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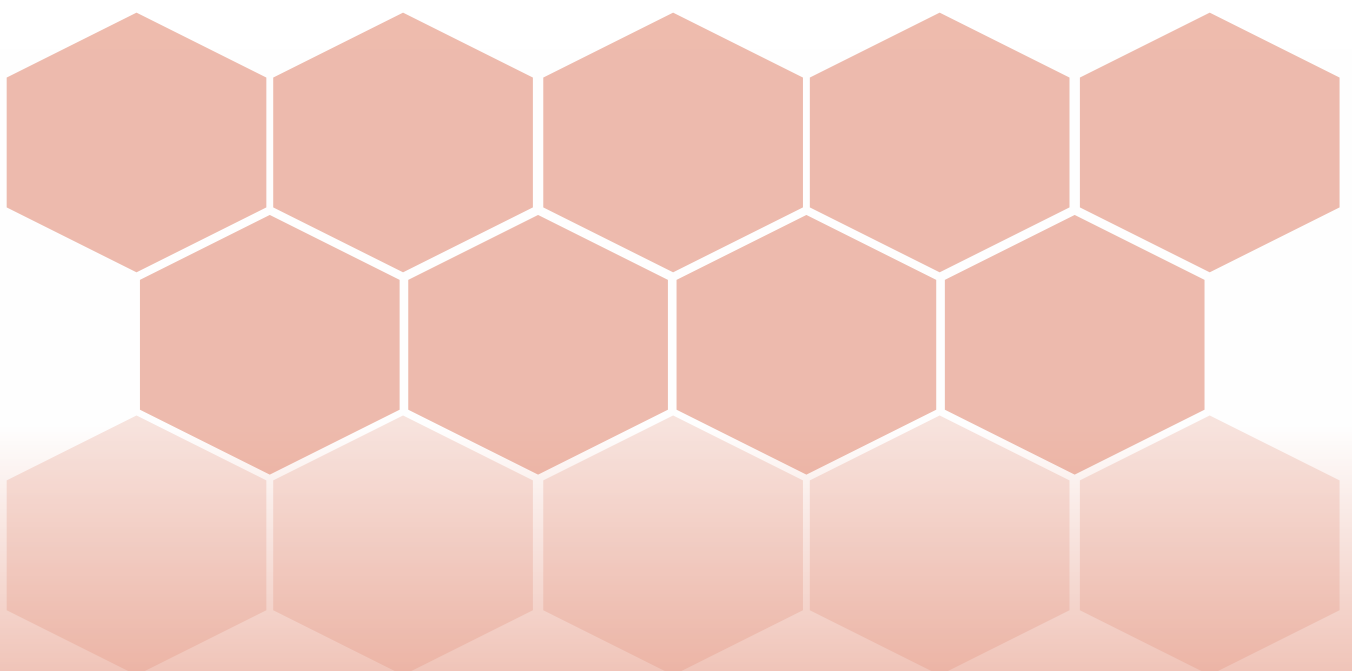


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1015<sup>th</sup> Conference

# 10<sup>th</sup> Global Orthopedicians Annual Meeting

July 03-04, 2017 Kuala Lumpur, Malaysia

## Posters



# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

July 03-04, 2017 Kuala Lumpur, Malaysia

## Total elbow arthroplasty for the treatment of unstable chronic nonunions of the distal humerus: A case series

Chui Ling Teng<sup>1</sup>, Tom Moores<sup>2</sup>, Akshay Malhotra<sup>2</sup>, Justin Lim<sup>1</sup>, S Chan<sup>2</sup> and S M Hay<sup>2</sup>

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**Statement:** 5% of distal humeral fractures go onto nonunions. 50-70% will eventually heal and have a satisfactory outcome following multiple repeat osteosynthesis surgery. Remaining patients are left with painful, unstable elbow with limited function. Reconstructive options are limited due to the remaining poor bony and soft tissue envelopes and the fibrous nonunion tissue. We assessed outcomes for total elbow arthroplasty (TEA) as a salvage procedure for this group of patients.

**Methodology:** Seven patients with mean nonunion time of 12 years (range 3-29 years) and mean of 4 previous failed surgeries prior to undergoing TEA as salvage procedure for distal humeral nonunion. Pre and postoperative Oxford Elbow Scores (OES) were used to assess functional outcome and all complications were reported at follow-up.

**Findings:** Mean preoperative OES was 11.9 (range 6-18), at a mean follow up of 24.3 months (range 6-54), the mean OES was 37.7 (range 17-47), a mean 25.9 score improvement postoperatively (t-test, p=0.00038). Preoperatively, all patients had painful unstable and restricted arcs of motion ranging from a flail elbow to at best 90 degrees of flexion. Postoperatively, all TEA had sagittal and coronal stability throughout an arc of motion of 20-140 degrees. 86% of our series had a good outcome (OES >38). One patient had metalwork removed for suspected infected nonunion and ulna nerve neuropathy prior to TEA. Despite eradication and normal histology and blood markers prior to TEA this patient has a poor outcome score (OES 17), with the majority of symptoms relating to the preexisting ulna neuropathy. This patient is satisfied with the stability and function the TEA has provided which is not reflected in the OES.

**Conclusion:** Our series shows that TEA is a good salvage option for chronic distal humeral nonunion, with good functional outcomes in patients who have never had an infected nonunion.

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## Notes:

# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

July 03-04, 2017 Kuala Lumpur, Malaysia

## Outcomes following distal inter-phalangeal fusion in the hand using Acutrak® screws

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**Purpose:** The purpose of the study was to analyze retrospectively the functional and radiographic outcome of patients undergoing distal interphalangeal joint arthrodesis at our institute.

**Methodology:** Between 2010 and 2014, 46 distal interphalangeal joint arthrodesis were carried out in 31 patients at our institution. The case group consisted of 22 females and 9 males with an average age of 61 years (50 years to 75 years). Average follow up was 10 months (6 months to 31 months). Four patients had concomitant procedures e.g. lateral band transfer. Indications for surgery were: Failure of conservative treatment; severe pain; and diminished thumb and finger function hampering everyday life. The technique is through dorsal incision over the joint surface and preparing the joint to accept the guide wire for a mini/micro Acutrak®. Hand therapist and consultant surgeon follow up was there for 2 and 6 weeks post-operation, after which on an individual basis.

