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Dear Colleagues,

Welcome and thank you for attending the 15th annual meeting of our society in the wonderful city of Chengdu.

Our vision is to deliver a meeting that will introduce debate and reflect on current issues in joint replacement that we meet every day in our current practice, but also share with you topics that you may need to broaden your scope of practice into the future. Our aim is to give you the tools technically, scientifically and academically to allow you to deliver better outcomes for your patients. This will include central themes to joint replacement but also recent advances and controversy as well as region specific topics, as we all appreciate that our practice is influenced by the geopolitics and cultures of each country and region.

Thank you especially to all our speakers who have given their time in preparing their presentations and travelled far to participate in this program. We look forward to lots of discussion and interaction between all the delegates.

Chengdu, which is also known as the Land of Abundance. Here we have not only modern conference facilities, but also the Wuhou Memorial Temple, in memory of the Military Marquise Zhuge Liang of the Han dynasty, the 2000 years old irrigation system-Dujiangyan Dam, the Sanxingdui Museum which illustrated the magnificent ancient culture of BaShu and so on. What’s more Chengdu has been officially awarded by UNESCO as the gourmet capital. We deeply believe the rich tourist and gastronomic resources will certainly make you enjoy the charm of the land of abundance if you take the time to explore the city.

Professor Pei Fuxing
Chairman APAS scientific committee
Adj./A Professor Rami Sorial
President APAS
Faculty

Dr. David Liu
Australia

Dr. Mojib Manzary
Saudi Arabia

Dr. Bharat Mody
India

Prof. Shen Bin
PR. China

Dr. Vasan Sinnadurai
Malaysia

A/Prof. Rami Sorial
Australia

A/Prof. Christopher Mow
USA

Dr. Arun Mullaji
India

Prof. Shahid Noor
Pakistan

Prof. Wang Yan
PR. China

Prof. Weng Xisheng
PR. China

Prof. Wu Haishan
PR. China

Prof. Pei Fuxing
PR. China

Dr. Ashok Rajgopal
India

Dr. Parag Sancheti
India

Prof. Zhang Hong
PR. China

Prof. Zhou Yonggang
PR. China

Prof. Zhou Yixin
PR. China
General Information

CONFERENCE VENUE
Hotel: Kempinski Hotel Chengdu
Address: Ren Min Nan Road 42, Chengdu, China
Phone: 86-28-8526 9999
Website: http://www.kempinski.com/en/chengdu/hotel-chengdu/welcome/

REGISTRATION OPENING HOURS

<table>
<thead>
<tr>
<th>DATE</th>
<th>DAY</th>
<th>TIME</th>
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<tbody>
<tr>
<td>18 June</td>
<td>Wednesday</td>
<td>09:00-18:00</td>
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<tr>
<td>19 June</td>
<td>Thursday</td>
<td>07:30-18:30</td>
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<tr>
<td>20 June</td>
<td>Friday</td>
<td>07:30-18:30</td>
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<tr>
<td>21 June</td>
<td>Saturday</td>
<td>07:30-13:30</td>
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SPEAKER READY ROOM OPENING HOURS

<table>
<thead>
<tr>
<th>DATE</th>
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<tbody>
<tr>
<td>18 June</td>
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<tr>
<td>21 June</td>
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EXHIBITION OPENING HOURS

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<td>19 June</td>
<td>Thursday</td>
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<td>20 June</td>
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<tr>
<td>21 June</td>
<td>Saturday</td>
<td>10:30-13:00</td>
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ABOUT APAS
A small group of twenty orthopaedic arthroplasty surgeons from the Asia-Pacific region met on the Gold Coast of Queensland, in Australia, in 1997 to discuss the need for a scientific body to foster and represent the academic and professional needs of the region. The Asia Pacific Arthroplasty Society – APAS – was born out of that meeting with Wui K Chung the founding chairman. Ray Randle was elected the 1st President of the society and Chit Ranawat honored the society by accepting to be the Patron of the society.

The aims of the society are to:
- Foster social and scientific exchange
- Provide a platform for Asian surgeons to present their surgical experience
- encourage exchange scholarship

The 1st Annual Scientific Meeting was held in New Delhi in 1998. Not less than 600 delegates attended that meeting. Since then there have been 13 hugely successful Annual Meetings held in Shanghai, Beijing, Xian, New Delhi, Mumbai, Seoul, Kota Kinabalu, Kuala Lumpur and Bangkok.

Our past Presidents include Ray Randle, Ashok Rajgopal, Jim Sullivan, Yoo Myung-chui, Wang Yan and most recently Arun Mullaji. Our current President is Rami Sorial and Vice President Zhang Hong.

The Delta Foundation, although a separate entity, was created as an additional educational arm of the society. Its educational format includes short 2-3 day seminars, to provide practical instruction on surgical technique and the science of arthroplasty surgery. These seminars have been conducted in numerous cities across Asia, pivoted on live surgical demonstrations with moderators and open forum case discussions.

HOW TO JOIN IN APAS MEMBERSHIP:
Join our growing membership to share and contribute to our knowledge bank. Membership will enjoy the following benefits:
- Reduced meeting registration fees for 3 years
- Access to members page with monthly clinical case presentations
- Opportunity to publish/post interesting cases online for members to review and a comment/blog area will soon be established

Membership application is available here: http://apasonline.org/member_registration.aspx.
It is with quite enormous personal pride and satisfaction for me to attend this meeting, here in Chengdu, with Rami Sorial at the helm.

APAS was conceived at a time when there was little interest in or regard for Asian orthopaedics. To the originators of the society, there appeared to be a real need to foster the betterment of arthroplasty practice and knowledge in the region. The social dynamics of the world has changed substantially in the last two decades and today Asia is the focus of commercial and political interest. APAS is pleased to have been part of that journey.

APAS is not a mega-society. Its' aim and ambitions from inception has always been that of an alternative platform to the major societies. We aimed at providing education about hip and knee arthroplasty, and a platform for the novice Asian surgeon to present his research and experience without fear of embarrassment or misplacement. Reflecting on its' achievements over the years, it would be fair to say that it has achieved a fair part of what it set out to do.

The years of my involvement with the society had been personally rewarding and educational. I had wished, for a long time, for fresh and more vigorous management of the society. Today as the baton is handed-over, I am thoroughly pleased that Rami Sorial is at the helm. Pleased that the society is in excellent hands and pleased that there will be fresh direction and vigour for the society. APAS suffered from infrastructural limitations as it draws its' manpower solely from those willing and able to help. It takes somebody willing, committed and able to do the job. We have in Rami such a person.

The society depends on the interest and support of surgeons as well as industry; both of whom have been hugely supportive over the years, and I hope for their continued support. Whilst the life blood of the society is in its' constituency, it may not breathe without the generous support of benefactors from the industry and within our profession. The support we receive from the industry is ever-growing and generous and we thank them.

From the day that APAS was conceived, there were many good men who generously donated their time and expertise to our cause. I must dutifully and rightfully mention a few and seek forgiveness from those that I fail to mention. To Chit (Ranawat) I owe an enormous personal debt, for having the foresight and generosity to serve as our Patron from day one. He remains a beacon to the Asian surgeon. Larry Dorr, our other patron is a good friend and a most kind supporter of the society. Other luminaries such as Dan Berry, Douglas Dennis, Michael Morlock, Richard Rothman, Richard Scott, Ian Learmonth, Cecil Roraback, Ashok Rajgopal and David Barrett deserve our heartfelt thanks for enhancing and making meaningful our educational efforts.

It leaves me to wish you all a most enjoyable meeting.
### Schedule at-a-glace

**Wednesday 18th June**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:00-15:00</td>
<td>Deputy Masterclass Platinum Session - Hip arthroplasty</td>
<td>Ballroom 2</td>
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<tr>
<td>15:30-17:30</td>
<td>Deputy Masterclass Platinum Session - Knee arthroplasty</td>
<td>Ballroom 2</td>
</tr>
<tr>
<td>14:30-17:30</td>
<td>Biomet Preconference Symposium</td>
<td>Ballroom 3</td>
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**Thursday 19th June**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>08:00-10:30</td>
<td>Combined Plenary Session - Primary Knee Surgery</td>
<td>Ballroom 1,2,3</td>
</tr>
<tr>
<td>10:30-10:50</td>
<td>Morning Tea</td>
<td></td>
</tr>
<tr>
<td>10:50-12:30</td>
<td>Opening Ceremony and Special Guest Speaker Presentation</td>
<td></td>
</tr>
<tr>
<td>12:30-13:30</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>13:30-15:45</td>
<td>Concurrent Hip and Knee Scientific Sessions-Hip</td>
<td>Ballroom 2,3</td>
</tr>
<tr>
<td>15:45-16:00</td>
<td>Afternoon Tea</td>
<td></td>
</tr>
<tr>
<td>16:00-18:00</td>
<td>Concurrent Hip and Knee Scientific Sessions-Knee</td>
<td>Ballroom 2,3</td>
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**Friday 20th June**

<table>
<thead>
<tr>
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<tr>
<td>08:00-10:30</td>
<td>Combined Plenary Session - Primary Hip Surgery</td>
<td>Ballroom 1,2</td>
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<tr>
<td>10:30-10:50</td>
<td>Morning Tea</td>
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<tr>
<td>10:50-13:30</td>
<td>Combined Plenary Session - Revision Knee Surgery</td>
<td>Ballroom 1,2</td>
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<tr>
<td>13:30-14:30</td>
<td>Lunch</td>
<td></td>
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<tr>
<td>14:30-16:00</td>
<td>Concurrent Hip and Knee Sessions-Hip</td>
<td>Ballroom 2</td>
</tr>
<tr>
<td>16:00-16:30</td>
<td>Afternoon Tea</td>
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<tr>
<td>16:30-18:00</td>
<td>Concurrent Hip and Knee Sessions-Hip</td>
<td>Ballroom 2</td>
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**Saturday 21st June**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>08:00-10:30</td>
<td>Combined Plenary Session - Revision Hip Surgery</td>
<td>Ballroom 1,2,3</td>
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<tr>
<td>10:30-11:00</td>
<td>Morning Tea</td>
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<tr>
<td>11:00-13:00</td>
<td>Combined Session - General Arthroplasty Practice</td>
<td>Ballroom 1,2,3</td>
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<tr>
<td>13:00</td>
<td>Close of Conference</td>
<td>Ballroom 1,2,3</td>
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### Day 1 - Wednesday 18th June

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Type</th>
<th>Session Theme</th>
<th>Chairs</th>
<th>Speakers</th>
<th>Title</th>
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<tbody>
<tr>
<td>Ballroom 2</td>
<td>Depuy</td>
<td>Depuy Masterclass Platinum Session - Hip arthroplasty</td>
<td>Rami Sorial</td>
<td>Pei Fuxing</td>
<td>Kinematics of Total Knee: What works best?</td>
</tr>
<tr>
<td>13:00 - 15:00</td>
<td></td>
<td>Depuy Masterclass Platinum Session - Knee arthroplasty</td>
<td>Rami Sorial</td>
<td>Pei Fuxing</td>
<td>Knee Bearing Surfaces: All the same?</td>
</tr>
<tr>
<td>15:30 - 17:30</td>
<td></td>
<td></td>
<td>Shahid Noor</td>
<td></td>
<td>Managing Complex Deformity in Asian Knees</td>
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<tr>
<td>Ballroom 3</td>
<td>Biomet</td>
<td>Biomet Preconference Symposium</td>
<td>Rami Sorial</td>
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<tr>
<td>14:30 - 17:30</td>
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### Day 2 - Thursday 19th June

<table>
<thead>
<tr>
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<th>Session Theme</th>
<th>Chairs</th>
<th>Speakers</th>
<th>Title</th>
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<tr>
<td>Ballrooms 1.2.3</td>
<td>Combined P lenary Session - Primary Knee Surgery</td>
<td>Rami Sorial</td>
<td>Pei Fuxing / Rami Sorial</td>
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<td>Kinematics of Total Knee: What works best?</td>
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<tr>
<td>08:00 - 08:10</td>
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<td>Welcome Comments</td>
<td>Pei Fuxing</td>
<td></td>
<td>Knee Bearing Surfaces: All the same?</td>
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<tr>
<td>08:10 - 08:30</td>
<td></td>
<td></td>
<td>Christopher Mow</td>
<td></td>
<td>Managing Complex Deformity in Asian Knees</td>
</tr>
<tr>
<td>08:30 - 08:50</td>
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<td></td>
<td>Shahid Noor</td>
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<tr>
<td>09:10 - 09:20</td>
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<tr>
<td>09:20 - 09:40</td>
<td></td>
<td></td>
<td>Arun Mullaji</td>
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<td>Managing Extraarticular Deformity</td>
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<tr>
<td>09:40 - 10:00</td>
<td></td>
<td></td>
<td>TK Kim</td>
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<td>Asian Strategies in TKA: Alignment vs Gap Balancing</td>
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<tr>
<td>10:00 - 10:20</td>
<td></td>
<td></td>
<td>Ashok Rajgopal</td>
<td></td>
<td>Instability in TKA: Avoidance and management</td>
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<td>10:20 - 10:30</td>
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<td>10:30 - 10:50</td>
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<td>Morning Tea</td>
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<tr>
<td>10:50 - 11:30</td>
<td>Opening Ceremony and Special Guest Speaker Presentation</td>
<td>Rami Sorial</td>
<td>Daniel Berry</td>
<td></td>
<td>Introduction of New Technology in Orthopedic Surgery. Lessons learnt from total joint arthroplasty</td>
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<tr>
<td>11:15 - 11:40</td>
<td>Opening Ceremony</td>
<td>Rami Sorial</td>
<td>Daniel Berry</td>
<td></td>
<td>Patellofemoral Kinematics in the natural and resurfaced knee</td>
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<tr>
<td>11:40 - 12:05</td>
<td>Special Guest Presentation</td>
<td>Rami Sorial</td>
<td>Daniel Berry</td>
<td></td>
<td>Total Hip Arthroplasty of Ankylosing Spondylitis Fusion Hip.</td>
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<tr>
<td>12:05 - 12:30</td>
<td>Special Guest Presentation</td>
<td>Rami Sorial</td>
<td>Daniel Berry</td>
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<tr>
<td>VIP Room</td>
<td>Lunch</td>
<td>Rami Sorial</td>
<td>Daniel Berry</td>
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<tr>
<td>12:30 - 13:30</td>
<td></td>
<td></td>
<td>Shen Bin</td>
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<tr>
<td>Ballrooms 2.3</td>
<td>Concurrent Hip and Knee Scientific Sessions</td>
<td>Rami Sorial</td>
<td>Dan Gannon</td>
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<td>Posterior Approach - The Gold Standard</td>
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<td>13:30 - 13:40</td>
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<td></td>
<td>Rami Sorial</td>
<td></td>
<td>The Pros and Cons of Direct Anterior Total Hip using a Standard Table</td>
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<td>14:00 - 14:10</td>
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<td>Ronen Roy</td>
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<td>Accurate And Reproducible Cup Positioning In THA</td>
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<td>14:10 - 14:20</td>
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<td>Wu Haishan</td>
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<td>Hip arthroplasty bearing surface choice: the investigation and analysis</td>
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<td>14:30 - 14:40</td>
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<td></td>
<td>Christopher Mow</td>
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<td>Polyethylene - Making an informed choice</td>
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<td>Dermot Collopy</td>
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<td>Ceramic - Is it the long term bearing?</td>
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## Day 2 - Thursday 19th June

