

10th International Conference on

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Operative treatment for Edinburgh types 2B and 3B clavicle fractures

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Introduction & Aim: Clavicle fractures are a very common orthopedic injury, especially in the younger and more active age groups, with a higher proportion of affected individuals being male. Fractures of the clavicle can be managed either operatively or non-operatively, with plating being the mainstay of operative treatment. The purpose of this study was to analyze the outcome of surgical fixation of Edinburgh type 2B and 3B clavicle fractures and ascertain whether operative treatment is indeed beneficial for these types of injuries.

Method: The IT department at Salisbury District Hospital provided a list of patients admitted with clavicle fractures between April 2007 and December 2012. Data was then collected from patient notes, looking at the outcomes of Edinburgh types 2B and 3B clavicle fractures that were operated on between these dates.

Results: There were a total of 66 clavicle fractures classified either Edinburgh type 2B or 3B fractures that were operatively treated between the dates above. These patients were followed up with a mean follow-up time of 4 months. 59 (89.3%) of these fractures united uneventfully, 11 (16.7%) of which needed removal of metalwork. 4 (6.1%) of these patients healed with delayed union. 1 (1.5%) patient experienced asymptomatic non-union of the fracture and 2 patients needed revision fixation surgery. A total of 2 (3.0%) patients experienced a wound infection and a further 2 were found to have a transient sensory loss on follow-up (eventually resolving).

Conclusion: We recommend operative treatment by fracture fixation for patients that experience Edinburgh types 2B and 3B clavicle fractures. Operative treatment for these injuries is safe, has a low complication rate, quicker return to normal activities and benefits from excellent functional and cosmetic results.

Biography

Warran Wignadasan graduated from King's College London with a Bachelor's in Medicine and Surgery and a Bachelor's in Anatomy and Human Sciences. He has worked around the United Kingdom, completing his foundation training in Leicester and is currently doing his surgical training in the Wessex deanery. He has completed his MRCS exams and looks forward to a career in Trauma and Orthopaedic surgery.

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The importance of cleanliness in PJI surgery: A comparative review of the introduction of the ‘clean phase’ concept

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Aim: The purpose of this single center study was to analyze the robustness and thoroughness of debridement and irrigation in first stage procedures for periprosthetic joint infections in which the latter had been confirmed by fulfilling the PJI criteria produced by the musculoskeletal infection society.

Method: After introduction of ‘a clean phase’ concept in our center, we developed a method of using new instrumentation sets and waterproof cover sheets as well as sets of gloves and aprons after thorough debridement followed by copious irrigation under a splash sheet, once the prosthetic components were removed during which several (6 to 8) tissue biopsies and cultures were harvested. ‘Clean phase’ tissue specimens ad random were again obtained and cultured and compared with ‘dirty phase’ cultures and sonication results. Our zero hypothesis was that we were not able to entirely eradicate bacterial colonization. We tested this hypothesis during a period of 18 months in a consecutive series of first stage revisions for PJI at our center after introduction of the clean phase concept.

Results: We were able to reject our zero hypothesis in that ‘clean phase’ tissue cultures were either negative or that they did not match ‘dirty phase’ tissue cultures suggestive of bacterial contamination. Descriptive statistical analysis was utilized.

Conclusion: Our findings suggest that our procedures and methods of debridement and irrigation in first stage PJI revision procedures are robust and thorough. Further investigation is required to determine whether ‘clean phase’ culture negativity is matching with a successful outcome in the run up and after the second stage revision procedure.

