



## Scientific Tracks & Abstracts



# 12<sup>th</sup> International Conference on ARTHROPLASTY

June 24-25, 2019 | Rome, Italy

## The role of patient education in total knee arthroplasty: Does it really matters? A Brazilian study

Rodrigo Almeida dos Santos

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**Statement of the Problem:** Osteoarthritis (OA) is a frequently chronic condition related to population aging, obesity and sports injuries. The knee is the second joint in occurrence of OA leading a functional impairment, pain and/or mechanical symptoms. Total knee arthroplasty (TKA) has been indicated when symptom's control has failed and proved to be a successful treatment. However, up to 20% of patients after knee arthroplasty complain of residual pain, functional impairment or subjective dissatisfaction. Written and illustrated materials in a preoperative education maximize knowledge and adhesion to treatment. However, in the third world, illiteracy index is high in the public hospitals. We describe an orientation method before TKA in which patients are instructed in a differentiated way without the necessity of reading.

**Methodology & Theoretical Orientation:** To improve patient education before TKA we developed a multidisciplinary method in which an orthopedic surgeon, a nurse and a physiotherapist give the patients a differentiated orientation regarding the pre, intra and postoperative issue in a prospective randomized trial of 79 consecutive patients undergoing primary TKA. Twenty-nine patients received the standard verbal (control group) education and 38 patients received the differentiated education (intervention group). The patients were evaluated during at least six-month

**Findings:** After a 6-month follow-up period, SF-36 and WOMAC forms, VAS and range of motion improved significantly in both groups. ROM was better in the intervention group. Moreover, walk ability (more than 400 meters) was improved more in the intervention group compared with control group. In the intervention and control groups, respectively, 10.5% and 31% of patients related the need to use some walking device ( $p = 0.03$ ).

**Conclusion & Significance:** A differentiated education with a multidisciplinary team had a positive impact in functional outcomes, improving ROM and walk ability of patients undergoing total knee arthroplasty in a short-term evaluation.

Table 1 - Functional evaluation after 6-month follow-up

	Control	Intervention	p-value
WOMAC	47.3 (10.4)	51.5 (8.4)	0.5
SF36	28.54 (8.2)	30.8 (6.2)	0.3
Analog Pain Scale	4.8 (1.4)	5.6 (1.1)	0.3
ROM	92.5 (12.1)	106.9 (5.7)	0.02
Walk ability > 400 meters	72.0%	97.4%	0.003
Stair with no impairment	51.7%	68.4%	0.16
Walker and cane use	31%	10.5%	0.03

### Biography

Rodrigo Santos is a scientific director at the Institute of Traumatology and Orthopedics of Barbacena, Brazil. He is also the head of the orthopedic department of Santa Casa de Barbacena Minas Gerais and an expert member of the Brazilian Society of Orthopedics and Traumatology. He obtained his bachelor's from the College of Medicine of Barbacena in 1996. He accomplished his master's degree in medicine by the Federal University of Minas Gerais, Brazil. Presently, he is a professor in the Department of Orthopedics and Traumatology at the Faculty of Medicine of Barbacena, Brazil.

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## A novel approach to improving antibiotic elution from PMMA: How the addition of lipid affects Gentamicin elution from bone cement

**Daniel A Cohen**

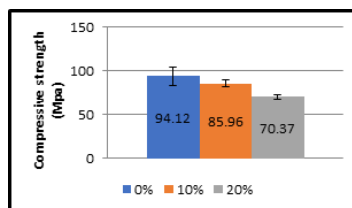
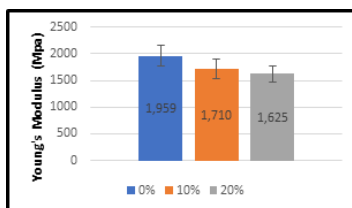
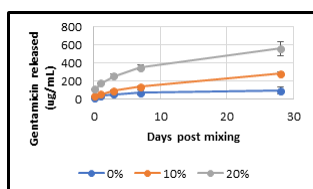
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Antibiotic Poly methyl-methacrylate bone cement (ABC) has a variety of surgical uses including primary and revision Arthroplasty, dead space management in infection and structural support in bone tumours. All of these indications rely on antibiotic elution to augment systemic antibiotic use. However, in spite of years of research, ABC elutes only a small percentage of the total antibiotic incorporated. Several techniques and additives have been incorporated into ABC that improve elution, however this is accompanied by a considerable decrease in mechanical properties. The present study investigates the additional of a lipid to ABC containing a hydrophilic and moderately lipophilic antibiotic, Gentamicin.