**Findings:** Four (12 fingers) patients underwent the procedure as part of rheumatoid hand reconstruction while 27 (33 fingers) patients required the procedure due to osteoarthritis. There were 6 thumbs and 39 fingers operated upon. In 25 digits micro Acutrak® screw system was used and in 20 digits the mini Acutrak® screw system was used. Two digits required re-operation, one for infected non-union and the other simple non-union. Both the non-unions were in the micro Acutrak® screw. Three cases of superficial wound infection settled down with antibiotics. Average screw size used 20 mm. Clinically, 85% rated good, 10% fair, and 5% poor results.

**Conclusion:** Our experience of arthrodesis using the Acutrak® system shows better results if compared to K wire fixation. However even within the Acutrak® system better results were noted in the mini Acutrak® group than the micro Acutrak® group. The practice of both the senior authors has now changed to using only the mini system for all their DIPJ arthrodesis.

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# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

July 03-04, 2017 Kuala Lumpur, Malaysia

## Distribution and evaluation of primary bone and soft tissue tumors admitted from Malatya Province and surrounding provinces

**Resit Sevimli**

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In our study, 710 patients who were hospitalized in our department with pre-diagnosis of bone and soft tissue tumor within approximately last 16 years were evaluated. Cases were analyzed according to age, gender, tumor frequency and localization, and retrospective analyses of tumors are tried to be represented. After the approval of ethics committee number 2017/1-3 from Inonu University Committee on Scientific Research and Publication Ethics was obtained; following retrospective evaluation of 920 patients admitted to our department with prediagnosis of tumor between January 2000 and December 2016, 710 patients [275 M, 435 F; mean age: 30.67 (1-92)] were determined to be patients with bone and soft tissue tumors. For screening, operating theatre and ward records were reviewed. The patients were divided as benign and malignant bone and soft tissue tumors based on their pathology results and then examined in regard to age, gender, tumor frequency and localization. Metastatic tumors were excluded from the study. All data were analyzed by using SPSS v.15 (SPSS Inc., Chicago, IL, USA) statistical package program. 710 [275 M, 435 F; mean age: 30.67 (1-92)] of a total of 920 cases were diagnosed with tumor. Mean age of cases was 32.6 in males and 35.1 in females. In regard to localizations of tumors, tumors were recognized in hip, thigh, knee bones in 387 (54.5%), in shoulder, arm and elbow bones in 167 (23.5%) and in ankle and hand bones in 156 (21.9%) of the cases. In regard to screening results, of all cases, 336 patients [144 M-192 F, mean age: 22.79 (2-68)] were determined to have a benign bone tumor, 55 patients [35 F, 20 M, mean age: 43 (3-80)] were determined to have a malignant bone tumor and 293 patients [201 F, 92 M, mean age: 35.27 (1-92)] were determined to have a benign soft tissue tumor, whereas 26 patients [19 M, 7 F, mean age: 54.53 (12-84)] were determined to have a malignant soft tissue tumor. Extra-tumoral causes were determined in the 210 cases which were excluded from the study. Infection was the most common cause in 142 cases of 210 patients that were excluded from the study due to extra-tumoral causes, whereas it was observed that structures thought to be a lesion in 68 cases were normal tissues. In conclusion, data collected in our department seems to be similar with the literature generally. We suggest that formation of larger series through collection of such studies, which include demographical data, from centers where bone and soft tissue tumor surgeries are performed will provide beneficial information in regard to distribution of bone and soft tissue tumors in our country.

### Biography

Resit Sevimli has his experience in orthopedic oncology and arthroplasty on knee and hip at Inonu University.

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### Notes:

# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

July 03-04, 2017 Kuala Lumpur, Malaysia

## Comparison of medium-period outcomes of allografts and autografts used in repair of bone defects in patients who were treated in our department due to skeletal system tumors

**Resit Sevimli**

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Grafting in orthopaedic surgery is used generally for treating bone defects which develop during reconstructive procedures following musculoskeletal system tumor surgery, as well as for trauma, bone infections, congenital abnormalities and revision arthroplastic surgery. After the approval of ethics committee number 2017/1-6 from Inonu University, Committee on Scientific Research and Publication Ethics was obtained for this study. 45 (25 male, 20 female, median age: 34.50; min-max: 9-60) who were operated in our department due to oncological reasons between the years 2005-2015 were examined. For defects of the patients, reconstruction by using autogenous or allogeneous bone graft was performed. Allograft was used for 24 of the patients and autograft was used for 21 of the patients. Lesions of the patients (median age: 34.1; min-max 9-60) for whom allograft was used were in various anatomical localizations from humerus to phalanges, and all were benign cavitory lesions. All of the allografts used in the surgery were first frozen and then dried. All were first kept within Ringer Lactate solution under room temperature and then applied. Iliac wing and metaphysic of radial distal edge were used as graft resources in 21 (median age: 34.76; min-max 18-60) for whom autograft was applied. Types of lesions were benign cavitory lesions, with simple bone cysts being the most common. 24 allografts and 21 autografts which were applied for 45 patients (25 male, 20 female; median age 34.50; min-max: 9-60) for which the follow-up duration was determined to be at least twelve months were evaluated. All of the defects were cavitory. Information concerning age, gender, pathological diagnosis, anatomical localization and complications was obtained by examination of files and graphs of the patients. Mean follow-up duration was 21 months (18.2 months in allograft group, 22.3 months in autograft group). Obtained data were evaluated in SPSS 15.0 program by using Mann-Whitney U-test and chi-square test. During follow ups of the patients, union was radiologically observed in an average of 6.1 months in 43 (91%) patients (5.8 months in 21 autografts, 6.5 months in 22 allografts). Nonunion occurred in 2 (9%) patients. No statistically significant difference was determined between both groups for which allografts and autografts were applied ( $P>0.05$ ). For these two patients which had persistent cavitory lesion until 1st year after application of allograft, allograft was re-applied in the second surgery and union was obtained. Infections did not occur in any of the patients as a complication.

### Biography

Resit Sevimli has his experience in orthopedic oncology and arthroplasty of knee and hip at Inonu University.