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Accepted Abstracts



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Trauma no drama: Care and treatment of dancers

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Dance medicine is similar to sports medicine, treats the specialized needs of dancers. The art of dance parallels sport with the human body as the vehicle for performance. While the aesthetic of dance differs from sport, dancers train differently than athletes and often periodization is not implemented in dance training. As the performances near, rehearsals often increase at full speed. Overtraining becomes a common cause of dance injuries, but the choreography makes dance ever so risky. The choreography of today places new demands on the dancers. The inclusion of aerial maneuvers, acrobatic work, and elaborate set designs raise both the risk for injury and the nature of those injuries. Aerial work and acrobatic maneuvers are included in both concert and commercial performance. The dance environments have become spectacular from Las Vegas stages, film special effects and the raked stages of opera houses. Similar to athletes, dancers are not at risk for traumatic injuries. At the Dance Medicine Center, we have seen traumatic injuries resulting from both choreography and the dance environment. The needs of the dancer are different than the athlete. It is critical for the medical community to understand dancers especially in care, diagnosis and treatment. This presentation will feature a case study of a traumatic dance injury documented from onset to recovery. In addition, video links of current choreography will provide orthopedic surgeons an insight into the world of dance today.

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Capsulectomy or capsule repair? Histopathological evidence of anterior capsule disease in hip joints undergoing hemiarthroplasty for trauma

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Introduction: There is ongoing debate over whether to remove or repair the anterior ligamentous capsule of the hip joint during hemiarthroplasty following trauma, the latter being encouraged by certain techniques. We hypothesized that there is some degree of histopathological disease in the anterior capsule of these hips which may impair future range of movement and long term post-operative outcomes.

Aim: The aim of this study was to find evidence of chronic inflammation in the ligamentous joint capsules of hips undergoing hemiarthroplasty for trauma.

Methods: 30 patients undergoing hemiarthroplasty within 48 hours of an acute hip fracture were selected for this study. Samples were obtained from the anterior capsule of their hip joints intraoperatively and examined for histopathological evidence of disease and inflammation. Patients who had undergone previous surgery on the ipsilateral hip were excluded from the study.

Results: 73% of study participants were female with a mean age of 74. The most common mechanism of injury was a mechanical fall. All samples evaluated were positive for fibrosis indicative of a chronic disease pattern. The joint capsule samples lacked signs of acute inflammation which one may expect in the immediate post traumatic period following fracture.

Conclusion: It can be concluded that there is an evidence of histopathological disease in hip joint capsules undergoing hemiarthroplasty for trauma the repair of which may impact future outcomes for patients undergoing these procedures. Further studies should be undertaken to determine the impact on range of movement and long-term satisfaction of patients following capsule repair in contrast to capsulectomy.

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Regeneration of severe femoral bone defects due to hip revision surgery

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Introduction & Aim: Revision after hip joint replacement failures can be associated with high grade bone defects. Especially after one and more changing procedures patients suffer from the loss of periprosthetic bone substance which is essential for the fixation of the next hip implant. Reliable primary implant stabilization and a successful regeneration of the femoral bone for secondary implant fixation is the aim of our operative strategy. New cement less, modular hip revision stem with proximal plasma spray coating and an additional dicalcium phosphate surface layer was studied with this technique and compared with our previous results with a non-modular long hip stem.

Materials & Method: In high grade femoral bone defects (Paprosky 3-4) the treatment principle is based on a transfemoral approach and high primary stability by press fit fixation of a long revision stem. The proximal bone shell remains in contact with the surrounding tissue to support the healing mechanism of the fractured and osteotomized femur. Distal interlocking with one or two screws is routinely used for a reliable implant fixation. After proximal bone regeneration (acc.to WAGNER) and bone remodeling the distal interlocking bolts are removed to switch the load introduction from the distal to the proximal part of the femur. The clinical and radiological outcome of this procedure is analyzed in a prospective study within 40 patients (evidence EAST Level II) using the above mentioned new implant device. The results are compared with a previous study group treated in equal method using a non-modular hip revision stem.

Result: After 3.3 years, all 40 patients were available for follow-up. Femoral bone defects grade-3a occurs in 45%, grade-3b in 35% and grade-4 in 15% classification. The middle age at time of surgery was 73 years, 35% had more than one revision interventions and 15% has three and more. Two cases had to be re-revised. All the others showed successful femoral bone remodeling. In 86% of these cases, the distal interlocking could be removed. Screw removal was done at an average time of 14 months. The majority results were comparable with the previous used implant device. The axial stem subsidence of the femoral implant after interlocking bolt removal was at an average value of 3.5 mm which was found in the comparison group at 5.0 mm.

