Unicompartmental Knee Arthroplasty

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History - UKA

• Introduced with TKA in 1972
  – Not as reliable
  – Surgeons and therefore industry lost interest
  – Few centers continued on with UKAs

• Reintroduced with improved designs in late 1990’s
  – Centers begin publishing long term data
Indications

• Refined by past experience
  – Isolated unicompartmental osteoarthritis
  – Flexion deformity <10-15°
  – No varus/valgus instability
  – Passively correctable angulation <15°
  – Intact ACL and PCL
  – Low demand patient

• Includes ~6% of arthritis patients
Indications

- **UKA vs lateral closing wedge HTO**
  - UKAs perform better than HTO and are easier to convert to TKA
  - No data on medial opening wedge vs UKA yet
- **UKA vs TKA**
  - UKA gives shorter rehab, less blood loss and complications
  - TKA has significantly superior longevity
- **UKA an alternative to HTO rather than TKA?**
Literature
Unicompartmental Knee Replacement: Twenty-One-Year Follow-up

• O’Rourke *et al.* Clin Ortho 2005
  – 136 Marmor UKAs between 1975 and 1982
  – 19 knees alive, 2 lost to f/u
  – Overall 19 (14.2%) knee revisions at average 10.9 years
    • 9 for disease progression
    • 8 for tibial component subsidence
    • 2 for continued pain
    • 5 of the 19 alive at 21 years required revision
Unicompartmental Knee Replacement: Twenty-One-Year Follow-up

• Survivorship
  – 84% at 20 years, 72% at 25 years
  – Younger patients correlated with lower survivorship
Lateral unicompartmental knee replacement
Survivorship over 21 years

- T. Ashraf *et al.* JBJS Br 2002
  - 88 knees with St Georg Sled lateral UKAs
  - Performed 1978-1999, mean f/u 9 years
  - 30 knees died, 5 lost to f/u
  - 15 (17%) revised at mean of 8 years (4 had more than one reason)
    - Component failure – 4
    - Disease progression – 9
    - Loosening – 6
Lateral unicompartmental knee replacement
Survivorship over 21 years

• Survivorship
  – 10 year 83%, 15 year 74%

• Satisfaction
  – 5 Year – 83% good/ excellent
  – 10 year – 78% good/excellent
Long-term Clinical Results of the Medial Oxford Unicompartmental Knee Arthroplasty

  – 439 UKAs between 1983 and 2000
    • 127 phase I, 269 phase II, 43 phase III
    • 15 year survival 94%
    • 23 revisions at average of 3.4 years
    • 114 knees clinically assessed at 10 years
      – 91% good/excellent by HSS, 82% pain free
    • No survivorship difference with poly <6 mm
  – All placed by 3 experienced surgeons
Early complications of unicompartmental knee replacement: The Droitwich experience

- G. Vardi and A.E. Strover, Knee 2003
  - 206 UKAs (various designs) over 5 years
  - In the first year:
    - 31 (15%) needed further surgery
    - 17 (8%) revision rate
  - Most complications 2° to technical error
    - Fracture, overcorrection, poly dislocation
Fixed or mobile bearing unicompartmental knee replacement? A comparative cohort study

• R.E. Gleeson et al. Knee 2004
  – 57 St Georg Sled (fixed) vs 47 Oxford (mobile)
  – 2 year outcome scores
    • Better pain relief in fixed bearing
    • No functional differences
  – 4 year revision data
    • Fixed – 3 revisions,
      – 2 loose tibial components, one ACL rupture
    • Mobile – 3 poly revisions, 4 revisions to TKR
      – 2 for pain, one fracture, one tibial component loosening
Conclusions

• UKA not yet as reliable as TKA
  – More reliable than HTO (lateral closing wedge)
• Fixed bearing easier than mobile bearing
  – Steep learning curve on mobile bearing knees
  – Need >20/year to maintain skills
• Seem to be a good alternative to HTO
  – Better data needed on conversion to TKA