The Emergence of Dual Mobility

Are 2 Bearings Better Than 1?

Erik Schnaser, M.D.
• No relevant financial disclosures
• Picture of someone pulling their hair out
Total hips

• Dislocations
  – Primary
    • 0.2%-7%
  – Revision
    • 10-25%

• New Strategies
  – Approach?
  – Larger heads
  – Dual mobility?...
Why is this the first we have heard of this?

- France – 1970s
  - Bousquet & Rambert
    - Monoblock
    - Increased H:N
    - Low friction concept
  - 22.2mm head – polyethylene liner – stainless steel cup
  - Cup – porous plasma sprayed alumina
    - 2 pegs
    - Iliac screw
  - Loss of fixation
  - Approved by FDA 2009
What is dual mobility?
What is dual mobility?
What is dual mobility?

Unconstrained tripolar
What is dual mobility?

- Jump distance
What is dual mobility?

- Jump distance
What is dual mobility?

- ROM
What is dual mobility?

• ROM
What is available in the US?

- Many globally
- Smith and Nephew
  - POLARCUP
- Biomet
  - Active Articulation E1
- Stryker
  - Anatomic Dual Mobility (ADM)
  - Modular Dual Mobility (MDM)
POLAR CUP – Smith & Nephew

• Stainless steel cup
• Press fit
  – Plasma sprayed titanium
  – Pegs
  – Screws
  – Anti-rotation fins
• Cemented
• Δ 6mm Cup:Poly
Active Articulation E1 - Biomet

- Cobalt Chrome Bearing
- Plasma sprayed titanium cup
- Fins on cup
- Δ 6mm Cup:Poly
- Vitamin E poly
ADM- Stryker

- Cobalt Chrome surface
- Plasma sprayed titanium
- Δ 6mm Cup:Poly
- Cut-out for iliopsoas
  - Impingement
MDM- Stryker

- Can use with Trident or Tritanium cup
  - Screw options
- Cobalt Chrome Liner
  - MOM
- 36-58mm poly available
- Δ 10-12mm Cup:Poly
What are the advantages?

• **ROM**
  – 22.2 and 28mm
  – Greater ROM vs conventional
  – No difference in DM

• **Many clinical scenarios**
  – Primaries
    • Monoblock
    • Cemented
    • Modular
  – Revisions
What are the advantages?

• Slides to come on outcomes
What are the disadvantages

• Published basic science? – industry
• Theoretical edge loading
• Loss of fixation of cup
  – Monoblock shells – failure to ingrow?
• Improved ROM vs 36? - computer modeling
  – Reduction in dislocation?
• Wear and osteolysis
  – Young active patients
• Intraprosthetic dislocation
  – 0-4%
• Slides to come on outcomes
Intraprosthetic disassociation

• Slides to come
• Small published series from same authors
• Costs
• Off label uses
• Cannot visual floor of acetabulum
• Relatively short follow up for current generation
  – Improvements in cup fixation?
  – Reduction in osteolysis?
  – Younger active patients?
  – Necessary?
• Should be better in instability cases…
  – Paucity of data – primary THA
  – Few in Revisions
  – Many technologies looked good for a few years
Who should get them?

• Standard THAs – Do not recommend
• High risk – Possible
  – Acute hip fractures
  – Hyperlaxity
    • E danlos
  – Neuromuscular disorders
• Revisions
  – Recurrent instability
Conclusions

• Good option for instability

• Limited data
  – Small series
  – Minimal basic science data
  – No comparison to >36mm head

• Limited indications
  – Low demand
Questions