studied prospectively 42 patients who underwent Revision hip surgery between June 2010 and August 2011 and the above prosthesis was used. The mean age was 76.7 (65-88), 20 male and 22 female. The reasons for revision hip surgery varied from aseptic loosening, Periprosthetic fracture and Deep Infection (2nd stage revision). The femoral bone loss was assessed using the Paprosky Classification and the above implant was used when were Type II or more. In this study Type II was 22 patients and Type IIIA were 20. All patients had reconstruction of their femur through an ETO which was fixed with Cerclage wires. The following parameters were evaluated: Hb, blood units for transfusion, major postoperative complications. The hip functionality was assessed by the OHS. Plane X-rays were taken and the time of bone integration was noted, the subsidence of the femoral prosthesis was measured and evidence of impingement was marked. Mean follow-up was 30 months. Complications were one incidence of Pulmonary Embolism PE, a GT fracture, one case of dislocation and one case of infection. The implant integration time was about 3 months; the mean subsidence of the restoration stem was 0.34mm (0mm-123mm). We had good clinical and radiological results by using the Uncemented Modular Distal Fixation Stem Revision Hip System as it provides stability is reliable and has low rate of failure.

Abstract no.: 45475

SURGICAL TREATMENT OF CHRONIC TRAPEZIOMETACARPAL JOINT DISLOCATION – CASE REPORT AND SHORT TERM RESULTS

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Introduction: Chronic dislocation of trapeziometacarpal joint is a very rare injury. Without degenerative joint disease, open reduction and ligament reconstruction is indicated. Methods: We report a case of a 17 years old man with a chronic dislocation of the trapeziometacarpal joint, reducible but unstable, with pain and disability and without previous treatment or degenerative joint disease. He underwent surgical treatment with open reduction and ligament reconstruction of the trapeziometacarpal joint (intermetacarpal, anterior oblique, posterior oblique and dorsoradial ligaments) using a half strip of extensor carpi radialis brevis tendon and bone tunnels made at the base of the first metacarpal and trapezium, and temporary fixation with a Kirschner wire for six weeks. Begun active range-of-motion six weeks after surgery. Results: Follow-up examination at 6 months after surgery shows full pain-free range-of- motion in all planes, with a congruent reduction on the X-ray. Conclusion: This technique is aimed to reconstruct all four ligaments of the trapeziometacarpal joint to achieve a satisfactory stability and good functional short term results. We expect that this procedure prevents progression to arthritis.

Abstract no.: 45477

IMPROVING OPERATIVE NOTE DOCUMENTATION IN TRAUMA AND ORTHOPAEDICS

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Introduction: Comprehensive surgical notes are an important tool for the multidisciplinary team approach to patient care. The Royal College of Surgeons of England have outlined gold standard requirements for operative note documentation in the management of surgical patients. The aim of this audit was therefore to assess our unit's compliance, with the guidelines, pre- and post- introduction of an electronic record system. Methods: A single-centre retrospective complete audit cycle, assessing post-operative Trauma and Orthopaedic note recording, was therefore performed and included a total of 94 patients. Results: Improved compliance to the Royal College standards was evident, particularly in the documentation of operative diagnosis (8% to 83%) and operative findings (76% to 85%). However, record of time and signature of operating surgeon were evidently worse when audited in the second cycle (16% to 5%, and 92% to 68% respectively). Conclusions: A strategy to extinguish some of these errors, as well as to improve the overall compliance with other aspects of the standards, is to incorporate prompts on the electronic operative note disallowing the surgeon to print a copy until all fields are complete. Both the hospital I.T. staff and surgical team are encouraged to work together and create software to ensure electronic operative notes are fully completed to the Royal College standards.

Abstract no.: 45480

A CASE SERIES OF ASSESSING MORTALITY IN PROXIMAL FEMORAL PERIPROSTHETIC FRACTURES

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Introduction: There are increasing numbers of proximal femoral periprosthetic fractures. These cause many medical and surgical difficulties. We aimed to assess 30 day and 1 year mortality in patients suffering a proximal femoral periprosthetic fracture and analyse risk factors for mortality. **Methods:** A retrospective case review of all proximal femoral periprosthetic fractures between 1st January and 2008 and 31st January 2015 were included. Patients were included based on the Vancouver classification. **Results;** There were 203 patients with a proximal femur periprosthetic fracture over the time period. During this there was a 4.43% (9 patients) in-patient mortality, 7.9% (16 patients) 30 day mortality, and a 21.7% (44 patients) 1 year mortality. The mean age was 70.5 (range 45-99). There were 127 females and 76 males. Of the 203 patients 141 patients had a previous implant of a total hip replacement, 32 had a hemiarthroplasty, 19 DHS, and 11 other implants. The median weight for surgery was 96 hours with 45 (24.1%) of 186 operatively managed patients undergoing surgery within 36 hours. The mean length of stay was 24.72 days. The risk factors associated with an increase 30 day mortality were age ($p=0.0228$), ASA ($p=0.489$) and Charlson co-morbidity score ($p=0.002$). Initial implant and time to surgery were not statistically significant risk factors for 30 day mortality. **Conclusion:** Periprosthetic proximal femoral fractures have a high mortality and long length of stay. These complex patients should undergo thorough medical and surgical assessments to optimise outcomes.

Abstract no.: 45487

**SYNDESMOSIS REDUCTION AND FIXATION USING INTRAOPERATIVE
3D IMAGING**

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Introduction: Ankle syndesmotic injuries require anatomic reduction and fixation to restore the normal biomechanics of the ankle joint. Intraoperative computed tomography (CT) scan provide accurate assessment of syndesmotic reduction. **Objectives:** The purpose of this study was to assess the quality of reduction of tibiofibular syndesmosis using intraoperative CT scan, and using the uninjured ankle CT scan as template to guide the reduction. **Methods:** All patients underwent intraoperative or preoperative CT scan of their uninjured ankle. The injured ankle syndesmosis was reduced and temporarily fixed with a Kirschner wire. An axial slice, 1cm proximal to the tibial plafond was obtained with an intraoperative CT scan, and compared to the uninjured ankle CT at the same level. Once the reduction was obtained, the syndesmosis was fixed. A last intraoperative CT scan was performed. A greater than 2mm antero-posterior or medial-lateral displacement compared with the untreated ankle was considered significant malreduction. **Results:** 17 patients have been treated. Position of the fibula in post-reduction CT scans showed a mean anterior-posterior displacement of 0.88 (+/-0.67)mm as compared to the uninjured ankle. The medial-lateral position showed a mean displacement of 0.91 (+/-0.55)mm. **Conclusions:** The results of this study indicate that fixation of syndesmosis using the controlateral side as a reference and under intraoperative CT scan, provide an accurate method for an anatomic reduction and fixation of syndesmotic injury.

Abstract no.: 45488

CHONDROMA OF THE SOFT PARTS OF THE HAND: ABOUT THREE CASES.

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The soft tissue chondroma is a rare tumor. It is often localized at hand. The purpose of this work is to illustrate the different clinical, therapeutic and evolutionary characteristics of these tumors and compare them with those in literature. We report a retrospective series of 3 patients who looked for digital masses painless, movable relative to the superficial and deep planes. The patients underwent a biopsy and excision parts sent for histological examination which confirmed the diagnosis of soft tissue chondroma. The average age of patients was 38 years. Plain radiographs revealed a soft tissue opacity in two patients and calcifications in the other patient. Operative findings showed encapsulated tumors unrelated to the synovial joint or with the periosteal tissue. At mean 2 years there were no recurrence. The mobility of the fingers was retained. Chondromas soft tissues are rare benign tumors. Their location at hand level is widely reported in the literature. They often affect the extremities with a location in the upper limb in 72% of cases. Plain radiographs are still useful and can show calcifications and this according to the degree of tumor differentiation. Generally, this type of chondrome causes no functional impairment, however, a case of compression of the median nerve was quoted in the literature. Histological examination often allows the positive diagnosis. The diagnosis of chondroma of soft parts can be raised first before a tumor of the hand. Its treatment is surgical excision and is easy and must be complete to prevent recurrences.

Abstract no.: 45489

TREATMENT OR RECURRENT OSTEIOD OSTEOMA AIDED WITH NAVIGATION.

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Osteoid osteoma represents about 12% of benign bone tumors. It occurs most often between 5 and 40 years old, but mainly in the second decade of life. It manifests with continuous pain, evening or night dominance. Pain decreases with salicylate and nonsteroidal anti-inflammatory drugs (NSAIDs). If the clinic is persistent and intense, you can opt for surgical removal or percutaneous radiofrequency ablation. Our case is a 23 year old male consults for anterior pain in left tibia and nondescript clinic. A MRI reports a osteoid osteoma in posterolateral aspect of the left tibia in the middle third and is derived to our oncological Unit .Treatment is done by radiofrequency 2 times with no improvement. After a new clinical study and evaluation by CT scan it was confirmed a recurrence and we decided surgical resection assisted by O-Arm, sending samples to pathology and making curettage of it. Nowadays the patient is enjoying a normal life with no signs of recurrence. Discussion The persistence of an osteoid osteoma after the Radiofrequency occurs when you do not get the nidus, but acted in error in the peri-lesional reactive sclerotic bone. For healing you must resect the nidus. Thanks to the navigation you can obtain detailed and concise real-time imaging during surgery. We increased image quality, reduce operating and radiation time, which is also an advantage for the patient and a greater safety of the procedure.

Abstract no.: 45490

OUTCOME OF THE TREATMENT OF THE FEMORAL NECK FRACTURES AT MEDIUM TERM FOLLOW-UP

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INTRODUCTION: The incidence of femoral neck fractures is increasing. There are still many questions regarding the choice of treatment (internal fixation or arthroplasty). **MATERIALS AND METHODS:** In the Orthopaedic and Trauma Department Of Sibiu County Hospital have been treated 517 patients with femoral neck fractures between jan 2008 - dec 2012. Exclusion criterias were: pathological fracture, known malignancy, immobiles and mentally incompetents, rheumatoid arthritis, Parkinson's disease, long-term steroid therapy. End point: control, reintervention, decease, lost of follow up. The evaluation has been done using the Harris Hip Score and hip roentgenograms preoperative, postoperative and at final control or prior to reintervention. **RESULTS AND DISCUSSIONS:** 65,4% of the patients have 70-89 yo at the time of surgery. 72% of all patients have comorbidities, more than 55% at least one cardiovascular disease. 23% were treated with internal fixation of the fracture and the others with hip arthroplasty. There were 89 patients lost of follow up, 69 reinterventions, 43 deceased. 257 patients evaluated presented a maximal value of the Harris score 100 points, minimal value 38 points and the average value was 72,7 points. There were complications in 36,4% of the synthesis group, and 22 % of the patients required a totalisation of a hemiarthroplasty. **CONCLUSIONS:** The type of fixation does not seem to influence the functional outcome. The increased complication rate sustains the necessity of a reevaluation of treatment methods and indications. There is stil a high rate of complications and decease related to comorbidities and general status of the patients

Abstract no.: 45498

TREATMENT OF CONGENITAL PSEUDOARTHROSIS TIBIA WITH PREVIOUS FAILED SURGERY BY ILIZAROV METHOD WITH OR WITHOUT TIBIOFIBULAR SYNOSTOSIS

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Introduction: Congenital pseudoarthrosis tibia is a very challenging orthopedic problem and the prognosis worsen if it associated with Neurofibromatosis and previous surgical intervention. Our aim is to study short term results of management of congenital pseudoarthrosis tibia associated with Neurofibromatosis with history of previous surgery by Ilizarov method with or without tibiofibular synostosis. Methods: we treated 8 patients with congenital pseudoarthrosis with previous surgery (one patient treated with nonvascularized fibular graft, 4 patients treated by Masquelet technique and 3 patients treated by ilizarov fixator). Fibula was intact in 1 case and level of pseudoarthrosis was distal 1/3 in 6 cases and middle third in 2 cases. We did ilizarov bone transport and bone graft in 2 cases, Tibiofibular synostosis in 2 cases and combined technique in 4 cases. Results: Mean age was 3.5 years (2- 5.5 years) with mean follow up 4.2(1.5 – 5 years). We achieved union in all cases with satisfactory outcome in 7 patients. Residual valgus heel in 2 cases, LLD less than 3 cm in 2 cases and refracture in one case. Conclusion: ilizarov bone transport with tibiofibular synostosis is a reliable method for treatment of congenital pseudoarthrosis with previous failed surgery.

Abstract no.: 45500

A RARE CASE OF AN ISOLATED CAPITELLAR FRACTURE IN PEDIATRIC AGE: A CASE REPORT

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Introduction: Although elbow fractures have a high incidence in the pediatric population, isolated capitellar fractures are quite rare. Due to their rarity in children, there are no published series with a large number of patients and surgical treatment options are poorly defined. Case Presentation: we present the case of an 13-year-old Portuguese boy with a displaced fracture of the capitellum of the left elbow, a typical Hahn-Steinthal or Type 1 fracture. Our patient underwent an open reduction and internal fixation with two cannulated screws. There were no complications and normal elbow function was recovered. Mayo Elbow score at 12 months was 100 and Dash score was 0. Discussion: There are few references in the orthopedic literature to surgical treatment of these fractures in the pediatric population, and even less about internal fixation with cannulated screws. Closed reduction has been particularly advocated in this population, but this can be difficult to achieve. Internal fixation with Kirschner wire has been the historically preferable method of fixation, as the cartilaginous component of the fragment is often very large with a minimal amount of cancellous or subchondral bone. However, Kirschner wires penetrate the articular surface, do not provide stable fixation and cast immobilization is mandatory for a long period. Cannulated screw fixation enables good interfragmentary compression, early mobilization, faster functional elbow recovery and implant removal is rarely necessary. Thereby, the authors believe that cannulated screw fixation is a reliable method of treatment for Type 1 capitellar fracture in children.

Abstract no.: 45501

ATTITUDES AND CONCERNS ABOUT THE USE OF 3D PRINTING TECHNOLOGY IN ORTHOPAEDICS: A CONSECUTIVE SURVEY OF TWO YEARS

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Introduction: Orthopaedic surgeons around the world have reported various innovative surgeries based on 3D printing technology. However, general knowledge and opinion of surgeons regarding the use of 3D printing was unknown. Methods: Surgeons attending an annual national orthopaedic conference in Beijing were asked to complete a survey in December 2014 and 2015, respectively. The survey included questions about their subspecialty of practice, years of graduation, from where they first heard about 3D printing, their attitudes toward the use of this technology, its value in orthopaedics, which subspecialty would benefit the most, their primary concerns, and their prediction of a reasonable price range for the various potential applications. Responses from only first-time attendants were included in subsequent analysis. Results: 193 and 201 participants completed the anonymized survey in 2014 and 2015, respectively. The overall reliability of their answers was 0.862 and 0.843 as measured by Cronbach's alpha, indicating satisfactory internal consistency. The inter-item correlation matrix analysis demonstrated no significant inter-item correlation. Participants from 2014 and 2015 had similar demographic profiles. Conclusions: More surgeons were becoming interested in 3D printing and the primary source of information has changed from conferences to communication with colleagues. More surgeons believed surgical implants would be the most important application of this technology in orthopaedics. Lack of personnel with interdisciplinary training has become the primary concern and regulatory changes during the past year has resulted in less concerns in this regard. Most respondents still believed 3D printed implants should not exceed the costs of current products.

Abstract no.: 45516

A SYSTEMATIC REVIEW OF THE OUTCOME OF REVISION ANTERIOR CRUCIATE LIGAMENT COMPARING HAMSTRING AUTOGRAFT VERSUS BONE PATELLA TENDON BONE AUTOGRAFT

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Introduction: Revision Anterior cruciate ligament (ACL) reconstructions form about 10% of all ACL surgeries. This systematic review aims to compare the results of hamstring (HT) autograft versus bone-patella tendon-bone (BTB) autograft. Methods: A PICO structure question was formulated and literature search was performed via EBSCO host gateway and OVID SP to search MEDLINE, EMBASE, SPORTDiscus, CINAHL, AMED, Cochrane library and Journals @ OVID full text. Hand searching was also performed. The retrieved records were screened to remove duplicates. Following this a thorough selection process was carried out to select the most relevant articles pertaining to this review. A total of five studies reported on 85 patients with BTB autograft and 93 patients with HT autograft. There was no difference in the gender distribution between the two groups. Results: A post-operative IKDC objective grade of 'A' or 'B' was reported in 84.95% of patients in HT autograft group compared to 83.52% in BTB autograft group, which was not statistically significant ($p=0.795$). A KT1000 arthrometer reading of ≤ 5 mm was achieved in 94.6% of patients in the HT autograft group compared to 89.4% in the BTB autograft group, which was not statistically significant ($p=0.1969$) Conclusion: Revision ACL reconstruction performed using both HT and BTB autograft has good mid-term result with no statistical difference in the mid-term.