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### Notes:

# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

July 03-04, 2017 Kuala Lumpur, Malaysia

## **An analysis of the outcomes of orthopaedic surgery performed in patients with metastatic bone tumour and clinic patients with pathological fracture in the province of Malatya in Turkey**

**Resit Sevimli**

Turgut Ozal Medical Center - Inonu University, Turkey

**B**one tumours seen in advanced ages are, unless otherwise proven, considered to be metastatic and its diagnostic and treatment algorithm are attempted to be developed. In our study, it was aimed to determine and introduce the most common causes of metastasizing primary tumours, their localizations and the treatments that are administered, through evaluation of the patients with metastatic bone tumours who admitted to our clinic. After ethics committee approval numbered 2017/1-was obtained from the Inonu University Committee on Scientific Research and Publication Ethics for this study, data of 96 patients (51 males, 45 females; mean age 64.50; distribution 45 87) who were hospitalized due to diagnosis of metastatic bone tumour or whose treatment was planned in our clinic between 2000 and 2016 were evaluated. The most common cause of admission to our clinic due to metastatic bone lesions were pain and pathological fracture. Whereas 75 of the patients underwent for a surgical intervention with fixation, there remaining patients were followed-up with radio therapy. Breast (30 patients 32%) and lung (18 patients 18.5%) metastases were determined to be the most commonly metastasized primary organs. In regard to the bone area involved, femur was the most commonly metastasized bone localization. Reconstruction surgery with internal fixation or prostheses was performed for all of 75 patients operated. Improvement of general condition of the patient with tumour with bone metastasis as to increase the quality of life of the patient by providing early mobilization of the patient should be attempted. Thus, planning of appropriate patient selection and proper internal fixation is essential. In conclusion, bone tumours seen in advanced ages are, unless otherwise proven, considered to be metastatic and then its treatment should be planned according to this fact. In treatment of metastatic tumours, orthopaedic surgical treatment is palliative and should have the aim of relieving of the pain and enabling early mobilization and general medical care for the patient.

### **Biography**

Resit Sevimli has his experience in orthopaedic oncology and arthroplasty on knee and hip at Inonu University.

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### **Notes:**



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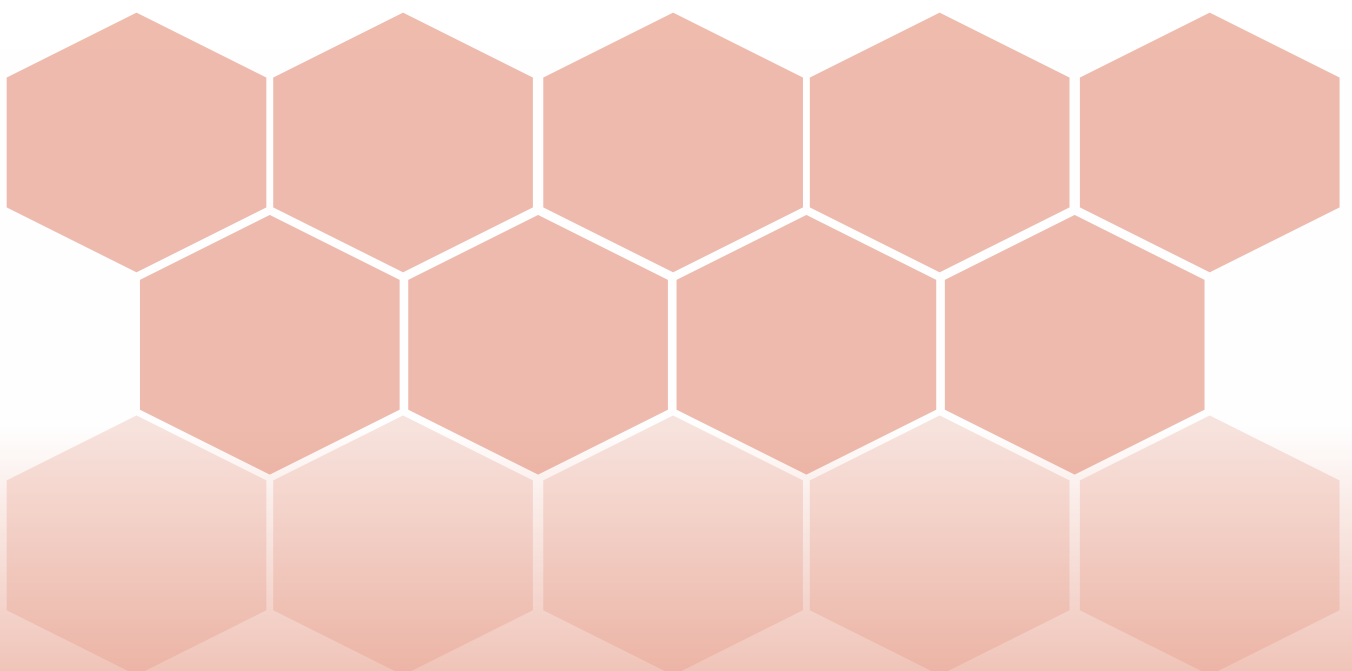


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## **e-Posters**



# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

July 03-04, 2017 Kuala Lumpur, Malaysia

## The racial and cultural differences in interpretation of kneeling after TKA

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**Background:** Kneeling is an important function for many activities of daily life including employment, social and religious practices. Different activities require different patterns of kneeling (upright and high flex kneeling patterns). This study investigates patients' perception of kneeling ability.

**Methods:** Three hundred consecutive patients undergoing Total Knee Arthroplasty (TKA) in Royal Infirmary of Edinburgh received patient specific kneeling ability questionnaires along with the Oxford Knee Score (OKS) pre-operatively and one year after surgery. The 'kneeling ability questionnaire was constructed to determine: (1) The ability to adopt one or more of 4 kneeling positions demonstrated in 4 simple illustrations rated on a 5-point Likert scale (1 = easily to 5 = impossible) pre-operatively and one-year postoperative. The kneeling positions represent different degrees of knee flexion and knee contact with the ground. (2) If unable to kneel, the reason for the inability to kneel. (3) Specific instructions about kneeling given by health care professionals before and after surgery.

