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ABSTRACT BOOK

JAM (Just-a-Minute) Papers

Date: 2018-10-11
Session: JAM Session I
Time: 10:00 - 10:30
Room: SICOT Lounge

Abstract no.: 52617

SHORT-TERM CLINICAL RESULTS OF THE CONVERSION TO TOTAL HIP ARTHROPLASTY FOR POST-TRAUMATIC ARTHRITIS AFTER ACETABULAR FRACTURE INTERNAL FIXATION

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Introduction: Fractures of the acetabulum are challenging and very difficult to treat and even after fixation, can lead to post-traumatic arthritis. Total Hip Arthroplasty (THA) has been the most common surgery performed for the complications of post-traumatic arthritis in this group of patients. In this article, it is aimed to evaluate the functional results and complications of the conversion to THA for post-traumatic arthritis after acetabular fracture. Materials and methods: 85 patients with post-traumatic arthritis after acetabular fractures were treated by THA in Milad and Erfan hospitals, Tehran, Iran during 5-year. Short-term outcomes of subjects were evaluated. 73/85 were male and the mean age of participants was 49 years (18-69 years). Prospective functional outcome and complications of THA was recorded in follow up of patients for a period of 5.21 ± 0.38 years. Results: There was no dislocation, DVT or PTE and only 4 cases with preoperative sciatic nerve injury detected. Two cases (2.35%) underwent re-operation. Our analysis of results showed that Modified Hip Harris Score (MHHS) improved from 43.64 ± 4.42 preoperatively to 93.26 ± 3.28 postoperatively ($P < 0.0001$). Five-years survival was 95% with all variables considered. Conclusion: The conversion to THA after post-traumatic arthritis in acetabular fracture can lead to reliable pain relief and functional improvement.

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ARTHROSCOPIC TREATMENT FOR THE ISOLATED SUBSCAPULARIS TENDON TEAR ASSOCIATED WITH THE LONG HEAD OF BICEPS TENDON SUBLUXATION

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Introduction: In patient with long head of biceps tendon (LHB) subluxation associated with isolated subscapularis tendon tear, tenotomy or tenodesis has been known as a popular procedure. However, tenotomy or tenodesis can give damage to the primary anatomical role of LHB and should be performed for specific condition with meticulous considerations. **Material and Method:** Twenty eight patients with Bennett type 1 or 3 LHB subluxation with subscapularis tendon tear were enrolled in this retrospective study. Clinical results were evaluated using American Shoulder and Elbow Surgeons rating scale (ASES) questionnaire, Constant score, visual analog scale (VAS) and bicipital groove tenderness. The average follow-up period was 29.4 months. Structural results were evaluated in terms of LHB position value and subscapularis repair integrity by Sugaya classification. **Results:** The ASES score improved from the pre-operative average of 41 ± 15 to 82 ± 10 after surgery. The Constant score improved from the pre-operative average of 39 ± 12 to 80 ± 11 after surgery. The VAS for pain score decreased from the pre-operative average of 6 ± 2 to 1 ± 1 after surgery. The LHB mediolateral value improved from the pre-operative average of 2.8 ± 1.2 to 0.4 ± 0.8 mm after surgery, which implied the relative relocation of LHB. Based on Sugaya classification, grades I, II, and III tendons were observed in 11, 15, and 1 patients, respectively. **Conclusion:** Arthroscopic subscapularis tendon repair with preservation of LBH is useful anatomical preserving method for the treatment of the isolated subscapularis tendon tear associated with Bennett type 1 or 3 LHB subluxation.

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**MIS LOCKED PLATING OF PERI-TKA FEMORAL FRACTURES:
ANALYSIS OF RESULTS VIS-À-VIS ORIF**

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Introduction: Comminution, bone loss and osteoporosis make surgical treatment of supracondylar periprosthetic femoral fractures difficult. Treatment using open reduction internal fixation (ORIF) usually necessitates primary (or secondary) bone grafting. Biological plating using minimally invasive (MI) technique is now possible due to the advent of angular-stable implants, with minimal morbidity. Good patient selection and technique are paramount. Based on the results of our series, we have defined an algorithm to successfully treat each case. Methods: 76 patients with comminuted periprosthetic distal femoral fractures were operated over 10-years (Oct 2006 – Sep 2016). All were fixed with a distal femoral locking compression plate (DF-LCP). 52 underwent ORIF with primary bone grafting, while 25 were treated by closed reduction and internal fixation using MI 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 MI group (average, 4.6 months). Three patients of ORIF and one in MI group had poor results. Average knee scores were higher for MI 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.

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PATHOLOGICAL FRACTURES THROUGH SIMPLE CYSTS OF THE PROXIMAL FEMUR IN CHILDREN: TREATMENT WITH AN ANGLE-STABLE INTERNAL FIXATION DEVICE

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Pathological fractures through simple bone cysts of the femoral neck in children are rare. While literature on the topic deals primarily with minimising recurrence, our priorities are avoiding the complications of avascular necrosis and coxa vara while allowing return to unrestricted function . We present our case series of 9 patients who were treated for unicameral bone cysts of the femoral neck using the paediatric proximal femoral locking plate (Synthes Inc.) since 2008. Three children presented with re-fractures following conservative treatment six patients had no previous treatment. Bone graft substitutes were used in three cases and are no longer used. The minimum follow up was 13 months. The average time to full weight bearing was 6.5 (3-10) weeks. The time to fracture healing was 11.5 (5-16) weeks. The cyst persisted in five patients. Four patients have a limb length discrepancy following fixation. There has been one case of deep infection occurring years after surgery. One patient with residual varus of the femoral neck and a persisting cyst underwent revision osteotomy and fixation. There have been no re-fractures following fixation. Reports of treatment of simple bone cysts affecting the femoral neck have largely focused on attempts to resolve the cyst, though series with long follow up suggest that cysts tend to persist or recur no matter how they are treated. Angle-stable fixation maintains proper alignment while supporting the thinned bone of the femoral neck and allows the child to resume their activities which is important for psychosocial development.

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THE INDUCED MEMBRANE TECHNIQUE FOR THE TREATMENT OF SEGMENTAL BONE DEFECTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Management of segmental bone defects remains a major challenge in orthopaedic surgery. For this purpose, the induced membrane technique (IMT), also known as the Masquelet technique, is a two-stage intervention gaining in popularity. This study aimed to review the efficacy of the IMT and to investigate the relationship of patient characteristics or technique variations with treatment outcomes. Methods: A database search was performed in CINAHL, the Cochrane Library, Embase, Ovid MEDLINE, and PubMed. We included studies published in English, presenting at least five cases treated with the IMT, and focusing on adult patients with post-traumatic long bone segmental defects. Results: A total of 20 studies and 456 cases were included. On average, patients were 39.2 years old and had a defect size of 6.0 cm. Union was achieved after index procedure in 373 cases (81.8%). Our univariate analysis showed that nonunion was associated with pre-operative infection. Inversely, lower odds of nonunion were observed with female sex or with the use of antibiotic-impregnated spacers. The risk of infection was increased in patients treated with an intramedullary nail or suffering from tibial fractures. Moreover, the risk of additional procedures was associated with pre-operative infection or increasing defect size. This risk decreased when reamer-irrigator-aspirator bone graft, bone morphogenetic protein-2, or antibiotics were used. Conclusions: The IMT is an effective therapeutic strategy for complicated segmental bone defects. Nevertheless, larger controlled studies are required to further characterize the factors influencing treatment outcomes and determine the optimal implementation of this technique.

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PITFALLS IN PLANNING AND EXECUTION OF HIP ARTHROPLASTY IN PATIENTS WITH OLD ACETABULUM FRACTURES: LESSONS LEARNT FROM THE FIRST 50 CASES, AND ALGORITHMIC APPROACH

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Introduction: Old acetabulum fractures (both previously surgically treated and untreated) presenting with secondary hip arthritis pose technical challenges during hip arthroplasty surgery. We present a retrospective series of our first 50 such patients who underwent hip arthroplasty, our learning curve, and the algorithm we now follow (to prevent errors due to inadequate planning, incomplete implant inventory, surgical judgement and non-recognition of intra-operative complications or intra-operative images). Methods: Hospital records (CPRS and PACS) of all hip arthroplasty surgeries were retrospectively reviewed (Dec'05 to Nov'14). Of these, all those with old treated and untreated acetabular fractures were isolated and studied. We analysed our first 50 operated surgeries through inspection of pre-, intra- and post-operative records (including pre-, immediate post- and 3 month post-operative radiographs). Errors in surgical execution, and cause of failures were listed, and analysed. Based on the results, checklists were made and an algorithm for surgical management of hip arthritis secondary to old acetabular fractures was prepared. Results: Inadequate pre-operative investigations (CT, MRI scans), incomplete implant inventory (trauma sets, broken fragment and screw removal instrumentaton, anti-protrusio cages, cup-cage constructs), inadequate surgical execution (persisting medial osteophyte, improper implant position, etc) and unrecognised intra-operative complications (medial/lateral migration, medial wall fractures) were all seen during our first few cases. Based on these lessons and complications, an algorithm was developed based on pre-operative assessment. Discussion: Errors in planning and execution can be prevented by learning from one's own mistakes or by following a well-developed algorithmic approach to management.

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IMMEDIATE WEIGHT-BEARING AS TOLERATED WITH THE FULLY-COATED CEMENTLESS FEMORAL STEM IN ELDERLY SEVERELY MORBID PATIENTS WITH FEMORAL NECK FRACTURES: RESULTS AND CONCERNS

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Introduction: Fracture neck femur in the very elderly patient with medical comorbidity is managed with bipolar hemiarthroplasty. We present the results (& concerns) of the use of fully coated cementless femoral stems in this elderly patient population. Methods: Hospital records of surgically treated elderly patients (age>70 yrs, ASA grade III or IV) with fracture neck femur were retrospectively reviewed (Dec'08 to Nov'16). After excluding those lost to follow up, 288 patient records treated with cementless hip replacements were analyzed for a minimum follow up of 6 months. Peri-operative complication risk (minor, major non-fatal and fatal), post-discharge complication, stem loosening, osteolysis, subsidence and re-surgery were specifically recorded. Data was compared to matched data from cemented hip replacement patients within the operated pool. Results: Of the 288 patients in each group, 219 underwent cementless bipolar stems, 69 cementless total hips, 260 had cemented bipolar stems and 28 had cemented total hips. 17 patients (cemented group) had peri-operative cardiac events necessitating prolonged ICU and hospital stay. 19 intra-operative fractures (18 calcar splits managed with wiring, 1 distal extension needing conversion to a distal fixing stem) were seen, and 44 instances of stem subsidence (43 of <1cm, 1 of >1cm, none needing any intervention). 4 revisions for recurrent dislocations were carried out in each group. Discussion: Use of cemented stems is associated with perioperative cardiac events. Cementless femoral stems (currently available fully coated and distal fix designs) fit and fill the most wide (Dorr D) osteoporotic canals, and obviate this risk.

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A SURGICAL AUDIT OF UNFORCED TECHNICAL ERRORS OF CLOSED ELASTIC INTRAMEDULLARY NAILING FOR FOREARM DIAPHYSEAL FRACTURES IN CHILDREN: RECOMMENDATIONS TO DE-STEEPEN THE LEARNING CURVE

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The Author performed a retrospective Audit of unforced technical errors of closed ESIN for pediatric forearm fractures done at a single institute between 2012 – 2015. The patients were broadly divided into Group A were the closed ESIN cases for displaced forearm fractures done by a pediatric Orthopaedic surgeon & Group B were the closed ESIN cases done by orthopaedic trainees. There were 12 males and 8 females in group A and 10 males and 7 females in group B. The Average age of the patients in group A was 11.4 years and that in group B was 11.6 years. Average surgical time was 52 minutes in group A and 84.5 minutes in group B. The Average Size of incision was 2.3 cms and 2.2 cms for the radius and the ulna entry respectively in Grp A and 3.8 cms and 3.6 cms for radius and the ulna entry respectively in Grp B The Flynn and Price Criteria were used to analyze the radiological and functional outcomes of patients. 12 patients in Grp A and 9 in Grp B had excellent results as per the Flynn criteria, 4 patients in Grp A and 3 in Grp B had good results 3 had fair results in Both Groups. Elastic titanium nailing though simple to execute, has a short Learning Curve. Insertion sites need to be defined clearly by intraoperative imaging. Restoration of radial bow is pertinent for gaining pronosupination movement in the post-operative period.

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POST-POSTERIOR LUMBAR INTERBODY FUSION (PLIF), 19.4-YEAR FOLLOW-UP AND CAUSES OF BIOMECHANICAL ADJACENT SEGMENT DISEASE

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PLIF (the “gold standard” procedure for spondylolisthesis since 1940) patient long-term follow-up & evaluation to determine the extent of ASD. The PLIF procedure places pedicle screws into three spinal columns thus providing a 360° spinal fusion & anterior support, creating a rigid and immobile bone column. ASD encompasses all spinal fusion complications that impair surgical long-term outcomes. Methods: Between 1992 & 2002, 212 patients (121 ♀, 91 ♂) post-PLIF surgery for L5-S1 degeneration and isthmic spondylolisthesis, 146 patient follow-up over 19.4 yrs. Examinations: Oswestry Disability Index (ODI), physical assessment & radiological evaluation assessing degenerative changes, and measurements of intervertebral disc heights & intersegmental lordosis. Results: ODI pre & post-op scores markedly improved from 358 to 224 points. ASD caused the Average Outcome Index (AOI) to increase from 238 (post-op 5 yrs) to 286 (post-op 10 yrs). XR & CT analysis indicated progressive facet joint OA, intervertebral space narrowing (post-op 95%, post-op 5 yrs 76%, post-op 10 yrs 47%, post-op 19.4 yrs 36%) and increased intersegmental lordosis (post-op: 12.6°, post-op 5yrs: 14.2°, post-op 10 yrs: 16.8°, post-op 19.4 yrs: 17.1°). Conclusions: PLIF procedure reduced both pain & daily function scores, which increased after 5, 10 & 19.4 yrs. Rigid interbody spinal fusion increases mechanical stress on adjacent segments and decreases sagittal balance (increasing both intervertebral space narrowing & intersegmental lordosis) eventually causing ASD and “Decreased Quality of Life”.

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EFFECT OF DELTOID MUSCLE VOLUME CHANGES AFTER ARTHROSCOPIC ROTATOR CUFF REPAIR ON FUNCTIONAL OUTCOMES

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Purpose: The aim of this study was to determine the effect of deltoid muscle volume (DMV) changes on the clinical outcomes of patients who underwent arthroscopic repair due to chronic rotator cuff rupture. **Methods:** A total of 54 patients (35 females, 19 males) between 40 and 70 years old who underwent single-row arthroscopic repair due to chronic rotator cuff tears were compared via preoperative (preop) and postoperative (postop) (6-12 months) magnetic resonance imaging (MRI) for total deltoid muscle volume (tDMV). A clinical evaluation was made with ASES (American Shoulder and Elbow Surgeons) and Constant scores in both the preop and postop groups. tDMV was also measured in a randomly selected control group (50 patients). A standardized rehabilitation program was recommended to all patients. **Results:** Positive correlations were found between the differences in total deltoid muscle volume (Δ tDMV) and ASES and Constant scores ($p < 0.03$ and $p < 0.032$, respectively). The preop tDMV was significantly lower in the patient group than in the control group ($p < 0.02$). Significantly lower Δ tDMV and body mass index (BMI)-adjusted tDMV values [Δ (tDMV/BMI)] were observed in patients that had rerupture at the postop MRI. **Conclusions:** According to our study, changes in DMV have an impact on clinical outcomes after rotator cuff repair. Rehabilitation of the DMV or an increase in the preop values positively affects the postop clinical outcomes. In addition, if the DMV is below the cut-off value during the preop period, there is insufficient improvement in the clinical scores.

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CLINICAL AND FUNCTIONAL EVALUATION OF PATELLO-FEMORAL RESURFACING ARTHROPLASTIES

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Introduction: The patellofemoral biomechanical system is susceptible to frictions that produce an accelerated wear of the joint (OAPF)¹. The OAPF has an incidence of 25% with female predominance³. However, the isolate is only observed in 10% of symptomatic patients⁴. In patients over 55 years of age, symptomatic OAPF has an incidence of 2% in men and 8 to 10% in women and is associated with patellofemoral malalignment in up to 40% of patients. Material and method: 24 patients were taken into account, 18 with OAPF during a period from 2010 to 2012, who received a Patelo Femoral Resurfacing Prosthesis, HemiCap Patelo Femoral Resurf prosthesis (Franklin MA, USA). Patients were evaluated prior to surgery and later with the Knee Society Score (KSS). Results: The follow-up was performed through measurements and application of KSS rating scales, AP radiographic studies of knees with support, laterals at 30 degrees of flexion and tangential. The analysis of the radiographs was performed by a subject who did not participate in the interventions and the radiographic scale used was the scale of the KSS RX. Post-surgical follow-up was a minimum of 18 months up to 24 months. KSS scale evaluations were performed on all patients before and after surgery. Conclusion: Our results show that PPF is a reasonable option for the treatment of isolated patellofemoral arthritis in the short term, has a high survival rate, pain relief, with high functionality scores.

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PRESSURES AT THE BONE-CEMENT INTERFACE – A CADAVERIC STUDY OF KNEE ARTHROPLASTY CEMENTATION

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Knee arthroplasty is an increasingly popular operation with more than 88,000 primary total knee replacements recorded in the UK National Joint Registry during 2016. Cement is the most widely used fixation method (84.9%) but multiple different techniques are currently being used in clinical practice, with little specialist consensus or evidence-basis as to the most appropriate technique. With attempts to enhance recovery, tourniquet-less surgery is becoming more popular. This technique, however, raises concerns of potential 'lamination' at the bone-cement interface (BCI) with arteriolar bleeding preventing cement inter-digitation. This study aims to assess the pressure-time profile at the BCI. Preliminary simulation was performed on plastic "sawbones" to standardise cementation technique and validate pressure evaluation instrumentation. After this, cadaveric testing was performed on 6 fresh-frozen cadavers (12 knees) with flat pressure-transducers at pre-determined points on the femur and tibia. After cementation, implantation and impaction (to seat the prostheses), pressurisation was performed by extending the knee either to 0° (6 knees) or 30° flexion (6 knees). Insertion and impaction of both femoral and tibial components produced only momentary pressure spikes. After insertion of the tibial polyethylene spacer and extension, however, pressures rose rapidly. The highest pressures were seen anteriorly with tibial pressures exceeding femoral pressures (150kPa versus 90kPa). Mean pressures were greater in full extension than at 30° flexion. As the knee remained static and the cement set (6 to 10 minutes) pressures gradually decreased. Pressures at the BCI were consistently above accepted arteriolar bleeding pressures (35mmHg, ~5kPa). It can be concluded that the risk of CBI bleeding preventing inter-digitation is not substantiated in tourniquet-less knee arthroplasty as long as maintained pressurisation is utilised. Full extension creates higher mean pressures at the BCI than 30° flexion.

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FIXING PCL TIBIAL BONY AVULSION: A NOVEL ONE STITCH METHOD

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Introduction: The purpose of this study is to highlight surgical technique of arthroscopic assisted percutaneous cannulated screw fixation for acute bony tibial posterior cruciate ligament (PCL) avulsion, clinical and radiographic outcomes, and complications. Open repair is described in literature. **Method:** A total of 20 patients were treated with arthroscopic assisted percutaneous cannulated screw fixation for image-proven displaced PCL attachment of the tibial avulsion with symptomatic posterior knee instability of grade II or higher. **Result:** This was a retrospective and prospective study of patients with fresh (<3 weeks) PCL avulsion of the tibia caused by road traffic accidents (n = 15), sports-related injuries (n = 3), falls (n = 2). The patients 18 M and 2 F had a mean age of 32.5 ± 8.4 years. Bony union was achieved in all patients within 12 weeks after surgery. Six months after surgery postoperatively, the range of movement improved to 124.8 ± 2.5 degrees. The mean Lysholm score improved to a mean of 87.2 ± 2.6 postoperatively. No complication noted. **Conclusion:** Treatment of tibial PCL avulsion by arthroscopic assisted percutaneous cannulated screw fixation is a successful technique to restore tibial avulsion injuries of the PCL with well-documented radiographic healing, good clinical outcomes, and low complication rates.