<table>
<thead>
<tr>
<th>Time</th>
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<th>Session Theme</th>
<th>Chairs</th>
<th>Speakers</th>
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<tbody>
<tr>
<td>14:50 - 15:00</td>
<td></td>
<td></td>
<td></td>
<td>Shen Bin</td>
<td>Ceramic on Metal - From lab to clinic</td>
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<td>15:00 - 15:10</td>
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<td>David Liu</td>
<td>Leg Length - Getting it right</td>
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<tr>
<td>15:10 - 15:45</td>
<td>Questions</td>
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<tr>
<td>15:30 - 16:10</td>
<td>Concurrent Hip and Knee Scientific Sessions</td>
<td>Knee</td>
<td>David Barrett</td>
<td>TK Kim</td>
<td>Opening Wedge HTO: How and when</td>
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<td>13:30 - 13:40</td>
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<td></td>
<td>Mojib Manzary</td>
<td>HTO v UKA</td>
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<td>13:40 - 13:50</td>
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<td>David Barrett</td>
<td>Unicompartment Arthroplasty: Indications and results</td>
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<tr>
<td>14:00 - 14:10</td>
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<td>Guo Wanshou</td>
<td>UKA for Knee Osteonecrosis</td>
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<td>14:10 - 14:20</td>
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<td>Rami Sorial</td>
<td>Unicompartment Arthroplasty: A cementless approach</td>
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<tr>
<td>14:20 - 14:30</td>
<td>Questions</td>
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<tr>
<td>14:30 - 14:40</td>
<td></td>
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<td></td>
<td>Peer Sancheti</td>
<td>Exposing the difficult knee</td>
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<td>14:40 - 14:50</td>
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<td>Vasan Sinnadurai</td>
<td>Dealing With Valgus Knee Deformity</td>
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<td>14:50 - 15:00</td>
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<td>Parag Sancheti</td>
<td>Dealing With Varus Knee Deformity</td>
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<td>15:00 - 15:10</td>
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<td>Bharat Mody</td>
<td>Bone defects in TKA - approach and management</td>
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<td>15:10 - 15:20</td>
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<td>Parag Sancheti</td>
<td>Correcting Stiff knee and Fixed Flexion Deformity</td>
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<tr>
<td>15:20 - 15:30</td>
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<td></td>
<td>Ronen Roy</td>
<td>Correcting Hyperextension Deformity</td>
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<td>15:30 - 15:40</td>
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<td>Vikash Kapoor</td>
<td>The CR fixed bearing</td>
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<td>15:40 - 15:45</td>
<td>Questions</td>
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<tr>
<td>16:00 - 16:10</td>
<td>Concurrent Hip and Knee Scientific Sessions</td>
<td>Hip</td>
<td>Wang Yan</td>
<td>Cao Li</td>
<td>THA for DDH - Critical Issues</td>
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<td>Zhang Hong</td>
<td>Radiological Characteristics of Leg Length Discrepancy Among Unilateral DDH</td>
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<td>16:20 - 16:40</td>
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<td></td>
<td>Daniel Berry</td>
<td>Management of DDH with Uncemented Total Hip Arthroplasty</td>
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<tr>
<td>16:40 - 16:50</td>
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<td></td>
<td>Shahid Noor</td>
<td>Total Hip Arthroplasty in failed hip fracture management</td>
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<td>16:50 - 17:00</td>
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<td>Panel: Shen, Zhang, Berry, Noor, Zhou Yonggang, Collopy, Mow, Manzary</td>
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<td>Ashok Rajgopal</td>
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<td>Rami Sorial</td>
<td>Patient Specific Guides: Technique and results</td>
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### Day 3 - Friday 20th June

#### Ballrooms 1,2

**Combined Plenary Session - Primary Hip Surgery**

<table>
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<th>Time</th>
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<th>Session Theme</th>
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<td>Combined</td>
<td>Primary Hip Surgery</td>
<td>Daniel Berry</td>
<td>Wui Chung</td>
<td>Design philosophies of major cementless stem platforms</td>
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<td>08:20 - 08:40</td>
<td>Plenary</td>
<td>Primary Hip Surgery</td>
<td>Wu Haishan</td>
<td>Mojib Mansary</td>
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<td>Plenary</td>
<td>Primary Hip Surgery</td>
<td>Simon Coffey</td>
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<td>Zhang Hong</td>
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<td>Mojib Mansary</td>
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<td>Weng XiSheng</td>
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#### Ballrooms 2

**Concurrent Hip and Knee Sessions - Hip**

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<tr>
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<th>Speakers</th>
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<tr>
<td>14:30 - 14:40</td>
<td>Hip</td>
<td>Hip</td>
<td>Dermot Collopy</td>
<td>David Liu</td>
<td>Planning for Revision THA</td>
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<tr>
<td>14:40 - 14:50</td>
<td>Hip</td>
<td>Hip</td>
<td>Zhou Yixin</td>
<td>Rami Sorial</td>
<td>ETO and implant removal for revision THA</td>
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<td>Zhou Yixin</td>
<td>Rami Sorial</td>
<td>Failed Socket exploting technique</td>
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<tr>
<td>15:00 - 15:10</td>
<td>Hip</td>
<td>Hip</td>
<td>Zhou Yixin</td>
<td>Vic Shin</td>
<td>Uncemented acetabular reconstruction for traumatic arthritis</td>
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<td>Hip</td>
<td>Hip</td>
<td>Zhou Yixin</td>
<td>Christopher Mow</td>
<td>Role of cement in revision THA</td>
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<td>15:20 - 15:30</td>
<td>Hip</td>
<td>Hip</td>
<td>Vic Shin</td>
<td>Daniel Berry</td>
<td>Metal on Metal: Assessment and Indications for revision</td>
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<td>Hip</td>
<td>Hip</td>
<td>Vic Shin</td>
<td>Shahid Noor</td>
<td>Modularity facilitates femoral revision</td>
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<td>15:40 - 15:50</td>
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<td>Hip</td>
<td>Vic Shin</td>
<td>Vic Shin</td>
<td>Managing osteosynthesis with a well fixed cup</td>
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<td>15:50 - 16:00</td>
<td>Questions</td>
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#### Ballrooms 1

**Concurrent Hip and Knee Sessions - Knee**

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<tr>
<td>14:30 - 14:40</td>
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<td>Simon Coffey</td>
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<td>Parag Sancheti</td>
<td>Vic Shin</td>
<td>Limb occlusion tourniquets</td>
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<td>Vic Shin</td>
<td>Vic Shin</td>
<td>Limb occlusion tourniquets</td>
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<td>Vic Shin</td>
<td>Vic Shin</td>
<td>Limb occlusion tourniquets</td>
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<td>15:10 - 15:20</td>
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<td>Vic Shin</td>
<td>Vic Shin</td>
<td>Limb occlusion tourniquets</td>
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<td>15:20 - 15:30</td>
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<td>Vic Shin</td>
<td>Vic Shin</td>
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<tr>
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<td>Cao Li</td>
<td>Single Stage Management of Infected TKA</td>
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<td>Simon Coffey</td>
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<td>16:00 - 16:30</td>
<td>Afternoon Tea</td>
<td>Concurrent Hip and Knee Sessions</td>
<td>Simon Coffey, Christopher Mow</td>
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<td>Cao Li</td>
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<td>Dermot Collopy</td>
<td>Radiolucent Lines around Tritanium Uncemented Cups</td>
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<td>Dan Gannon</td>
<td>Benefits of taper stem designs</td>
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<td>Ramesh Kumar Sen</td>
<td>THA for ankylosed hip</td>
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<td>Askarjan Mamtimin</td>
<td>THA for the Bony Ankylosed Hip at Non-functional Position</td>
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<td>Wang Wenbo</td>
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<td>Youngdong, Song</td>
<td>Is Knee MRI Overutilized in Korea</td>
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<td>TK Kim</td>
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<td>Kwang-Jun Oh</td>
<td>Progression of osteoarthritis in untreated compartments of the knee, comparison between open wedge high tibial osteotomy and unicompartmental knee arthroplasty</td>
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<td>16:54 - 17:00</td>
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<td>Nimesh P Jain</td>
<td>Influence of Posterior Condylar Offset on Maximal Flexion and Outcome Scales following TKA in Asian patients</td>
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<td>Min Woo Kim</td>
<td>Guideline for decision of one-stage bilateral Total Knee Arthroplasty</td>
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<td>Jong-Yeal Kang</td>
<td>Expectation fulfillment the major determinant of overall patient satisfaction after TKA</td>
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<td>Sung-Chul Park</td>
<td>Influence of Gap Balance on the Sagittal Movement of a Specific Mobile Bearing Floating Platform Design in Total Knee Arthroplasty</td>
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<td>In Jun Koh</td>
<td>Trends in Use of Total Knee Arthroplasty in Korea</td>
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<td>Ju Hwan Kim</td>
<td>Incidence and natural history of venous thromboembolism after unicompartmental knee arthroplasty</td>
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<td>Kwang-Jun Oh</td>
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## Day 4 - Saturday 21st June

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<tbody>
<tr>
<td><strong>08:00 - 08:20</strong></td>
<td>Combined Plenary Session - Revision Hip Surgery</td>
<td>Simon Coffey</td>
<td>Cao Li</td>
<td>Zhou Yixin</td>
<td>Assessing the Painful THA</td>
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<tr>
<td><strong>08:20 - 08:40</strong></td>
<td></td>
<td>Daniel Berry</td>
<td>Zhou Yixin</td>
<td>Revision THA: What have we learned</td>
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<td><strong>08:40 - 09:00</strong></td>
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<td>Zhou Yixin</td>
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<td>Revision THA: The Chinese Experience</td>
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<td><strong>09:00 - 09:10</strong></td>
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<td>Rami Sorial</td>
<td>Zhou Yixin</td>
<td>Complex Acetabular Reconstruction - Revision</td>
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<td>Zhou Yonggang</td>
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<td>David Liu</td>
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<td>Dealing with instability in THA</td>
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<td>Mojib Manzary</td>
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<td>Blood Management</td>
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<td><strong>10:10 - 10:25</strong></td>
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<td>David Liu</td>
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<td><strong>10:25 - 10:30</strong></td>
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<td>Questions</td>
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<td><strong>10:30 - 11:00</strong></td>
<td>Morning Tea</td>
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<td><strong>11:00 - 11:10</strong></td>
<td>Combined Session - General Arthroplasty Practice</td>
<td>Zhou Yonggang</td>
<td>Shen Bin</td>
<td>Christopher Mow</td>
<td>Arthroplasty in Asia Pacific: Educational Exchange</td>
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<td><strong>11:10 - 11:20</strong></td>
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<td>Zhang Hong</td>
<td>Bharat Mody</td>
<td>Managing the Acute Infected Joint Replacement</td>
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<td><strong>11:20 - 11:30</strong></td>
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<td>Ramesh Kumar Sen</td>
<td>TK Kim</td>
<td>Diagnosis and management of Infected Total Joint Arthroplasty: Update</td>
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<td><strong>11:30 - 11:40</strong></td>
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<td>THA post infection</td>
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<td><strong>11:40 - 11:50</strong></td>
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<td>Practical issues in using tranexamic acid to reduce blood loss in TKA</td>
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<td><strong>11:50 - 12:00</strong></td>
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<td>Efficacy and Safety of Rivaroxaban in an Asian population</td>
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<td><strong>12:00 - 12:15</strong></td>
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<td>Simon Coffey</td>
<td>Zhou Yonggang</td>
<td>My Most Challenging Case Presentations - 5 mins each</td>
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<td><strong>12:15 - 13:00</strong></td>
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Arcos
Modular Femoral Revision System

Absracts
EXTRA-ARTICULAR DEFORMITY CORRECTION IN TKR

Presence of extra-articular deformity further adds complexity to correction of deformity. Several challenges present to the surgeon in these cases – how can the surgeon determine whether deformity correction should be intra- or extra-articular? Should it be done concurrently with TKA or as a separate procedure? This talk will address the above questions and also present cases to illustrate femoral, tibial and combined femoral and tibial deformities. The value of computer-aided surgery, concomitant osteotomies and methods of fixation when osteotomies have been performed will be discussed.

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BALANCING IN REVISION TKA

Gap balancing is extremely challenging because of the following reasons:
- The flexion-extension gaps in the index knee itself may have been imbalanced.
- During exposure, soft-tissue releases may increase the imbalance
- There may be unequal bone loss on the two sides of the gap once the components, cement and granulation tissue have been removed.

Key steps to balance gaps include:
- Careful preop assessment of x-rays to determine possible causes of imbalance
- Noting the joint line and equality of gaps prior to explantation of implants
- Restoring a stable tibial platform
- Tentative placement of the femoral trial component to determine flexion gap
- Extend the knee to equalize extension gap to flexion gap by distalising or proximalising the femoral component.

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USE OF ARTICULATING SPACERS IN INFECTED TKA

Nearly a quarter of all revisions are performed for periprosthetic infection. While diagnosis may sometimes be clinically evident, most times it is difficult to detect. Every attempt must be made to determine the organism and its antibiotic sensitivity prior to intervention. This may require stoppage of all antibiotics prior to aspiration and multiple aspirations to identify bacteria. The options of treatment include antibiotic suppression, debridement and implant retention (with insert exchange), excision arthroplasty, fusion, 1 or 2 stage revision and amputation. The author generally prefers 2-stage exchange, excision arthroplasty, fusion, 1 or 2 stage revision and amputation.

Key steps to balance gaps include:
- Careful preop assessment of x-rays to determine possible causes of imbalance
- Noting the joint line and equality of gaps prior to explantation of implants
- Retaining a stable tibial platform
- Tentative placement of the femoral trial component to determine flexion gap
- Extend the knee to equalize extension gap to flexion gap by distalising or proximalising the femoral component.

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CAS: WHY I NAVIGATE

Computer-assisted total knee replacement improves alignment of the limb when compared with the conventional technique and in support there is overwhelming published data. There is also ample evidence that optimum alignment correlates with longevity of implants. CAS enables accurate component alignment of both femoral and tibial components. It is very useful in accurately cutting the posterior tibial slope which has important consequences on flexion range and stability of the component in flexion especially if mobile bearing implants are considered. CAS also aids in correctly orienting rotation of the femoral component; this has value in minimizing patellar maltracking. We will present our data showing accurate restoration of joint line and posterior femoral offset. As CAS ensures alignment, rotation, sizing and positioning of components, the surgeon is free to devote his efforts to ensuring soft-tissue balance and stability, since TKA is really a ‘soft-tissue’ operation.

How CAS is of immense value in deformity correction and soft-tissue balancing will be illustrated with examples. It helps in better understanding and quantification of the effects of soft-tissue release on flexion-extension gaps and this is of great value not only for minimal deformities (to minimise releases) but also for severe deformities (to ensure complete correction by adequate release). CAS is invaluable in helping equalize flexion-extension gaps; how it can help balance the flexion gap to the extension gap by ‘virtual surgery’ will be depicted with examples. It is particularly useful in presence of hardware in the femur or tibia and for concomitant extra-articular deformity.

We have also found a consistent improvement in recovery of functional milestones with CAS with similar results for both unilateral and bilateral TKAs. Furthermore, there is evidence to support that ensuring alignment has important benefits in improving functional and quality of life scores. In addition, those with alignment of mechanical axis within 3 degrees of normal have been shown to have a shorter stay in hospital by 2 days. Studies have shown reduced blood loss and incidence of emboli after CAS TKA.

Using CAS routinely for all cases, the author is ‘time neutral’ and hence time alone is not a downside. While there is always room for improvement with evolving technologies and CAS is no exception, it already has myriads of benefits in the performance and outcome of TKA, and is an extremely valuable tool for a successful knee arthroplasty.

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BILATERAL TOTAL KNEE REPLACEMENT—WHO, WHEN AND WHY

Patients with knee osteoarthritis (OA) often present with symptoms that warrant bilateral TKAs. There are potential benefits to operating on both knees on the same day, but the safety of simultaneous bilateral TKAs has been questioned. To evaluate whether there were any differences in incidence of pneumonia, pulmonary embolism, cardiac complications, and mortality between patients having simultaneous bilateral TKAs and those having staged bilateral TKAs, we studied all our patients who underwent TKA in the last one year. 2200 total knee replacements were done between January 2013 and December 2013. Of these 821 patients (1642 knees) were simultaneous bilateral, 251 patients (502 knees) staged and 28 patient (56 knees) staggered. Comorbidities, age, post operative complications like pneumonia, pulmonary embolism, cardiac complications and infection were considered. The overall infection rate following simultaneous (1%) was lower compared to staged (1.4%) or staggered (1.2%) (P=0.01). The mortality after simultaneous bilateral TKAs was always room for improvement with evolving technologies and CAS is no exception, it already has myriads of benefits in the performance and outcome of TKA, and is an extremely valuable tool for a successful knee arthroplasty.

