



**Joint Event**

11<sup>th</sup> International Conference on

**OSTEOPOROSIS, ARTHRITIS & MUSCULOSKELETAL DISORDERS**

**&**

10<sup>th</sup> INTERNATIONAL CONFERENCE ON ARTHROPLASTY

December 04-05, 2017 | Madrid, Spain

# Keynote Forum

## Day 1

*Osteoporosis and Arthroplasty 2017*

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**Neil P Sheth**

University of Pennsylvania, USA

**The treatment of severe acetabular bone loss with associated pelvic discontinuity in revision total hip arthroplasty: Introduction of a novel technique**

As the number of primary total hip arthroplasty (THA) procedures performed continues to rise, the burden of revision THA procedures is also expected to increase. With patients undergoing THA at younger ages and living longer, revision patients are presenting with greater bone loss at the time of revision surgery. The proper evaluation and treatment of acetabular bone loss at the time of revision surgery will be a complex challenge faced by orthopaedic surgeons. Proper pre-operative patient assessment in conjunction with detailed pre-operative planning is essential for obtaining a good clinical result. Appropriate radiographs are critical in assessing acetabular bone loss, and specific classification schemes can identify bone loss patterns and guide available treatment options. The presentation reviews the surgical decision making and clinical results of different surgical options for the treatment of acetabular bone loss.

**Recent Publications:**

1. Copley L, Pepe M, Tan V, Dormans J and Sheth N (1999) A comparison of various angles of halo pin insertion in an immature skull model. *SPINE* 24(17):1777-1780.
2. Copley L, Pepe M, Dormans J, Gabriel J, Sheth N and Asada N (1998) A comparative evaluation of halo pin designs in an immature skull model. *Clin Orthop*, 357:212-218.
3. Peters L E, Sheth N, Bostrom M, Pellicci P M and Sculco T P (2001) Preoperative planning for revision total hip arthroplasty. *Techniques in Orthopaedics* 16(3):202-221.
4. Bottner F, Sheth N, Chimento GF and Sculco TP (2003) Cytokine levels after transfusion of washed wound drainage in total knee arthroplasty: a randomized trial. *Journal of Knee Surgery* 16(2):93-97.

**Biography**

Neil P Sheth is an Assistant Professor of Orthopaedic Surgery at the University of Pennsylvania. He obtained his undergraduate degree in Biomedical Engineering with a minor in Finance at the University of Pennsylvania. Then, he spent two years on Wall Street as a Financial Analyst in Solomon Smith Barney's Healthcare Investment Banking division prior to attending Medical School at the Albany Medical College. Following medical school, he has completed six-year Orthopaedic Surgery Residency at the Hospital of the University of Pennsylvania. Following residency, he completed an adult hip and knee reconstruction fellowship at Rush University as well as a three-month mini-fellowship at the Endo Klinik in Hamburg, Germany focusing on peri-prosthetic infection. He has now returned to join the faculty at the University of Pennsylvania and focuses his research on acetabular bone loss pertaining to revision total hip arthroplasty, peri-prosthetic infection and the role of orthopaedic surgery in global health.

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**Ying Gu**

Stony Brook University, USA

**MMP inhibitors as novel therapeutics for osteoporosis**

We have developed novel non-antibiotic tetracycline (TC) formulations (Sub-antimicrobial Dose Doxycycline; SDD) and compounds (Chemically Modified Tetracyclines; CMTs) as matrix metalloproteinase inhibitors (MMPI). We and others demonstrated that they also inhibit osteoclast-mediated bone resorption associated with various conditions such as post-menopausal (PM) osteoporosis and diabetes-mediated osteoporosis in tissue culture, in animal models and in human clinical trials. In the ovariectomized rats, non-antimicrobial TCs were found to increase bone formation, as well as inhibit bone resorption, as mechanisms which “normalize” bone density. In a more recent NIH-supported study, we carried out a double-blind placebo-controlled clinical trial on 126 PM women exhibiting both periodontal (alveolar) bone loss and systemic bone loss (osteopenia). The 2-year regimen of SDD adjunctive to periodontal maintenance therapy not only significantly reduced: (1) the bone resorption marker, ICTP, and MMPs, in periodontal lesions, and (2) the progressive loss of alveolar bone; but also reduced the bone resorption markers, ICTP and CTX systemically in the serum samples from these patients. We propose that SDD reduces the risk of conversion of mild systemic bone loss (osteopenia) into the more severe form of bone deficiency disease, osteoporosis. Currently, we are developing new therapeutics derived from natural products (i.e., the chemically modified curcumins) as MMP-, and bone-resorption-inhibitors to treat chronic diseases such as osteoporosis and osteoarthritis.