Abstract no.: 45517

**MAJOR INCIDENT PLANNING IN A LONDON MAJOR TRAUMA CENTRE:
ARE WE FOLLOWING THE GUIDELINES?**

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Background: A major incident is one whose impact cannot be handled within routine service arrangements. Following the recent Paris terror attacks, the threat of a similar attack in London is probably greater than at any time in its history. Previous studies have shown that knowledge of the major incident plan (MIP) is poor amongst medical staff. We report on the understanding of the MIP by orthopaedic surgeons, anaesthetists and general surgeons in a London major trauma centre. Method: A questionnaire was formulated based on the trust's MIP. The questionnaire was disseminated amongst consultants, trainees and non-trainees in all 3 specialties. Following data analysis, a new link to the MIP was created on the trust intranet home page and specific action cards were devised for the different specialties and grades. The questionnaire was then filled out again by members of the different specialties. Results: There were responses from 24 Consultants, 27 trainees and 10 non-trainees across the 3 specialties. Results were poor across the specialties (orthopaedics 26%, general surgery 36% and anaesthetics 46%). Following the introduction of a link on the trust intranet home page and the distribution of specialty and grade specific actions cards, there was an improvement in all 3 specialties awareness and understanding of the MIP. Conclusion: Effectiveness of intervention in improving MIP awareness has been previously published. The introduction of specialty and grade specific action cards plus an online link has improved medical staff's understanding of their role during a major incident.

Abstract no.: 45519

CORRELATION BETWEEN THE LENGTH OF THE ELBOW TO THE DIPJ OF THE LITTLE FINGER AND THAT OF THE INTRA-MEDULLARY NAIL (IMN) USED IN FEMORAL FRACTURE FIXATION

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Introduction: Intramedullary nail fixation is a standard treatment for femoral shaft fractures. Inappropriate nail length selection can lead to malalignment and early failure. Objectives: To determine whether there is a correlation between the length from the elbow to the distal interphalangeal joint (DIPJ) of the little finger and length of antegrade intramedullary (IM) femoral nails used to fix femoral fractures. Methods: All patients undergoing IM nailing for femoral fracture were measured pre-operatively. Intra-operatively the length of the nail was determined by guide wire measurement. The same type of IM nail device was used in all cases. Results: We looked at 30 patients undergoing IM nail fixation of the ipsilateral femur for fracture. 16 patients were male and there was an overall average age of 51 years. The mean length from the elbow to the DIPJ of the little finger was 38.86cm (SD 2.83cm). The mean IM length was 38.56cm (SD 2.77cm). The difference between the two means was 0.3cm (95% CI). Correlation testing between the two variables showed a positive correlation (Pearson correlation factor of 1). In 13 patients the length from the elbow to the DIPJ of the little finger was equal to the length of the IM nail inserted. Conclusions: Our study supports the use of the length from the elbow to the DIPJ of the little finger for the estimate of IM nail length. Unlike other methods of estimating IM nail length, our work shows that no further additions or subtractions to this estimate are required.

Abstract no.: 45522

IMPROVEMENT IN AOFAS SCORE AFTER SCARF OR CHEVRON OSTEOTOMIES IN HALLUX VALGUS TREATMENT

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Introduction: The ideal hallux valgus (HV) treatment should correct deformity, improve foot appearance and patient satisfaction. Different first metatarsal osteotomies allow different angle correction. Standardized clinical methods, as AOFAS score, can be obtained to evaluate patient improvement. Methods: We evaluated 44 patients (54 feet) during a 5-year period (mean 41 months follow-up), submitted to a Scarf or Chevron osteotomy with distal soft-tissue realignment, with or without tenotomies or Weil osteotomies of lesser toes. Exclusion criteria were previous HV surgery, open physes, neurological or rheumatoid disorders, lack of pre-operative adequate x-ray and patients being lost to follow-up. Pre and post-operative AOFAS score were used to evaluate results of treatment. Clinical improvement was achieved with the AOFAS score increasing from 66,38 to 93,37 points ($p < 0.05$). Results: We conclude that the procedures have value in obtaining predictable improvement in patients with HV deformity, and so the results suggest the scarf and Chevron osteotomies improved AOFAS scores.

Abstract no.: 45523

ATYPICAL CHEST PAIN – AN UNUSUAL PRESENTATION OF SPINAL METASTASIS DUE TO PENILE CARCINOMA

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Spinal Metastases may present in a myriad of ways, most commonly back pain with or without neurology. We report an unusual presentation of isolated atypical chest pain preceding metastatic cord compression, secondary to penile carcinoma. A 57 year old gentleman with a background of previously resected squamous cell penile cancer presented with complaints of gradual onset of chest pain for 4 weeks. Examination and investigations were normal, including cardiac enzyme levels. The patient was diagnosed with gastro-oesophageal reflux and discharged. He presented to emergency department a month later with similar symptoms and was discharged, only to return the following day with lower limb weakness and features of cord compression. He recalled prior weakness or back pain. MRI revealed a posterior soft tissue mass at the level of T5 with associated pathological fracture and evidence of cord compression. He underwent urgent spinal decompression and fusion and histopathology confirmed metastatic squamous cell carcinoma. Spinal metastasis from penile carcinoma is a rare with few cases reported. This unusual presentation highlights the need for a heightened level of clinical suspicion for spinal metastases as a possible cause for chest pain in any patients with a history of carcinoma.

Abstract no.: 45524

**DECREASE OF EXTENSIVE SURGERY FOR CLUBFOOT:
INCORPORATION OF PONSETI METHOD IN ORTHOPAEDIC PRACTICE**

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Introduction: Treatment of idiopathic clubfoot has undergone major changes since the introduction of the Ponseti method, with a simple surgical intervention and better long-term results. Faced with the high frequency of patients admitted for surgery in hospital reference in pediatric orthopedics, we characterize the socioeconomic profile of these patients. Method: This is a cross-sectional study, exploratory and descriptive, conducted in a referral hospital in pediatric surgery in São Paulo, whose population consisted of patients diagnosed with clubfoot, who were hospitalized for performing surgery. We used a structured questionnaire with closed questions. Results: A total of 120 questionnaires; the profile of respondents was composed of 79.2% mothers, aged between 25 and 64 years, 35% were illiterate and 42 said they were single. Most of the patients were female, 65% from the state of São Paulo, and 38.3% lived with more than six people; 72 patients were between 0 and 3 years, and those with medical insurance 58.1% expected less than a year to start treatment; 48.3% underwent extensive surgical releases, and on the other hand 51.7% had the Ponseti method. Conclusion: Nearly half of the patients who were hospitalized for surgical treatment of clubfoot are being treated by the Ponseti method. The other half is still performing extensive surgery, which is a partial incorporation of the use of the Ponseti Method. Families who were diagnosed during pregnancy could access more quickly and effectively services. The delay in diagnosis and difficulty in referencing are a major obstacle to the proper treatment of clubfoot,

Abstract no.: 45526

DOES THE USE OF TOURNIQUET IN TOTAL KNEE REPLACEMENT INFLUENCE THE LENGTH OF STAY AND SHORT TERM OUTCOME? EXPERIENCE FROM A DISTRICT GENERAL HOSPITAL

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Background: Primary total knee replacement (TKR) is a commonly performed operation and most surgeons use a tourniquet to undertake the procedure. The use of tourniquet may be associated with some post-operative pain, swelling and oozing of the wound, which may influence the rehabilitation of the patients and hence delay discharge from hospital. The aim of this study was to compare early outcome of primary TKR performed without tourniquet compared with a similar cohort of primary TKR performed with tourniquet. Methods: This was a prospective study between August 2013 and January 2015. All 69 primary TKRs were performed by the senior author or under his direct supervision. 33 primary TKRs were performed without tourniquet and 36 with tourniquet. Results: There was no significant difference in the operating time of the two groups. The mean tourniquet time was 69 minutes (range - 55 to 84 minutes). The mean pre-operative haemoglobin (Hb) was 136g/L in both groups. The post-operative Hb dropped to 106.8 g/L in the no tourniquet group compared to 110.6 g/L in the tourniquet group. Five patients (15%) in the no tourniquet group required transfusion compared to four (11%) in the tourniquet group. The mean length of stay (LOS) in the no tourniquet group was 4.34 days compared to 5.47 day in the tourniquet group. Conclusion(s): This preliminary study shows the TKR can be effectively performed without the use of tourniquet. The LOS is not increased without the use of tourniquet.

Abstract no.: 45527

RESULTS OF USING SUPER HIP TECHNIQUE IN TREATMENT OF SEVERE VARUS HIP DEFORMITY IN PATIENTS WITH FIBROUS HIP DYSPLASIA

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Introduction: Fibrous Dysplasia is commonly accompanied by severe forms of varus deformity of the hip resulting in hip impingement of the greater trochanter with subsequent limited hip abduction and patient disability. Correcting such deformity requires extensive approach and unusual technique to reach the full correction. The super hip technique developed by Dr. Paley for treatment of proximal femoral focal deficiency can be used in such severe deformity. Materials and methods: eight hips (four patients) with fibrous hip dysplasia and severe varus hip deformity were corrected using the super hip technique. The technique involves soft tissue release at the level of the iliac crest to allow rotation of the proximal femur using the super hip osteotomy. The osteotomy was internally fixed with a dynamic hip screw. Results: the average pre-operative neck shaft angle was 75° (range 70-95) while the average postoperative neck shaft angle was 135° (range 130-140). No cases of nonunion or recurrence. The average follow-up was 3 years. Conclusion: the super hip technique can be used safely and effectively in treatment of severe varus hip deformity in cases with fibrous dysplasia.

Abstract no.: 45528

WHAT IS THE FINANCIAL COST OF FOLLOWING NICE GUIDELINES FOR INTRACAPSULAR PROXIMAL FEMORAL FRACTURES? A HOLISTIC COST ANALYSIS OF TOTAL HIP REPLACEMENT AND HEMIARTHROPLASTY.

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Background: NICE guidance recommends Total Hip Replacement (THR) compared to hemiarthroplasty for hip fractures in selected patient groups to improve outcome, however the associated economics are not obviously transparent to clinician or unit. THR is, understandably, the more expensive procedure although to date no study has made a holistic comparison. This study determines cost following an exhaustive appraisal of all required resources in order to fully appreciate the financial impact of following national guidelines. Methods: Intracapsular hip fracture patients were identified from a local trauma database over a two year period; demographics, co-morbidities, rationale for management and stay data were collected. A material inventory was generated by observing each procedure with an auditor and costs were taken from NHS order catalogues. Associated costs were obtained from financial department, pharmacy, investigations by department, Department of Health documents and wages confirmed medical staffing. Results: Intracapsular fractures made up 48.4% (536) of all proximal femur fractures and 71(13.2%) underwent THR. Assuming Best Practice Tariff (BPT) targets being achieved, calculated profit per case: Hemiarthroplasty £1078.58, modular hemiarthroplasty £888.90 and THR £401.37. If the BPT is not achieved, despite a median length of stay, calculated loss per case: hemiarthroplasty £256.42, modular hemiarthroplasty £461.00 and THR £933.00. Conclusion(s): Profit is realised in our department for all types of trauma hip fracture arthroplasty so long as BPT is achieved and length of stay is not protracted. Profit margins are narrow and decrease in line with increased implant complexity. Failure to attain BPT results in significant financial loss.

Abstract no.: 45529

THE ROLE OF AGING IN SCAPHOID NON-UNION PATTERNS IN THE PORTUGUESE POPULATION

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Introduction: Scaphoid non-unions are the result of fractures from acute trauma neglected either by the patient or by the physician at an Emergency Room context. Knowing the most frequent location of fracture may aid in diagnosis within the latter, particularly if age is taken into account since both biology and trauma events differ. The aim of this work was to determine if age has a role in the location of scaphoid non-unions in the Portuguese population. **Materials and Methods:** We gathered radiological data from all 76 patients admitted to surgery for scaphoid non-union in our institution for a time period of 9 years. Measurements regarding contra-lateral scaphoid size as well as distance from the proximal pole to the central line of fracture were gathered. Consequently, an index between both was created and further analyzed. Correlation with age was then performed through Pearson's correlation, assuming statistical significance whenever $p < 0.01$. **Results:** Increasing age led to a more central non-union location (Pearson's correlation 0.246; $p < 0.001$). Still, it was not possible to determine an age-interval mostly leading to a certain pattern of non-union. **Discussion and Conclusions:** Age plays a role in the pattern of scaphoid non-unions, with those happening more centrally as time goes by, although no time-frame may be established.

Abstract no.: 45530

ATYPICAL BACK PAIN – AN UNUSUAL PRESENTATION OF SPINAL METASTASIS FROM MEDULLARY CARCINOMA

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Medullary Thyroid Carcinoma (MTC) is an uncommon neuroendocrine tumour that accounts for up to 10% of all thyroid malignancies. MTC usually presents with neck swelling and disequilibrium of calcium homeostasis, although it may present solely with the symptoms and signs of distant metastasis. Bone metastasis may be present in up to 45 % of patients with MTC , with spinal metastasis or cord compression comprising of 10% of this. We report a case of spinal metastasis from isolated MTC in a young adult presenting with isolated intermittent back pain and no other cardinal symptoms. MRI and biopsy confirmed metastatic MTC however the patient deteriorated rapidly and died before definitive treatment could be initiated. This case highlights the rapid progression and poor prognosis of MTC as well as the diagnostic challenges when treating young patients with back pain. The management of MTC spinal metastasis is reviewed with reference to existing literature and the European Thyroid Association Guidelines.

Abstract no.: 45534

THEATRE CANCELLATIONS – ARE WE RECORDING THE DATA CORRECTLY? ONE YEAR FOLLOWING THE PREVIOUS AUDIT

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The aims of the study were to 1 Identify the number of cancelled cases, 2. Reason for cancellation and 3. Identify change in practice after introduction of COSMIC. Methods: Data collection was performed similar to the original audit. ORMIS data for all the scheduled elective orthopaedic cases to be performed in main theatre was reviewed to identify any cancellation, and also the reason for it. The records from the same day admit unit was also collected to correlate the two. Results: The percentage of cancellations was as follows: Sep 14 – 1.9%; Oct 14 – 2.7%; Nov 14 – 3.1%; Dec 14 – 2.6% and Jan 15 – 4.6%. There were 4 early theatre finishes at 11:30, 12:30, 14:30 and 14:30 leading to underutilization of valuable theatre time. Same day admission unit may miss data if patient is cancelled late or from ward. ORMIS data is better but sometimes reason is not given for cancellation. Conclusions: Some cancellation could be avoided by better communication with patients. Proper steps need to be taken to ensure proper utilisation of valuable theatre time.

Abstract no.: 45535

**SENSITIVITY OF MAGNETIC RESONANCE IMAGING IN DETECTING
SOFT TISSUE INJURIES OF THE**

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Introduction: Magnetic resonance imaging (MRI) has become a routine investigation for traumatic injuries in the knee. In the literature, MRI has been shown to have a sensitivity of around 90% in detecting anterior cruciate ligament (ACL) and meniscal injuries. It has been shown to be less effective for focal cartilage lesions of the femur but limited data is available. Objectives: To determine the sensitivity of MRI in detecting soft tissue and cartilaginous injuries within the knee. Methods: We identified knee arthroscopy cases from operating theatre records. We then retrospectively analysed clinic letters and operative notes through the electronic patient record system. We looked at the data of three knee surgeons, between 2013 and 2014, and included all patients over 16 years of age. There were 88 cases and 46 (52%) of these had undergone pre-operative MRI (reported by a musculoskeletal radiologist). The average age of these patients was 47 (range 16-68) with an equal male to female ratio. 44 (96%) of these were day cases. Results: With respect to ACL pathology we detected a sensitivity of 82%. With respect to meniscal pathology we detected a sensitivity of 91%. We detected a sensitivity of 92% with respect to damage to the femoral articular cartilage. Conclusions: This work indicates a high sensitivity in detecting both soft tissue and cartilaginous injuries of the knee within our institute. This data has proved to be valuable in discussing with patients the relevance of MRI scanning in the treatment of traumatic knee injuries.