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INSTABILITY IN TOTAL KNEE ARTHROPLASTY -- AVOIDANCE AND MANAGEMENT

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Instability manifests as a consequence of failure to balance the flexion and extension gaps. Instability may occur in flexion, in the antero posterior or the medio lateral plane. It is being reported increasingly as a consequence of failure in total knee replacements. Remarkably it is seen in patients who recover dramatically from their total knee replacement achieving a high degree of flexion early and with ease. This is usually the consequence of the flexion gap being loose or unstable. Patient presenting with a fixed flexion deformity are at risk particularly if additional distal femur cuts or soft tissue releases are not done. These knees though very stable in extension will manifest instability early in flexion. This form of instability is seen equally in cruciate retaining and sacrificing options. Mid flexion instability is a complex of rotational instability and is seen with External rotation and Valgus stress in a knee flexed between 45 deg and 90 deg, with three main factors contributing to this instability; A. Antero Medial collateral ligament attenuation B. Femoral – tibia articulation geometry C. Tibial post femoral box geometry Influence of joint line position has also been mentioned though controversially as a cause of instabilities. Flexion instability can be seen following both primary and revision arthroplasty. Instability may also be a consequence of malalignment of the femoral component with or without collateral insufficiency. Mild cases of instability may be managed conservatively though these fail most often as the instability increases over time. The surgical management of this situation will depend to a large extent on the adequacy of the collateral ligaments. If intact, the instability can be corrected by upsizing the femoral component, correcting the malrotation and using the appropriate tibia base plate and polyethylene height. Appropriate stem options will facilitate optimum femoral and tibial positions. In the event that the collateral ligaments are compromised use of a constrained option may be mandated remembering that in extreme situations even a constrained option may fail. In these clinical situations use of a rotating hinge option may be the only salvage left. Finally the best way to treat instabilities may be to follow the basic fundamentals of accurate balancing of flexion and extension gaps to leave the knee stable after the primary procedure.

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EXPOSURE IN REVISION TKA-AVOIDING EXTENSOR DISRUPTION

Exposure is often difficult while performing revision surgeries. It is necessary to decide if a proximal soft tissue intervention like quadriceps snip or “turndown” V-V Quadriceps plasty or atibial tubercle osteotomy is necessary. Often these are not necessary if care is taken to do a synovectomy and remove all scar from the deep surface of the patellar tendon and re-establishment of the para-femoral gutters. All scar tissue that binds the quadriceps to the femur should be removed. Lateral patellar retinacular release and a gentle manipulation or flexion of the arthroplasty before failed components are removed are helpful in stretching the extensor mechanism. In stiff or infected TKA were exposure is difficult, a proximal, posteromedial release that includes the insertion of semimembranosus (as is used to correct varus deformities) allows almost complete external rotation of the tibia and dislocation of the knee, effectively lateralisering the tubercle. However tubercle osteotomy or proximal soft tissue procedures should not be avoided at the expense of complications like a patellar tendon avulsion.

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THA FOR THE BONY ANKYLOSED HIP AT NON-FUNCTIONAL POSITION

Co-authors: Ali-Rehei · Xu boyong, Cao II

Objective To explore the characteristics and clinical outcomes of total hip arthroplasty (THA) in middle-aged and young patients with bony ankylosed hip at non-functional position. Methods 140 patients (9 males,5 females,19 hips) with bony ankylosed hip at non-functional position underwent THA in our hospital from January 2010 to March 2013 were retrospectively studied. The average age was 37.5years (range 23-58 years). The average follow up was 25 months (range 15-48 months).The analysis included Harris score system to evaluate the clinical results and X-ray to observe the prosthesis position, loosening and heterotopic ossification. Results The average Harris score was 86.8±7.7 at the latest follow-up, and there was statistical differences compared with the preoperative score 24.4±7.6 (P<0.05). The rate of excellent and good was 84.2%. X-ray observations of prosthetic location were satisfied, and heterotopic ossification found in two cases (Brooker I level 1 case, Brooker II level 1 case). There were no complications of periprosthetic fracture,loosening or infection in intraoperative and follow-up period. Conclusion THA for the patients with bony ankylosed hip at non-functional position is challenging procedure. The patient who have bony ankylosed hip at non-functional position can get excellent clinical result with THA by skilled and experienced surgeon. [Key words]hip bony ankylosis total hip arthroplasty non-functional position.

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MANAGING BONE DEFECTS IN PRIMARY TKA

One of the long term criteria of a successful TKA is the longevity of survival of the implant-bone construct. Amongst other factors, an important aspect impacting this issue is the ability to have addressed the presence of bone defects during the surgical procedure. In the recently developed countries of the world like India and China, the patient population presents relatively late for the surgical treatment of OA Knees. Primary TKA, is therefore, frequently associated with the need to address defects ranging from minor to the most complex. This lecture covers the subject of a methodological approach to address this surgical challenge.

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ALL POLY TIBIA: ALL WE NEED

Ten year results of the All-Poly Monoblock Tibia in a patient population with high flexion postures as part of their routine Activities of Daily Living (ADL). Over the last few decades, the All-Poly Monoblock Tibia has been relegated to a minimum use in the major healthcare systems of the western world. The main reason for this has been the perception that this tibial component is inferior in its ability to withstand stresses. This perception originated and subsequently gained ground, due to certain historical reasons, leading to the widespread use of the modular metal-backed tibial component despite a higher cost. The recent economic downturn has forced even the rich western healthcare systems to look for cost-effective solutions. The author works in India, where the society is still highly price-sensitive and takes value for money very seriously. Further, the routine ADL of the Indian population requires them to adopt high flexion postures such as cross-legged sitting and squatting. The author has used the All-Poly Tibia extensively, which is the most economical of tibial components. Further, he has developed a surgical technique which has resulted in his patients achieving high flexion (greater than 135 degrees) in more than 75% cases. This study presents the 10 year results of a series of 500 cases of Primary TKR in which the All-Poly Monoblock Tibia had been used. All the patients had cross-legged sitting activity as part of their ADL, thus presumably generating significant

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DIAGNOSIS AND MANAGEMENT OF INFECTED TOTAL JOINT ARTHROPLASTY - UPDATE

Prosthetic Joint Infection (PJI) is a major challenge and area of concern in the field of Arthroplasty. Despite decades of work in this area, the clinician still faces a dilemma both in terms of diagnosis and treatment of infection following TJA especially the late onset type.

This lecture will offer information on the recent most knowledge accumulated in the collective experience of the world fraternity and the guidelines offered by the recently concluded ‘International Consensus Meeting on Periprosthetic Joint Infection’.

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KNEE BEARING SURFACES: ALL THE SAME

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THA FOR DDH - CRITICAL ISSUES

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MANAGEMENT OF PERIPROSTHETIC FRACTURE

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SINGLE STAGE MANAGEMENT OF INFECTED TKA

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KNEE BEARING SURFACES: ALL THE SAME

The numbers of Total Knee Replacement (TKR) is increasing in younger and more active patients with increased life expectancy. The shift in demographics seeking knee replacements will require an increased longevity of implant. Polyethylene wear and subsequent osteolysis continue to be the leading cause of late implant failure. In order to address the ongoing problem of wear, there has been the recent introduction of modern rotating platform mobile bearing implants as well as highly crosslinked polyethylene and Vitamin E doped polyethylene. Over the last decade, a range of new processing, sterilization, and cross-linking methods have been developed. While stability and resistance to oxidative degradation have been substantially enhanced, this remains a concern with polyethylene. Crosslinking and heat treatment and doping with Vitamin E of Ultra High Molecular Weight Polyethylene (UHMWPE) to create Highly Cross Linked Polyethylene (HXLPE) are now widely used in an attempt to reduce free radicals and subsequent oxidative degradation. Studies have shown that highly cross linked polyethylene is performing very well for hip replacement. While cross-linking reduces surface wear, it also reduces the mechanical properties that can lead to pitting and delamination. Therefore, the usage of HXLPE as bearing material in Knee Prostheses remains controversial, as the wear mechanisms and load dynamics are different than those encountered in hip replacement implants. Several clinical studies have demonstrated the safety of HXLPE in THR at 2 and 5 years, respectively. The results of prospective randomized trials with sufficient follow-up will ultimately be required to demonstrate efficacy. Sharkey PF, Hozack WJ, Rothman RH, et al: Insall Award paper: Why are total knee arthroplasties failing today? Clin Orthop Relat Res 2002;404:7-13. Naudie DD, Ammeen DJ, Engh GA, et al: Wear and osteolysis around total knee arthroplasty. J Am Acad Orthop Surg 2007;15:53-64. Oral E and Orhun K Muratoğlu OK: Vitamin E diffused, highly cross-linked UHMWPE: a review. International Orthopaedics (SICOT), 2011 vol. 35 (2) pp. 215-223. Lachiewicz PF, Geyer MR: The use of highly cross-linked polyethylene in total knee arthroplasty. J Am Acad Orthop Surg, 2011 vol. 19 (3) pp. 143-151

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ROLE OF CEMENT IN REVISION THA

The role of cemented fixation in the setting of Revision THR has become much more limited since the advent and widespread implementation of modularity, improved porous ingrowth implant surfaces, and reconstructive techniques. On the acetabular side, the recent introduction of highly porous metal surfaces and modular augment has greatly improved the revision surgeon’s ability to reconstruct bony defects and achieve secure fixation in almost all circumstances. As well, on the femoral side, tapered stems, modularity and extensive porous coating have made it possible to reconstruct all but the most deficient femora. Still, there are limited indications and select circumstances where cement fixation may be considered, including the presence of the surgery and the comfort and confidence level with modern cementing techniques in the revision setting. These indications include cement with cement if the existing mantle remains well fixed to bone, cemented acetabular components in diseased (i.e. sclerotic, such as radiated) pelvic bone, and in Paprosky type I femurs (possibly II) where the bone stock is essentially the same as with a primary THR. Reported rates of success using cemented femoral fixation appear to be somewhat inferior to modular or fully coated monoblock stems. Recent reports suggest that cemented fixation for the femoral component be considered only for the elderly, low demand patient with good femoral bone stock. Brogan K, Charity J, Sheeraz A et al: Revision total hip replacement using the...

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ARTHROPLASTY IN ASIA PACIFIC: EDUCATIONAL CHANGE

As we reach the middle of the second decade of this century, Asia’s economic and political rise to the forefront of world affairs is undeniable. As with many other industries, such as technology, transportation, communications, manufacturing, energy, and finance, healthcare is advancing rapidly as well. Keeping pace with the rapid paradigm changes in Asia will be a major challenge of this century for those of us in health care, as the health care needs of Asia’s populations will only increase with time. Therefore, it is incumbent upon our societies and academic institutions to innovate new methodologies to meet the challenge of dissemination of knowledge, techniques and advancing cutting edge research. World Orthopedic Alliance (WOA) was initiated in COA 2011 and was established officially in 2012 with access to nearly 100,000 orthopedic surgeons and researchers in China. WOA bears the mission to create a neutral platform for the academic exchange and continued education for the developing countries where equal educational opportunities are in great demand. To that end, I am working to develop WOA website which will feature the classic surgical videos, presentations, interviews, cases, papers, and live webinars to enhance this educational opportunity. WOA is an international non-profit association dedicated to the advancement of high quality musculoskeletal care in developing countries. WOA has a unique set of features designed to develop musculoskeletal care in the emerging markets. These include: ... High quality training programs to improve the level of care in orthopedics: WOA is dedicated to offer high quality events, symposia, and courses featuring lectures, hands-on practical exercises and interactive discussion groups for surgeons and Operating Room Personnel, helping them to acquire the specific and current state of knowledge to fit their needs and clinical practice. ... Effective communications platform: WOA is an effective communications platform where orthopedic surgeons and medical devices companies, global or regional, could communicate and collaborate to unite efforts to improve musculoskeletal care in China and the rest of the developing countries. ... Experienced advisors from leading global orthopedic organizations and corporations: WOA has enlisted the support of a team of globally recognized leaders in orthopedics to shape WOA activities to be mutually beneficial for the orthopedic surgeons and the industry that supports it.

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INTRODUCTION OF NEW TECHNOLOGY IN ORTHOPAEDIC SURGERY: LESSONS LEARNED FROM TOTAL JOINT ARTHROPLASTY

I. Introduction
A. Orthopaedic surgery: The most dynamic specialty in medicine
B. A self-sustaining cycle of dynamism: dynamic specialty - best and brightest doctors - rapid advances - dynamic specialty
C. Innovation: A two-edged sword: 1. When it works: patients benefit 2. When unexpected problems occur: Patients may suffer 3. Reflections on past several years: examples of risks of new technology 4. Avoid over simplification: a. “Everything new is a step forward” b. “Anything new is risky, let’s stick with what we have”

II. Example of Charnley THA: Successful Introduction of New Technology
A. There was a problem with no good existing answers
B. Innovation overcame problems
C. Failures were studied carefully and the technology evolved
D. Special training was required before performing the procedure

III. Example of Minimally Invasive THA/TKA: Problematic Introduction of New Technology
A. Hyped by all parties
B. Introduced with no regulation and little special training
C. Higher complication rates ensued
D. Unexpected benefit: pain/rehab protocol advances

IV. New Bearing Surfaces in THA: An example of mixed success and failure
A. Crosslinked polyethylene: A success story
   1. Careful preclinical testing
   2. Not a radical departure from the previous technology (conventional polyethylene)
   3. Excellent results at 10(+) years
B. Metal-on-metal: Not a success story
   1. A major departure from previous technology
   2. Unexpected problem of adverse local soft tissue reactions
   3. Widespread introduction compounded eventual magnitude of problems

V. Conclusions
A. The better the current technology, the more carefully new technology should be vetted and introduced.
B. A balance:
   1. Introduction policies too restrictive: progress stagnates
   2. Introduction policies too permissive: unnecessary risk to a large population
C. We need a more nuanced approach to new technology introduction; we need to consider:
   1. How good are the existing devices/technology?
   2. How great is the risk of new technology/device?

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MANAGEMENT OF DDH WITH UNCEMENTED TOTAL HIP ARTHROPLASTY

I. INTRODUCTION
A. Developmental dysplasia of the hip is among the most common hip diagnoses leading to hip pain, arthritis and hip surgery in young patients.
B. Advances in treatment have led to more technically straightforward reconstructions, and better functional results and durability.

II. INDICATIONS FOR ARTHROPLASTY
A. Advanced degenerative disease
B. Anatomy/personality unfavorable for osteotomy
C. Older patient

III. CLASSIFICATION: CROWE

III. Commercial"
I. METAL-ON-METAL: ASSESSMENT AND INDICATIONS FOR REVISION

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II. Accurate Assessment of the Failed THA

1. Introduction
   A. Metal-on-metal implants and implants suspected of possible taper corrosion may be followed and evaluated in a similar manner.
   B. This talk will focus only on patients with symptoms, and not on the routine follow-up of asymptomatic patients.

II. History and Physical Examination

A. Typical findings of local inflammatory adverse soft tissue reactions due to metal debris/ions around THA:
   1. HX: Groin pain; sometimes also buttck or lateral hip pain. Usually insidious in onset occurring months or years after previously successful pain-free THA.
   2. PE: Often overwhelming. Sometimes an irritable hip consistent with synovitis. Sometimes local fluid collection present.