**Biography**

Ying Gu has received her DDS and Ph.D degrees and resident studies from Stony Brook University School of Dental Medicine. She is currently an Associate Professor in the Department of General Dentistry, Stony Brook University. She has published book chapters and papers in reputed journals and serving as the reviewer of multiple journals.

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**Christopher M Melnic**

Harvard Medical School, USA

**Management and treatment of acetabular bone loss**

Acetabular bone loss in the setting of revision total hip arthroplasty can be a potentially complex problem. Given the rise in revision total hip arthroplasty, it is important for all total hip and knee surgeons to be able to successfully manage these patients. A thorough understanding of bone loss management is critical to allow intra-operative versatility during these procedures. Several bone loss classification systems exist, however, the Paprosky classification dictates treatment options based on the bone loss encountered. Extensive pre-operative planning is imperative, but the treating surgeon must remember that the reconstruction plan may change based on the pattern of bone loss that is encountered after the acetabular component has been removed and the remaining bone stock is reassessed.

**Recent Publications:**

1. Melnic CM, Sheth NP. Operative Technique: Acetabular Distraction for Severe Acetabular Bone Loss with Associated Chronic Pelvic Discontinuity. *University of Pennsylvania Orthopaedic Journal* 2015; 25: 68-70.
2. Melnic CM, Courtney PM, Talerico MT, Sheth NP, Paprosky WG. Failed Hip Arthroplasty: Revision. *Chapman's Comprehensive Orthopaedic Surgery 4th Edition*, Jaypee Publishing, 2016.
3. Sheth NP, Melnic CM, Paprosky WG. Acetabular distraction: an alternative for severe acetabular bone loss and chronic pelvic discontinuity. *Bone Joint J* 2014;96-B(11 Supple A):36-42.
4. Sheth NP, Melnic CM, Paprosky WG. Evaluation and management of chronic total hip instability. *Bone Joint J* 2016;98-B(1 Suppl A):44-9.
5. Sheth NP, Melnic CM, Paprosky WG. Acetabular Revision: Chronic Pelvic Dissociation. *The Adult Hip: Master Case Series and Techniques*. Springer Publishing, New York, NY; 2016.
6. Sheth NP, Melnic CM, Paprosky WG. Acetabular Revision: Acute Pelvic Dissociation. *The Adult Hip: Master Case Series and Techniques*. Springer Publishing, New York, NY; 2016.

**Biography**

Christopher M Melnic attended Boston College where he majored in Biology, minored in Mathematics, and was granted early acceptance into Tufts University School of Medicine where he obtained his medical degree. He completed his residency in Orthopaedic Surgery at The Hospital of the University of Pennsylvania followed by a fellowship in Adult Joint Reconstruction at the prestigious Rush University in Chicago. During his fellowship, he focused on complex hip and knee replacement surgery, partial knee replacements, as well as minimally invasive surgical techniques. He currently practices at Massachusetts General Hospital and Newton-Wellesley Hospital where his practice focuses on minimally invasive joint replacement, partial knee replacements, and complex primary and revision hip and knee replacements. He is also a clinical instructor of Orthopaedic Surgery at Harvard Medical School.

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***Fereidoon M Jaber***

*Shiraz University of Medical Sciences, Iran*

**Procrastination of wound drainage and malnutrition affect the outcome of joint arthroplasty**

**Background:** The association between wound drainage and subsequent periprosthetic infection is well known. However, the most appropriate treatment of wound drainage is not well understood.

**Methods:** We retrospectively reviewed the records of 10325 patients (11785 procedures). Among whom 300 patients (2.9%) developed persistent (greater than 48 hours postoperatively) wound drainage. Wound drainage stopped spontaneously between 2 to 4 days in 217 patients treated with local wound care and oral antibiotics. The remaining 83 patients (28%) underwent further surgery.

