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Vascularized Osteocutaneous Posterior Interosseous Bone Flap for the Treatment of Nonunion of Forearm Bones

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Background :Forearm nonunion is a challenging condition for orthopaedic surgeons.

Objectives :In this study, we used a new technique for the treatment of forearm nonunion with bone loss and/or current signs of infection.

Patients and Methods :Four patients were managed with thorough debridement and a vascularized regional osteocutaneous flap from the distal ulna based on the posterior interosseous artery.

Results :Union was achieved after an average of 3.75 months. Skin flap was viable in all patients. The Quick DASH score, VAS score and forearm and elbow range of motion improved compared to preoperative evaluations.

Conclusions :A posterior interosseous osteocutaneous flap from the distal ulna is a reliable vascularized bone graft for managing forearm nonunion.

Keywords :Bone Flap; Fractures; Ununited; Forearm

Involvement of the lesser sigmoid notch in elbow fracture dislocations

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Background :This study addressed the primary null hypothesis that there is no difference in the articular surface area of the lesser sigmoid notch involved among Mayo classes. Secondly, we analyzed the fracture line location and the pattern of lesser sigmoid notch articular surface involvement among Mayo classes.

Methods :Using quantitative 3-dimensional computed tomography, we reconstructed and analyzed fractures involving the lesser sigmoid notch articular surface in 52 patients. Further, we assessed the surface area involved in the fracture, the number of fracture fragments, and the location and direction of the fracture lines. Coronoid fractures were classified according to Mayo types.

Results :There was no significant difference between Mayo types 1 and 2 in any characteristic of the involvement of the lesser sigmoid notch articular surface, whereas Mayo type 3 was significantly different from both Mayo types 1 and 2 in the area involved in the fracture (42% in Mayo type 3 vs. 9% in Mayo types 1 and 2), the number of articular fragments (>3 fragments in type 3 vs. 2

fragments in types 1 and 2), and the direction of fracture line (both horizontal and vertical lines in type 3 vs. only horizontal line in types 1 and 2).

Conclusion: Mayo type III results in a more complex fracture, which might need to be addressed directly or indirectly during open reduction with internal fixation of olecranon fracture dislocations because changes in the geometry of lesser sigmoid notch may affect the radioulnar joint if it remains incongruent.

Level of evidence: Basic Science Study; Validation of Outcomes Instruments/ Classification Systems 2016 © Journal of Shoulder and Elbow Surgery Board of Trustees. All rights reserved.

Keywords: Mayo; lesser sigmoid notch; coronoid; Q3DCT; elbow fracture; Monteggia; terrible triad; varus, posteromedial instability

Interfragmentary motion assessment for three different fixation techniques of Femoral neck fractures in young adults

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Background :Vertical femoral neck fractures in the youth could be happened in high-energy accidents, and because of dominant shearing forces, this fracture is considered as a troublesome injury with a controversy regarding selection of the best fixation method.

Objective :The long term goal of this quasi-experimental study was to find the more stable fixation method among cannulated screws (CSs), proximal femoral locking plate (PFLP), and dynamic hip screw with derotational screw) DHS+DS) for this kind of fracture.

Methods: Twelve fresh-frozen cadaveric femurs were assigned to three groups that were matched for mean bone mineral density

and stiffness of intact bone. Vertical fractures were artificially mimicked in the specimens and fixed using three different implants, i.e. CSs, PFLP, and DHS+DS. Then, the samples were tested under incremental, cyclic, and failure loading phases.

Results: The differences in all biomechanical parameters were statistically significant among tested groups ($p < 0.05$). All biomechanical parameters for the DHS+DS method of fixation are significantly different from those corresponding to CSs ($p < 0.05$). There were no significant differences in failure load and failure energy between the PFLP and CSs techniques ($p > 0.05$). Also, there were no significant differences in relative stiffness and femoral head displacement between the PFLP and DHS+DS groups ($p > 0.05$).

Conclusions: Based on the clinical assumption that restricted weight-bearing regimen is recommended in the postoperative rehabilitation protocol, the results of this study suggest that the priority order of selection for the stable fixation implant of vertical femoral neck fracture in young patients is DHS+DS, then PFLP, and finally CSs.

The effects of sub-trochanteric osteotomy on femoral head osteonecrosis induced by Femoral neck surgery on rabbits, an experimental study

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Backgrounds :Femoral head osteonecrosis (FHN) is a progressive disease which could lead to hip joint dysfunction if it is not treated. Circumstantially, we figured out that two FHN patients with sub-trochanteric fracture caused by technical error during core-decompression surgery were completely treated after fixation so that we tried an experimental study of sub-

trochanteric surgery on rabbits as a treatment for FHN.

Methods :As a pilot study, bilateral femoral neck surgery was performed on 10 male mature rabbits to induce FHN. After the assurance of FHN induction by radiography at the end of 6th week unilateral-left side, sub-trochanteric osteotomy (shortening) and fixation with plates were performed. 12 weeks later, radiography was done for the Ficat and femoral head collapse staging and then the rabbits were sacrificed for femoral head pathology studies.

Results :Based on radiologic findings, at the right side, significant changes were seen in Ficat staging (P-Value = 0.04) and femoral head collaps (P-Value = 0.028) which might express the progression of the lesion, in contrary no significant changes were observed at the left side in Ficatstaging(P-Value = 0.125) and femoral head collapse (P-Value = 0.51) which might express the inhibitory effects of osteotomy on lesion progression. Based on pathologic findings there were no significant changes in Residual Bone Necrosis and New Bone Formation in comparison with both sides which might be due to insufficient sample size but some good pathologic changes were observed in the percent of osteotomy side samples.

Conclusions :Despite there were no or few significant changes in pathologic and radiologic findings in the statistical exams, sub-trochanteric osteotomy had good effects in the percent of samples which might express the inhibitory effects on disease progression which needs more investigations with sufficient sample size.

Femoral Head Necrosis, Femur Neck Surgery, Sub-trochanteric Osteotomy

Is there a difference in cup inclination on the right and left sides after bilateral simultaneous total hip arthroplasty by direct anterior approach: a radiographic assessment?

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Backgrounds :Simultaneous bilateral total hip arthroplasty (THA) has shown good outcomes and due to the supine position of the patient, the direct anterior approach (DAA) facilitates this operation. The aim of this study was to compare cup inclination between the right and left sides after bilateral simultaneous total hip arthroplasty by direct anterior approach without intraoperative fluoroscopy guidance in postoperative anteroposterior pelvic radiographies.

Method :All simultaneous bilateral THA which were performed between 2013 and 2017 by the orthopedic department of Imam Khomeini Hospital, Tehran University of Medical Sciences by DAA were included.

Postoperative anteroposterior pelvic radiographies of patients were examined with a digital software. The angle of cup abduction in both sides was measured and compared. The sequence of surgery (starting with right side vs left side) was also considered.

Results :A total of 101 simultaneous bilateral THA were performed by DAA (71 male and 30 female patients) with a mean age of 51 years. Mean cup abduction angle was 46.5 on the right side and 48.2 on the left side with no significant difference (p-value=0.1). In subgroup analysis, there was no difference in mean cup abduction angle regarding patients age and gender.

Conclusion :One-stage bilateral THA is a safe procedure with equally acceptable cup abduction angle on both sides regardless of sequence of side of surgery and patient's age and gender.

Total hip arthroplasty in association with digastric trochanteric osteotomy and proximal shortening: a solution for old hip dysplasia

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Introduction : Symptomatic secondary arthritis is a major complication of old hip dysplasia (DDH) in a relatively young age. The definite treatment is total hip arthroplasty (THA) which has a broad spectrum of technical challenges. The purpose of this study is to evaluate the outcomes of cement less THA in patients with severe DDH.

Patients and Methods: A total 102 patients with Crowe type IV dysplasia underwent cementless total hip arthroplasty (THA) with digastric osteotomy and femoral shortening from February 2009 till March 2014, Tehran, Iran. A prospective analysis of the outcomes of THA was performed. 92 female (90.19%) and 10 male (9.80%) with a mean age of 33.17 ± 7.12 years (range 30 to 40 years) were enrolled. All patients were evaluated clinically and radiologically with serial follow-ups to obtain the possible complications .

Results : The mean modified Harris hip score improved from 44 (range: 32 to 56) preoperatively to 80 (range: 76 to 93) at final follow-up, significantly ($P < 0.0001$). At the last follow up none of patients have pain and in radiography, there was no osteolytic lesion, no presence of lucence line, trochanteric non-union, and change in inclination. All of patients had good activity at the last follow up. We reported 7 (6.86%) complications in patients; 3 sciatic nerve palsies, 2 dislocations after falling, one intra-operative femoral fracture and one intra-pelvic cup migration .

Conclusions : Cementless total hip arthroplasty using the digastric trochanteric osteotomy and proximal shortening demonstrated excellent

short- to midterm outcomes in most of Crowe type-IV hip dislocations and it is recommended for these subjects .

Keywords : Developmental hip dysplasia, Cementless total hip arthroplasty, Digastric osteotomy

Arterial intimal damage in direct anterior total hip arthroplasty: report of four cases

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Backgrounds : Arterial injury is rare during total hip arthroplasty (THA) and this may make the diagnosis and treatment extremely challenging. To our knowledge ,there is no previous report of femoral arterial injury during THA via direct anterior approach .

Methods : A thousand primary THAs were performed by the orthopedic department of Imam Khomeini Hospital, Tehran University of Medical Sciences Between 2013 and 2017. Four cases of vascular injuries during surgery were recognized. Demographics of the patients, type of injury, time to diagnosis, and management approaches were recorded.

Results : Four arterial injuries developed in 4 separate patients (3 female and 1 male patients). The time of recognition of injury was 0-10 hours after surgery. All injuries involved intimal damage, and all of them were managed by thrombectomy and bypass with venous interposition or only grafting by a vascular surgeon. One of the patients died because of developing disseminated intravascular coagulation (DIC) secondary to blood transfusion for massive bleeding. Two patients had dysplastic hip and two patients had primary hip degenerative disease.

Conclusion: The incidence of vascular complications associated with THA via direct anterior approach was remarkably low in this series in a high volume orthopedic service. The

only type of injury in our cases was intimal damage of femoral artery.

We believe that a sharp anterior Hohmann retractor which is routinely placed along the anterior acetabular rim, beneath the tendon of femoral rectus muscle may cause the injury. Therefore, we recommend using blunt retractors in this site. Furthermore, we recommend to check the distal arterial pulses immediately after surgery in order not to delay diagnosis

Aspirin is a Safe Thromboprophylaxis for Joint Arthroplasty

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Background: Venous thromboembolism is a major complication of hip and knee arthroplasty. Prophylactic anticoagulant therapy has become standard of care for joint arthroplasty patients. There is a paucity in the literature regarding the choice for thromboprophylaxis. Aspirin is a promising alternative to traditional thromboprophylaxis regimens .

Methods: A retrospective review of all patients undergoing total knee arthroplasty and total hip arthroplasty during a 5-year period at one institution was performed. History of thromboembolic incidents, type of surgery (primary or revision), thromboprophylaxis treatment after surgery, occurrence of deep vein thrombosis and pulmonary thromboemboli, and mortality were extracted for all patients. The results were then compared.

Results: Of 2439 patient records gathered, 1586 (65%) were total hip arthroplasties and 856 (35%) were total knee arthroplasties. 2154 (88%) patients received twice daily 325mg Aspirin as thromboprophylaxis agent, and 285

(%12) received LMWH. In the Aspirin group, no case of DVT or thromboembolic incident was found. In the LMWH group, 2 cases of non-fatal pulmonary emboli were found. Both cases were revision surgeries.

Conclusion : This study reiterates the growing body of evidence in support of aspirin as an effective thromboprophylaxis agents, with fewer complications than traditional heparin (conventional or low-molecular-weight) regimens .

Motor and functional outcome of abductor muscles after hip arthroplasty via in Direct lateral (Harding methods) approach

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Abstract: This study was done due to importance of results and motor and functional outcome after hip arthroplasty. The aim was assessment of patients was operated with direct lateral approach using Harding methods. The results can use to determination of efficacy Harding methods in hip arthroplasty.

Methods: The prospective cohort study was done in patients admitted to hip arthroplasty with direct lateral approach for two years. Primary follow-up carried out to assessment of soft tissue and operation site two week after surgery. Second follow-ups were in 3, 6 and 12 month after operation to assessment of motor and functional outcome of hip joint according Harris hip score (HHS), Oxford Hip Score (OHS), WOMAC Score. Quality of life was assessed with SF-36 questionnaire .Also EMG-NCV was carried out 12 month post operation .

Results : Fifty patients, 21 (42%) male and 29 (58%) female with 58.72 y (45-80 y) mean age were selected. Twelve cases (24%) and 38 cases (76%) were in hemi arthroplasty and Total hip arthroplasty (THA) groups, respectively .In hemi arthroplasty group were

8 male and 4 female and in THA group were 13 male and 25 female. Outcome assessment in 3, 6 and 12 month showed significant improvement in patient function.

Conclusions : Finally, the results showed direct lateral approach provides suitable function in patients and improvement of muscle force.

Double plate fixation together with bridging bone grafting in nonunion of femoral supracondylar, subtrochanteric and shaft fractures

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Background: The aims of the present study were to evaluate and report the therapeutic outcomes of double plate fixation in combination with autogenous bridging bone grafting in treatment of nonunion fractures of femur.