III. Evaluation

A. Don't omit usual and standard workup for painful THA: look for implant loosening (plain x-rays), infection (ESR, CRP, aspiration if needed), psoas tendonitis, etc.
B. Co/Cr levels: Use a reliable lab. Chromium often greater than cobalt in metal bearing wear; cobalt often greater than chromium in taper corrosion cases. Levels of either ion greater than 7 ppb are of concern and greater than 4 ppd suggest a problem may be developing. No single metal level can be used as threshold in all patients for revision.
C. 3-D imaging to look for synovitis, fluid collections, "pseudotumors" is very helpful. Best test is MRI with optimal metal suppression sequences.

IV. Indications for Surgery

A. Indications still evolving. Combination of pain, increased cobalt/chromium levels and local soft tissue fluid collection are most common "trials" of indications. Very high Co/Cr levels, any evidence of systemic effects of cobalt, severe symp toms, or MRI with notable soft tissue damage all increase the strength of indications for surgery.
B. Do a good job of debriding the local soft tissue reaction—get the metal-laden synovium or cyst linings out of the system if possible. Carefully spare healthy muscle and surrounding soft tissue.
C. Be aware that hip instability after these procedures is a potential and make operative/implant choices accordingly.

V. Bone Deficiency Management

A. Large metal implants can substitute for bone, but they do not restore bone
B. Particulate bone graft can restore bone stock in both the acetabulum and femur

VI. Avoiding Complications is Critical

A. Even if some other features of the "triad" are not present.

VII. Priorities in Revision THA

A. #1: Stable durable implant fixation
B. #2: Avoid creating new problems
C. The key to pain relief
D. The best way to preserve bone and prevent complications is to stop the cycle of revisions
1. Choose simple reproducible techniques
C. #3: Preserve or augment bone stock when possible, but remember this is the third, not the first, priority.

Dan Gannon
USA

THE PROS AND CONS OF DIRECT ANTERIOR TOTAL HIP USING A STANDARD TABLE

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BENEFITS OF TAPER STEM DESIGNS

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PATELLOFEMORAL KINEMATICS IN THE NATURAL AND RESURFACED KNEE

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CEMENT TECHNIQUE IN TKA

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UNICOMPARTMENT ARTHROPLASTY: INDICATIONS AND RESULTS

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WHY DO KNEES FAIL?

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STEMS AND AUGMENTS IN REVISION TKA

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PLANNING FOR REVISION TKA

In contrast to primary hip arthroplasty, revision surgery involves additional challenges and difficulties due to the presence of scar tissue making exposure more complex, old components that need to be removed, and defective and compromised bone which is easily damaged. Success in revision hip surgery therefore requires a specialized skill set, with knowledge and experience with specialized techniques, and the equipment and implants to handle complex scenarios. The first step to successful revision hip arthroplasty is thorough pre-operative planning. This means going through each and every step of the procedure beforehand, and in doing so anticipate the surgical findings, any difficulties that may be encountered and possible solutions. The aim is to devise a clear plan for the reconstruction but also importantly to have multiple back up plans in case the unexpected happens. By clearly setting out the surgical plan, the surgeon can ensure all the necessary equipment, correct implants and bone graft requirements are available. Pre-operative planning begins with making a diagnosis of the mode of failure and reason for revision. Accurate diagnosis improves the chance of successful treatment. A history of the initial surgical episode, pain profile, additional symptoms and thorough physical examination are useful in making the diagnosis. Investigations should include inflammatory markers to exclude infection, as this can often be occult. C-reactive protein and erythrocyte sedimentation rate combined with white cell count, differential and culture of a joint aspirate are usually sufficient to diagnose deep joint infection. Good quality radiographs showing the full extent of the existing implants are imperative to plan implant removal technique and choice of reconstruction method. Osteolysis is often underestimated on the acetabular side with plain radiographs and so CT scans provide additional useful information. Recent advances include high resolution CT scans with the ability to subtract metal artifact, 3D modeling techniques as well as dynamic assessment of hip motion. In conclusion, pre-operative planning is the first step in revision total hip arthroplasty. It is important to devise a clear plan and a back up plan prior to the surgical procedure to ensure safe efficient surgery, minimize the risk of complications and improve the chance of success.

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LEG LENGTH - GETTING IT RIGHT

Leg length discrepancy following total hip arthroplasty continues to be clinically important issue. Consequences include pain, a limp, as well as systemic physiologic effects, culminating in reduced patient satisfaction, and possible revision surgery and litigation. The incidence ranges from 1% to 32% depending the method of measurement. Absolute equalization is difficult and leg length discrepancy following total hip arthroplasty can’t be eliminated. There is no clear cut off value for what degree of discrepancy is acceptable. Discrepancy is usually perceived if lengthening of greater than 6mm or shortening of greater than 10mm occurs. Most studies however report that less than 10mm of leg length discrepancy has little impact on patient satisfaction. Minimising the risk of significant leg length discrepancy is therefore important and surgeons should be proactive in achieving this. Strategies include 1. Patient education 2. Pre-operative leg length measurement and assessment 3. Pre-operative planning and templating 4. Intra-operative leg length measurement techniques 5. Intra-operative assessment of hip soft tissue tension and range of motion Surgeons need to be aware of the pitfalls of the various methods of intra-operative leg length assessment. A functional but transient leg length inequality is common for 3 to 6 months following total hip arthroplasty. Post-operative management should focus on correcting hip peri-articular soft tissue tightness and pelvic and spinal posture.

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and pre-operative iron infusions in our patients.

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DIRECT ANTERIOR APPROACH–CURRENT EVIDENCE

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CERAMIC-IS IT THE LONG TERM BEARING?

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UNCEMENTED STEM SELECTION-MATCH THE STEM TO THE ANATOMY

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RADIOULCENT LINES AROUND TRITANIUM UNCEMENTED CUPS

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UKA FOR OSTEOEUCROSIS OF THE KNEE

The knee is, after the hip, the second most common localization for osteonecrosis (ON). Osteonecrosis of the knee can be classified as primary/spontaneous (SON/SPONK) or secondary/ischaemic/traumatic (SON). The primary form was first described by Ahlback et al in 1968 and is, therefore, also called Ahlback's disease. The medial condyle is major part (99%) mostly affected by SONK, quite often occur in elderly females. Secondary ON of the knee is caused by a variety of factors such as systemic steroid therapy, alcoholism, haemoglobinopathies, lupus erythematosus and many others. This form is seen more often in younger (<55 years) patients and in up to 80% bilaterally with multiple lesions. There are suggestions for a current concept for treatment of SONK: conservative treatment for small lesions without evidence of structural collapse, core decompression for relief of pain and possible delay in structural collapse, and either UKA or TKA for the advanced disease. As in the treatment of OA of the knee the choice of treatment should be based on a variety of factors: these include patient age and severity of his complaints as well as his activity level and functional demands on the knee. Extend and stage of the lesion and the degree of OA in the other compartments are essential for decision making. The operative procedures range from arthroscopy over osteotomy to unicompartmental or total knee arthroplasty.

Unicompartmental knee arthroplasty (UKA) is a treatment option for patients with arthrosis of the medial compartment knee. As surgical techniques and instruments have improved, this procedure has shown many advantages in treatment
of anteromedial osteoarthritis (AMOA) over total knee arthroplasty (TKA), such as less soft tissue injury, a smaller incision, minimal bone resection, preservation of normal knee kinematics, reduced hospital stay and more rapid recovery. SONK mainly affects the medial femoral condyle, and its anatomical features is similar to AMOA (focal loss of bone and cartilage in the medial compartment with the ligament intact). Therefore, UKA seems to be an appropriate procedure, particularly for patients older than 65 years with unaffected lateral and patellofemoral compartments. Some surgeons believe joint arthroplasty is the only reasonable treatment for late-stage SONK with secondary articular collapse. Data on treatment of SONK by means of UKA is scarce. The aim of this study is to explore the outcome and surgical technique of minimally invasive unicompartmental knee arthroplasty (UKA) for spontaneous osteonecrosis of the knee.

Our study From January 2009 to June 2013, twenty-seven cases with medial compartmental spontaneous osteonecrosis treated by minimally invasive Oxford phase 3 UKA were reviewed retrospectively. Twelve knees were male and 15 female, with an average age of 64.6±8.6 years (52-82 years). At the time of diagnosis, 11 patients presented with grade III necrosis, and 16 grade IV, following Mont’s classification. The pain, range of motion (ROM) and HSS score of the knees were evaluated before and after UKA. Pre-and post-operative alignment of the low limbs were measured and compared respectively. According to the guidelines proposed by the Oxford group, postoperative radiographic assessments were made at the final follow-up. All of the patients were followed up for a mean time of 27.8±15.9 months (6-59 months). There were no serious adverse events, such as infection, bearing dislocation, aseptic loosening, pulmonary embolism, deep venous thrombosis, cardio-cerebral vascular incident or psychogena. There was 1 revision from unrelated causes (fracture of tibia plateau) at 3 years after arthroplasty. One femoral component was tilted with postoperative radiographic angle >10°. One radio-luent line was observed in the SONK series. There were no clinical symptoms of the two implants failure at last follow up. VAS score was reduced from 6.9±0.9 to 2.0±1.1 (t=19.27, P=0.00, <0.05). Pain was relieved 96.3% (26/27). The mean post-operative ROM and femorotibial angle were 125.7°±9.6°, 177.7°±3.1°, respectively. HSS score was increased from 61.3±9.7 to 93.0±4.8 (t=14.46, P=0.00, <0.05). Of the patients, 96.3% patients (26/27) were satisfied with the outcome of this surgical procedure.

Conclusion: Minimally invasive UKA is an effective method for spontaneous osteonecrosis of the knee with less trauma, quick recovery. The early outcome is encouraging.

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TRENDS IN USE OF TOTAL KNEE ARTHROPLASTY IN KOREA FROM 2001-2010
Co-authors: Yong In, Tae Kyun Kim, Min Woo Kim, Ju Hwan Kim

Background: The use of total knee arthroplasty (TKA) has increased substantially in most Western countries. However, the trends in TKA use and changes in demographic characteristics of patients having TKA in Korea remain unclear. Questions/purposes: We documented the trends in TKA use and in the demographics of patients undergoing TKA in Korea over the past decade and determined whether current TKA use in Korea corresponds to worldwide trends. Methods: Using the Health Insurance Review and Assessment Service (HIRA) of Korea database, we analyzed TKA records (n = 398,218) from 2001 to 2010 in Korea. Trends in TKA use and demographics, including numbers and rates of primary and revision TKA, growth rate and the revision burden, and age- and sex-specific rates, were estimated. They were compared with nationwide TKA registry reports, and a systematic review was performed. Results: Over the past decade, the primary and revision TKA rates increased by 407% and 267%, respectively. However, the revision burden remained 2%. The highest proportion was observed in 65 to 74 year olds and the greatest increase in 75 to 84 year olds, but a decrease was observed in 55 to 64 year olds. Women consistently had a ninefold higher TKA rate. The primary TKA rate was comparable with that of other countries, but the revision burden remained lower. In addition, old and female patients comprised considerably higher proportions in Korea. Conclusions: Over the past decade, TKA use in Korea has markedly increased and caught up with the use levels of most developed Western countries. Trends toward consistent growth in elderly patients and higher rates in females were observed. Appropriate healthcare strategies reflecting these trends in demographics are urgently needed in Korea.

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EXPECTATION FULFILLMENT IN BASeline ACTIVITY, PSYCHOLOGICAL WELL-BEING, AND PAIN RELIEF IS THE MAJOR DETERMINANT OF OVERALL PATIENT SATISFACTION AFTER TKA
Co-authors: Yeon Gwi Kang, Nimesh Jain, Young Dong Song, Sung Yup Lee, Tae Kyun Kim

Background: Although total knee arthroplasty (TKA) is considered a very successful treatment option for osteoarthritis (OA) with traditional outcome measures, patients’ satisfaction rate after TKA is lower than clinical success rate. To improve satisfaction rate, surgeons must understand which factors affect satisfaction. Patients’ expectations about surgery and their fulfillment are important determinants of satisfaction, but few studies focused on specific pattern of expectations and their fulfillment after TKA. Questions/purposes: We aimed to determine how patients’ expectations about TKA are fulfilled and how the fulfillment of various expectations is correlated with overall satisfaction using a patient-derived questionnaire regarding patients’ expectations about TKA. We also tried to determine whether other factors such as functional status and sociodemographic factors affect satisfaction after TKA.

Methods: One hundred and twenty two patients who received TKA with the diagnosis of OA and no other significant comorbidities are included. Preoperatively, patients completed a 17-item questionnaire regarding their expectations about TKA. They answered how their expectations in each item are fulfilled at 1 year after surgery, and rated overall satisfaction. Sociodemographic factors were collected, and functional status was evaluated with the American Knee Society (AKS) score, WOMAC index and SF-36 preoperatively and 1 year postoperatively. The rank of the items in expectations and their fulfillment was determined and compared. The correlations between expectation fulfillment versus overall satisfaction and the expectation versus the degree of their fulfillment were evaluated. The correlations between sociodemographic factors and overall satisfaction, functional status and overall satisfaction are also evaluated. Results: Eighty-four percent of patients were satisfied with TKA. Fulfillment of expectation was high in psychological well-being, pain relief and baseline activity category. The degree of expectation fulfillment in baseline activity, psychological well-being and pain relief category was strongly correlated with overall satisfaction. There were no correlations between preoperative expectation and the degree of their fulfillment. Postoperative AKS, WOMAC and SF-36 scores showed correlations with overall satisfaction, but the correlations were weaker than those in expectation fulfillment and overall satisfaction.

Conclusions: This study demonstrates that major determinants of overall satisfaction after TKA were expectation fulfillment in baseline activity, psychological well-being and pain relief. Our finding further suggest that fulfillment of patients’ expectation would be more important than postoperative functional status in determining satisfaction. Surgeons must discuss about various expectations with patients and help them formulate realistic expectations to improve their satisfaction.

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EFFECTIvITY AND SAFETY OF RIVAROXABAN FOR THROMBOPROPHYLAXIS AFTER MAJOR HIP AND KNEE SURGERY IN AN ASIAN POPULATION
Co-authors: Young Goh Na, Young Dong Song, Sung Yup Lee, Tae Kyun Kim

Background: Rivaroxaban showed more effectiveness than standard agents in reducing venous thromboembolism (VTE) without increasing the risk of major bleeding events in large trials (RECORD and XAMOS trials). However, use of Rivaroxaban for VTE prophylaxis in Asians may not be beneficial and may increase the risk of bleeding, because risk of VTE in Asians may be lower than in Westerners, and Asians are smaller than Westerners. But there are few reports about the outcome after VTE prophylaxis with Rivaroxaban in Asians. Questions/purposes: As a subgroup analysis of XAMOS study, this study was conducted to determine whether Rivaroxaban is superior to other standards of VTE prophylaxis in Koreans in terms of efficacy and safety. We also examined whether there are differences in efficacy and safety of Rivaroxaban in Koreans compared to those in XAMOS population. Methods: XAMOS is a non-interventional, open-label...
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SIDE TO SIDE DIFFERENCE OF WHOLE LIMB TORSION
Co-authors: Yong-Bong Ko MD  
Abstract Background: A careful consideration of change of the rotational alignment of total limb after total knee arthroplasty is necessary. The aim of the present study was to evaluate the differences of rotational profiles of total limb between operated and non-operated limb following unilateral total knee arthroplasty. Methods: We conducted a retrospective analysis of the CT data from 32 patients undergoing primary unilateral total knee arthroplasty using measured resection technique, fixed bearing and conventional method from July 2009 to April 2013 in our hospital. Using these CT studies, limb rotational alignment parameters such as femoral torsion angle (FTA), tibial torsion angle (TTA), neck-malleolar angle (NMA), knee joint rotation angle (rotational mismatch; KJRA) and total limb rotation (TLR) were measured. Results: There were no significant differences of TLR, TTA and NMA between operated and contra-lateral limb following total knee arthroplasty. However, the difference of operated and non-operated side for TTA and KJRA were -6.5 ± 11.9° (p=0.0041) and -6.8 ± 5.9° (p=0.00001) respectively. We followed 8 patients who showed absolute femur torsional difference greater than 15° between both limbs. In addition, there were 5 patients which showed more than 0° of side to side difference of TTA. Conclusion: With comparison with non-operated side, although FTA is significantly decreased in operated limb following total knee arthroplasty, however there was no significant difference of TLR, because of the compensatory effect of the rotational mismatch (KJRA).