Abstract no.: 45536

EFFICACY OF SURGEON ADMINISTERED CORTICOSTEROID INJECTION WITHOUT IMAGE GUIDANCE FOR MORTON'S NEUROMA: A RETROSPECTIVE REVIEW WITH 2 TO 5 YEAR FOLLOW-UP

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Recent studies have examined the efficacy of corticosteroid injection for Morton's neuroma, typically delivered by radiologists using image guidance. We report a series of sequential patients with symptomatic Morton's neuromata treated by a single surgeon using corticosteroid injections delivered without image guidance. A retrospective review of electronic clinic, operating theatre, radiology and histology records was undertaken in patients who received an injection as initial management for Morton's neuroma between 2010 and 2013. Primary identification was achieved using an electronic search for a unique key phrase in the senior author's clinical records. A single low volume injection of Depomedrone was administered dorsally into the relevant webspace(s) by the senior author. 68 neuromas were injected in 63 patients. At least 7 had undergone injection in the community prior to referral. 38 were diagnosed with ultrasound confirmation and 30 on clinical grounds alone. The median age was 53 (30 to 80). 51% involved the 2/3 webspace, 26% involved the 3/4 webspace and 21% both webspaces. 56% of patients did not progress to surgical intervention with minimum follow-up of 29 months (range 29 to 62). There was no correlation between efficacy and neuroma size. 30/68 (44%) went on to require surgical excision of their neuroma(ta). Histological confirmation of resection was found in 100% of cases, with no recurrence. Corticosteroid injection for the treatment of symptomatic Morton's neuroma, administered without image guidance can provide durable success over mid-term follow up.

Abstract no.: 45539

TRANSIENT OSTEOPOROSIS OF THE HIP – AN UNUSUAL CAUSE OF HIP PAIN IN A FIFTEEN YEAR OLD

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Transient osteoporosis of the hip (TOH) is an uncommon but easily missed diagnosis in patients with hip pain. We present a case of transient osteoporosis of the hip in a 15 year old male and outline the investigation and management of this condition. This case highlights the importance of consideration of a diagnosis of transient osteoporosis of the hip in unexplained hip pain in almost any age group. Magnetic resonance imaging is the investigation of choice and treatment is supportive as transient osteoporosis of the hip is usually self-limiting. Transient osteoporosis of the hip (TOH) is a self-limiting condition which has predominantly been reported in the literature in middle aged men and pregnant women. TOH is a diagnosis of exclusion but should be considered in patients with hip pain and confirmed by MRI. Treatment is generally conservative with analgesia and rest.

Abstract no.: 45540

A PROSPECTIVE COHORT STUDY OF SYMPTOMATIC VENOUS THROMBOEMBOLIC EVENTS (VTE) IN FUNCTIONALLY TREATED ACUTE TENDO-ACHILLES (TA) RUPTURES, NON-OPERATIVE AND SURGICALLY TREATED ANKLE FRACTURES: THE NEED FOR STRATIFICATION IN THROMBOPROPHYLAXIS?

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Background: Chemical thromboprophylaxis in foot and ankle trauma is controversial, and much less investigated than hip and knee surgery. We compare 90-day VTE rates of 3 cohorts of patients: Group 1: TA ruptures managed in a full weight bearing (FWB), functional, Vacoped™ protocol over 8 weeks; Group 2: Stable ankle fractures managed in NWB below knee casts for 6 weeks; Group 3: Unstable or displaced ankle fractures managed with surgery and NWB below knee casts for 6 weeks. Methods: Data was extracted from two prospectively collected databases, one for acute TA ruptures between March2010 and December2014, and one for ankle fractures from October2013 to April2014. All patients were risk assessed at presentation, and prescribed chemical thromboprophylaxis as per NICE (2010) guidelines. 90-day incidence of symptomatic VTE was drawn from the hospital radiology database. Results: Group 1: VTE rate of 4.8% at mean 16.1 days. 3 Pulmonary Embolism (PE) and 11 Deep Vein Thrombosis (DVT). Total of 283 patients. Group 2: VTE rate of 2.2% at mean of 33.4 days. 5 DVT. Total of 227 patients. Group 3: VTE rate of 3.0% at mean of 37.2 days. 1 PE and 5 DVT. Total of 199 patients. Symptomatic VTE presents earlier in acute TA ruptures than ankle fractures (p=0.002) Conclusions: There is a higher incidence of VTE in acute TA ruptures, in spite of early weight bearing regimens. Symptomatic VTE in acute TA rupture patients happens much sooner compared to ankle fracture patients, possibly due to de-functioning of the calf-muscle pump.

Abstract no.: 45541

INCIDENCE OF MISSED AND NORMAL APPEARING LIS FRANC INJURIES ON INITIAL IMAGING

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Background: The tarsometatarsal, or Lisfranc, joint complex provides stability to the midfoot and forefoot. Injury is uncommon, but up to 20% are initially undiagnosed clinically. Missed or undertreated injuries lead to significant midfoot instability and osteoarthritis. Thus, a high rate of litigation surrounds Lisfranc injuries. Our aim was to assess incidence of missed and normal appearing Lis Franc injuries on initial plane none-weight bearing imaging. Methods: A retrospective single-centre study over one year duration reviewing clinical notes and PCAS imaging. A missed Lis Franc was defined as an injury that was either reported normal or not highlighted on initial plane foot radiographs. All missed Lis Franc injuries were validated by a consultant radiologist. Results: A total of 112 suspected Lis Franc injuries were found. Thirty-five percent (40/112) were confirmed Lis Franc injuries. The number of confirmed Lis Franc injuries that were initially reported normal on plane films was 12/40 (30%). Upon discussion with consultant radiologist, Lis Franc injury was not visible in plane films in 7 (58%) of those. However, in 5 (42%) cases the injury was visible and incorrectly reported normal. On examination of imaging request forms, all request have suspected a Lis Franc injury. Conclusion: The high incidence of Lis Franc injuries not seen on initial plane films remains a significant concerns due to the devastating affects on patients' quality of life. A health-economic study model may shed more light into the efficacy of using CT for clinically suspected Lis Franc injuries.

Abstract no.: 45544

THE FEET FIRST TOURNIQUET – A SAFE COST EFFECTIVE PNEUMATIC TOURNIQUET FOR THE DEVELOPING WORLD.

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Introduction:An estimated 15,000 surgical procedures are performed each day under tourniquet. The use of tourniquets is well established in orthopaedic limb surgery to reduce blood loss and improving visualisation of the operative field. Pneumatic tourniquets enable application of controlled pressure and reduced pressure gradients which reduces tourniquet related injuries. In low to middle income countries such as Malawi the use of pneumatic tourniquet devices is currently limited due to prohibitive procurement, consumable and maintenance costs. Without access to sophisticated first world tourniquet devices surgeons typically rely upon non-pneumatic alternatives which increases the risk of tourniquet related injury. Feet First Worldwide have developed a safe low cost pneumatic tourniquet device specifically for use in low to middle income health care facilities that permits a viable cost effective alternative non-pneumatic devices. The device was designed, following consultation, to have a realistic purchase cost and to be sustainable through simplicity and modularity to facilitate local maintenance for any worn or perished parts at minimal expense. For example the bladder component can be replaced with an inexpensive part that can be sourced locally. **Method:** Function and reliability has been tested in 30 upper and lower limb orthopaedic cases lasting over one hour alongside a safety device using typical pressures without complication. **Results:** Pressure regulation were satisfactory in all cases and no evidence of injury. Clinicians reported high scores of satisfaction in terms of practicality and utility. **Conclusion:** The Feet First device is a safe cost effective alternative to non-pneumatic tourniquet devices.

Abstract no.: 45545

DIY DATABASE VS UKKOR FOR PATIENT REPORTED OUTCOME SCORES AFTER OSTEOTOMY

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The UK Knee Osteotomy Registry (UKKOR) was established to offer a standardised electronic platform for gathering patient reported outcome measures (PROMs) data for osteotomy patients nationally. It is the first registry worldwide dedicated to recording patient outcomes after knee osteotomy. However, the success of UKKOR is dependent on compliance with data input from both patients and surgeons. The senior author has maintained his own PROMs database for osteotomy patients since 2011. Pre-operative and follow-up Oxford Knee Score (OKS) and American Knee Society Score (AKSS) were gathered prospectively. We report the rate of data capture using the 'DIY' database (2011-2014) and compare this to the rate using the UKKOR which was adopted by the senior author in November 2014. Thirty patients underwent osteotomies between January 2011 and November 2014 and ten patients since November 2014. The rate of pre-operative PROMs data capture was 97% (29/30) for the DIY database and 70% (7/10) for UKKOR. Capture of post-operative PROMs scores was 63% (19/30) for the DIY database at any time point and 0% for five UKKOR patients who have follow-up scores due. The UKKOR is an important new tool that should assist with the national capture of PROMs data in a relatively young and active patient cohort undergoing joint preserving surgery. Our experience is that data capture rates may be low with the online process and efforts should be put into improving post-operative data capture.

Abstract no.: 45546

RESULTS OF USING REVERSED PONSETI TECHNIQUE IN TREATMENT OF CONGENITAL VERTICAL TALUS

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Introduction: congenital vertical talus is a rare deformity associated with rocker bottom deformity of the foot and an awkward gait. Surgical management with extensive soft tissue release was the main stay of treatment. Conservative treatment with manipulation and serial casting using the reversed ponseti technique followed by minimally invasive talonavicular reduction is a new modality of treatment. Materials and methods: Twenty patients (34 feet) with idiopathic congenital vertical talus were treated by manipulating in equinus and internal rotation if the foot in a reversed ponseti technique direction with weekly serial casting . After full reduction of the talonavicular joint inside the cast, the patient undergone a percutaneous k wire fixation of the reduced talonavicular joint and percutaneous Achilles tenotomy . Results: Patients were evaluated pre and post operative using talus first metatarsal axis angle in lateral views X-rays and talocalcneal angles. The average pre operative talus first metatarsal angle was 80 (range 75- 90) while the average post operative angle was 5 (range 0-8). The average pre operative talocalcneal angle was 44 range (38-50) while the average postoperative angle was 22 (range 20- 32). Conclusion: the reversed ponseti technique of serial manipulation and casting followed by minimal surgical intervention is an effective conservative method in treatment of idiopathic congenital vertical talus associated with minimal complications and low morbidity.

Abstract no.: 45547

RELAPSE IN COMPLEX CLUBFOOT

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Introduction: Complex clubfoot is characterized by a first short metatarsal, hiperextension of hallux, deep medial and posterior creases. These patients can be treated by the Ponseti Method with some adaptation in the maneuver. Relapse is a frequent finding in the follow up of these patients. This study compares complex and non-complex idiopathic clubfeet retrospectively to estimate the relapse rate in each group. Materials and Methods: A retrospective study of patients with complex clubfoot treated with Ponseti Method during 2002-2015. We found a total of 495 patients with idiopathic clubfoot and 23 with idiopathic complex clubfoot. Those patients had a follow up of 7 years. Results: In a group of 495 patients with idiopathic non-complex clubfoot 23 were classified as complex clubfoot and from them 21 relapsed (91%). From the idiopathic non-complex group relapse rate was 12,32%. From the complex group 14 patients needed the transfer of anterior tibialis, while in idiopathic non-complex group 34 patients recurred. The average age of relapse was 3 years and 8 months on the idiopathic non-complex group and 4 years and 9 months on the idiopathic complex group. Conclusion: Patients in the idiopathic complex clubfoot group have a strong tendency to recurrence. The age of recurrence ante the rate of surgery are similar in the non-complex idiopathic clubfoot.

Abstract no.: 45548

PRELIMINARY RADIOGRAPHIC RADIOGRAPHIC RESULTS OF LOCKING PLATES FIXATION WITH CFR-PEEK PLATES FOR DISPLACED PROXIMAL HUMERAL FRACTURE

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(Introduction): Locking plate fixations appear to be a standard procedure for complex displaced proximal humeral fractures. However high complication rates have been reported may be due to extreme rigidity of the traditional metallic implant and the most part are strongly related to the initial surgery. Our hypothesis is that the use of less rigid implants like PEEK plates which are characterized by elastic modulus comparable to that of human cortical bone may prevent, screw cutout and loss of reduction because it is less rigid than the conventional metallic plates and the radiolucency of PEEK allows a better visualization of fracture during the initial reduction and facilitates monitoring of the healing process. (Materials and methods): Between February 2014 and June 2015, a consecutive series of 16 patients (10 women, 6 men) were treated with a CFR-PEEK plate by the same surgeon and prospectively observed for a mean follow-up of 8 months . The mean age of the patients at trauma was 64,5 years. Patients were re-examined at 6 weeks, 6 months after surgery with with standard and axillary views to analyzed the time of healing and the eventual loss of reduction. (Results): Our findings showed that the radiographic healing for all the 16 patients was obtained until the 6-month after surgery. We do not observed any significant loss of reduction and absence of avascular necrosis. In three cases we observed a loss of reduction of major tuberosity that was present after initial reduction. (Conclusion): We found satisfying radiographic results with CFR-Peek Plate.

Abstract no.: 45549

NOFING BUT THE BEST: DHS OR CANNULATED SCREWS FOR INTRACAPSULAR HIP FRACTURES

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Background: The use of Dynamic Hip Screws (DHS) or Cannulated Screws (CS) for the management of minimally displaced intracapsular (IC) neck of femur (NOF) fractures is both well documented and accepted. However, comparisons between the two methods are lacking. Methods: We performed a retrospective review of 3 years data regarding all IC NOF fractures managed with fixation in our department during 2012-2014. We specifically looked at Operation Length, Haemoglobin (Hb) Drop, Length of stay, Re-Operation Rate, and both 30-Day and 1-Year Mortality Rates. Results: We identified 86 patients who underwent operative fixation (49 DHS vs 37 CS) with an average follow-up of 993 days (434-1504). No statistical significance was found regarding Operation Length (DHS: 71 mins (40-118), CS: 68 mins (41-97), $p=0.35$, 95% CI -10.21 – 3.68), Hb Drop (DHS: 16.3 g/dL (-5 – 44), CS: 13.2 g/dL (-3 – 63), $p=0.27$, 95% CI -8.78 – 2.51), or Length of Stay (DHS: 9.5 days (2-41), CS: 10.8 (1-40), $p=0.49$, 95% CI -2.38 – 4.94), and mortality rates were similar (DHS: 2% at 30 days, 18.4% at 1 year, CS: 0% at 30 days, 16.2% at 1 year). However, a relative risk of 3.97 was seen in regards to reoperation rates in the CS group (16.2%) vs the DHS group (4.1%) Conclusion: We conclude that whilst both of these techniques are recognised management options, the DHS group have a lower incidence of re-operation. Implications: These findings imply that we should consider performing DHS over CS for minimally displaced IC NOF fractures.

Abstract no.: 45550

REPAIR AND AUGMENTATION USING SUTURE ANCHORS IN ACUTE TRAUMATIC PATELLAR TENDON RUPTURE

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Rupture of the patellar tendon is a rare injury requiring acute repair to allow early motion and to reestablish knee extensor continuity. Ruptured patellar tendons usually have poor tissue quality. Although multiple techniques for repair have been described in the literature, many techniques remain difficult. The authors present a repair technique using suture anchors. This technique is primary repair that involves additional augmentation using the Fiberwires of the inserted anchor in the bone (patella or proximal tibia). This additional anchoring adds a more firm reinforcement to the repair site. Seven patients suffered from acute rupture of the patellar tendon, underwent primary repair with suture anchors. Average follow-up period was 12 months (range, 7–18 months), and clinical results showed satisfactory function after patellar tendon repair. We suggest that this surgical technique is a safe, effective, and acceptable choice for patellar tendon repair in acute patellar tendon rupture.

Abstract no.: 45552

FUNCTIONAL OUTCOMES OF MOORE TYPE I, SCHATZKER TYPE IV & V TIBIAL PLATEAU FRACTURE TREATED THROUGH DUAL POSTERO-MEDIAL AND ANTERO-LATERAL APPROACHES

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The management of high-energy tibial plateau fractures remains difficult. Features responsible for this include articular comminution, meta-diaphyseal disjunction, coronal plane fracture that results in a separate posteromedial osteoarticular fragment of variable size and substantial soft tissue injury. From January 2007 to December 2014, 45 cases of Moore Type I Tibial Plateau were performed in our institution, 33 cases were male. 12 were female, with average age 35 years (range 19-60 years), there were 6 cases of open fractures according to the Gustilo and Anderson classification system and was managed initially by spanning fixator. Galla and Lobenhoffer direct posteromedial approach for managing Moore type I tibial head fracture dislocations that allows excellent fracture visualization and appropriate placement anti-gliding plate, while minimizing soft tissue dissection, percutaneous lateral anatomical plate was applied with minimal soft tissue trauma, early postoperative rehabilitation regimen from 2nd post-operative day, The functional outcome were evaluated by Musculoskeletal Function Assessment (MFA), the mean duration of follow-up was 52 months. Complete radiographic information was available for all our patients. 28 (62%) of those patients had a satisfactory articular reduction (≤ 2 -mm step or gap), 40 patients (89%) had satisfactory coronal plane alignment (medial proximal tibial angle of $87^\circ \pm 5^\circ$), 35 patients (78%) demonstrated satisfactory sagittal plane alignment (posterior proximal tibial angle of $9^\circ \pm 5^\circ$), Dual Postero-Medial and Antero-Lateral plate stabilization of comminuted bicondylar tibialplateau fractures through medial and lateral surgical approaches is a useful treatment method with minimal complications and good functional outcome.