**Results:** 251 patients (147 women and 104 men) responded and completed the questionnaires (response rate 84%). The main reasons for kneeling difficulties were pain (111/251), medical problems (77/251), and numbness around the knee (41/251). Most of the patients (147/251 i.e. 63.6%), received advice regarding kneeling before or after TKA; 132 patients (59%) were advised not to kneel after TKAs from the arthroplasty nurse practitioner, 45 patients (20%) received the advice not to kneel after TKAs from their consultants, 29 patients (13%) received the advice not to kneel from their GPs and 9 patients (4%) received the advice not to kneel from their physiotherapists. Two hundred and forty six patients responded to OKS kneeling question preoperatively, and one year after surgery, 20 patients could kneel easily before TKA, this number decreased to 9 patients after TKA; on the other hand 74 patients answered impossible to kneel before TKA and this number increased to 98 patients after TKA. The positive correlation noticed between the OKS kneeling question and the kneeling questionnaire responses showed the strong correlation with the upright kneeling patterns ( $r=0.9$ ). The data suggest that a high percentage of TKA patients experience postoperative kneeling difficulties. 96% of patients responded that were advised by a health care professionals not to kneel.

**Conclusions:** 1. Kneeling is a problem to many patients after TKA. This may have important consequences for work/religious and social life after TKA. 2. Patients are frequently advised not to kneel after TKA. The higher percentage could be because of miss-understanding of the advice. 3. Kneeling questionnaire correlates well with OKS kneeling question. 4. Kneeling is not a single position of the knee and can be interpreted in different ways by different patients.

**Implications:** The implications made after the study were: 1. Standardize the advice about kneeling after TKA. 2. Include postoperative kneeling difficulty in the consent form. 3. Implement the study in a Muslim country because of the importance of the high flex kneeling in daily prayers.

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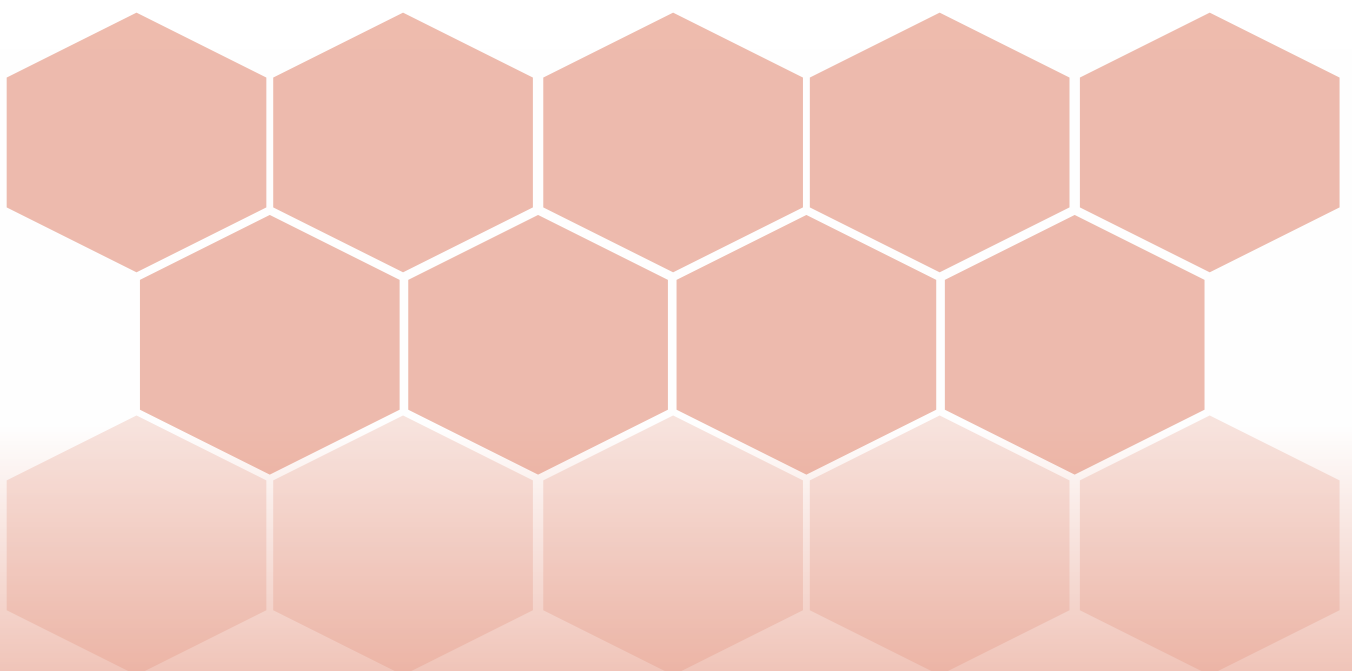


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## **Accepted Abstracts**



# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

July 03-04, 2017 Kuala Lumpur, Malaysia

## Alcohol intake and the risk of osteonecrosis of the femoral head: A dose-response meta-analysis of case-control studies

Byung-Ho Yoon

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**Background:** Studies examining the association between alcohol intake and the risk of Osteonecrosis of the Femoral Head (ONFH) have inconsistent results. The purpose of this study was to examine and summarize the evidence regarding the association between alcohol intake and ONFH based on results from case-control studies.

**Methods:** This analysis included five case-control studies reporting data from 1,251 individuals. With respect to alcohol intake habits (never, former, or current), average drinking consumption (g/week) and cumulative drinking consumption (drink-years) were extracted. The risk of ONFH was evaluated and a two-stage dose-response meta-analysis was performed using restricted cubic splines with four knots at fixed percentiles of 5%, 35%, 65%, and 95% of the distribution.

**Results:** Former alcohol intake increased the risk of ONFH with marginal significance (odds ratio [OR], 2.62;  $p=0.055$ ). Current alcohol intake was associated with an increased risk of ONFH on occasional (OR, 3.63;  $p<0.001$ ) and regular drinking (OR, 5.90;  $p<0.001$ ). The dose-response meta-analysis revealed that the risk of ONFH increased by 35.3% for every 100 g/week (95% confidence interval [CI], 1.24-1.47;  $p<0.001$ ) and by 44.1% for every 500 g drink-years (95% CI, 1.295-1.601;  $p<0.001$ ).

**Conclusions:** Current and cumulative alcohol intakes were positively associated with an increased risk of ONFH in a non-linear pattern. However, further studies to elucidate the threshold of alcohol consumption to prevent ONFH in the general population are required.