Methods: In this retrospective case series study, 41 patients with nonunion fracture of femur who underwent surgery by double plate fixation and autogenous bridging bone grafting in academic referral center from July 2010 to July 2015 were enrolled. They were evaluated for related risk factors, previous therapeutic methods, time interval between injury to nonunion surgery and surgery to full clinical and radiological union, duration of follow up, levels of post-operative limb shortening and movement limitations.

Results : Totally, 32 males and 9 females with mean age of 35 years were evaluated. Among them, 32 patients had nonunion of femoral shaft fracture, 5 patients had nonunion of femoral sub trochanteric fracture and 4 patients had nonunion of femoral supra condylar fracture. Ten patients had open

fractures and 8 patients had infected nonunion in the femoral supra condylar, sub trochanteric and shaft fractures. Nailing was the most common used method as the primary treatment of femoral shaft fractures. Mean time interval between surgery to full clinical and radiological union was about 5 months (range 4-8 months). Also, the mean follow up time was 37 months. Full union was obtained even in infected cases. Deep vein thrombosis was found in one patient and pulmonary thromboembolism in another patient and both patients were treated successfully. Moreover, limitations of articular movements were seen in 7 patients.

Conclusion: Double plate fixation in combination with bridging bone grafting is an effective method in the treatment of nonunion of femoral supra condylar, sub trochanteric and shaft fractures even in the infected cases.

Vascular injuries during Hip Arthroplasty

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Backgrounds: Vascular injury during hip arthroplasty is a rare complication which can result in serious consequences. Prompt diagnosis and management can have significant effect on outcome of these injuries.

Methods : We performed a systematic review of the literature to assess the epidemiologic data and overall reported rates of morbidity and mortality and management of these injuries during the last 27 years.(January 1990-March 2017) Pubmed, SID and EMBASE databases were systematically searched for keywords relating to vascular injuries during hip arthroplasty. Reported cases in our center in the past 27 years were added to the results. A total of 72 articles and 2 reported cases from our own center were found qualified to be included in our study. Epidemiologic data, anatomic location of injury and approach,

presentation, time of discovery, type of treatment and complications were recorded and analyzed.

Results: vascular injuries in 145 patients with mean age of 64.6 (32-87) were reported. Common femoral artery (34, 21.3%), external iliac artery (23, 14.5%), deep femoral artery (15, 9.4%) and external iliac vein (8, 5%) were the most commonly injured vessels. There was no significant difference between the reported rates of vascular injuries in posterior and anterior/anterolateral approaches. The most common recorded presentation was bleeding (35, 24.1%), pseudoaneurysm (23.4%, 34) and ischemia of the limb (28, 19.3%). 42.5% of injuries were discovered within 24 hours, and 71.7% by one week. 25.8% of injuries were discovered more than 1 month after injury. Open exploration and repair was the most common form of management, however percutaneous endovascular intervention was used in one third of the injuries. The main overall reported complications included death and persistent ischemia (each 9, 6.2%) and amputation (2, 1.3%)

Conclusions: Although the majority of vascular injuries during hip arthroplasty are diagnosed on the day of surgery, a significant number are missed and diagnosed in significantly longer periods, therefore, high clinical awareness for detection of vascular injuries is needed in postoperative period. Although not always feasible, endovascular management is being used as a viable alternative for management of vascular injuries associated with hip arthroplasty in many centers

Replacement for failed dynamic hip screw fixation of intertrochanteric fractures

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Introduction: Failure of intertrochanteric fracture fixation often occurs in patients, who have poor bone quality, severe osteoporosis, or unstable fracture patterns. Hip arthroplasty is a good replacement procedure even though it involves technical issues such as implant removal, bone loss, poor bone quality, trochanteric nonunion and difficulty of surgical exposure. The purpose of this study is to evaluate the outcomes of total hip arthroplasty (THA) as the replacement for failed fixation of intertrochanteric fractures of the femur.

Methods: Patients of failed intertrochanteric fractures between April 2009 and October 2014 were included in the study. All of them underwent total hip arthroplasty through direct lateral approach. 150 patients were male (73.8%) and 53 patients (26.1%) were female and the mean of age was 59.02 \pm 10.3 years old (range: 56-90 years). The indications of the failure were nail cut out in 174 (85.7%), nonunion in 15 (7.3%), plate failure in 14 cases (6.8%). One patient underwent two-stage protocol due to infection. We evaluated the possible clinical and radiological complications and measured functional outcome with modified Harris hip score (MHHS). We used cementless cup in nearly all of patients (95.2%), cementless long stem in 88.1% of patients.

Results : We followed patients for the mean time of 4.43 \pm 1.1 years (range 3-5 years). The mean (MHHS) was improved from 45.32 \pm 12.41 (range 40-49) to 89.37 \pm 7.41 (range 85-98) significantly (P=0.002). There was no infection, no reoperation, no dislocation, no nerve palsy, no avascular necrosis, no pulmonary embolism (PTE) and deep vein thrombosis (DVT). There was only one intra-operative fracture which was treated. All patients were ambulatory at the final follow up. There were no significant differences in hospital stay, operating time, and transfusion volume between the 2 groups (P>0.05).

Conclusions : We showed in a large population study that functional outcome can be achieved by hip arthroplasty excellently in elderly patients with failed intertrochanteric fractures. Though technically demanding, properly performed hip

arthroplasty can be a good replacement option for this patient group.

Keywords: Failed intertrochanteric fracture, Total hip arthroplasty, Trochanteric nonunion, Dynamic hip screw

Management of postoperative pain after Lumbar surgery-pregabalin for one day and 14 days-a randomized, triple-blinded, placebo-controlled study.

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Background: Despite the progress in understanding acute pain physiology during recent decade, eighty percent of patients still suffer from post-operative discomfort. Pregabalin is an anticonvulsant agent that is approved for painful neuropathies in diabetic patients and post herpetic neuralgia. The main objective of the present study was to compare the improvement in post-operative pain management and patient lifestyle in 3 groups, as first group received placebo, second who received Pregabalin for one day and the last group those who received it for 14 days.

Methods: This was a prospective single center, randomized, triple-blind, 3-arm, parallel group study. In this triple-blind study, patients were randomized to 1 of 3 groups using computer-generated random number table. 1) The first group received placebo for 14 days, the second group received Pregabalin 300mg 8h preoperatively and 150mg 12 and 24h postoperatively and for the rest of 13days received placebo and the third group received Pregabalin 300mg eight hours preoperatively and 15mg every 12h postoperatively for 14 days. Name, age, gender, height, weight, education, duration of pain, past medical history, drug history, total morphine requirement at the time of discharge and MRI findings of all the patients were recorded, also

they Numerical scale system (NRS) and Oswestry low back pain disability index (ODI) questionnaire were completed for them. All the patients were operated based on standard surgery techniques, bilateral foramenotomy and interlaminar discectomy.

Results: Of the 105 patients who entered the run-in period, 47 patients (44.8%) were female and 58 (55.2%) were male. The Patients radicular pain mean score based on NRS estimated before surgery was 7.22 ± 1.95 in pregabalin14, 7.71 ± 1.84 in pregabalin1 and 7.45 ± 1.9 in control group. There were no statically significant differences between three groups ($P\text{-Value} > 0.05$). The Patients back pain mean score based on NRS was 5.2 ± 2.87 in pregabalin14, 5.11 ± 3.23 in pregabalin1 and 6.4 ± 3.06 in control group. This means that there were no significant differences in the overall score among those three groups ($P\text{-Value} > 0.05$). In comparison to their preoperative pain, the average radicular pain in each group of patients improved significantly 4, 8, 12 and 24h after the operation ($P\text{-Value} < 0.001$), but there were no significant differences in radicular pain improvements comparing three groups.

Conclusion: The results of this study indicate that 1day and 2 weeks post-operative 300mg pregabalin administration may not improve acute pain, morphine consumption and quality of life of patients after surgery. It seems that the diseases cause chronic pain that requires long-term treatment with higher doses.

Comparative impact of systemic delivery of atorvastatin, simvastatin, and lovastatin in treatment of osteoporosis: an experimental study in rat

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Background: In addition to lipid-lowering properties, statins have been suggested to affect bone turnover by increasing the osteoblastic bone formation and blocking the osteoclastogenesis. However, there are many controversial reports regarding the beneficial effect of statins on osteoporosis. In this study, we investigated the therapeutic effects of the most important lipophilic statins administered orally for 60 days to ovariectomized (OVX) female Sprague-Dawley rats and compared these effects on different harvested trabecular and compact bones.

Methods: Thirty female animals were divided into five equal groups (normal rats, the untreated OVX rats (negative control), and the OVX rats treated with simvastatin (25 mg/kg/day), atorvastatin (10 mg/kg/day), and lovastatin (20 mg/kg/day). The osteoporotic animals were treated daily for 60 days and euthanized at the end of experiments. The effectiveness of these treatments was evaluated by biomechanical testing, histopathologic, histomorphometric, micro-CT scan, real-time PCR and serum biochemical analysis. Moreover, the hepatotoxicity of these treatments was assessed by analyzing the AST and ALT enzyme blood levels.

Results: The results and statistical analysis showed that systemic delivery of simvastatin and lovastatin significantly increased serum calcium level, expression of osteogenic genes, bone mineral density (BMD), and biomechanical properties in comparison to the untreated OVX rats, especially in trabecular bones ($P < 0.05$). The results of different analysis also indicated that there was no statistical difference between the atorvastatin-treated animals and the negative control. Among all treatments, only atorvastatin showed an evident hepatotoxicity.

Conclusion: It was concluded that the lovastatin and simvastatin efficiently ameliorated the OVX-induced osteoporosis. Moreover, the simvastatin-treated animals showed more resemblance to the normal group in terms of BMD, expression of

osteogenic genes, serum biochemical parameters, histomorphometric findings and biomechanical performance with no significant hepatic side-effects.

Calorie restriction effects on bone healing after ulnar osteotomy in adult male New Zealand white rabbits

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Introduction : Calorie restriction on osteoblast cell activity negatively affected due to the effects of metabolites and toxins that smoking delays bone union, having trouble wound healing and reduces BMD. Orthopedic surgeons, patients should be encouraged to quit calorie restriction after surgery because with bone problems. On the other hand there are credible reports indicating that calorie restriction is a slight increase in angiogenesis.

Methods : In this study, about 10 rabbits breed Alba 2.5 to 2.7 kg with standard anesthesia and cause bone fractures Ulnar left forearm¹, treated with non-surgical (non operative) were placed in two groups of patients restricted to calorie with feeding every other day and daily. Radiographs were taken at weeks 3 and 4. Also, immunohistochemistry and histology, and biomechanical testing after 4 weeks (three point bending) and radiography was performed on each measure were compared with the control variables.

Results : The rate of bone union stereotypes and mammography by scoring from 1 to 5 points were scored by a moderator. Histology tests at two groups were compared significant differences were found between the two groups in the index above.

Conclusions: The healing process in animal models that differ with software index SPSS Analysis of Measuring $p < 0.05$ Radiological test, Immuno-histo chemistry report of histologically in about biomechanics but this difference is not significant.

Seroprevalence of blood borne pathogens among trauma patients: A study on 27000 patients.

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Backgrounds : Blood borne pathogens mainly hepatitis B, hepatitis C and human immunodeficiency virus (HIV) are major health problems. Health care workers especially those who work in surgical rooms and laboratories are at the risk of viral transmission from the patients. To the best of our knowledge, prevalence of these infections in a large group of trauma patients have not been reported in IRAN. The aim of this study is to calculate the prevalence of HBsAg, HCVAb, HIVAb in a great trauma center of Shahidkamyab hospital and comparison with national statistics.

Methods: Patients who had been admitted in Shahidkamyab hospital from 1389 to 1393 were enrolled in the study. Consent form was obtained from each patient. Serologic assay was performed using ELISA technique. HBsAg, HCV Ab by use of PishtazanTeb Kit and HIV Ab by use of Dia Pro Kit were detected. All the positive samples were assessed again using HIVase1,2 Kit for HIV SURASE B-96 Kit for HBsAg and NANBASE C-96Kit for HCV Ab. Statistical analysis was performed by SPSS version 11.9 software.

Results: Among 27252 patients 1163 were seropositives represent 4.5% prevalence of these infections in the study population. Prevalence of HBsAg was 1.9% (523 patients), anti HCV Ab was 1.4% (388 patients) and anti HIV Ab was 0.05% (15 patients) respectively. 19 patients (0.06%) were infected with more than one virus. 9 cases were positive for anti HIV ab and anti HCV Ab and 9 cases for anti HCV Ab and HBs Ag simultaneously. In one case HIV Ab, HCV Ab and HBs Ag were positive simultaneously.

Conclusions: The prevalence of HIV and HCV infection in the study population were higher than community prevalence reported by health ministry. It necessitates educating and

implicating standard precautions in trauma centers accurately.