Abstract no.: 45553

A RETROSPECTIVE REVIEW OF THE DOCUMENTATION, OPERATIVE TECHNIQUES AND COMPLICATIONS OF PAEDIATRIC SUPRACONDYLAR (ELBOW) FRACTURES

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Introduction: A retrospective review of the documentation, operative techniques and complications of paediatric supracondylar (elbow) fractures. With the aim of comparing our local hospital practice to the British orthopaedic association standards for Trauma (BOAST) 11 national standards. The primary end point of the study was to assess loss of reduction and iatrogenic nerve injury. Methodology: Eighty two patients were identified as sustaining a supracondylar fracture over a five year period in a single hospital trust. Documentation of the patient's injury in the notes and their radiographs were reviewed to identify the parameters identified in the BOAST 11 guidelines. Results: These showed that of the 82 patients one patient had a longstanding ulna nerve injury at 6 months and 4 of the fractures displaced and required further operative surgical intervention. Secondary end point of documentation identified areas for improvement. Two crossed K-wires with bi-cortical fixation remained the treatment of choice in conjunction with a mini-open approach for the medial wire during placement. Conclusion: This study identified areas for improvement for documentation to meet the BOAST 11 standards and complication rates in keeping with evidence from previous studies.

Abstract no.: 45554

IS RELAPSE RATE DIFFERENT IN BILATERAL X UNILATERAL CLUBFEET?

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Introduction: Relapse is an important characteristic of idiopathic clubfoot, and the cause is possibly related to the presence of contractile cels in the medial and posterior portions of leg and foot. We postulate that unilateral and bilateral clubfeet could be different diseases and possibly could have a different relapse rate. Methods: A retrospective analysis of 495 idiopathic clubfoot with an average follow up of 7 years was performed looking at recurrence rate in bilateral and unilateral idiopathic clubfeet. Results: From 495 idiopathic clubfeet were selected 278 bilateral clubfeet , and 217 unilateral clubfeet. Relapse rate in bilateral was 38 patients (13,7%) and unilateral 23 patients (10,6%). Conclusion: there was no difference in relapse rate between bilateral and unilateral idiopathic clubfeet, so we can infeer that the amount of biology for relapse may not be different between these two groups.

Abstract no.: 45557

LINEAR SHORTENING AND DELAYED GRADUAL DISTRACTION FOR THE TREATMENT OF ASYMMETRICAL BONE AND SOFT TISSUE DEFECTS OF TIBIA: A CASE SERIES.

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Background: Acute shortening is reported to be an effective method for the treatment of open fractures with bone and soft tissue defects. Little is known about primary skin closure with docking side of the defect and distraction at the fracture site. Methods: We present a series of three cases treated for defective fractures of tibia by a linear shortening and delayed gradual distraction with hinged circular external fixator. Two cases were type IIIB open fractures and one case was an infected nonunion. Bone and soft tissue defects were managed by adaptation of edges and primary skin closure, and docking side of the defect and distraction at the fracture site. Axial alignment was restored by gradual distraction after a 2 to 3 weeks interval. Residual limb length discrepancy was lengthened through a separate corticotomy in two cases. Results: Bone formation at both the fracture and corticotomy sites were sufficient to achieve union in all patients. Fixation time averaged 261 (182-392) days and average bone healing index was 42 days/cm. No further surgical intervention was necessary for soft tissue reconstruction after primary skin closure. Infection was eradicated in the case of infected nonunion. Conclusions: Linear compression to the defect is a safe and reliable method of treatment for asymmetrical bone or soft tissue defects of tibia. It eliminates the need for complex soft tissue reconstruction procedures. Debridement of bone is prevented by adaptation of edges. Definitive treatment of complex injuries is possible with a circular external fixator

Abstract no.: 45558

COMPARATIVE ANALYSIS OF AKIN'S OSTEOTOMY WITH A STAPLE VS SCREW FIXATION.

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o Background: □ In our Regional Foot Ankle Referral Unit Akins osteotomy is fixed by either a staple, k wire or screw depending on surgeon's preference. □ There is no comparative analysis in literature between two techniques. □ This review was undertaken to assess if rate of complications is different between two techniques for Akin osteotomy, assesses union rate and degree of correction achieved post-operatively. o Methods: □ This is a retrospective consecutive cases series review of 135 Akin osteotomies carried out as a part of Hallux Valgus correction fixed with either staple(s) or screw. □ Radiographs were reviewed in both groups to assess radiological union rates and degree of correction achieved with osteotomy by measuring the angle created by two lines drawn parallel to the proximal and distal condyles. o Results: □ The age range for these 135 Akin's osteotomy was between 11-73 years. Majority of patients were women. 86 patients had staples and 18 had screw fixation for Akin's osteotomy. Degree of correction with akin's osteotomy in staples group ranged from 0.4 – 29.1 and screw group 0.4 – 29.9 degrees. □ Infection rate in both groups were similar for both superficial and deep infection. □ Union rates were similar in both staples and screws group. o Conclusion(s): □ Both groups (staples and screws) have similar infection rates (for both superficial and deep) and similar radiological bony union rates. o Implications: Both techniques for akin osteotomy fixation have similar union rates and either can be used.

Abstract no.: 45560

OUTCOME OF TREATMENT IN THE FIRST SIX MONTHS FOR OPEN TIBIAL SHAFT FRACTURES MANAGED WITH EXTERNAL FIXATORS IN RESOURCE POOR ECONOMY

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Aims and Objectives: To document the outcome of treatment in the first six months for open tibial shaft fractures managed with external fixators in resource poor economy. **Materials and Methods:** A 12 months prospective observational study done from January 2010 to December 2010. All the patients were recruited from the accidents and emergency department of the university of Calabar teaching hospital. The demographic data of each patient, the type of injury, mechanism of injury and the outcome were assessed. **Data Analysis:** Analysis was done SPSS Version 18 **RESULTS:** 42 patients with open tibial shaft fracture were recruited for this study with forty (95.2%) patients successfully followed up for six months while two patients (4.8%) were lost to follow up. Their ages ranged from 18 to 65 years with mean age + standard deviation of 33.5+12.8 years. The majority of the patients (77.5%) were aged 20-50 years. There was a male to female ratio of 3:1. A total of 7(17.5%) fractures healed after 20 weeks, Type IIIB were 3(7.5%), Type IIIA were 4(10%) but all Type II fractures had united between 12-15 weeks. The middle third fractures 9(22.5%) had the highest number of fracture union within 16-20 weeks **CONCLUSION:** The higher the Gustilo and Anderson grading of the open fracture of tibia, the more severe the wound and bone infection that occurred and interval between the injury time, wound debridement and time the external fixator was applied showed poor outcome for those who presented late (after two weeks of injury).

Abstract no.: 45561

**UNNECESSARY RADIOLOGY REQUESTS IN FOOT AND ANKLE CLINIC-
A RETROSPECTIVE REVIEW**

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Introduction: Patients referred to the elective foot and ankle clinic often have pre-assessment x-rays requested by the general practitioner and performed by the radiology department. These are often non-weight bearing radiographs and on attendance to the clinic further radiological images usually have to be undertaken to provide weight bearing images. This is submitted the patient to unnecessary radiation and come at a financial cost. Aims: To investigate whether inappropriate radiology requests were being performed prior to patients being review as 'new' patient within the elective foot and ankle clinics. To investigate the financial cost and increased radiation to the patient if unnecessary radiographs were performed. Methodology: Retrospective review was performed of all new patients presenting to the elective foot and ankle clinic over a three month period. Notes and clinic letters were review to elicit the diagnosis radiographs were review using the Philips InterlliSpace PACS Enterprise. These were reviewed to access whether pre-operative radiographs were performed and whether they were appropriate. Results: 34% of patient's presenting to clinic required further weight bearing radiographs, leading to increased radiation, expense and time. Conclusion: Strict guidelines should be set for foot and ankle radiographs to both primary care and the radiology department to improve efficiency and reduce patient harm.

Abstract no.: 45563

CLUBFOOT TREATMENT IN PUBLIC AND PRIVATE ENVIRONMENT: IS THERE A DIFFERENCE IN CLINICAL OUTCOMES AND RELAPSE RATES?

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Introduction: Brazil has a mixed health care system and clubfoot treatment is available in both systems, public and private. Because of different set ups, one could infer that clubfeet in private sector would have a different outcome due to more time with patient, and possibly a more appropriate set up. Methods: A retrospective search in a database containing 495 idiopathic clubfeet treated by the same orthopaedic surgeon with average of 7 years of follow up identified public and private patients and compared relapse rates and outcomes. Results: 388 patients were from the private set up and 107 from the public set up. The initial correction rate was 100% in both groups, and relapse rates were 12% in the private group and 14% in the public group. Conclusion: Good outcomes with Ponseti Method could be expected in private and public sectors, even within different institutions. The relapse rate does not seem to be different in these two groups. The data shows that Ponseti Method performed efficiently could have the same good results if details of the Method are well observed, not only in the correction of the deformity but also in the prevention of recurrences. It may not be conditioned to a socioeconomical level.

Abstract no.: 45566

**DISSATISFIED WITH YOUR SATISFACTION RATES POST TKR:
COMPUTER NAVIGATION CAN HELP**

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The literature quotes upto 20% dissatisfaction rates for total knee replacements(TKR). This is used as a basis for improving/changing/modernising knee implant designs by major companies. We work in a elective arthroplasty unit with high volume navigating and non navigating surgeons. We aimed to look at post TKR satisfaction rates in our unit and compare with literature and to see if navigation makes a difference. Methods: It was a retrospective analysis of prospectively collected data. All patients go through comprehensive evaluation and consent process. Postoperatively satisfaction rates and Oxford knee scores are collected in addition to length of stay, range of movement and any complications encountered at 6 weeks and 1 yr. We included 221patients in each group who had TKR done for primary osteoarthritis with minimum follow up of 1 year from Jan 2010 to October 2011 chosen randomly by computer. Group A(BMI 32.45 SD 5.27) had TKR done with computer navigation and group B(BMI 32.39 SD 5.30) had TKR done without computer navigation. Results: Out of 221 non navigated TKR patients 198 (90.00%) were very satisfied or satisfied. Of the 221 navigated patients 212 (96.36%) were very satisfied or satisfied. Only 7 (3.18%) in non navigated group and 1 (0.45%) in navigated group were dissatisfied. 15 (6.81%) were unsure in non navigated group and 7 (3.18%) were unsure in navigated group. One in each group data was not available. Navigated group improved satisfaction (P Value 0.04) more than non navigated group which in turn was better than the published satisfaction rates. Combining dissatisfaction and unsure rates navigated performed better using Fischers exact test (p value 0.01) Conclusion(s): A modern elective arthroplasty service improves the satisfaction rates and navigation further improves these. Satisfaction rates are multifactorial, design change may not be the main answer.

Abstract no.: 45567

THE BRITISH ORTHOPAEDIC TRAINEES (BOTA) NATIONAL “LOST TRIBE” AUDIT PROJECT

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Background: Applications to surgical training are decreasing in the United Kingdom (UK). The aim of this study was to identify who is currently working in the "1st on call" tier in Trauma & Orthopaedic (T&O) surgery in the UK, and what clinical activities they undertook. Methods: Data was collected prospectively between 18/01/2015 and 22/01/2015. Each collaborator completed a coded clinical activity diary of all the doctors that participate in the "1st on call" rota for T&O in their hospital. An analysis of activity included doctor grade, rota gaps, operative exposure, clinic exposure, on call activity, and ward cover, amongst others. Results: 211 collaborators submitted data from 103 T&O departments in the UK. Clinical activity was collated regarding 933 junior doctors (30 rota gaps were identified). The mean number of doctors at the junior tier was 9 (range 1-23). The "Lost Tribe" were made up of Foundation Year 2 (FY2) doctors (26%), Core Surgical Trainee (CT1/2) doctors (19%), Trust Grade Doctors (20%), and locum doctors (13%), amongst other grades. During the study period the "Lost Tribe" made it to an outpatient clinic 2.5%, to theatre 2.7%, provided ward cover 27%, and were on a zero session for 34.6% of the time. Conclusion(s): Junior doctors working in T&O in the UK are a diverse group. Doctors-in-training make up a minority of the workforce and as such, consideration as to what clinical activities they are exposed to should be taken, specifically addressing the balance between training and service delivery.

Abstract no.: 45568

A RAPID PROTOTYPE PATIENT-SPECIFIC NAVIGATIONAL TEMPLATE FOR THE OPEN DOOR LAMINOPLASTY

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The open door laminoplasty is commonly performed for patients with cervical stenosis, yet technique demanding. Locating the position of the open side and hinge side troughs requires rich surgical experience. Here we presented a case of open-door laminoplasty with the aid of 3D printing technique. The patient was a 55-year-old male who was diagnosed with cervical stenosis. The open door laminoplasty was planned for the patient. The surgery simulation was conducted preoperatively and the navigational templates were designed based on the patient's preoperative CT scan. The navigational templates were then produced in acrylate resin by stereolithography and sterilized before surgery. During surgery, the navigational templates were pressed to the back of the laminae after the removing the soft tissues attached to the lamina. For each level, two screws were used to anchor the navigational template to the lamina trough the designed screw paths. The drill was used to mark the position of the trough through the designed cutting paths. Then the navigational template was removed before the completion of the trough preparation. The procedure was finished in a standard manner thereafter. The postoperative CT showed that the positions of the troughs were well chosen and consistent with the surgical simulation. The patient had no perioperative complications and gradually recovered in the first three months follow-up. The navigational templates were safe and easy to use. The navigational templates could contribute to the appropriately locating of the trough position in the open door laminoplasty.

Abstract no.: 45571

CAN JOABPEQ REFLECT THE SYMPTOM IN PREOPERATIVE PATIENTS WITH DEGENERATIVE LUMBAR DISORDER?

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Japanese Orthopaedic Association (JOA) score for low back pain has been used as a standard scoring system for the lumbar disorder in Asian countries, etc. The evaluation criteria of this system include the findings of symptom, neurology and activities of daily living. The score might be significant for doctors, but have little meaning for patients. From a patient's perspective, the self-estimated symptom and functional condition must have real meaning. The JOA decided to revise the former JOA score for low back pain, and developed a new scientific, patient-oriented outcome measure: JOA Back Pain Evaluation Questionnaire (JOABPEQ). In this study, we applied this JOABPEQ on the patients with lumbar disc herniation (LDH), and discussed the validity of JOABPEQ for the clinical use. A total of 195 patients (male115, female80) who underwent surgery for LDH were listed in this study. VAS (visual analogue scale)、JOABPEQ、RDQ (Roland Morris Disability Questionnaire)、SRQD (self-rated questionnaire for depression)、STAI (State-Trait Anxiety Index) are taken from the patients. We applied this JOABPEQ on patients with LDH, and discussed the validity of the score. Approximately, JOABPEQ reflected former JOA score. Especially, the factor of lumbar function highly correlated with the total of the former JOA score. Moreover, the psychological factor correlated with SRQD. However, the factor of pain will be have to discuss, because the evaluation of individual pain has some difficult problem and various factors in each patient. Further studies must be performed to confirm the pain and its severity.

Abstract no.: 45572

OUTCOMES OF PROPHYLACTIC AND THERAPEUTIC INTRAMEDULLARY FEMORAL NAILING FOR METASTASES.

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Background: The femur is a common site for skeletal bony metastases. The aim of this study is to evaluate the outcomes of femoral intramedullary nailing in prophylactic versus therapeutic treatment in femoral metastases. Methods: All femoral nails between April 2011 and November 2015 at a district general hospital were assessed. Intramedullary nailing performed for prophylactic or therapeutic management were included. Outcomes include mortality, survival time and length of stay in hospital. Results: A total of 40 cases were included. In the prophylactic group there were 25 patients and in the therapeutic group there were 15 patients. In the prophylactic group, mean age was 70 years (range 41-91); male to female ratio is 23:17 and 26 patients of this group was deceased. In the therapeutic group, mean age was 76 years (range 56-92); male to female ratio 15:10 and 10 patients were deceased in this group. The most common primary was prostate carcinoma followed by breast carcinoma. In the prophylactic group, mean survival was 25 weeks (range 2-147) and in the therapeutic group mean survival was 20 weeks (range 2-39). The length of stay was 21 days (range 3-80) in the prophylactic group and 28 days (range 7-63) in the therapeutic group. Conclusions: Femoral nailing for metastases helps improve quality of life and we observed a mean survival time of 20-25 weeks postoperatively in both therapeutic and prophylactic nailing.

