

LATERAL UNICOMPARTMENTAL KNEE ARTHROPLASTY

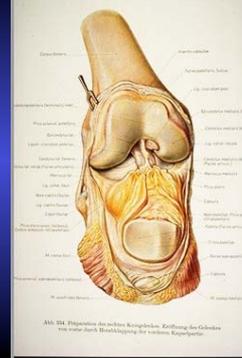
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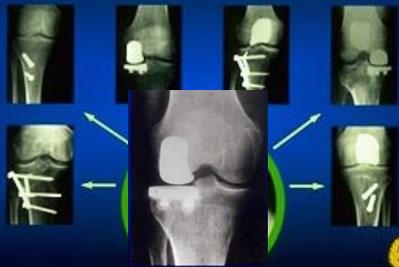
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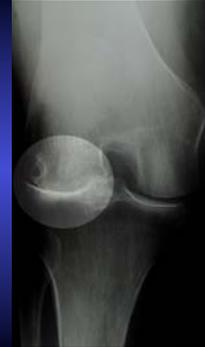
The Knee : Three compartments



CONSERVATIVE SURGERY RESURFACING SURGERY



The lateral tibiofemoral compartment



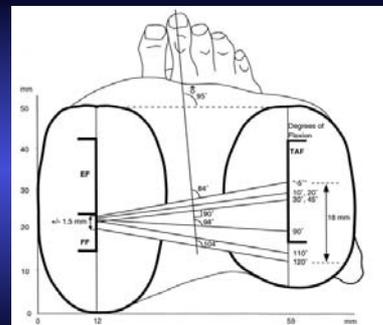
- Osteotomy ?
- TKA ?
- Uni ?



Lateral UKA

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

- Limited Indications: 5 to 10% of all UKA indications
- Limited Publications
- Technical Issues



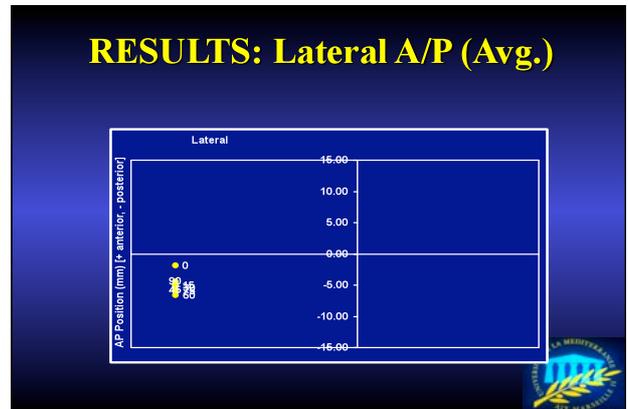
LATERAL UNI



The Journal of Arthroplasty Vol. 17 No. 8 2002

In Vivo Determination of Knee Kinematics for Subjects Implanted With a Unicompartmental Arthroplasty

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Dylan T. Anderson,† and Serge Agostini, MD‡

MIS : more for less




Less Invasive



UNI : postoperative evolution

Conventional	MIS
• Discharge : day 5	• Discharge: day 3
• Active exercise : 3 weeks	• Active exercise : 1 week
• Crutches : 2 to 3 weeks	• Crutches : 1 week

Argenson et al. , AAOS 2003



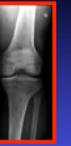
MIS UNI

- Repicci JA, Eberle RW : Minimally invasive surgical technique for unicondylar knee arthroplasty. *J South Ortho Assoc*, 1999, 8, 20-28.
- Price AJ, Webb J, Topf H, Dodd CA, Goodfellow JW, Murray DW : Rapid recovery after Oxford unicompartmental arthroplasty through a short incision. *J Arthroplasty*, 2001, 16(8), 970-976.
- Muller PE, Pellenhar C, Witt M, Kircher J, Refior HJ, Jansson V : Influence of minimally invasive surgery on implant positioning and the functional outcome for medial unicompartmental knee arthroplasty. *J Arthroplasty*, 2004, 19(3), 296-301.
- Argenson JN : The mini incision: routine approach. *Orthopedics*, 2004, 27(5), 482.
- Romanowski MR, Repicci JA : Minimally invasive unicondylar knee arthroplasty: eight-year follow-up. *J Knee Surg*, 2002, 15(1), 17-22.
- Fisher DA, Watts M, Davis KE : Implant positioning in knee surgery: a comparison of minimally invasive, open unicompartmental, and total knee arthroplasty. *J Arthroplasty*, 2003, 18(7 Suppl 1), 2-8.



