Functional results after UKA – does they differ from TKA?

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I’m strongly biased!!!

My disclosures
Bad Rehab
Bilateral Varus: Men 59 years-old

What would you do?
UKA?

Or

TKA?

Schai, J Arthroplasty, 1998
Pennington, Jbjs Am, 2003
Price, Jbjs Br, 2005
Springer B, CORR, 2006

Lonner, CORR, 2000
Mont, J Arthroplasty, 2002
Hofmann, CORR, 2002
Morgan, J Arthroplasty, 2007
What is a good functional result for the patient?

The New Arthritic Patient and Arthroplasty Treatment Options

By Jean-Noël A. Argenson, MD (moderator), Sebastien Parratte, MD, Antoine Bertani, MD, Jean-Manuel Aubaniac, MD, Adolph V. Lombardi Jr., MD, Keith R Berend, MD, Joanne B. Adams, BFA, Jess H. Lonner, MD, Ormonde M. Mahoney, MD, Tracy L. Kinsey, MSPH, Thomas K. John, MD, and Michael A. Conditt, PhD
What does the patient want?

Mancuzo C et al., JBJS AM 2001: Patients’ Expectations of Knee Surgery
Functional results after UKA – does they differ from TKA?

1. Marmor dentist Answer
2. Biomechanical answer
3. Literature answer
4. Patient answer
5. Our experience and philosophy
1. The «Marmor dentist answer»

«If your dentist is telling he should change all your teeth when only one is destroyed, you will run away from him.”

Same think for the function and the compartments of the knee.
Biomechanical answer

=> Evaluation set-up
FLUOROSCOPY 2D : Uni
3D MODEL FITTING
Results: Medial A/P (Avg.)

Results: Lateral A/P (Avg.)
UKA kinematics closed to the normal knee
When the ACL is preserved

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

Jean-Noël A. Argenson, MD,* Richard D. Komistek, PhD,†
Jean-Manuel Aubaniac, MD,* Douglas A. Dennis, MD,† Eric J. Northcut, MS,†
Dylan T. Anderson,† and Serge Agostini, MD‡

*Center for Arthritis Surgery, Sainte Marguerite Hospital, Marseille, France
†University of Tennessee, Knoxville, USA
‡The Journal of Arthroplasty Vol. 17 No. 6 2002
Functional goal
“The forgotten Knee”

Key: ACL

In vitro
In vivo
Adjusting for age and gender, there was no significant difference between UKA and TKA in HRQL over the first 6 months following surgery.
While patients with UKA had higher pre and Post operative scores than patients with TKA, the changes in scores were similar in both groups and survival appeared higher in patients with TKA.
Our Philosophy and answer based on more than 30 years of UKA experience

In the departement

Medial unicompartmental knee replacement in the under-50s

S. Parratte,
J.-N. A. Argenson,
O. Prache,
V. Poily,
P. Audiper,
J.-M. Aubaniac
From Aix-Marseille
University, Marseille, France

We retrospectively reviewed 35 cemented unicompartmental knee replacements performed for medial unicompartmental osteoarthritis of the knee in 31 patients (25 years old between 40, 35 to 49). Patients were assessed clinically and radiologically using the Knee Society scores at a mean follow-up of 9.7 years (5 to 16) and survival at 12 years was calculated. The mean Knee Society Function Score improved from 54 points (25 to 64) pre-operatively to 89 (60 to 100) post-operatively (p < 0.0001). Six knees required revision, four for polyethylene wear treated with an isolated exchange of the tibial insert, one for aseptic loosening and one for progression of osteoarthritis.

The 12-year survival according to Kaplan-Meier was 80.6% with revision for any reason as the endpoint. Despite encouraging clinical results, polyethylene wear remains a major

Unicompartmental Knee Arthroplasty for Avascular Osteonecrosis

Sebastien Parratte, MD; Jean-Noël A. Argenson, MD; Julien Dannas, MD; and Jean-Manuel Aubaniac, MD

Unicompartmental Knee Arthroplasty for Avascular Osteonecrosis

Jean-Noël A. Argenson, MD; and Sebastien Parratte, MD

The Unicompartmental Knee
Design and Technical Considerations in Minimizing Wear

Jean-Noël A. Argenson, MD; and Sebastien Parratte, MD

Long-term Results With a Lateral Unicondylar Replacement

Jean-Noël A. Argenson MD, Sebastien Parratte MD,
Antoine Bertani MD, Xavier Flecher MD,
Jean-Manuel Aubaniac MD
The “Less for More” Philosophy