Abstract no.: 45574

DO THE INJURED LIGAMENTS HEAL AFTER THE UNION OF ANATOMICALLY REDUCED DISTAL RADIUS FRACTURES

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Introduction: Distal radius fractures are associated with a high incidence of ligamentous injuries. This study aims to evaluate the status of these ligaments after the healing of distal radius fractures with plate fixation. Method: Patients who were elected for the removal of plate after the healing their distal radius underwent a concomitant wrist arthroscopy from Aug 2014 to Jan 2016. Results: 34 patients with an average age of 53 years old were recruited. 15 patients suffered from ulnar wrist pain and 24 had DRUJ instability on examinations. There were 25 complete TFCC tears and 9 incomplete tears. 4 patients had combined TFCC tears. All patients with symptoms and signs had TFCC tears while the 9 patients with intact TFCC tear hand neither symptoms nor signs. 67% of the patients had TFCC tears arisen from the sigmoid notch and 29% had fovea tears. There was no correlation between ulnar wrist pain and the location of the TFCC tears. There were 26 SL tears and 15 LT tears. None of the patients with SL and LT tears suffered from clinical signs and symptoms. There was no significant correlation between the tears of SL and LT and the TFCC tears. There was no significant correlation between the ligamentous tears and the distal radius fracture pattern. Conclusion: There was a high incidence of unhealed TFCC, SL and LT tears after the union of anatomically reduced distal radius fractures. However not all of the tears would lead to clinical signs and symptoms.

Abstract no.: 45580

INCREASED SURGICAL TIME AND COMPLICATIONS FOR TOTAL KNEE REPLACEMENTS IN THE OBESE PATIENT

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Introduction: Obesity is one of the major public health issues of the 21st century and is known to cause increased stress on knee joints resulting in the need for arthroplasty. It has been seen to be associated with increased post-operative complications related to total knee replacement (TKR), making obese patients (BMI >30 kg/m²) more high risk for knee arthroplasty. Methods: We audited operation notes of TKRs carried out by lower limb orthopaedic consultants at an urban DGH between May and December 2015. All were on the ERAS protocol and had a pre-operative BMI measured. Notes were reviewed for discharge date and post-operative complications. Results: Mean length of stay of 5.6 days (STD = 3.3). There was no statistical significance between increased BMI and LOS. However it was found that 31% of those who underwent TKR were found to have post-operative complications with a mean BMI of 36 kg/m². Surgical time was obtained from electronic intra-operative records in minutes with mean operating time 83.3 minutes. It was found that there was a significant positive correlation between BMI and surgical time. Conclusion: Adequate planning should be considered when scheduling obese patients for a TKR to allow the hospital to better allocate resources and to put in place greater support, optimisation, and adequate theatre time for obese patients prior to having a TKR to prevent post-operative morbidity and improve efficiency.

Abstract no.: 45585

A RANDOMISED CONTROL STUDY COMPARING NAVIGATION ASSISTED AND CONVENTIONAL TOTAL KNEE REPLACEMENT

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Navigation assisted Total Knee Replacement (TKR) increases survivorship of prosthesis by improving positioning and alignment of prosthesis. There is controversy regarding the use of navigation for all the routine replacement cases. So, this study aimed to compare the prosthetic alignment between these two procedures in high volume arthroplasty centre. 50 Patients were randomised into two groups with 25 patients in the Conventional TKR group (Group A) and 25 patients in Navigation assisted TKR group (Group B). In both the groups operation was done by same surgeons and same implant (Aesculap-Columbus) was used. Mechanical Axis (MA), Frontal Femoral Angle (FFA), Frontal Tibial Angle (FTA), Sagittal Femoral Angle (SFA), Sagittal Tibial Angle (STA) and Femoral Component Rotation (FCR) were measured postoperatively. Only the outcome assessor (radiologist) could be blinded to randomisation. Mean age was 62.7 and 63.2 years and BMI was 28.38 and 28.78 in Group A and B respectively. Females constituted 72% and 60% in Group A and B respectively. 48% patients in Group A had a postoperative MA within 1 degree of neutral alignment as compared 84% in Group B (Chi square p value = 0.007). Although all femoral and tibial component alignment parameters were well aligned in both groups FTA, FCR and MA were significantly better in Group B with p value of 0.040, 0.03 and 0.011 respectively. Navigation assisted TKR is associated with improvement in accuracy of implant alignment (with in 3 degree of neutral alignment) and reduction in outliers of rotational femoral component alignment.

Abstract no.: 45586

3D PRINTED TEMPLATE FOR TROUGH PREPARATION IN EXPANSIVE OPEN DOOR LAMINOPLASTY: A CADAVERIC STUDY

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Introduction: The trough preparation is critical to expansive open door laminoplasty (EOLP), yet locating the proper trough position is demanding. In this study, we testified the feasibility of 3D printed template for EOLP. **Methods:** Preoperative and postoperative CT scans were performed for 10 cervical specimens. The specimens were randomly assigned to conventional group and template group. In the conventional group, the EOLP was performed in the traditional way. In the template group, the preoperative CT data were imported into the Mimics 17.0 software for cervical reconstruction. Thereafter, the optimal position for the open-door/hinge side trough were designed on the reconstructed 3D model. A virtual template with predefined cutting path and conformal to the posterior surface of the lamina was then established from C3 to C7 level for each specimen. The corresponding physical template was then 3D printed. In the template group, the EOLP was performed with the assist of the 3D printed templates. All surgeries were performed by a junior resident. The increase of the anteroposterior diameter of the canal and the enlargement of the transverse canal area for each level were compared between the two groups. **Results:** In the template group, the increase of the anteroposterior diameter of the canal and the enlargement of the transverse canal area were significantly larger than that in the conventional group ($P < 0.05$). **Conclusion:** The feasibility of the 3D printed template for the trough preparation in EOLP was demonstrated. The 3D printed template seems to be a useful tool for the junior residents.

Abstract no.: 45588

THE TREATMENT OF DISTAL TIBIAL AND FIBULAR FRACTURES USING THE ACUMED FIBULAR NAIL AND MIPO TECHNIQUE: A CASE REPORT AND A NEW COMBINATION

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Fractures of the distal third tibia and fibula are different from other fractures because of the depleted muscular cover and the bones are subcutaneous . With the severe damage of soft tissue and the extreme instability, they have a high risk of complications i.e bone nonunion, infection, necrosis.In this case report, we reported one single patient sustained distal tibial and fibular fractures combining with severely damage of soft tissue(blisters exist) .After the swelling alleviated the Acumed fibular nail and MIPO technique were employed for the patient, which promise smaller incision and less soft-tissue dissection. The patient recovered very well with a satisfying function of the injured leg during the one year followed up. Considering the advantages, we recommend attempting the Acumed fibular nail and MIPO technique for the treatment of distal tibial and fibular fractures in clinical practice.

Abstract no.: 45594

OUTCOME OF CORE DECOMPRESSION IN OSTEONECROSIS OF FEMORAL HEAD

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Background:The treatment of adult avascular necrosis of the femoral head remains a challenge. Risk factors include steroids, alcohol abuse, chemotherapy and immunosuppressive medication but a genetic predisposition has been suggested. Early diagnosis of this often bilateral disease process is essential for successful joint preserving surgical management. Core decompression procedure in the initial stages before collapse may arrest or reverse the progress of avascular necrosis. We have analysed the clinical functional, and radiological outcome of core decompression in patients with osteonecrosis of the femoral head upto stage IIB(Ficat Alert)**Materials and method:**This study was undertaken at emam Khomeini hospital from march 2014 to dec 2015 wherein 88 patients(160 hips) of ONFH Upto stage IIB were treated with core decompression and the outcomes were studied. Patients were subjected to core decompression of the affected hip. All the patients were operated in supine position under image intensifier guidance by DHS reamer**Results:** Functional outcome was assessed by Harris score. Wherein 112 hips(70%) had good or excellent outcome. 43 hips (25%) showed poor result and 5 hips (5%) had fair outcome.For stage I 94% and for stage IIA 60%, stage IIB 45% showed improvement. Less than 15% of the hips required joint replacement **Conclusion:**Core decompression provide satisfactory outcome when patients are carefully selected in early stages of the diseasebefore the stage of collapse.

Abstract no.: 45595

TOTAL HIP ARTHROPLASTY IN PATIENT WITH MISSED POSTERIOR WALL FRACTURES

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Introduction:Total hip arthroplasty(THA) in patients with acetabular fracture is a challenge for joint surgeons. There are many reports on THA following acetabular fractures treated by internal fixation, however, we are not aware of any previous report on THA following missed posterior wall fracture **Materials:** 2 patients (mean age: 45) with untreated posterior wall fracture of the acetabulum, presented to our institution with severe osteoarthritis 6 months after primary trauma. Both patients had severe posterior wall deficiency due to fracture. We decided to put the cup in a little higher center rather than reconstructing of posterior wall.**Results:** in both patients we could get in press fit cup fixation in a mean of 1.8 mm high hip center. We needed additional screw fixation in one patient to secure the cup. Both patients were ambulated on the same day of surgery with weight bearing as tolerated program. We did not apply hip precautions to these patients like our other primary THA. At the latest follow up (mean: 14 months) radiographic assessment showed satisfactory cup position with bone ingrowth and no signs of loosening.**Conclusion:** Putting acetabular cup in a higher but more supportive bone offers a reliable and easier technique for reconstruction acetabular posterior wall deficiencies. Further studies are needed to prove the long-term outcome of this method

Abstract no.: 45596

TOTAL HIP REPLACEMENT IN SUPINE POSITION

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INTRODUCTION:THA through anterior approaches can be performed in supine or lateral decubitus position. Supine position has its own advantages and disadvantages. We review our results of total hip surgery in supine position to see if it is associated with any special problem.**MATERIALS AND METHOD:**198 primary total hiparthroplasty in156patients were implanted in supine supine position(150 with direct anterior approach and 46 with direct lateral approach). All operations were performed by single surgeon. All patients received regional anesthesia. Leg lengthswere assesedintroperatively through direct palpation of the malleoli and heels.We used no hip precaution protocol and all patients were allowed to have weight bearing as tolerated on the same day of surgery.Acetabular cup position evaluated on postoperative Xrays.**RESULTS:** The average surgical time was 65 minutes. There were no LLD more than 8 mm in this group of patients. Cup position was in the safe position in all except two patients. We had three early dislocation, two of them were associated with excessive cup ante version. In the third one the cup has been positioned in the safe zone.No anesthesia related complications were observes**CONCLUSION:**THA in supine position gives good and reliable exposure of acetabulum, so it is more likely to put it in the safe position. Putting patient in supine position is also safer in terms of anesthesia as anesthesiologists have more control on patients in this position

Abstract no.: 45600

LUMBAR DISC ARTHROPLASTY. 5-YEAR FOLLOW-UP RESULTS

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Introduction. Symptomatic lumbar disc degeneration is responsible of a big deterioration in quality of life; therefore when conservative treatment is no longer an option, disc arthroplasty surge as an reasonable motion-preserve procedure against motion restriction procedures; even when there are missing enough long-term studies that can prove objective efficacy and symptom relief in life's patient this procedure is realized with short and mid-term acceptable results. Our goal is to demonstrate that lumbar disc arthroplasty (single or multilevel), when properly indicated and performed, improve long-term patient's quality of life. Methods. During 5 years, in 29 patients surgery was performed ranging from 1 level to maximum 3 levels, with subjective measures of disability (Oswestry Disability Index ODI) from preoperatory to 5 years postsurgery with intervals at 2, 6, 18 months, 3 and 5 years Results. During progressive Oswestry data recopilation, we found an important improval of symptoms and function recovery around the 6 months post-op, Oswestry Disability index showed a minimal disability (0-20%) in long-term follow ups, demonstrating that restoring multiplanar motion of the lumbar spine improves significantly patients quality of life. Much more investigation, data recopilation and patient selection is needed as this prospective study goes on in order to promote early disease detection and proper treatment with the highest achievable symptomatic recuperation.

Abstract no.: 45603

EARLY TO MID TERM CLINICAL, RADIOLOGICAL AND FUNCTIONAL OUTCOMES FOR USE OF MODULAR TAPERED, FLUTED TITANIUM FEMORAL STEM IN REVISION HIP SURGERY

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Introduction and aims:The estimated incidence of revision hip surgery is 5-20% at 10 years and is anticipated to increase. Customised implants are required. Tapered titanium stems are being increasingly used . We report our early to mid-term outcome of femoral component revision using a modular tapered fluted titanium stems.**Methods:** We identified 439 revision hip surgeries via the examination of our theatre logbook. From these we identified 24 Redapt femoral stems with a minimum 1 year follow up (range 1 to 5 years). Clinical follow up included review of pain, satisfaction and revision. Radiological follow up included review of plain radiographs within a year of the study to look for subsidence and osseointegration. Functional outcome was assessed using HHS and WOMAC scores at the time of study.**Results:**Complications included 4 patients undergoing intraoperative fracture, 1 with a superficial wound infection treated without surgery, 1 dislocation and one with ongoing thigh pain. All implants demonstrated excellent osseointegration radiologically. Early subsidence of 0.5 to 0.76 mm was observed in 3 cases (12.5%). without evidence of loosening, subsidence or periprosthetic fracture. A high proportion of patients achieved good to excellent scores on on the Harris Hip Score (14 patients, average score 83) and improved function according to the WOMAC Index (19 patients, average score 78).**Conclusion:**In our series of 24 cases of femoral revisions for severe bone loss using modular titanium tapered stems, we record good clinical and functional results, with no revisions at early to mid-term follow up

Abstract no.: 45605

SIMULTANEOUS HIGH TIBIAL OSTEOTOMY WITH MESENCHYMAL STEM CELL IMPLANTATION IN MIDDLE AGED PATIENT WITH OSTEOARTHRITIS

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The treatment of osteoarthritis in middle aged patient varies according to severity of disease, clinical manifestation, and factors of patients. Arthroplasties are conventionally performed in old age with osteoarthritis, for its excellent out come in long term follow up. The treatments of middle aged patients, including high tibial osteotomy, and cartilage replantation surgery, are being studied, yet still controversial. Following article reports 1 year postoperative clinical outcome of middle aged patient treated with concurrent intervention of high tibial osteotomy and mesenchymal stem cell implantation. 54 years old female was treated 6 months of conservative treatment, showing no clinical improvement. The patient underwent surgical intervention. Arthroscopy revealed cartilage defect over MFC (ICRS grade 4 15X30mm). High tibial osteotomy, with corrective angle of 13.4', (TOMOFIX ®, Depuy) and mesenchymal stem cell implantation (Cartistem ®, medipost) was performed. The patient was assessed by radiography and clinical performance at postoperative 3 month interval. At 1 year posoperativly, the clinical parameters of VAS, knee society score [knee score / functional score] (KSS), knee injury and osteoarthritis outcome score (KOOS) were revealed to be 0-1, 95/100 ,and 95 respectively. Hip-knee-ankle angle were assessed to be 1.5 degree valgus. Successful bone union was achieved. Various studies and researches toward Middle aged osteoarthritic patients with cartilage defects are being conducted. Yet, the mainstream treatment remains controversial. When treating young patient with osteoarthritis, the factors of age, severity of disease, economic status, and activity should be considered

Abstract no.: 45609

THE OUTCOME OF CEMENTLESS TOTAL HIP ARTHROPLASTY IN HIP OSTEONECROSIS

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The outcome of cementless total hip arthroplasty (THA) in patients with femoral head avascular necrosis (AVN) is encouraging. However, the rate of reoperation and complications were reported higher in some papers. We conceive this study to compare early and short-term result of cementless THA in patients with femoral head AVN in comparison to patients with OA. Methods: 43 patients with end stage AVN underwent 61 THA through direct anterior approach between January 2010 and January 2012. There were 10 female and 33 male in this cohort. The mean age of patients at the time of surgery was 34.5 years. Results: The average Harris hip score (HSS) improved significantly from 42 preoperatively to 91 postoperatively at the latest follow up (mean follow up: 18.5 months). All patients were satisfied with the result of surgery. No early postoperative complication or later reoperation was observed. There were 2.5% early complication or reoperations in control OA patients. Conclusions: Our results showed that uncemented THA in patients with femoral head AVN, at least in short term follow-up, is a successful operation and is not associated with higher rate of complications or reoperation. Further study is needed to determine the long-term outcome.