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DEVELOPMENT OF DIGITAL TEMPLATING FOR PREOPERATIVE PLANNING IN TOTAL ANKLE REPLACEMENT SURGERY

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Background: The aim of this study is to develop digital templating total ankle implant size in digital form. The software system has been designed and developed to assist surgeon for easier and faster templating as part of preoperative planning. The template image library was created based on Hintegra total ankle replacement implant. Multiple template sizes can be reviewed against the radiograph to obtain the predicted size of the total ankle implant. This software has auto-scaling properties which matches the magnification of the radiograph and template. This software is evaluated by testing the accuracy and interobserver reliability of pre-operative digital templating of tibia and talar component size for total ankle replacement. Methods: The digital radiographs of twelve patients underwent primary total ankle arthroplasty from year 2014 until 2016 were retrospectively reviewed. All patients were using nonconstrained anatomic shaped 3-component system prosthesis (Hintegra). The digital templating was done by two foot and ankle surgeons from different centre using digital templating software. The accuracy was assessed by comparing the predicted implant size with the actual components selected at the time of surgery and is measured in percentage (%). The interobserver reliability was assessed using the linear weighted kappa(κ) analysis. Results: The size of tibial and talar component was accurate in 83.3% and 91.7% respectively. The interobserver reliability for tibial and talar component size was substantial, weighted kappa (κ)= 0.802 (95% CI, 0.623 to 0.982), $p < 0.001$. Conclusion: This software is a promising tool for preoperative planning in total ankle replacement surgery.

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DOES SUBACROMIAL EROSION INFLUENCE ON THE UNDERLYING ROTATOR CUFF AFTER HOOK PLATE FIXATION FOR AC DISLOCATION?

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Acromioclavicular (AC) joint dislocation is a common sports or traumatic injury. Subacromial erosion is a well known complication that may occur after hook plate fixation, but its shapes and effect on underlying rotator cuff are not well known. Therefore, the purpose of this study was to evaluate the shapes of subacromial erosions and their effect on underlying rotator cuff. In addition, we evaluated the clinical and radiological outcomes in twenty patients with AC dislocations treated with hook plate fixation, who could follow-up at least 2 years. The clinical outcomes were evaluated using the Constant-Murley score, Visual Analog Scale (VAS) for pain, and Korean Shoulder score (KSS) at final follow-up. In radiological assessments, coracoclavicular distance (CCD) was measured to evaluate the maintenance of reduction and the 3D-CT was checked to investigate the shape of subacromial erosion after hook plate removal. In addition, all patients performed ultrasonography to evaluate whether hook plate caused rotator cuff lesions. The mean Constant-Murley score, VAS, and KSS were 94.56 ± 10.3 , 1.5 ± 0.8 , 94.6 ± 11.1 , respectively. The mean CCD was not statistically different from contralateral unaffected shoulder ($8.99 \text{ mm} \pm 1.49 \text{ mm}$ vs. $8.00 \text{ mm} \pm 1.37 \text{ mm}$, $p=0.152$) and loss of reduction was not observed. In 3D-CT, Subacromial erosions were observed in 14 patients (70%) and did not show any inferior protrusion of acromion undersurface. Also, there were no rotator cuff lesions such as irritation or partial tear in US. Hook plate fixation for the AC Dislocation resulted in good clinical and radiological results. And, subacromial erosion did not influence on the underlying rotator cuff after hook plate removal.

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ROLE OF CALCITONIN IN OLD AGE TROCHANTERIC FRACTURES AFTER INTERNAL FIXATION

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Calcitonin is used for osteoporosis and metastasis. Its role for fracture healing is not defined so far. Though in old age when fracture occurs it is already known that osteoporosis is already existing but only 30 percent of patient get proper treatment for osteoporosis. Ignoring osteoporosis treatment leads to delayed healing and in many cases implant failure. Calcitonin is a very useful drug for relieving pain and in faster healing. This study was done on 50 patients who were given this for four months and in other 50 patients no calcitonin, those who were treated with calcitonin showed faster union along with overall improvement in skeletal strength. The drug is easily tolerated and is cost effective as compared to teriparatide. This in osteoporotic patients usually given along with bisphosphonates. Along with faster healing clinically it is seen that even pain is also decreased and general health of patient also improves. In old age osteoporosis the T score also improves if we compare with preoperative score as measured by DEXA bone scan. When a patient comes with fracture in old age it is already due to osteoporosis and in some cases osteomalacia also associated. All these cases should be given anti osteoporotic treatment which will help in overall health and will prevent future risk of fractures out of all drugs for osteoporosis calcitonin is specifically helping union as seen in patients where only this drug given even in young patients.

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Abstract no.: 51983

**ANTERIOR APPROACH FOR FIXATION OF TALUS FRACTURES:
OPTIMISING VISUALISATION AND MINIMISING COMPLICATIONS**

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Adequate exposure is crucial for assessment of talus fractures to obtain good reduction and fixation. Traditional exposures include anteromedial with or without medial malleolar osteotomy, anterolateral or combination. Anterior approach has been shown to provide excellent exposure for talus fractures in cadaveric studies. Talus is a unique bone without muscular attachments, largely covered with articular cartilage linking the foot to the rest of the body, subjected to a variety of complex force interactions. Its blood supply makes it prone to avascular necrosis and nonunion. Surgical decision is greatly influenced by swelling and dictates timing and planning of incisions. Multiple incisions may carry risks of wound healing problems. Anterior approach provides a vital role with appropriate visualisation reducing dangers of malreduction & minimising complications. There are limited clinical reports in literature with this approach for talus fractures. We report our experience from a major trauma centre with this approach in 12 Talus fracture fixations in 11 patients (one had bilateral fracture). It includes 7 males and 4 females with age range of 18-68 yrs. Followup ranging 3 months-6 yrs. 2 patients had other associated major injuries. Where necessary separate stab incisions were used for screw insertion. All fractures healed successfully. One patient had avascular necrosis with collapse. The risk of vascular insult can be mitigated by carefully retracting the anterior tibial artery laterally and subtalar joint reduction needs to be assessed with fluoroscopy. Achieving appropriate exposure & minimising risks of vascular insult with careful technique can make it a good option to deal with these challenging injuries.

Date: 2018-10-11
Session: JAM Session I
Time: 10:00 - 10:30
Room: SICOT Lounge

Abstract no.: 51957

APATINIB IN THE TREATMENT OF SPONTANEOUS PULMONARY METASTASIS FROM OSTEOSARCOMA

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Purpose: This retrospective study aimed to evaluate the efficacy and safety of apatinib, an oral small molecule tyrosine kinase inhibitor (TKI), in patients with osteosarcoma of pulmonary metastasis. **Methods:** Between May 2015 and December 2016, the medical records of 16 patients with spontaneous pulmonary metastasis from osteosarcoma who received apatinib were retrospectively reviewed. The outcomes including 4-month and 12-month progression-free survival (PFS), PFS, overall survival (OS), objective response rate (ORR), disease control rate (DCR) and the incidence of adverse events were investigated. **Results:** Of 16 patients, 11 (69%) received apatinib after first-line chemotherapy regimen. At the time of analysis, 9 patients were still receiving apatinib, and 7 patients had stopped treatment because of progression (n=1), patient refusal (n=1) and death (n=5). During follow-up, all 16 patients were evaluable for tumor response, with an ORR of 25% and a DCR of 87.5%. Two patients were lost to follow-up and 5 patients died. The median PFS was 14.8 months [95% confidence interval (CI), 4.47-25.13 months], and the median OS has not been reached. The 4- and 12-month PFS was 94% (95% CI, 63%-99%) and 66% (95% CI, 37%-84%), respectively. During apatinib treatment, 40 apatinib-related adverse events were found. Most drug-related adverse events were limited to grade 1 (20 events) or 2 (17 events), which were mild and manageable. **Conclusion:** These results confirmed apatinib as a potential useful tool in osteosarcoma of pulmonary metastasis with manageable toxicity. However, a randomized placebo-controlled study with long-term period follow-up is still needed.

Date: 2018-10-11
Session: JAM Session I
Time: 10:00 - 10:30
Room: SICOT Lounge

Abstract no.: 51956

NONSTEROIDAL ANTI-INFLAMMATORY DRUG ZALTOPROFEN DEMONSTRATES ANTITUMOUR EFFECTS VIA ACTIVATING PEROXISOME PROLIFERATOR-ACTIVATED RECEPTOR GAMMA AND SUPPRESSING MATRIX METALLOPROTEINASE-2 EXPRESSION IN CHONDROSARCOMA

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Surgical resection is the only treatment for chondrosarcomas, because of their resistance to chemotherapy and radiotherapy. Peroxisome proliferator- activated receptor gamma (PPAR γ) is a ligand- activated transcription factor, which has been reported as a possible therapeutic target in certain malignancies such as pancreatic cancer or lung cancer. In this study, we demonstrated that a nonsteroidal anti- inflammatory drug, zaltoprofen, could induce PPAR γ activation and elicit anti- tumor effects in chondrosarcoma cells. Zaltoprofen was found to induce expressions of PPAR γ mRNA and protein in human chondrosarcoma SW1353 and OUMS27 cells, and induce PPAR γ - responsible promoter reporter activities. Inhibitory effects of zaltoprofen were observed on cell viability, proliferation, migration, and invasion, and the activity of matrix metalloproteinase- 2 (MMP2). These effects were dependent on PPAR γ activation and evidenced by silencing PPAR γ with shRNA. Moreover, we showed a case of a patient with cervical chondrosarcoma (grade 2), who was treated with zaltoprofen and has been free from disease progression for more than 2 years. Histopathological findings revealed enhanced expression of PPAR γ and reduced expression of MMP2 after administration of zaltoprofen. These findings demonstrate that zaltoprofen could be a promising drug against the malignant phenotypes in chondrosarcomas via activation of PPAR γ and inhibition of MMP2 activity.

Date: 2018-10-11
Session: JAM Session I
Time: 10:00 - 10:30
Room: SICOT Lounge

Abstract no.: 51943

CEMENTLESS TOTAL KNEE ARTHROPLASTY: IS KEEL OR LONG STEM BETTER? - A MATCHED COMPARATIVE STUDY OF 98 STANDARD KEELS VERSUS 98 LONG STEMS AT MORE THAN TEN YEARS' FOLLOW-UP

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INTRODUCTION: Cementless fixation total knee arthroplasty (TKA) is controversial. Cementless tibial base plate with a monoblock long stem (MLS) was introduced in 2004. We hypothesized that this modified implant would provide one secure tibial alignment and stable fixation. The purpose of this study was to compare the mid-term survivorship of cementless Standard keels (SK) vs cementless MLS. We selected and matched (1:1) 98 cementless SK and 98 cementless MLS. **MATERIAL METHODS:** 98 implants SK matched to 98 MLS were implanted in patients identified as having critical bone conditions: TKA after high tibial osteotomy, revision of unicompartmental knee arthroplasty, proximal tibia fracture, high-grade degenerative osteoarthritis, overweight patients. These two cohorts were compared statistically. Revision for tibial loosening was used as the endpoint in the survivorship analysis. **RESULTS:** There were 2 cases of tibial loosening and 3 cases of bipolar loosening in the SK group (0% MLS vs 5% SK). No tibial loosening occurred in the MLS group, (statistically significant). No tibial periprosthetic or intraoperative fractures occurred in each group. With revision for tibial loosening as the endpoint, survivorship at 8 years' follow-up was 95.6% in the SK cohort vs 100% in the MLS cohort. **DISCUSSION:** Our study is not a RCT, the sample size is limited, its strengths are that it reports comparative midterm outcomes of a matched cohort of patients who received 2 types of cementless components in the same bone conditions. We deplore no tibial loosening in the MLS group. The use of long stems has been criticized (stress shielding, pain). We did not observe any of these adverse reactions, no intraoperative tibial fractures occurred. **CONCLUSION:** HA coating and MLS help to improve alignment and fixation of cementless TKA. It is a safe solution when bone conditions are poor or modified by previous surgery.

Date: 2018-10-11
Session: JAM Session I
Time: 10:00 - 10:30
Room: SICOT Lounge

Abstract no.: 51942

**CEMENTED OR CEMENTLESS TOTAL KNEE ARTHROPLASTY:
COMPARATIVE RESULTS OF 200 CASES AT A MINIMUM FOLLOW-UP
OF 11 YEARS**

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INTRODUCTION: Since 1996 we have been using cementless fixation with hydroxyapatite (HA) coating. The purpose of this paper is to compare survivorship of a series of 100 cemented Total Knee Arthroplasty (TKA) to a similar series of 100 cementless with a follow up of 11 to 16 years. **MATERIAL METHOD:** Both TKA are mobile bearing total knee postero-stabilized. They can be used with cement or without cement. Among 1030 New Wave TKATM implanted from 2002 to 2015 we have identified 100 cemented TKAs and 100 cementless TKAs. All these cases were primary replacement. Differences in survival probability were determined using log-rank test. **RESULTS:** Survival probabilities at 11 years of follow-up were: Cemented group: 90.2% CI95%[81.9-94.8] Cementless group: 95.4% CI95%[88.1-98.2] Comparison between both group was not significant, p=0.32. **DISCUSSION:** The advantages of cementless TKA are bone stock preservation, cement debris protection and the potential to achieve biologic fixation. Cementless implants rely on a porous or roughened surface to facilitate bone formation. HA has been shown to accelerate bone integration and to decrease micro motion of the components and to increase fixation. With a survival probability of 90.2% (cemented version) and 95.4% (cementless version), this total knee prosthesis performs as intended in primary total knee arthroplasty. No statistical differences could be made between cemented and cementless implants.

Date: 2018-10-11
Session: JAM Session I
Time: 10:00 - 10:30
Room: SICOT Lounge

Abstract no.: 51933

SAVING CELLS AND MONEY: A COST-EFFECTIVENESS ASSESSMENT OF INTRAOPERATIVE CELL SALVAGE IN REVISION HIP AND KNEE ARTHROPLASTY

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Introduction: Revision arthroplasty is associated with increased blood loss, higher postoperative transfusion rates and extended hospital stay compared with primary surgery. This study sought to evaluate the cost-effectiveness of intraoperative cell salvage (ICS) in such procedures. Methods: Patients who underwent hip and knee revision arthroplasty over a 12 month period in our unit were identified using national joint registry (NJR) data. The volume of blood loss and allogenic postoperative transfusion requirements and hospital stay were recorded. Results: Data was obtained for 41 of 57 revision procedures in this period. 13 patients required postoperative transfusions, (8 hip, 5 knee). The transfusion rate after all revisions was 31%; 42% following hip revision and 22% following knee revision. Mean haemoglobin (Hb) loss was 25.8g/L for all revisions. The mean number of transfused units (U) per patient was 0.59 U. The usage cost of an Orthopat ICS is estimated at £79 per case irrespective of re-transfusion requirements compared with £167 for each transfused unit of packed red cells. The mean transfusion cost per patient was £98.53 for all revisions. If the need for transfusion were to result in a delay of discharge of a single day, this would result in a costs £438.53 per patient. Conclusions: The results of this study have shown that hip and knee revision arthroplasty is 5.5 times more expensive without the use of ICS.

Date: 2018-10-11
Session: JAM Session I
Time: 10:00 - 10:30
Room: SICOT Lounge

Abstract no.: 51878

ELASTIC STABLE INTRAMEDULLARY NAILING OF TIBIAL SHAFT FRACTURES IN CHILDREN

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Introduction: Tibial fractures in the skeletally immature patient are usually treated non-operatively. However, in the last decade there has been an increasing interest in surgical stabilization, particularly for unstable closed tibial shaft fractures as well as open fractures or those with associated soft tissue injuries. Elastic stable intramedullary nailing (ESIN) is commonly used for other diaphyseal fracture locations. The purpose of our study was to investigate the safety and efficacy of elastic stable intramedullary nailing for paediatric tibial shaft fractures using titanium elastic nails (TENs). **Methods:** Between April 2013 and April 2016, a retrospective study was conducted on 85 patients (27 females and 58 males) with a mean age of 8.95 (range; 6-16 years). Patients were followed up for a mean of 34 months (range; 16 - 52 months) after surgery. All patients undergone ESIN without postoperative casting. **Results:** Flynn scoring system showed 66 excellent cases, 12 satisfactory cases and 7 poor cases. There was no statistical difference in the outcome of open fractures (38 cases) and closed fractures (47 cases) (p- value 0.089). 5 cases showed irritation at entry site, 4 cases with valgus deformity and 4 cases of infection. **Conclusion:** We recommend the use of this technique in most of tibial shaft fractures whether open or closed and in different fracture patterns. This is due to being simple, non-invasive, and rapid, with low rates of infection, refracture and leaving an aesthetically pleasing scar, which compensate for this technique's greater cost.

Date: 2018-10-11
Session: JAM Session I
Time: 10:00 - 10:30
Room: SICOT Lounge

Abstract no.: 51877

PATIENT-SPECIFIC HIP SPACER

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In this work, we present a case with infected femur after THR. We noticed that conventional spacers have limitation of 3 sizes, which may lead to under and over sizing of required spacer size. Custom-made spacer with 3D printing could help in producing accurate size and shape of the spacer, with secure and favorable clinical outcome. We designed two types of spacers, one of them was produced directly from the 3D printer with NYLON filament. It is implanted to the patient with the suitable cement and antibiotic. The other one was produced from a plastic mold. The two spacers are custom made and patient specific, based on CT-scan images which are transferred to special software to construct 3D model of bone. And another 3D modeling software which construct the model of spacer and the mold. 3D printing (FDM) machine was used to produce the custom made spacer and mold. We used nylon filament for printing of the custom mad spacer and ABS filament for the custom made mold. The spacer was successfully implanted, the hip joint working and it is achieve its function. The spacer mold was produce a successful and complete pacer part and its working with a good manner.

Date: 2018-10-11
Session: JAM Session I
Time: 10:00 - 10:30
Room: SICOT Lounge

Abstract no.: 51848

PREVALENCE OF METAL HYPERSENSITIVITY IN PRIMARY TOTAL KNEE ARTHROPLASTY PATIENTS: CORRELATION TO FUNCTIONAL OUTCOMES

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Purpose: Total Knee Arthroplasty (TKA) patients may present with effusion, pain, stiffness and functional impairment. A positive metal hypersensitivity (positive LTT) may be an indication for a revision surgery with an hypoallergic implant. The purpose of the current study is to assess the prevalence of metal hypersensitivity in subjects requiring a primary TKA and assess early functional outcomes. Methods: We are recruiting 660 subjects admitted for TKA. Functional outcomes and quality of life (QoL) are measured pre operatively, 6 and 12 months post operatively with KSS, KOOS and pain Visual Analog Scale (VAS). LTT and metal ions are evaluated pre operatively and 12 months post-surgery. Subjects are randomly assigned to 2 groups: oxidized zirconium implant group or cobalt-chrome implant group. Results: Sixty-five patients, 39 women, were enrolled in the study. Mean age was 65,1±8.8. Thirty-five (53,8%) were randomised in the cobalt-chrome group. At baseline, 27 patients (41,5%) had a positive LTT and 18 (27,7%) could have potentially received an implant with hypersensitivity. At 3 months follow up (n=59), VAS scores (from 6,4±2,3 to 3,9±2,3) and KOOS (from 40,4±11,1 to 54,5±15,9) were significantly better (p<0,000). KSS scores were (from 95,5±19,9, 100,4±28,9, p=0.336). There was no statistical difference on functional and QoL scores between the 2 groups and between patients that may have received a potential implant with hypersensitivity (p>0,05). Conclusion: The high prevalence of positive LTT (27/65) do not seem to affect early functional outcomes and QoL on patients that may have received a potential implant with hypersensitivity (18/27).

Date: 2018-10-11
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Time: 10:00 - 10:30
Room: SICOT Lounge

Abstract no.: 51821

METAL HYPERSENSITIVITY: EARLY CLINICAL OUTCOMES AFTER REVISION TOTAL KNEE ARTHROPLASTY IN PATIENTS WITH METAL HYPERSENSITIVITY

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Purpose: Some total knee arthroplasty (TKA) patients experience unexplained knee pain, swelling and stiffness postoperatively. Symptomatic patients might be positive to metal hypersensitivity (positive LTT). The objective of this study was to evaluate early clinical outcomes of symptomatic patients with a positive LTT test that underwent revision TKA with a hypoallergenic implant. **Methods:** This is a prospective case series of twenty patients who underwent a revision surgery with a custom-made implant devoid of a hypersensitivity-related metal or with a hypoallergenic implant (exposed to a metal they were allergic to). Functional outcome was measured pre operatively, 6 and 12 months post operatively with KSS and Quality of life with KOOS and pain Visual Analog Scale (VAS). LTT and metal ions are evaluated at 12 months post-surgery. **Results:** Ten men and 10 women (mean age of 65,2±7,2) underwent a revision surgery with a custom-made implant devoid of a hypersensitivity-related metal (60%) or with a hypoallergenic implant (40%). Mean FU was 10±3 months. The post-revision difference VAS scores were significantly better (pre=7,3±1,9, 6 months post=6,1±2,3, 12 months post=5,0±2,7, p=0.002). There was a significant difference between pre and post-revision KSS ([pre=79,3±34,4, 6 months post=63,8±49,0, 12 months post=98,9±46,6 p=0.015). Total KOOS scores were not significantly better post-revision TKA (total pre=26,9±16,9, 6 months post=41,3±17,6, 12 months post=45,1±16,2], p=0.197). **Conclusion:** Patients that underwent revision with a custom-made implant devoid of a hypersensitivity-related metal or with a hypoallergenic implant reported sustainable pain reduction and improved KSS function after 12 months.

