MOBILE OR FIXED BEARING IN UNICOMPARTMENTAL KNEE ARTHROPLASTY

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Unicompartmental Arthroplasty (1974 - 2006)

- Marmor I : 161
- Marmor II : 227
- Oxford : 101
- MG, ZUK : 385
- Others : 82

Revision

- Arthritis progression (16) : 83 months (11 - 157)
- Loosening (13) : 49 months (1 - 138)
- Wear (9) : 31 months (4 - 72)
- Infection (1) : 22 months (5 - 26)
- Bearing dislocation (1) : 3 months

Loosening

- Malposition!
- Malignment!

Polyethylene wear

- 3 mm : 1
- 6 mm : 16
- 8 mm : 5
- 10 mm : 2

Wear in UKA:

- Design issues
- Technical issues

The Unicompartmental Knee
Design and Technical Considerations in Minimizing Wear

Jean-Noël A. Argenson, MD, and Sebastien Parratte, MD
Design UKA

UKA: Metal-Back or Not?

Cemented all polyethylene tibial insert unicompartmental knee arthroplasty: a long term follow-up study.
Lustig S, Paillon JL, Servien E, Henry J, Ait Si Selmi T, Neyret P.
Orthop Traumatol Surg Res. 2009 Feb;95(1):12-21

Wear in UKA: design issues


DESIGN: Conflicting Requirements

Minimum wear in Oxford UKA knee


Bearing movement

Potential for dislocation?

Mobile bearing: dislocation!


Mobile bearing: new surface for wear?

Potential for dislocation?

Lewold et al. J Arthroplasty 1995

Wear in UKA:

- Design issues
- Technical issues

The Unicompartmental Knee

Design and Technical Considerations in Minimizing Wear

Jean-Neil A. Argenson, MD; and Sebastien Parente, MD

Results Vs ACL

- Berger, Argenson: 2 UKA failures
- Lessons:
  - no posterior slope > 7° (Hernigou JBJS 2004)
  - no mobile bearing (Goodfellow CORR 1992)
  - sedentary or active
  - combined ACL reconstruction?

Results Vs Lat. Compartment.

- Argenson et al.: no revision out of 15 lat. UKA at ten years
- No mobile bearing (~10% dislocation Swedish register)
OVERCORRECTION → O.A. PROGRESSION

- Severe undercorrection is associated with increased wear in the medial tibofemoral compartment (Ridgeway et al. JBJS 2002; Hernigou and Deschamps CORR 2004)

OA Progression

Consequences of wear in UKA:
- Fixed = Mobile


Wear in UKA: multifactorial


OUR RESULTS

Oxford UKA
Lino, Argenson, Aubaniac SOFCOT 2004

90% at 12 years (IC 86-93) Kaplan-Meier.

DISCUSSION
DISCUSSION: Lucencies

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<td>12.4%</td>
<td>2.8%</td>
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<td>6.7%</td>
<td>6.3%</td>
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- Usually since the first year
- More frequent in the revision group (FISCHER TEST, p=0.004*).
- Do not mean loosening!

Polyethylene wear: 95 months, 104 months
Malposition!
Malalignment!

EVOLUTIONS FOR HIGH FLEXION

Contact Area

Tibial Design Enhancements

Modern Designs
UKA: A Solution for the Young Arthritic Knee?

Design enhancement

Net-shape molded poly articular surfaces

Revision modern UKA

Contact Area

Tibial Design Enhancements

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CONCLUSION

• **Ten years results** > 90 %

• **Fixed bearings**: - reproducible
  - high benefit of design
evolutions

• **Mobile bearing**: - ideal design
  - technique sensitive