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AGE AND AMERICAN SOCIETY OF ANESTHESIOLOGISTS CLASSIFICATION ARE REASONABLE GUIDELINES FOR DECISION OF ONE-STAGE BILATERAL TOTAL KNEE ARTHROPLASTY
Co-authors: Yong-in, Jin Jun Koh, Ju Whan Kim  
Introduction: One-stage bilateral TKA (BTKA) is often recommended for patients in very low functional status, where one leg is contraindicated for primary TKA. One-stage BTKA is still controversial. American Society of Anesthesiologists (ASA) classification is widely used to choose the suitable candidate for one-stage bilateral total knee replacement. The aim of this study is to compare the ASA score with the age and one-stage BTKA outcomes. Methods: We retrospectively reviewed 386 TKAs (686 UKAs, 319 SBTKA, and 181 1W SBTKA) records of 1,386 primary osteoarthritic patients, performed between 2007 and 2013. We recorded patients demographics (age, sex, BMI), preoperative co-morbidities (DM, cardiovascular, neurologic, pulmonary, renal, VTE), ASA score and postoperative major and minor complications. We divided patients into low risk group (< 75 year and ASA < 3) or high risk group (≥ 75 year or ASA ≥3) according to their age and ASA score. We compared incidences of complications between UTKA and SBTKA group in low risk group, and those between UTKA and 1W SBTKA in high risk patients. Results: Overall 165 complications were occurred (12.1%) in 2,086 TKAs. Overall incidence of complication of UTKA, SBTKA, and 1W SBTKA group were 10.1%, 14.1%, and 12.7%, respectively. (p=0.09) In the low risk group whose age, sex and BMI were matched, no differences in major (0.6% vs. 2%), minor (8% vs. 9%) and overall (8% vs. 11%) incidence of complication between UTKA and SBTKA group were observed. (p>0.1 in all comparison). In addition, incidences of major (2% vs. 4%), minor (11% vs. 12%) and overall complication (13% vs. 15%) between UTKA and 1W SBTKA of high risk patients whose age, sex and BMI were matched were similar.
A RANDOMIZED PROSPECTIVE STUDY COMPARING THE QUALITY OF SURGICAL FIELDS RESULTING FROM AUTOMATICALLY DETERMINED Tourniquet Cuff Pressure versus Surgeon Chosen Tourniquet Cuff Pressure

Co-authors: Alastair Younger / Kevin Wing / Collin Meakan

Purpose: To compare the quality of the operative field when the tourniquet cuff pressure is determined automatically using a limb occlusion pressure measurement versus when the tourniquet cuff pressure is chosen by the surgeon. Methods: A module allowing rapid determination of limb occlusion pressure was attached to an attached AT’s tourniquet pump machine. The software was modified to add a pressure increment to the determined limb occlusion pressure measurement. Using a coin toss, patients were randomized to the automatically determined pressure group or a control group in which tourniquet pressure was determined by the treating surgeon. Results: Of 243 patients, 112 were assigned to the study (limb occlusion) group and 132 to the control (surgeon) group. 6 patients (5%) failed to obtain a limb occlusion pressure measurement due to anatomical constraints (toe or thigh shape) or equipment problems, leaving 106 in the study group. The average measurement time to determine limb occlusion pressure was 20 +/- 6 seconds. All patients underwent elective foot and ankle operations by two surgeons using a wide tourniquet cuff. The mean tourniquet pressure for the study group was 198.5 +/-20.2 mmHg, and 259.6 +/-4.4 mmHg for the control group (p<0.01). A RCT of randomly selected patients undergoing foot and ankle operations was conducted either with automatically determined limb occlusion pressure (limb occlusion) group or with surgeon chosen tourniquet pressure (control) group. Secondary outcomes measures were documented pre and postoperatively using the ASIA-PACIFIC Foot and Ankle Outcome Score. Results: Average operative time for the limb occlusion group was 80.3 +/-17.6 minutes compared to 89.5 +/-27.4 minutes for the control group (p<0.01). Average blood loss was 286 +/-117.9 ml for the limb occlusion group and 443 +/-296.4 ml for the control group (p<0.01). Conclusion: The use of automatically determined tourniquet cuff pressure resulted in a significantly shorter operative time and lower estimated blood loss for foot and ankle operations compared to surgeon chosen tourniquet cuff pressure. This finding has substantial implications for optimizing surgical outcomes in foot and ankle surgery. A comparison of the quality of the operative field when the tourniquet cuff pressure is determined automatically using a limb occlusion pressure measurement versus when the tourniquet cuff pressure is chosen by the surgeon. Methods: A module allowing rapid determination of limb occlusion pressure was attached to an attached AT’s tourniquet pump machine. The software was modified to add a pressure increment to the determined limb occlusion pressure measurement. Using a coin toss, patients were randomized to the automatically determined pressure group or a control group in which tourniquet pressure was determined by the treating surgeon. Results: Of 243 patients, 112 were assigned to the study (limb occlusion) group and 132 to the control (surgeon) group. 6 patients (5%) failed to obtain a limb occlusion pressure measurement due to anatomical constraints (toe or thigh shape) or equipment problems, leaving 106 in the study group. The average measurement time to determine limb occlusion pressure was 20 +/- 6 seconds. All patients underwent elective foot and ankle operations by two surgeons using a wide tourniquet cuff. The mean tourniquet pressure for the study group was 198.5 +/-20.2 mmHg, and 259.6 +/-4.4 mmHg for the control group (p<0.01).
method was 0.95 with std deviation of +/-0.195 The median for the Blackburne peel method was 0.78 with std deviation of +/-0.24 Any ratio lower than (Median - 1 SD) was considered Patella Baja Based on above measurement we had the following results ; For Group A patients Insall Salvati method : 12 Patella Baja cases 16.4% Blackburne peel method : 15 Patella Baja cases 20.5% For Group B Insall Salvati method : 2 Patella Baja Cases 3.5% Blackburne Peel method : 3 Cases 5.5%

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VENOUS THROMBOEMBOLISM PREVENTION IN IN ASIA: CURENT PRACTICE AND UN-MET NEEDS
The incidence of postoperative venous thromboembolism (VTE) in Asian population is generally thought to be lower than in Western populations and the use of chemical thromboprophylaxis after surgery is not routine due to lack of protocol in most Asian hospitals. Orthopaedic surgeries such as THR, TKR & HFS have been identified as high risk factors for VTE. The author reviews the available data on incidence of VTE post major orthopaedic surgeries in Asian populations, considers current clinical guidelines for the prevention of VTE to determine whether these guidelines are applicable to Asian populations and evaluates the potential of new thromboprophylactic agents. Based on the available evidence, it was agreed that VTE represents a genuine problem in Asian patients, although the exact number of incidence in local populations requires confirmation in large, well-designed randomized clinical trials due to current varying results from different studies within the same population. Clinical practice guidelines have been published by several professional organizations, while some hospitals have established their own protocols. The two most popular guidelines are those published by the Academy of Orthopaedic Surgeons (AAOS) and American College of Chest Physicians (ACCP), both from North America. Prior to 2012, these recommendations varied depending on underlying definitions, methodology and goals of the two groups. For the first time, both groups have similar recommendations that focus on minimizing symptomatic VTE and bleeding complications. The key to determining the appropriate chemoprophylaxis for patients is to balance efficacy of a prophylactic agent, while being safe in regards to bleeding complications. New oral thromboprophylaxis currently available represents an effective and more convenient option for orthopaedic patients. The author concludes that VTE is a prevalent issue in Asian patients. Therefore effective and clear protocols or guidelines pertaining thromboprophylactic agent for VTE prevention need to be implemented in Asian hospitals in order to improve care for at risk orthopaedic patients.

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CAS: DREAMS OR FACTS? THE VALUE OF DAILY WORK IN TKR
Computer navigation has been introduced as an adjunct to Total Knee Arthroplasty (TKA) to assure precision positioning, accurate bone resection and optimal component alignment. Using Computer Assisted Navigation in TKA was a hotly debated issue in United States and elsewhere. Although Computer Navigation has progressed from the 1st generation to the current 3rd generation system, there are still no clearly tangible, apparent long term clinical benefits. There is some evidence that using Computer Assisted Surgery may lower the incidence of malalignment of mechanical limb axis compared to conventional component placement methods, but it is unclear whether this marginal benefit will translate to concrete positive long term outcomes. AAHKS survey results indicated that the majority of Orthopedic Surgeons were not using computer navigated surgical techniques. The implementation of CAS met with so many hurdles and obstacles because its approach consumes more time and a long learning curve, which translates to added cost and complexity. It is also labor and equipment intensive but only increases accuracy in the “right” hands. Lack of popularity for CAS has induced the innovation of Patient Specific Jigs which has been proven to be extremely accurate, efficient with respect to time and allows surgeons to navigate the operation prior to the procedure. Since CAS remains unpopular in the US, it would be even less popular in Asia for the obvious reasons of high cost, lack of experts to handle technical difficulties, lack of publicity, and the paucity of beneficial expert testimonies. The “Better, Cheaper, Faster” culture is fully ingrained in the minds of most Asian Arthroplasty surgeons and CAS would seem to only fulfill the “Better”, but not the “Cheaper and Faster” expectations in most hands.

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INFLUENCE OF POSTERIOR CONDYLAR OFFSET ON MAXIMAL FLEXION AND OUTCOME SCALES FOLLOWING TKA IN ASIAN PATIENTS – A COMPARISON OF FIXED AND MOBILE BEARING CR AND PS KNEES.
Co-authors: Tae Kyun Kim, Sae Kwang Kwon
Background: Alterations in femoral posterior condylar offset (PCO) have been reported to influence maximal flexion after TKA. However, effects of PCO alterations may vary with implant type. Question / purposes: The purpose of this study was to determine whether PCO alterations affect the functional outcomes of TKA including maximal flexion, and whether effects of PCO alterations differ with implant type. Patients and Methods: We retrospectively reviewed 1300 consecutive TKAs performed using four implant types, fixed bearing cruciate retaining and posterior stabilized, mobile bearing cruciate retaining and posterior stabilized, so as to select 50 TKAs with each implant type. Patients were evaluated for maximal flexion and clinical outcomes scales. PCO was measured using pre- and post-operative true lateral radiographs. Correlations between PCO alterations and functional outcomes including maximal flexion were compared among four groups by implant type. Results: No significant association was found between PCO alterations and maximal flexion achieved among all four implant groups (CC= -0.03, 0.14, -0.14, 0.04; p= 0.05). The mean maximum flexion after TKA was greater in Posterior Stabilized than Cruciate Retaining implants (p<0.05).

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CORRECTING STIFF KNEE AND FIXED FLEXION DEFORMITY

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EXPOSING THE DIFFICULT KNEE

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DEALING WITH VARUS KNEE DEFORMITY

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TOTAL HIP ARTHROPLASTY AFTER INFECTION

THA in the ankylosed hip is a technically challenging procedure, and the overall clinical outcome is generally less satisfactory than routine THA performed for other etiologies. 22 fused hips in 16 patients were converted to total hip arthroplasty. The mean age of patients was 32.5 years. The indications were disabling pain in back or hip or loss of motion due to malpositioned hip joint. The surgical approach was posterior in all cases. In four hips trochanteric osteotomy was done. Total of 10 joints were Cemented hips and 8 were uncemented and 4 with hybrid fixation. This decision was made depending upon the quality of bone after appropriate reaming for the acetabulum. Functional outcome may take a long time to have good functional ability. We had followup ranging from 2 years to 8 years with average of 4.6 years. Relief occurred after the surgery in these symptoms in all patients to a variable extent. The postoperative arc of flexion averaged 80 degrees. Limb-length discrepancies improved an average of 2 centimeters. Complications included hetero-ossification in 2 cases and failure of trochanteric fixation in one case. Two hips had lateralized position of the cup. The mean Harris hip score at the final available assessment was 84 with variation ranging from 67 to 94. Improvement was observed in all scales of Quality of life scores as assessed by using WHOQOL. The arthroplasty in ankylosed hip is a good option and gives a highly satisfactory outcome.

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ACETABULAR RECONSTRUCTION IN REVISION SURGERY

A failed acetabular component requiring revision will be associated with varying degrees of peri-acetabular bone loss and this can be compounded iatrogenically during the removal of the implant. Using the Paprosky classification types I and II are usually amenable to cementless revision surgery. In a range of cementless multihole cups are available with porous and HA surface preparations for biologic fixation. For these to succeed you will require at least 50% host bone contact. To optimise this contact to host bone, a range of peri-acetabular porous titanium augment are available with some revision systems. Paprosky Type III defects will often require reconstruction using an acetabular reinforcement device. The Bursch-Schneider cage has good follow up in several series having survivorship from 87% to 93% after 11 years. Application of the device is critical to longevity of the implant, ensuring that the Bursch-Schneider cage sits relatively toggle-free on the superior and posterior rims of the acetabulum. The ischial wing is best engaged within the ischial bone and the superior flange screwed to the ilium with three or four screws after appropriate moulding. The base of the protrusio ring should be extensively grafted with morsellised cortico cancellous chips. The Bursch-Schneider cage is size and side specific and needs to sit anatomically on the posterior wall and column. The acetabular polyethylene cup is then cemented in situ independently to the correct inclination and version needed for stability. At least 30% host bone contact is required for the cage to ensure longevity of the implant. A pelvic dissociation or larger postero lateral defects should be initially reconstructed with bone graft and plate fixation in addition to the acetabular reconstruction cage. Massive defects however require more rigid fixation constructs to ensure success. Cementless reconstruction cages are often malleable to allow manual intraoperative shaping to fit the defect and host bone. This compromises the strength and rigidity of the construct. Availability of custom made CT based triflange reconstruction components addresses these issues ensuring rigidity of the construct in addition to a near complete fit to whatever host bone remains filling the defect as well as a trabecular metal surface for biological fixation. An ideal three pronged approach for these massive defects providing a solution for these difficult clinical problems however cost of the component may be an issue.

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TOTAL HIP ARTHROPLASTY IN ANKYLOIZED HIPS

THA in the ankylosed hip is a technically challenging procedure, and the overall clinical outcome is generally less satisfactory than routine THA performed for other etiologies. 22 fused hips in 16 patients were converted to total hip arthroplasty. The mean age of patients was 32.5 years. The indications were disabling pain in back or hip or loss of motion due to malpositioned hip joint. The surgical approach was posterior in all cases. In four hips trochanteric osteotomy was done. Total of 10 joints were Cemented hips and 8 were uncemented and 4 with hybrid fixation. This decision was made depending upon the quality of bone after appropriate reaming for the acetabulum. Functional outcome may take a long time to have good functional ability. We had followup ranging from 2 years to 8 years with average of 4.6 years. Relief occurred after the surgery in these symptoms in all patients to a variable extent. The postoperative arc of flexion averaged 80 degrees. Limb-length discrepancies improved an average of 2 centimeters. Complications included hetero-ossification in 2 cases and failure of trochanteric fixation in one case. Two hips had lateralized position of the cup. The mean Harris hip score at the final available assessment was 84 with variation ranging from 67 to 94. Improvement was observed in all scales of Quality of life scores as assessed by using WHOQOL. The arthroplasty in ankylosed hip is a good option and gives a highly satisfactory outcome.

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EXTENDED TROCHANTERIC OSTEOTOMY

Conventional trochanteric osteotomy has been associated with rates of non-union of up to 13% in revision THA. Non-union of the trochanter after osteotomy, especially if proximal migration of the trochanter occurs is associated with an abductor limp and a poorer outcome.

