LATERAL UNICOMPARTMENTAL KNEE ARTHROPLASTY

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The Knee: Three compartments

CONSERVATIVE SURGERY
RESURFACING SURGERY

The lateral tibiofemoral compartment

• Osteotomy?
• TKA?
• Uni?

Lateral UKA
« A road less traveled », GA Engh, Orthopedics 2006

• Limited Indications: 5 to 10% of all UKA indications
• Limited Publications
• Technical Issues
MIS: more for less

Less Invasive

RESULTS: Lateral A/P (Avg.)

UNI: postoperative evolution

Conventional
- Discharge: day 5
- Active exercise: 3 weeks
- Crutches: 2 to 3 weeks

MIS
- Discharge: day 3
- Active exercise: 1 week
- Crutches: 1 week

Argenson et al., AAOS 2003

MIS UNI

Lateral UNI + Femoral osteotomy

Exposure

Tibial guide

LATERAL COMPARTMENT

Instrumentation : IM distal cut

AXIAL ROTATION
Tibial Design Enhancements

- Added 6th size to accommodate global population
- Added 9mm and 11mm poly thicknesses (8, 9, 10, 11, 12, & 14mm implants offered)

Lateral UKA

- Retrospective study: 1982 – 2004
- Unicompartmental Knee Arthroplasty: 881 cases
- Lateral compartment involved in 178 cases:
  - 115 medial UKA + lateral UKA
  - 19 medial UKA + lateral UKA + PFA
  - 4 lateral UKA + PFA
  - 40 isolated lateral UKA

Lateral UKA: 40 cases

- 39 patients
- Average follow-up: 12.6 years (3 – 23 years)
- Mean age: 61 years (34 – 79 years)
- Died (3), lost to FU (2) : 5
- Sex ratio: 15 men + 24 women
- Mean BMI: 27 (21 – 43)

Lateral UKA: Clinical Study

Knee Society Function and Knee Scores

<table>
<thead>
<tr>
<th>Knee Society score type</th>
<th>Pre-operative mean ± SD (range)</th>
<th>Post-operative mean ± SD (range)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee Function 2</td>
<td>50 ± 35.7 (17-75)</td>
<td>94 ± 23 (40-100)</td>
<td>0.0014</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>40 ± 2.3 (18-99)</td>
<td>78 ± 22 (25-100)</td>
<td>0.0023</td>
</tr>
</tbody>
</table>

Lateral UKA: Radiographic Study

- Mean Pre-operative Axis:
  - 6° valgus (range, 0° to 15°)

- Mean Post-operative Axis at FU:
  - 3° valgus (range, 1° to 6°)
Survival Analysis

- 92% at 10 years
- 81% at 16 years
- 74% at 22 years

IC 95% = [0.52 ; 0.96]

Pennington et al, J Arthroplasty, 2006: 29 knees, Average Follow-Up of 12.4 Years, no revision, excellent or good results

- Ashraf et al, JBJS Br 2002: 88 knees, 74.5% survival at 10 years, excellent or good results for 78% of knees
- Odera et al, J Arthroplasty, 2001: 18 knees at 5 years, 2 revisions, excellent or good results for 89% of knees
- Gunther et al, Knee, 1996: 53 knees at 10 years, 11 revisions (6 bearing dislocations), survival 67%

Results Lateral UKA

- Scott and Santore, JBJS Am, 1981: 2 failures of 12 lateral UKA, 1 failure of 88 medial UKA
- Sah AP and Scott RD, JBJS Am, 2007:
  - 49 knees at 5.2 yrs average FU
  - KS: 39 to 59, KS Function: 45 to 80
  - Medial approach
  - No revision
  - Better results for patients with OA

Surgical Technique:

- Internal rotation of tibial component (to compensate for « screw-home mechanism)
- Position of femoral component (flexion Vs extension)

CONCLUSION

- The global number of indications for lateral UKA is limited
- There are some technical considerations related to lateral femoro-tibial anatomy and kinematics
- The long term follow-up evaluation showed that lateral UKA is as reliable as medial UKA in case of isolated compartment disease of the knee