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## Comparative prospective study between interference screws vs. press fit technique in ACL reconstruction in young active adult

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Reconstruction of the ACL using hamstring tendons has recently attained increasing interest. The fixation using endobuttons is widest spread. Disadvantages of this fixation away from the point of insertion are enlargement of the tunnel, creeping near the tendon-tape-transition with a giving in of the tendon construct and a permanent elongation. This is also known as Bungee effect. Fixations close to the insertion are therefore being technically applied successfully, e.g. Fixation using interference screws and suspension of loops using transverse rods (Transfix). The disadvantages of these techniques include: 1. They are expensive, 2. There are problems with revisions and 3. They are complicated and time consuming. As an alternative solution, a technique has been developed that should have 3 paramount properties like fixation close to point of insertion, avoidance of implants and simple preparation of the graft. This called press fit technique. This study compared the two technique of hamstring auto graft fixation with the use of a press-fit bone plug vs. interference screws.

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# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

July 03-04, 2017 Kuala Lumpur, Malaysia

## Minimally invasive augmented posterior fixation in vertebral body pseudoarthrosis following fracture in osteoporotic population using fenestrated pedicle screws

**Dharmendra Singh**

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We describe a percutaneous approach of PMMA bone cement augmentation of fenestrated pedicle screws fixation in osteoporotic vertebral body fracture with pseudoarthrosis in a clinical series of 12 elderly osteoporotic patients. Clinical and functional outcome were assessed respectively. Data analysis included Visual Analogue Scale (VAS) score and the Oswestry Disability Index (ODI) and procedure related complications. Only 2 minor complications occurred. Cement leakage was observed in one patient with no further clinical relevance. Loosening of cement augmented pedicle screws occurred in 1 patient but there was no need to remove any of the cement-augmented screws in follow-ups. Radiographic follow-up was based on plain X-rays at 3, 6 and 12 months for a minimum period of 2 years and plain CT scan at the end of two years. VAS scores and ODI showed a statistically significant improvement postoperatively. The percutaneous PMMA augmented fenestrated screws provided an effective and long lasting fixation in vertebral body pseudoarthrosis in osteoporotic patients.

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## Functional recovery after microscopic and non-microscopic median and ulnar nerve repair

**Abdallah Attia**

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**Objective:** To evaluate the clinical results and test the hypothesis that the use of an operating microscope improves the results of peripheral nerve repair.

**Design:** A prospective and retrospective clinical and operative study was conducted.

**Patients & Methods:** Forty-two patients with 52 median and ulnar nerve injuries were treated by direct nerve repair with microscope (26 nerves) and without microscope (26 nerves). In 10 patients, there were ipsilateral combined median and ulnar nerve injuries. The mean age of the patients at time of nerve repair was 29 years (range 11 to 50 years). There were 29 male and 13 female patients. Forty patients were right handed and 2 left handed. Causes of nerve injury were glass cut in 39 patients, knife injury in 3 patients. Delay between injury and repair was 0-48 hours (mean; 10.5 hours). Level of injury was at the wrist in 38 injuries; at the distal ½ of forearm in 9 injuries, at the elbow in 2 injuries and above the elbow in 3 injuries. All nerves were repaired by direct nerve repair without nerve graft. The mean follow up period was 58 months (range, 7 to 140 months).

**Results:** Results of nerve repair were evaluated using clinical tests (motor and sensory), timed functional tests, measurement of sudomotor activity by skin resistance meter, and assessment of activity of daily life (ADL) of the hand. Overall results were excellent in 12 hands (23%), good in 14 hands (27%), fair in 19 hands (13%), and poor in 7 hands (13%).

**Conclusions:** Microscopic nerve repair gives better functional recovery, motor power and localization test score than nerves repaired without microscope. There was no significant difference in sensory and sudomotor recovery in both groups. The age of the patients, level of injury and associated vascular injury influence the outcome of nerve repair. Functional recovery continues to improve for at least 4 years after nerve repair.

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# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

July 03-04, 2017 Kuala Lumpur, Malaysia

## Prakash fibular osteotomy for unicompartmental knee osteoarthritis

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**Statement of the Problem:** Medial compartment arthritis is very common in Asian population, because of a preponderance of varus knees. The choice in such early OA varus knees has been between two radical surgeries, total knee replacements, and high tibial osteotomies. The Prakash Fibular Osteotomy (PFO) is a much simpler, minimally invasive, day care procedure that realigns the knee joint, and delays knee replacements by a decade or longer.

**Methodology & Theoretical Orientation:** Based on observations in a prison, and making a correlation between upper fibular fractures and dramatic relief in medial compartment OA, a study of 14000 knees was made, to evaluate the varus scenarios in Indian knee joints. Based on this, the surgery was developed.

**Findings:** 100 knees operated between 2006 and 2015, showed consistent pain relief lasting five years or longer.

**Conclusion & Significance:** PFO is a significant development in treating OA knees with varus and primary unicompartmental arthritis, and a better alternative to knee replacements and high tibial osteotomy.

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## Post-operative analgesia in day case shoulder arthroscopy

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**Background:** Shoulder arthroscopy is commonly done for diagnostic and therapeutic purposes mostly done as day case procedures since the advance of regional anaesthesia techniques. There are multiple benefits of the day case system – reduced hospital stay meaning reduced incidence of venous thrombo-embolism, reduced cost for hospital and quicker recovery for patients. Post-operative pain can become an issue the day after or in the weeks following the surgery, after the regional anaesthetic block wears off.

**Standard:** The Association of Anaesthetists of Great Britain and Ireland (AAGBaI) published guidelines for Day case and short stay surgery in 2011. Under these guidelines, shoulder surgery is described as “severe” in terms of pain. The standard was that all patients should be discharged on medication deemed appropriate by the AAGBaI guidelines.

**Methodology:** All patients from day case shoulder arthroscopy were seen in clinic two weeks post-operatively and given a questionnaire asking them about the level of pain on the visual analogue pain scale at the moment of discharge, on day 1 after the operation, and their level of pain generally over the 2 weeks until their clinic appointment. It also asked whether they needed out of hours services and their overall satisfaction. Results were compiled on an Excel spreadsheet.

**Results of First Round:** 18 patients responded. Only 1 patient was discharged on appropriate analgesia. The rest were given inappropriately low doses or weak opioids. The most common prescription was paracetamol and codeine. 39% of patients reported low levels of satisfaction (“slightly” and “somewhat” satisfied). 28% of patients sought out of hours services for extra pain relief.