Date: 2018-10-11
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Time: 10:00 - 10:30
Room: SICOT Lounge

Abstract no.: 51782

USE OF C-ARM IN ACL RECONSTRUCTION

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Background: ACL reconstruction is technically demanding surgery and usually complicated by inadequate position of tunnels. CARM was used for tunnel placement to minimize complications during ACL reconstruction. Purpose: To assess efficacy of CARM in ACL reconstruction using BTB graft and patients evaluated in terms of stability, return of full motion, postoperative knee stiffness, return to previous activity and Lysholm knee score for ACL reconstruction. Methods: A total 30 cases were enrolled consecutively from Jan 2015 to Dec 2017 with complete ACL tear. Patients underwent transtibial ACL Reconstruction under C-ARM guidance using a BTB autograft. Arthroscope and sector map by Trentacosta et al used for tibial and femoral tunnel placement. All patients were operated under tourniquet control. Results: 30 male patients, average age of the patient was (26.7 +/- 5.8) having acl tear with 18(60%) patients with twisting injury during sports and 12(40%) patient presented with road traffic accident. Right knee in 18(60%) and left knee in 12(40%) patients. Isolated acl tear in 16(53%) while meniscal injury was in 14 (47%) patients. Mean Lysholm knee score before surgery was 66.1 +/- 5.47 and after surgery was 92.233 +/- 4.2. 27 (90%) patients did extremely well, with negative lachman peroperatively and 3(10%) patient with positive lachman. Weight bearing on average of 8 hrs and return to previous activity on 90 days. 29(97 %) had no infection but 1 patient(3%) reactive arthritis. Full ROM was achieved in (30)100% patients. Conclusion: The use of the C-arm with image intensifier enabled accurate and precise tunnel placement and the elimination of common complications like graft tunnel mismatch, screw divergence.

Date: 2018-10-11
Session: JAM Session I
Time: 10:00 - 10:30
Room: SICOT Lounge

Abstract no.: 51772

A NEW METHOD OF ARTHROSCOPIC-ASSISTED MANAGEMENT OF STIFF KNEES

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Arthrofibrosis of the knee is a commonly encountered entity and often results from prolonged immobilization or delay in post-operative mobilization of knee. Arthroscopic arthrolysis has replaced open arthrolysis as the gold standard in the management of the stiff knee. Several authors have described their techniques and modifications for arthroscopic management of the stiff knee. Rare but devastating complications have also been reported, particularly when forceful manipulation of the knee is done during surgery. We describe a safe method of arthroscopic-assisted management of a stiff knee with our own modifications to avoid catastrophic complications like iatrogenic fracture, tendon rupture or avulsion while simultaneously achieving improved range of flexion.

Date: 2018-10-11
Session: JAM Session I
Time: 10:00 - 10:30
Room: SICOT Lounge

Abstract no.: 50795

RANKL OVEREXPRESSION WITH LPS, TNFA AND DEXAMETHASONE IN VITRO

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Objectives: Receptor activator of nuclear factor- κ B ligand (RANKL) is a pivotal component of the cytokine network linked to bone resorption diseases such as osteoporosis. Osteoporosis is the result of a very active osteoclastogenesis, which depends on the expression of RANKL by osteoblasts. Host immune responses may also play a key role in promoting bone resorption since lymphocytes express RANKL. The aim of this research is to observe an overexpression of osteoblastic and lymphocyte RANKL stimulated by LPS, TNF α and Dexamethasone at non-toxic concentrations in order to make an in vitro model of osteoporosis cells to better understand this disease. **Methods:** Two kinds of osteoblastic lines, MG63 and HOb, and the lymphocyte line Jurkat were used in this study. The effects on RANKL expression were analyzed by Western Blot, ELISA, flow cytometry and RT-PCR. **Results:** The osteoblastic cellular metabolism increases (40%) due to dexamethasone stimulation at non-toxic doses. RANKL and RANKL mRNA expression have been significantly increased (70% and about seven fold respectively) in cases where LPS and dexamethasone were combined for both osteoblast and lymphocyte lines as shown by the different methods. **Conclusion:** These data is consistent with the fact that the most common cause of drug-induced osteoporosis is glucocorticoid exposure. This study provides a guideline for an vitro model of osteoporosis using osteoblasts. Moreover, because RANKL levels in lymphocytes increase similarly to those in osteoblasts, lymphocytes may be as important in osteoclasts maturation, which leads to a new pathway of investigation for treatments of osteoporosis.

Date: 2018-10-11
Session: JAM Session II
Time: 15:30 - 16:00
Room: SICOT Lounge

Abstract no.: 51765

COMPARISON OF EFFECT OF ARTICULATING CEMENTED SPACER VERSUS ARTHROSCOPIC SYNOVECTOMY FOR MANAGEMENT OF INFECTIOUS ARTHRITIS IN THE KELLGREN-LAWRENCE GRADE 3/4 OSTEOARTHRITIC KNEES

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Purpose: The purpose of this study is to compare the clinical results after arthroscopic synovectomy (AS) versus articulating cemented spacer (ACS) for management of infection in the severe osteoarthritic knees. **Materials and Methods:** 51 infected knees that had preexisting Kellgren-Lawrence grade 3, 4 osteoarthritis were included in this study. Male were 17 knees and female were 34 knees. Mean age was 71 (45-83) years old. ACS was used in 14 knees and AS in 37 knees. 6 knees among AR had recurred infection and later all 6 knees converted to ACS. 20 knees treated with ACS were finally managed with total knee arthroplasty (TKA). The clinical results were evaluated and compared with knee osteoarthritis outcomes score (KOOS), EQ-VAS for general health and postoperative complications. **Results:** There were no differences in KOOS and EQ-VAS between 2 groups before operations. Compared to AS, ACS showed significantly improvement in KOOS-pain, KOOS-ADL and EQ-VAS after primary operation (respectively, $p=0.0377$, $p=0.0871$, $p=0.0326$). There were no differences in KOOS and EQ-VAS between 2 groups after TKA as secondary operation. Recurrence of infection after primary operation were 0 knees in ACS and 6 knees in AS ($p=0.1469$). Recurrence of infection after TKA as secondary operation 0 knees in ACS and 2 knees in AS ($p=0.0726$). **Conclusion:** ACS is better method than AS for management of Kellgren-Lawrence grade 3, 4 osteoarthritic knees complicated with infection with respect to pain, ADL and general health. And also ACS decreased recurrence of infection. Further study is needed.

Date: 2018-10-11
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Time: 15:30 - 16:00
Room: SICOT Lounge

Abstract no.: 51764

A GREAT TOENAIL BED FLAP BASED ON THE FIBRO-DORSAL ARTERY FOR FINGERNAIL RECONSTRUCTION

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This study included two parts: 1) cadaver dissection to elucidate the perfusion of great toenail bed flaps by the fibro-dorsal artery (FDA), and 2) clinical application of the great toenail flap for reconstruction of a fingernail defect. Twenty great toes of ten fresh Chinese cadavers were dissected. The first dorsal metatarsal artery (FDMA) and the first plantar metatarsal artery (FPMA) and the tibial plantar digital artery (TPDA) of second toe were ligated, and red latex was injected distally into the ligated PDA. Perfusion of the dye into the great toenail bed through the FDA was observed. From Oct 2012 to Sep 2017, eight great toenail bed flaps based on the FDA pedicle with or without the paronychium were applied to eight patients for finger nail reconstruction. The great toenail bed complex based on the FDA was elevated and transferred to the finger. The nail bed and matrix were elevated with or without including the paronychium. The results of perfusion study showed that one side of the bilateral FDA was identified and traced proximal to the FPMA or FPMA, which was ligated. The distal toenail bed was perfused by the dye through the FDA. In clinical application, all the great toenail bed flaps flourished and survived. We suggest that the great toenail bed flap based on the FDA may be useful for fingernail defect especial fingernail central longitudinal defect reconstruction with minimal donor morbidity.

Date: 2018-10-11
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Time: 15:30 - 16:00
Room: SICOT Lounge

Abstract no.: 51744

INTEGRATED OR SEPARATED?: TWO TYPES OF BONE CEMENT DISTRIBUTION IN KYPHOPLASTY AND THE CLINICAL EFFICACY ANALYSIS

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Introduction: Percutaneous Kyphoplasty (PKP) has been demonstrated to be an effective minimally invasive surgery to treat Osteoporotic vertebral compression fracture (OVCF) for rapid pain relief and satisfactory curative effect. However, integration or separation, which kind of distribution of bone cement is better in the fractured vertebral body is unclear. Material and Methods: 1206 consecutive patients with OVCF who underwent PKP were enrolled from January 2010 to August 2015 in our hospital. Patients were divided into two groups according to the cement integration-separation pattern shown on postoperative radiographs: group A (n=659), bilateral cement masses presented integrated in the fractured vertebral body; and group B (n=547), bilateral cement masses presented separated in the fractured vertebral body. The visual analogue scale (VAS) scores, Oswestry Disability Index (ODI) scores, anterior vertebral body height (AVH) and local kyphotic angle (LKA) were obtained preoperatively, 2 days after surgery and at the final follow-up to assess the functional and radiographic efficacy of the surgery. Results: The VAS scores, ODI scores, AVH and LKA in postoperative 2 days and the final follow-up were significantly different compared with preoperative data in both groups. ($p < 0.05$). Group A showed better VAS scores than that of group B 2 days after surgery ($p < 0.05$), without any other parameters showing significant difference between groups ($p > 0.05$). Conclusions: The integrated distribution group had better short-term pain relief effect than the separated distribution group after surgery.

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Abstract no.: 51737

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

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(CHINA)

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. Methods: The subjects consisted of 13 feet from 13 cases suffering from Freiberg disease in their late stages. They underwent double stemmed flexible silicone prosthesis replacement for metatarsophalangeal joints. The average age was 63.8 (range 30 ~ 88) years. The average follow up period was 26 (range 18–42) months. The investigation was carried out using the range of motion (ROM), visual analog scale (VAS), AOFAS and Maryland metatarsophalangeal joints scale before surgery and at the latest follow-up. Results: The average ROM of dorsal flexion improved from $39.3\pm 6.1^\circ$ before surgery to $75.4\pm 8.6^\circ$ at latest follow-up ($p<0.001$). The average ROM of plantar flexion improved from $19.0\pm 11.4^\circ$ before surgery to $20.2\pm 9.3^\circ$ at latest follow-up ($p=0.14$). The average VAS significantly improved from 8.1 ± 0.5 before surgery to 2.6 ± 0.2 at latest follow-up ($p<0.001$). The average Maryland metatarsophalangeal joints score significantly improved from 65.3 ± 9.3 points before surgery to 90.3 ± 4.1 points at the latest follow-up ($p<0.001$). The average AOFAS was 89.4 ± 8.5 after surgery compared 56.3 ± 6.4 preoperatively ($p<0.005$). Conclusion: A flexible silicone prosthesis replacement was carried out to treat Freiberg disease in its late stages. The function was observed in all cases with improved clinical results. The silicone prosthesis was considered to be useful in certain cases.

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COMBINED MODIFIED POSTEROMEDIAL AND ANTERIOR APPROACHES FOR THE TREATMENT OF RIIEDI-ALLGOWER TYPE III PILON FRACTURES

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Objective: To explore the operation indication and clinical outcome of combined modified posteromedial and anterior approaches for treatment of Riiedi-Allgower type III Pilon fractures
Methods: From January 2014 to March 2015, 16 Pilon fractures was retrospectively analyzed. There were 11 males and 5 females with an average age of 43.5 years old. All of the fractures were closed type III according to Rtiedi-AllgOwer classification with posterior Pilon fragment involved. A modified posteromedial approach, exploring fracture between flexor digitorum longus and flexor hallucis longus tendon, was employed to reduce and fix the posteromedial fragment, and an anterior approach was employed to reduce and fix the fibular fracture , depressed anterior fragment. Burwell-Charnley radiological evaluation system and AOFAS functional scoring system were used for radiological and functional assessment respectively. **Results:** Average time from injury to operation was 14.3 days. All patients were followed up, and the average duration of follow-up was 16.1 months. Fracture healing time was average of 16.7 weeks. 13 patients got anatomical reduction and 3 good reduction with an anatomical reduction rate of 81. 3% . The average AOFAS SScale was 88.6. Skin infection occurred in 1 patient and incision edge necrosis in 1 patient. Which healed through dressing and debridement treatment. **Conclusion:** Combined modified posteromedial and anterolateral approaches is a safe and effective method for the treatment of Roedi-Allgower type III Pilon fractures.

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Abstract no.: 51734

THE EFFECT OF THE HAND DOMINANCE ON POST-OPERATION REHABILITATION AFTER KNEE ARTHROPLASTY

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Background: There are many factors impact on rehabilitation of the patient post knee arthroplasty. Aim: To evaluate the effect of hand dominance on patient's rehabilitation following knee Arthroplasty both short and long term evaluation. Methods: We evaluated a cohort of TKR patients operated on within 2 years period. We assessed the effect of hand dominance on post-operative recovery, length of hospital stay, Range of movement and patients reported outcomes using reintegration to normal living index. Results: A total of 130 patient had total knee replacement during the period, 98 of them participate. Knee 65 females and 33 males. Two groups: Dominant side operated they are 52 patient's and Non-dominant side operated are 46 patient's. The Average Length of stay in the TKR group were 5.3 days in non-dominance side group and 7.6 days in the dominance side surgery. The average RNLI (reintegration to normal living activity) after TKR performed in the dominant side was 86.6 while in the non-dominant side was 91. Statistical testing performed using regression analysis with STATA software. Conclusion: Hand dominance showed an effect on length of stay and post-operative rehabilitation following TKR with significant difference in LOS and RNLI index post operatively.

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Abstract no.: 51725

DEFECT RECONSTRUCTION OF NAIL BED BY FREE GREAT TOE FIBULAR DORSAL NAIL BED FLAP

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To introduce the new surgical techniques and outcomes of repair of different types of finger nail bed defect by free great toe fibular dorsal nail bed flap. Apply to of great toe fibular dorsal nail bed flap supplied with great toe fibular dorsal artery repair finger nail bed defect in 16 cases, 7 cases in which the thumb, index finger 5 cases, middle finger 4 case, the defect area is 8mm × 12mm ~ 13mm × 21mm. Donor site with full-thickness skin graft. 16 cases great toe fibular dorsal nail bed flap survived, fibular toe area for a period of eight cases of skin graft survival, two cases of graft necrosis little edge, dressing scar after healing. Postoperative follow-up of 9 to 52 months, with an average of 35 months, thumb and finger nails grow smooth, shiny, plump appearance, walking function has no effect for the area, no pain. The great toe fibular dorsal nail bed flap is an ideal method to reconstruct different types of finger nail bed defects.

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**ULTIMATE OUTCOME OF VASCULARISED 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.

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Abstract no.: 51664

TREATMENT OF RECURRENT TRAUMATIC NEUROMAS IN OSSEOINTEGRATED PATIENTS WITH AN AUTOLOGOUS DUAL INCISION AND LIGATION SURGICAL TECHNIQUE

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Traumatic neuromas can form after the occurrence of various forms of nerve injury, including amputation. The objective of this case report is to describe a new surgical approach to treat these recurring neuromas in transfemoral amputees who have received an osseointegrated reconstruction. Three traumatic amputees who suffered from recurring, and disabling neuroma pain were included in this study. All patients have been successful in their osseointegrated reconstruction and were able to mobilise pain free at the completion of their rehabilitation program, but developed subsequent recurrent neuromas in which a novel neurectomy technique was attempted as a treatment method. The technique involves splitting the neuroma medially along its axis to separate the peroneal and tibial nerves. The two nerve endings are ligated at the ends to form a loop. A second incision and ligation is finally made approximately 2 inches proximally on the peroneal nerve as an attempt to discourage further growth. Preliminary results from these three patients have been quite promising. All three patients have recovered well since the neurectomy and reduced pain levels have been quantified through the use of both the Brief Pain Inventory and douleur neuropathique 4 questions (DN4) questionnaires. In this case series, we report on a novel neurectomy technique as an attempt to resolve chronic and disabling neuromas in transfemoral amputees reconstructed through osseointegration. While the preliminary data do indicate a promising outcome, further long-term follow-up is required to fully determine the effectiveness of this new approach.

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Abstract no.: 51663

THE USE OF OSSEOINTEGRATED TITANIUM IMPLANTS TO TREAT BILATERAL AMPUTEES

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Current socket prostheses remain problematic, resulting in more than 90% of patients with bilateral above-knee amputations being confined to a wheelchair. Osseointegration has been regarded as a novel approach to overcome persistent socket prosthetic issues, using a transcutaneous implant directly attached to the residual bone. This paper reports the early clinical outcomes in this particular group of patients, including the results of functional and quality of life assessments, and safety of the osseointegration procedure. This is a prospective pilot study of 13 patients, consisting of 10 males and 3 females, aged 24-62 (mean 38.7) years at surgery, with minimum two-year follow-up. Principle outcome measures included the Questionnaire for persons with a Trans-Femoral Amputation (Q-TFA), Short Form Health Survey 36 (SF-36), Six Minute Walk Test (6MWT), Timed Up and Go (TUG), and K-levels. Adverse events were recorded including infection, revision surgery, fractures, and implant failures. Comparisons were made using differences between the mean pre-operative and mean post-operative values for each outcome measure. Significant improvements in all validated outcome measures were observed. The occurrence levels of adverse events, including the infection rate and revision rate, were similar to other established trans-femoral osseointegration studies. These preliminary results indicate that osseointegration surgery is a safe and effective alternative treatment for bilateral amputees experiencing socket-related discomfort. Compared to the suboptimal outcomes of socket prostheses, osseointegration currently provides one of the best chances for any bilateral amputee to walk again and regain the ability to perform daily activities.

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THE USE OF OSSEOINTEGRATED TITANIUM IMPLANTS TO TREAT TRANSTIBIAL AMPUTEES

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Osseointegration has emerged as a novel approach to resolve persistent socket prosthetic issues by attaching the prosthetic limb directly onto the skeletal residuum. Until recently, this procedure has been performed mostly in trans-femoral amputee (TFA) patients. However, since August 2012, osseointegration has been performed on eligible trans-tibial amputee (TTA) patients in our centers. This paper represents the first pilot study to examine the results of performing osseointegration in the tibia. This is a prospective pilot study of 15 patients, consisting of 8 males and 7 females, aged 37-77 (mean 55.1) years at surgery, with minimum two-year follow-up. Selection criteria included age over 18 years, unilateral TTA patients who had socket-related problems. All patients received osseointegrated implants which were press-fit into the amputated limb. Principle outcome measures included the Questionnaire for persons with a Trans-Femoral Amputation (Q-TFA), Short Form Health Survey 36 (SF-36), Six Minute Walk Test (6MWT), Timed Up and Go (TUG). Adverse events recorded included infection, revision surgery, fractures, and implant failures. Comparisons were made using differences between the mean pre-operative and mean post-operative values for each outcome measure. Significant improvements for all outcome measures were observed. The occurrence levels of adverse events including the infection rate and revision rate were similar to trans-femoral osseointegration cases. These preliminary results suggest that osseointegration surgery for trans-tibial amputees is a safe and effective alternative treatment for amputees experiencing socket-related discomfort. This protocol has the potential to expand the application of osseointegration to help patients who have below the knee amputations.

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PREOPERATIVE SCREENING AND AWARENESS AMONGST ORTHOPAEDIC SURGERY PATIENTS WITH HEPATITIS B AND C

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Objectives: Pakistan is a country where hepatitis B and C is prevalent. Patients visit tertiary care hospital without screen. We conducted this study to determine prevalence of viral hepatitis B and C infections and associated risk factors amongst the patients undergoing general surgical procedures. **Methods:** This descriptive case series was conducted in 1294 patients who attended out-door patient, emergency departments and opted general surgical procedures at unit III Mayo hospital Lahore. We used a pre-tested self-administered questionnaire emphasizing study objectives. Participants were asked about their shaving face and armpits routine, nose and ear piercing, past history of blood transfusion, and later their knowledge, awareness about risk factors and disease outcome. **Results:** Out of the total 1296 participants, 396 (30.6%) were positive for HCV and 156 (12.1%) for HBV infections. Out of the total 552, 334 (60.5%) respondents were males and 218 (39.5%) females were hepatitis B and C positive. **Conclusion:** Hepatitis C is more prevalent than hepatitis B. Various risk factors were observed as common risk factors among anti-HCV and HBsAg positive patients in orthopedic surgery procedure. The awareness of the patient was very low regarding risk factors and disease outcomes.