Non surgical treatment in metastatic bone tumors, what an orthopedic surgeon needs to know

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Backgrounds: Metastatic bone lesions are increasing dramatically and number of these patients will be doubled in near future. Unfortunately, treatment of these patients varies greatly and the importance of non-surgical treatment is undervalued frequently. Although anti-osteoclastic treatments are not so effective in osteoporosis treatment, the same drugs when used in metastatic bone lesions show a significant effect. Without anti-osteoclastic treatment most of the osteosynthesis and prosthesis will fail. So, the question is how do cancer cells make anti-osteoporosis medications more effective? The aim of this presentation is to answer this question based on Bone scan and PET-CT findings. This aspect has not been discussed before.

Methods: To measure activity of osteoblasts, osteoclasts and tumor cells we compared PET-CT and Tc99- bone scans of patients with bone metastasis before and after anti-osteoclastic treatment alone or in combination with radiotherapy.

Results : After anti-osteoclastic treatment bone density in areas previously involved by tumor exceeds the density of normal bone. This excessive bone formation is limited to the areas involved by tumor cells and not beyond it. Uptake in Tc99-bone scan, as a sign of osteoblastic over-activity, remains high and unchanged after anti-osteoclastic treatment. The same is for uptake in 18-FDG PET-CT which also remains high after anti-osteoclastic treatment indicating continued tumor cell and osteoblastic over-activity.

Conclusions : Cancer cells when metastasize to bone use osteoclasts to destroy bone. This osteoclastic over- activation is mediated by osteoblasts and in contrast to normal bone is not influenced by anti-osteoclastic treatment and continues after such treatment. This results in significant bone production just in a short time and explains why anti-osteoclastic therapy in bone metastasis is more effective than in osteoporosis. Radiotherapy also seems to show its efficacy by blocking osteoclasts and combining anti-osteoclastic treatment (bisphosphonates or anti RANKL) by radiotherapy shows a synergic effect. bone metastases, osteoclast, osteoblast, tumour, bone scan, PET-CT

Breaking Bad News: Exploring the Perspective and Expectations of Patient (a systematic review)

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Background: As we know, breaking bad news (BBN) to patients and their relatives is a complex and stressful task. This communication skill is a must-have for all medical branches, especially oncology, orthopedics, and special care. However, BBN protocols are scattered and unspecified, and there are few studies on patient preferences. In this study, we conducted a systematic review of the current sources of protocols and patient preferences in these situations.

Method : For this purpose, we searched studies on the Pubmed Cochrane Collaborative Library at all levels until August 10, 2017. Two reviewers evaluated the articles independently according to preset criteria and extracted relevant data.

Results : The results showed that major barriers to communication under these conditions were associated with practical issues such as lack of privacy, lack of proper means to communicate with relatives, insufficient time to explain,

cognitive impairments, language and cultural barriers, and barriers rooted in unfamiliarity of physicians and healthcare personnel with communication skills. The most widely-used BBN protocol was the six-step spikes protocol along with other protocols like Davies & Newton protocol. Another model that was in particular tailored to the needs of patients with mental disabilities consists of four parts: a central element, which is a knowledge base, and three supporting elements that should be considered at all times.

Conclusion: Given that minor changes in implementation of BBN protocols can mitigate the sensitivity of patients in these situations, and many studies have shown that the art of breaking bad news can be learned through training, educational workshops can help raise the awareness of physicians and alleviate problems in this area.

Intrawound application of vancomycin changes the responsible germ in elective spine surgery without significant effect on the rate of infection: a randomized prospective study

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Backgrounds: Surgical site infection (SSI) is a costly complication associated with spine surgery. The impact of intrawound vancomycin has not been strongly postulated to decrease the risk of surgical site infection. We designed study to determine whether intrawound vancomycin application reduce the risk of SSI in patients after spine surgery.

Methods: A prospective randomized control trial study to evaluate the patients with elective spine surgery in a period of 15 month was designed. Patients were divided in two groups based on whether intrawound vancomycin was applied or not. The relative risk of SSI within postoperative 30 days was evaluated

Results : Three hundred and eighty patients were included in this study: degenerative spine pathologies and tumor 80 % (304), trauma 11% (42), and deformity 9% (34). Intrawound vancomycin was used in 51% of patients. Prevalence of SSI was 2.7% in the absence of vancomycin use vs 5.2% with intrawound vancomycin. In multivariable regression model, those with higher number of levels exposed, postoperative ICU admission and obesity and use of instrumentation more than 2 levels, had higher risk of developing SSI. In the treatment group *Acinetobacter* and *Pseudomonas aeruginosa* (20%) were the most common pathogens. In control group *Staphylococcus aureus* and *Acinetobacter* (40 %) were the most common organisms

Conclusions: Intrawound application of vancomycin after elective spine surgery was not associated with reduced risk of SSI and return to OR associated with SSI in our patients. However, the use of intrawound Vancomycin changed the responsible infection germ.

Detection and identification of bacterial infection in synovial fluid of Iranian patients after total arthroplasty by PCR assay

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Background: Nowadays, the total Knee and hip arthroplasty surgery are ever increased. Although these kinds of surgeries are safe and cost effective, they are associated with prosthetic joint infection (PJI). Early diagnosis is critical for treatment and management of disease.

Methods: In this study, we evaluate 110 synovial fluid collected from 79 patients

suspected with PJI or candidate for revision referred to Pathobiology Laboratory of Khosroshahifor detecting bacterial infection from February 2015 up to now. Infection was detected by Real-time PCR based on 16s rRNA gene and identification was done by RFLP assay after digestion with four different enzymes (*AluI*, *HaeIII*, *MnlI* and *DdeI*) and compared their genetic patterns with reference strains. Two samples were excluded from our study because of contamination due to bad sampling.

Results: The mean age of patients was 62.15 and 57% of them were female. 58 samples (53.7%) were positive for bacterial infection. A wide spread of bacterial strains was isolated from synovial fluids of patients. We could isolate *Staphylococcus* sp. from 10 samples (17.2%), *Streptococcus* sp. from 6 samples (10.3%), *E. coli* and *Pseudomonas* sp. each from 5 samples (8.6%). On the other hand, we could detect *Enterococcus* sp., *Corynebacterium* sp., *Proteus mirabilis*, and non-gonococcal *Neisseria* in 6.8%, 5.1%, 5.1%, and 3.4% of positive samples, respectively. *Serratia marcescens*, *Chlamydia pneumoniae*, *Stenotrophomonas maltophilia*, *Brucella melitensis*, *Providencia rettgeri*, *Shigella flexneri*, Gram Negative bacilli (*Enterobacteriaceae*) and *Bacillus* sp. each was isolated from 1.7% of positive samples. In spite of positive result in 7 samples (12.1%), we couldn't identify the kind of bacterium strains infected the patients because of the low rate of infection. This study showed that 8.6% samples (8.6%) were infected with more than one bacterium (mix infection). *Staphylococcus* sp., *Enterococcus* sp., *Corynebacterium* sp. and *E. coli* were isolated from these samples.

Conclusion: Our study showed that not only *Staphylococcus* sp. was the common strain which cause PJI in patients with total arthroplasty, but also PCR assay was a sensitive method for detecting the low rate of infection and mix infection in suspected patients.

Interlocking Tibia Nail without Using Intraoperative Image Intensifier

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Background :Intramedullary (IM) nailing is the choice treatment for close tibial shaft fractures and also open fractures type 1, 2 and 3A of Gustilo classification. Image intensifier (C-arm) may be necessary in different steps of IM nail insertion but is absolutely is needed to insert distal screws. All insertion systems have a jig to insert proximal screws and some systems also have special jigs to insert distal screws that could decrease the necessity of intraoperative imaging. Our purpose was to assess the results of IM nailing of tibial shaft fracture without applying intraoperative x-ray.

Method :In a cross sectional study, tibial shaft fracture in 43 patients were operated by IM nailing and distal jig without applying intraoperative x-ray. Because the only C-arm system of the operating room was out of order in our trauma hospital, by clinical and radiological preoperative planning IM nailing was done and the patient were followed up to 6 month at least.

Results :Thirty eight male and 7 female by the mean age of 31 year old (range 15-75) were included in the study. Forty percent of patients had open fracture. After 6 months of operation 5, 18%, 24%, 9%, and 5% had anterior knee pain, ankle pain, <10 °leg malrotation and other deformities (varus, valgus, anterior-posterior angulation or shortening). Union was achieved in 91% of cases. Two patients had short nail (>5cm of ankle joint), although healing occurred. Two cases had broken screw at final visit.

Conclusion :Our results are similar to standard IM nailing of tibia using C-arm shows that if appropriate distal jig is present, tibial IM nailing without intraoperative imaging could be the choice treatment again. Even in the presence of image intensifier the IM nailing of tibia is possible to do without C-arm .

Extremity war injuries: a retrospective study of the Iran-Iraq war

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Backgrounds :War injury is a total of damages related to military in war and damaged civilians whom involve in war that the number of injuries and the type of damage caused, depends on several factors. Among the facilities and used medical equipment, there is military equipment used in wars and military branches that soldiers serving in it .

Methods: In this retrospective study, documents of 8437 war injured people studied whom have been transported and treated between 1980 and 1988 in Imam Khomeini hospital Tehran.

Results: among 7352 physical injured people, 4926 of them had organ damage (67 percent) that 4759 of them (96/6%) were male and 167 (3/4%) were female. most cases of damage had occurred in the range of 21 to 25 years by means of 23 years. 2376 (36% (of the lesion was in the upper extremity. Other 64% were related to lower extremities. Regarding the causes of fractures, mortar trauma and cannon with 1889 cases (54 percent) are the highest cause of fracture. Among the 3489 cases of fractures, 1318 cases of infection (37.7%), 600 cases of vascular lesion (17.1%) and 712 cases of nerve lesions (20.4%) with fractures were reported. Also among the injured, 985 amputation cases (15%) of injury cases was done.

Conclusions :War damage is one of the major health problems in many countries that have already or are currently engaged in war. Organ damage as one of the most common of war injuries were considered in our study. the important principle of recognizing is injuries types, ways of treating and preventing further complications which necessitates the need to study more about the war injury.

First Metatarsophalangeal Joint Arthrodesis: A Retrospective Comparison of Crossed-screws, Locking and Non-Locking Plate Fixation with Lag Screw

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Research performed at the Hannover Medical School, Orthopedic department, Hannover, Germany

Background : Locking plate fixation is increasingly used for first metatarsophalangeal joint (MTP-I) arthrodesis. There are still few comparable clinical data regarding this procedure. In this study we aimed to compare the clinical and radiographical outcomes of crossed-screws, locking and non-locking plate fixation with lag screw for first metatarsophalangeal joint arthrodesis .

Methods : A total of 60 patients who had undergone arthrodesis of the MTP-I between January 2008 and June 2010 were retrospectively evaluated. Locking plate fixation with lag screw as well as arthrodesis with crossed-screws or with a non-locking plate with lag screw was performed on three groups of 20 patients .

Results : There were four non-unions in patients with crossed-screws and one in non-locked plate group. All patients in locking plate group achieved union. 90% of the patients were completely or mildly satisfied in locking plate group, whereas this rate was 80% for patients in both crossed-screws and non-locking plate groups .

Conclusion : Use of dorsal plating for arthrodesis of MTP-I joint, either locking or non-locking, were associated with high union rate and acceptable and comparable functional outcome. Although the rate of nonunion was higher with two crossed-screws, however, the functional outcome was not significantly different compared to dorsal plating .

Long-term Results, Functional Outcomes and Complications after Open Reduction and Internal Fixation of Neglected and Displaced Greater Tuberosity of Humerus Fractures

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Background : Humerus fractures include 5% to 8% of total fractures. Non-union and delayed union of GT (GT) fractures is uncommon; however they present a challenge to the orthopedic surgeons. Significant controversy surrounds optimal treatment of neglected fractures. The purpose of this article was to perform a comparative study to evaluate the outcomes of open reduction and internal fixation (ORIF) of neglected GT fractures .

Methods : We retrospectively evaluated the results of surgical intervention in 12 patients with displaced nonunion of GT fractures who were referred to our center. Before and minimally 25 months after surgery ROM, muscle forces, Constant Shoulder Score (Constant-Murley score) (CSS), Visual Analogue Scale (VAS), Activities of Daily Living (ADL) Score and American Shoulder and Elbow Surgeons (ASES) Score were all recorded. Additionally, the results were compared with undamaged shoulder .

Results : Between March 2006 and January 2013, 12 patients underwent surgical intervention and followed for 36.2 months in average. All fractures healed. Anatomic reduction achieved only in 6 cases with no report of avascular necrosis or infection. All ROMs and muscle forces increased significantly (Mean Forward Flexion: 49.16 to 153.3, Mean Internal

Rotation : 3 to 9, Mean External Rotation: -5 to 27.5) (P value<0.0001). All functional scores including CSS, VAS, ADL and ASES score improved significantly (Mean VAS: 6.5 to 1.3, Mean CSS : ۲۹.۸۳ to 86, Mean ADL: 6.6 to 27.1, Mean ASES: 28.6 to 88.9) (P value<0.0001) .

Conclusion : ORIF for neglected and displaced GT fractures has satisfactory functional outcomes, despite of non-anatomical reduction of the fracture .

Is bipolar latissimus dorsi transfer a reliable option to restore elbow flexion in children with arthrogryposis? A review of 13 tendon transfers

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Background : Scant data are published about different available therapeutic options for restoration of active elbow flexion in arthrogryposis with varying degrees of improvement. In this retrospective study we evaluated medium-term effects of bipolar latissimus dorsi transfer in patients with arthrogryposis.