Abstract no.: 45610

TOTAL HIP ARTHROPLASTY IN POSTTRAUMATIC ARTHRITIS AFTER ACETABULAR FRACTURE

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Total hip arthroplasty (THA) outcomes for posttraumatic arthritis after acetabular fracture have yielded inferior results compared to primary nontraumaticTHA. Recently, improved results have been demonstrated using cementless acetabular reconstruction. Sixteen patients underwent THA for posttraumatic arthritis after acetabular fracture;thirteen were treated with open reduction internal fixation, and 3 were managed conservatively. Time from fracture to THA was 28 months (6-72 months). Average follow-up was 8 months(2.0-9.7months). Harris Hip score increased from 28 (0-56) to 82 points (20-100). one patients required revision. Revision surgery correlated with acyntobacter infection .No loosening, dislocation occurred in our follw up.Despite obvious challenges such as acetabular deficiency, low grade infection, scar tissue and heterotopic ossification advances in fracture management and cementless acetabular fixation in THA demonstrate improved results for posttraumatic arthritis following acetabular fracture

Abstract no.: 45611

TOTAL HIP REPLACEMENT VIA ANTERIOR APPROACH IN HAEMOPHILIC PATIENTS

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INTRODUCTION:Hip Joint Replacement Surgery is an available option for end stage haemophilic Arthropathy. We share our experience with noncemented hip joint arthroplasty in haemophilic arthropathy via anterior approach and report on clinical outcomes.**METHODS:**Between 1389-1393 ten hip joints in 8 patients(2 HIV+) underwent total hip Arthroplasty with this approach by one surgeon.average follow up was 2.4 years (1.5-3.8).charts were reviewed retrospectively and patients were asked to return for clinical assessment and completion of questionnaires.Blood loss, infection rate, Operation time,implant survival and function as judged.**RESULTS:**Haemarthrosis occurred in 2 patients. One deep infection in HIV+ haemophilic patient occurred and all Arthroplasties were still in situ at the end of follow up.average operating time was 72 minutes and average blood loss was 150cc.no prophylactic anticoagulation used in these patients.according to the Harris hip score results were good to excellent in 65% hips.**Conclusion:**complication rates are higher than in the non haemophilic patients but blood loss, haemarthrosis, operating time with this approach are lower and we can check cup orientation in supine position via Smith-peterson approach.patient satisfaction with pain relief is higher than satisfaction with functional improvement.arthroplasty of the hip via this approach can be valuable in the management of severe haemophilic arthropathy.

Abstract no.: 45614

THE SURGICAL TREATMENT AIMED TO INCREASE THE QUALITY OF LIFE IN THE PATIENT AFFECTED BY IMPENDING AND PATHOLOGICAL FRACTURES OF TIBIA

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Objectives:The progress in adjuvant and neoadjuvant therapies have improved the prognosis of cancer patients leading to an increasing of bone metastases and consequent long bone fractures.The surgical treatment has the purpose to increase the quality of life in the patient affected by impending and pathological fractures of tibia.**Materials and Methods:**In this study, the authors retrospectively evaluated 13 patients (14 lesions,6 pathological fractures) treated by the insertion of an unreamed static intramedullary locked nail, locked anterograde intramedullary nail, Rush nail, standard and modular prostheses, curettage and cement).Surgical strategy was planned taking into account several factor, including histological type, size location of the lesion and the presence of visceral metastasis. Applying generic outcome instruments such as the Eastern Cooperative Oncology Group (ECOG) and Quality of life questionnaire of European Organization for Research and treatment of Cancer (QLQ-C30) pain, mobility and use of analgesics were observed before and after surgery.**Results:**A significant overall improvement of the quality of life period in the patients was recorded. The ECOG index showed an improvement of the patients' general condition up to 6 months minimum follow-up after the index procedure. QOL-ACD index showed an improvement of the patients' general condition up to 3 months after the index procedure.**Conclusion:**The treatment must be comprehensive in a solitary lesion in patients with a good prognosis, but less invasive plurimetastatic in patients with poor prognosis. Acquisition of good mechanical stability is essential for a successful outcome and has been decisive in the return to daily activities and improving the quality of life.

Abstract no.: 45615

DYNAMIC EVALUATION OF MENISCAL ROOT REPAIR WITH SONOGRAPHY

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Materials and Methods In this study, we reviewed the sonographic examinations of the knees of normal population and compared with those patients who were diagnosed to have a medial meniscal root tear confirmed by MRI. Arthroscopic meniscal root repair was performed in those patients. The sonographic and MRI findings were compared with arthroscopic findings. After meniscal root repair, intraoperative sonography served as a tool to evaluate the hoop tension. **Results:** The sonographic image and MRI were compared and medial meniscal extrusion were identical in supine position. However, when the patient stand up and weight bearing, more medial meniscal extrusion could be observed in those who had meniscal root tear. After meniscal root repair, the extrusion of medial meniscus would improve which could be confirmed by dynamic sonography. The VAS score and knee WOMAC function score improve could be expected after surgery if the dynamic ultrasound revealed hoop tension appeared. **Discussion:** Sonography has been used in the knee to evaluate meniscal tears. The overall accuracy of sonography has been more than 70% in many studies. In this study, we used sonography to evaluate meniscal root tears, and the results were compared with arthroscopic findings. Dynamic ultrasound could observe the extrusion degree of medial meniscus which correlate to hoop tension of medial meniscus. **Conclusions:** Dynamic sonographic finding could be an alternative diagnostic tools to evaluate the meniscal extrusion in preoperative diagnosis, intraoperative and postoperative evaluation of hoop tension in a low cost and noninvasive imaging modality.

Abstract no.: 45616

DECOMPRESSION WITH OR WITHOUT FUSION FOR LUMBAR FORAMINAL STENOSIS AND SINGLE LEVEL DISC DISEASE: A RANDOMIZED CONTROLLED TRIAL WITH 12 TO 18 YEARS FOLLOW UP

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Introduction: There is minimal long term evidence to support instrumented fusion as an adjunct to decompression for foraminal stenosis in the presence of single level degenerative disc disease. Methods: Prospective randomised controlled trial: 44 patients with single-level disc disease were randomly assigned to three groups (spinal decompression (Group 1), decompression and instrumented posterolateral fusion (Group 2), or decompression and instrumented posterolateral fusion plus transforaminal interbody fusion (Group 3). Spinal disability (Dallas, Roland Morris, and Lower Back Outcome Score [LBOS]), and quality of life (EuroQol (EQ) and short form (SF-) 36 questionnaires) were assessed before and at after surgery by independent researchers. Results: At mean 15 years follow up 33 (75%) patients were available for assessment. All groups observed a significant improvement in the EQ-5D at final follow up. Group 1 demonstrated significantly better functional outcome at final follow up according to the Dallas, Roland Morris, LBOS, and EQ-5D (3L and VAS) scores when compared to the other two groups ($p < 0.01$). The SF-36 score demonstrated that group 1 had significantly better generic health scores compared to groups 2 and 3. Regression analysis was used to adjust for the differences in general health between the groups and demonstrated no significant difference between the groups in the spine specific scores: Dallas ($p > 0.15$), Roland Morris ($p > 0.37$), or the LBOS ($p > 0.32$). Conclusions: Fusion in combination with decompression for the treatment of foraminal stenosis and single level degenerative disc disease offers no long term functional benefit over decompression in isolation.

Abstract no.: 45617

INTACT FIBULA WITH ISOLATED TIBIAL SHAFT FRACTURE

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ABSTRACT Background: Isolated tibia shaft (ITS) fracture with intact fibula is a common injury but records often fail to mention it. Our primary aim was to study the effect of the intact fibula in ITS fractures in closed and open injuries and that these fractures can unite without a primary fibulectomy. Materials and Methods: All patients who sustained an ITS fracture with an intact fibula who underwent closed or open reduction and reamed intramedullary interlocking nailing since August 2008 to April 2014 were included in this study. Fifty one patients were available for the analysis, of which 33 were closed and 18 were open fractures. Patients were followed up at 4 weekly intervals until radiological signs of union were noted. They were assessed for functional outcome using the IOWA knee and ankle score systems at the time of final followup. Results: The average time to union in our series was 19.7 weeks. Closed fractures united in 17.7 weeks as compared to 23.5 weeks for open fractures ($P < 0.05$). A delay in union occurred in 6 patients (4 open) and in 3 patients fractures failed to unite (2 open). The functional outcome as per the knee score and ankle score evaluation system in our series was 93.13 and 92.54, respectively. The knee scores were 93.81 and 91.8 for closed and open ITS fractures, respectively ($P > 0.05$). Similarly, the ankle scores were 94.96 and 88.1 for closed and open ITS fractures, respectively ($P < 0.05$).

Abstract no.: 45621

ANTERIOR AND POSTERIOR STABILIZATION OF SPINE BY SINGLE POSTERIOR INCISION IN CASES OF UNSTABLE THORACOLUMBAR BURST FRACTURES.

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Axial load of the anterior and middle column of the spine can lead to a burst fracture in which the vertebral body fragments shift into the spinal canal causing neurologic complications and kyphotic deformity. These fractures represent 10% to 20% of all spine injuries at or near the thoracolumbar junction. The management of these fractures remains controversial. The goals of operative treatment are fracture reduction, fixation and decompression of neural canal which can be carried out via an anterior, posterior, or combined anterior-posterior surgery. The combined anterior and posterior instrumentation provides the most stable repair. However, the use of both approaches on a trauma patient may increase morbidity. Stabilization of three columns through only one approach can provide an effective outcome. We treated ten patients of thoracolumbar burst fracture with McCormack's score > 6 by anterior cage placement and posterior pedicle screw fixation through the single posterior approach. Five out of ten patients improved neurologically, and none deteriorated. The mean blood loss was 1885ml and the mean operative time was 282 minutes. The mean pre-operative kyphotic angle was 19 degrees. The mean post-operative kyphotic angle was -0.6 degrees after surgery.

Abstract no.: 45622

DISTAL TIBIAL FRACTURES: PLATING VS NAILING

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INTRODUCTION:The distal tibial fracture is one of the slow healing fractures in the body as there is minimal muscle coverage to the bone. This is a comparative study to evaluate the effect of the type of treatment outcome of CRIF: Intramedullary Interlocking Nail and ORIF: Plate Fixation for the treatment of Extra-articular distal tibia fractures. **Material and Methods:**From January 2011-2014 ,42 patients with Fracture of the tibia with or without fibula fracture received operative treatment .The criteria for inclusion was patient having a closed or type I open fracture of the distal third of the tibia diaphysis. All patients received treatment with ORIF or IM nailing depending on the surgeon's choice,20 treated with CRIF (Nailing)and 22 treated with ORIF(Plating). **Results:**The mean time for radiographic union in patients treated with ORIF was 19 week versus 21 week in IM nailing.Mean Knee Society Rating scores was higher in ORIF. The first score and Second score on Anterior Knee Pain (pain during kneeling and Squatting) was significantly higher after IM nailing than after ORIF. 1 patient had rotational malalignment of >15° after ORIF versus 3 (25%) after IM nailing. **Conclusion:** Malalignment and Anterior Knee pain is considered to be important complication which was higher in individual treated with IM nail. Control of alignment was difficult in IM nailing. Further we didn't found much significant difference in fracture union in both the groups. Considering the complication Plating is better choice of treatment for closed or Type 1 distal tibia fracture.

Abstract no.: 45623

PROSPECTIVE RANDOMIZED COMPARATIVE STUDY TO DETERMINE APPROPRIATE ADMINISTRATION PERIOD OF EDOXABAN TO PREVENT DEEP VEIN THROMBOEMBOLISM IN TOTAL KNEE ARTHROPLASTY

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Introduction: The aim of the present study is to determine the appropriate administration period of 15 mg edoxaban (a factor Xa [FXa] inhibitor; EX) to efficiently prevent the incidence of deep vein thrombosis (DVT) after total knee arthroplasty (TKA). Methods: Among 236 subjects underwent TKAs between 2014 and 2015, subjects with bilateral TKAs and without consents were excluded and remaining 202 subjects were enrolled in this study. The subjects were randomly divided into two groups; 1week group (7 days administration of edoxaban; 93 subjects), and 2 weeks group (14days administration of edoxaban; 109 subjects). B-mode ultrasonography was performed to detect DVT at 7 and 14 days after operation and the incidence of DVT and side effect was compared between the two groups. Results: The preoperative demographic conditions were comparative between the two groups. One and 5 subjects stopped their administration because of hepatic dysfunction in 1 week and 2 weeks groups, respectively. The number of DVT were comparative between the two groups (1 week group; 21 subjects, 2 weeks group; 22 subjects, $p=0.818$) at 1 week postoperatively. However, the incidence of DVT between 1 and 2 weeks was significantly lower in 2 weeks groups (0 subjects) than in 1 week group (7 subjects) ($p=0.004$). There was no symptomatic DVT in both groups. Conclusions: The results suggested that 2 weeks administration of 15 mg edoxaban is desirable to prevent DVT after TKA.

Abstract no.: 45624

POSTERIOR TILT OF THE PELVIS IN STANDING IN PATIENTS UNDERGOING TOTAL HIP ARTHROPLASTY (THA): RELATED FACTORS AND POSTOPERATIVE CHANGES

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Introduction: Some patients undergoing THA tilt their pelvis posteriorly in standing. In such patients, anterior dislocation of THA can happen, if the posterior tilt of the pelvis is not taken into consideration during THA. We investigated its related factors and postoperative changes. Methods: A series of 266 primary THAs were studied. A lateral radiograph of the pelvis was made with a patient standing before THA and postoperatively. On the lateral radiograph, tilting angle of the anterior pelvic plane (APP) was measured. Regarding posterior tilt of the APP of 10° or more before THA, related factors were investigated. Postoperative changes of the pelvic tilt were also examined. Results: Before THA, the APP tilted 10° or more posteriorly in standing in 26%. The following risk factors were identified for that: female gender, patient age of 72 years or more, vertebral fracture, primary OA, atrophic OA, and lumber lordosis angle of 37° or less. The standing APP tilting angles before THA were statistically significantly correlated with those at each follow-up up to 7 years. Although the posterior tilting of APP increased statistically significantly at 6 month and at 1 year, its annual increment was not statistically significant after 2 years. In patients whose APP tilted 10° or more posteriorly before THA, there was not a statistically significant further increase in the posterior tilting of APP in standing after THA. Conclusion: THA components should be placed considering the pelvic tilting in standing before THA.

Abstract no.: 45625

PROTHROMBIN TIME-INTERNATIONAL NORMALIZED RATIO IS A USEFUL MARKER FOR EDOXABAN EFFICACY IN PREVENTING VENOUS THROMBOEMBOLISM AFTER TOTAL KNEE ARTHROPLASTY

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Deep vein thrombosis (DVT) is one of the main complications following total knee arthroplasty (TKA). In this study, oral administration of 15 mg edoxaban (a factor Xa [FXa] inhibitor) once daily for 14 days efficiently prevented the incidence of DVT. Our hypothesis was that prothrombin time-international normalized ratio (PT-INR) on the third postoperative day could predict the incidence of DVT following TKA. Several variables were analysed to determine the predictors of DVT, and for DVT diagnosis, ultrasonography was performed for seven days after surgery. Two hundred and eighty six subjects were enrolled, and divided into two groups according to the presence or absence of DVT. The PT-INR levels were significantly higher in the group that did not develop DVT ($p = 0.01$); further analysis with receiver operating characteristic (ROC) curve was done, and cut-off point for PT-INR was calculated to be 1.425. PT-INR level is a useful marker in determining whether 15 mg edoxaban administration can prevent DVT after TKA. It is suggested that increment of edoxaban to control PT-INR over the cut-off point, might prevent the incidence of DVT.

Abstract no.: 45630

WEAR IN TOTAL HIP ARTHROPLASTY USING CERAMIC HEAD:MAXIMUM 10 YEARS FOLLOW UP

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The number of total hip arthroplasties (THA) in young patients is continuously increasing so tribology studies, with the goal of improving the implants survivorship, are fundamental in this kind of surgery. The role of ceramic materials in the valuation of types of wear is well known. We selected 834 patients, underwent THA, in which a ceramic head was implanted with a minimum follow up of ten years. 367 males and 467 females, were operated by different surgeons of the same equipe of Orthopaedic and Traumatology Department. Postero-lateral approach with extrarotator tendons transosseal repair was performed. 446 ceramic liners, 354 polyethylene liners and 34 metallic liners were used. 18 different types of femoral stems (5 of which stemless), were implanted. The mean survivorship at 10 years was 92%. No ceramic heads and liners breakage occurred. In our cohort review no major failures of ceramic components were observed. These datas suggested the importance of design and upgrading of new materials, in order to achieve better long term results. Therefore, the ceramic components represent the gold standard, specifically in young active patients with good long term results regarding functional outcomes and wear of implants. The use of ceramic head, assembled with ceramic or polyethylene liners, demonstrated good results at 10 years follow up. Ceramic-on- polyethylene is a valid alternative to ceramic-on-ceramic in consideration of the lower cost and theoretical lower risk of breakage.