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Abstract no.: 51655

**OSSEOINTEGRATED IMPLANTS FOR TRANSFEMORAL AMPUTEES:
RADIOGRAPHIC EVALUATION OF BONE REMODELLING**

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Osseointegration is a novel method to overcome persistent socket prosthetic issues in amputees by anchoring a transcutaneous implant directly onto the skeletal residuum. Stress shielding results in the reduction of bone density due to the implant removing the stress that is usually exerted on the bone, which greatly reduces implant stability. This paper investigates the bone remodeling effect and quantifies it in two of the most common osseointegration implants. This is a prospective study of 50 patients with trans-femoral amputations with minimum two-year follow-up. Two implants, the Integral Leg Prosthesis (ILP) and Osseointegrated Prosthetic Limb (OPL), with differences in tapering, coating and bone ingrowth regions were examined. Radiographs were taken at 6 months, 1, 2 and 5-years post-surgery. The surrounding bone was defined using inverse Gruen zones and graded into 5 levels of bone growth or resorption. Results obtained at 1 and 2 year follow-ups were compared to the 6-month follow-up values as a baseline. Significant bone growth near the proximal zones of the implant was observed on patients with the ILP implant. This was accompanied by significant resorption towards the distal end indicating the occurrence of stress shielding. The OLP implant demonstrated much more uniform bone density throughout the length of the implant. Overall, the patterns of bone remodeling after osseointegration showed similarities to those seen on hip stems with a press-fit design. Of the two osseointegration implants examined in this paper, the OLP implant exhibited less stress shielding effects and is expected to provide better long-term stability.

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OSSEOINTEGRATED IMPLANTS IN PATIENTS WITH DIABETES MELLITUS: A CASE SERIES OF EIGHT PATIENTS

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Osseointegration is a novel approach to eliminate socket related problems experienced by amputees. Traditionally, diabetic patients with amputations have been excluded from osseointegrated reconstruction due to higher risks of complications. This is the first study reporting on the clinical outcomes of diabetic patients receiving an osseointegrated reconstruction. This is a case series with one-year follow-up in eight diabetic patients with trans-tibial or trans-femoral amputation, and have received osseointegration implants between 2013 and 2016. Clinical and functional outcomes were assessed including pain, prostheses wearing time, mobility, walking ability and quality of life. Adverse events were monitored and recorded, including infection, fractures, implant failure, revision surgery, further amputation and death. Three trans-tibial and five trans-femoral amputees (aged 48-73 years) were included in this study. All patients were pain-free and still using the osseointegrated prosthesis at 12-months post-surgery. The mobility of all patients improved at follow-up. Notably, five of the eight patients were wheelchair-bound prior to surgery, but all were able to walk and perform daily activities at follow-up. Two patients experienced infection events which were treated by surgical debridement. One patient experienced peri-prosthetic fracture after a fall which was fixated by a lag screw. No other adverse events were recorded. It can be expected that the improved function and mobility can serve a protective role in controlling the underlying diabetic conditions in these patients which makes osseointegration an attractive alternative to conventional socket prosthesis.

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Abstract no.: 51635

AN EPIDEMIOLOGICAL STUDY OF 131 176 FRACTURES OF THE CERVICAL AND THORACIC SPINE FROM 2007 TO 2016 IN THE UNITED STATES

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Introduction: This study evaluated cervical and thoracic spine fractures over 10 years by location, levels injured, and injury mechanism, identifying temporal trends in patient demographics and disposition. Methods: The National Electronic Injury Surveillance System database was queried for patients presenting to the ED with cervical and/or thoracic spine fractures (2007-2016). Data were stratified by demographics and injury mechanisms. Nationwide frequency and incidence rate (IR: per 10,000 person-years) estimates by age, sex, and race were determined using NEISS weight calculations and 2007-2016 US Census data. Temporal trends were analyzed using descriptive statistics and linear regression. Results: Nearly 131,176 fractures were identified, with 95.4% as thoracic, 4.7% as cervical, and 1.2% involving both. 91.1% of cases were single-level; 8.86% were multi-level. Estimated annual number of these fractures increased from 10,020 to 18,168 from 2007-2016 ($\beta=0.89, p<0.001$). IR of cervical and thoracic spine fractures was estimated as 0.419. The most common mechanism of injury resulted from falls (77.4%). Cervical and thoracic spine fractures occurred most often in 20-29 age group (IR=0.219). Patients ≥ 80 years (IR=3.63) were highest among all ages. 57% occurred in women (IR=0.48) and 43% in men (IR=0.36). IRs for race were 0.33 whites, 0.08 blacks, and 0.20 all others. Hospital admission rates increased from 37.0% to 43.8% from 2007-2016 ($\beta=0.56, p=0.09$). Conclusion: The incidence of cervical and thoracic spine fractures increased significantly. Hospital admissions for these fractures were observed to have increased over the time-period, though this was not statistically significant. Understanding these patterns can help improve recognition of these fractures.

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Abstract no.: 51618

COMPARISON OF POSTOPERATIVE CUFF INTEGRITY BETWEEN CONVENTIONAL SUTURE BRIDGE TECHNIQUE AND KNOTLESS SUTURE BRIDGE IN DOUBLE ROW ROTATOR CUFF REPAIR

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Introduction: Conventional suture bridge (knot tying) technique have problems like Type II re-tear which is less common in single row and knotless suture bridge technique. Causes of type II re-tear are interruption of the blood supply and scanty blood flow in the pathologic supraspinatus tendon especially near the musculotendinous junction. Evidence from biomechanical studies also suggest that knotless suture technique significantly lowers strain as compared with knot tying. Our unpublished study shows better contact area pressure in knotless group. Materials and methods: This study attempts to compare the radiological outcomes in patients from two different surgical technique for double row rotator cuff repair. This is a retrospective study conducted on 39 patients who were diagnosed to have full thickness rotator cuff tear underwent double row rotator cuff repair. There were 23 and 16 patients who were treated by knotless and knot tying technique respectively. Magnetic resonance imaging was performed at three months postoperatively for evaluation of rotator cuff integrity by Sugaya classification. Results: The results revealed that there was significant difference between two groups. In knotless group there were 6 type I, 7 type II, 7 type III, 3 type IV and no type V and in knot tying group there were 2 type I, 4 type II, 6 type III, 3 type IV and 1 type V. Conclusion: Knotless double row suture bridge technique provides superior radiological outcome as compared with conventional suture bridge technique in full thickness cuff tear.

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IS GREATER TROCHANTERIC PAIN AFTER PRIMARY TOTAL HIP REPLACEMENT APPROACH-RELATED? A RANDOMISED, PROSPECTIVE COMPARISON OF ANTERIOR VERSUS POSTERIOR APPROACH

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Introduction: Greater trochanteric pain syndrome (GTPS) after total hip replacement can be present, independent of the approach used. We aim to compare GTPS after direct anterior (DAA) and posterior approach (PA), and evaluate long-term clinical and radiological outcomes of both approaches. Method: 55 patients needing total hip replacement were randomized in two surgical approaches: 27 patients sustained anterior modified Hueter approach; 28 patients sustained posterior approach. Study outcomes were Harris Hip Score (HHS), satisfaction score, pain lying on affected side and needs for infiltration. Hip offset and leg lengthening were measured before and after surgery. Results: Forty-five patients were available for complete follow-up of a mean of 66 months. Incidence of GTPS was significantly greater for PA. Seven patients sustained pain (mean 5.3; range 1-8) when lying down on operated side, versus 2 DAA patients (mean 2) ($p < 0.05$). Mean satisfaction, clinical outcome assessment by HHS, radiological assessment for hip offset or leg lengthening, and number of infiltrations required were similar. Discussion: Both PA and DAA approaches have GTPS patients. There is statistically more reported trochanteric pain when lying down on operated side for PA, which however doesn't change the clinical outcome or satisfaction of the patient.

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ARTHROSCOPIC VISUALISATION OF THE POSTERIOR BAND OF THE MCL

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Purpose: this study was conducted to define what portion of the MCL can be visualized during standard elbow arthroscopic view. Methods: six fresh-frozen human cadaveric elbows were placed in a simulated lateral decubitus position, standard elbow arthroscopy was performed on each specimen using a standard posterolateral portal for visualization. The most anterior and posterior corners of the visible portion of the MCL were marked by the spinal needle and tagged with nylon suture. The elbow were subsequently dissected. The surface area defined by the suture tags and the surface area of the entire MCL were calculated for each specimen. Results: The mean area of the visible portion of the tendon represented 32.3 % of the mean overall area of the MCL. The arthroscopically tagged portion of the MCL represented only a small percentage of the entire MCL. The majority of the MCL is placed out of arthroscopic visualization. Conclusion: Arthroscopic release of posterior band of MCL can be limited value in clinical setting because these data suggest that arthroscopic visualization of the MCL is incomplete.

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PAEDIATRIC SUPRACONDYLAR FRACTURE OF HUMERUS WITH SIDE DISPLACEMENT

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Supracondylar fracture of humerus is the most common fracture around the elbow in children. The high incidence of residual deformities requires accurate fracture management. We distinguished the type of supracondylar fracture of humerus with side displacement which does not fit in avowed Gartland classification. Radiographically the fracture is characterized by significant sideward displacement on the anterior-posterior view with no or minimal displacement on the lateral view. Some rotational component of displacement is also common. The main clinical feature of that fracture is gross instability supposing complete periosteum tear. Elbow flexion during reduction maneuver usually fails to control rotation and side displacement, may worsen displacement or convert the fracture into the flexion type. According to retrospective analysis of pediatric supracondylar fractures surgically treated in our institution during 2006-2015 years we defined the prevalence of supracondylar fracture of humerus with side displacement as about 6% of all cases. We propose the optimal operative technique for that kind of fracture. As there is minimal if any posterior displacement, the fracture reduction is better achieved by axial traction of the extended elbow. By rotation of C-arm we confirm the fracture reduction on the lateral view. Pinning is carried on with elbow in extension. Classification of the supracondylar fracture of humerus with side displacement may be of clinical value as that guides us to the appropriate operative management.

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ROUTINE INTRAOPERATIVE MICROBIOLOGY SAMPLES IN REVISION HIP ARTHROPLASTY FOR SUSPECTED ASEPTIC CASES: SHOULD YOU BE WORRIED WHEN YOU SEE A POSITIVE RESULT?

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Background: Revision THR is commonly performed procedure. Multiple intraoperative samples should be taken to rule out infection. The relevance in cases when only one or two grow organisms remains questionable. Objective: To assess frequency of positive intra-operative culture samples in aseptic revisions and its influence on implant survivorship and infection rate. Methods: Retrospective review of patients who had aseptic revision between 2011- 2013. All intra-operatively collected samples were processed using microscopy, standard and enrichment cultures. Follow-up ranged from 1-6 years. Results: 101 cases were reviewed where intraoperative findings were not suggestive of infection. A standard thorough debridement was performed and all patients received intravenous antibiotics on induction and for 5 days afterwards. Mean 5,9 samples were taken in each case. In 65 cases all samples were negative. In 34 cases there was positive growth on enrichment culture of one or two samples, in 2 cases there were multiple positive enrichment cultures. None of these patients required reoperation due to infection and all remain clinically infection-free at present. Positive enrichment cultures were not a risk for failure or for postoperative infection. Discussion: Vigilance is paramount when considering causes of failure of arthroplasty. Preoperative work-up including blood investigations, radiological investigations and selective aspiration or biopsy is vital in establishing the diagnosis of PJI. In our series there was no association between enrichment positive culture and subsequent midterm infection or failure. Each case however should be reviewed in detail when there is positive result in any sample and further long-term surveillance is necessary.

Date: 2018-10-11
Session: JAM Session II
Time: 15:30 - 16:00
Room: SICOT Lounge

Abstract no.: 51517

REAMER IRRIGATOR ASPIRATOR: CLINICAL RESULTS

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INTRODUCTION: Autologous bone graft is still considered to be the gold standard for treating non-union with bone loss/ gap. There are cases in which the traditional sites of bone graft harvesting are already exhausted because of previous multiple surgeries. Intramedullary bone graft harvest by reamer-irrigator-aspirator (RIA) system is a good source. **OBJECTIVE:** To determine the usefulness and effectivity of RIA bone graft in large bone gaps in complex cases where traditional graft source is already exhausted. **METHODS:** 15 patients (13 males, 2 females) with an average age of 39 years (21-60 years) underwent intramedullary reaming in femora by RIA system (12.5-14.5 diameter). After a trochanteric incision was made at the hip, antegrade reaming was performed in the femora to harvest bone graft. 3 units of blood transfusion were required in each case. **RESULTS:** A significantly greater quantity of bone graft was harvested by RIA (35.8 + 19.6) cm as compared to ICBG. ($p = 0.0064$). Union rates and time to union were comparable. There was no difference in complications requiring re-surgery for persistent nonunion or infection at the grafted site. **CONCLUSION:** Harvesting intramedullary bone graft with the RIA system appears to be an effective technique for bone grafting in limb reconstruction. A significantly greater quantity of bone graft can be harvested. The union rate was 95.8% by RIA bone graft. RIA bone grafts have both osteoinductive and conductive properties and provide an alternative method to fragment transport.

Date: 2018-10-11
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SEPTIC ARTHRITIS OF THE KNEE: A NATIONWIDE PAEDIATRIC DATABASE STUDY

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Introduction: Sparse data exists describing recent demographic trends in septic knee arthritis (SKA). This study investigated: 1) whether the incidence of SKA has changed since 1997; 2) whether race, other demographic factors, and SKA incidence were associated from 1997-2012. Methods: The Kid's Inpatient Database was used to identify all children with a diagnosis of SKA who underwent incision and drainage between 1997-2012. Age, sex, and race data were collected. Overall SKA incidence and incidence by race were calculated for each year. 5,555 patients were included. Univariate analysis compared the differences in mean age and sex distribution between races. Linear regression was used to analyze the trends of race and SKA. Results: The majority of patients were white (57.0%). The next most common races were Hispanic (17.0%) and black (17.4%). Overall incidence of SKA increased from 0.20 per 100,000 in 1997 to 0.33 in 2012. Similar increases were seen across races, with the incidence in black patients increasing from 0.028 per 100,000 to 0.048 per 100,000 (R²=0.70, p=0.037). The rate of SKA in whites increased from 0.09 per 100,000 to 0.17 per 100,000 (R²=0.91, p=0.003). In Hispanics, the rate of SKA increased non-significantly from 0.02 per 100,000 to 0.049 (R²=0.64, p=0.055). Sex did not vary between different races. The mean age in whites was 10 years, which was significantly higher than black and Hispanic patients (mean age 8 p<0.001). Conclusion: The overall incidence of SKA increased, with variable increases among white, black, and Hispanic populations. Mean age of presentation varied by race.

Date: 2018-10-11
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SYSTEMATIC REVIEW OF TREATMENT FOR OSTEOCHONDRITIS DISSECANS OF THE CAPITELLUM

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Introduction: Osteochondritis Dissecans (OCD) of the humeral capitellum can result in debilitating loss of elbow function in young athletes. Optimal treatments for higher Grade lesions remains unclear. This systematic review examines the existing literature on OCD of the humeral capitellum to consider reported outcomes for conservative and common surgical treatments (Osteochondral Autograft Transplantation (OAT), Fixation or Debridement procedures), by comparing elbow scores, range of movement and return to sport rate between studies and treatment arms. Methods: This study follows PRISMA principles. Comprehensive literature search was completed as of January 2018 from PubMed, Embase and Cochrane Library followed by Deduplication and manual review. Patient demographics, lesion characteristics, return to sport, patient reported outcome scores and range of motion was collected. Descriptive statistics of means, SD and ranges for all papers and subgroup group analysis was performed. Results: 42 Level IV and 1 Level II studies were identified as relevant. Means of demographics, patient reported outcome scores and range of movement of 43 studies are provided. Subgroup analysis was completed on 14 studies with patient level data revealing no significant differences between OAT, Fixation, or Debridement groups for all lesion stages in return to sport or elbow score outcomes. This review is limited by the inherent bias and heterogeneity of Level IV Evidence studies and the scarcity of complete data sets resulting in limited statistical power. Conclusion: The current literature does not support superiority of one treatment technique. Further high quality studies with a comprehensive data set are advised.

Date: 2018-10-11
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Abstract no.: 51452

COMPARING THE ABILITY OF PREOPERATIVE MAGNETIC RESONANCE IMAGING TO PREDICT INTRAOPERATIVE AUTOGRAFT SIZE IN ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION: A SYSTEMATIC REVIEW

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Objectives: In patients with suspected anterior cruciate ligament (ACL) injury, magnetic resonance imaging (MRI) serves as a powerful diagnostic modality to confirm not only the degree and location of injury, but also relevant concomitant pathology. This review aims to ascertain the utility of preoperative MRI as a tool for predicting intra-operative graft size. **Methods:** Three databases (EMBASE, PubMed and MEDLINE) were searched for English-language studies of all levels of evidence that aimed to correlate preoperative MRI measurements of common primary ACL autograft sources to intraoperative measurements of the harvested graft. **Results:** A systematic screen of 869 titles examined 535 patients of mean age 29.2 (range: 9-67), with 34% females. Comparing the correlation of preoperative MRI measurements to intraoperative harvested measures, the strength was moderately positive for quadriceps tendon (1 study, 62 patients, $r = 0.639$); moderate-highly positive for patellar tendon (2 studies, 87 patients, $r: 0.64-0.85$); low-highly positive for semitendinosus-only tendon (5 studies, 222 patients, $r: 0.38-0.81$); and negligible-moderately positive for gracilis-only tendon (4 studies, 143 patients, $r: 0.29-0.59$). When semitendinosus and gracilis tendons were considered together, the correlation ranged from low-highly positive (8 studies, 431 patients, $r: 0.42-0.86$), however, the majority of studies showed moderate-highly positive correlation. **Conclusion:** A moderate to high reliability exists between preoperative MRI and intraoperative measurements of quadriceps and patellar tendon graft sizes. Considerable variability exists when viewing hamstrings tendons either individually or together.

Date: 2018-10-11
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Abstract no.: 51447

ARTHROSCOPIC-ASSISTED LATISSIMUS DORSI TENDON TRANSFER FOR MASSIVE ROTATOR CUFF TEARS: A SYSTEMATIC REVIEW

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Purpose: The purpose of this study was to systematically investigate arthroscopic-assisted LDTT for management of MRCT, including the surgical decision-making, clinical outcomes, complications, and quality of evidence of the existing literature. **Methods:** The databases MEDLINE, EMBASE, and PubMed were searched, and screened by two reviewers. Inclusion criteria were English-language studies investigating arthroscopic-assisted LDTT for the management of MRCT on humans of all ages. The quality of the included studies was categorized by level of evidence and the Methodological Index for Nonrandomized Studies (MINORS) checklist. **Results:** In total, eight studies (seven case series [median MINORS score of 7/16], one prospective comparative study [median MINORS score of 14/24]) were identified, including 258 patients (258 shoulders) with MRCT treated with LDTT using arthroscopic-assisted techniques. The decision to pursue surgery was based on both clinical findings and investigations in five studies (63%), investigations only in two studies (25%), and clinical findings only in one study (13%). Overall, 88% of patients were satisfied with the results of the surgery and experienced significant improvement in their symptoms, including shoulder pain, strength, range of motion, and overall function, over a mean follow-up period of 34.3 months. Overall, there was a low rate of complications (7%) associated with the procedure. **Conclusion:** Arthroscopic-assisted LDTT for MRCT provides patients with marked improvements in shoulder pain, strength, and function, and the procedure is associated with a low risk of complications. Further high-quality comparative studies are warranted in order to validate these findings in comparison to other operative techniques.

Date: 2018-10-11
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Abstract no.: 51389

ANKLE AND HINDFOOT ARTHRODESIS USING COMPRESSIVE SCREWS: A RETROSPECTIVE STUDY

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Introduction: Many methods have been described for ankle and hindfoot fusions in literature for its various indications. We here retrospectively analysed 108 patients for whom ankle & hindfoot fusions were done using compressive screws at our institute between 2004 to 2017. Materials and methods: The average age of patients was 43.6 years with 72 male and 36 female patients. Pain and deformity was the main indication. 31 cases had post traumatic arthritis, 42 cases underwent the procedure for Charcot joint due to various causes, 11 cases had osteoarthritis, 10 cases had inflammatory arthritis, 14 cases were suffering from neuromuscular diseases. Average follow-up in these cases was 6.8 years (4-9 years). 57 cases had talocalcaneal fusion, 42 cases had tibio-talar fusion and 9 cases had tibiocalcaneal fusion. Results: Pain and function improved dramatically in these patients which corroborated with AOFAS ankle hindfoot score of 87. 4 cases with Charcot joint had pseudoarthrosis/ refracture. Causalgia was noted in 4 cases, metatarsalgia and tenosynovitis in 16 cases, 4 had malalignment, 1 case had infection. 2 cases had implant problems which necessitated removal. Radiographic progression of adjacent joint arthritis was seen in patients with more than 5 years follow-up. Conclusion: Compressive screw technique of ankle and hindfoot fusion gives gratifying functional outcome but has many associated problems which leads to constant minor complaints by patients. This should be taken into account while doing pre operative counselling of the patients.