Methods: Pedicled latissimus dorsi bipolar muscle transfer was used to restore elbow flexion in 11 patients (13 limbs) with arthrogryposis. Elbow and shoulder range of motions and strength of elbow flexion were measured preoperatively and at the last follow-up. The functional use of the upper limb was examined by observation of activities of daily living and presence of adaptive mechanisms. General satisfaction was assessed at the final follow-up.

Results: The patients were a mean age of 5.69 ± 2.49 years. The follow-up period was 27.31 ± 17.8 months. At the last examination, according to transferred muscle function and elbow range of motion, function of 12 limbs was graded as excellent and good, and 1 was graded poor. The active postoperative elbow range of motion was 97.7 ± 34.5 . The general satisfaction of the patients with the surgical results was 92.3%. Activities of daily living were improved in 10 of 13 limbs, but adaptive mechanisms were detected in all patients except 2 at the last follow-up.

Conclusions: We suggest pedicled bipolar latissimus dorsi transfer as a reliable therapeutic option to restore active elbow

flexion in arthrogryposis with acceptable results regarding regaining range of motion and patient satisfaction. Functional passive elbow range of motion and good quality of latissimus dorsi muscle preoperatively is mandatory.

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Arthroscopic ablation of an osteoid osteoma of the elbow: a case series with a minimum of 18 months 'follow-up

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Background : Arthroscopic excision of an osteoid osteoma was first reported in the knee joint; since then, there have been several reports of arthroscopic excisions in the knee, shoulder, and elbow, with inconclusive outcomes because of a limited number of cases. The aim of this prospective study was to evaluate the medium-term functional effects of arthroscopic ablation in cases of an osteoid osteoma around the elbow.

Methods: We treated osteoid osteoma of the elbow through arthroscopic ablation in 10 patients. The arthroscopic resection procedure was performed 23 ± 9 months (range, 12-36 months) after initial symptoms. At the preoperative examination and last follow-up examination, the elbow flexion-extension and forearm supination-pronation ranges of motion were measured. The patients were assessed by the Mayo Elbow Performance Score, the visual analog scale for the elbow and wrist, and the Quick Disabilities of the Arm, Shoulder, and Hand score. Finally, the patients' general satisfaction was assessed.

Results: The postoperative elbow flexion-extension range of motion was significantly higher

compared with range of motion before surgery ($P=0.001$; $r=0.86$). According to the Mayo Elbow Performance Score, the average score increased significantly at the final follow-up examination. The mean preoperative and final Quick Disabilities of the Arm, Shoulder, and Hand scores were 47 ± 14 and 1.6 ± 2.8 respectively ($P<0.001$). All patients were satisfied with the operation result.

Conclusion: According to the results of our study, arthroscopic ablation is a safe and efficient method of treatment for osteoid osteoma of the elbow, with a fast rehabilitation time.

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Factors associated with operative treatment of enthesopathy of the extensor carpi radialis brevis origin

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Backgrounds : This study investigated the factors associated with variation in the rate of surgery for enthesopathy of the extensor carpi radialis brevis (eECRB).

Methods : We used a large database from 3 academic hospitals including 5964 patients with the diagnosis of eECRB from 2001 to 2007. Of those, 244 patients (4%) had surgery for eECRB. We used the date of the first encounter as the date of diagnosis. We also recorded the date of the first cortisone injection and surgery for eECRB. We used Cox multivariable regression analysis to find factors associated with surgery. We considered the following explanatory factors: age, sex, race, diabetes, a diagnosis of major depression, a diagnosis of an anxiety disorder,

hospital, provider (surgeon vs. nonsurgeon), corticosteroid injection, and the time from diagnosis to the first cortisone injection

Results: The hazard ratio of having surgery was 12-times greater if the initial provider was an orthopedic surgeon rather a nonsurgeon and 1.7-times greater at 1 of the 2 hospitals. The rate of surgery varied substantially, ranging from 0% to 22%. Corticosteroid injection delayed the time to surgery but was ultimately associated with a higher rate of surgery. The majority (86%) of surgeries were done within 1 year of the first documented office visit

Conclusions : It seems likely that an emphasis on the preferences and values of the patient rather than the surgeon would decrease the variation in surgery rates for eECRB observed in this study. Methods for optimizing the influence of patient preferences and values on decision making (eg, decision aids) merit additional study.

Outcome of Surgical Fixation of Lateral Column Distal Humerus Fractures

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Backgrounds : The purpose of this study was to report the long-term outcome and complications of surgically fixated lateral unicondylar distal humerus fractures

Methods: Union rates, early complications, functional outcome, and the range of elbow motion were evaluated. Disabilities of the arm, shoulder, and hand, Mayo elbow Performance Index , satisfaction, pain scale, and American Shoulder and Elbow Surgeons.

Results: The mean age of patients was 46.623 years at the time of surgery. The average final flexion/extension arc of motion was 108.8. Reoperations were performed in 9 of 24 elbows after an average 21.631 months. Twenty of the 24

patients were available for the clinical follow-up at an average of 70 months (range: 16-144-months). Disabilities of the arm, shoulder, and hand averaged at 11.7, 6 10.8 points, satisfaction at 9.5 6 1.2, American Shoulder and Elbow Surgeons score at 88.5 6 13.3 points at final follow-up. Based on the functional classification proposed by Jupiter, 16 demonstrated

good to excellent results, 2 fair and 2 poor result

Conclusions :Outcome of open reduction and internal fixation of isolated lateral column distal humerus fractures can result in high union rates with acceptable outcome scores and high patient satisfaction despite a high reoperation rate distal humerus fractures, lateral column, outcome

Delay Treatment of Intraarticular Finger Fractures

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Backgrounds :The principles for treatment of intra-articular fractures include anatomic reduction, rigid internal fixation and mobilization of the joint as soon as possible. A paradox for these principles occurs when a displaced intra-articular fracture of finger joints is encountered after its acute phase. Delayed surgical intervention is notorious for resulting in a stiff finger. The purpose of this study is to assess the results of delayed open reduction and internal fixation of this type of finger fracture.

Methods :Twelve intra-articular fractures of 12 patients were treated by mean delay of 26 days (range: 12 - 57). For 8 patients, open reduction by removing callus and fibrous tissue between osteo-cartilage fragments were cut by a number 11 blade knife and after reduction and fixation was achieved by screw, plate and screw, anchor suture and/or pins. For displaced and unstable fractures of one dorsal base P2 and 3 mallet fractures closed extension block pinning was done. Hemi-hamate arthroplasty was done for 4 patients by P2 volar base fracture .

Results :Ten males and two female by mean age of 26.4 (range: 8-49) were treated and followed averagely for 9 months (range:4-34). The mean of total ROM was 207.5 (range: 105 -310) preoperatively and 280) °range: 95- 280) post operatively (p>0.01). Two fingers lost their fixation and had the stiff joint finally. One patient treated by hemi-hamate arthroplasty failed its fixation after 2 weeks and tolerated the revision surgery. This patient had clinically painless moving PIP (ROM: 5-65 (°but radiologically subluxated joint.

Conclusions :The paradigm of banning or fearing about delay treating of intra-articular fractures of fingers may be needed to be revised. More studies by large number of cases and comparison of different treatments are recommended.

Comparison of a new single-donor human fibrin adhesive with suture for posterior tibial nerve repair in rat: biomechanical resistance and functional analysis

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Backgrounds: Adhesives has a broad background in nerve repair. Currently the suboptimal physical properties of singledonor fibrin adhesives have restricted their usage. The present experiment studies the performance and physical characteristics of a modified fibrin glue prepared from single-donor human plasma in the repair of posterior tibial nerve of rat.

Methods :Forty Wistar rats were divided into 5 groups; in the control group, tibial nerve was completely transected and no treatment was done, while in the four experimental groups the nerve stumps were reconnected by one suture, three sutures, one suture with fibrin glue

and fibrin glue alone respectively. During 8 weeks of follow-up, Tibial Function Index was measured weekly and adhesive strength, inflammation and scar formation were assessed at the end of the study.

Results: Nerve stumps dehiscence rate and adhesive strength were similar in all experimental groups and significantly differed from control group ($P<0.05$). By the end of the eighth follow-up week, functional recovery of one and three sutures groups were significantly higher than groups in which fibrin glue was used for repair ($P<0.05$). The amount of inflammation and scar tissue formation was similar among all groups.

Conclusions: The study results show that the prepared single-donor fibrin adhesive has acceptable mechanical properties which could provide required adhesiveness and hold nerve stumps in the long term; yet, we acknowledge that more studies are needed to improve functional outcome of single donor fibrin adhesive repair.

Suture Anchor Fixation for Scaphoid Nonunions With Small Proximal Fragments: Report of 11 Cases

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Background: Purpose to describe the use of 2 suture anchors as the fixation devices in the management of 11 patients with scaphoid proximal pole nonunions with small proximal fragments.

Methods In a prospective study, 11 patients with proximal pole scaphoid nonunions (10 with small proximal fragments and 1 with an oblique nonunion line) were evaluated before surgery by standard wrist x-rays and functional wrist scores including a visual analog scale (VAS), Mayo wrist score, and Quick Disabilities of the Arm, Shoulder, and Hand (QuickDASH). The nonunion site was fixed with 2 suture

anchors supplemented with autologous cancellous bone graft. Postoperative evaluations consisting of functional wrist scores and evaluation of radiological union were performed 9 months after surgery. Results At the end of the study, we observed union in 10 of the 11 patients. The QuickDASH and VAS scores showed significant improvement, and 10 patients had satisfactory Mayo scores.

Conclusions: We propose the technique of suture anchor fixation for cases of proximal scaphoid nonunion in which secure internal fixation with common techniques is challenging because of the small size of the proximal fragment and the obliquity of the nonunion site. (J Hand Surg Am. 2014;39(8):1494e1499. Copyright_2014 by the American Society for Surgery of the Hand. All rights reserved. Type of study/level of evidence Therapeutic IV.

Translation and validation of the Persian version of the Patient Rated Wrist Evaluation questionnaire

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Background: The aim of this study was to validate and convert the original version of the PRWE into Persian

Methods :One hundred and fourthly one adult patients with upper extremity conditions participated in this ethical board approved study from August 2015 to May 2016. After translating the original version of the PRWE into Persian, all patients filled out the PRWE in addition to the VAS (Visual analogue scale) and DASH questionnaires. For evaluating reliability, after seven days the researchers called back some of the patients who did not receive treatment and asked them to complete the PRWE retest (104 patients).

Results: Cronbach's alpha was calculated as high as 0.934, implying very reliable internal

consistency. After each item deletion, the Cronbach's alpha was still constant (range: 0.926 to 0.936). Intraclass correlation coefficient was 0.952 and this showed excellent test-retest reliability. The correlation coefficient between the PRWE and DASH scores was strong. Multivariable analysis showed an association between the PRWE and years educated.

Conclusion :Our study has shown that the Persian version of the PRWE is valid and reliable for patients with upper extreme disabilities.

The quick and convenient method of closed femoral IM nailing the Innovative set of locating fracture package in the long bones

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Introduction: The Preferential method in Fixation of some long bones fractures consists of using intramedullary nailing. The benefit of this method lies in its biomechanical power as well as the power to prevent additional surgical trauma. Despite these benefits, few surgeons conduct this method as it is time-consuming, risky (Performing a scope) and also tedious.

Method: Seven male patients with femoral fractures with an average age of 32 participated in the study making use of intramedullary nailing through innovative set in Shahid Kamyab Hospital. The duration of operation, fracture type, fracture site and the fractures associated were evaluated. The innovative solution: To align the bones and making the guidance stick cross the fracture site, the present locating surgical set was designed to make crossing the guidance stick through the fracture site possible on the bed of operation room in a short period of time alongside with intramedullary nailing having the least possible trauma and the least degree of annoyance in the locating stage.

Results :All the patients with intercostal femoral fracture and without any peripheral fractures, underwent surgery while total time of the surgery was 6/0 \pm hours on average, and time of complete scratching and getting nail to the bottom of the canal was 1/1 \pm minutes.

Conclusion :The results indicated that closed intramedullary nailing of femoral fractures without performing Fluoroscope using the aforementioned innovative set is possible for the patients with utter convenience in an appropriate time period.

Management of Open Hand Fractures Using Ilizarov Transosseous Osteosynthesis

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Backgrounds :At present hand injuries occupy 30-85.5% among the total number of injuries. Open hand trauma is especially interesting, its rate varies from 16 to 75%. Apart from extensive defects of cover tissues 55.1% - 85.5% of hand trauma cases are accompanied by crush injury of soft tissues, damage of vessels, nerves, tendons, bones and in 8.2% - infection.

Aim of the study is develop and find the grounds for complex technology of operative treatment of the patients with open hand trauma using Ilizarov method

Method :Over the past 5 years the Ilizarov Center treated 223 patients at the age from 10 months to 84 years with open hand fractures. Among them there were 58 children. 92.7 % of injuries occurred in male patients. Damage to woodworking and metalworking machines is the most common cause of hand injuries (156 cases). The following operative invasions were performed according to the defined 3 groups of the patients:

In open tubular bone fracture without tendons and nerve-vascular bundles primary surgical

wound treatment and Ilizarov mini-fixator application were indicated.