Conclusion: The early results of this study demonstrate femoral bone remodeling, which seems to be more influenced by the fracture healing mechanism of the transfemoral approach and the reliable distal implant fixation, which is used temporary. Any connection between the femoral bone remodeling and the coating surface from point of view mono block or modular device could not be found. However, the improved stem subsidence might be influenced by a better implant fitting due to modularity options.

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The effect of application tranexamic acid by different routes on the blood loss in total knee arthroplasty

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Total Knee Replacement (TKA) surgery has been shown to have significant blood loss that sometimes requires blood transfusions. In this prospective, randomized, double-blind study, we have investigated the effect of an antifibrinolytic agent, tranexamic acid (TXA-Cyklokapron), on blood loss and transfusion requirements associated with total knee arthroplasty. 60 patients undergoing primary total knee arthroplasty operation were randomly divided into four equal groups. Group-A received intravenous tranexamic acid, group-B received the same drug preparation locally, group-C received it in both ways (intravenous and local) and finally group-D received only placebo. The primary outcome was blood collected in vacuum drains in surgical ward, but also important, secondary outcomes included the rate of perioperative blood transfusion and change in hemoglobin level. TXA led to a significant reduction in the proportion of patients requiring blood transfusion [risk ratio (RR)-2.56, 95% confidence interval (CI)-2.1 to 3.1, $p < 0.001$]. TXA also reduced total blood loss by a mean of 591 ml (95% CI-536 to 647, $p < 0.001$) on comparing the 1st three groups with the 4th group. As conclusion, when compared to placebo, TXA led to statistically significant reduction in perioperative blood loss in TKR cases. Combined intravenous and topical administration of TXA led to statistically significant reduction in perioperative blood loss in TKR compared to either method alone and with no increased risk in DVT.

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Iatrogenic profunda femoris artery branch injury: Endovascular management and follow-up

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Introduction: The Profunda Femoris Artery (PFA) typically gives rise to three perforating arteries that lie close to the linea aspera of the femur and thus it is more liable to iatrogenic injuries related to surgical repair of femoral fractures. Presentation may be acute or delayed and if not diagnosed properly, this injury can be life or limb-threatening. Endovascular management of these patients provides both an accurate diagnosis and a minimally invasive treatment option. Selecting the best endovascular treatment approach for these cases can be puzzling. We present our experience with embolization using ethylene vinyl alcohol co-polymer.

Methodology: Five patients presented to the interventional radiology unit in Assiut University Hospital following surgical repair of proximal femoral shaft fractures with an enlarging thigh hematoma and bleeding from the surgical wound site. Digital Subtraction Angiography (DSA) was performed to diagnose the site of injury and confirm the patency of the Superficial Femoral Artery (SFA). Super selective catheterization of the bleeding PFA branch was performed with an onyx-compatible micro catheter and embolization was done using onyx followed by control angiography. Follow-up CT angiography (CTA) after one year was performed in four cases.

Results: Control angiograms revealed successful embolization of the injured PFA branch in all cases. No further intervention was required in any of the patients. One year follow-up CTA revealed persistent closure of the PFA branch with normal related muscles and soft tissues in addition to patency of the PFA and SFA with adequate distal arterial flow in all the cases.

Conclusion: Endovascular treatment of iatrogenic PFA branch injury using onyx is a safe and effective minimally invasive approach with durable results.

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Prevalence of arterial stiffness evaluating by cardio-ankle vascular index (CAVI) in Thai rheumatoid arthritis patients comparing with sex-matched controls

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Introduction: Rheumatoid Arthritis (RA) is an autoimmune disease which caused early death mostly from cardiovascular diseases. Previous studies demonstrated significantly increasing risks of subclinical atherosclerosis in RA patients compared to control group evaluating by several measurements, e.g. carotid artery intima-media thickness, ankle-brachial index.