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Abstract no.: 51333

SCREENING PAEDIATRIC ORTHOPAEDIC PATIENTS FOR THROMBOSIS STUDY: DEVELOPMENT OF AN ALGORITHM

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Introduction: Venous thromboembolism (VTE) has been recognized as a rare but potentially serious complication in pediatric orthopedic patients. However, standardized guidelines for screening and management of at risk patients do not exist. The aim of the study was to conduct a survey at the IWK Health Centre to identify the need for a VTE prophylaxis screening tool and management guideline. Methods: A survey was conducted by a multidisciplinary team of surgeons and anesthesiologists at the IWK Health Centre. Questions included: (i) Are you currently utilizing VTE prophylaxis? (ii) Which patient population needs VTE prophylaxis? (iii) Have you used VTE prophylaxis during your training years? and (iv) Do you support the development of evidence-based guidelines? Free text based responses were collected. Descriptive statistics were used to analyze data. Results: The survey was sent to 48 physicians. 24 (50%) responded. 7 responded that they currently use VTE prophylaxis, based on perceived risk factors without any guidelines. 7 responded that they have used prophylaxis during their training years. None of the participants used any published guidelines in pediatric population. Large majority (22/24) responded that they support the development of VTE guidelines as it encouraged evidence-based practice. Discussion: The preliminary survey clearly identified the need to develop and implement a VTE prophylaxis screening tool. Subsequently, a screening tool has been developed and implemented at the IWK Health Centre and is currently under evaluation.

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Abstract no.: 51330

**REVISION SURGERIES IN DEVELOPMENTAL DYSPLASIA OF HIPS:
OUR EXPERIENCE**

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DDH can be successfully treated open reduction, but we still see failure of open reduction in some of the cases. In this study we aim to evaluate the outcomes of revision surgeries in DDH and to identify the causes of failure of primary open reduction and determine the outcome of revision surgery. We identified patients that underwent revision surgery. The patients were assessed for the cause of failure of primary surgery by various modalities. The patients who underwent revision surgeries were followed up to assess the clinical and radiographic outcomes [Severin class]. Results: A total of 22 patients who underwent revision surgeries and met the inclusion criteria were included in the study. The mean age of the patients at the time of revision surgery was 6.5 years. The most common cause of failure of primary surgery were inadequate capsulorrhaphy, posterior acetabular deficiencies, shallow acetabulum, insufficient release of soft tissues, and improper position of immobilisation with Spica cast. At a mean follow-up period of 12 months, the radiographic outcome was Severin class 1 or 2 in majority of the cases and Severin class 4 in two patients. Clinically as per McKay criteria all patients except three had excellent to good results. Conclusion: We found that the main cause of failure of primary surgery was inadequate capsulorrhaphy, defects in the acetabulum and inadequate soft tissue release. Careful assessment and proper techniques can prevent such failures. The outcome of revision surgery of DDH has good results if identified and intervened at early age.

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Abstract no.: 51307

3D NAVIGATION-GUIDED PERCUTANEOUS SCREW FIXATION FOR PELVI-ACETABULAR FRACTURES

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Background: Three-dimensional navigation guided minimally invasive percutaneous screw fixation (MIS) for pelvi-acetabular fracture was adopted for treatment of suitable patients in our center since 2015. Methods: We report a review with eighty three consecutive cases of pelvi-acetabular fractures treated with navigation guided MIS from 2015 to 2017. Navigation planning was mostly performed pre-operatively based on computer tomography images. Results: The included patients have a mean age of 57.8 years old, with average pelvic abbreviated injury scale 3.3. Two hundred and eighty nine screws were inserted in these cases, including sacroiliac, anterior column, posterior column, dome, subcristal and trans-pubic screws. The mean operative blood loss and time were 139 ml and 120 minutes, respectively. The distance (deviation) between the planned and executed screw entry and tip measured by the navigation computer were 1.59 and 1.69 mm, respectively. There were two cases with wound infection and none of the cases have other major complications. Conclusion: We believe that three-dimensional navigation-guided MIS is a safe and effective surgical alternative in patients with pelvi-acetabular fractures.

Date: 2018-10-12
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Abstract no.: 51202

LONG-TERM RESULTS OF BERNESE PERIACETABULAR OSTEOTOMY USING A DUAL APPROACH IN HIP DYSPLASIA

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Purpose: To report the long-term results of Bernese periacetabular osteotomy using a dual approach in hip dysplasia. Methods: Fifty-three hips that underwent periacetabular osteotomy using a dual approach between May 1997 and December 2005 were analyzed in this study. The clinical and radiologic outcomes and complications were analyzed, and the final survival rates of the operated hips were investigated with survival analysis curves. Results: Forty-nine hips survived until the final follow-up without arthroplasty, and 4 hips underwent arthroplasty. The average follow-up period was 11.5 years. The pain visual analogue scale improved from 6.3 to 1.1, while the Harris hip score improved from 61.9 to 91.1. Radiologic findings showed that all the cases showed improvements of the center edge angle, acetabular angle, acetabular depth, and femoral head coverage. Two patients underwent intraarticular osteotomy due to a complication, and 1 patient underwent additional osteotomy due to an under-correction. Three cases showed an asymptomatic nonunion of the superior pubic ramus osteotomy site. One patient developed an avulsion fracture of the anterior superior iliac spine, and none of the cases had an infection or permanent neurologic damage. Kaplan-Meier analysis revealed that the 10-year survival rate was 93% with arthroplasty as the endpoint, and 86% with progression of osteoarthritis based on Tönnis osteoarthritis rating as the endpoint. Conclusion: Based on the outcomes of a long-term follow-up of more than 10 years, Bernese periacetabular osteotomy via a dual approach is speculated to be a good method that lowers the incidence of complications while preserving hips.

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Abstract no.: 51165

AN UNDERSTANDING OF INTIMATE PARTNER AND GENDER-BASED VIOLENCE IN BANGLADESH: A TEAM BROKEN EARTH INITIATIVE

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Background: Intimate partner violence (IPV) and gender-based violence (GBV) represent a major global health problem. Information with respect to the most effective violence reduction approach remains somewhat limited. Team Broken Earth (TBE) is a medical relief organization with a major focus in orthopedics. During an educational mission in Bangladesh, they performed a survey to evaluate violence in the context of living and working in the area. Methods: The survey was distributed to medical student, resident and physician participants of a labor and delivery course offered by TBE in Bangladesh from August 15-17, 2017. Eleven open-feedback questions recognized prior training, hospital policies and resources, and community awareness and supports. An open-feedback question identified desired areas of additional information. Results: Seventy-three participants responded. Fifty-eight percent (n=42) stated they see patients with injuries consistent with IPV. Only 7% (n=5) had training on recognizing such injuries and 12% (n=9) had training related to support and follow up. IPV was recognized as a community problem by 86% (n=63). Five desired areas of additional information, capturing 52% of responses, were identified: education, awareness, support, counselling and legal reform. Conclusion: The findings will help organizations such as TBE target educational and awareness efforts and plan resources for the low and middle-income countries they engage. This information may be extrapolated when providing orthopedic care globally. Results offer insight into the level of awareness and available resources. A need for further awareness, training and policy establishment was identified. Results align with known global target areas and reinforce key strategies.

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Abstract no.: 51145

RISK FACTORS OF WOUND COMPLICATION FOLLOWING WIDE RESECTION OF SOFT-TISSUE SARCOMAS

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Introduction: Wide resection is generally accepted as a suitable management for soft tissue sarcomas of the extremity. However, remaining huge dead space and wound complication is a still challenging problem. We investigated what factors are most related to the development of wound complication. Methods: Between 2008 and 2016, 146 patients (81 males, 65 females, mean age 62 y.o.) were identified from our database. The tumor location was upper extremity in 18, lower in 91, and trunk in 37. Tumor histopathology was atypical lipomatous tumor in 35, UPS in 27 and others. We divided into two groups. Wound complication group (n=42) needed more than 4 weeks until wound-healing, and control (n=136) less than 4 weeks. Risk factors for wound complication were statistically analyzed using the Fisher exact test and logistic regression for multivariate analysis. Results: Univariate analysis demonstrated that a significantly higher risks of wound complication were skin graft, high-grade tumor, operation time, bleeding, preoperative chemotherapy, flap, deep to fascia and multiple operation. Multivariate analysis demonstrated skin graft and preoperative chemotherapy. Discussion: Our results demonstrated that skin graft and chemotherapy was most significant risk factor for postoperative wound complication. Reconstruction with microvascular flap, instead of skin graft, is a useful tool to fill the dead space after wide resection and to reduce wound complication.

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Abstract no.: 51118

PROSPECTIVE STUDY OF NEEDLE FASCIOTOMY FOR DUPUYTREN'S CONTRACTURE WITH THREE YEARS FOLLOW-UP

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Introduction: The advantage of needle fasciotomy is a very short recovery combined with high cost effectiveness compared to open surgery. The purpose of this study is to report results, reduction of contracture, complications and early recurrence after three years. **Methods:** The indication was contractures of the MCP joint in stages I, II, III and IV with well defined fibrosis. The contracted Dupuytren's tissue is divided longitudinally along multiple points so that the finger can stretch out straight again. The procedure is performed with a needle through the skin and the sharp, small bevel of the needle is used to cut the Dupuytren's tissue beneath the skin. We also administer a corticosteroid injection to the treatment area at the time of the procedure. Stretching, exercises and extension splinting during the recovery phase are important to gain maximum benefit from the procedure. The patients were evaluated preoperatively and per-operatively at one, eight, twenty-four weeks, after one, two, three years. 97 patients with 123 fingers were operated. Median age was 59 (44-74) with 84 man and 13 women. **Results:** No cases of flexor tendons lesions, hematomas or infections were registered. The patients were allowed to use the hand directly after the procedure. **Conclusions:** Needle aponeurotomy does not involve incisions to the skin of the hand, so there is less tissue damage, less swelling, less pain, less down time and quicker healing Needle fasciotomy is a good alternative in cases with well defined fibrosis because of these preliminary good results and low morbidity.

Date: 2018-10-12
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Room: SICOT Lounge

Abstract no.: 51041

FEATURES OF PERIPHERAL NERVE SURGERY IN PATIENTS WITH VOLKMANN'S ISCHEMIC CONTRACTURE

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Development of microsurgery technique has considerably extended possibilities of functional recovery in case of upper limb ischemic injury. Surgery was performed on 25 patients with peripheral nerves injuries and posttraumatic ischemia. Depending on stage of ischemia process, patients were divided to 3 groups: group A – 9 (36%) patients in acute stage, group B – 10 (40%) patients in reactive-recovery period, group C – 6 (24%) patients in residual period. All patients underwent precise clinical and instrumental examination as well as sonography and MRI. In group A – neuroraphia of medial and/or ulnar nerve in the middle and distal part of forearm was performed in 6 (66.7%) patients. 2 (22.2%) patients neuroraphia was performed at shoulder distal part. One case (11.1%) – finger nerves neuroraphia at the level of palm. 5 (55.5%) patients have peripheral nerve injury combines with bone fracture – so nerve surgery was performed after osteosynthesis. In group B – 5 (50%) neurolysis of medial and/or ulnar nerve (in some cases - area of neurosis exceeded to 9-12cm), 3 (30%) neuroraphia of the abovementioned nerves was performed, nerve plasty was performed in 2 (20%). In group C - all patients underwent nerve plasty. Long term results (2 years) were assessed according to AAOS as modified by Kurinnyi I.M. (1996): 14 (56%) patient – excellent, 8 (32%) – good, 3 (12%) – satisfactory. Total function increase of ischemic upper limb in average was over 40%.

Date: 2018-10-12
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Abstract no.: 51034

CLINICAL EVALUATION OF FREE SEMITENDINOSUS TENDON GRAFT TRANSFER FOR RECONSTRUCTION OF ACHILLES TENDON TEAR WITH WIDE GAP

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Purpose: Conventional approach to treat Achilles tendon tears with a wide gap is associated with a lot of complication which includes difficulty to fill the gap and skin break down. Method: The study included 10 cases, with Achilles tendon tear with a gap >6cm, who underwent reconstruction using free semitendinous tendon graft transfer by the minimally invasive technique. Patients were followed up for a period of 12 months. Muscle power, toe walking, and loss of dorsiflexion were assessed. Result: Age distribution ranged between 26 to 48 years. Time since injury varied from 8 weeks to 36 weeks. Full weight bearing was achieved by 8 weeks in all the patients and the cast was removed at 8 weeks. All patients were able to walk on toes after three months of surgery without assistance. All patients had a muscle power of 5/5 at 6 months. Only 1 patient developed superficial skin infection which resolved with treatment. Interpretation: Chronic Achilles tendon ruptures are difficult to treat as primary repair, as the tendon retracts and the gap cannot be covered by simple traction. The second problem is contraction and adherence of skin in-between the gap. Semitendinosus graft transfer is one of the best methods to treat Achilles tendon rupture with a wide gap, as a gap of any length can be covered easily, low risk of donor site morbidity and can be used even in tears at the insertion site. With minimal invasive technique, intervening skin bridge is maintained leading to lesser skin complications.

Date: 2018-10-12
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THE OUTCOMES AND COMPLICATIONS OF VASCULARISED BONE GRAFTS FOR AVASCULAR NECROSIS OF THE CARPAL BONE

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Purpose: The purpose of this study was to evaluate the outcomes and complications for the treatment of avascular necrosis of the carpal bone with vascularized bone grafting (VBG). **Methods:** From 2004 through 2012, 26 carpal bone disorders including Kienböck Disease (n=15), scaphoid nonunion (n=6), Preiser Disease (n=4) and the avascular necrosis of the capitate (n=1) were treated with VBG using of dorsal vascular pedicles. The pedicles contained the 1,2-intercompartmental supraretinacular artery (ICSRA), the 4,5 extensor compartmental artery (ECA) and the dorsal 3rd metacarpal artery. Nineteen males and 7 female patients averaging 41 years old were followed up for an average of 13 months. The scaphoid lesions were treated with VBG based 1,2 ICSRA. Kienböck Disease and the capitate lesion were treated with VBG based 4,5 ECA or 3rd metacarpal artery. The clinical evaluation (with the modified Mayo wrist score and DASH) and the radiographic evaluation were performed. **Results:** All cases went on to union at an average of 15.4 weeks after surgery. The wrist function was improved in all cases. Some complications included the radial and ulnar deviation limited, the palmar flexion limited and discomfort on dorsal wrist. **Conclusions:** The vascularized bone graft is efficacious in the treatment of the carpal bone disorders with avascular necrosis. The procedure requires less extensive dissection not to cause the complications and the discomfort on dorsal wrist. Surgeons should have a technical option of pedicled VBG.

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Abstract no.: 50988

IS PARKINSON'S DISEASE ASSOCIATED WITH WORSE OUTCOMES FOLLOWING HIP REPLACEMENT AFTER HIP FRACTURE?

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Introduction: The prevalence of Parkinson's disease (PD) is increasing across the globe. This condition imparts a significantly increased risk of hip fracture. A retrospective cohort analysis was performed to establish whether patients with PD had worse outcomes following hip replacement surgery (HR) for treatment of acute fractures by evaluation of revision rates along with indications for revision and mortality rates. Methods: Patients who underwent HR surgery following acute hip fracture between 2005 - 2012 with PD were identified using datasets available through the Swedish Hip Arthroplasty Register (SHAR). A control group was generated, with 1:3 matching for sex and age. Risks of revision and mortality were compared at points over the 7-year study period, using Kaplan-Meier and Log-rank testing; p-values <0.05 were considered statistically significant. Results: Risk of mortality did differ at 30 days (p=0.034), at 1 year (p=0.002) and at 7 years (p<0.001) with increased mortality for PD patients (p<0.001). Risk of revision did not differ at 30 days (p=0.16). At 1 and 7 years, revision was higher for PD patients (p=0.007). Overall, indications for revision observed in the PD group were predominantly for dislocation/instability. Conclusion: Patients with PD had worse outcomes following total or hemiarthroplasty following hip fracture, with increased risks of revision and long-term mortality. In order to improve outcomes in this patient population further investigations are needed to analyse the reason for increased revision. As increased incidence of hip fracture sustained by PD patients is predicted, a true multidisciplinary approach must be considered to improve outcomes.

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A SYSTEMATIC REVIEW OF MECHANICAL STABILISATION BY SCREW FIXATION WITHOUT BONE GRAFTING IN THE MANAGEMENT OF SCAPHOID NONUNION IN ADULTS

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Background: Sixty percent of all carpal fractures affect the scaphoid bone, with an incidence of 4.3/10,000/year. Non-union of the scaphoid is due to the tenuous blood supply to the proximal pole and defined as a non-healed fracture 6 months after injury. Well-established scaphoid non-union is usually treated surgically using bone graft. We aimed to determine the effectiveness of mechanical stabilization using screw fixation without bone graft for the treatment of scaphoid non-union. Methods: Five databases were searched from inception to October 2017: Medline-Ovid, Web of Science, Pubmed, ScienceDirect, and Cochrane Library. All clinical trials that examined the functional and/or radiological outcomes of screw fixation without bone grafting to treat scaphoid non-union (> 6 months) in adults were included. Results: 837 articles were retained of which 6 case series, describing 90 patients who had undergone scaphoid non-union fixation without bone grafting, were included. Favorable functional outcomes were described in 5 studies used validated functional outcome measures. Improved range of movements of the wrist joint was reported in 5 studies with mean flexion of 67.9° and extension of 61.9°. Eighty four out of 90 (93%) participants reported to have complete union, with average healing time of 3.8 months. Conclusion: The included studies demonstrated favorable functional outcomes, improve range of motion and high union rate (93%) by using screw fixation in the treatment of scaphoid non-union. However, these results should be interpreted with caution because of the inherent limitations of the included studies and more rigorous clinical trials are required in the future.

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MID-TERM RESULTS OF OSTEOARTICULAR RECONSTRUCTIONS OF PAEDIATRIC PERIARTICULAR BONE SARCOMAS WITH FREE FIBULA HEAD FLAP

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Introduction: The free fibula head flap represents an option for osteoarticular reconstruction of pediatric periarticular bone sarcomas. **Methods:** We retrospectively analyzed 25 children [average age 12 (6-18) years] with primary sarcomas of the proximal humerus (17), distal radius (4) and proximal femur (4) who underwent wide resection and osteoarticular reconstruction with free fibula head flap with proximal articular surface. Fibular flap was combined with recycled-extracorporally irradiated- autograft in all proximal femoral reconstructions. The average follow-up was 46 (28-95) months. **Results:** Flap union and hypertrophy rate was 96% (24/25) at 12 months. Fibular flap-recycled bone osteointegration rate was 100% at 24 months. Morphologic and dimensional discrepancy between the fibular head and glenoid persisted in all 17 proximal humeral reconstructions. In four distal radial reconstructions, articular surface of the fibular epiphysis had an initial anatomic match with the carpal bones, and gradually developed a more concave surface. The fibular head slightly remodeled in four proximal femoral reconstructions. Average final follow-up MSTS scores for lower and upper extremity reconstructions were 82% (76-90%) and 84% (72-92%), respectively. Three (12%) complications [delayed union (1), implant failure (1), wound problem (1)] required re-operation. Donor site complications [six (24%); transient nerve palsy (5), wound problem (1)] were managed conservatively. The disease relapsed in 3 (12%) patients in terms of distant metastasis. Defect size and fibular flap length did not correlate with radiological parameters and MSTS scores ($p > 0.05$). **Conclusions:** Permanent stability and gradually increasing radiological and functional results strongly supported the effectiveness of biological reconstructions in the management of periarticular bone sarcomas in children.

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A PROSPECTIVE RANDOMISED STUDY OF ENDOSCOPIC VERSUS LIMITED-OPEN TECHNIQUE IN CARPAL TUNNEL SYNDROME

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INTRODUCTION: Carpal tunnel syndrome is one of the most common conditions to affect the hand. Some surgeons have suggested that endoscopic procedure in carpal tunnel syndrome (CTS) minimizes postoperative morbidity and allows a quicker recovery of strength and function compared with open procedure. **METHODS:** A prospective and randomized study was performed on 86 hands in 83 patients (67 female and 19 male). The open method was performed on 52 hands and the endoscopic method on 34 hands. All of the patients had clinical symptoms and electromyographic findings of CTS. The follow-up time was 1 year. Preoperative and postoperative evaluation included clinical findings, grip and pinch strength measurements, subjective evaluation and VAS. The results were evaluated at 1 week, 1,6 and 12 months with statistical analysis (t student). **RESULTS:** No differences were observed in subjective outcomes 1 year after the release (subjective evaluation and VAS). No significant complications occurred in either group. Paresthesias and numbness decrease after operation with comparable rates for both groups. In the endoscopic group no significant differences were observed between grip and pinch strength pre and postoperatively. However, in the open group, pinch strength improved at 6 and 12 months after the surgery ($p=0,0015$. Significance level $\alpha < \text{or } = 0,05$). **CONCLUSION:** Limited-open carpal tunnel release provides an improvement of pinch strength at 6 and 12 months after the surgery. On the other hand, endoscopic carpal tunnel release do not increase pinch and grip strength after the surgery. There were no significant differences in the subjective parameters between the two techniques.