In open tubular bone fracture with tendons and nerve-vascular bundles but without massive tissue crush it is necessary to attempt to restore all anatomical structures acutely. We widely used microsurgery combined with Ilizarov frame osteosynthesis.

In extensive crushed gun-shot and explosive injuries the volume of operative invasion included primary surgical treatment of the wound, Ilizarov frame application of affected segment with adjacent joints fixation.

Results: Using above techniques we obtained good results in 64% of the cases and satisfactory ones in 34%. Poor outcomes made up 2%.

Conclusions: Conclusions. Ilizarov frame application is the most rational way of open hand fracture repair since it has maximal capacities to manipulate with bone fragments during operation with minimal invasion into tissues.

Portal placement in elbow arthroscopy by novice surgeons: cadaver study

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Backgrounds : Purpose In this anatomical cadaver study, the distance between major nerves and ligaments at risk for injury and portal sites created by trainees was measured. Trainees, inexperienced in elbow arthroscopy, have received a didactic lecture and cadaver instruction prior to portal placement. The incidence of iatrogenic injury from novice portal placement was also determined.

Methods: Anterolateral, direct lateral, and anteromedial arthroscopic portals were created in ten cadavers by ten inexperienced trainees in elbow arthroscopy. After creating each portal, the trajectory of the portal was marked with a guide pin. Subsequently, the cadavers were dissected

and the distances between the guide pin in the anterolateral, direct lateral, and anteromedial portals and important ligaments and nerves were measured

Results :The difference between the distance of the direct lateral portal and the posterior antebrachial cutaneous nerve (PABCN) (22 mm, $p < 0.001$), the lateral antebrachial cutaneous nerve (4.0 mm, $p < 0.001$), and the radial nerve (25 mm, $p < 0.001$) was different from the average reported distances in the literature. A difference was found between the distance of the anterolateral portal and the PABCN (32 mm, $p < 0.001$) compared to previous studies. Three major iatrogenic complications were observed, including: laceration of the posterior bundle of the medial ulnar collateral ligament, lateral ulnar collateral ligament midsubstance laceration, and median nerve partial laceration.

Conclusions : Surgeons increasingly consider arthroscopic treatment as an option for elbow pathology. In the present study a surgical complication rate of 30 % was found with novice portal placement during elbow arthroscopy. Furthermore, as the results from this study have indicated, accurate, precise, and safe portal placement in elbow arthroscopy is not easily achieved by didactic lecture and cadaver instruction session alone Cadaver study • Elbow arthroscopy • Iatrogenic adverse events • Training

Distal Radius Volar Rim Fracture Fixation Using DePuy-Synthes Volar Rim Plate

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Backgrounds :To assess the results of distal radius fractures with the involvement of the volar rim fixed with the DePuy-Synthes Volar Rim Plate

Methods: We searched for the patients with volar rim fracture and/or volar rim fractures as part of a complex fracture fixed with a volar

rim plate. Ten patients met the inclusion criteria: three patients with type 23B3, six patients with type 23C, and one patient with very distal type 23A. The mean follow-up was 14 months (range: 2–26). (Fractures healed in all patients. Of the three patients with isolated volar rim fractures (type 23B3), two patients had no detectable deficits in motion. These patients had an average Gartland and Werley score of 9 (range: 2–14). (Of the other seven patients (six with type 23C and one with type 23A fracture), three patients healed with full range of motion and four had some deficits in range of motion. Two patients had excellent results, three had good results, and two had fair results using the Gartland and Werley categorical rating. One patient healed with a shortened radius and ulnar impingement requiring a second surgery for ulnar head resection arthroplasty

Results : Results after nonoperative treatment of volar rim fractures are not satisfactory and often require subsequent corrective osteotomy. Satisfactory outcomes are achieved when the fragments are well reduced and secured regardless of the device type.

Conclusions: Volar rim plates give an adequate buttress of the volar radius distal to volar projection of the lunate facet and do not interfere with wrist mobility. Furthermore, the dorsal fragments can be fixed securely through the volar approach eliminating the need for a secondary posterior incision. However, patients should be informed of the potential problems and the need to remove the plate if symptoms develop.

The use of the Ilizarov fixator in the treatment of patients with posttraumatic deformations and defects of hand bones

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Backgrounds :The problem of improving the treatment of post-traumatic defects and false joints of the tubular bones of the hand has not lost its relevance to the present. Nearly 100% of the bone defects are accompanied by soft tissue defects

Methods: Treatment results of 61 patients aged from 5 to 55 years with mal-united hand bones fractures have been analyzed. Males prevailed – there were 58 (95.1% (men aged from 15 to 40 years (82.5%). 31 % of the patients sustained open fractures before and 69% of them had closed ones. Scar injuries of the soft tissues were observed in 19 patients (31%) after open fractures. Neglected injuries of the finger flexor tendons were noted in 2 patients and the same of the extensors were observed in 7 patients. Fifty four patients had combined contractures of the hand joints. Osteotomies were produced at the apex of the deformity followed by Ilizarov mini-fixator fixation in order to correct the deformity depending on the clinical and radiological picture. Corrective osteotomy. It was performed in cases of angular and transverse translation of the fragment ends. To correct the translation the bone was completely broken at the level of the deformity followed by acute placement of fragments when the bone axis was correct. II group. Correcting osteotomy followed by gradual distraction. Is using in oblique malunions, in fractures with significant segment shortening and/or in severe soft tissues change. Application of this method is required by necessity of length short segment restoration, that impossible to do simultaneously. III group. Osteosynthesis of injured ray with neighboring joints contractures correction .Is using in malunions complicated by visible hand joint contracture. Requires application of additional supports on neighboring segments for gradual contractures correction

Results :Late anatomical and functional follow-ups have been studied in 36 patients that make up 59% of all the cases. According to 3-marking system late follow-up were evaluated as follows : "excellent" results were obtained in 19 cases (52.7%) when full restoration of anatomical and

functional condition of the bone was observed ,
”good “ones were noted in 11 cases (30.5%)
with poorly marked hand joints contractures
that had no effect on the function and
”satisfactory “results were in 6 patients (16.6%)
when restoration of anatomical bones shape and
joint contracture that slightly limited hand
function were observed. There were no poor
results

Conclusion : Ilizarov method by mini-fixator in
mal-united hand fractures repair compare
favorably from intramedullary nailing and bone
plates. It makes possible to eliminate any
displacements of the hand tubular bones, stiffly
fix the bone fragments and, if necessary, to
settle down the problem of adjacent joints
contracture. Apart from above mentioned
advantages Ilizarov mini-fixator provides the
possibility to perform early functional
rehabilitation of the hand without stability
disorder of the damaged bone.

Multicenter trial of an internal joint stabilizer for the elbow

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Our primary efficacy objective was to evaluate
the effectiveness of the internal joint stabilizer of
the elbow (IJS-E) in maintaining concentric
location of the elbow during and after removal of
the device in the treatment of persistent or
recurrent instability after elbow fracture or
dislocations, or both. The secondary study
objectives were to assess range of motion,
Broberg-Morrey functional score, Broberg-
Morrey categorical rating, the Disabilities of the
Arm, Shoulder and Hand score, and the rate of
complications and adverse events after the use of
IJS-E.

Methods : Twenty-four patients were studied in a
multicenter, nonrandomized, prospective, single-
arm study. The IJS-E was used to provide
temporary stabilization of the elbow joint and
allow a functional range of motion while
ligaments and fractures healed

Results : The elbow remained concentrically
aligned in 23 of 24 patients. One coronoid-
deficient elbow did not maintain concentric
reduction. At the last evaluation a minimum of 6
months after device removal, the mean arc of
elbow flexion was 119) range, 80-150 ;standard
deviation [SD], 18 ,(and the mean arc of forearm
rotation was 151) range, 90-190 ;SD, 24 .(The
mean and median Broberg-Morrey scores were
93 and 97, respectively. Categorically the results
were excellent in 14, good in 8, fair in 1, and poor
in 1. The mean Disabilities of the Arm, Shoulder
and Hand score was 16 (range, 0-68; SD, 18).

Conclusions : The IJS-E maintains concentric
reduction, allows elbow motion, and avoids the
inconveniences and pin problems of
percutaneous fixation Internal joint stabilizer;
elbow fracture dislocation; persistent instability;
recurrent instability; hinged; subluxation

Arthroscopic release in Restricted Range of Motion of knee

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Backgrounds: Post-traumatic and
postoperative knee injuries sometimes result
in Restricted range of motion (ROM) that is
one of the common disturbing factors. The aim
of this study was to evaluate the role of
arthroscopic release surgery in the treatment
of Restricted ROM of the knee.

Methods: This descriptive study was
performed on 14 patients with a diagnosis of

ROM of the knee (greater than 10 degrees of limitations in extension and flexion) from 2014 to 2016. The patients were treated by arthroscopic release, and during 6 months follow-up, they examined for Lysholm Knee Score (LKS), the degree of flexion and extension and patients' satisfaction ratings. Data were analyzed with SPSS version 23 software through statistical tests.

Results : The mean age of patients was 28.92 ± 10.99 years. The LKS was improved from 52.86 ± 16.29 to 79.07 ± 16.49 . The mean improved extension and flexion degree were 4.07 ± 2.75 and 53.50 ± 37.26 degrees, respectively. Also, 78.6% of patients had moderate to high satisfaction level.

Conclusions : Our results suggest that arthroscopic release is an efficient and safe method for the treatment of Restricted ROM of the knee.

Missed Transient Patellar Dislocation in Younger Patients With Traumatic Knee Injuries

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Background: Acute patellar dislocation is a common injury, with up to 40% of the cases missed due to a high rate of spontaneous reduction. Complications mainly arise due to osteochondral fractures, resulting in patellofemoral osteoarthritis and rupture of medial patellar stabilizers, leading to recurrent patellar instability.

Methods: Institutional database was retrospectively reviewed to find patients with missed transient patellar dislocation. From January 2010 to January 2015, ten otherwise healthy patients with a history of indirect trauma to the knee were diagnosed with missed patellar dislocation. They all had

persistent pain and effusion, despite conservative treatment.

Results : Eight patients eventually underwent arthroscopic debridement of osteochondral fractures and repair of ruptured ligaments, with no case of recurrent instability.

Conclusions : Detailed history taking and physical examination of all acute knee injuries, with a standard three dimensional (3D) X-ray imaging and a low threshold to obtain magnetic resonance imaging (MRI) studies, could minimize cases of missed patellar dislocation and possibly severe complications.

Supracondylar Osteotomy in Valgus Knee: Angle Blade Plate Versus Locking Compression Plate

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Backgrounds : There are few studies comparing the biomechanical properties of angled blade plate and locking compression plates in supracondylar osteotomy. In the current randomized study, we prospectively compared the clinical and radiological outcomes of supracondylar osteotomy using these two plates.

Methods : Forty patients with valgus knee malalignment were randomly assigned to two equal numbered groups:

angled blade plate and locking compression plates. All of the patients underwent medial closing wedge supracondylar osteotomy and were followed for one year. Before and after the operation the valgus angle and mechanical lateral distal femoral angle were compared between groups. Also, the rate of complications was compared.

Results : After the operation, the mean valgus angle and mechanical lateral distal femoral angle improved significantly in the two groups

($P < 0.001$). Although, the preoperative amount of the valgus angle and mechanical lateral distal femoral angle were the same, at the last visit the valgus angle (5.4 ± 2.1 versus 3.1 ± 1.8 ; $P = 0.032$) and mechanical lateral distal femoral angle (87.6 ± 2 versus 89.7 ± 3.2 ; $P = 0.041$) were significantly lower and higher in the angled blade plate group, respectively. Nonunion occurred in four patients (20%) in the locking compression plates group ($P = 0.35$).

Conclusions :Based on having a larger valgus angle and mechanical lateral distal femoral angle correction in the angled blade plate group and considerable rate of nonunion in the locking compression plates group, the authors recommend using the angled blade plate for fixation of medial closing wedge supracondylar osteotomy for patients with valgus malalignment. However, more long-term studies are required

Iranian Joint Registry (Iranian National Hip and Knee Arthroplasty Registry)

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Research performed at Shahid Beheshti University of Medical Sciences, Knee and Sport Medicine Education and Research Center, Tehran, Iran

Abstract :Periodic evaluation and monitoring the health and economic outcome of joint

replacement surgery is a common and popular process under the territory of joint registries in many countries. In this article we introduce the methodology used for the foundation of the National Iranian Joint Registry (IJR) with a joint collaboration of the Social Security Organization (SSO) and academic research departments considering the requirements of the Iran's Ministry of Health and Education .

A Comparison of Patella Resurfacing versus Retention in Total Knee Arthroplasty for patients satisfaction and patellar crepitus after surgery

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Background : Patellar crepitus after total knee arthroplasty (TKA) is not uncommon. Patella resurfacing or retention in total knee arthroplasty remains controversial. The aim of this randomized controlled trial (RCT) was to evaluate the efficacy of patellar resurfacing on the incidence of patellar crepitus and to investigate the clinical outcomes and of patients 'satisfaction who underwent patellar retention or resurfacing.