**Recommendations:** Local guidelines should be produced to advise prescriptions of paracetamol with oramorph for patients having day case shoulder surgery, with a re-audit once this has been produced, and the advice disseminated to surgical and anaesthetic teams.

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# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

July 03-04, 2017 Kuala Lumpur, Malaysia

## Late stage of pigmented villonodular tenosynovitis presented with bilateral knee osteoarthritis: A case report

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**P**igmented villonodular tenosynovitis (PVNS) is a rare disease and often be missed. We are reporting a case of a morbid obese young lady, has history of chikungunya infection, presented to us with bilateral knee pain for 6 years, worsening and recurrent knee swelling for past 9 months. X-ray bilateral knee shown reduced knee joint space with articular surface destruction. Initially, our impression was bilateral knee osteoarthritis secondary post inflammatory viral arthritis. Proceed with right Total Knee Replacement (TKR). Intraoperatively, noted multiple brownish synovium nodular, HPE reported as PVNS. Subsequently patient also had a left TKR done. PVNS is a benign neoplasm that develops in the synovial lining of joints common in age group of 20s-40s, diagnosis can be made by MRI and confirmed by biopsy. Treatment include synovectomy, follow by post-synovectomy adjuvant . Late stages of treatment include TKR or arthrodesis. We should have high index of suspicion for similar cases. If this patient could have presented to us earlier, synovectomy followed by adjuvant radiotherapy would have prevented the neoplastic lesion from destructing the joint surface and TKR could be avoided.

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## Percutaneous locked augmentative plating and bone grafting for treating aseptic femoral nonunion after intra-medullary nailing

Mohamed Ali and Hesham Alaa  
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**Introduction:** Treatment of femoral shaft non-union after intramedullary nailing (IMN) is controversial. Leaving the nail in situ plus open augmentation plating (AP) and autologous bone grafting remains a popular choice. As open plating has its own complications, the purpose of this study was to evaluate the effectiveness of percutaneous locked augmentation plate (PLAP) plus percutaneous bone grafting (PBG) with leaving the IM nail in situ for treating these cases.

**Methods:** After approval of the local ethical committee, 40 patients, 26 men and 14 women, accepted to participate in this study. Their mean age was 29.5 years (range, 18-58 years). Twenty-four cases (60%) had primary nonunion and 16 (40%) had persistent nonunion after dynamization (n=8), bone grafting (n=5), and exchange nailing (n=3). The outcome measures included time since the primary procedure, number of procedures before our interference, operation time, blood loss, time to union, union rate, and complications.

**Results:** All the patients achieved bony union without the need for secondary procedures except one (97.5%). The mean time for radiological union was 18.2 weeks (range 12-24 weeks). All the patients were satisfied with absence of pain and morbidity (physical and cosmetic). No significant complications such as implant failure, nonunion, or deep infections were encountered.

**Conclusions:** The advantages of open AP could be achieved and the disadvantages could be avoided with PLAP plus PBG. This simple procedure creates minimal damage, increases rotation stability, and facilitates early functional recovery. A comparative study with the open technique is recommended.

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# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

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## Treatment and outcome of giant cell tumors: Report of 38 cases followed for 1 to 11 years

Ahmad Shaheen

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**Background & Purpose:** Giant Cell Tumors (GCTs) of bone are common benign bone tumors. We report 38 cases that have been treated at our institution during the last 20 years.

**Methods:** 38 patients with histologically benign GCT were included in this study. Nine tumors were primarily located in distal radius, 6 in proximal tibia and 15 in distal femur, 5 in proximal humerus, 2 distal tibia and one proximal fibula. 28 patients were treated by extended intralesional curettage and phenol cauterization followed by bone graft impaction (24 cases) or bone substitute (4 cases). 12 patients were treated by wide resection. Wide resection was done when the lesion extended to articular cartilage or the surrounding cortex destruction was more than 50%. The patients were followed for a median time of 3 (1-11) years.

**Results:** 28 patients had good functional and oncological outcome at final evaluation. While 12 patients had complications (31%), 7 patients had local recurrence (3 patients with a distal radius tumor and 2 patients with distal femur tumor and 2 patients with proximal tibia developed a local recurrence). Four patients had bony recurrence and 3 had soft tissue recurrence. All local recurrences occurred after intralesional curettage. Local recurrence occurred 6 months to 7 years after intralesional curettage. Soft tissue recurrence was treated by resection while curettage was done for bony recurrence after biopsy. Local recurrence in one case proved to be malignant GCT. One patient developed pulmonary metastases. Failure of reconstruction after wide resection occurred in 3 patients. Two patients had infection after bone substitute.

**Interpretation:** We conclude that extended intralesional curettage with phenol cauterization is suitable for most of GCT with preservation of good function. Wide resection and reconstruction was done for tumors extended to articular cartilage, or with destruction of more than 50% of the surrounding cortex, functional impairment and mechanical failure is common. We advised biopsy for local recurrent GCT.

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## Outcomes of open reduction and internal fixation in displaced intra-articular scapular fractures: A case series

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Scapular fractures are rare injuries and usually occur due to high energy trauma. Displaced intra-articular fractures usually require operative treatment and yields better outcomes as compared to conservative management. The study was conducted to assess the functional and radiological outcomes of displaced intra-articular scapular fractures managed with open reduction and internal fixation. 12 patients over a period of 3 years (2012-2014) were included in the study. Post-operative functional outcomes were assessed using mean quick DASH (Disability of arm, hand and shoulder) score while radiological outcomes were analyzed as percentage of implant cut-through, mal-union, non-union or infection. The mean follow up was 14 months. Mean age was 40 years. The mean quick DASH score was  $7.19 \pm 4.86$ . All of the patients had successful clinical and radiological healing and pain-free movements. Mean pre-operative medial/lateral displacement was 10.36mm while post operatively it was calculated as 0.86 mm. Mean pre-operative and post-operative translations were 16.17mm and 1.35mm respectively. Recommendations have been made that all displaced intra-articular scapular fractures should be fixed as they yield exceptional and promising results with none to minimum disability.

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# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

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## What are the results of minimally invasive plate osteosynthesis for femoral and tibial comminuted fracture?