Olive oil was added by weight to Palacos MV + G bone cement (LL-ABC) which is known for its superior elution properties in 0, 10 and 20% w/w. Cement was vacuum mixed and placed onto sterilized stainless-steel plates to create small cement dowels. Antibiotic elution was determined at 4 hours, 1, 3, 7 and 28 days for each concentration. Mechanical properties of the cement dowels were determined by compressive testing using MTS- bionix 858 with resultant determination of Young's modulus and creation of load-deformation curves.

The cumulative antibiotic released (ug/mL) was proportionate to the % w/w of olive added. The cumulative antibiotic release from the 20% w/w LL-ABC was greater than the control at all time points. At 28 days, 10% and 20% w/w LL-ABC had released 295% and 585 % more gentamicin than the control sample. Compressive strength and young's modulus were inversely related to the concentration of olive oil in the LL-ABC samples.

The addition of olive oil to Gentamicin Palacos MV cement significantly increased the elution potential of the cement with minor compromise in the mechanical properties. The recommended next step is evaluating whether the locally eluted antibiotic maintains therapeutic values above the minimal inhibitory concentration and extending this in vitro study to an in vivo model.



### Biography

Dr. Daniel Cohen is a final year orthopaedic surgical registrar (resident) in Sydney, Australia. He was awarded his medical degree from the University of Sydney in 2010. He also has a Bachelor of Science in Anatomy and a Master of Science in Physiology from McGill University in Montreal, Canada. He has been actively involved in medical teaching and research with a focus on primary knee arthroplasty as well as management of complex orthopaedic infections. He has a keen interest in primary and revision hip and knee arthroplasty and will be undertaking sub-specialty fellowship training in 2020.

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## The role of coracohumeral distance in degenerative subscapularis tendon pathology

**Gabriel Cárdenas**  
University of Côte d'Azur, France

**Statement of Problem:** Despite significant evolution in our knowledge regarding the diagnosis and management of degenerative subscapularis (SSC) tendon tears in the last years, its pathogenesis still remains unclear. The purpose of this study was to try and find the existence of an association, or not, between a narrowed Coracohumeral Distance (CHD) and degenerative pathology of the SSC tendon. We hypothesize that a diminished CHD is associated with an increased prevalence of degenerative SSC tendon pathology, as has been proposed by Lo and Burkhart.

**Methodology & Theoretical Orientation:** We analysed all available literature that relates the CHD and SSC degenerative pathology, in order to find any association between these variables. Level of Evidence and potential therapeutic implications of these findings were also analysed. Findings: Several studies that support a statistically relevant association between degenerative SSC pathology and a narrowed CHD exist. However, there are no studies demonstrating a linear correlation between these variables that allow a major causal relationship to be established. Moreover, the clinical implication of this association is not clear in the current literature.

**Conclusion & Significance:** Despite our hypothesis being proven by clinical studies supporting a statistically significant association between subcoracoid stenosis (narrowed CHD) and chronic degenerative SSC tears, the level of evidence of these studies remains limited. Additionally, the therapeutic implications of this association remain unclear. The shoulder surgeon should be aware of these findings and understand the need for higher level evidence before changing their surgical behaviour.