Patients and methods: From May 2014 to February 2017, 73 knees from 63 patients were randomized to receive patellar resurfacing or nonresurfacing total knee arthroplasty by one surgeon. Evaluation of 29 knees in resurfaced group and 44 knees retain their native patella were performed preoperatively and in the average follow-up period of 8.68 months using the Knee Society Score (KSS), KSS Functional and KOOS.

Results :No significant difference was found between two groups in patient satisfaction, Knee Society clinical rating scores and KOOS and these scores shows improvement for both groups in follow up period. Patella crepitus were not statistically different between the two groups.

Conclusions :In this study, No evidence was found to suggest patellar resurfacing in order to decrease patellar crepitus or affect the clinical outcome of a total knee arthroplasty

Single cut distal femoral varus osteotomy (SCFO): A preliminary study

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Background :Genu valgum usually originates from a deformity of distal femur that is often corrected by distal femoral varus osteotomy. The osteotomy includes both components of angulation correction and translation because the site of osteotomy is not commonly at the apex of deformity. Improvement of patellar tracking not only depends on valgus correction, but also it may be partially due to centralization of the trochlear groove under the femoral anatomical axis (FAA). (We asked whether we could accurately correct the deformities based on our preoperative goals for the correction of the mechanical axis and centralization of the trochlear groove under the FAA by using a single bone cut . This study describes a new lateral single cut distal femoral osteotomy (SCFO) that enables concurrent correction of angulation and translation .

Methods :This study was done on 12 young adult patients with femoral juxta-articular genu valgum deformity using SCFO. The average age at operation was 21 years (range: 16-25). SCFO is a type of closing-opening distal femoral osteotomy that corrects the valgus deformity of the distal femur while the translation of the distal fragment is done using one oblique cut. It centralizes the trochlear groove under the FAA. We compared the pre and postoperative radiographic and clinical variables including mechanical tibiofemoral angle, knee range of motion (ROM), International knee documentation committee (IKDC) score and the time to union. Mean follow-up of the patients was 24 months .

Results :The average mechanical tibiofemoral angle improved from 16 degrees (10-23) to 1 degrees (-2 to +2). IKDC subjective score slightly improved from preoperative (65) to 2-year follow-up (71). Centralization of the trochlea was achieved in all patients .

Conclusion :SCFO can be a reasonable alternative for correction of the distal femur genu valgum deformity. It can centralize the patellar groove under the FAA with satisfactory clinical outcomes .

Tourniquet release at the end of total knee arthroplasty is not necessary

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Background: Total knee arthroplasty is historically associated with significant blood loss. There is an ongoing debate regarding the need for tourniquet release and cauterization before finishing the procedure. This study was performed to assess the need for tourniquet release at the end of total knee arthroplasty.

Methods: A retrospective review of all patients undergoing total knee arthroplasty during a 5-year period was performed. Age, drug history, previous surgeries (primary or revision surgery), duration of the procedure, and post-operative complications were extracted .

Results: A total of 856 primary total knee arthroplasties performed during the study period, 794 primary and 62 revision procedures. In all patients, tourniquet release was performed only after meticulous wound closure, and compressive dressing. A splint was not used. Suction drainage was only used in revision surgeries. Only one case of post-operative hematoma in a patient with hemophilia A was identified .

Conclusion: This study clearly demonstrates that tourniquet release at the end of total knee arthroplasty is not necessary. A meticulous, multi-layer closure of the surgical

wound, and compressive dressing negates the need of tourniquet release and cauterization, with less blood loss.

Study and comparing the short term follow-up result for soft tissue autograft and allograft in ACL reconstruction surgery

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Introduction: ACL tearing is one of the most common sport injuries for its reconstruction different grafts including autograft and allograft are used. In term of complications, postoperative improvement, daily activity and quality of life comparing allograft and autograft may determine the preferred method with minimum complication and maximum effectiveness.

Method: The method of this study was to prospective randomized study. 38 patients were selected who have just ACL tearing not any other associated ligament injury. These 38 patients have been put into 2 groups by random computerized selection and their group has been advising them in closed pockets. Finally 18 patients were in allograft division and 20 other one in autograft.

In the beginning physical examination have been done and also IKDC objective, Lysholm, level of activity, KOOS and quality of life scoring forms have been filled for all patients as before operation process. Then patients have been operated by standard arthroscopic method. Graft fixation in femur bone has been done by endobutton and in the tibia bone by interference screw. (Smith and nephew) In the next step above mentioned scoring forms has been filled after 3 months, 6 months and one year after operation. And required physical examinations have been done again. In this period of time patient have been under exact observation regarding related complications.

Result: All mentioned scoring form and pivot shift test, lachman test and ADT showed significant improvements in patient postoperative period. Lysholm ($p=0.07$), IKDC objective ($p=0.08$), level of activity ($p=0.09$) and KOOS ($p=0.15$) represented that there are no statistical differences between two autograft and allograft groups. Infection risk in both groups has been almost same ($p=0.3$).

Conclusion: All findings clarify that short term result were equal in 2 groups.

A Non-Invasive Patient-Specific Finite Element Method for Predicting Bone Fracture Risk Following Giant Cell Tumor Surgery

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Introduction: Giant cell tumor (GCT) is a primary, benign tumor of bone involving long bones, predominantly the distal end of the femur. The most effective treatment for this tumor is surgery. The surgery often involves defect reconstruction following tumor removal. Reconstruction is usually accomplished with cement infilling and in the case of large defects, cement augmentation is also applied in order to prevent post-operative fractures, which is a frequent post-operative complication. Fractures limit the patient's daily activities and may necessitate a second operation. Thus, non-invasive methods for prediction of these fractures is of great importance. To date, there is no firm biomechanical data to identify patients at high risk of postoperative fractures for whom stabilization devices to augment bone cement should be employed.

Methods: We present a non-invasive patient-specific approach for predicting bone strength after GCT surgery to identify patients at high risk of postoperative fractures. Our approach consists of quantitative computed tomography (QCT)-based finite element method (FEM) for

determining bone strength as a measure of bone fracture. Simpleware (v. 3.1), and ABAQUS (v. 6.10.1) softwares were used in this study to create and analyze the FE models. Voxel-based FE model of distal femur using QCT images was created and validated using in-vitro mechanical testing data. GCT surgery was simulated on a cadaveric mid-shaft to distal femur bone allograft by an orthopedic surgeon. A cavity to simulate tumor removal was created and filled with bone cement. The specimen was then put in a container of water in order to simulate the attenuation of soft tissue and scanned.

Results: Non-linear elastic-plastic finite element analysis and large deformation were considered. The average displacement of the 360 nodes of the medial condyle versus the sum of concentrated force of these nodes in each step of analysis was calculated and the diagram of force-displacement was obtained. The maximum force in this diagram was considered as the femoral ultimate strength. Maximum load of the force-displacement diagram of the mechanical test was also derived. There was a good correlation between the results of FE models and in-vitro mechanical tests. Bone strength calculated from FE analysis and in-vitro mechanical test was 3050 and 3200 N, respectively.

Discussion: The method described here is capable of constructing accurate 3D models, both from geometry and material properties points of view, of bone directly from CT images, thus it can be used to provide an acceptable prediction of surgery outcomes. By getting a QCT scan from the limb affected by tumor, prior to the surgery, replacing the tumor region by bone cement, and applying the maximum load, the strength of reconstructed bone can be assessed using the method presented in this study. If the bone could not withstand that level of load, it demonstrates that the patient is at high risk of post-operative fractures and cement augmentation must be employed. The method presented here includes both patient specific

factors including bone quality, weight in the form of load applied during daily activities, and tumor geometrical properties including, size and location as well as its shape.

Mid Term Outcome of Home-Based Exercises Vs. Sophisticated Physiotherapy Protocol After Total Knee Arthroplasty

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Backgrounds: With an aging population the dramatic increase in the rate of total knee replacement in recent years has sparked controversy over the potential impacts of this trend. One of the prerequisites is to have a physical therapy or home-based exercise for excellent outcomes after primary total knee arthroplasty. However, physiotherapy treatments have not previously been compared with a home exercise program after primary TKA.

Methods : In current study, we compared the effect of physiotherapy protocol in comparison with home-base exercise after TKA. We had a post-operative clinical assessment of 500 patients dividing into two groups of 250 patients. In the group under physiotherapy protocol the mean age was 65 ± 1 years and in home-based exercises group who had a specific exercise program during 8-week period the mean age was 61 ± 6 years.

Results: Both groups showed clinically and statistically significant improvements in functional results and quality of life parameters. All OKS, WOMAC and KOOS approximately assessed the same improvement in both group. Average 6-minutes walk distances had improved about 12% in both groups. At 4 year, both groups were substantially and about equally improved over baseline measurements.

Conclusions : We conclude that there were no significant differences between two group.

After primary total knee arthroplasty, the patients who had a home exercise program improved similarly to the patients who completed regular physical therapy. Although additional studies are required.

Primary total knee arthroplasty; physical therapy; home-based exercise.

Ilizarov Fixator in Femoral Supracondylar Fractures: A Case Series With 1-6 Years Follow Up

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Background : Our aims were to determine the clinical effectiveness and safety of Ilizarov external fixation on treatment of femoral supracondylar fracture .

Methods: Materials and Methods: This retrospective case series study was conducted on patients with femoral supracondylar fracture. The patients were treated by Ilizarov technique and followed up for 1-6 years. The complication rate was determined by Knee Society Score (KSS) and Functional Knee Score (FKS).

Results: Most of the 47 assessed patients were aged 31-40 years (38.3%) and were male (83%). Average fixation time was 4.82 ± 0.96 months (range 3-7 months). Forty cases (84.5%) until 5 months and all patients until 7 months post operation achieved complete union without major complications. The mean range of extension lack and flexion of the knee at the final follow-up were 1.91 ± 3.54 and 121.17 ± 14.45 degree, respectively. The mean KSS and FKS at final follow-up was 90.8 ± 7.2 and 90.57 ± 8.16 , respectively. Although superficial pin-tract infection was observed in 28 pin sites (59.6%), no patient developed deep infection and osteomyelitis.

Conclusion : Ilizarov fixative technique can be used as an effective and available method with low complications for treatment of severe femoral supracondylar fractures .

Longus Colli

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Introduction : Although relatively underreported in orthopaedics and spine journals, patients with longus colli tendinitis are usually referred to orthopaedic or spine departments as they commonly present with cervical pain and rigidity. Although uncommon, it should be included in differential diagnosis in patients presenting with such complaints. The aim of this study is to highlight the importance of longus colli tendinitis for spine specialists in differential diagnosis of neck pain and rigidity to avoid unnecessary investigations and interventions.

Methods : Review of literature using Med-line (Pub Med) search in May 2015 and analysis of the results regarding number of publications per year, specialty of publishing journals and number of cases. All available cases were reviewed for clinical presentation, laboratory and imaging investigations, interventions, treatment and duration till subsidence of symptoms. Five patients from our institute were included as a case series .They were presented to the emergency department with acute or subacute neck pain, rigidity and dysphagia. Clinical, radiographic and laboratory evaluations were done. Diagnosis was made through experienced spine surgeon and radiologist. Conservative treatment included soft cervical collar and non-steroidal anti-inflammatory drugs .

Results : Review of literature using Med-line (Pub Med) in May 2015 showed 93 articles describing and reporting this condition, three published in specialised spine journals. The main bulk of publications were in radiology and neuro-

radiology journals representing 27 articles, followed by specialised otolaryngology and head and neck representing 19 publications. A total of 234 cases (126 females and 108 males). The mean age was 35.18 years (range 21– 81 years). Constant symptoms included neck pain in 100% of cases, limitation of cervical movements in 98.3% and swallowing complaints in about 83.72%. Leukocyte count was available in 48 cases with a mean of $11.58 \times 10^3 \text{ mm}^3$. CRP values were available in 21 cases with a mean of 23.66 mg/dl. The results for the five cases included as a case series from our centre are presented.

Conclusions : We emphasise the importance of longus colli tendinitis in differential diagnosis of acute or subacute neck pain with rigidity and dysphagia. Orthopaedic and spine surgeons should be aware of the clinical presentation and radiographic findings of the condition to avoid unnecessary invasive interventions or operations. Other spine-related pathologies should be excluded.

Re-operation Rate after Extra-foraminal Microscopic-assisted Percutaneous Nucleotomy

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Introduction: Foraminal and extra-foraminal lumbar disc herniations are uncommon. Main presentation is radicular pain related to the exiting nerve root in the affected level. Different approaches for surgical intervention include median or para-median open microscopic-assisted techniques, endoscopic approach or trans-tubular microscopic-assisted percutaneous technique.

Methods: Between October 2012 and March 2014, 35 patients with foraminal or extra-foraminal lumbar disc prolapse were operated on in our centre. Extra-foraminal percutaneous trans-tubular microscopic-assisted approach was

used. Preoperative investigations included plain radiographs and MRI. Preoperative clinical evaluation included Visual Analogue Scale (VAS) for radicular pain and neurological state. The mean follow up period was 18 months (range 12 - 30).

Results : The mean age was 47 years. 17 females and 12 males were operated. The most commonly affected level was L4/5 (19 patients = 54.3%). The mean preoperative VAS for leg pain was 82 mm, improved to 15 postoperatively. The average operative time was 52 minutes. There were no intraoperative or postoperative complications. Two patients had recurrence within the first 6 months postoperatively. They were re-operated using the same technique without complications. Both were followed up for one year without a second recurrence.