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HOW RELIABLE IS THE SERUM C-REACTIVE PROTEIN LEVEL IN THE DIAGNOSIS OF PERIPROSTHETIC JOINT INFECTION?: A SINGLE-CENTRE ANALYSIS OF 1333 CASES

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Little is known about the relationship between the virulent behavior of PJI bacteria and CRP levels. Chronic PJIs with bacteria considered to be a low-virulent are often also related to low CRP levels. This study was performed to assess the performance of C-reactive protein (CRP) for PJI in high- and low-virulent germs. We collected the following data from 987 cases of total joint revision due to PJI and 386 aseptic revision. : age, gender, comorbidities, values for serum CRP, leukocytes, microbiology for preoperatively taken aspirations and at least two intraoperative biopsies, and presence or absence of a draining sinus. The mean CRP value in the PJI group was 50.2 mg/l (SD=62.2), while a lower CRP value of 11.6 mg/l (SD=25.3) was found in the control group. There were no significant differences for the CRP values between patients with and without draining sinus (p=0.4423). The difference in CRP between high virulence and low virulence microorganisms was significant for both the hip and the knee (P < 0.0001). For the hip, the AUC of CRP as a diagnostic marker for PJI was 0.830 and, for the knee, the AUC was 0.884. The the optimal cutoff point for CRP as a diagnostic marker of PJI calculated using Youden's Index was 8.90 mg/L for the hip and 9.99 mg/L for the knee. While serum CRP has a lower overall accuracy for diagnosing PJI compared to the Alpha-defensin test or the Leucocyte esterase test, its lower costs widespread availability justify its use in the workup of patients with suspected PJI.

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THE STATE OF THE HEAD AND NECK BLOOD FLOW IN PATIENTS WITH IV DEGREE SCOLIOSIS

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The aim of the study was to assess the impact of severe spinal deformity on the state of head and neck blood flow. In 19 patients 16-24 years of age, with diagnosis of right thoracic scoliosis IV degree, before surgery and 14 days after surgical correction of the deformation, by the methods of color duplex sonography and transcranial Doppler, the head and neck blood vessels were investigated. Before the surgery, we observed an increase in Vmax in a.subclavia, a. carotis communis on the both sides, on average of 20-30%, compared with the norm. Decrease of Vmax, Vmin, artery diameter, increase of PI by 16-20%, indicated an increase in peripheral resistance of arteries. There was an asymmetry of Vmax of a.carotis interna, a. carotis externa, a. vertebralis by 40-50%, with a predominant increase in the tone of these arteries on the right. Observed one-or bilateral increase Vmax, Vmin in a.cerebri media, a.cerebri anterior on 23-45%. There was an increase in the linear velocity of blood flow in a.cerebri posterior of the right hemisphere of the brain by an average on 30-45%. Fourteen days after the operative correction, Vmax, RI, PI increased at the arteries of the head and neck by 20-30%. Thus, in patients with right-sided scoliosis of the IV degree before the operation and in the early period after the operation, an increase in the tone of the arteries of the vertebral-basilar and carotid pools was noted, which indicated a decrease in the total blood flow of the cerebral hemispheres.

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DOES VITAMIN E REDUCE OSTEOLYSIS IN IN VIVO KNEE ARTHROPLASTY MODEL?

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Osteolysis is one of the most important complications of arthroplasty. It's known that immune response against particles plays role in the pathogenesis of osteolysis. The polyethylene has an important role in development of these particles. There are few experimental study in-vivo osteolysis caused by polyethylene debris. The aim of present study was evaluate whether there was difference the formation of osteolysis which created by conventional polyethylene and polyethylene added vitamine E particles in an in-vivo knee arthroplasty model. 39 male Sprague Dawley rats, which were randomized into 3 groups. After surgical exposure of knee joints of rats, femoral intramedullary canals were drilled and instilled with saline and saline solution which contains conventional polyethylene or polyethylene added vitamin E according to their groups. Afterwards titanium implant was placed to femoral articular surface for each animal. Rats received intraarticular injection of the same solution weekly, which was used in the preparation of their femoral canal. The rats were sacrificed at the end of third week and then were undergone histopathological evaluations. In histopathological evaluation; periprosthetic membrane formation, inflammatory cell change, cellular damage of cartilage and bone tissue around the implant were assessed. We notice that there were statistically less amount of cellular damage and periprosthetic membrane formation in polyethylene added vitamin E group compared to conventional polyethylene group ($p=0.001, p=0.04$). No significant difference was found between the PE groups regarding to inflammatory cells ($p=0.715$). Conventional polyethylene led to more considerable osteolysis compared to polyethylene added vitamin E. Adding antioxidant agent, such as vitamin E, to polyethylene may provide reduction in aseptic loosening and osteolysis.

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**A COMPARISON OF OPEN AND PERCUTANEOUS TECHNOLOGY IN
ROBOT-ASSISTED THORACOLUMBAR SPINAL SURGERY**

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Aim: To compare the safety and accuracy of the robot assisted percutaneous with open pedicle screw placement in thoracolumbar spinal surgery. **Methods:** The retrospective cohort included 122 consecutive patients (553 screws) who underwent robot assisted thoracolumbar surgery was divided into the percutaneous group (PG) and open group (OG). The TianJi Robot system, which has been approved by the China FDA since 2016, was used to assist the trajectory and intervertebral space localization. **Results:** In PG, 84 patients underwent percutaneous pedicle screw placement w/wo decompression on 37 vertebral fractures and 47 degenerative diseases. In OG, 38 patients underwent open surgery on 10 vertebral fractures and 28 degenerative diseases. Baseline data were similar between the two groups. The blood loss and hospital stay in PG was lower than OG. There was no significant difference in overall surgical time between the two groups. However, for vertebral fractures, the surgical time in PG (119 minutes) was significantly lower compared with OG (168 minutes). And for degenerative diseases, the surgical time in PG was higher compared with OG. Using Gertzbein-Robbins classification, in PG, 367 of 372 screws (98.7%) were safely placed (cortex breach <2 mm), and 5 were grade C (cortex breach between 2 and 4 mm). In OG, 177 of 181 screws (97.8%) were safely placed. There was no significant difference in the Gertzbein-Robbins classification distribution between the two groups (P value = 0.65). **Conclusion:** The robot assisted technique is safe and accurate for the screw placement in both open and percutaneous thoracolumbar surgeries.

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DRUG PROFILE OF FRAGILITY FRACTURE PATIENTS IN A FRACTURE LIAISON SERVICE: POTENTIAL FOR CTX-1 BONE MARKER AS A SURROGATE OF OSTEOPOROSIS TREATMENT RESPONSE

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Introduction: Serum levels of the Collagen type I C-telopeptide (CTX-1) resorption marker are known to decrease after antiresorptive therapy (ART) initiation. We aimed to assess the changes in CTX-1 levels according to exposure to two oral ART, risedronate (Ri) and alendronate (Al), and adherence level. Methods: Using data from a prospective cohort of women and men followed for 1-year following a fragility fracture in an orthopedic-based Fracture Liaison Service, we assessed changes in CTX-1 levels between baseline and 6- and 12-month follow-up. From 422 patients with complete data, we defined as exposed patients who filled at least two prescriptions of Ri/Al on two different occasions. Patients without ART dispensation during the study period formed the unexposed group. Adherence level was measured using the Proportion of Days Covered (PDC>80%=adherent, PDC<80%=non-adherent). Adjusted multilevel models were created. Results: From 130 exposed and 125 unexposed patients (n=255), 84% were female with a mean age of 65.6 (SD 10.1) years in the exposed and 57.1 (SD 9.3) years in the unexposed (p<0.001). PDC was >80% in 115 (88.5%) of exposed patients. Mean changes of CTX-1 from baseline were more important in exposed than unexposed patients (baseline-6 months: -48.3% vs -29.1%, p=0.012; baseline-12 months: -51.1% vs -27%, p=0.002). Mean changes of CTX-1 from baseline were more important in adherent than non-adherent patients (baseline-6 months: -51.6% vs -8.9%, p=0.020; baseline-12 months: -53% vs -8.1%, p=0.038). Conclusions: CTX-1 bone resorption marker decreases following initiation of ART and may be an indicator of adherence level in clinical practice.

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THE ROLE OF 3D PRINTING IN PREOPERATIVE PLANNING FOR PSEUDOARTHROSIS: A CASE REPORT

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Introduction: Three-dimensional printing is a new low-cost technology that uses a 3D computer representation to create solid objects. It can be useful in bone defects at preoperative planning. Objective: To show the use of 3D printing when planning autologous graft extraction to cover bone defects. Case Presentation: 75-year-old man suffered an explosion of a pyrotechnic device in his lower right limb. Physical examination revealed an open comminuted fibula fracture (Gustilo classification type II), comminuted distal tibia fracture, multiple fractures on forefoot and hindfoot and an amputation of the three first toes. Initially, external fixation, wound closures and remodelling of toes stumps was performed. At second time, minimally invasive percutaneous osteosynthesis was performed using lock plates. Three months later, patient had pain at the location of the fractures. Analytic parameters were normal. We ordered a computed tomography which show no consolidation with a 6,8x3,3x1,8 centimetres bone defect at distal tibia. We performed 3D a print model of the tibia, as well as the bone defect. Cancellous iliac autologous graft was inserted into the bone defect using the piece of impression as a model. Osteosynthesis with two cortical screws was performed without removing the previous one. Discussion: Planning using 3D printing allows the extraction of the specific bone graft to cover bone defects, improving the reconstruction and reducing the surgical time. Conclusion: The ongoing advances in medical image procurement and 3D processing software and printing technology will continue to enhance preoperative planning of reconstruction surgeries and improve patient care.

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Abstract no.: 50804

DOES A RELATIONSHIP BETWEEN BMI, FLEXIBLE FLATFOOT AND IDIOPATHIC GENU VALGUM IN PAEDIATRIC PATIENTS REALLY EXIST?

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Few studies analyzed the relationship between overweight, pediatric flexible flatfoot (FFF) and idiopathic genu valgum (IGV), with discordant results. This work aims to study whether these diseases may be mutually influenced. Children (6-12 years) admitted to the Pediatric Orthopaedics outpatient clinic of our institution (September 2016-July 2017) for FFF or IGV were included. Body Mass Index (BMI), Foot Posture Index (FPI) values to assess FFF and the intermalleolar distance in orthostatism to evaluate IGV severity were registered for each patient. Exclusion criteria were rigid flatfoot, secondary genu valgum, neuropsychomotor or systemic diseases. Fifty-eight children (32 males, 26 females) were included, with a mean age of 9.5 ± 1.8 years (6-12), mean body weight of 35.5 ± 9.4 kg (18-58), mean height of 139.6 ± 12.3 cm (110-163), mean BMI of 17.9 ± 3.3 (12.9-30.6). Seventeen children had a BMI $\geq 85^{\circ}$ percentile (overweight), 28 suffered from bilateral FFF, 8 monolateral FFF, 43 had bilateral IGV: among these, 25 suffered from both FFF and IGV. No associations were found between FFF and IGV, FFF and overweight/obesity, IGV and overweight/obesity (chi-square test, Fisher's Exact test). All variables analyzed, FPI excepted, showed normal distribution (Kolmogorov-Smirnov and Shapiro-Wilk tests). A positive Pearson's correlation was found between BMI and intermalleolar distance ($p=0.004$). Notwithstanding the limited number of patients analyzed, no strong evidence was found to support a relationship between these diseases. The correlation between BMI and IGV severity may be explained by the valgum worsening in orthostatism, proportionally to patients' body weight.

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SUBCAPITAL FEMORAL FRACTURE FOLLOWING HIP ARTHROSCOPY WITHOUT PERFORMING OSTEOCHONDROPLASTY: A VERY RARE COMPLICATION

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Femoral neck fracture following hip arthroscopy is a very rare complication (0.1%) and it always occurs in association with a femoral osteochondroplasty. We had a patient who was 40 years old male presenting with clicking of the hip, popping sensation and pain on weight bearing. MRI showed degenerative labral tear. He had arthroscopic debridement of the labral tear without performing osteochondroplasty. He was followed up at 6 weeks and at 3 months. He was complaining of increasing pain and popping sensation in his hip. MRI and CT scans confirmed he had an undisplaced subcapital neck of femur fracture without any history of fall. He later had undergone a cannulated hip screw fixation. The primary cause of a hip fracture following hip arthroscopy was a femoral osteochondroplasty combined with early weight bearing (before 6 weeks post-operatively) as per literature. But our case was an extremely rare one where we did not perform femoral osteochondroplasty but he sustained this fracture. We retrospectively studied if restricted weight bearing should be a protocol following hip arthroscopy even without performing osteochondroplasty.

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TB MASQUERADING AS TUMOUR: A SEVEN-YEAR STUDY OF 30 CASES OF LONG BONE TUBERCULOSIS PRESENTING AS TUMOURS

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Tuberculosis affects on an average 2.79 million people in India annually, of this about only 10 to 15 % affect the osteoarticular regions of the body. Majority of these infections affect the spine and smaller bones of the body where the clinical and radiological picture of commonly affected osteoarticular regions is well defined. We have retrospectively analysed 30 patients with tuberculosis of long bones referred to the orthopaedic oncology department with suspected bone tumors. With very sparse knowledge and literature on the clinical and radiological aspects of tuberculosis affecting long bones there is a need to bridge the gap. We retrospectively analysed 30 patients referred to the department of orthopaedic oncology at a tertiary referral center in Mumbai, India. All patients with imaging suspicion of tumour underwent a biopsy for tissue diagnosis. As a protocol in our institute, all samples were evaluated for histopathology and microbiology cultures. Imaging and tissue diagnoses that were performed outside our institute, were reviewed at our center by specialists in musculoskeletal radiology and pathology respectively. Demographic data, clinical presentation, radiological imaging tissue diagnosis reports were analysed for these patients. All data was entered into a spreadsheet for analysis. A diagnostic protocol was formulated by our institute which aims to reduce these diagnostic dilemmas. Results of the 30 reported as tumor, tuberculosis was confirmed in 9 patients by positive cultures and 30 patients had diagnosis of tuberculosis on histopathology. 2 patients with suspected metastasis to lungs were ruled out as TB on lung biopsy. 2 required a repeat biopsy. only 4 required surgery.

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EPIDURAL ANALGESIC INJECTIONS AND THE RISK OF OSTEOPOROSIS IN SPONDYLOSIS PATIENTS: A NATIONWIDE POPULATION-BASED COHORT STUDY

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Introduction: Epidural analgesic injections (EAI) involve local anesthetic, steroids, or both into the spinal epidural space between ligamentum flavum and dura. The procedures are considered a reasonable approach for lumbosacral radiculopathy. The refractory period to analgesic medications may prolong over six weeks, which makes an option of nonsurgical management. However, recent studies have revealed the negative effect of epidural steroid injection on bone mineral density. This article is aim to study the association between EAIs and the risk of osteoporosis based on the nationwide population database. Methods: In this study, 5,253 patients diagnosed with spondylosis and have received EAIs were identified from National Health Insurance Research Database (2000-2013). Each patient was randomly selected and frequency-matched with an individual without epidural analgesic injections by age, sex, and the index year. Results: The incidence rates of osteoporosis in EAIs group and non-EAIs group were 8.42 and 7.30 per 1,000 person-years, respectively, in the spondylosis cohort. The EAIs group had a higher risk of osteoporosis [adjusted subhazard ratio (aSHR) = 1.21, 95% confidence interval (CI) = 1.03–1.42]. The other correlated risk factors included male (aSHR = 1.33, 95% CI = 1.00-1.77), lowest urbanization level (aSHR = 1.42, 95% CI = 1.07-1.89), primarily retired, unemployed, or low income populations.(aSHR = 1.86, 95% CI = 1.14-3.06) Conclusion: EAIs in spondylosis are related to higher risks of osteoporosis. The therapy should be recommended with caution, especially in patients with correlated risk factors, such as osteoporotic fracture, lower social economic status and retired or unemployed status.

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Abstract no.: 50775

ANATOMICAL STUDY AND CLINICAL APPLICATIONS OF THE ANTEROLATERAL ISLAND FLAP OF THE LOWER LEG TO REPAIR OF TIBIAL BONE EXPOSURE

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To explore surgical methods of repairing tibial bone exposure using the anterolateral island flap of the lower leg, the location, external diameters, anastomosis and distribution of perforators from the anterior tibial artery and the peroneal artery in the anterior septum of the lower leg were observed on 40 legs of cadaveric specimens. Arterial angiography was performed in 4 fresh leg specimens. Clinically, 11 cases with tibial bone exposure were repaired with the anterolateral island flap of the lower leg. The area of the skin defect ranged from 6cm×4cm to 12cm×4cm. An arterial chain is formed by the interconnection of the superficial peroneal artery, the anterior septocutaneous perforator from distal part of the anterior tibial artery and the anterior end-perforator of the peroneal artery. It runs in the anterior septum and goes parallel with the superficial peroneal nerve to supply blood to adjacent fascia and skin. The external diameters of the three perforators are (1.4±0.4) mm, (1.0±0.4) mm and (1.5±0.4) mm respectively, the external diameter of the arterial chain is (0.6±0.2) mm. In clinic, we successfully designed 4 methods to repair 11 cases of tibial bone exposure with the anterolateral island flap of lower leg. The area of the flaps ranged between 7 cm×5 cm and 13 cm×5 cm. All patients were followed up over average 1.5 years. All flaps survived without any diabrosis and swelling. The anterolateral island flaps pedicled with perforators arising from the anterior septum of the lower leg is an ideal option to repair tibial bone exposure.

Date: 2018-10-12
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Abstract no.: 50771

BASIC FIBROBLAST GROWTH FACTOR AND AGAROSE GEL PROMOTES THE ABILITY OF IMMUNO-PRIVILEGE OF ALLOGENEIC CARTILAGE TRANSPLANTATION IN RATS

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Introduction: Allogeneic cartilage transplantation is used to treat severe osteochondral defects or cartilaginous injury. However, acute immune rejection has been a key problem against process of graft healing after surgery. By means of basic fibroblast growth factor and agarose gel, observing whether this combination would ease the inflammation and promote grafting for repair. Methods: Full-thickness osteochondral defect model of rat hind limbs were performed. The implants were set into defect region. Blood and spleen samples were collected for inflammatory cell analysis from postoperative days 3 onward, including macrophages, nature killer cells, CD4+CD25+Foxp3+ regulatory T cells, CD4+-T cells and CD8+-T cells. Gross observing and histologic staining were sequentially carried out at same time point to assess the repair effect of cartilage graft and the degree of immune rejection. Results: The performance of experiment group was very closed to autologous group. In aspect of inflammatory cell analysis, macrophages percentage of allograft successively maintained at higher level in spleen and blood tissues, percentage of CD4+-T cells in the allogeneic group was higher than that in autologous group and the other agarose groups at 6 weeks after transplantation. Tregs in autograft were increasingly positive from postoperative week 1, similar results were observed in groups containing basic fibroblast growth factor since postoperative week 3. Conclusions: Allogeneic cartilage transplantation definitely cause serious acute immune rejection, and further destroy the restoration of implant. But the combination of basic fibroblast growth factor and agarose gel probably achieves the goal of immuno-privilege and promotes the rehabilitation of allograft tissues.

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Abstract no.: 50753

AN EXPLORATORY STUDY OF ARTICULAR CARTILAGE AND SUBCHONDRAL BONE RECONSTRUCTION WITH BMSCS COMBINED WITH POROUS TANTALUM/BIO-GIDE COLLAGEN MEMBRANE IN ONFH

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Osteonecrosis of the femoral head results in collapse of the femoral head and rapid destruction of the hip joint. The repair of post-collapse articular cartilage and subchondral bone is challenging. We interrupted the blood supply to the femoral head and established a full-thickness articular defect animal model after ONFH was determined via X-ray. Porous tantalum and a Bio-Gide collagen membrane, co-cultured with bone marrow mesenchymal stem cells (BMSCs) in vitro, were implanted into the defect zone to repair the full-thickness articular defect. Hyaline cartilage was detected on top of the tantalum near the edge of the defect 12 weeks post-operatively. Porous tantalum and a Bio-Gide collagen membrane with BMSCs may repair full-thickness articular defects if the blood supply can be reconstructed in the post-collapse stage of ONFH.

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Abstract no.: 50319

STUDY AND FOLLOW-UP OF SEMI HALLUX NAIL FLAP FOR FINGERTIP RECONSTRUCTION

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Objective: To investigate the feasibility and problem for semi hallux nail flap in fingertip reconstruction. Methods: 69 fingers in 64 cases with complete or partial defect, distal skin avulsion, skin tube anaplastic and replantation failure were included. All cases were used semi hallux nail flap for reconstruction. Function and appearance of the hallux and finger were documented. Results: After followed for 2 ~ 10 years, the pulp was plump and flexible, nail length, width were similar to the uninjured side, the appearance was nice, skin sensation recovered, two-point discrimination reached to 4 ~ 5 mm, finger function was well. 7 cases were bilateral asymmetry without nail fold, nail edge exposure, 8 cases showed shallow nail groove compared with the contralateral side, which were analyzed the reason and improved the method. Donor site showed nail growth, with fibular flap coverage. No discomfort was noticed in long-term walking. Patients were satisfied with the shape of the toes and the reconstructed fingers. Conclusion: Semi hallux nail flap is an ideal method for repairing distal finger defect.