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**Aim:** Comminuted fractures happen frequently due to traumas and accidents. Recently fixation without opening the fracture site known as Minimally Invasive Plate Osteosynthesis (MIPO) has become prevalent. Due to lacking accurate and evidence-based outcomes on comminute fractures, we performed this study to assess the results and complications of this way of treatment for tibial and femoral comminuted fractures.

**Methods:** In this cross-sectional study, 60 patients were treated with MIPO. 11 patients were excluded due to lack of adequate follow-ups. Data analyzed include union time, infection in the fractured site, hip and knee range of motion and any malunion or deformities like limb length discrepancy collected after the surgery from every patient in every session.

**Results:** 32 and 17 femoral tibial fractures were evaluated respectively. In 48 patients, union was fully completed. Mean union time was  $18.57 \pm 2.42$  weeks. Femur fractures healed faster than tibia ( $17.76 \pm 2.36$  and  $19 \pm 2.37$  weeks, respectively). None of our patients suffered from infections or fistula. The range of motion in hip and knee remained intact in all of our patients. Malunion happened in 3 patients, 10-degree internal rotation in 1 patient and 1 centimeter limb shortening in 2 patients.

**Conclusion:** According to the result of this study, it can be drawn that MIPO is a simple and effective method of fixation for comminuted fractures of long bones. It has a high rate of union with minimal complications. Infection is rare, and malunion or any deformity is incredibly infrequent. MIPO appears to be a promising and safe treatment alternative for comminuted fractures.

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## MIPPO using minia-PFPA may be preferable to PFNA in treating unstable pertrochanteric fractures

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**Background:** Controversy still existing about the relative merits of the fixation device for the challenging unstable pertrochanteric fractures, its suitability for the eastern patient groups. The aim of the present study was to compare the outcomes of MIPPO using a newly designed proximal femoral plate- anatomical, (Minia-PFPA) and proximal femoral nail anti-rotation (PFNA) in the treatment of these fractures.

**Methods:** We prospectively randomized 50 patients with unstable pertrochanteric fractures in a surgeon-allocated study to either technique. Each group included 25 patients. All the operative, post-operative and follow up variables were evaluated. Finally, functional evaluation as per the Harris Hip Score and economic assessment were done.

**Results:** No significant difference was found regarding blood loss, operative time, hospital stay, time to wt-bearing, time to bone union, return to pre-injury level of activity, implant failure, or deep infection. The PFNA group should difficulty in reduction of some cases, higher deterioration of the immediate post-operative alignment, and reoperation rate. It may not suit patients with small neck-shaft angles. The MIPPO group should less cost, higher Harris hip score and better achievement of structural competence especially with comminuted fractures and can be easily administrated by junior surgeons.

**Conclusions:** The preoperative planning is the cornerstone to determine the patient, fracture and surgeon factors that give priority for a certain implant. MIPPO offered less-cost and may be preferred in patients with reduced neck-shaft angle, lateral wall break and comminuted fractures extending to the greater trochanter, where structural competence could not be offered by nailing, and with less experienced surgeons.

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# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

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## Non-operative management of osteoarthritis of the knee joint

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Osteoarthritis is a chronic disorder of synovial joints in which there is progressive softening and disintegration of articular cartilage accompanied by growth of osteophytes. Treatment designed for osteoarthritis should aim at reducing pain, improve joint mobility and limit functional impairment. This can be achieved through pharmacological and non-pharmacological means. Non-operative treatment of OA is useful for patients with KL grade 1 to 3 which are early stages of OA. However, in advanced stage of OA (KL grade 4) surgical treatment is needed as definitive treatment. The aim of this article is to highlight how non-operative treatment of osteoarthritis has evolved over time and to discuss the pros and cons of non-operative treatment modalities.

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## The analysis of circumstances of mine-explosive injuries that caused limb amputations within the area of hybrid war in the East of Ukraine

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**Background:** The hybrid war of Russia against Ukraine has been started in certain districts of Donetsk and Luhansk regions within the Donbas area in 2014. The application of modern weapons against Armed Forces of Ukraine during the hybrid war has resulted in large number of limb amputations among the military personnel.

**Aim of the Study:** The aim is to evaluate the frequency of amputations and to identify circumstances of mine-explosive injuries that caused limb amputations in hybrid war.

**Patients & Methods:** The circumstances of limb amputation in 119 injured have been analyzed. All patients were mine-explosive injured at hybrid war in the East of Ukraine within the period of 01.06.2014 to 30.06.2016. Mean age of patients was 33.7 years (range 18 to 61). There were 118 (99.2%) males and 1 (0.8%) female. The mean term of military service at the moment of injury was 2.02 years (range 11 days to 25.2 years).

**Results:** The mine-explosive injuries which caused limb amputations in 83 (69.7%) patients were directly related with conducting of the military actions: 69 (58.0%) patients were injured as a result of shelling with mine throwers, self-moving artillery systems and rocket launchers ("Grad", "Smerch"); 1 (0.8%) case was a result of tank attack; 13 (10.9%) servicemen had been wounded during a combat but definite circumstances of the mine-explosive injuries weren't reliably documented. In 36 (30.3%) cases of mine-explosive injuries their circumstances were not directly related with combat operations: 18 (15.1%) wounded were injured on a tripwire mine; 4 (3.4%) wounded had injuries as a result of careless handling with grenade fuse; 14 (11.8%) patients had mine-explosive injuries resulting from unauthorized detonation of different explosive devices (in weapon storage sites, during of vehicle perquisition at the checkpoints, during mine wedging in mortar barrel).

**Conclusion:** 69.7% cases of limb amputations in combat-related patients at hybrid war in the East of Ukraine were directly related with artillery and tank attacks. Whereas, 30.3% cases of mine-explosive injuries were received outside of combat (tripwire mine, careless handling with grenade fuse, and unauthorized detonation of explosive device).

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# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

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## The VERDICT study (The vitamin D evaluation and prevalence of deficiency in Indian clinicians across specialties)

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**Introduction:** India has reported wide-spread vitamin D deficiency. Doctors are expected to play a pivotal role in spreading awareness about vitamin D deficiency and measures to avoid it. However, they are also at risk for vitamin D deficiency, due to their professional scenario. The study was conducted to assess the vitamin D status in Indian Clinicians across the specialties.