Conclusion : Trans-tubular percutaneous extra-foraminal microscopic-assisted nucleotomy is advantageous for foraminal and extra-foraminal disc herniations. It is a muscle splitting minimal-invasive approach with minimal morbidity. Re-operation rate is not different compared to microsurgical open or endoscopic techniques.

Results of BallonKyphoplasty in Osteoporotic Fractures with Posterior Wall Injury

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Introduction : Cement augmentation techniques are standard treatment for cases of osteoporotic vertebral fractures. Compared to vertebroplasty, kyphoplasty is associated with decreased rates of cement leak. Cases with posterior wall fractures are relative contraindications for both techniques. The aim of this study was to evaluate the results of balloon kyphoplasty in cases of osteoporotic fractures with posterior wall involvement

Methods : Forty-eight patients with osteoporotic fractures with injury of the

posterior vertebral wall were included. Fractures between T4 and L5 were included. Cases with posterior ligamentous complex injury were excluded. Preoperative evaluation included plain x-rays, CT, MRI, and laboratory diagnosis of osteoporosis. All cases were operated upon with balloon kyphoplasty. Bilateral (bi-pedicular) approach was used in all cases. Injected cement volume and incidence of cement leak were evaluated. The minimum follow-up period was 6 months .

Results: 18 males and 30 females were operated upon. The average age was 72.4 years. The most common affected vertebra was T12 in 19 patients. The average volume of injected cement was 6.2 ml. Posterior cement leak (in spinal canal) occurred in 2 cases and was asymptomatic. There were no neurologic or embolic complications .

Conclusion: Balloon kyphoplasty is safe in cases of osteoporotic fractures with posterior wall fractures. Type A3 and A4 fractures (according to AO classification) were not associated with increased incidence of cement leak in spinal canal. The volume of injected cement should not exceed the volume injected to inflate the balloon.

Expansion osteoplasty of the proximal femur is effective for accommodating an off-the-shelf stem to extremely small femurs

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Backgrounds : During a total hip replacement (THR), often small dysplastic femurs do not accommodate even the smallest size of a conventional stem. This may lead to incomplete insertion of the stem, over-removal of proximal femoral medullary bone or femoral fracture. Using a small cemented stem can be considered in this situation, but will only mask the issue till the revision surgery where the same problem will manifest itself. The other option would be using a

custom-made stem Awhich is costly and manufacturing process is time consuming. Incising the calcar area to make proximal femur more capacious may be used to avoid the complications or the need for custom-made stems. Small femurs often do not accommodate even the smallest size of a conventional stem during total hip replacement (THR) leading to incomplete seating of the stem or femoral fracture. Incising the calcar area to make the proximal femur more capacious may be used to avoid using custom-made stems.

Methods : 26 hips (15 dysplastic hips, 4 sequels of septic hip, 3 juvenile rheumatic arthritis, 3 multiple epiphyseal dysplasia, 1 myelomeningocele) in 24 patients who underwent expansion osteoplasty and had >24 months followup were included. Indication was the lack of enough diameter of the proximal femur to accommodate even the smallest size of conventional stems. A longitudinal osteotomy of the proximal femur was performed from the level of neck cut distally for about 5cm, anterior to lesser trochanter. The broach or reamer was reinserted to the canal and gently tapped to the desired depth. This resulted in opening of the osteotomy site for a few millimeters and further propagation of the osteotomy for variable lengths. Cerclage wiring was performed with the broach or the reamer in place. Definite implant, always of the smallest manufactured size, was then inserted. No bone graft was applied to the defect. Postoperatively, the patients had touch-down weight bearing for 6 weeks. The cases were matched and compared with 26 similar hips regarding gender, age, diagnosis but with a more normal anatomy that had accommodated conventional femoral stem with no osteotomy. A funnelization index was defined as the ratio of the mediolateral diameter of the proximal femur at the apex of the lesser trochanter over the same diameter 10cm distal to it and was compared before and after the surgery

Results : There were 6 males and 18 females in the case- and 7 males and 19 females in the control group with a mean age of 48 and 46 years for the case and control groups with an average follow up of 54 and 57 months, respectively. 6 of

the cases had received conical tapered- and others a dual tapered stem. 3 intraoperative greater trochanteric fractures occurred in each group (P value=1.000) and 2 calcar fractures in the control group (P value=0.490). 2 of the cases dislocated early postoperatively, versus none in the control group (P value=0.490), both treated with closed reduction with no further instability. There were no femoral shaft fractures, infection, loosening or revision surgeries in either group. In the last follow up visit, the average HHS for the case group was 81 (69-89), a significant improvement from the preoperative value of 37 (15-46) (P value<0.001). The absolute values of preoperative (average 41, range 21-46) and last followup HHS (mean, 84, range 68-92) were higher for the control group. However, the amount of improvement in HHS was not significantly different (P value=0.657). There was no significant difference between the groups regarding overall complication- and reoperation rate (P value>0.05). However, the limping section of the HHS at the last follow up visit was higher in the control group (P value=0.018). Radiologically, all femoral components of the two groups were well-fixed. There was a possible loosening in an acetabular component in the case group but the patient was asymptomatic. The change in funnelization index could be measured for 12 of the cases. It increased from an average of 1.31 to 1.50 (P value=0.014).

Conclusions :Expansion osteoplasty of proximal femur is a new technique that can abort the need for using custom-made prostheses during THA of severely underdeveloped hips and does not carry a marked risk of femoral shaft fracture or loosening. Proximal femur diameter can be increased with the use of expansion osteoplasty (as indicated by the change of funnelization index) which can also ease inserting a new stem during the revision surgery should the index arthroplasty fail. Another study to compare this new technique with using either a small cemented stem or a custom-made implant is needed before it can be recommended for arthroplasty of hips with extremely small femurs.

Descriptive Epidemiology of Traumatic Injuries in 18890 Adults: a 5-Year-Study in a Tertiary Trauma Center in Iran

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Background :Basic epidemiological data can provide estimates when discussing disease burden and in the planning and provision of healthcare strategies. There is little quantitative information in the literature regarding prevalence of traumatic injuries from developing countries.

Objectives: The aim of the current preliminary study was to reveal the prevalence and age and gender distribution of various traumatic injuries in a tertiary referral orthopedic hospital in Iran.

Methods :In a prospective descriptive study, all traumatic injured patients attending the Orthopedic Trauma Unit of our center in a five year period were included. Demographic details, the cause of injury, injury classification and treatment were recorded. For each of the five-year age groups and each gender we calculated the numbers with fractures, dislocations, soft tissue injuries, ligamentous injuries and lacerations and derived average age and gender-specific prevalence as well as seasonal variations.

Results :A total of 18890 adults were admitted, 13870 (73.4%) males and 5020 (26.6%) females. There were 8204 (43.4%) fractures. The male fracture age distribution curve was unimodal and there was a detectable bimodal pattern in females. Under 65 years males are 3 times more likely to sustain a fracture than females which decreases to equal risk over the age of 65. The most common fracture site was distal radius/ulna (13.8%), followed by tibial diaphysis (8.8%), proximal femur (7.8%), finger phalanges (6.4%), metacarpals (6%) and metatarsals (5.9%). There were seasonal variations in fracture incidence with peaks in February,

March and October. The least number of fractures occurred in June.

Conclusions :The risk of traumatic injuries is higher among specific age groups with different patterns emerging for men and women. Thus, the descriptive epidemiology will provide useful information for treatment or injury prevention strategies, resource allocation, and training priorities.

External fixation by locking plate as a definitive treatment of tibial distal metaphyseal fractures

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Backgrounds :Introduction: Traditional external fixation used for open or with soft tissue compromised tibial distal metaphyseal fractures both as a temporizing and definitive treatment to minimize more trauma to the soft tissues , but it has its own shortcomings such as joint spanning and bulky construct. Using lower profile locked plates as external fixation may overcome these problems.

Methods :Patients and methods: a series of 16 open or with soft tissue compromised tibial distal metaphyseal fractures were treated using locking plate as a definitive external fixator. Time to union, nonunion, malunion, device failure, function for the knee and ankle, deep and pin tract infections were evaluated.

Results: All fractures healed without any complications (nonunion, malunion, device failure or infections including deep and pin tracts) . The mean time to fracture healing was 18weeks) range, 12 to 26 weeks). After walking with full weight-bearing for one month, the patients underwent plate removal. the mean HSS score was 89(range, 84 to 100) and 95 (range, 91 to 100), and the mean AOFAS score was 93 (range, 89 to 100) and 95 (range,92 to 100) at 4 weeks postoperatively and final follow-up.

Conclusion :using the locking plate as a external fixator for definitive treatment of distal tibial fractures has the advantages of traditional as external fixator and at the same time overcomes the shortcomings it because of its low-profile frame, so its more acceptable to patients and Joint-sparing frame give the opportunity for early range of motion and function exercise. it is a safe and reliable technique with minimal complications and excellent outcomes.

A Meta-Analysis of the Effect of Corticosteroid Injection for Enthesopathy of the Extensor Carpi Radialis Brevis Origin

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Backgrounds :The null hypothesis that there is no effect of corticosteroid injection on visual analog scale for pain in patients with enthesopathy of the extensor carpi radialis brevis (eECRB) origin 6 months after treatment was tested. Our secondary hypotheses were that there is no effect of corticosteroid injection on pain intensity at 1 and 3 months after treatment; that there is no effect of corticosteroid injection on grip strength at 1, 3, and 6 months after treatment; and that there is no effect of corticosteroid injection on Disabilities of the Arm, Shoulder, and Hand scores at 1, 3 and 6 months after treatment

Methods :EMBASE, PubMed Publisher, MEDLINE, OvidSP, Web of Science, Google Scholar, and the Cochrane Central were searched for relevant studies. Studies were eligible if there was a description of corticosteroid injection treatment for eECRB; randomized placebo injectionecontrolled trials with at least 10 adults included with eECRB; a full-text article available with data describing the mean differences between the corticosteroid and the control groups and the outcome measures used; and follow-up of at least 1 month. In total, 7 randomized controlled trials comparing the effect

of corticosteroid injection with a placebo injection on symptoms of eECRB were included in our meta-analysis.

Results :We found no difference in pain intensity 6 months after injection of corticosteroids or placebo. Pain intensity was slightly, but significantly, lower 1 month, but not 3 months , after steroid injection. There were no significant differences in grip strength or Disabilities of the Arm, Shoulder, and Hand score at any time point.

Conclusions :This meta-analysis showed that there is no difference in pain intensity between corticosteroid injection and placebo 6 months after injection. We interpret the weight of evidence to date as suggesting that corticosteroid injections are neither meaningfully palliative nor disease modifying when used to treat eECRB Corticosteroid, tennis elbow, enthesopathy of the extensor carpi radialis brevis, meta-analysis.

Femoral length could grow longer in untreated unilateral high riding Crowe type IV Developmental Dysplasia of the Hip

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Backgrounds :Lower limb discrepancy is a major complain of the adult patients with neglected unilateral high riding DDH. Total hip arthroplasty in these patients is a challenging procedure and there is a need for shortening osteotomy in most cases. Failure to re-establish equal lower limbs after hip arthroplasty is a major cause of patient dissatisfaction. Radiographic studies have shown hypoplastic changes of femur and acetabulum. There are few reports that reveals difference in femoral length growth between dislocated and normal side. This study was designed to measure the difference of adult femoral length between normal and dislocated hip in these cases. Lower limb discrepancy is a major complain of the adult patients with neglected unilateral high riding DDH. Total hip arthroplasty in these patients is a

challenging procedure and there is a need for shortening osteotomy in most cases. Failure to re-establish equal lower limbs after hip arthroplasty is a major cause of patient dissatisfaction. Radiographic studies have shown hypoplastic changes of femur and acetabulum. There are few reports that reveals difference in femoral length growth between dislocated and normal side. This study was designed to measure the difference of adult femoral length between normal and dislocated hip in these cases.

Methods :Pre-operative lower limb scanograms of adult patients who had unilateral high riding Crowe type III and IV DDH were evaluated for measurement of femoral length in normal and affected side. All cases who had any procedure in the childhood or knee flexion contracture that affect the measurement were excluded. Length of femur was measured from the tip of greater trochanter to the most distal part of the femoral condyle in normal and dislocated sides. Measurements were performed by one hip surgery fellow and one radiologist independently under supervision of senior staff member. The difference of the femoral length with the increment of the 3, 5 and 10 mm were reported. Intra-class Correlation (ICC) method was used to measure the agreement between two observers.

Results :Sixty cases studied .All but one radiograph belonged to women. Average age of cases was 27.5 years (Range:19-50 years). Intra Class Correlation (ICC) confirmed 99% agreement between observers. Only 6 cases (10%) had exactly equal femoral length between dislocated and normal side. Thirty-one cases (51%) were longer and 23 (39%) cases were shorter on dislocated side. Average overgrowth was 6.1 mm (Range: 1-22) and average undergrowth was 10.7 (Range 1-21). When we ignored 3 mm of difference, 25 cases had 3 mm or more over length on dislocated side. Seventeen cases (28.3%) had at least 10 mm difference between femoral length of normal and dislocated side. Among those who had at least 10 mm difference, 8 cases (13.3%) had shorter and 9 cases (14.97%) had longer femur on dislocated side. The maximum difference was

22 mm overlength on dislocated side. Thirty-seven (61.7) cases had less than 10 mm discrepancy. Among them 16 cases (26.66% (had shorter and 21 cases (35.04%) had longer dislocated side.