Objective: To find the prevalence of arterial stiffness evaluating by abnormal CAVI in Thai RA patients comparing with sex-matched controls and to determine the correlation between abnormal CAVI and malondialdehyde (MDA) level and other factors that affected to abnormal CAVI.

Method: A cross-sectional study was performed in 48 RA patients and 51 sex-matched controls. Non-invasive vascular test, CAVI was measured and was classified as normal, borderline and abnormal. Other traditional risk factors or factors that could affect CAVI were also measured.

Result: Prevalence of arterial stiffness evaluating by abnormal CAVI in Thai RA and in sex-matched control were 18.8% and 17.6%, respectively. Polytomous age, dyslipidemia and sex-adjusted logistic regression model demonstrated significantly higher CAVI in RA than controls in borderline group ($p=0.045$) but not in abnormal group ($p=0.188$). There was no correlation between CAVI and MDA level. Mild disease activity was significantly related to high CAVI ($p=0.031$). There was also significant correlation between CAVI and age ($p=0.001$).

Conclusion: There was significantly higher CAVI in RA than controls in borderline group but not in abnormal group. Factors that are statistical and significantly associated with high CAVI were age and mild disease activity. Early detection of subclinical atherosclerosis in RA patients can be primary prevention for further cardiovascular complications.

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Predictive role of old and new diagnostic biomarkers regarding response to Etanercept therapy in rheumatoid arthritis

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Background: Introduction of biologic therapy has revolutionized the treatment of Rheumatoid Arthritis (RA) and many agents appeared in the last few years. Despite these advances, 20-40% of the patients are declared non-responder to at least one of the therapies.

Objective: Evaluating the predictive role for the response to etanercept therapy of Rheumatoid Factor (RF) isotypes IgM, IgA, anti-Cyclic Citrullinated Peptide (anti-CCP), anti-mutated citrullinated vimentin (anti-MCV), 14-3-3 ETA protein and Cartilage Oligomeric Matrix Protein (COMP). We have also assessed the status pretreatment of these biomarkers and the response to treatment. The last objective was to follow the evolution of serum levels of these biomarkers under biologic treatment.

Method: Prospective and observational study including 16 patients followed 12 months with active RA, uncontrolled by conventional synthetic DMARDs. Clinical assessment was performed at 0, 6 and 12 months according to ACR criteria approved by OMERACT and evaluation of treatment response according to EULAR criteria (good/moderate/non-responder).

Result: 13 patients (81.3%) were women and 3 (18.7%) men; the average age of the entire group was 58.5±8.5 years. At 6 months, 3 patients were declared non-responders, 9 achieved moderate response and 4 good response. Following baseline immunological parameters titers and the response at 6 months, general tests have identified significant differences between groups only for one of the six biomarkers studied. Lower baseline titers of 14-3-3 eta protein (0.25±0.38 mg/ml, p=0.01) had predictive value for achieving a good response at 6 months. After 12 months, 3 patients achieved moderate response and 10 good responses. At this evaluation, we didn't find significant differences between baseline immunological parameters titers and the EULAR response (moderate/good response RF type IgM=218.67±71.28/ 133.21±138.97U/ml, p=0.34; RF type IgA=142.57±139.55/13.70±14.29 U/ml, p=0.09; anti-CCP=91.80±50.33/75.09±51.75 mg/ml, p=0.63; anti-MCV=164.68±263.57/166.84±231.32 mg/ml, p=0.98; 14-3-3 eta protein 0.00±0.00/0.32±0.40 mg/ml, p=0.14; COMP=1055.9±130.50/895.1±209.98 mg/ml, p=0.24). Grouping patients in 2 categories (responders/non-responders), 14-3-3 eta protein maintained predictive value for the response at 6 months (p=0.01). Following the status pretreatment of biomarkers and EULAR response to etanercept therapy, we identified differences almost significant for 14-3-3 eta protein at 6 months, all 3 patients declared non-responders were 14-3-3 eta positive, and only 3/9 (33.3%) from those with moderate response and 1/4 (25%) of good responders were tested positive (p=0.0504). Regarding the evolution of serum levels, we noticed a reduction for all biomarkers tested, statistically significant only for COMP, baseline (938.34±189.68 ng/ml) versus 12 months (719.32±184.97 ng/ml, p=0.02).