Date: 2018-10-12
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Abstract no.: 50746

TO EVALUATE THE MAGNETIC RESONANCE IMAGING OF TRUNK MUSCULATURE AND DISCS IN SPINAL CORD INJURY PATIENTS WITH THORACIC AND LUMBAR VERTEBRAL FRACTURES

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Introduction: Muscle atrophy is immediate consequence of spinal cord injury (SCI); and this change occurs rapidly after injury with its associated complications. Aim of the present study was to MRI evaluation of trunk musculature and discs in SCI patients with thoracic and lumbar fractures. Methods: Fifty-one patients with mean age 31.75 ± 10.42 years with traumatic SCI were included in the study. Complete neurological (ASIA grading) and MRI examinations were done at presentation, 3 months, and 6 months to study neurological status, and disc & trunk parameters. Decision on type of management (operative vs. conservative) was made depending on the clinical, radiological, and MRI evaluation; and a robust rehabilitation programme was initiated. Results: Disc parameters including disc angle, skin angle, cross section (CSA) & height of disc; and trunk parameters including mean trunk width and depth, CSA of lumbar muscles decreased significantly ($p < 0.001$) during first 3 months of SCI. Thereafter, an increase in disc and muscle parameters was observed during 3 months to 6 months follow-up; but these parameters were not restored to initial level. There was no significant effect of initial neurological status (complete vs. incomplete) and type of management (operative vs. conservative) on these parameters in the cohort. Conclusions: Spinal trauma immediately leads to physiological, anatomical and biomechanical alterations in discs and paraspinal muscles. Targeted therapeutic and rehabilitation strategies should be introduced in this period to minimize these infra-lesional changes with their inherent long term consequences. Future researches should evaluate the exact cause of these alterations and effect of such interventions.

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Abstract no.: 50729

PREVALENCE OF DEEP VENOUS THROMBOSIS IN PERIARTICULAR HIP AND KNEE FRACTURES AND SURGERIES

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Background: Deep Vein Thrombosis remains the major concern in orthopaedic surgery. We evaluated the prevalence of DVT after periarticular hip and knee fractures and surgeries around them. Methods: The study included 191 patients operated between Aug'16 to Dec'17 for surgeries around hip and knee. Patients were assessed in the form of blood investigations PT/APTT/INR, D dimer, color Doppler pre and post-operatively. Diagnosis of DVT was made on findings suggestive of deep venous thrombosis on Doppler study of bilateral lower limbs. Majority of our patients did not show any clinical features suggestive of DVT postoperatively. Results: 16% of patients had proximal DVT which was diagnosed on Doppler ultrasonography. Prevalence around knee surgeries was 29.4 and around hip surgeries 23.7 with an overall prevalence of 27.1. Out of 191 patients included in the study, 124 patients were given spinal anaesthesia and DVT was seen in 25 patients (20%). General anaesthesia was given in 23 patients and 13 had DVT revealing a prevalence of 56%. Combined spinal and epidural anaesthesia was given in 33 patients and DVT was found in 11 patients at a prevalence rate of 33 percent. Incidence of DVT increases with increase in tourniquet time. Conclusion: This study reveals the importance of screening people with Doppler ultrasonography to look for asymptomatic deep venous thrombosis. It also prevented any false positive cases as well as forewarned the surgeon regarding presence of asymptomatic DVT in patients. Majority of patients were asymptomatic clinically and only 6 patients had clinical signs suggestive of DVT.

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Abstract no.: 51189

LOW COST MENISCAL REPAIR TECHNIQUE

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Meniscal sutures were started in 2001 at Hospital do Trabalhador, a public hospital that serves the Brazilian public system. A low-cost system was implanted not to spare the health's income. Initially a 17-point epidural needle was used, a prolene 1 as a guide wire that would easily slide through the interior of the needle and strength enough to a pull an ethibond 2 through to make the stitch. Facing the difficulty during bigger knees' procedures, we chose to use a longer needle that is used by anesthesiologists in obese patients. Thus, a bariatric epidural needle has been used with several advantages as its length which allows us do a posterior horn of medial and lateral meniscus suture, facilitate the exposition of the needle tip out of the incision, better localization of the guide wire in the posteromedial or posterolateral approach. Another advantage is the malleability of this kind of needle, adapted to overlap a huge tibial spine or a better conformation for difficult portions of the meniscal suture. Root sutures can be easily fixed, because it's length reach the meniscal root by bony tunnels created by the Kirschner's wires positioned with standard ACL tibial guide. Conclusion: Affordable meniscal suture method with low cost material brings high quality of the repair in several situations.

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OSTEOID OSTEOMA IN THE HAND: CASES REPORT AND REVIEW OF LITERATURE

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Background: Osteoid osteoma is a well-known benign tumor of bone. It occurs in children and young adults and is rarely seen above the age of 40. It is uncommon in hand and wrist. If it occurs in hand and wrist, its diagnosis is difficult because of its unusual presentations both clinically and radiologically. Materials and Methods: We encountered 13 patients with osteoid osteoma of hand during the last ten years in orthopedic department of university hospital. Results: The average age was 22.9 years (range, 14 to 33 years). Five lesions were in proximal phalanx, two in middle phalanx, and one in distal phalanx. In the wrist, one lesion was in the capitate, one in the lunate, and one in the hamate, one in the triquetrum and one in the trapezoid. The average time from onset of symptoms to successful treatment was 20 months (range, 4 months to 60 months). 4 of 13 patients had had treatment elsewhere, all of them had unsuccessful operative procedures related to incorrect diagnosis. All patients had a minimum follow-up of 6 months (range, 6 months to 9 years, mean: 4.6 years). The operative treatment were successful in all ten patients without any signs or symptoms of recurrence. Only limitation of proximal interphalangeal joint range of motion was remained in one patient due to 60 months delay in diagnosis and treatment. Conclusion: High index of suspicion is necessary for diagnosis of osteoid osteoma of hand because of unusual presentation of it.

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Abstract no.: 50670

TRANSABDOMINAL APPROACH IN THE SURGICAL TREATMENT OF COMPLEX ACETABULAR FRACTURES

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Introduction: Two-column, T-shaped, transverse acetabulum fractures with central femoral head displacement are the most difficult. Previously, in such situations, we used ilio-inguinal approach or a combination of iliac and Stoppa approaches. Methods: Since 2015 transabdominal approach has been used in 20 cases: in 2 type E, 4 type D, 4 type H, 10 type J fractures according to Letournel. We used an oblique transabdominal approach like Lenander incision for appendectomy. The structures of the anterior abdominal wall were dissected, bypassing the peritoneum and external iliac vessels. After dissection of the fascia iliopsoas and periosteum, access to the anterior acetabulum column and the quadrilateral plate was made. Fracture reposition and osteosynthesis were carried out through a single window, which was displaced in any direction due to good mobility of soft tissues in this zone. Anterior column, roof and quadrilateral plate were fixed by curved spring plate on anteromedial surface of the pelvic brim and supraacetabular screws. Posterior column was fixed by inter-column long screws. Complications: 2 cases of neuropathy of the femoral nerve. Cases of wound infection, paraarticular ossification, avascular necrosis were not. Results: Anatomical reduction by Matta was obtained in 12 cases (60%), satisfactory in 8 cases (40%). Mean follow-up was 2.5 years. In 70% of cases consolidation of fragments and restoration of limb function were observed in 6 months after surgery. Post-traumatic coxarthrosis was noted in 3 cases (15%). Conclusion: Presented transabdominal approach is a good option for visualizing the central acetabulum fracture displacements and their rigid fixation.

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MAGNETIC RESONANCE IMAGING FEATURES OF EPIDERMOID CYSTS

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Introduction: Epidermoid cysts are common and often resected as a skin or subcutaneous tumor, without using preoperative diagnostic imaging. However, differential diagnosis from other subcutaneous and soft tissue tumors is sometimes required. Method: We examined 60 patients who underwent resection of epidermoid cysts between 2001 and 2017. The sites of occurrence were the neck in 11 patients; back in 10; fingers in 7; elbows in 6; toes or the sole in 5; buttocks in 5; shoulders, thighs, knees, and lower legs in 3 patients each; and the back of the head, abdomen, inguinal region, and perineum in 1 patient each. Results: MRI showed well-circumscribed lesions in all cases; lesions were hypointense, isointense, and hyperintense to the surrounding muscle on T1-weighted images (T1WI) in 4, 36, and 20 cases, respectively. T2-weighted images (T2WI) showed high-intensity in all lesions; 30 of these lesions were uniformly hyperintense and the other 30 lesions had slightly hypointense areas with linear, spotty, or granular figures. Contrast-enhanced MRI performed in 10 patients showed only enhancement of the cyst wall. Discussion: The epidermoid cysts showed iso- or high-intensity on T1WI in 56 of 60 cases. As keratin is rich in cysts, the T1 relaxation time is reduced, and the keratin is thus visualized as a white area. Hyperintense lesions on T2WI contained inhomogeneous slightly hypointense areas in 30 of 60 lesions, which was suggestive of the aggregation of keratin. These findings will facilitate diagnostic imaging of epidermoid cysts.

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Abstract no.: 50602

VARIATIONS OF THE ENTRY PORTAL FOR THE INTRAMEDULLARY PROSTHETIC OF THE HUMERUS DEPENDING ON THE NECK SHAFT ANGLE

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Introduction: The ideal entry portal can be determined at the point of projection line of the centroid of the medullary canal to the humeral head. The shape and angle of the proximal portion of the prosthesis or nail should be taken into consideration. Methods: 3D images of 36 cadaveric humeri with various neck shaft angles (NSA) were reconstructed using computerized surgical simulation program. The distance between the projection point of the centroid line of the proximal medullary canal and the lowest point of the bicipital groove was measured in anteroposteriorly and mediolaterally. The difference among humeri with various NSA was analysed. Results: The projection point of the centroid line of the medullary canal was located 8.7 mm posteriorly and 11.1 mm medially in average from the lowest point of the bicipital groove. These points were 8.5 mm posteriorly and 11.2 mm medially in the humeri with standard NSA, 7.9 mm posteriorly and 9.3 mm medially in varus NSA, whereas 10.4mm posteriorly and 14.1 mm medially in valgus NSA. Conclusion: The position of entry portal for the proximal humerus with standard NSA did not differ greatly from the point already known. However, attention should be paid when choosing the point in the humeri with varus or valgus NSA since the points were deviated significantly from that in standard NSA group. It is recommended especially in humeri with valgus NSA to select the position of the entry portal moving toward the center of humeral head for the better result in anatomic reconstruction.

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SIMPLE BICEPS TENODESIS USING KNOTLESS ANCHOR

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Purpose: To evaluate integrity of the simple biceps tenodesis at the bicipital groove using knotless anchor (Bio-Pushlock®) with simple stitch. **Methods:** Eighty three patients underwent biceps tenodesis using knotless anchor (Bio-Pushlock®) with simple stitch (simple one stitch and/or wrapping loop) during the period from February 2011 to October 2012 were analyzed retrospectively. The tendon was fixed in the bicipital groove about 1.5 cm distal to the entrance to the joint. The integrity of the tenodesis was evaluated by ultrasound imaging performed at 3 months and 6 months after surgery. The integrity of the tenodesis considered intact if the tendon was seen in the bicipital groove. **Results:** The 83 patients consisted of 65 males and 23 females with an average age of 56 years (range of 35~74). The tendon was not seen in the groove in 5 patients (6%) either at 6 weeks, 3 months and 6 months after surgery. In 94% the tendon was remained in the bicipital groove distal to the tenodesis site at 6 months postoperatively. No one was complained of Popeye deformity but 7 patients with intact integrity of tenodesis complained of pain and tenderness over bicipital groove at 6 months. **Conclusions:** All the failure of the biceps tenodesis occurred before 6 weeks after surgery. The simple biceps tenodesis at the bicipital groove using knotless anchor (Bio-Pushlock®) with simple stitch is an appropriate and reliable procedure with low rate of failure.

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Abstract no.: 50589

TENS AS A MINIMALLY INVASIVE TECHNIQUE FOR PAEDIATRIC LOWER LIMB FRACTURES: AN EXPERIENCE WITH 300 CASES

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Diaphyseal long bones shaft fractures are a common pediatric injury for which different treatment modalities are used. The purpose of this study was to present our experience with the outcome of lower limb long bones shaft fractures in children using the Titanium elastic stable intramedullary nails (TENS). We reviewed 300 children who underwent fixation using TENS for long bones fractures. The average age of the patients was 9.2 years (range 4 -12 years) and mean follow-up was 13.8 months. There were 246 femoral and 54 tibial fractures. All patients achieved complete healing at a mean of 7.4 weeks (range 6 - 12 weeks). Complications were recorded in 32 (10.6%) patients and included: 1 neuropraxia in a tibial shaft fracture, 17 entry site skin irritations, 6 protrusions of the wires through the skin in early cases that could be avoided later by developing a trick to cut the nail ends in a certain way, in addition we have 2 skin infections at the entry site that was resolved later by oral antibiotics. Slight limitation of knee motion was encountered in 6 patients due to nearby nail insertion for which early removal was considered. According to Flynn et al. TENS outcome scoring system, 276 (92%) cases had excellent results and 24 (8%) cases had satisfactory results. There were not poor results. The implants were removed at a mean time of 4.3 months postoperative. Conclusion: TENS is a simple, reliable, effective and minimally invasive method of treatment of pediatric long bones fractures.

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STRESS FRACTURE IN SPORTS MEDICINE

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Stress fracture is fractures of bone that result from the repeated application of a stress less than that required to fracture a bone in a single loading situation. Stress fractures comprise between 0.7 and 15.6 percent of all athletic injuries. Athletes particularly at risk of stress fracture are runners and jumpers, gymnasts and dancers and in general, the bones most commonly injured are the metatarsals, fibula, tibia and neck of femora. This study was done to see the epidemiology of stress fractures among soccer, basketball and hand ball players. Materials and methods: the records of these injuries from the sports centre files and our Orthopaedic Dept. for the year 2008-2011. Results: a total of 12 players had stress fractures, six of them are footballers of different divisions. The incidence of stress fractures was found to be 0.4 % of all the sports injuries. In conclusion; this is a limited study assessing stress fractures injuries in athletic sports. It shows that stress fractures are rare in athletic sports but when they occur, they cause long absences. The status of the field, the shoes, younger age and intensive workload appear to be risk factors. Stress fractures are a recognized complication of the chronic, intensive, weight-bearing training familiar to athletic and military populations. Bones are most susceptible to stress fracture when weakened by remodeling- related porosity, a primary stage in the adaptive response of bone to changes in patterns of loading.

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SAUVE-KAPANDJI PROCEDURE FOR MADELUNG'S DEFORMITY WITH DRUJ INSTABILITY

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Background: Idiopathic Madelung deformity (IMD), a growth disorder affecting the distal radial physis presenting usually near skeletal maturity with deformity and pain, is often associated with Distal Radio-ulnar joint (DRUJ) instability. Loss of ulnar support of the carpus leads to weakness of grip particularly in stressful activities. Methods: Ten patients (13 wrists) with IMD and DRUJ instability were managed by Sauve-Kapandji procedure through a 3cm dorso-ulnar incision. A 2cm segment of the ulna just proximal to ulnar head was extra-periosteally excised. Mean age at time of operation was 21.8 years. Mean follow-up was 16.2 months. In six patients (7 wrists) a radial metaphyseal osteotomy was added through the same dorso-ulnar incision to correct abnormal radial tilt, and was fixed by K-wires. A distally-based strip of flexor carpi ulnaris was passed through a drill hole in the proximal ulnar stump to stabilize it and was sutured on itself. Results: The DRUJ fused successfully in all cases. All radial osteotomies healed. Mean time to union was 10.3 weeks for the DRUJ and 8 weeks for the radial osteotomy. At final follow-up, all wrists were painless at rest.. The mean VAS of pain during stressful conditions improved from 6.2 to 2.3. The grip strength improved from 6.7 to 13.2 Kg. The mean DASH score improved from 41.9 to 13.2. No instability of the proximal ulnar stump or other complications were recorded during the period of study. Conclusion: Sauve-Kapandji procedure effectively treats DRUJ instability decreasing pain and improving strength of wrists with IMD.

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Abstract no.: 50114

ARTHROSCOPIC SUBACROMIAL SPACER IMPLANTATION IN PATIENTS WITH MASSIVE IRREPARABLE ROTATOR CUFF TEARS: IS IT A GOOD OPTION FOR TREATMENT? - OUR EXPERIENCE

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Introduction: The subacromial spacer reduces pain and tries to avoid the progression of osteoarthritis in patients with massive irreparable rotator cuff tears, without its reconstruction, so achieving more range of motion (ROM) is not an objective of its indication. Objective: To evaluate the clinical and functional outcomes. Material and methods: Patients who underwent arthroscopic implantation of subacromial spacer were included between January 2011-December 2014. Nine parameters were evaluated. Results: 10 patients met the inclusion criteria. Subacromial spacer was implanted and tenotomy of the long head of the biceps tendon was systematically performed. Tenodesis was performed in three cases. Mean age was 67'8 years. Right side was affected in 90%. Seven shoulders had a stage 3 frontal retraction according to Patte classification. They were immobilized for three weeks and rehabilitation program was completed. No complications were recorded. The minimum follow-up was 8 months and the mean follow-up was 10'7 months. The acromiohumeral distance increased on postoperative radiographs. The mean preoperative and postoperative ROM was anterior elevation 96'5°-106'5°, and abduction 104'5°-109'5°. Postoperative mean Constant score was 55 points. 80% would accept the same treatment compared with total shoulder replacement. Patients were satisfied with clinical outcomes. Conclusion: Patients reported less pain after surgery and an improvement in their daily life activities, although postoperative ROM did not improve too much comparing to the previous one. Longer follow-up time would be required to investigate the long-term results and reintervention rate. It is a minimally invasive procedure with good results that could avoid more aggressive surgeries.

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Room: SICOT Lounge

Abstract no.: 50105

OUR EXPERIENCE WITH ICE-CREAM CONE RECONSTRUCTION SYSTEM FOR PERIACETABULAR DEFECTS: A SERIES OF NINE CASES

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Introduction: ICE-CREAM cone system is used for the reconstruction of periacetabular defects after bone tumors resection or poor bone stock due to mobilized implants. Material and methods: Nine cases between 2013-2017. Four of them, were primary bone tumor resection (2 chondrosarcomas, 1 osteosarcoma, 1 myeloma); three cases of metastasis (breast and colon carcinomas, and lymphoma); and two patients with THA mobilization. According to Enneking-Dunhan classification, in four cases resection involved zone PII, two cases PII+PIII, and one case zone PII+HI+HII. Non-tumoral patients had IIIA defect of Paprosky classification without signs of septic mobilization. LUMIC® prosthesis was used. To achieve a stable fixation, we applied antibiotic-loaded cement around cup in all cases; and osteosynthesis plates in four patients. We engaged dual mobility cups only in five cases. Results: Two immediate postoperative complications were recorded. One dislocation, wich was resolved modifying the cup orientation and using a dual mobility cup; and one ilium peri-implant fracture. In one case, signs of radiolucency were observed in zone 7 of Gruen, without clinical symptoms. No local recurrence were observed. Two patients died due to metastatic disease and one non-tumoral patient because of no related cause. The mean follow-up in oncological patients was 18 months and 22 months in revision surgery. ECOG performance status was between 1-2. Conclusion: Massive periacetabular defects suppose a challenge for the surgeon. LUMIC® system has acceptable functional results and complications rates. Our study had several limitations, it's a retrospective clinical cases review without control group and had a small sample size.

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EXPERIENCES WITH THE OSSEOINTEGRATED PROSTHESES FOR THE REHABILITATION OF TRAUMA PATIENTS

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Introduction: The most common causes leading to amputation are traumatic injuries and occlusive vascular diseases. According to the literature, there is a relatively low percentage of use of prosthetics with a low patient satisfactory rate (5%). The OPRA (Osseointegrated Protheses for the Rehabilitation of Amputees) allows more stability by anchoring the prosthesis directly to the bone. Aim: The purpose of this study was to introduce OPRA for the rehabilitation of amputee patients in Hungary. Methods: A total of six amputees were included into the study: two male patients who suffered traumatic amputation, two female patients with Burger-disease and two male patients with progressive vascular diseases. Specially constructed titanium screw was installed in the residual bone, using OPRA technique. Six months later, the implanted screw permanently fused with the bone and an abutment was added to fixture. After physiotherapy with gradually increased loading, the final prosthesis can be attached. Results: In all cases, fusion of the implanted screw was confirmed by radiological examinations without occurrence of early complication. During the later follow-up, an arteriosclerotic patient died in myocardial infarct. One female patient complained for pain with the full-length prosthesis; the other female patient suffered hip fracture. In two cases, moderate osteoporosis was detected without screw loosening; rehabilitation was interrupted only for a two-months period. Discussion and Conclusion: The OPRA improves life quality after traumatic or vascular disease-related amputations. However, it requires careful patient selection and more parameters (osteoporosis, cardiovascular risk factors) should be evaluated prior to routine application.