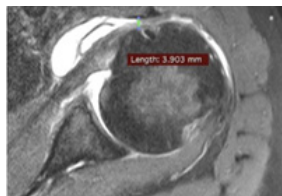


Figure 1: severe tendinopathy and partial degenerative tear of

### Biography

Gabriel Cárdenas has expertise in the evaluation and management of shoulder pathology. He has served as the head of shoulder arthroscopy, trauma and reconstruction unit of the Chilean Institute of work safety (Instituto de Seguridad del Trabajo, IST). He currently is completing a year-long fellowship at the University Institute of Locomotion and Sport, Pasteur 2 Hospital in Nice, France, under the guidance of Professor Pascal Boileau

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## 12<sup>th</sup> International Conference on **ARTHROPLASTY**

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### **Attune total knee arthroplasty: Is there evidence of early tibial component de-bonding ? A prospective cohort study**

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**N**ew TKA designs are introduced to optimise patient outcomes as well as improve implant longevity. One such implant is the Attune TKA. Concerns have been raised regarding a potentially high rate of early de-bonding of the tibial component at the implant–cement interface. Our study aimed to prospectively assess clinical outcomes and radiographs of a consecutive series of patients who have undergone either Attune TKA or another modern design TKA for end-stage OA to establish early failure rates and compare radiological abnormalities. 96 Attune TKA performed by three surgeons at our local centre were matched to 96 control TKA (PFC/Vanguard) performed between 2015 and 2017. Radiographs were taken on day one and one year post surgery and analysed by two independent, blinded assessors using the Knee Society Roentgenographic Scoring System. One year clinical outcome was assessed using the Oxford Knee Score and survival of the implant recorded. No patients in either group underwent revision surgery. No cases of significant radiolucency ( $\geq 2\text{mm}$ ) at either the cement-bone or implant-cement interfaces were encountered in either group. The incidence of radiolucencies ( $<2\text{mm}$ ) across both interfaces was similar between the two groups. Radiolucencies  $<2\text{mm}$  at either interface in either group did not affect clinical outcome. No clinically relevant radiographic adverse features were noticed in this prospective cohort study comparing a consecutive series of Attune TKA with a matched group of established, modern TKA designs. Follow up is short and longer follow up is needed to confirm these preliminary findings.

**Keywords:** Attune TKA, early aseptic loosening, tibial de-bonding, radiolucency.

#### **Biography**

Thomas robinson is an orthopaedic trainee in the yorkshire deanery in the united kingdom. He studied as the faculty prize scholar at norwich medical school graduating in 2011 with the british pharmaceutical industry award for undergraduate research. He progressed on to orthopaedic training in the yorkshire deanery where he is now currently in his 4th year. He has a keen interest in lower limb arthroplasty, its evolution as well as the monitoring and evaluation of new and novel prostheses.

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## Straight proximal humeral nail through the medial “hinge entry point” for treatment of displaced proximal humerus fractures

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University of Côte d'Azur, France

**Statement of the Problem:** Surgical management of proximal humerus fractures (PHF) remains a challenging scenario for even the most experienced surgeons. Recently, the Intramedullary Nail (IMN) has become more widely used as it presents both biological (percutaneous approach) and mechanical advantages compared to other methods of fracture fixation. The purpose of this study was to analyse the clinical and Imagenological outcomes of a straight third generation IMN for PHF through the medialized entry point (respecting the Supraspinatus tendon insertion) at minimum 6 months follow-up.

**Methodology & Theoretical Orientation:** We retrospectively analysed a series of 37 patients from two Hospitals operated between November 2016 and March 2018. The surgery was performed under the same technical principles. The clinical scores (VAS, SSV, ROM and Constant Score), radiographic (rate of consolidation, coronal orientation and osteonecrosis of the humeral head, screw penetration and migration of the greater tuberosity) and echographic parameters (proximal nail prominence, medio-lateral entry point and status of the SSP tendon) were also analysed. Findings: 35 patients were available for study, a mean follow-up of 11 months [6-32]. The average age was 64,5 + 13 years and the 84,3% were males. The Neer classification was 62.5% 2-part fractures and 37.5% 3-part fractures. The clinical results were satisfactory (VAS: 1,6 pts; SSV: 75%, CS 67 pts and adjusted CS 90%). We found 21,8% of minor complications (7 cases), but only one required surgery (arthroscopic biceps Tenodesis). We did not have any case with a Major complication (non-union, osteonecrosis of the humeral head, intra articular screw penetration or greater tuberosity migration). Only 1 patient presented a total SSP tear (90 years old) and 3 articular partial tear, all of them with good clinical results. No reoperation was required secondary to rotator cuff tear pathology.