Conclusion: 14-3-3 eta protein could be one of the biomarkers for identifying pretreatment the patients who will respond to biologic therapy in rheumatoid arthritis.

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Methotrexate in rheumatoid arthritis patients: Common side effects and leading cause of discontinuation

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Aim: The study aims to evaluate frequency and to identify factors which may increase the discontinuation of Methotrexate (MTX) among our Rheumatoid Arthritis (RA) patients in Asir region, KSA.

Method: Across sectional study was conducted in Aseer Central Hospital, southern region, Saudi Arabia that are currently or previously were used MTX. All the patients included fulfilled the 1987 revised American Rheumatism Association criteria for classification of RA. Medical records for 200 RA patients were chosen through convenience method then they reviewed and analyzed.

Result: A total of 200 RA patients were participated, 169 (84.5%) were female and 31 (15.5%) were male. Their ages ranged from 12 to 80 years with a mean of 45.07 and standard deviation 14.37 years. 67 (33.5%) of patients and their disease duration was 10 years and more. 147 (73.5%) of our patients were using MTX and 53 (26.5%) were not. Out of 147 patients, 24 (27%) of them did not take MTX regularly due to different causes. The most common side effects were stomach ache as same as indolence and sloth. There is no statistical association between sex, education level and duration of disease and discontinuation at $P=0.05$.

Conclusion: The study concluded a low rate of drug discontinuation due to adverse effects; MTX seems to be a safe drug for long-term use in RA patients. More attempts should be done to minimize side effects and discontinuation of MTX, to get the benefits of drug considered as the cornerstone in RA treatment.

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Same sitting bilateral hip replacement advances and disadvantages in Asian populations

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Introduction & Aim: A population especially in Indian subcontinent the habit of squatting for the various social and day today activities makes it more pertinent to operate bilateral AVN hips at same sitting as this not only helps economically in using the same surgical kit and antibiotics and drapes, etc. reducing the cost of surgery and helps in post-operative management. Patient becomes mobile with both the hip painless and active. Simultaneous bilateral hip replacement reveals superior outcome and fewer complications than two-stage procedures: A prospective study including 1819 patients and 5801 follow-ups from a total joint replacement registry, Melloh Markus 2010-10-01. Total joint replacements represent a considerable part of day-to-day orthopedic routine and a substantial proportion of patients undergoing unilateral total hip arthroplasty require a contralateral treatment after the first operation. This report compares complications and functional outcome of simultaneous versus early and delayed two-stage bilateral THA over a five-year follow-up period.

Material & Method: The study is a post-hoc analysis of prospectively collected data is from the Department of Orthopedics from a single surgeon. Total number of cases was 21 and all were between the age group of 36-68 (avg. 52), operated by the posterior approach, implant used was same in all (stryker).

Result: Total duration of surgery being 2.5 hours, post-operative period was non-significant and all responded well, only there was one CPN, which was given brace support.

Conclusion: Simultaneous bilateral total hip arthroplasty in India subjects seems very useful and helps economically also as this saves lot of money, time of surgeon and operation theatres time. It should be broadly recommended.

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Addressing the burden of orthopedic trauma and categorically identifying the pattern of injuries presenting at Trauma Center Civil Hospital Karachi, Pakistan

Abdul Qadir, Badaruddin Sahito, Pir Mujtaba Shah, S M Tariq, Tahir Lakho, Sunel and Maratib Ali
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Objective: This study was executed to address the burden of orthopedic trauma presenting in Trauma Centre Civil Hospital, Karachi, Pakistan. 500 bedded trauma center is serving all kinds of trauma 24 hours a day with all state of the art facilities and is fully equipped with latest machinery. It is the largest emergency institute of Sindh till date. This study also presents the pattern of injuries categorically, that we are encountering in daily emergency.