Paprosky first described the use of the ETO in “Contemp. Orthop. 30:375, 1995” when utilised to remove a well fixed cementless femoral component. He then reported a large series of 166 cases of ETO used in a revision setting (JOFa 2001) where the non-union rate was 1.2%. The average length of the osteotomy was 14cm. Indications for an ETO include:
- need to revise a well fixed cemented or extensively porous-coated cementless component
- angular deformity of the proximal part of the femur that obstructs cement removal or component re-implantation
- osteolysis or osteopenia of the greater trochanter rendering the bone inadequate for either wire fixation or cable fixation after a conventional osteotomy
- proximal-medial bone loss requiring distal cable fixation for trochanteric reattachment

The advantages of using an extended trochanteric osteotomy is that it offers an extensive exposure for revision of both femur and acetabulum with preservation of the soft tissue attachments to the trochanteric bone fragment. It has the potential of allowing adjustment of the abductor-muscle tension when required. With better visualisation the risks of uncontrolled femoral perforations, eccentric femoral reaming and fractures are significantly reduced.

In removing a well ingrown cementless femoral component or a well cemented femoral component for technical reasons often an extended trochanteric osteotomy will make the procedure quicker and easier. The use of a Gigli saw will allow interface disruption of the medial aspect of the component, allowing extraction. In the presence of a well fixed porous cylindrical stem may need to be cut with a diamond burr and then the cylindrical portion extracted with a trephine.

On completion of the revision procedure the ETO can then be fixed with two or three cables, giving good stability after implantation of the revision component.
PATIENT SPECIFIC JIGS IN TKA

The premise behind successful knee arthroplasty is to ensure that the mechanical axis is restored. This can be achieved using a number of techniques including standard external jigs or by utilising intra-operative computer navigation. Meta-analysis studies have shown standard jigs can restore the mechanical axis in 75% of cases whilst computer assisted navigation may restore the mechanical axis in approximately 90% of patients. The latter however in most reports has been shown to increase the operative time.

New patient specific jigs are now being used or trialled in numerous centres and are associated with technique names including Signature, Trumatch, PSI, Visionaire, My Knee, Prophecy, ShapeMatch and others. The philosophy between systems differs but the generic theme is that it is based on measured resection of bone surfaces to restore alignment but still requires soft tissue balancing to fine tune end result. The alignment aimed for by most is to restore the mechanical axis whilst one system aims for kinematic alignment.

All systems report to offer the accuracy of navigation but with the image based technology of MRT or CT performed pre-operatively so as to save on OT time. From the preoperative imaging the soft tissues are removed leaving the bone and cartilage surfaces from which computer modelling manipulates and predicts implant size and position and the volume of bone resection required to achieve this. The surgeon then has an interactive platform to alter, modify or simply confirm the desired result before approving the software plan. Once approved the guides are then manufactured from medical grade nylon and can consist of pin guides to use with standard cutting blocks or guides incorporating metal cutting slots. Each guide is labelled with patients name and side of surgery.

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OXFORD CEMENTLESS MEDIAL UKA

Antero-medialarthrosis of the knee is well treated with medial UKAs but the results have varied over the last 3 decades with best outcomes reported from larger volume and designer led units. Interest in UKAs for the treatment of mono-compartment disease has therefore fluctuated over the last 2 decades and currently in the Australian National Joint Replacement Registry (ANJRR) UKAs account for 8% of all knee replacement surgery.

The results for “cemented” mobile bearing UKAs are well documented with 10 year survivals well in excess of 90% (Murray ‘98, Svard and Price ‘01, Rajasekar ‘04). Interest in “cementless” systems and techniques has increased with improved surface preparation technology and improved results with cementless systems for total hip and total knee replacements. Furthermore the increasing use of the MIS approach for UKA may be facilitated with the use of cementless implants and the risks of retained cement fragments are eliminated. The Oxford Cementless UKA was introduced for initial use in Australia in July 2004. I now use cementless implants for all UKAs with over 197 implanted. At average follow up of 5yrs there has been one revision for lateral progression of disease and one pain. One bearing exchange for dislocation and two bearing exchanges (same patient) for sepsis. No implants demonstrate evidence of loosening, subsidence or osteolysis. Implant survival of the cementless components is 98.7%.

The ANJRR (Australian National Joint Replacement Registry) 2011 reports on 581 implants with 12 revisions. At 5 years the cumulative revision rate for cementless UKAs is 5.2% and for cemented UKAs is 8.9%. Early clinical follow up of cementless Oxford UKAs shows equivalent functional outcomes to the cemented system with reduced revisions for implant failure and an ongoing stable radiographic bone/implant interface on follow up x-rays. The Oxford UKA has a well-established track record with cemented components and now the Cementless Oxford UKA can potentially offer decreased surgical time, avoiding risk of retained cement fragments and their complications and with longer follow up may demonstrate a better biological fixation for longer term survival.

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POSTERIOR APPROACH TO THE HIP – Still the Gold standard

The posterior approach to the hip joint is a very hardy and reliable approach for exposing the hip joint for a number of indications including:

- total hip arthroplasty
- revision total hip arthroplasty
- hemi-arthroplasty
- open reduction and internal fixation of the posterior wall and column fractures of the acetabulum
- open reduction of posterior hip dislocations and
- drainage and lavage of septic arthritis of the hip joint.

The original description of this approach by Langenbeck in 1874 was combined by Kocher’s classic description in 1892 to form the Kocher-Langenbeck approach. This was modified by Gibson in 1950, McFarlane in 1954 and then Austin Moore popularised the limited exposure for joint arthroplasty in 1957 termed the Southern approach.

More recent modifications have seen a reduction in the size of the skin incision and preservation of the Piriformis tendon. Benefits of the mini-posterior approach remain debatable.

Evolution of other hip approaches in particular the Heuter anterior approach has led to renewed interest in alternatives to the posterior approach. However MIS approaches in the past have been tainted with higher complication rates and the majority have not retained any ongoing utilisation. To be the Gold Standard or benchmark against which all other approaches are measured, a surgical approach needs to be deployable in all patients and all circumstances (ie. High sensitivity) and not have any specific contraindications for its use (ie. High specificity). To this end the Posterior approach remains the Gold standard.

Key elements of the posterior approach required for reproducible outcomes include:

- good pelvic immobilisers used to stabilise both pelvis and patient avoiding loss of position intra-operatively whilst manipulating the leg
- incision has two components with the oblique component being the main working aspect of the approach, commencing 5cms antero-inferior to the PSIS, running to the mid prominence of the greater trochanter. In complex cases this can be extended along the lateral border of femur as long as required
- fascia lata is incised allowing insertion of a finger into the trochanteric bursal space to blunt dissect the gluteus maximus from the deeper structures of the gluteus medius and external rotators before splitting the gluteus maximus
- proximal care needs to be taken to protect the superior gluteal nerve running anteriorly and the inferior gluteal nerve running inferiorly

Ng et al reported a case control series of 464 patients undergoing TKA with PSJ vs standard instruments. They found the mechanical axis was restored in 88% for PSJ TKA and 78% for standard TKAs with outliers beyond +/- 3 degrees of neutral in 9% of PSJ TKA and 22% for standard TKAs. Ball et al confirmed that they could restore the mechanical axis in 29 of 32 PSJ TKAs.

Ritter et al reviewed over 6000 TKAs and reported a failure rate of 0.2% at 2 years if alignment was restored but the failure rate was 8.7% at 2 years if the femoral component was malaligned in varus or the tibial component was malaligned in varus.

Our results utilising the Signature patient specific instrumentation on 261 consecutive primary TKAs measuring component alignment using CT scans with a modified Perth protocol confirms that good alignment can be reproduced. We measured component alignment to be within the accepted 3 degree range of accuracy for 97.2% femoral rotational alignment, 99% femoral coronal alignment, 92.7% tibial coronal alignment and 73% tibial sagittal alignment. The overall mechanical axis was restored in 82% of patients using the patient specific instrumentation.

A well aligned and balanced modern TKA should see an implant survive in excess of 15 years. Securing accurate placement of these implants is essential and relies on surgical experience but may also be aided with the use of patient specific instrumentation.
- posteriorly the sciatic nerve can be palpated and protected
- find the sub gluteal space over the hip capsule into which a Langenbeck retractor can be placed to retract and protect the gluteus medius and minimus
- dissect the external rotators off the hip capsule before they are tenotomised from their bony insertion retracting the piriformis, obturator internus and gemelli
- capsule is then divided in a wide reverse U shape capsulotomy, reflecting it onto the acetabulum and separating it from the posterior acetabular labrum
- #2 Orthopedic sutures to capsule and tendons in a reverse Kessler technique, makes a good retractor protecting the sciatic nerve and facilitating good capsular and tendon repair at the end
- hip is dislocated with flexion and internal rotation.

Ronen Roy
India

**ACCURATE AND REPRODUCIBLE CUP POSITIONING IN THA**

Ronen Roy
India

**CORRECTING HYPEREXTENSION DEFORMITY**

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**MANAGING COMPLEX DEFORMITIES IN ASIAN KNEES**

Introduction: Asian patients with severe knee deformity present a unique challenge, especially in developing country. Most of them present very late with extreme deformities. Their expectations are very high, as they want to sit on ground for social and religious activities. Majority of them are not insured and have limited financial support. A lot of these patients are poorly nourished, have multiple comorbidities, have been non ambulant for years and are depressed. Goals of Arthroplasty: • Primary goal of arthroplasty remains relief of pain and improve quality of life. • Correction of deformity with correction of alignment in all three planes. • Restoration of mechanical axis. • Balanced flexion and extension gap. • Restoration of joint line. • Correction of patella-femoral tracking. Planning and Procedure: Each patient requires careful clinical as well as radiological assessment and planning. Assess for ligamentous instability. Also assess whether the deformity is fixed or correctable, as surgical procedure will defer. Each patient should have good quality X ray in AP standing position, lateral view and skyline view. Ideally a standing scangram from hips to ankle should be done, to document deviation of mechanical axis. Assess bone loss and plan for replacement with bone graft or metal augment. Decide whether primary implant will be used or a constrained implant will be required. Finally operating surgeon should be well verse in extensile approach

Conclusion: Failed hip fractures are difficult to deal, especially in elderly osteoporotic patient, with multiple comorbidities and poor bone stock. It is possible to improve their quality of life with Total Hip Arthroplasty, by experience arthroplasty surgeon.

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**TOTAL HIP ARTHROPLASTY IN FAILED HIP FRACTURE MANAGEMENT**

Introduction: Osteoporosis is epidemic in Pakistan, as it is in North America and Europe. As a consequence proximal femur fractures are common. Patients are managed by surgeons of variable experience and expertise. Implants used in the management of these fracture are of various standard. Due to above mentioned factors outcome and results in patients are variable. Working in a tertiary referral teaching hospital, we come across a large number of patients with failed hip fracture, who have been operated once, twice or multiple times. Assessment and Management: Each patient requires careful clinic and radiological evaluation. Reason of failure must be identified and infection excluded. First post Trauma X ray and immediate post op X ray need careful evaluation, whether the choice of procedure and placement of implant were correct. Serial X ray needs to be assessed to know mode of failure. A decision need to be made between osteosynthesis and arthroplasty. Assess bone loss and plan for bone grafting. Make a decision whether a primary implant will be sufficient or a revision implant will be required. Special arrangement should be made for broken screws and implant. Finally operating surgeon should be well verse in extensile approach

Conclusion: Failed hip fractures are difficult to deal, especially in elderly osteoporotic patient, with multiple comorbidities and poor bone stock. It is possible to improve their quality of life with Total Hip Arthroplasty, by experience arthroplasty surgeon.

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**CLINICAL EFFICACY AND SERUM COBALT, CHROMIUM METAL ION CONCENTRATIONS AFTER TOTAL HIP ARTHROPLASTY WITH THREE DIFFERENT HARD-ON-HARD BEARINGS**

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To compare the clinical efficacy and serum concentration of cobalt, chromium metal ion in three different hard-on-hard bearings after total hip arthroplasty at 2-years postoperatively.

Ninety (90) THA patients were divided into ceramic-on-ceramic (COC), ceramic-on-metal (COM), metal-on-metal (MOM) group (n=30 in each group). At preoperative and 3, 6, 12, 24 months postoperative 5 time points, serum concentrations of cobalt and chromium were measured.

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**MODULARITY FACILITATES FEMORAL REVISION**

Introduction: Patient with symptomatic total hip arthroplasty requires careful clinical as well as radiological evaluation and planning. Detail history and physical examination is required to exclude referred neurogenic pain. Assess gait and review muscle wasting involving the buttoc and thigh. Assess previous scars and local sign of inflammation or infection. Examine for mid thigh pain with femoral rotation indicating possibility of loose femoral component. Assess for groin pain with an active straight leg lift indicating possible loosening of acetabular component. Imaging and Lab investigation: All patient with symptomatic THA should have base line investigation, including complete blood picture, ESR and CRP to exclude prosthetic joint infection. If there is a doubt then aspiration of joint should be done. A good quality Xray Pelvis AP view and AP and lateral view of hip is the minimum required in evaluating the patient. A 3D CT scan will give more detail of bone loss. Compare current Xray with immediate post op Xray of primary surgery. Classify bone loss. There are many classification including AAOS, Paprosky and Mallory-Head classification. Mallory-Head is simple and indicative of treatment required. Extended exposure, removal of implant and choice of revision implant: Operating surgeon should be well verse with extensile approach and extended trochanteric osteotomy for removal of implant. Make availability of bone graft , revision femoral component, cable plate and trochanteric grip plate. Conclusion: Modularity in revision femoral component is helpful in difficult revision THA. This helps in preparing distal femoral component independent of proximal component. Different sizes of proximal component helps in restoring length. Rotation adjusts version of femoral component to reduce the chances of post op dislocation.

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had received conservative treatment for the acetabular fractures (conservative-treatment group). Then, 14 had simple
age was 51 ± 12 years (range, 27–74 years) at the time of arthroplasty. The average interval from fracture to THA was
Between January 2000 to December 2003, 34 uncemented acetabular reconstructions were performed in 34 patients for
Total hip arthroplasty (THA) has been applied to treat pain and disability in patients with post-traumatic arthritis after acetabular
fracture for many years. However, the mid-term and long-term results of THA for this unique population are still controversial. According to previous studies, we found that uncremented acetabular reconstructions were usually performed in patients who were most likely to have the best results and an abnormal acetabular structure was usually the reason for THA failure. In this study, we evaluated the mid-term results of using uncrement acetabular components to treat posttraumatic arthritis after acetabular fracture. In addition, we investigated the effects of different acetabular fracture treatments and fracture patterns on THA. Between January 2000 to December 2003, 34 uncemented acetabular reconstructions were performed in 34 patients for
fracture and fracture patterns on THA.

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MIDTERM RESULTS OF UNCENTEMED ACETABULAR RECONSTRUCTION FOR POST-TRAUMATIC ARTHROSIS SECONDARY TO ACETABULAR FRACTURE

Bin Shen, MD, Oujie Lai, MD, Jing Yang, MD, Fuxing Pei*, MD
Total hip arthroplasty (THA) has been applied to treat pain and disability in patients with post-traumatic arthritis after acetabular fracture for many years. However, the mid-term and long-term results of THA for this unique population are still controversial. According to previous studies, we found that uncremented acetabular reconstructions were usually performed in patients who were most likely to have the best results and an abnormal acetabular structure was usually the reason for THA failure. In this study, we evaluated the mid-term results of using uncrement acetabular components to treat posttraumatic arthritis after acetabular fracture. In addition, we investigated the effects of different acetabular fracture treatments and fracture patterns on THA. Between January 2000 to December 2003, 34 uncemented acetabular reconstructions were performed in 34 patients for

0.26 ± 0.10 mm/y in the complex group and the simple group (P = .67), respectively. The average rate of polyethylene wear for all patients was positively related to BMI (r = .36; P = .047). After THA, all 31 patients had a reconstructed hip center within 20 mm of vertical and horizontal symmetry compared with the contralateral hip, including 27 patients (87%) with anatomic restoration and 4 patients with reconstructed hip center between 10-20 mm of vertical and horizontal symmetry. Anatomic restoration was positively related to fracture treatment (r = .48; P = .036), but it had no relation to fracture pattern (r = .16; P = .40).