Abstract no.: 45633

DOES KNEE OSTEOARTHRITIS AFFECT THE FEMORAL COMPONENT POSITION DURING TOTAL HIP ARTHROPLASTY? 3D MODEL ANALYSIS

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The purpose of this study is to identify the femoral anteversion difference between native and prosthetic femur and to evaluate the effect of the grade of knee osteoarthritis on that difference. Preoperative and postoperative 3D models using computed tomography were reconstructed for 20 femurs in 16 patients underwent primary cementless THA with tapered femoral stems. On the preoperative computed tomographic images and scout films, the grade of knee osteoarthritis was classified into four grades adopting Kellgren-Lawrence classification. The differences of proximal femoral parameters between preoperative and postoperative femur were compared, including femoral head anteversion, femoral neck anteversion, neck-shaft angle, horizontal and vertical offset, hip joint center, and height. Pearson correlation analyses was used to investigate the significant relationship between knee osteoarthritis grades and femoral head and neck anteversion differences. There were differences between preoperative and postoperative head and neck anteversion with mean $5.0^{\circ}\pm 14.6^{\circ}$ and $18.2^{\circ}\pm 11.9$. The proportion of the knee osteoarthritis was as follows: grade 1: 5 cases, grade 2: 7, grade 3: 4, and grade 4: 4 cases, respectively. There were significant correlation between knee osteoarthritis grades and head or neck anteversion differences ($p=0.001$). Knee osteoarthritis grade was found to be independent influencing factor on head and neck anteversion differences after multivariate analyses ($p=0.001$). The results of the current study demonstrate that increased femoral stem anteversion during total hip arthroplasty is correlated with the presence of severe knee osteoarthritis. This suggests that surgeons should examine the knee osteoarthritis to optimize the femoral component anteversion during total hip arthroplasty.

Abstract no.: 45634

DISTAL LEG SEPTIC CRITICAL SIZE BONE DEFECTS: PROPOSAL OF AN ORIGINAL DISTAL LEG PROSTHESIS

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Introduction: In orthopaedics one of the most common complications is infection. Some patients despite a meticulous antiseptic procedures, a close monitoring of controls peri- and post-operative undergo the development of infection of the fixation devices. This risk is highly increased in the distal leg because of the known problems with blood supply and poor muscle coverage. The functionality of the affected segment is impaired with increased risk of amputation. The therapeutic strategy proposed by our group is to treat an osteomyelitic site as a pseudo-tumor with a megaimplant following a ladder strategy driven by the NUSS classification. This work shows our experience with a developing system by Waldemar-LINK highlighting critical issues and preliminary results. Objectives: The purpose of this study is to evaluate retrospectively the early outcome after the implantation of this megaprosthesis of the lower leg in infected post-traumatic bone defects. We registered all the complications and infection recurrence. Methods: Between January 2013 today we have developed this system following the chamber induction technique (C.I.T.). We perform a 2 steps procedure: 1° step: resection, debridement, devices removal and bi-antibiotic spacer implantation; 2° step: spacer removal and megaprosthesis implantation. Results: Our first 10 patients with lower leg septic critical size bone defect were post-traumatic, 3 have ended the C.I.T. procedure with good clinical result and return to function. Conclusions: The background experience in orthopaedic oncology, has allowed to develop megaimplants to break the vicious cycle of osteomyelitis and restore an optimal performance of the affected segment.

Abstract no.: 45635

**OUR EXPERIENCE OF APPLICATION OF THE CORRECTING
OSTEOTOMY IN PATIENTS WITH KNEE JOINTS OSTEOARTHROSIS.**

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We treated 246 patients with knee joints osteoarthritis of 2-3 stages. We divided them into two groups according to the type of deformation of knees and x-ray data (pictures, inform., facts). Patients of first group (45 patients) with valgus knees were treated by supracondylar resection osteotomy of femur with fixation by 95° L-plate. Patients of second group (201 patients) with varus knees underwent supratuberosital correcting osteotomy of the tibia with usage of autografts from ilium and fixation with window-like plates worked in our clinic in 65 cases, T-shape plates in 92 cases, open – wage plates in 44 cases. For results evaluation we developed a pointed system which included patient's feelings, pain, lameness, movement rate, side instability of the knee joint, deformity of the knee in frontal plane. For results evaluation we developed a pointed system which included patient's feelings, pain, lameness, movement rate, side instability of the knee joint, deformity of the knee in frontal plane. We received good and excellent results in 75% of cases, poor results in 22,5% and fair results in 2,5%.

Abstract no.: 45636

**ENHANCING FUNCTIONAL RECOVERY BY THE USE OF A
RADIOFREQUENCY BIPOLAR SEALER IN TOTAL HIP AND KNEE
ARTHROPLASTIES**

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The goals of rapid recovery protocols are to improve quality and security of care with shorter hospital stay and less cost associated. It is all about organization and optimization of the taking care of the patient but the functional recovery itself is determined by the properly surgical act and the way is done. To obtain a safe surgical procedure, hemostasis is a requirement. Nowadays use of standard Electro Surgery is common, but at the detriment of local tissue damage due to the thermal injury, thermal energy side effects and charring. Using a Bipolar sealer associated with a saline flow provide a superior hemostasis by Transcollation effect. It consists of a denaturation of the collagen contained in the vessels wall and sealing them by shrinkage. Lower temperature operation (100°C versus 300°C for the standard ES) reduces tissue charring, less inflammatory response and decrease tissue necrosis, decrease blood loss with no toxic smoke production. Standard surgical blade and scissors are used to perform the approach. At the first time, a prospective study included 60 cases of minimal invasive total hip and knee arthroplasties. The results show less risk of blood transfusion, an unexpected accelerated functional recovery due to the tissue preservation for a global (mean age 71, range 53 to 90) population enrolled, the length of stay was by three days shortened, no complication was noticed, no readmission occurred. Nowadays, about 600 procedures where realized, the results are constant, this technique improve mini invasive surgery.

Abstract no.: 45641

INCIDENCE AND PATTERN OF ORTHOPAEDIC INJURIES AMONG PATIENTS ATTENDING THE EMERGENCY DEPARTMENT IN A TERTIARY CARE HOSPITAL: A PROSPECTIVE STUDY

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introduction: road traffic accidents are responsible for a substantial proportion of deaths & injuries and are responsible for more years of life lost than most human diseases. this study aims to establish the value of a trauma registry where trauma rates can be monitored and concrete data is provided in its time, place and person distribution. material and methods: this study has been conducted prospectively .the patients attending the emergency department in tertiary care hospital were included in this study. personal data and pattern of injuries sustained were extracted from the case records, casualty admission register and operation records..a thorough history was obtained. results: total of 2568 injured patients were seen in the emergency department. commonest injury was a fracture (88.90 percent, n=2283) and the most common site was lower limbs in 51.36 percent cases, amputation/crush injury in 4.67 percent, 37 percent cases (n=845) were of compound fractures. most commonly associated injury was the head injury in 5.53 percent cases. maximum cases were in the age group of 30-59 and 80-85 % of compound fracture got definitive treatment with in the first 24 hrs. conclusion: fractures were the most common pattern of injuries frequently associated with other injuries especially head injuries, particular age group and time period need special attention, and we need more such institutes near highways.

Abstract no.: 45645

AIR ARTHROGRAM FOR PAEDIATRIC HIP PROBLEMS: A RE LOOK

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Abstract: Arthrogram of the hip is a useful investigation that gives a dynamic picture of the status of the hip. At times this is more useful than a CT scan or an MRI. However conventional arthrography requires the use of an iodine based contrast medium which can have its complications of iodine hypersensitivity, anaphylactic reactions and difficulties in presence of renal failure, liver disease and patients on anti - epileptic drugs. Air arthrography has not been popular because of reports of fear of air embolism. We present our experience of using air arthrogram in 10 patients from 1 year to 5 years. The technique involved use of an anterolateral portal of entry and injection of 0.5 to 1.0 ml of air into the hip joint. We present our results of 10 cases of hip disorders from DDH, Post Septic sequelae and Arthrogyrosis.

Abstract no.: 45652

CORRECTION OF RECURRENT CLUBFOOT WITH CALCANEO-CUBOID-CUNEIFORM OSTEOTOMIES: A SHORT-TERM EXPERIENCE

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Management of recurrent clubfoot deformity after prior treatment remains challenging. This study presents our experience with surgical correction of recurrent congenital clubfoot with Calcaneo-Cuboid-Cuneiform (triple C) osteotomies. Five children (eight feet) treated between 2008 and 2013 were followed for at least 14 months after triple C osteotomy to correct midfoot and hindfoot deformities. Additional soft tissue procedures such as heel cord lengthening and tibialis anterior tendon transfer (TATT) were performed based on residual equinus and dynamic deformity. Their mean age at the time of operation was 7.6 years (6 years to 14 years), and the average follow-up period was 47.4 months (14 months – 92 months). All feet underwent TATT and one foot required strayer's procedure. The final outcome was scored as good (complete correction and no pain); fair (partial correction with plantigrade foot and occasional pain); or poor (nonplantigrade foot and continuous pain during walking). At final follow up, 7 feet (87.5%) had an excellent outcome (complete correction with no pain) and 1 foot (12.5%) had a good outcome (complete correction with occasional pain). One patient experienced hypoesthesia over the dorsum of the foot in a nonanatomic distribution. Otherwise, there is no other complication in this small cohort. Calcaneo-Cuboid-Cuneiform osteotomies can be successfully used to correct recurrent clubfoot deformity in children managed with previous nonsurgical or surgical treatments with good to excellent outcomes. Complications were minimal and for the most part, did not compromise overall patient satisfaction in this very difficult to treat clinical condition.

Abstract no.: 45655

A PREVIOUSLY UNREPORTED COMPLICATION OF PONSETI CASTING

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Purpose: The Ponseti method of casting has high rates of initial clubfoot correction and has been enthusiastically adopted throughout the world. This report describes three cases of idiopathic clubfeet which were converted to vertical or oblique talus positions during the course of standard Ponseti casting, and their subsequent follow up. **Methods:** Between 4/30/2011 and 7/30/2015, three healthy male infants (five feet) were treated for idiopathic clubfeet and developed an obvious rocker-bottom deformity at the conclusion of the treatment. Two of the patients were treated in our institution and radiographs confirmed an oblique/vertical talus appearance. The third patient, seen at 19 months of age, was treated at an outside institution and had an operative report of Achilles release and pinning at 8 months of age for correction of an iatrogenic vertical talus. **Results:** The first two patients were treated expectantly with no change in the bracing regimen. At 27 and 58 months follow-up, their feet had dynamic in-toeing with the appearance of mildly recurrent clubfeet. The child with the longest follow-up had radiographs with a Kite's angle of approximately 30 degrees, reduced from 75 degrees. The third patient, who had surgical treatment, also had plantigrade appearance with mild, correctible forefoot adductus. **Conclusions:** It is possible to produce overcorrection during the Ponseti method which is apparent radiographically as oblique or vertical talus. These may be managed expectantly without need for invasive surgery.

Abstract no.: 45657

FUNCTIONAL AND RADIOLOGICAL OUTCOMES IN ANTERIOR DECOMPRESSION AND POSTERIOR STABILIZATION IN THORACIC AND THORACOLUMBAR POTT'S SPINE THROUGH POSTERIOR TRANSPEDICULAR APPROACH -A RETROSPECTIVE STUDY

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Background: Tuberculous Spine has the potential to cause serious morbidity, including permanent neurologic deficits and severe deformities. Medical treatment or a combination of medical and surgical strategies can control the disease in most patients thereby decreasing the incidence of morbidity. Adequate decompression done through any approach is the key to successful operative outcome. It has always been a dilemma whether to achieve both decompression and stabilization through a combined anterior and posterior approach or a single posterior approach. Objective: To determine the effectiveness of Posterior Transpedicular Approach on Functional and Radiological outcomes for thoracic and Thoracolumbar Tuberculosis. Method: 60 patients were operated through only Posterior Transpedicular approach and were evaluated pre and post-operatively on VAS, ODI and X-rays for functional and radiological outcome respectively with a minimum Follow-up of 12 months. Results: The mean kyphotic correction achieved was 12.11 ± 14.8 with a mean decrease in VAS scores of 5.97 and mean decrease in ODI scores of 19.1. Conclusion: Posterior Transpedicular decompression is a safe, and an effective method resulting in significant improvement in clinical and functional status.

Abstract no.: 45660

ARTHROPLASTY SURGERY FOR PATIENTS ON IMMUNOSUPPRESSANT THERAPY

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Introduction: Arthroplasty surgery has become one of the most successful orthopaedic interventions. One of the most devastating complications of arthroplasty surgery is infection. Through experience, research, and improved surgical techniques, infection rates are now approximately 1% among the general population. Patients on immunosuppressive therapy are surviving longer, and with better quality of life. These patients have the same risk of developing arthritis as the general population, and also have increased risk of certain disease processes like avascular necrosis. As a consequence, the number of these patients attending orthopaedic outpatients seeking definitive management is increasing. The management of arthroplasty surgery in patients on immunosuppressant therapy is a particular conundrum for the orthopaedic surgeon. Aim: the aim of this study is to perform a literature review of available evidence for arthroplasty surgery in immunosuppressed patients, and compile the most up to date research into a guideline for our institution. Methods: A literature review using Pubmed and Medline was performed. Searched terms included arthroplasty, total hip replacement, total knee replacement, DMARDs, methotrexate, infliximab, mono-clonal antibody, anti-TNF, Transplant, organ. Conclusion: Based on our literature review of the most appropriate and up to date evidence we have created guidelines for the management of patients on various immunosuppression therapy. These include advice on when to operate-and importantly when it is unsafe to do so, what doses or regimens of the medication should be used, and how best to manage the patients in clinic with respect to information on risk factors of arthroplasty surgery in immunosuppressed patients.

Abstract no.: 45661

COMPARISON OF POSTERIOR LUMBAR INTERBODY FUSION AND POSTEROLATERAL LUMBAR FUSION IN MONOSEGMENTAL VACUUM PHENOMENON WITHIN AN INTERVERTEBRAL DISC

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Study Design: Retrospective. Purpose: To compare the clinical and radiological outcomes of posterolateral lumbar interbody fusion (PLIF) and posterolateral lumbar fusion (PLF) in monosegmental vacuum phenomenon within an intervertebral disc. Overview of Literature: The vacuum phenomenon within an intervertebral disc is a serious form of degenerative disease that destabilizes the intervertebral body. Outcomes of PLIF and PLF in monosegmental vacuum phenomenon are unclear. Methods: Monosegmental instrumented PLIF and PLF was performed on 84 degenerative lumbar disease patients with monosegmental vacuum phenomenon (PLIF, n=38; PLF, n=46). Minimum follow-up was 24 months. Clinical outcomes of leg and back pain were assessed using visual analogue scales for leg pain (LVAS) and back pain (BVAS), and the Oswestry disability index (ODI). The radiographic outcome was the estimated bony union rate. Results: LVAS, BVAS, and ODI improved in both groups. There was no significant difference in the degree of these improvements between PLIF and PLF patients ($p>0.05$). Radiological union rate was 91.1% in PLIF group and 89.4% in PLF group at postoperative 24 months ($p>0.05$). Conclusions: No significant differences in clinical results and union rates were found between PLIF and PLF patients. Selection of the operation technique will reflect the surgeon's preferences and patient condition.

Abstract no.: 45665

AGE AND GENDER-RELATED COLLAGEN ALTERATIONS IN THE TRANSVERSE CARPAL LIGAMENT OF CARPAL TUNNEL SYNDROME (CTS)

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INTRODUCTION: The purpose of this study was to investigate age and gender related alterations in collagen isoform expression in the transverse carpal ligament (TCL) of patients with idiopathic carpal tunnel syndrome (CTS). **METHODS:** The resected TCLs were collected from 10 patients undergoing carpal tunnel surgery. These were divided equally into two groups of five, with equal numbers of men (average age 49.6) and women (average age 57.4). Histological [Hematoxylin & eosin and Picrosirius red (PSR) staining] and Western Blot immunologic assessments were performed. **RESULTS:** Histological examination showed an increase (73%) in fibroblast cell densities in the specimens from the CTS patients. Men had significantly increased collagen I and less collagen III ($P < 0.05$) than women, observed from the PSR staining-polarization microscopic and immunoblot analysis data. An age-related decline was observed in expression of collagen I in both women and men, and the ratio of collagens III to I were significantly increased ($P < 0.05$) in women compared to men. Collagen type VI was a major component of the TCL in both women and men. Levels of collagens II, V and X were also elevated, but to lesser extents. **CONCLUSION:** Our data corroborates and enhances understanding of the TCL in idiopathic carpal tunnel syndrome. Collagens I and III are significantly elevated, especially in males, while other lesser collagen isoforms, II, V, VI, and X, are also up-regulated. Furthermore, there appears to be an overall decrease in the up-regulation of collagen levels as a function of advancing age.