**Results:** A single debridement resulted in cessation of drainage without subsequent infection in 63 of 83 patients (76%), whereas 20 (24%) patients continued to drain and underwent additional treatment (repeat debridement, resection arthroplasty, or long-term antibiotics). Timing of surgery and the presence of malnutrition predicted failure of the first debridement. There were no differences between the success and failure groups with regard to all other examined parameters, including demographic or surgical factors.

**Conclusion:** We found patients who underwent debridement at a mean of 5 days following the onset of drainage were more likely to be infection free at one year postoperatively compared to patients who underwent debridement at a delayed time mean, 10days. Our data confirmed that malnourished patients (serum transferrin less than 200mg/dL, serum albumin less than 3.5g/dL, total lymphocyte count less than 1500/mm<sup>3</sup> are more likely to develop deep infection and require further treatment after irrigation and debridement. Based on these findings, we recommend early (within 7 days) surgery for persistent wound drainage in general, and particularly for those with malnutrition.

**Recent Publications:**

1. Hanssen A D and Rand J A (1999) Evaluation and treatment of infection at the site of a total hip or knee arthroplasty. Instructional Course Lecture 48:111-20.
2. Masterson E L and Masri B A, Duncan C P (1997) Treatment of infection at the site of total hip replacement Journal of Bone & Joint Surgery - American Volume 79:1740-1749.
3. Weiss A P and Krakow K A (1993) Persistent Wound drainage after primary total knee arthroplasty. J Arthroplasty 8(3):285-9.
4. Patel V P, Walsh M, Sehgal B, Preston C, De Wal H and Di Cesare P E (2007) Factors associated with prolonged wound drainage after primary total hip and knee arthroplasty. Journal of Bone & Joint Surgery - American Volume 89(1):33-8.
5. Vince K G and Abdeen A (2006) Wound problems in total knee arthroplasty. Clinical Orthopedics and Related Research 452:88-90.

**Biography**

Fereidoon M Jaber is a Professor of Orthopedic Surgery at Shiraz University of Medical Science in Iran. He practices in fields of his fellowships in: Arthroscopic Joints Surgery from McGill University at Montreal, Canada; Adult Reconstruction, Hip and Knee Arthroplasty from Rothman Institute Joint Research at Thomas Jefferson University in Philadelphia, USA and Foot and Ankle Reconstruction from Toronto Western Hospital, Canada.

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## Day 2

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***E Krishna Kiran***

*Maxcure Hospitals, India*

**The relationship of the posterior condylar axis and Whiteside's axis in various osteoarthritic Indian knees undergoing primary total knee arthroplasty: A computer navigation based study**

**Aim:** In varus osteoarthritic knees using Computer Assisted Surgery (CAS), assess the correlation between the degree of preoperative varus deformity, both in extension and in flexion, and the degree of external rotation required to align the femoral component with Whiteside's axis.

**Material & Methods:** This was a single centre computer navigation based study of 106 consecutive Indian varus osteoarthritic knees undergoing primary Total Knee Arthroplasty(TKA). The angle of rotation between the Posterior Condylar Axis (PCA) and Whiteside's line was calculated using CAS and the measured external rotation was set using the 4-in-1 cutting block. The nature of the anterior cut, notching of the lateral or medial cortex and the need for lateral retinacular release were recorded. The efficacy of CAS in setting optimal femoral component rotation is not clear. Setting a fixed rotation of three degrees from PCA may lead to rotational malalignment in several patients. The aims of this study were to establish the relationship between Whiteside's axis and the PCA to address issues with patellar tracking. All collected data were tabulated and statistically analyzed using SPSS13.0 software. The 2-tailed test was used to establish correlation.

**Results:** The mean femoral component external rotation with respect the degree of varus deformity in extension/ flexion and external rotation ( $r = 0.225, 0.477$ ).

**Discussion:** The external rotation with respect to the posterior condylar axis to align the femoral component to Whiteside line varies with each knee (range: 0-14 degrees). The external rotation required in a varus knee increases with the degree of varus deformity in extension as well as in flexion. Computer-assisted navigation helps in obtaining an optimal rotational alignment of the distal femur when Whiteside line is taken as a reference.