**Methods:** A multi-centric cross sectional study conducted in 141 locations across 19 Indian States/Union Territories. Doctors working in hospitals, nursing homes, and private clinics constituted the study population & were evaluated for serum 25(OH)D level.

**Results:** A total of 937 subjects were evaluated during the study, which consisted of 782 (83.46 %) males and 155 (16.54%) females. The mean age of the study population was 47.99 ( $\pm 10.76$ ) years. Mean serum 25(OH)D level was 20.18 ( $\pm 19.04$ ) ng/mL (range: 3.7-150 ng/mL). Vitamin D levels were deficient in 69.58%, insufficient in 12.27% and sufficient in only 18.14% of study subjects. The lowest values were seen in the 30-39 years age group and in pediatricians across the specialties. No significant difference in 25(OH) D levels were seen in the Northern states (mean 20.27  $\pm 17.3$  ng/mL) compared to the Southern states (mean 20.09  $\pm 20.61$  ng/mL) of India.

**Conclusion:** Vitamin D levels are alarmingly low in a high proportion of doctors across India. There is a need for sensitization of doctors to low levels of vitamin D seen in them.

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## Periprosthetic fractures after Total Knee Arthroplasty (TKA)

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**Background:** Periprosthetic fractures after total knee arthroplasty are considered as a challenging entity faced by orthopedic surgeons. It can involve the femur, tibia or patella. Treatment options include conservative and operative methods. Both have advantages and disadvantages that must be considered before deciding the appropriate course of treatment.

**Patients & Methods:** This work was done at Seuz Canal University Hospitals during January 2011 till January 2015 on 50 patients, aged 55 to 80 years old out of which 35 are female and 15 are male. Patellar fractures were the most common fractures complicating total knee arthroplasty ranging from 0.11% to 21.4%, distal femoral fractures ranged from 0.3% to 2.5% and Tibial fractures ranged 0.4% to 1.75%. The etiology may be intraoperative or postoperative. The diagnosis was clinical and radiological. The treatment for non-displaced fractures was non-operative and open reduction with internal fixation was the treatment of choice of displaced fractures, extra medullary and intramedullary devices may be used.

**Results:** Good results in all cases with no infections or complications were obtained.

**Conclusion:** Periprosthetic fractures after total knee arthroplasty are considered as a challenging entity faced by orthopedic surgeons. Treatment options include conservative and operative methods. Both have advantages and disadvantages that must be considered before deciding the appropriate course of treatment.

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# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

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## Clinical outcomes among patients with chronic low back pain treated with pregabalin monotherapy in fort portal regional referral hospital in western Uganda: A case series report

**Pariyo Bonane Godfrey**

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**Introduction:** Chronic low back pain associated with radiculopathy is a common reason for physician visits but no guidelines are available for management of these patients in Uganda. A placebo controlled trial on efficacy of Pregabalin among patients with lumbosacral radiculopathy in Germany was inconclusive on the benefit of Pregabalin in reducing pain. In another study in USA using Pregabalin showed inferior effect of Pregabalin monotherapy to combination with Celecoxib on resolution of symptoms. We evaluated clinical response to Pregabalin monotherapy on low back pain associated with radiculopathy at the Orthopedics clinic of Fort Portal Regional Referral Hospital in Western Uganda.

**Methods:** In this prospective study conducted from February to July 2015, 15 patients with chronic low back pain associated with radiculopathy exceeding 3 months were seen in the orthopedic outpatient clinic at Fort Portal Regional Referral and all were treated with a 4-week course of oral Pregabalin (75mg taken once a day) and evaluated for clinical improvement. Visual Analogue Score (VAS) for pain was used to assess the degree of pain among patients after 4 weeks of treatment. Structured questionnaires were used to capture socio-demographic and clinical data.

**Results:** Of the 15 patients 10 were females and 5 were males, with age range of 28-75 years and mean age 53 years. 3 patients were unable to walk before treatment due to pain. Before treatment with Pregabalin all the patients had visual analogue score of 8-10. After 4 weeks of treatment with oral Pregabalin, 13 patients showed significant improvement with reduction in the visual analogue score to 0-2 while 2 patients had modest reduction in Visual Analogue score of 6-8.

**Conclusion:** Oral Pregabalin has good effect on the treatment of patients with low back pain associated with radiculopathy. However further research is needed with sufficient sample, randomization and longer follow up.

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# 10<sup>TH</sup> GLOBAL ORTHOPEDICIANS ANNUAL MEETING

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## Reconstruction of the ankle after wide resection of distal fibula tumors: Case series and review of the literature

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**Background:** Involvement of the distal part of fibula by benign aggressive and malignant tumors remains to be a challenge for the treating surgeons. Such lesions require resection that consequently results in ankle instability. Due to rarity of the condition, reconstruction techniques vary, with variable results. The fibula is affected in 2.4% of primary bone tumors, with the proximal third being more frequently involved than the distal segment. Malignancies of the distal third of the fibula carry a better prognosis than proximal lesions, although some authors have not observed such prognostic difference.

**Case Presentation:** We report 2 cases, all of them having Ewing's sarcoma in the distal fibula. We investigated them systemically and locally by doing X-ray, CT scan, MRI and bone scan. Wide resection of tumor was followed. The ruminant of tendons of the peroneus longus, peroneus brevis and flexor hallucis longus were cut and they were used to reconstruct the lateral aspect of the right and left ankle using suture anchors. K-wires were used to do temporary arthrodesis.

**Outcome:** The last MRI was done. It showed there is altered signal intensity of the soft tissue with post-contrast enhancement. However, the dimensions of this area of altered signal intensity are decreased as compared to previous MRI. There is no evidence of soft tissue mass lesion. According to the last patient's follow up after six months post-operative, no valgus deviation was noted, normal ankle motion, mobilizing full weight bearing with splint assistant during physical examination. Also, X-rays and MRI findings are shown no residual mass lesion or local recurrence.

**Discussion:** Overall, the rarity of the condition makes it difficult to choose which technique to be advantageous over the other. A step wise approach would limit and narrow your options and a decision based on several factors that should be addressed, like the type and nature of the tumor, site, age of patient, involvement of growth plate, invasion of surrounding soft tissues (e.g. peroneus tendons) and the need for post-operative radiotherapy and chemotherapy should be considered.

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