Abstract no.: 45668

STEINMANN PIN VERSUS PLATE AND SCREW FIXATION OF MID-SHAFT CLAVICLE FRACTURES

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INTRODUCTION: Mid-shaft Clavicle fractures: Open reduction internal fixation (ORIF) with dynamic compression plates (DCP) has been studied and implemented with good results. Intramedullary (IM) fixation with Steinmann pins is less invasive. We present case matched cohorts treated using either DCP fixation or IM Steinmann pins, comparing union rates, complication rates, operative times, and hardware costs. **METHODS** This is a retrospective review of 28 patients (AO-OTA 15-B middle third clavicle fractures). Two cohorts of patients with acute, closed injuries were matched for gender, smoking, age, and body mass index (BMI). Patients were treated via ORIF with DCP or IM Steinmann pins. Records were reviewed to evaluate radiographic and clinical outcomes, complication rates, and operative times. **RESULTS** There were no statistically significant differences in age, gender, smoking status, or BMI between groups. All 14 patients in both groups went on to radiographic union. There was one complication in the DCP group and two in the Steinmann pin group. Neither the overall complication rate nor infection rate was statistically significant. Statistically significant findings: (1)The average surgical implant cost was \$111.73 for Steinmann pins and \$800.78 for DCP. (2)Average operative time was 54 minutes for Steinmann pin, 126 minutes for DCP. (3)Time required to close the surgical wound averaged 6 minutes for Steinmann pin, 17 minutes for DCP. **CONCLUSION** Patients with IM Steinmann fixation had shorter operative times and implant costs (\$2,229 per case), with Steinmann fixation being considerably cost efficient compared to DCP fixation.

Abstract no.: 45669

**TRANSTROCHANTERIC CURVED VARUS OSTEOTOMY FOR
OSTEONECROSIS OF THE FEMORAL HEAD AND DYSPLASTIC HIP
OSTEOARTHRITIS**

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We investigated the clinical and radiological outcome of a transtrochanteric curved varus osteotomy (TCVO) for osteonecrosis of the femoral head and dysplastic hip osteoarthritis. Between 2010 and 2015, TCVO were performed by one surgeon in 8 symptomatic hips. Of the patients, 4 were male with osteonecrosis and 4 were female with osteoarthritis, with a mean age at surgery of 46 years (33-55). The mean follow-up was 43.5 months (12-72) postoperatively. At 3 to 6 postoperative weeks, partial weight bearing was permitted with the assistance of 2 crutches. At more than 6 postoperative months, full weight bearing was permitted. Patients with osteonecrosis who had the potential to achieve acetabular coverage of more than one-third of the intact articular surface and patients with dysplastic hip osteoarthritis who had potential to improve acetabular coverage for the femoral head on preoperative hip radiography, computed tomography, and magnetic resonance imaging were considered suitable for this operation. A clinical evaluation using the Japanese Orthopaedic Association (JOA) scoring system and a radiologic evaluation were performed. The mean preoperative JOA score was 64 points. The score in the success cases (7 hips) improved to 91 points at the time of final follow-up. Advanced osteoarthritis was observed in 1 hip awaiting THA because of progression to secondary osteoarthritis 60 months postoperatively. This case may be incorrect judgement of the indication of the operation and the extent of the intact load-bearing area. TCVO is attractive joint preservative procedure for dysplastic hip as well as osteonecrosis of the femoral head.

Abstract no.: 45674

THE DIFFERENTIAL APPROACH IN SURGICAL TREATMENT OF ERB Palsy

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Purpose: to rate the effectiveness of various methods of surgical treatment of neonatal brachial palsy. Material and methods: 21 patients (av. - 11,2 years) is the basis of our report. In total, 28 operations were performed on 21 patients. Lengthening of the humerus using Ilizarov's apparatus with simultaneous elimination of the internal rotation contracture was performed on the first group (15 patients). The average length gain was 4 cm, average value of derotation - 45 degrees. For the second group (9 patients), treatment consisted of procedures on soft tissues such as L'Episcopo operation, Sever procedure, and Ober's biceps muscle transfer. Multistage surgery on soft tissues with the subsequent application of Ilizarov's apparatus was performed on the third group (3 patients). Results: Follow-up ranged 1 - 13 years. All patients in the first group achieved compensation of shortening. It was marked for a part of the patients the limitation of abduction. For all patients, external rotation increased from (- 25) degrees up to 34 degrees. In the second group of patients, the abduction in the glenohumeral joint with the scapula increased on the average from 75 to 110 degrees. The external rotation increased from (-15) degrees up to 30 degrees (passively) and 20 degrees - actively. For all patients of the third group, the first stage of surgical treatment on soft tissues had good results, but after lengthening the humerus by Ilizarov's apparatus, earlier improvements of the function of the glenohumeral joint were partially lost: most notably, abduction was marked.

Abstract no.: 45676

HIP JOINT OSTEOARTHRITIS: FACTORS OF OCCURRENCE AND PROGRESSION

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Hip joint osteoarthritis is more than 40% of all forms of osteoarthritis. Hip joint osteoarthritis is the main cause of pain, secondary synovitis and contractures, and temporary and permanent disability when it rose to 3-5. Therefore, the rationale for new approaches to the early diagnosis of patients with hip joint osteoarthritis remains today one of the most actual problems of modern orthopedics. The study is based on comprehensive studies of 506 patients with IV stage of hip joint osteoarthritis by J.H. Kellgren and J.S. Lawrence with different etiologies. Conducted clinical and medical history (body mass index and joint disease in close relatives), biochemical (determination of active metabolites of vitamin D), tools (iridobiomikroskopy of determining the degree of dysplasia of connective tissue), radiographic studies, the definition of related chronic diseases. The course was determined by hip joint osteoarthritis developed by us working classification. Complex examination of patients with coxarthrosis possible to identify risk factors for rapid progression of the disease. These include the presence of hidden (undifferentiated) connective tissue dysplasia 2-3 degrees, conditions that lead to overloading of the hip joint (obesity, elevated static loading) and reduction of active metabolites of vitamin D; direct joint injury. The research will improve the efficiency of diagnosis and quality of care measures in patients with osteoarthritis of the hip joint.

Abstract no.: 45677

MICROBIOLOGICAL AND SEROLOGICAL STUDIES OF DIFFERENT FORMS OF PROGRESSION OF IDIOPATHIC HIP OSTEOARTHRITIS

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Conducted microbiological study of 83 patients with different course of idiopathic and displastic (control group) patients. Microscopic study of the native operating material identified the tendency to reduction in the frequency of positive findings of microorganisms in the operational material with a slowdown of the clinical course of osteoarthritis. Flora is represented mainly by low pathogenic cocs and corinobacteria. More often were contaminated samples of bone tissue. The results of serological studies coincide in frequency and severity with microbiological, on the concentration of C-RB and the absence of certain regularities of the indicators of antibodies against S.aureus and S.pyogenes. Microbial biofilm microscopically was revealed at 21,3 % of patients with idiopathic can, often in (26,1 %) - at a rapid course of illness, formed mainly gram positive cook, less often - Corina form sticks. The obtained results testify about the frequent presence of microbial factor in the tissues of the joints in idiopathic coxarthrosis. In patients with idiopathic can, more often - at a rapid course, some kinds of microorganisms, which are not aggressive purulent of pathogens may, at hematogenic endoinfection play a trigger role in infection and speed of development of the pathological process in the joint.

Abstract no.: 45678

FUNCTIONAL EVALUATION OF PATIENTS WITH MULTIPLE JOINT REPLACEMENTS: A PROSPECTIVE STUDY OF 50 PATIENTS WITH A MINIMUM OF 12 MONTHS OF FOLLOW UP.

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Multiple Joint Replacement procedures are necessary for Polyarthritic diseases which cause deformities at multiple joints. We conducted a single-centre single-surgeon study to objectively evaluate functional improvement in patients undergoing Multiple Joint Replacements in the lower limb. We included all such patients with a minimum of 1 year follow up. Patients suffered from bilateral Osteoarthritis of knees (n=26), Rheumatoid arthritis (n=10), Ankylosing spondylitis (n=5), bilateral Avascular necrosis of hips (n=9). We used pre-operative and post-operative (1 year after last procedure) Short Form (SF)-36 scores for quantifying functional improvement. The mean physical component of the score improved from 30.98 (SD 3.52) to 55.10 (SD 5.41) and the mean mental component score improved from 32.96 (SD 4.07) to 57.70 (SD 5.05), both of which were significant (p-value <0.01). The improvement was also significant across all age-groups, both sexes and all pathologies. We also identified some common pre-operative and operative problems (with special reference to order and positioning) and methods to resolve them. We conclude that though challenging, multiple joint replacements in polyarthritic subjects with multiple lower limb deformities is rewarding in terms of patient outcomes and satisfaction, if carefully planned with an eye out for potential problems.

Abstract no.: 45679

ANATOMICAL MANAGEMENT OF ACUTE INJURIES OF THE KNEE AND THE HIP OF THE SAME EXTREMITY - CASE REPORT

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Introduction: Combined hip and knee injuries on the same extremity are very rare. Operative treatment of these injuries can be acute (up to 6 weeks of injury) and chronic (more than 6 weeks). Case: A patient 54-year-old; high velocity trauma; traffic accident. The rtg recordings of the knee were without fracture (clinical examination ligamentar injury - complete instability of the knee joint) and the rtg recordings of the hip showed fracture of the acetabulum and fracture of the head and neck of the femur with dislocation. First we did TEP of the hip (lateral approach) and then we took care of the knee (first we performed meniscus repair, then we reconstructed the LCA, and then reconstruction of MCL with the ancor. Postoperative the patient wore the knee brace. The first week we allowed flexion to 50 degrees. After 4 weeks we allowed flexion over 90 degrees but the patient achieved the flexion of 80 degrees. The extension was full. After 6 weeks we allowed full weight bearing with wearing of knee brace. Results: The stability of the knee joint after 4 weeks: the posterior drawer test negative, the anterior drawer test negative, valgus test slightly positive (2 mm), varus test negative. 15 weeks after injury the patient walked without crutches with the neat movement and the stability of the hip and the knee. Conclusion: With early operative treatment of the combined extensive injuries to hip and knee joint we get a satisfactory movement and the stability of the hip and knee.

Abstract no.: 45680

THE CLINICAL RELEVANCE OF FUNCTIONAL PELVIC TILT: A PREOPERATIVE ANALYSIS OF 1,517 PATIENTS

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Introduction. The pelvis rotates in the sagittal plane depending upon the activity being performed. These dynamic changes in pelvic tilt have a substantial effect on the functional orientation of the acetabulum. Methods; Pre-operatively, 1,517 total hip replacement patients had their pelvic tilt measured in 3 functional positions and supine. Results; The mean supine pelvic tilt was 4.3°, with a range of -20.5° to 24.5°. The mean standing pelvic tilt was -1.3°, with a range of -30.2° to 27.9°. Mean pelvic tilt in the flexed seated position was 0.6°, with a range of -42.0° to 41.3°. The mean absolute change from supine to stand, and supine to flexed seated was 6.0° and 10.7° respectively. Conclusions; The position of the pelvis in the sagittal plane is patient specific and changes significantly between functional activities. Planning and measurement of cup placement in the supine position can lead to large discrepancies in orientation during more functionally relevant postures. 15% of patients had sagittal pelvic rotations that could lead to functional cup malorientation in functional flexion or extension, even with an apparently perfectly-orientated component. Optimal cup orientation is likely patient-specific and requires an evaluation of functional pelvic dynamics to pre-operatively determine the target angles.

Abstract no.: 45681

SIZING ACCURACY OF THE OPS™ 3D PLANNING SOFTWARE FOR TOTAL HIP REPLACEMENT

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Introduction; Sizing is critical with cementless implants and the results are significantly affected by incorrect sizing. Femoral stems which are too small can lead to a short leg, stem subsidence, decreased offset and instability. Stems that are oversized can lead to decreased range of movement, excessive leg length and fractures. Methods; A consecutive series of 49 patients were sent for pre-operative planning using a dynamic, patient-specific modelling system. Review of the operative notes provided the actual sizes of implants used, which was retrospectively compared to the planned sizes in the pre-operative Trinity OPS reports. Results; Of the 49 TriFit stems, 92% were within one size of that predicted. The use of lateralised or standard offset stems was predicted in 80% of cases, the variability largely related to the depth of implantation of the acetabular component. Of the acetabular components, 90% were within one size of that planned. Conclusions; The results are similar to those of other comparable 3D templating systems. There is significant value in prediction of sizes of implants pre surgery, both as an indicator to the surgeon as to the size expected, and also for restricting the inventory supplied to the hospitals to reduce costs.

Abstract no.: 45683

CLINICAL ACCURACY OF A PATIENT-SPECIFIC GUIDE FOR DELIVERING

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Introduction; Achieving a desired pre-operative femoral offset, leg length and restoration of range of motion (ROM) are critical in THR. Femoral neck osteotomy level is a critical step in positioning the femoral stem to recreate the correct leg length and offset. Methods; Trinity OPS pre-operative planning system (Optimized Ortho, Australia) was used for consecutive series of 33 patients (two surgeons, single institution). Patient-specific plans for implant sizing and positioning were determined from pre-operative CT scans and confirmed by each surgeon. Patient-specific guides were designed and printed to achieve planned level of femoral neck osteotomy. All patients received Trinity cementless acetabular component and cementless TriFit TS femoral component (both Corin, UK) through posterior approach. Post-operative achieved level of osteotomy was confirmed postoperatively via 3D/2D registration, Mimics X-ray Module (Materialise, Belgium), of planned 3D resected femur to postoperative AP radiograph. Difference between planned and achieved level of osteotomy was measured (imatric Medical, South Africa). Results; Mean absolute difference between planned and achieved osteotomy level was 0.7mm (range 0.1mm – 6.6mm). Only 1 patient had difference of more than 3mm. Of the 33 patients, 28 had difference of less than 1mm. Conclusions; Results suggest that a 3D printed patient-specific guide can be a simple, accurate way of intraoperatively reproducing planned femoral neck osteotomy. Whether the 3D planning, patient-specific guide and accurate femoral osteotomy can be used to achieve precise leg length and offset recreation is the subject of an on-going evaluation.

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AP X-RAYS ARE AS ACCURATE AS CT FOR ASSESSING ACETABULAR COMPONENT ORIENTATION USING 3D/2D MATCHING

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Introduction; Post-operative x-rays are commonly used to determine acetabular cup orientation for THA. They can be unreliable and CT scans are much more accurate. With the use of pre-operative CT scans for surgical planning, it is possible to eliminate the need for a post-operative CT yet retain the accuracy of CT based measurements of the acetabular cup using 2D/3D registration. Methods; 48 total hip replacement patients underwent pre-operative and post-operative CT scans. After each surgery, an AP radiograph of the pelvis and 2D/3D registration to determine the achieved cup orientation were completed. Projections of the model of the pelvis and acetabular cup within a 3D space was matched to the AP radiograph. Cup orientation through CT based measurements were used as a baseline and compared to values generated by 2D/3D registration to determine the method's accuracy. Effect of pelvis centered and implant centered radiographs on accuracy were investigated (24 patients in each group). Results; Using CT as a baseline, the cup orientations determined by 2D/3D registration were compared, with the difference being considered an error value. The mean deviation for inclination measurement was 1.06° (SD 0.84) and the mean deviation for anteversion was 1.81° (SD 1.09). There was no significant difference found between the groups. Conclusions; 2D/3D registration is a reliable and accurate method for determining acetabular cup orientation post-operatively without the need for CT. Although this study is limited to single planar x-ray registrations, utilizing bi-planar radiographs could yield lower error levels than single plane 2D/3D registration.

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PATIENT EARLY FUNCTIONAL RECOVERY AFTER TOTAL ARTHROPLASTY WITH A KINEMATIC-RETAINING KNEE PROSTHESIS

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The aim of this multicentre prospective study is to evaluate the patient early functional recovery after total arthroplasty using a knee prosthesis with asymmetric articulating surfaces, specifically designed to reproduce the knee physiological roll-back. 128 patients (132 knees) were assessed preoperatively (T0), and postoperatively at 6 weeks (T1) and 6 months (T2) using KSS, KOOS, OKS, VAS-satisfaction and X-rays. 70 were men and 58 women, all affected by osteoarthritis, with a mean age of 68 years. Using Clinical and Functional KSS, patients reported either excellent (≥ 80) or good (70-79) outcomes in 57% and 68% at T1, increasing to 80% and 85% at T2. Patients also described substantial pain relief: 56% and 73% with no or occasional pain at T1 and T2, while 38% and 25% moderate/mild distress. A walking capability of <10 blocks was reported preoperatively in 74%, while 26% was able to walk >10 blocks. The ability to walk a great distance increased to 59% at T1 and 90% at T2. All KOOS sub-scores improved significantly: at T1 and T2, the average scores gained 72% and 91% in ADL (T0:46,T1:79,T2:88), 129% and 278% in Sport/Rec (T0:18,T1:42,T2:69), 153% and 219% in QOL (T0:22,T1 57,T2:69). OKS results confirmed these promising patient-reported outcomes. High levels of patient satisfaction were recorded with VAS-satisfaction at T1 (76.7) and T2 (83). No cases of revision, RLs, loosening or implant migration were reported. The kinematics of this novel knee prosthesis ensured a prompt functional recovery and substantial pain relief: early outcomes are extremely promising.