**Recent Publications:**

1. Kumar R, Kiran EK, Malhotra R and Bhan S (2002) Surgical management of the severely displaced supracondylar fracture of the humerus in children. *Injury* 33(6):517-522.
2. Bhan S, Malhotra R and Eachempati K K et al., (2004) Midterm Comparative analysis of IB- II versus LCS at minimum 4.5 years follow up. *Journal of Bone and Joint Surgery* 86(11):2431-4.
3. Malhotra R, Bhan S and Eachempati KK (2005) Recurrent hemarthrosis following total knee arthroplasty due to isolated pf3 availability defect. *Journal of Bone and Joint Surgery* 87-B: 1549-1552.
4. Bhan S, Malhotra R and Eachempati KK (2006) Prospective evaluation of total knee arthroplasty without patellar resurfacing in severely degenerated knees with rheumatoid arthritis: A midterm follow up study. *Clinical Orthopaedics & Related Research*. 450:157-163.
5. Bhan S, Eachempati KK and Malhotra R (2008) Primary cement less total hip arthroplasty for bony ankylosis in patients with ankylosing spondylitis. *Journal of Arthroplasty* 23(6):859-866.

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## Biography

E Krishna Kiran is a fellow in Computer Assisted Hip and Knee Arthroplasty, Germany. He is an alumnus of the prestigious AIIMS, New Delhi. He has more than 19 years of experience in Primary, Revision Hip and Knee Arthroplasty and Complex Trauma. He specializes in minimally invasive computer navigated hip and knee replacement, revision hip and knee replacement and pelvis acetabular trauma. Apart from being a Co-Editor for International Book on Sports Medicine, he has published papers in *JBJS Am*, *JBJS Br*, *CORR*, *Journal of Arthroplasty*. He is also a renowned faculty for his specializations in India and abroad.

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**Carlos Suarez-Ahedo**

American Hip Institute, USA

**Robotic guided total hip arthroplasty**

Primary total hip arthroplasty (THA) is a common procedure, with 332,000 procedures performed in 2010, in the United States alone. Increases for THA in younger patients (< 60 years), as a consequence of preexisting hip disorders, account for almost 40% of THA procedures completed in the United States. This produces a challenge, as it has been shown that younger age at the time of the primary THA corresponds to increased risk of revision THA. Numerous studies report primary THAs in patients younger than 30 years with global revision rates ranging from 4% to 33%. These reported rates are much higher than those reported for older patients' range 7%-15% with a longer follow up. The conventional technique of using manually manipulated instrumentation is the most widely used for reaming the acetabulum and broaching the femur in THA. Recently, computerized guidance systems, including image-assisted navigation, imageless navigation and robotic-assisted computer navigation, have been introduced for use in THA. The goal of this technology is to improve the precision and reproducibility of acetabular reaming, which is expected to lead to improved implant longevity and decreased complications related to loosening, intra-operative fractures, and acetabular cup protrusion.

**Recent Publications:**

1. Inpatient Surgery. 2014. Center for Disease Control and Prevention. Available at <http://www.cdc.gov/nchs/fastats/inpatient-surgery.htm>. Accessed on February 13, 2015.
2. Kurtz S, Ong K, Lau E, Mowat F, Halpern M (2007) Projections of Primary and Revision Hip and Knee Arthroplasty in the United States from 2005 to 2030. *Journal of Bone and Joint Surgery American Volume* 8(4):780-5.
3. Fleischman J A (2005) Medical Expenditure Panel Survey. Rockville, MD: Agency for Healthcare Research and Quality. Available at: [http://meps.ahrq.gov/mepsweb/data\\_files/publications/mr15/mr15.shtml](http://meps.ahrq.gov/mepsweb/data_files/publications/mr15/mr15.shtml). Accessed on February 13, 2015.
4. Gandhi R, Tsvetkov D, Dhottar H, Davey J R and Mahomed N N (2010) Quantifying the pain experience in hip and knee osteoarthritis. *Pain Research and Management: The Journal of The Canadian Pain Society = Journal de la Societe Canadienne pour le Traitement de la Douleur.* 15(4):224-228.
5. Adelani M A, Crook K, Barrack R L, Maloney W J, Clohisy J C (2014) What is the Prognosis of Revision Total Hip Arthroplasty in Patients 55 Years and Younger? *Clinical Orthopaedics and Related Research* 472(5):1518-1525.