MIS outside

Gait analysis

John Insall Award Paper
A Randomized Controlled Trial of Minimally Invasive TKR: Comprehensive Gait and Strength Testing Outcomes.
Presenter: Mark W. Pagnano, MD
Co-Authors: Julien Wegzryn, MD, PhD, Sebastien Parratte, MD, PhD, Krista Coleman-Wood, PhD, PT, and Kenton R. Kaufman, PhD, PE

MIS inside: Bone and ligament sparing techniques functional and kinematic evaluation

Fluoroscopy

Peter S. Walker « Award Lifetime »
ISTA 2004 Rome

COMPONENTS SHAPED FOR LESS BONE LOSS AND USED IN ANY COMBINATION.
Every patient is at a different place on the road of arthritis

Conserve as much as you can to optimize the knee function

proper indication

our best surgical technique

Patient selection/Indication/Surgical technique «SAW» concept

- Stability
- Alignment
- Wear

Pr. J.M. Aubaniac, 1972
UNI & PFP - Association

289 Knees: 509 Implants (1972-2000)

100 cases

14 cases

77 cases

16 cases

19 cases

P.F.A + Osteotomy 28 cases

Medial + Lateral UNI + Osteotomy 13 cases
1. **Clinical evaluation:**
   - Range of knee motion
   - Frontal and sagittal knee stability
   - Status of the patellofemoral joint

2. **Radiographic evaluation:**

   - Stress radiography
   - Long leg radiography
   - Patello femoral evaluation: Sky-view

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**Varus Stress**

**Valgus Stress**
PREOPERATIVE RADIOLOGICAL & CLINICAL EVALUATION

ANALYSIS

ORIENTATION

Borderline cases

Conservative Solution
(osteotomies around the knee)

UKA Ostéotomy

UKA

UKA combination

Replacement Solution
(total knee arthroplasty)
On the long road of arthritis

osteotomy  UKA…  TKA

Schai, J Arthroplasty, 1998
Pennington, Jbjs Am, 2003
Price, Jbjs Br, 2005
Springer B, CORR, 2006

Lonner, CORR, 2000
Mont, J Arthroplasty, 2002
Hofmann, CORR, 2002
Morgan, J Arthroplasty, 2007
Everything about SATIS-FUNCTION

« Instead of us deciding what is good for them, ask them » (P Dieppe)

Knee specific Quality of life score: KOOS

Cross-cultural adaptation and validation of the French version of the Knee injury and Osteoarthritis Outcome Score (KOOS) in knee osteoarthritis patients

Results of TKA

Correlations between objective and subjective scores

Postoperative flexion and KOOS

DOI 10.1007/s11999-008-0418-x

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

Patient-reported Outcome Correlates With Knee Function After a Single-design Mobile-bearing TKA

Jean-Noel Argenson MD, Sebastien Parratte MD, Abdullah Ashour MD, Richard D. Komistek PhD, Giles R. Scuderi MD
The Outcome of Rotating-Platform Total Knee Arthroplasty with Cement at a Minimum of Ten Years of Follow-up
Results of UKA

Function and quality of life following medial unicompartmental knee arthroplasty in patients 60 years of age or younger.

Orthop Traumatol Surg Res. 2010 Dec; Felts E, Parratte S, Pauly V, Aubaniac JM, Argenson JN.

Forgotten Knee
20%
Modern Unicompartmental Knee Arthroplasty with Cement

A Concise Follow-up, at a Mean of Twenty Years, of a Previous Report*

Jean-Noel A. Argenson, MD, Guillaume Blanc, MD, Jean-Manuel Aubaniac, MD, and Sebastien Parratte, MD

Investigation performed at the Institute for Locomotion, Aix-Marseille University, Marseille, France
But do not forget!

UKA = 10 to 20% of the indications in high volume centers

At least 23 UKA a year to avoid the crash
Avoid hypercorrection

Revision correlated to the hyper-correction

DOI 10.1007/s11999-011-1961-4

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

No Long-term Difference Between Fixed and Mobile Medial Unicompartmental Arthroplasty

Sebastien Parratte MD, Vanessa Pauly MS, Jean-Manuel Aubaniac MD, Jean-Noel A. Argenson MD

Patient mechanical axis restoration
Hypo-correction Technique

Kennedy Classification
« Middle of the middle in flexion and in extension » P Cartier

Rotation
Varus/valgus

Parratte et al.
Biomécanique des PUC
Monographie de la SOFCOT
In Press.
What would you do?
Functional results after UKA – does they differ from TKA?

1. Marmor dentist Answer: YES for UKA
2. Biomechanical answer: Yes for UKA
3. Literature answer: ?
4. Patient answer: yes for UKA
5. Our experience and philosophy: a place for each solution
In surgery, there is always two solutions: the bad from the others and mine!
UKA: a place on the long road of arthritis

high level of function

GOOD indication

Surgical technique