**Conclusion & Significance:** In this series of patients from 2 hospitals, the IMN for displaced PHF showed good clinical, radiological and echographic results, with no major complications in reoperation, and preserving the integrity of the SSP tendon.



Figure 1 Proximal humerus fractures treated with Intramedullary Nail: pre and post operative x-rays and clinical results. at 2-part PHF and 3-part PHF

### Biography

Gabriel Cárdenas has expertise in the evaluation and management of shoulder pathology. He has served as the head of shoulder arthroscopy, trauma and reconstruction unit of the Chilean Institute of work safety (Instituto de Seguridad del Trabajo, IST). He currently is completing a year-long fellowship at the University Institute of Locomotion and Sport, Pasteur 2 Hospital in Nice, France, under the guidance of Professor Pascal Boileau.

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### **Comparative study between clinical outcomes of patients with osteoarthritis of knee treated by intra-articular injections of platelet rich plasma and high molecular weight hyaluronic acid**

**Navneeth Kumar G K**  
Sparsh Hospital, India

**Introduction & aim:** Osteoarthritis (OA) is the most prevalent form of arthritis in the world. OA incidence increases steadily with age, affecting 12.1% of the population from 25 to 74 years old, and it is the leading cause of physical disability in people older than 65 years. The primary objective of this study was to assess and compare the Clinical Outcomes of Patients with Primary Osteoarthritis of Knee receiving Intra-articular injections of Platelet Rich Plasma and High Molecular Weight Hyaluronic Acid

**Materials and Methods:** 44 Patients with primary OA of knee, were divided into two groups of 22 each. Group A was administered intra-articular injections of PRP (prepared using single spin technique) and Group B was administered intra-articular injections of Hyaluronic Acid. The functional outcome was assessed before administration of injection and at 6 months follow-up using subjective questionnaire scoring systems i.e. WOMAC, IKDC and VAS indices.

**Results:** Out of 44 patients, 33 were females, and 11 males. The average age in Group A was 51.55±6.93 years and 53.27±7.73 years in Group B. 68.2% of patients in the study had bilateral affection. The Improvement in functional outcome scores in Group A (WOMAC=12.980, P<0.001; IKDC=11.680, P<0.001; VAS=2.773, P<0.001) were significantly better than that of Group B (WOMAC= 6.685, P<0.001; IKDC=8.501, P<0.001; VAS= 1.773, P<0.001)

**Discussion & Conclusion:** The results obtained in our study compare well with other studies undertaken in the past. Patients of both groups showed statistically significant improvement in functional outcome at 6months follow-up. The functional outcome of patients receiving Platelet Rich Plasma was significantly better than those receiving Hyaluronic Acid. Therefore, intra-articular PRP is superior to HA in alleviating symptoms and improving short term outcome of early OA Knee and can be considered a safe, simple and efficacious option over that of Hyaluronic Acid.



### **Biography**

Navneeth Kumar G.K has completed his post-graduation in MS Orthopaedics, from the prestigious Bangalore Medical College and Research Institute, India under the guidance and mentorship of Dr. Purushotham V.J (Professor and Unit Chief) in BMCRI. Due to his fond interest in arthroplasty, he pursued his fellowship in arthroplasty at Sparsh Hospital Bangalore, under the esteemed guidance of Dr. Sharan Shivraj Patil. This study on the efficacy of PRP vs HA injections in OA knee was undertaken to primarily explore the non-operative solutions in the management of early antero-medial osteoarthritis of knee, which is a rising health problem in a developing country like India. The results of the study attempt to establish a protocol for intra-articular injections in OA knee

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## Incidence and risk factors of acute kidney injury after total joint arthroplasty: A retrospective cohort study

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**Background:** Acute Kidney Injury (AKI) is a common complication post-arthroplasty, although it has not been extensively studied. We carried out a retrospective study to determine the incidence and risk factors of AKI in patients undergoing total joint arthroplasty (TJA).

**Aims:** Calculate the incidence of patients suffering from AKI after the changes made from the 2014 audit. Find out the major pre- and perioperative risk factors of AKI in the cohort of patients.