**Biography**

Carlos Suarez-Ahedo is an MD who graduated from La Salle University. He finished his training in Orthopedics and Traumatology at the Spanish Hospital in Mexico City. He later finished the specialty of Articular Surgery and Adult Joint Reconstruction at the National Rehabilitation Institute of Mexico and also a Fellowship in Chicago, USA in Joint Preservation Surgery. He is also an Attending Surgeon in the Department of Adult Joint Reconstruction at the National Rehabilitation Institute of Mexico. He has been actively participating as author and coauthor in several scientific publications in recognized international journals and has been invited to present research papers in forums of great importance in the field of World Orthopedics.

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Shiraz University of Medical Sciences, Iran

**Challenges in total hip arthroplasty in ankylosing spondylitis**

**Case Presentation:** Sixty years old lady, a known case of ankylosing spondylitis presented with severe cervical and thoracolumbar spine and both hips. Left hip was severely painful with 45-degree flexion contracture, 30 adduction contractures and a motion range of 45-100. The right hip which was less painful had 15 degrees flexion contracture with an adduction range of 5-10 degrees and ROM range of 15 to 100 degrees. A patient walks with a severe antalgic gait and uses a cane and could not look directly forward due to the severe rigidity of cervical spine. Total hip arthroplasty planned with precautions to avoid complications listed as follows: Awake intubation by the aid of fiberoptic device by an expert team of attending anesthesiologists. Very careful positioning preoperative and postoperative can be done using extensile lateral approach. Consideration of protrusio acetabuli, avoidance of central reaming, peripheral acetabular reaming up to 60 mm, lateral displacement of center of rotation of the hip, bone grafting the depth of acetabulum, additional fixation of a shell with acetabular screws, use of polyethylene with posterior augment. Gentle maneuvering to avoid spinal fracture; Decreasing shell anteversion from standard 20 degrees to 10 degrees and decreasing the shell slope from standard 40 degrees to lesser angle to avoid postoperative anterior dislocation and by use of C-arm fluoroscopy we can determine the shell level and inclination. Complete tenotomy of adductors, iliopsoas, rectus femoris both heads, abductor release from ilium and anterior capsulectomy. Postoperative Indomethacin 25 mg tid for six weeks to avoid heterotopic ossification. Postoperative pulmonary function monitoring at surgical ICU. The patient could walk the next day and discharged from hospital 72 hours postoperatively in good condition. At nine months follow up patient was very satisfied with painless hips and improvement at her sight angle enabling her to communicate socially with others. Her Harris hip score improved from 63 preoperatively to 82 postoperatively.

**Recent Publications:**

1. Goodman S M and Figgie M (2013) Lower extremity arthroplasty in patients with inflammatory arthritis: preoperative and perioperative management. *Journal of the American Academy of Orthopaedic Surgeons* 21(6):355-363.
2. Nystad T W, Furnes O, Havelin L I, Skredderstuen A K and Lie S A, et al. (2013) Hip replacement surgery in patients with ankylosing spondylitis. *Annals of the Rheumatic Diseases* 73(6):1194-7.
3. Woodward L J and Kam P C (2009) Ankylosing spondylitis: recent developments and anesthetic implications. *Anesthesia* 64(5):540-548.
4. Mahesh B H, Jayaswal A and Bhan S (2008) Fracture dislocation of the spine after total hip arthroplasty in a patient with ankylosing spondylitis with early pseudoarthrosis. *The Spine Journal* 8(3):529-533.
5. Tang WM and Chiu KY (2000) Primary total hip arthroplasty in patients with ankylosing spondylitis. *Journal of Arthroplasty* 15(1):52-58.

**Biography**

Fereidoon M Jaber is a Professor of Orthopedic Surgery at Shiraz University of Medical Sciences in Iran. He practices in fields of his fellowships in: Arthroscopic Joints Surgery from McGill University at Montreal, Canada; Adult Reconstruction, Hip and Knee Arthroplasty from Rothman Institute Joint Research, Thomas Jefferson University at Philadelphia, USA and Foot and Ankle reconstruction from Toronto Western Hospital, Canada..

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