Uncement acetabular reconstruction following acetabular fracture had favorable midterm results. Fracture treatments and patterns are associated with increased operative time and hemorrhage amount. Open reduction and internal fixation of fracture favors anatomic restoration of hip rotational center.

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REVISION UNI TO TOTAL KNEE FUNCTIONAL OUTCOME OF REVISION TOTAL KNEE ARTHROPLASTY FOLLOWING FAILED UNICOMPARTMENTAL KNEE ARTHROPLASTY

Co-authors: Christopher Ironsides MBBS, Rami Sorial MBBS, FRACS(Orth), FAOA
.Unicompartmental knee arthroplasty (UKA) is frequently used to treat medial compartment osteoarthritis of the knee. Some of these knees will eventually fail, and need to be revised. There is controversy about using UKA in younger patients to delay total knee arthroplasty because revision surgery may be inferior to a primary TKA. We retrospectively reviewed a series of 46 revision TKA patients following failed UKA (UZT) using functional outcomes questionnaires and compared the results with matched primary TKA patients. Data was collected on 31 knees after a mean follow-up period of 4.97 years. There was no significant difference in Oxford Knee Score (34.1 vs 37.1, p = 0.48) or Western Ontario and MacMasters Universities Arthritis Index (WOMAC) (23.9 vs. 19.1, p = 0.55). A subgroup analysis demonstrated that UKAs that failed early were more likely to produce an inferior outcome following revision surgery than those that lasted more than five years. We conclude that UKA can be used effectively in appropriately selected patients, as the result of revision to TKA is not significantly inferior to primary TKA.

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PATELLAR BONE LOSS-HOW TO MANAGE

A well aligned and balanced extensor mechanism will ensure efficient use of the quadriceps musculature. Pre-existing poor patellar bone stock can result in a weakened extensor mechanism. Poor patellar bone stock can arise from primary malalignment, polyethylene wear, chronic dislocation or infection. Options in management of patellar bone stock include debridement alone, debridement and re-cementing, patellar bone grafting or prosthetic augmentation. These methods will be discussed.

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PLANNING FOR REVISION TKA

Success in Revision Total Knee Arthroplasty begins with good planning. It is important to define and understand the cause of failure of the existing implant. It is critical to obtain stable, well fixed implants with good soft tissue balance. Infection must always be considered and excluded before surgery. Familiarity with the concept of a titrated exposure to safely remove existing implants will preserve bone stock and extensor mechanism. Once the soft tissue and bony...
deficiencies that are likely to be found have been defined, the surgeon can have on hand the appropriate implant which will allow for reconstruction of the joint line and with adequate constraint.

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BEARING CHOICE-MATCHING THE PATIENT

The past decade has seen a growth in bearing choice in Total Hip Arthroplasty. This has allowed the surgeon to select the best combination of wear and stability for the patient. Acetabular options include crosslinked and non crosslinked polyethylene, sometimes with the addition of antioxidant. Dual mobility cups can offer the benefits of stability and good mid term wear results. Ceramic acetabular inserts offer extremely low wear rates, but can have audible squeaking and impingement issues. Femoral head options include metal, ceramised metal and ceramics. Head size can be adjusted to match the sometimes competing goals of stability and wear. Metal on metal articulations are briefly discussed and are not currently recommended.

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INFLUENCE OF GAP BALANCE ON THE SAGITTAL MOVEMENT OF A SPECIFIC MOBILE BEARING FLOATING PLATFORM DESIGN IN TOTAL KNEE ARTHROPLASTY

Co-authors Seung-Beom Han, MD, Dae-Hee Lee, MD
We analyzed 119 knees implanted with mobile bearing floating platform prostheses using the navigation-assisted gap balancing technique to analyze the relationship between intraoperative sagittal movement of floating platforms and soft tissue balancing. The 95 (79.8%) knees were classified into the positive rollback group (mean insert posterior rollback 5.86 ± 1.24 mm), and the remaining 24 (20.2%) into the negative rollback group. Lateral flexion gap (LFG) differed significantly between knees with positive and negative rollback (20.5 ± 1.7 mm vs 22.1 ± 1.7 mm, P = .021). Only LFG differences were significantly influenced the occurrence of bearing sagittal movement. Sagittal translation of the insert occurred in about 80% of knees implanted with mobile bearing floating platforms in TKA, and was affected by flexion gaps, especially on the lateral side.

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DESIGN RATIONALE AND EARLY EXPERIENCE WITH E.MOTION-PS-PRO, A NEW MOBILE BEARING

Prosthesis is a key factor for the success of TKA along with patient and surgical technique related factors. Design feature of a prosthesis influence the function and durability of a replaced knee through its effects on kinematics, fitting performance, tribological nature and fixation. In primary total knee arthroplasty, the choices between mobile vs fixed bearing systems and between CR vs PS are a challenging issue for surgeons and continue to be debated. In theory, rotating platform and posteriorly stabilized (RP/PS) type is the best option in terms of kinematics and wear performance. Several studies reported that satisfactory functional outcomes were achieved with RP/PS types of prosthesis. However, numerous studies have reported that no superiority was found in one type over the other type. Therefore, the issue, whether mobile bearing knee systems are advantageous over fixed bearing knee systems remains to be determined.

Recently a newly developed mobile bearing system, named e.motion-PS-pro was released. This new system was designed to incorporate the key positive feature of several recent concepts that had been introduced in the area of TKA, namely, high flexion knee, RP/PS mobile bearing, and gender considerations. Furthermore, a large ball and socket type of post-cam mechanism was introduced to provide larger contact area and additional stability. In addition, narrow size options for the most frequently used femoral component are available, which helps surgeon to create intended gap balancing. This presentation will introduce the design feature of this unique mobile bearing system and report his early experience with this prosthesis.

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OPENING WEDGE HTO: HOW AND WHEN

Navigation has been introduced to improve accuracy of correction in high tibial osteotomy (HTO), but a prolonged operative time may be a disadvantage of it. Recently we proposed simple algorithms to predict proximal screw lengths in performing HTO using TomoFix plate which might be able to reduce operative time and fluoroscopy use.

We aimed to illustrate the surgical techniques of navigated HTO accompanied with the simple algorithms to predict screw length of locking plate. In addition, we sought to determine whether this technique was superior to conventional HTO in terms of target alignment achievement, maintenance of tibial slope, radiation exposure and operative time. We retrospectively reviewed and compared a cohort of 40 knees treated with navigated medial opening wedge HTO by a single surgeon with another cohort of 40 knees treated conventional technique by another surgeon. The simple algorithms were used only in navigated group. The success of target alignment achievement was measured as the group-specific proportion of outliers, which were defined as cases with alignment outside the mechanical tibiofemoral angle range of 2-6° and outside the WLL range of 55-70°. The posterior tibial slope change was evaluated using preoperative and postoperative measurement. Radiation exposure was estimated by fluoroscopy time. Operative time was defined as the time from skin incision to plate fixation. The use of navigation with simple algorithm better maintained tibial slope and reduced radiation exposure with comparable operative time. Tibial slope was not significantly changed by HTO in the navigation group (+0.3°, p=0.722), whereas it was significantly increased in the conventional group (+3°, p<0.001). The navigation group used less fluoroscopy (10.4 vs. 24.8 sec, p<0.001). The proportion of outliers was lower in navigation group than in the conventional group, but the difference did not reach statistical significance (mTFA outlier 18% vs. 30%, p=0.189; WLL outlier 20% vs. 39%, p=0.420). There was no significant difference in the operative time (141.3 vs. 39.2 min, p=0.123).

This study demonstrated that the use of navigation and screw length predicting algorithm improved the maintenance of tibial slope and reduced radiation exposure with comparable operative time in HTO. Therefore, we recommend the use of navigation and the algorithm in HTO, for more accurate alignment correction, safety of the patient and the surgeon without requiring longer operative time.

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PRACTICAL ISSUES IN USING TRANEXAMIC ACID TO REDUCE BLOOD LOSS IN TKA

Tranexamic acid (TNA), a synthetic derivative of the amino acid lysine, inhibits fibrinolysis by competitively blocking the lysine-binding sites of plasminogen. Since this drug was first applied to TKA in Europe in the late 80’s, multiple authors have reported that the use of TNA reduced blood loss and subsequently, the rate of alloegenic transfusion without increasing the incidence of deep vein thrombosis (DVT) or pulmonary embolism (PE), a theoretically potential complication due to its antifibrinolytic effect. In addition, several recent studies reported that the topical application of TNA is equally...
or even more effective than the intravenous administration of TNA. Furthermore, three recently published meta-analysis studies evidently endorsed its efficacy and safety in reducing blood loss in TKA. However, although a meta-analysis is advantageous over original studies by having increased power and a high level of evidence, it is not free from limitations and can be seriously affected by the weaknesses and heterogeneity of original studies. In fact, many studies included in the recent meta-analysis studies differ in surgical techniques, implant types, the presence of blood saving protocols, the use of transfusion trigger as well as the dose, timing and route of TNA administration. Furthermore, the format of a meta-analysis focusing on a few variables reported in previous studies is limited in addressing practical issues such as the comparative efficacy of systemic versus topical administration, the effects of different doses and timings, and the safety of TNA used in various ways. Therefore, this systematic review was undertaken to answer three specific questions relating to the clinical values of tranexamic acid (TNA) in total knee arthroplasty (TKA): 1) Whether there are differences in blood saving effects between the systemic and topical administrations; 2) Whether blood saving effects of TNA differ by doses and timings of administration; and 3) Whether the use of TNA is safe at all reported doses, timings, and routes of administration with respect to the incidences of symptomatic DVT and PE. This systematic review was carried out with 28 randomized controlled trials to evaluate the efficacy and safety of TNA use in TKA identified from the literature. Both systemic and topical administrations reduced blood loss after TKA, but transfusion reducing effects varied in studies whether systemic or topical administrations. The effects of TNA were influenced by doses and timings of administration. No increased incidences of symptomatic DVT and PE were found for all reported doses, timings, and routes of TNA administration. Surgeons can consider incorporating the use of TNA to their blood saving protocols in TKA without serious concern of adverse events but need to adopt optimal doses, timings, and routes of TNA administrations.

**ASIAN STRATEGIES IN TKA: ALIGNMENT VS GAP BALANCING**

Alignment and gap balancing are key elements of surgical principles for total knee arthroplasty. For the coronal alignment, restoration of neutral limb alignment and placement of femoral and tibial components at the position vertical to the mechanical axis of the femur and tibia are generally accepted. For the sagittal alignment, a certain degree of flexion is considered for the femoral component to avoid anterior notching and the extent of natural posterior slope and implant type are considered. For gap balancing, creation of equal flexion and extension gaps that are rectangular is the goal. To achieve these surgical goals, 3 degree of tibia inclination and approximately same valgus degree of femoral component are the norm of standard surgical protocols. However, many Asian patients may have different anatomy and disease patterns from Western patients, which makes it difficult to apply the standard surgical protocols to reach neutral alignment and gap balancing. Multiple studies documented that severe tibia inclination and varus condylar orientation with lateral femoral shaft bowing are frequently observed in Asian patients undergoing TKA. In patients with severe tibia inclination and varus femoral condylar orientation, much larger gaps in the lateral side are almost inevitable as far as creation of neutral limb alignment is pursued. On the other hand, in patients with severe flexion contracture but yet well preserved further flexion, much larger flexion gap than extension gap is commonly encountered. This dilemmatic nature relating to creating neutral alignment and balanced gaps does make sense intuitively considering that gaps are the space left after bone resections that influence alignment. As both alignment and gap balancing are crucial to the function and durability of replaced knees, none of these two criteria can be ignored. The recently appealing concept, constitutional varus would be echoing the need of Asian strategies in TKA. This lecture will address this dilemmatic nature in Asian patients.

**DEALING WITH VALGUS KNEE DEFORMITY**

The valgus knee presents a unique set of problems that must be addressed during total knee arthroplasty. This is a very challenging knee as compared to the varus deformity. Both bone and soft-tissue deformities complicate restoration of proper alignment, positioning of components, and attainment of joint stability. The variables that may need to be addressed include lateral femoral condyle or tibial plateau deficiencies secondary to developmental abnormalities, and or wear either primary or acquired contracture of the lateral capsular and ligamentous structures and, occasionally, laxity of the medial collateral ligament. Understanding the specific pathologic anatomy associated with the valgus knee is a prerequisite to selecting the proper surgical method to optimize component position and restore soft-tissue balance.

**IMPLANT REMOVAL IN REVISION TKA**

The removal of solidly fixed implants during revision knee arthroplasty is a technically challenging procedure with the potential for a large amount of bone loss during component removal. This bone loss may compromise the subsequent reconstruction. Careful preoperative planning is essential before undertaking removal of solidly fixed implants. The surgeon should determine the type and size of the implants and be familiar with any specialized removal equipment that may be available. For the knee, extensive exposure is often necessary. Removal of a well-fixed femoral component often requires a tibial tuberosity osteotomy. The most difficult component to remove from the knee is a well-fixed cementless patellar component. The primary goal in removing well-fixed components is to minimize loss of surrounding bone, which requires effective planning and often access to specialized tools and techniques.

**MY EXPERIENCE WITH CR KNEES**

We evaluated 500 CR knees done in one year at our center. Three approaches were used by the same surgeon to do fixed bearing high flexion CR knees viz. Standard parapatellar, midvastus,subvastus. Standard parapatellar was used in cases with gross varus or valgus deformities more than 20 degrees with or without more than 10 degrees fixed flexion. Midvastus was used in less than 20 degrees varus and minimal fixed flexion and near full ROM. Subvastus was used in mild deformities with full ROM. All the patients undergoing unilateral TKA walk within 24 hours and negotiate stairs in 48 hours before discharge. Patients undergoing B/L TKA walk and negotiate stairs in 4 days before discharge. Postoperative protocols are similar as far as the pain management is concerned with the epidural being removed 48 hours after surgery for unilateral and 36 hours after bilateral knee surgery. Patients with single knee surgery walk without support in two weeks while those with Bilateral Knee Replacement walk without support in 3 weeks. It was found that more than 350(70 %) knees were size 3(Deputy) / size C (Zimmer) or less. Similar proportion of patients had poor or suboptimal bone stock . All of them had an intact PCL . Patellar lift off was negative as ensured in all the knees before closure. So was the case with Tibal lift off which negative in deep flexion. Hence it was ensured preoperatively that patellar tracking and mid flexion instability were negated and balanced before closure. My experience is that in Asian Population it is

**OPTIMAL USE OF TOURNIQUET IN TKA**

The use of Tourniquet in TKA requires effective planning and often access to specialized tools and techniques.
UNCEMENTED HEMIARTHROPLASTY FOR DISPLACED FEMORAL NECK FRACTURES IN YOUNGER ELDERLY: OUR EXPERIENCE WITH EARLY AND MEDIUM-TERM FOLLOW-UP

Background and purpose: Hemiarthroplasty is the advocated treatment for displaced femoral neck fractures (DNF) in elderly patients and cemented stems has been preferred for treatment. However, little is known for the use of uncemented stems in treatment of young elderly (65-75 years old). This study attempted to determine the surgical outcomes associated with uncemented hemiarthroplasty. Furthermore, a randomized controlled trial was performed to compare the clinical and radiographic data between the two types of hemiarthroplasty during early and mid-term follow-up.

Patients and methods: From June 2009 to October 2013, 59 consecutive closed unilateral DNF (37 women, 22 men; mean age 71.5 years; range 65 to 75 years) with a follow-up time (mean 20.3 months, range 6 to 32 months) were treated with hemiarthroplasty (33 cemented, 26 uncemented). Exclusion criteria included pathological fracture, patients with previous ipsilateral hip or femur surgery. Pre-injury, all the patients were walk normally. The clinical data and Harris hip score were recorded for statistics analysis.