Conclusions: Only 6% of cases who have unilateral high riding dislocated Crowe type III and IV DDH have equal femoral length. In most cases the length of femur is longer on dislocated side. Femoral length was 10 mm or longer in fifteen percent of cases on dislocated side. To avoid post-operative over length, precisely select cases who need and the exact amount of shortening osteotomy we strongly recommend preoperative measurement of femoral length difference in these cases.

Comparison of Arthroscopic Assisted Reduction and Internal Fixation Versus Open Reduction and Internal Fixation in Tibia Plateau Fracture Treatment: A Prospective Cohort Study With Historical Controls

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Background :Orthopedic surgery of tibial plateau fractures has been a challenging procedure for a long duration. However, less-invasive surgical techniques have recently been developed for this condition.

Objectives: In an interventional study with a historical control, we evaluated the medium-term functional and radiological outcomes of treatments for tibial plateau fractures using the arthroscopically assisted reduction and internal fixation (ARIF) and open reduction and internal fixation (ORIF) techniques.

Methods: Eleven patients with tibial plateau fractures of Schatzker types I-VI were treated with ARIF, whereas 11 patients were matched historically as the ORIF group. There were no significant differences in gender, age, and fracture types between the groups ($P > 0.05$).

At the last follow-up, range of motion, visual analogue score for pain, Rasmussen functional and radiographic scores, international knee society scoring system (IKSS) score, and the Ahlback radiologic scale score for osteoarthritis were evaluated.

Results :All patients achieved union. The ARIF group had a shorter rehabilitation period, as well as a lower rate of midterm osteoarthritis and complications ($P < 0.05$). There were no significant differences between both groups according to other functional and radiologic assessments.

Conclusions :We recommend that the ARIF technique is an acceptable alternative treatment for tibial plateau fractures, with good functional and radiological midterm results and without serious complications.

Does Disability Correlate With Impairment After Hand Injury?

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Background: Any loss or deviation in body function and structure is considered impairment, whereas limitations on activities are fundamental to the definition of disability. Although it seems intuitive that the two should be closely related, this might not be the case; there is some evidence that psychosocial factors are more important determinants of disability than are objective impairments. However, the degree to which this is the case has been incompletely explored. Questions/purposes. The purpose of this study was to determine if disability (as measured by

the Disabilities of the Arm, Shoulder and Hand [DASH] and the Michigan Hand Questionnaire [MHQ]) and pain intensity correlate with impairment (as measured by the American Medical Association [AMA] impairment guide). Secondary study questions addressed the effect of pain intensity and symptom of depression on predicting disability.

Methods: Impairment and disability were evaluated in a sample of 107 hand-injured patients a mean of 11 months after injury. Impairment rating was performed prospectively. From the patients who came for therapy, they were invited to fill out the questionnaire and evaluated for impairment rating. Response variables of DASH, MHQ, and visual analog scale pain intensity values were collected at the same setting. Other explanatory variables included demographic, injury-related, and psychological factors (symptoms of depression measured with the Beck Depression Inventory). Initial bivariate and multivariate analyses were performed to determine correlations of disability and pain to impairment rating and other exploratory variables. Results Disability as measured by the DASH showed intermediate correlation with AMA impairment ($r = 0.38$, $\beta = 0.36$, $p = 0.000$). Together with gender, it accounted for only 22% of the variability in DASH scores. Similarly, MHQ score correlated with impairment rating ($r = 0.24$, $\beta = 0.23$, $p < 0.05$). However, together with age, injured hand accounted for only 19% of the variability in MHQ scores. However, pain intensity did not correlate with impairment ($r = 0.46$, $p < 0.05$). Interestingly, pain intensity did correlate with the time passed from surgery but it was correlated with symptom of depression ($r^2 = 0.10$, $\beta = 0.33$, $p = 0.001$).

Conclusions: The limited correlation between impairment and disability emphasizes the importance of factors other than pathophysiology in human illness behavior. These may include physical (pain, dominant injured hand) and conditional factors (time since surgery) or psychological factors such as

depression and adapting; all mentioned can be considered as personal factors that may be different in each patient. So considering personal difference and any other condition except the impairment alone can help to better plan interventions and also diminish disability level.

Level of Evidence Level III, therapeutic study.

Accuracy and reliability of distal femoral rotation measurements using the transepicondylar axis in total knee arthroplasty: A cadaver study

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Introduction : The correct alignment of femoral components is necessary to achieve a successful total knee arthroplasty (TKA) and preventing complications such as pain, stiffness, loosening, instability; which itself, depends on making perfect cuts. The posterior distal femoral cut is one of the most important factors. Yet, the best method of its measurement is controversial .

Methods : In this study, 20 cadavers of femoral bones were used; on which, the distal femoral rotation (DFR) was measured manually by 8 orthopedic surgeons and also was calculated on the basis of the transepicondylar axis (TEA) by 2 orthopedic surgeons and 2 radiologists on CT scan image. Accuracy and reliability were assessed in both groups, and the risk of severe malrotation was determined according to an outlier defined as 3 and 5 degrees .

Results : The mean DFR measured manually, was 1.8 ± 2.1 and the one attained by CT scan images was reported 3.3 ± 1.1 , projecting a remarkable difference between two groups. The Kappa reliability index was calculated about 0.81 in CT scan results and 0.64 in the other group. ($k > 0.7$ was considered as valuable). With an outlier defined as 3 ,° from the normal distal femoral rotation based on

posterior condylar axis (PCA), 3 °external rotation; 12% of data were outlying in the manually of measured data, and there was no outlier data were reported in the other group. (With a statistically significant difference between two groups (

Conclusion :According to the unreliability and noticeable risk of error in measuring DFR manually based on TEA, this study suggests using CT scan in the patient's pre-op assessment to obtain the most accurate data.

The Efficacy of Teicoplanin with Resorbable Chitosan-Based Scaffolds in Treating Osteomyelitis of Rabbit Tibia

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Backgrounds: Chronic osteomyelitis is an orthopedic health problem. Various therapeutic methods such as cleaning (with sterile solutions), timely debridement, intravenous antibiotic therapy, and antibiotic-loaded cement scaffold delivery have proved useful in treating chronic osteomyelitis patients. Resorbable antibiotic-releasing scaffolds have been proposed on account of the need to surgically remove antibiotic-loaded cements. Numerous studies have shown that such scaffolds can be used in treating osteomyelitis without the need for further surgical operations. The literature points to the efficacy of such antibiotics as tobramycin, the fluoroquinolones, gentamicin, and vancomycin with resorbable calcium phosphate-, hydroxyapatite-, poly amino acid-, and chitosan-based scaffolds in treating chronic osteomyelitis. The present study investigated the efficacy of teicoplanin with resorbable chitosan-based scaffold in treating osteomyelitis of rabbit tibia.

Methods :Materials and Method: 20 adult male New Zealand white rabbits with an average weight of 2.5 kg were used. An animal model of

osteomyelitis was initially implemented on two rabbits to measure their bacterial volume and to determine a safe surgical procedure. Chronic osteomyelitis was then verified by conducting necessary tests, radiological imaging and identifying clinical symptoms. Chronic osteomyelitis was subsequently induced and verified in 16 rabbits depending on their respective bacterial volume. They were then randomly divided into four groups in alphabetical order from 1 to 4. No intervention was made in group A, i.e. the control group, after inducing osteomyelitis. The second group received teicoplanin with resorbable chitosan-based scaffolds. The third group received vancomycin-loaded bone cement, and resorbable antibiotic-free bones were implanted in the fourth group.

Results :Studies on the four groups revealed that, in the first (the intervention-free) group, two rabbits continued to show osteomyelitic symptoms, one exhibited signs of recovery, and the other died and was consequently excluded from the study. In the second group which received teicoplanin-loaded bone with chitosan-based scaffolds, three rabbits were fully recovered and the other died and was consequently excluded from the study. In the third group which received vancomycin-loaded bone cement, two rabbits were fully recovered and the other two died and were subsequently excluded from the study. In the fourth group which received antibiotic-free chitosan-based bone implants, two rabbits continued to exhibit osteomyelitic symptoms and the other two died and were subsequently excluded from the study. No significant difference was observed among the four groups, although the second group was more responsive to treatment compared to others. One of the rabbits in the control group showed signs of recovery without receiving antibiotic therapy. With the death and subsequent exclusion of two of the rabbits therein, the mortality rate of the fourth group was higher than other groups; none of which demonstrated a significant difference .

Conclusions :Studies on the four groups revealed that, in the first (the intervention-free) group, two rabbits continued to show osteomyelitic symptoms, one exhibited signs of recovery, and the other died and was consequently excluded from the study. In the second group which received teicoplanin-loaded bone with chitosan-based scaffolds, three rabbits were fully recovered and the other died and was consequently excluded from the study. In the third group which received vancomycin-loaded bone cement, two rabbits were fully recovered and the other two died and were subsequently excluded from the study. In the fourth group which received antibiotic-free chitosan-based bone implants, two rabbits continued to exhibit osteomyelitic symptoms and the other two died and were subsequently excluded from the study. No significant difference was observed among the four groups, although the second group was more responsive to treatment compared to others. One of the rabbits in the control group showed signs of recovery without receiving antibiotic therapy. With the death and subsequent exclusion of two of the rabbits therein, the mortality rate of the fourth group was higher than other groups; none of which demonstrated a significant difference.

Triple Tendon Transfer for Correction of Foot Deformity in Common Peroneal Nerve Palsy

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Background :Anterior transfer of posterior tibial tendon (PTT) is the most common technique to correct foot drop in patients with common peroneal nerve palsy. It does not address the loss of toe extension or” toe drop “.This may affect the gait pattern, and patients may not tolerate it. Described here is a technique that addresses toe drop associated with common peroneal nerve palsy.

Method :A new technique of tendon transfer using the PTT, flexor hallucis longus (FHL) tendon, and flexor digitorum longus (FDL) tendon was performed on 15 patients (13 males and 2 females) with complete common peroneal nerve palsy from 2009 to 2013. Minimum follow-up was 12 months (range, 12-50 months). The mean age was 37 years (range, 20-52 years).

Results :Based on the evaluation criteria of Carayon et al, the postoperative results for foot drop correction were excellent in 9 (60%), good in 5 (33%), and moderate in 1 (7%), and the mean active range of motion of the ankle was 46 degrees. Postoperative extension evaluation of the toes was excellent in 7 (47%), good in 5 (33%), and moderate in 3 (20%).

Conclusion :Releasing and transferring of FDL and FHL to the toe extensors along with the anterior transfer of the PTT neutralized the deforming forces and allowed for active toe extension while strengthening ankle dorsiflexion. Movahedi Tendon Transfer was a reliable method to achieve a balanced foot and toe dorsiflexion for complete common peroneal nerve palsy.

Level of Evidence :Level IV, retrospective case series.

Primary report of a new technique using dynamic hip external fixators in comparison with dynamic hip screw

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Backgrounds: Intertrochanteric fractures mostly affect the elderly population, which can increase the risk of mortality in this population. On the other hand, surgical producers are high risk in these group of patients as they usually suffer from other medical conditions in addition to their present fractures. So, Hip dynamic external fixators (DHEF) are known to be a good alternative to reduce the surgical morbidity and mortality. **Methods** :in this control-trial study, patients with anesthetic class III or IV who suffered

from stable intertrochanteric fracture were treated accidentally with either dynamic hip screw (DHS) or dynamic hip external fixators (DHEF). (The aim of this study was to introduce DHEF insertion technique in addition to define the mortality and morbidity rate .

Results :DHS and DHEF were applied for eight and five patients, respectively. DHEF was used by insertion of two parallel 5 mm Schanzes in the femoral head following the insertion of the DHEF which is invented by Mashhad Orthopedic Research Center. Design of the DHEF is dynamic; it means the barrel slides in slot. During two weeks after surgery, two patients out of eight DHS group dead; however, DHEF had no mortality .

Conclusions :DHEF is a better fracture fixation device which causes less mortality in comparison to DHS in high-risk patients intertrochanteric fractures ,dynamic hip ,external fixators ,elderly

Lengthening and deformity correction by Ilizarov in children with congenital orthopedic pathology

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Approaches to planning surgical treatment of severe orthopedic pathology in children at the present time are different.

Background: The aim of the study was to evaluate different variants of the transosseous osteosynthesis with correction of deformities of the lower limb segments in children with severe orthopedic pathology.

Methods: 26 children (from 11 months to 16 years) were treated. Osteosynthesis by Ilizarov in different modifications was performed in all patients .

Results :Children under the age of three were operated with the goal of verticalization and restoration of the mechanical axis of the lower limb. The average value of one-stage lengthening was 3.67 cm. We did not consider index of osteosynthesis as an indicator of treatment, because patients in the consolidation period were discharged from hospital and due to objective reasons a second hospitalization was often carried out with a delay. Complications were not of a fatal nature and did not affect the outcome of treatment .

Conclusion :Surgical treatment by Ilizarov improved the quality of life of all patients.