**Method:** We reviewed the medical records of all patients who underwent elective TJA from December 2014 to January 2017 at the Salford Royal Hospital, UK. AKI was defined using the AKIN, RIFLE and KDIGO criteria in patients with worsened renal function post-arthroplasty. We analysed the association of the demographics, risk factors, medications and use of peri-operative IV fluids with AKI. A logistic regression was performed to find any correlation between these factors and incidence of AKI.

**Results:** 197 patients were included in our study, the mean age was 70.2 and male to female ratio was 6:5. Of these, 32(16.2%) developed an AKI. The multivariate logistic regression revealed 4 independent factors associated with the risk of AKI; age ( $P=0.0011$ , OR 1.07, 95% CI 1.03-1.18), obesity ( $P=0.003$ , OR 6.4, 95% CI 2.34-17.5), smoking ( $P=0.0482$ , OR 3.76, 95% CI 1.01-14.0) and COPD ( $P=0.0253$ , OR 3.85, 95% CI 1.18-12.5).

**Conclusion:** The incidence of AKI post-arthroplasty was found to be much higher than stated in other literatures. The recognition of the high incidence and multiple independent risk factors will allow a better approach to peri-operative management, limiting the risks of AKI. Our study also highlighted the importance of documenting urine output and the need to repeat the renal function test 3 months after an AKI to assess recovery.

### Biography

Izziddine Vial is an intercalating medical student at Hull York Medical School doing MSc in Clinical anatomy. He will continue his medical studies at the University of Manchester as a 4th-year medical student. He has a special interest in trauma and orthopaedics.

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### **Use of intraoperatively made antibiotic eluting hinged PMMA spacer in a two-stage procedure for management of joint space infections - An efficient and a cost-effective solution**

**Prarthan C Amin**

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Control of joint space infections still remains a huge problem in modern-day Orthopedics, with estimated incidence of 2-10 cases per 100,000. The incidence appears to be increasing, due to aging population, use of immunosuppressive therapies, increase in periprosthetic joint space infections and resistance to antibiotics. Apart from causing a lot of morbidity, it creates a lot of psychosocial and economic burden on the patient

The use of an antibiotic cemented spacer in the first stage of a two-stage revision procedure has been described in many different articles. In recent years, there has been a development of commercially available partial weight-bearing prosthesis which acts as an antibiotic eluting spacer in the first stage, however, these implants are costly, and are usually out of reach of the general population in developing countries.

Here in our series, we present a novel technique where we utilize components of an Ilizarov set to create hinged spacers intraoperatively for control of infection in septic arthritis.

Over a period of 21 months, we performed this procedure on 6 patients, with a mean age of 62.1 years. The spacer was retained in-vivo for a mean of (2.23 months), followed by a total joint replacement in the second stage. On completion of the two staged procedure, there was a significant improvement in VAS scoring from an initial (7.2) to (2.4) final stage. The average cost of the entire two stage procedure regime was significantly cheap as compared to commercially available antibiotic eluting spacers.

We saw from this study that an intraoperatively created hinged spacer is a novel and a cost-effective technique which gives comparable results to commercially available readymade spacers.

#### **Biography**

Prarthan C Amin who is currently completing his final year of residency in Orthopedics in a tertiary care hospital in India. He has always believed that the key to best patient care is through innovation, integration and quality control. At the age of 25 being one of the youngest final year residents, he has been involved in various research projects alongside daily academic and technical interactions. Working in an institute where there is an inflow of at least 300-400 underprivileged orthopedic patients daily, he strongly believes that revolution begins at a grassroot level. In the future, he aims to work on chronic orthopedic problems like osteomyelitis and septic arthritis, which not only remains a huge problem in modern day Orthopedics but a big psychosocial and economic burden. His future goal is to expertise in revision joint arthroplasty.

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## Midterm results of all poly vs metal backed cruciate sacrificing total knee arthroplasty – An Indian experience

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**Introduction and Aim:** In our knowledge, in a developing country like India economic constraints is a major factor in choosing the right implant for osteoarthritis knee joint. In knees without bone defects which don't require modularity like stem extension, both metal and all-poly mono block serve the same purpose. There are not many comparative studies in Indian literature which prompted us to take up this study.