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Abstract no.: 49934

CLINICAL AND RADIOLOGICAL EVALUATIONS AFTER BALLOON KYPHOPLASTY FOR OSTEOPOROTIC VERTEBRAL COMPRESSION FRACTURE: MINIMUM ONE-YEAR FOLLOW-UP

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It is unclear whether balloon kyphoplasty (BKP) may result in long-term improvements in relation to clinical and radiological evaluations. The purpose of this study is to investigate the clinical and radiological results minimally 1 year after BKP for osteoporotic vertebral compression fractures. Consecutive 19 patients underwent BKP (4 men and 15 female with average age 76.4, range, 62-87 y.o.) who had more than one-year follow up were selected. Average postoperative follow up period was 24.9±14.4 months (average±standard deviation, range, 12-56 months). We investigated Japan Orthopaedic Association score (JOA score), Japan Orthopaedic Association Back Pain Evaluation Questionnaire (JOABPEQ), visual analogue scale (VAS), decrease in fractured vertebral heights (%height), and angle of kyphosis at the lesion (local kyphosis). JOA score, JOABPEQ, and VAS were investigated at preoperative and final follow up. Radiological findings were investigated at preoperative, postoperative (<1M), and final follow up. There were statistical differences (P<0.05) in relation to JOA score and VAS. Efficacy of JOABPEQ was 9, 7, 6, 7, and 7 cases in relation to evaluation of low back pain, lumbar spinal function, walking, social activity, and psychological factor, respectively. Although there were statistical differences in %height and local kyphosis between at preoperative and postoperative evaluations, there were also statistical differences between at postoperative and final follow up evaluations. Although radiological results could not keep better conditions and evaluations using JOABPEQ were poor, BKP would be effective for low back pain in patients with osteoporotic vertebral compression fractures.

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Abstract no.: 49929

EVALUATION OF INFERIOR CAPSULAR LAXITY IN ATRAUMATIC MULTIDIRECTIONAL SHOULDER INSTABILITY BY MAGNETIC RESONANCE ARTHROGRAPHY

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Objective: To compare inferior capsular redundancy using magnetic resonance arthrography images in patients with multidirectional instability (MDI) of the shoulder and control subjects without instability with the aim of developing a screening method to evaluate inferior capsular redundancy in such patients using MRA findings. **Materials and methods:** The MRA images of patients with MDI of the shoulder (n = 65) treated over an 8-year period (February 2010 to January 2017) were retrospectively reviewed. A control group (n = 65) without instability was also selected. The inferior capsular redundancy was measured using a new method we named glenocapsular (GC) ratio. MRA images of the two groups were randomly mixed, and two orthopedic surgeon reviewers measured capsular sectional areas (CSAs) on sagittal images and GC ratios on coronal images. **Results:** CSAs and GC ratios were significantly higher in patients than controls (P < 0.001), but GC ratios more sensitively and specifically determined the presence of MDI than CSAs. A GC ratio of > 1.42 was found to be most suggestive of MDI of the shoulder due to its high sensitivity (92.3%) and specificity (89.2%). **Conclusion:** GC ratio can be easily measured and used to screen accurately for MDI of the shoulder.

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Abstract no.: 49884

SALVAGE OF EXTREMITIES WITH LONG BONE DEFECTS AND SOFT-TISSUE DEFECTS WITH MICROSURGICAL TRANSPLANTATION OF COMPLEX VASCULARISED FIBULAS

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40 patients with segmental defects of extremities long bones above 6 cm and soft tissues defects were treated with complex vascularized fibular graft. There were 29 (72,5 %) male and 11 (27,5 %) female with average age of $32,8 \pm 11,2$ years. Mainly we treated defects of the tibia (14 cases, 35%) and radius (10 cases, 25%). Defects of femur were healed in 9 patients (22,5%), humerus in 5 patients (12,5%) and there was 2 case of ulna defect (5%). We substituted segmental bone defects from 5 to 17 cm, in average – $13,7 \pm 5,1$ cm. In 22 cases (55 %) we used complex bone-skin vascularized fibular graft for concomitant skin defect substitution. Consolidation of vascularized fibula grafts with recipient bones on both ends were achieved in 32 patients during 1 to 17 months (in average $6,12 \pm 4,2$ months) after operation. We have good treatment results that meant restoration of weightbearing of the lower extremity or introduction of the upper extremity into every day life in 32 patients (80%), poor results were in 5 cases (12,5%) and fair in 3 patients (7,5%). After graft consolidation and hypertrophy weightbearing of the lower extremity were restored in 19 of 23 patients (82,6%), and form and functioning renewal in severely injured upper extremity - in 14 of 17 cases (82,35%). Complex osteocutaneous fibular graft microsurgical transplantation is technique of choice in salvage of patients with segmental defects of extremities long bones defects with soft tissues loss.

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Abstract no.: 49883

PATIENT SATISFACTION AND HEALTH LITERACY IN PATIENTS UNDERGOING ORTHOPAEDIC SURGERY

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Introduction: Patient satisfaction is increasingly recognized as a component of quality in health care, yet its correlation with outcomes is unknown. Increased health literacy, however, has been shown to correlate with improved outcomes. This study compares patient satisfaction and health literacy in patients who recently underwent orthopedic surgery and whether a correlation exists between elective orthopedic surgical patients and those operated on for trauma. Methods: Upon discharge following an orthopedic procedure, 389 patients completed three surveys: the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), which evaluates patient satisfaction; the Shortened Test of Functional Health Literacy in Adults (STOFHLA); and the Literacy in Musculoskeletal Problems (LiMP) questionnaire. Primary outcome measurements included patient satisfaction and health literacy, and whether there were differences between the elective and trauma cohorts. The relationship between demographic parameters was also assessed. Results: There were no significant differences in patient satisfaction and health literacy between the elective and trauma cohorts ($p=0.167$ and 0.267 , respectively). Health literacy did not significantly correlate with patient satisfaction in either group. Stepwise regression analysis of HCAHPS scores found self-reported general health, age, and education to significantly correlate with satisfaction ($p=0.001$, 0.019 , 0.039 , respectively). Conclusion: There was no difference in health literacy or satisfaction between the two cohorts. This refutes prior works demonstrating lower rates of health literacy and patient satisfaction in patients seeking emergency care. Future works must identify strategies that optimize patients' health literacy and satisfaction in all settings. This may be an even greater undertaking than previously thought.

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Abstract no.: 49751

LEVELS OF PLEIOTROPHIN IN SERUM AND SYNOVIAL FLUID OF KNEE OSTEOARTHRITIS PATIENTS AND CORRELATION WITH CLINICAL, LABORATORY AND RADIOLOGICAL INDICES

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Few studies have reported a possible involvement of pleiotrophin (PTN) in the pathophysiology of osteoarthritis (OA). This study is to measure PTN in the sera and synovial fluids in OA and to assess its relation to activity, functional class and radiological staging. Serum and synovial fluid samples were collected from 40 knee OA patients and serum samples were withdrawn from 20 healthy controls. Demographic, clinical and serological data were prospectively assessed. Functional and radiographic grades were also assessed. Serum and synovial fluid PTN levels were measured using enzyme-linked immunosorbent assay. There was no statistical significant differences ($p > 0.05$) on comparing the mean PTN level in sera of OA patients and healthy controls. However the mean synovial fluid level of PTN was significantly higher than mean serum level ($p < 0.001$). Our results point to a possible important role of PTN in OA. However its implementation as a disease marker or a potential target therapy awaits larger studies and further investigations.

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STRENGTH MEASUREMENT AFTER ACHILLES TENDON SURGERY

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Achilles tendon rupture (ATR) is a common and potentially devastating injury. The goal of treatment in this setting is to restore appropriate tension to the tendon while minimizing complications. Strength measurement after injury and treatment for ATR has been inconsistent in the literature. The purpose of this study is to document the means of strength measurement after ATR in the literature. 2,758 articles were found on 'Achilles tendon rupture' and 'Achilles tendon strength measurement'. All studies which objectively assessed strength were reviewed to establish the means of strength measurement after ATR. In total, 100 articles met inclusion criteria. In 81 of the papers a dynamometer was used to measure strength, while in 13 cases an endurance test was applied. In the remaining 6 cases, gait analysis was used as a more oblique measurement of the return of Achilles tendon strength. In those cases in which a dynamometer was used, there were a host of differences in terms of the logistics of strength measurement. Both isokinetic (n=65) and isometric (n=29) exercises were used; the patient did so in various positions at various degrees of knee flexion. Further, the number of measurements at a certain angular velocity varied. This study illustrates that no consensus on the optimal strength assessment after an ATR exists in the literature. This significant variability makes comparison between studies challenging and consistent conclusions difficult. We recommend the establishment of a unified protocol for strength measurement after ATR.

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FRACTURE CALCANEUS EARLY WEIGHT-BEARING

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FRACTURE CALCANEOS EARLY WEIGHT BEARING THIS STUDY FOR NEW METHODS OF TREATMENT OF THE CHALLENGING FRACTURE CALCANEOS ALLOWING EARLY WEIGHT BEARING AND AVOIDING THE COMPLICATION OF THE BOTH CLOSED AND OPEN SURGERY METHODS OF THE TREATMENT. USING ILIZAROV FRAME WHICH CAN FIX THE FRACTURE AND ENABLE THE PATIENT TO START WEIGHT BEARING DIRECTLY AFTER OPERATION BY SPECIAL FRAM DESIGN FLYING DISTAL RING NOT CONNECTED TO THE BONE BUT CONNECTED TO THE TIBIAL RING BYPASSING THE CALCANEOS ACTING AS METALLIC HEEL. RESULTS: 23 CALCANEAL FRACTURES TREATED WITH THIS METHOD 15 WERE UNILATERAL AND 4 WERE BILATERAL 2 OF THE BILATERAL HAD FRACTURE SPINE ALL THE PATIENT WERE ABLE TO START EARLY MOBILIZATION AND WEIGHT BEARING 2ND POST OPERATIVE DAY, THE HEALING TIME RANGE FROM 12 WEEKS TO 16 WEEKS IN ALL CASES EXCEPT 2 CASES IT TAKE 22 WEEKS FOLLOW UP OF THE CASES WAS SATISFYING IN ALL CASES NO OSTEOARTHRITIS OF THE ANKLE OR THE SUBTALAR JOINTS NO DEFORMITY FOLLOW UP DONE BY X-RAY AND 3D C.T.

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Abstract no.: 49651

INTRA-ARTICULAR PLATELET-RICH PLASMA INJECTION AFTER ARTHROSCOPIC HIP LABRAL REPAIR: TO USE OR NOT TO USE?

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Introduction: To assess clinical outcomes in patients undergoing arthroscopic hip labral repair and femoroacetabular osteochondroplasty for femoroacetabular impingement followed by platelet-rich plasma (PRP) injection. Patients and Methods: A prospective non-randomized controlled trial was conducted in radiological stage Tönnis 0-1 hips: study group (Group A) including 24 patients that received intra-articular injection of 8 cc of PRP and control group including 14 patients (Group B) that were not injected with PRP. All patients underwent arthroscopic hip labral repair, femoroacetabular osteochondroplasty and, at case conclusion, study group received PRP injection. Clinical outcome scores, including Modified Harris Hip Score and Hip Outcome Score were collected prior to surgery at 6, 12 and a minimum of 12 months postoperatively. Results: Age range was between 18 and 55 years. The mean of Hip Outcome Score in group (A) was preoperatively (62.31) and one year postoperatively (77.07). For group (B), it was preoperatively (55.21) and one year postoperatively (81.28). The mean of Modified Harris Hip Score in group (A) was (75.30) preoperatively and (89.84) postoperatively at one year follow up. For group (B), it was (67.19) preoperatively and (91.47) postoperatively at one year follow up. This was compared with Mann-Whitney test to be considered significant if P-value is <0.05. Conclusion: No significant difference was found between the two groups at one year follow up. An intra-articular injection of PRP did not affect outcome scores at 12 months postoperatively in patients undergoing arthroscopic hip labral repair and femoroacetabular osteochondroplasty.

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Abstract no.: 49552

**LAMINA-SPECIFIC REPAIR FOR DELAMINATED ROTATOR CUFF TEAR:
CLINICAL AND MRI FOLLOW-UP**

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Introduction: Restoration of normal anatomy of rotator cuff is challenging in delaminated rotator cuff tear, because the discrepancy of retraction of bursal and articular layers is different, together with different tear configurations and degenerations. We estimated incidence of delaminated rotator cuff tear and evaluated clinical outcomes and MRI results following lamina-specific repair. Methods: From 2014 to 2016, 95 patients undergoing arthroscopic lamina-specific repair for the treatment of delaminated rotator cuff tear were evaluated. Inclusion criteria were delaminated tear with 1) larger than medium-size tear, 2) presence of articular layer reparability and 3) more than 1 year follow-up. Clinical outcomes were evaluated by VAS and ASES scores preoperatively and 1 year postoperatively. In radiologic examination, serial MRI was used to find cuff integrity in 3 days, 3 months and 1 year postoperatively. Results: Among 489 patients undergoing arthroscopic rotator cuff repair, delamination was seen in 276 and the incidence was 56%. Lamina-specific repair was done in 168 patients and 95 were followed in study. Clinically, VAS score was improved from 6.95 to 1.53, ASES score was improved from 52.5 to 91.3. In MRI 1 year postoperatively, Sugaya type I integrity was 31 patients, type II 40, type III 14, type IV 4, type V 6 and the retear rate was 10.5%. Conclusion: Delamination was seen in 56% of all rotator cuff tears. Lamina-specific repair resulted in 10.5% retear rate and good clinical outcomes. Proper repair plan for anatomic restoration in delaminated rotator cuff tear can produce better clinical and radiological outcomes.

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IS THERE ANY REASON FOR CONCERN ABOUT LIGHT HANDLE CONTAMINATION IN ORTHOPAEDIC OPERATING THEATRES?

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The light handle can be a major source of contamination in operation theatres where surgeries are prolonged and light handles need to be manipulated multiple times. The light handle by sheer size can obstruct laminar flow and cause eddy currents and can cause bacterial deposition on light handle which in turn can contaminate light handles. A study of light handle contamination was done from November 2010 to December 2010 at Blackpool Victoria hospital from swabs taken from light handles during preoperative, intra operative and post operative period from a single laminar flow operating theatre. A total of 40 cases were selected for study. Most of our cases were primary hip and knee replacement. The swabs were cultured into blood agar /mccconkey medium and incubated for 48 hours at 37 degree Celsius. None of the swabs showed any bacterial contamination which shows light handle is not a source of intraoperative contamination. Our trial gives a point estimate of 0% contamination rate, upper limit of the 95% confidence interval of the probability of contamination as 7.5%. we conclude that light handle is not a source of contamination in operation theatres and hence no need to change gloves every time we manipulate light handle.

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Abstract no.: 49508

DELTOID LIGAMENT AUGMENTATION INSTEAD OF TRANS-SYNDesmOTIC SCREW FIXATION: A SERIES OF CASES STUDIES

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Objective: Weber type C ankle fracture combined with deltoid ligament injury usually involves syndesmotic injury. Traditionally, trans-syndesmotic screw fixation was used, but with high complications rate. We reported a series of cases using deep deltoid ligaments augmentation replacing trans-syndesmotic screw fixation. The clinical feasibility was explored and patients' functions were assessed. **Methods:** There were 16 patients enrolled, with an average age of 31.4 years. After anatomic reduction and solidly fixation of lateral malleolus fractures, stress tests were performed and widen syndesmosis and medial clear spaces were found in all patients. Then longitudinal incision at the medial malleolus was made, injured deep deltoid ligament was seen directly with valgus loads. Suture anchors were inserted at the attachment of deep deltoid ligament at talus. Then two bony canals at the medial malleolus were drilled. And suture limbs were passed through the bony canals and fastened. Stress test was then performed again to ensure the stability of syndesmosis and the position of talus in mortise. **Results:** The mean follow-up period was 13.6 months. The average dorsiflexion was 14.6 degree (range from 10 degree to 20 degree), which was 5.4 degree (range from 0 to 20 degree) less than the uninjured side. The average plantar flexion was 55.2 degree, 3.3 degree (range from 0 to 10 degree) less compared with the uninjured side. The average Philips and Schwartz score was 94.2 (range from 86 to 100). **Conclusions:** Deep deltoid ligament augmentation was an effective way to replace syndesmosis fixation.

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Abstract no.: 50758

ATTENTION TO THE RADIAL HEAD SUBLUXATION OR DELAYED DISLOCATION IN PROXIMAL ULNAR FRACTURES AND ELBOW INJURY CHILDREN

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In this study we investigated the radial head subluxation or delayed dislocation in proximal ulnar fractures and elbow injury. Twenty-two patients were enrolled with either mild proximal ulnar fracture or elbow injury. There were 16 boys and 8 girls with an average age of 4.28. Two patients treated with cast immobilization only in emergency room (ER), and received radial head reduction at the first time follow-up. Reduction was performed with or without cast immobilization in other 20 patients in ER. Clinical and radiographic assessment was obtained at the first time and an average follow-up time of 1 and 2 months, respectively. Twenty patients treated with traction and radial head reduction in ER. It was shown that 90% patients (18/20) had radial head subluxation. All the patients with radial head subluxation had the same clinical findings, which included swelling elbow on radial side, passive forearm pronation position, limited motion on pronation and limitation on finger extension. All the patients with radial head subluxation restoration function after reduction. Two delayed radial head dislocation were reduction closely at day 3 and day 5 and healed well. Radial head subluxation was easy to be ignored in proximal ulnar fractures and elbow injury children in the first X-ray. It should be highly paid attention to radial head in most elbow injury with swelling on radial side and forearm motion limitation kids. Traction and rotation are the most simple and helpful way to be done.

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Abstract no.: 49483

TREATMENT OF PAEDIATRIC FEMUR SHAFT FRACTURES WITH IMMEDIATE HIP SPICA CAST IN LOW RESOURCE SETTINGS OR DISASTER SITUATIONS

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The non-operative treatment of femoral shaft fractures in children is still in common practice despite the fact that surgical treatment has been shown to be very efficient. In the related literature, this non operative treatment generally consists in the placement of an immediate or delayed hip spica cast under radioscopic control of the fracture reduction. In low resource settings or in disaster situations, femoral shaft fractures in children are very common but a c-arm is mostly not available. This study presents the treatment outcome of pediatric femoral shaft fractures after the placement of a hip-spica cast with synthetic cast tape according to an original three-step technique. Material and methods: 39 injured children presenting femoral shaft fractures were treated with an immediate hip spica cast applied according to the three step technique. Neither radioscopy nor an orthopedic table were necessary. After consolidation, the leg length, the angulations and rotations between the proximal and distal bone fragments were recorded from control X-rays. The functional capacity of the affected leg was evaluated on a patient questionnaire based on that of the Activities Scale for Kids ®. Results: The collected data's analysis shows that it is possible with this simple technique to obtain fracture reduction with maximal angular deformities of 30° and an average shortening of the injured leg of 0.9cm. Both situations are expected to be corrected during growth. Conclusion: This technique can therefore be considered as a good treatment alternative for pediatric femoral shaft fracture in developing countries or in disaster situations.

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HINGED KNEE PROSTHESIS AS AN OPTION IN PRIMARY TOTAL KNEE REPLACEMENT

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Background: Instability is an important cause of failure following total knee arthroplasty. Constraint implant have design elements in the implant that provides stability in the absence of Adequate soft-tissue cover. primary total knee arthroplasties are performed for knees without substantial deformity hence a posterior cruciate-retaining design is appropriate. Patients with prior patellectomies, rheumatoid arthritis, or severe deformities, a posterior-stabilized knee may be favored. Hinged knee implants are recommended for patients with severe deformity or instability. The objectives of this study were: to assess the improvement in pain relief post-operatively, stability, knee society score (KSS) pre-operatively and post operatively, radiological outcome of total knee arthroplasty and to assess the correction of deformities in patients with severe knee deformities and soft tissue defect following total knee replacement with hinged knee prosthesis as a primary option. Methods: The study was conducted on 10 patients who have undergone Primary total knee replacement, With Department of Orthopaedics, SRMC Porur Chennai. The patients were assessed clinically, functionally using the Knee Society Score at 6weeks, 12 weeks, 24 weeks. Results: Alignment of prosthesis was found satisfactory in all patients. Flexion deformity, valgus and varus correction achieved in all the patients. Conclusions: Total knee arthroplasty resulted in excellent relief of pain, range of motion, and continues to function well during the follow-up period. Improvement in clinical score correlated significantly with improvement in functional score. Hinged knee prosthesis can be preferred in primary knee replacement in patients with severe deformities and soft tissue defects.