Method: This descriptive study was conducted from Sept 2017 to Dec 2017. An informed verbal consent was taken and preformed questionnaire was filled. Patient brought dead and those who were having injuries other than the orthopedic injury were excluded. Data was analyzed using SPSS 21 for statistical significance.

Result: The study was conducted on 2850 patients of all age group, which makes an average of 30 patients per day, including 1957 males (68.7%) and 893 females (31.3%). Among the total, the number of patients of pediatric age group (1 to 12 years) were 942 (33.05%). Mean age was 35 in adults. SD 28. 69 maximum injuries occurred in age group of 10-30 years. By occupation most were found to be students and children-659 (23.1%). Most traumas occurred due to road traffic accidents-2193 (76.9%) and other occurred at home-657 (23.05%). Road traffic accidents are found to be major cause of injuries and rest was due to other causes. Majority of patients were brought by ambulance service with any first aid given. By addressing the categorical arrangement of patients with their pattern of injuries, the cases with mild type of injury like foreign body, soft tissue trauma and muscular pain of sudden onset-446 (15.6%). The patients with single bone closed fractures including clavicle fracture-180 (6.31%), humerus neck and shaft fracture-83 (2.91%), supra-condylar humerus fractures-355 (12.4%), radius/ulna shaft-90 (3.1%), colles fracture-389 (13.6%), neck of femur fracture-56 (1.96%), intertrochanteric fracture 62 (2.1%), femur shaft fracture-186 (6.5%), fracture of tibia/fibula-133 (4.6%) and bi-malleolar fracture-45 (1.57%). The patients which suffered from joint dislocations like shoulder-48 (1.68%), elbow dislocation-17 (0.59%), hip dislocation-22 (0.77%) were also addressed. Some patients were having severe injuries including multiple fractures, major contaminated open wounds, traumatic amputations, crushed limbs or with head injury-43 (3.06%). Very few cases were cold-42 (5.6%) and some patients were included which are unknown and those whose data were lost-695 (24.3%).

Conclusion: We concluded that huge number of trauma patients are presenting to trauma center with polytrauma, trauma to pelvis and acetabulum, more than one bone fractures. Extensive trauma is disabling to young population throughout life. So, trauma patients should be properly evaluated and treated according to advanced trauma life support to prevent the second hit injury to patient. We suggest that primary prevention is the key that we can achieve by strict traffic rules; otherwise the burden can lead to mismanagement of trauma patient.

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Outcome of mesh envelope bone grafting for traumatic segmental bone defects

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Background: Long bone defects treatment is a technically demanding procedure in orthopedic surgery and may require bone graft pieces, which are loosely applied to the bone and few pieces can spill over in the surrounding area, resulting in failure in obtaining beneficial effects. The vicryl mesh envelope around the bone graft may be a solution.

Objective: To determine the role mesh regarding bone graft containment and union in long bone defects of >4 cm.

Methodology: This experimental study was conducted in Orthopedic Department of Lahore General Hospital, Lahore from 1st January 2012 to 31 December 2014. Total 28 cases were included in the study and randomized into two equal groups. 14 patients were managed with vicryl mesh (group-A) while 14 patients were treated routinely without the use of vicryl mesh envelope (group-B). Data was entered and analyzed by using SPSS version 18.0.

Result: The mean age of all the patients was 29.11 ± 6.16 years. The mean age of patients in group A was 29.71 ± 6.56 years and in group B was 28.50 ± 5.92 years. There were 20 (71%) male patients and only 8 (29%) female patients presented with long bone defects. Most of the patients were managed with dynamic compression plating i.e., 20 (71.43%). In group-A, 1 (7.1%) patient developed infection and re-operation was done while in group-B, 6 (42.9%) patients have infection and reoperation was executed to eradicate it. The difference was significant for post-operative infection between both groups (P-value=0.029).

Conclusion: This study concluded that there was significant difference between both techniques in graft containment, consolidation and graft failure. Patients managed with vicryl mesh have better outcome than without vicryl mesh.

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