**Materials and Methods:** This is a retrospective study of 200 total knee replacements performed between Jan 2014 to August 2018 for comparison of metal-back (n=100) versus all-poly(n=100) TKR on the basis of Clinical KSS, WOMAC scores, pain, deformity, radiological (alignment), complications and survival of that joint. All total knee arthroplasty was cruciate sacrificing and done through medial parapatellar approach by a single surgeon.

**Results:** The mean age of patients in our study was 65.52±8.42 years.



Metal-backed scores

WOMAC scores from 82.38± 5.10 to 15.59 ± 7.03 with an average improvement of 66.79±8.71; t (99) =76.60, p<0.001

ROM improved from 70.40±29.56 to 91.45±10.20 degrees

KSS scores from 33.19±10.02 to 77.58±14.08 with an average improvement of 44.39 ± 18.68

All-poly scores

WOMAC scores-82.97±5.36 to 19.44±3.12 with an average improvement of 63.55±6.03; t(99) =105.25,p<0.001

ROM improved from 74.10 ± 26.82 to 8.90 ± 18.97 degrees

KSS Scores- 35.83±13.12 to 79.10±9.82 with an overall improvement of 43.26±15.06

**Discussion & Conclusion:** Improvement in ROM was better, and incidence of anterior knee pain was less in all-poly total knee replacement. However overall satisfactory and survival rates of the implants were same in both the groups. There was no case of loosening of implant noted in our study. Even though it's a four-year post op follow up of midterm results, we have attempted to analyze and compare the results of both the groups considering the economic constraints in India.

### Biography

Navneeth Kumar G.K has completed his post-graduation in MS Orthopaedics, from the prestigious Bangalore Medical College and Research Institute, India under the guidance and mentorship of Dr. Purushotham V.J (Professor and Unit Chief) in BMCRI. Due to his fond interest in arthroplasty, he pursued his fellowship in arthroplasty at Sparsh Hospital Bangalore, under the esteemed guidance of Dr. Sharan Shivraj Patil. This study on the efficacy of PRP vs HA injections in OA knee was undertaken to primarily explore the non-operative solutions in the management of early antero-medial osteoarthritis of knee, which is a rising health problem in a developing country like India. The results of the study attempt to establish a protocol for intra-articular injections in OA knee.

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### **Midterm outcome of modular femoral cementless stem in complex primary & revision hip arthroplasty**

**Muhammad Bilal Shafiq**  
Civil Hospital Karachi, Pakistan

**Object:** The objective of this study was to assess the midterm clinical & radiological outcome of hip revision hip replacement & complex primary arthroplasty by using modular Cementless femoral stem in our local population

**Method:** This study was conducted in Liaquat National Hospital, Orthopedic department from June 2017 to Jan 2019. Patients with Primary & Revised hip arthroplasty were included in the study in which modular femoral stem with sleeve were used with a minimum 15 months of follow up. Patients were assessed clinically & radiological at 3 months, 6 months, 9 months, 12 months & 15 months. Antero posterior & lateral radiograph of replaced hip were taken in every follow up visit. Follow up x-rays were compared with immediate postoperative x-rays for pedestal formation, endosteal spot welds, stress shielding, migration & cortical hypertrophy.

**Result:** Total 32 patients underwent hip arthroplasty with modular femoral stem during the specified period. 29 patients met the criteria for inclusion in the study. Gait improved substantially after revision hip replacement by modular femoral stem femoral stem. Harris hip score was also improved substantially after hip replacement & value increased from 40.2 to 79.7. The Merle D Aubigne score indicated a mark reduction in pain. According to Engh et al osteointegration were present in 23(79.3%) stem.

**Conclusion:** Midterm clinical & radiological outcome of femoral modular stem in revision hip arthroplasty & primary hip replacement with anatomical difficulties is good with Paprosky type II & III A bone loss. Femoral modular stem is our implant of choice in hip arthroplasty surgeries with proximal femoral bone loss.



(pre-operative)



(post-operative)



(follow up)

### **Biography**

Muhammad Bilal Shafiq is a dedicated professional, benefiting from experience working effectively as part of a multi-disciplinary team in the civil hospital karachi and within other systems and administrations, gaining a good understanding of cultural and social issues. Possessing a developed empathic, patient-centered philosophy of care with practical clinical skills.

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