Results: No statistically significant differences were present in preoperative characteristics between two groups, including ASA grade, Body mass index and internal diseases. The mean operating time and Operative blood loss was significantly greater than 30°). 237 cases (401 hips) fell into the category of type III (Hips had no movement and showed bone ankylosis). Among type III cases, 165 patients (involving 238 cases) belonged to type III-A (Hips were in extension position or had flexion contracture that was less than 30°) and 108 cases (163 hips) were of type III-B (The flexion contracture deformity of hips was greater than 30°). 32 patients (64 hips) fell into the category of type IV (The patients had accompanied spinal or sacroiliac deformities, irrespective of hip mobility). Among type IV patients, 21 cases (42 hips) were of type IV-A (Hips showed deformity at extension or flexion deformity was less than 30°) and 11 cases (22 hips) were of type IV-B (Flexion deformity of hips was greater than 30°). For patients with flexion deformity greater than 30° (II-B, III-B and IV-B), anterolateral approach was employed. With the other patients, posterior-lateral approach was used. For all patients, cementless hip prostheses were implanted, porous-coated hemispherical cups were used, with or without screw fixation and tapered femoral stems were employed. After prosthesis implantation, the surrounding soft tissues were slightly released and the mobility of hips should be allowed as long as the hip stability was not compromised. Rehabilitation and exercise for maintaining or improve hip movement might start from day 1 after the operation.

Conclusion: Based on the above results and previous research, in order to prevent peri-prosthetic fracture during uncemented hip score (at latest follow-up) between the groups.

No statistically significant differences were present in preoperative characteristics between two groups, including ASA grade, Body mass index and internal diseases. The mean operating time and Operative blood loss was significantly less for the uncemented group than for the cemented group (p<0.01). However, due to osteoporosis or medullary dysplasia, uncemented group had a higher risk of peri-prosthetic fracture. And then cardiac arrhythmias was appeared in 4 cases during cemented injection. Finally, there was no difference in other postoperative main complications and Harris hip score (at latest follow-up) between the groups.

Conclusion: Based on the above results and previous research, in order to prevent peri-prosthetic fracture during uncemented stem implantation, we suggest the patients who undertake this operation should have no severe osteoporosis, without femoral medullary dysplasia and younger than 75 years old. Furthermore, due to minimal invasion and simple operation, uncemented hemiarthroplasty is recommended in patients who have good complaisability and impaired cardiological function. Finally, the uncemented hemiarthroplasty could gain predictable outcomes during early and mid-term follow-up.

Keyhords: femoral neck fracture, uncemented, cemented, outcomes, osteoporosis, young elderly

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Prudent and sensible to do Cruciate retaining, fixed bearing knees with deep flexion design as the issues of smaller sizes, poor bone stock and the need for deep flexion are simultaneously addressed. Proper balancing and good soft tissue handling ensure optimal results even in gross deformities and rheumatoid knees.

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CLASSIFICATION OF HIP INVOLVEMENT IN ANKYLOSING SPONDYLITIS AND CORRESPONDING SURGICAL MANAGEMENT

Objectives: This study tried to classify the hip involvement in ankylosing spondylitis, used different surgical strategies for different types accordingly and evaluated the effect of the treatment.

Methods: The study included 491 ankylosing spondylitis patients with hip involvement (758 hips) who were admitted to our hospital from March 2007 to May 2012. Of them, 451 cases (705 hips) were males and 40 were females (53 hips). According to a classification of hip involvement in ankylosing spondylitis developed by our department, 113 cases (169 hips) were of type I (hips were movable) and 73 (124 hips) belonged to type II (Hips had no movement and showed fibrous ankylosis). Among type II patients, 44 cases (76 hips) were of type II-A (Hips were in extension position or had flexion contracture that was less than 30°): 29 cases (46 hips) were of type II-B (The flexion contracture of hips was greater than 30°). 237 cases (401 hips) fell into the category of type III (Hips had no movement and showed bone ankylosis). Among type III cases, 165 patients (involving 238 cases) belonged to type III-A (Hips were in extension position or had flexion contracture that was less than 30°) and 108 cases (163 hips) were of type III-B (The flexion contracture deformity of hips was greater than 30°). 32 patients (64 hips) fell into the category of type IV (The patients had accompanied spinal or sacroiliac deformities, irrespective of hip mobility). Among type IV patients, 21 cases (42 hips) were of type IV-A (Hips showed deformity at extension or flexion deformity was less than 30°) and 11 cases (22 hips) were of type IV-B (Flexion deformity of hips was greater than 30°). For patients with flexion deformity greater than 30° (II-B, III-B and IV-B), anterolateral approach was employed. With the other patients, posterior-lateral approach was used. For all patients, cementless hip prostheses were implanted, porous-coated hemispherical cups were used, with or without screw fixation and tapered femoral stems were employed. After prosthesis implantation, the surrounding soft tissues were slightly released and the mobility of hips should be allowed as long as the hip stability was not compromised. Rehabilitation and exercise for maintaining or improve hip movement might start from day 1 after the operation.

Conclusion: Total hip arthroplasty can improve the functions of involved hips in ankylosing spondylitis. The surgical strategies tailored to different conditions or severities of hip involvement can save operation time, reduce complications and better promote the functional recovery of hip joints.

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HIP ARTHROPLASTY BEARING SURFACE CHOICE: THE INVESTIGATION AND ANALYSIS

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THE BARE ESSENTIALS IN REVISION TKA

Revision TKA is varied, often complex and technically challenging. It serves well to bear in mind a clear set of critical goals that need to be achieved in all cases. An orderly surgical sequence, based on these goals, is essential for consistent and good outcome.

Upon adequate exposure of the knee joint and safe, efficient extraction of the prosthesis, the operation follows this sequence.

- Joint evaluation Space & Balance
- Initial evaluation of bone loss and quality
- Establish Tibial Platform

ANALYSIS OF DISLOCATION AFTER CERAMIC TOTAL HIP ARTHROPLASTY

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- Joint evaluation Space & Balance
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during knee arthroplasty. Muscles, ligaments and most of all the topography of articulating surfaces affect the kinematics of the knee joint. Alteration of topography, excision of the ACL, modification or excision of the PCL and changes to surface tissue compliance during knee arthroplasty leads to irrevocable kinematic changes. A realistic kinematic goal is to achieve a knee joint that tracks well overall. - Triplanar wedges – which attempts a measure of metaphyseal fit whilst retaining some of the attributes of a locking device - Bimodal fixing devices – these are generally modular e.g. S-rom, Margon Resection of the head/neck exposes the stem to quite substantial deforming forces with the consequence that the standard stem cannot be made too short. With every millimeter of neck preservation the deforming forces become less and stems can be made shorter. However neck/head preservation brings about other issues to deal with.

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DESIGN PHILOSOPHIES OF CURRENT CEMENTLESS STEM PLATFORMS

Some early designs were based on the intuitive assumption of the need to comprehensively fill the medullary canal. These anatomy-specific custom-made efforts did not yield consistent outcome. Major biomechanical changes occur with excision of the femoral head and neck and the insertion of an intra-medullary device. There are challenges to effective primary and secondary fixation of the device and the manner of load transfer through the femur is altered substantially. Cementless fixation is inspired by the hope for extended durability and a quality of fixation capable of coping with high cyclical loads anticipated in young and active patients. Cement fixation is an effective method for immediate fixation and the cement mantle provides high modularity, compatible visco-elasticity and good load distribution. Some of these benefits are lost when cement is not used. As it is not possible (nor desirable) to comprehensively fill the medullary canal, 2 basic forms of fixation evolved – Fill & Fill, Locking devices. With the Fill & Fill philosophy, stems are designed to tightly fit (requiring >90% fill) either the proximal metaphysis or the diaphysis. Metaphyseal fitting devices face an inventory challenge of being able to deal with the wide range of femoral morphotypes in the general population. The prosthesis type has the advantage of effective loading of the proximal femur and lesser stress shielding. It is less difficult filling the diaphysis and with the right design and surface material, very effective fixation can be achieved. Clinical results of distal fixation devices had been outstanding in the primary as well as revision settings. These results have been undermined by significant incidence of thigh pain and stress shielding. Locking devices aim not to fill the medullary canal. Rather the aim is to use a straight rectangular, wedge-shaped stem to jam into the curved femoral canal. The double-taper stem is amongst the most successful device in use with excellent long-term results and low incidence/severity of thigh pain and stress-shielding. From the 2 basic design platforms, Hybrid philosophies have evolved, such as:

- Fit & Fill – stems are designed to fill the diaphysis in select patients
- Triplanar wedges – which attempts a measure of metaphyseal fit whilst retaining some of the attributes of a locking device
- Bimodal fixing devices – these are generally modular e.g. S-rom, Margon

Resection of the head/neck exposes the stem to quite substantial deforming forces with the consequence that the standard stem cannot be made too short. With every millimeter of neck preservation the deforming forces become less and stems can be made shorter. However neck/head preservation brings about other issues to deal with.

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KINEMATICS OF KNEE ARTHROPLASTY – WHAT WORKS BEST?

Native kinematics is not achievable in knee arthroplasty; nor is the restoration of native kinematics a necessary goal during knee arthroplasty. Muscles, ligaments and most of all the topography of articulating surfaces affect the kinematics of the knee joint. Alteration of topography, excision of the ACL, modification or excision of the PCL and changes to surface tissue compliance during knee arthroplasty leads to irrevocable kinematic changes. A realistic kinematic goal is which is stable and painless throughout the functional range of motion in which load is distributed evenly which has a good range of motion in which the quadriceps work efficiently in which the patella tracks well

We begin with a brief look at the kinematics of the healthy knee joint to gain insight about the oft misunderstood “rollback” phenomenon, load bearing and lift-off. We then examine the impact of excising the ACL and PCL, and how effectively this is compensated in the varieties of knee design available. The complexities of cam-post design/function and posterior tibial slope are briefly reviewed.

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TKA FOR THE ANKYLOSED KNEE

Most surgeons perform this surgery infrequently and are understandably apprehensive about such an undertaking. However published experiences about TKA for the ankylosed knee have been generally encouraging. The lecture will deal mainly with the treatment of non-iatrogenic ankylosis. Ankylosing spondylitis is the most frequent indication for surgery in some communities e.g. China, whilst post-infection ankylosis and rheumatoid arthrits are more prevalent in others. The author will briefly refer to his experience and discuss his surgical method. AS often affects knees, hips and ankles bilaterally to varying degrees. Surgical sequencing is based on patient’s health status, type/degree of deformity, ease of positioning during surgery and post-operative care. In suitable cases, the author prefers ipsilateral hip and knee surgery. The key to good outcome is hugely influenced by:

- Avoidance of complications – of which skin dehiscence is the most common
- Surgical exposure – a Tibial Tubercle Osteotomy greatly facilitates the operation and is routine for the author
- Method of measured flexion-extension bone spaces – with the amount of bone excised titrated to the expandability of soft-tissue envelope

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IS KNEE MRI OVERUTILIZED IN KOREA?

Co-authors: Nimesh Jain, Seok Jin Kim, Sae Kwang Kwon, Moon Jong Chang, Tae Kyun Kim Background: Health care cost containment is one of the major requirements of present day health care system. Advanced diagnostic imaging modalities have been among the fastest growing components of medical expenditure over the past decade. It is the current authors’ impression based on practical experience that increased number of patients who visited knee clinic with knee MRI that had uncertain value for management. Purpose: The present study was conducted to determine (1) the proportion of patients with knee MRI in patients who visited a knee clinic of a tertiary hospital, (2) whether there are any differences of demographics, disease distribution and treatment option between patients with and without knee MRI, (3) the proportion of knee MRIs useful for decision makings for treatment, and (4) whether practice patterns or the educational level of a physician influence the assessment of knee MRI usefulness. Materials and methods: We retrospectively reviewed the medical records and radiologic materials of all 680 referred patients to allocate the patients to two groups, MRI and non-MRI groups. Each case with knee MRI was analyzed for its usefulness by a panel of 6 Orthopaedics surgeons. Each case was discussed in two rounds, before and after MRI review. A kappa analysis was undertaken to assess the interobserver agreement among the panels in both rounds. Results: Of 680 patients, 185 (27%) patients visited to a knee clinic of a tertiary hospital with knee MRI, and patients with knee MRI were younger and involved a higher proportion of sports injury than patients without knee MRI. Approximately only 40% of knee MRIs were assessed to be useful for decision making for treatment plan. The agreement of all panels in
assessing knee MRI usefulness showed moderate to substantial agreement. **Conclusions:** This study demonstrates that more than one quarter of patients with knee symptoms had taken knee MRI before they visited a tertiary knee clinic and that almost 60% of the knee MRIs did not play a useful role in selecting treatment options. Our findings suggest that knee MRI be overutilized in current practice of Korea and more scrutinized utilization of knee MRI be warranted to assure more efficient expenditure of health care resources.

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**COMPLEX FEMORAL RECONSTRUCTION**

Restoration of stability, limb length, and offset is the goal of femoral reconstruction. The techniques for femoral revision varies greatly. Reconstruction for femur with bone defect of Paprosky II and Paprosky IIIA is quiet straightforward with fully porous coated stem as our work horse. But Reconstructions for femur with bone defect of Paprosky IIIB and Paprosky IV are challenging because of insufficient bone stock to support the stem. For patients with femoral bone defect of Paprosky IIIB, we can use modular tapered stem to deal with nearly every situations successfully. The modular tapered stem has many advantages over fully porous coated cylinder stem. It gains fixation with short isthmic segment, taper wedges in to obtain axial stability, and flutes obtains rotational stability. But for patients with femoral bone defect of Paprosky IV, the modular tapered stem doesn't work very well. Impaction bone grafting technique and an allograft composite prosthesis (APC) are our alternative options. When doing complex femoral reconstruction, onlay cortical strut grafts to bypass cavitory or locally segmental bony defects may be required to improve bone stock and should be available.

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**RADIOLOGICAL CHARACTERISTICS OF LEG LENGTH DISCREPANCY AMONG UNILATERAL DDH**

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**WHAT TO DO WHEN THE UNEXPECTED HAPPENS**

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**MANAGING THE ACUTE INFECTED JOINT REPLACEMENT**

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**THA FOR THE FAILED ORIF ACETABULAR FRACTURES**

Although most patients with acetabular fracture can be treated successfully by ORIF, some patients eventually need for THA. The most common reasons include pain unresponsive to conservative therapy resulting from post-traumatic arthritis or from avascular necrosis of femoral head. Functional impairment caused by limited hip range of motion or limb shortening are other reason for THA. After prior acetabular fracture, a number of issues may increase the complexity of THA; these include protrusio deformity, cavitory bone defects, segmental peripheral bone loss, prior infection, retained hardware, limb shortening, sciatic nerve palsy, abductor deficiency, and heterotopic bone et al. The first thing we must face during the THA is dealing with the bone defect in the acetabulum. We have 8 options can be used to manage the defect. They are high placement the cup, jumbo cup, retro-placement the cup combined with modular stem, cementless cup combined with structure autograft, cementless cup combined with structure allograft when dealing with infected hip in staged way, reconstructing the posterior column with plate and autograft or allograft, using the biggest cup as possible as a internal fixation plate to fix the ununion fracture when there is a discontinuity of the pelvic, and using reconstruction cage which is seldom used now. The second thing we must face during the procedures is dealing with the retained hardware. We only remove the hardware when necessary, not all. The third thing we must face during the operations is dealing with infections which are not uncommon. If the failed ORIF acetabular fracture is infected, we remove all the retained hardware, do thoroughly debridement, put a antibiotic-embedded cement spacer in and wait for staged THA when the infection is controlled. Following our protocol, we can treat the patients safely and successfully.

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**ASSESSING THE PAINFUL THA**

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**REVISION THA: THE CHINESE EXPERIENCE**
The Paragon™ Hip System

Proximal Femur Stress Distribution

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Figure 1
The distribution of principal stresses in a model of a one legged stance. The lengths and directions of compression, in blue, and tension, in red.

Figure 2

Heritage from to MicroPort

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