VALGUS PRE-OP. X RAYS













Lateral UNI + Femoral osteotomy



Exposure



Tibial guide



E-M



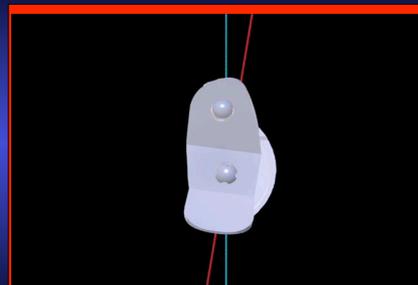
LATERAL COMPARTMENT

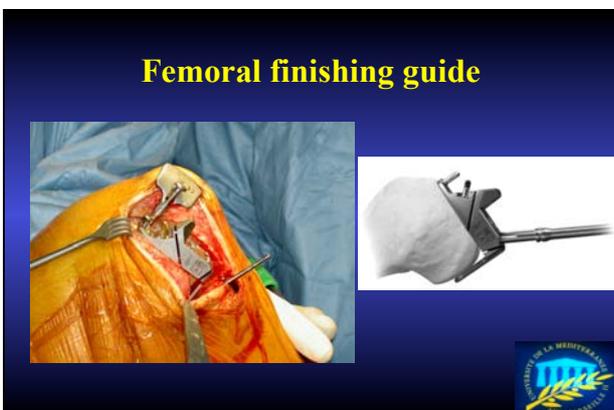
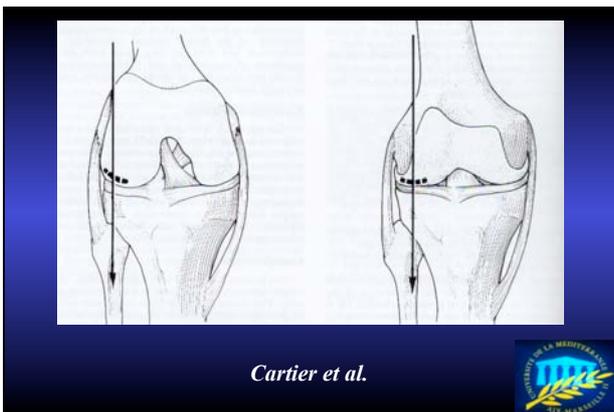
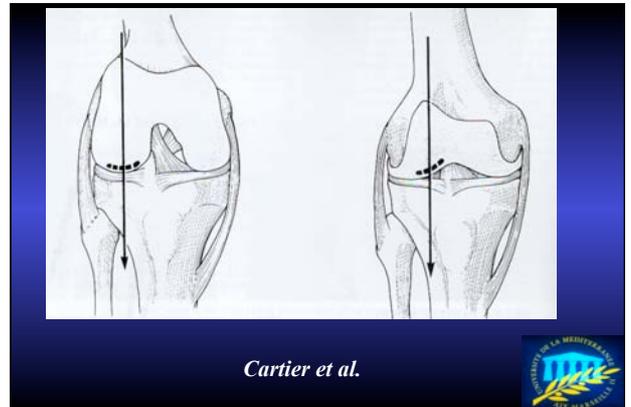


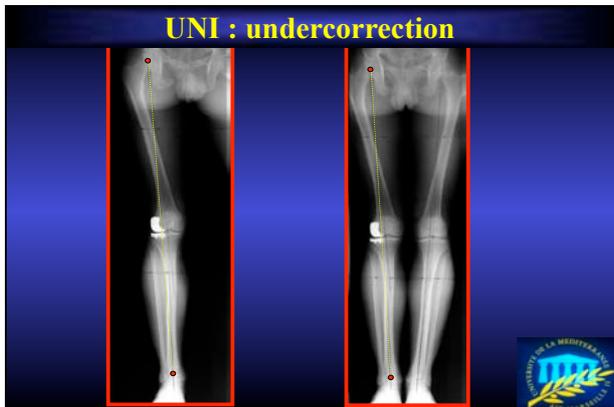
Instrumentation :IM distal cut



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

Clin Orthop Relat Res
DOI: 10.1007/s11999-008-0351-z
CORR 2008 Nov;466(11):2686-93.

SYMPOSIUM: PAPERS PRESENTED AT THE ANNUAL MEETINGS OF THE KNEE SOCIETY

Long-term Results With a Lateral Unicondylar Replacement

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Antoine Bertani MD, Xavier Flecher MD,
Jean-Marc Aubaniac MD

Knee Society Function and Knee Scores

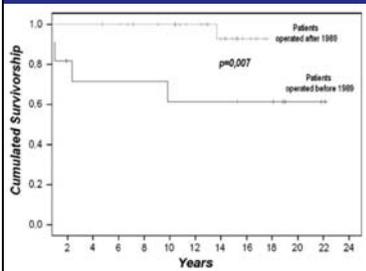
Knee Society score type	Preoperative mean ± SD (range)	Postoperative mean ± SD (range)	p Value
Knee	57 ± 10 (35-75)	88 ± 5 (40-100)	0.00134
Function	46 ± 5 (10-89)	78 ± 3 (20-100)	0.00023

SD = standard deviation.

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]



Results Lateral UKA

- *Pennington et al, J Arthroplasty, 2006* : 29 knees, Average Follow-Up of 12.4 Years, no revision, excellent or good results
- *Ashraf et al, JBJSBr 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, JBJSAm, 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
 - KSKS: 39 to 89, KSFunction S: 45 to 80
 - Medial approach
 - No revision
 - Better results for patients with OA

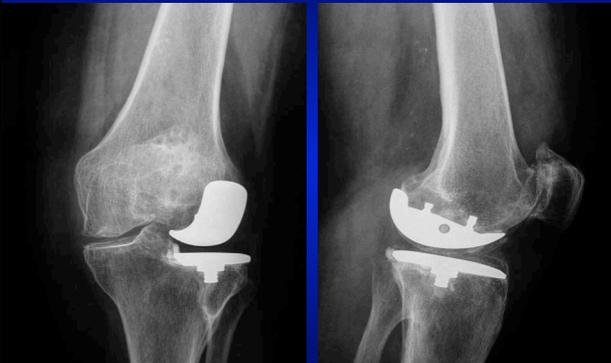


Surgical Technique: Message

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



Lateral UKA at 22 years follow-up



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

