



# *Combined UKA ACL*

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# Historical Background



Deschamps G, Lapeyre B

Rupture of the anterior cruciate ligament: A frequently unrecognized cause of failure of unicompartmental knee prostheses. RCO 1987

*Retrospective study (1977-1986)*

*UKA 68 patients with ACL deficient knee*

*Implant Lotus (plateau fixe)*

*15 revision (22%)*

*Including 13 during the first 4 years*



# Historical Background

Goodfellow J, O'Connor JJ and al  
The Oxford Knee for unicompartmental osteoarthritis. The first 103 cases.  
JBJS 1988.

37 UKAs with deficient ACL (pre-op stress X-rays)  
Oxford UKA

Six failure (**16.2%**) at 36 months  
mean FU 36 months

And 3 revisions if ACL intact (4.7%)



# Historical Background

## Current Concepts Review

1989

Copyright 1989 by *The Journal of Bone and Joint Surgery*.

## Unicondylar Knee Arthroplasty

BY STUART C. KOZINN, M.D.\*, AND RICHARD SCOTT, M.D.†, BOSTON, MASSACHUSETTS

*From the Department of Orthopedic Surgery, Brigham and Women's Hospital, Boston*

### Selection of Patients

Both cruciate ligaments should be intact to ensure the best results of unicondylar replacement.

# ACL deficient knee is not a strict contraindication anymore

J Surg Orthop Adv. 2015 Winter;24(4):252-6.

## Consensus Statement on Indications and Contraindications for Medial Unicompartmental Knee Arthroplasty.

Berend KR<sup>1</sup>, Berend ME, Dalury DF, Argenson JN, Dodd CA, Scott RD.

### ⊕ Author information

#### Abstract

Previous work, now nearly 30 years dated, is frequently cited as the "gold standard" for the indications and contraindications for medial unicompartmental knee arthroplasty (UKA). The purpose of this article is to review current literature on the indications and contraindications to UKA and develop a consensus statement based on those data. Six surgeons with a combined experience of performing more than 8,000 partial knee arthroplasties were surveyed. Surgeons then participated in a discussion, emerging proposal, collaborative modification, and final consensus phase. The final consensus on primary indications and contraindications is presented. Notably, the authors provide consensus on previous contraindications, which are no longer considered to be contraindications. The authors provide an updated and concise review of the current indications and contraindications for medial UKA using scientifically based consensus-building methodology.

*But ... ACL Rec + UKA around 2 per year out of 500 knees*

# 2 situations

## Chief complain ?

### 1. Instability and pain

*Secondary OA*

- Young and active
- Trauma → ACL rupture → medial OA



### 1. Pain alone !

*Primary OA*

- Older and low activity level
- No Trauma / medial OA → ACL rupture

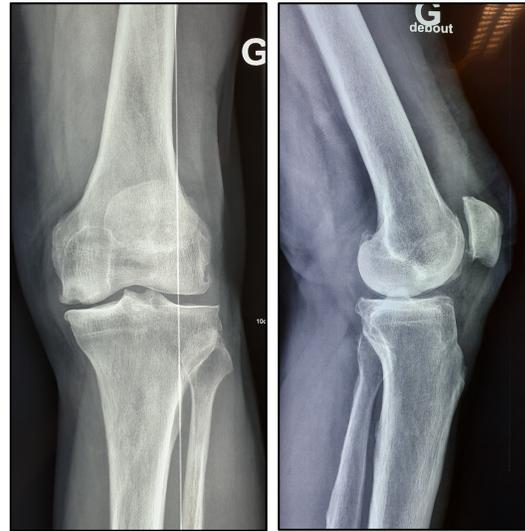


# Evaluation

## 1. Clinical evaluation :

- Full range of knee motion
- Frontal and sagittal knee stability
- Status of the « uninvolved » compartment

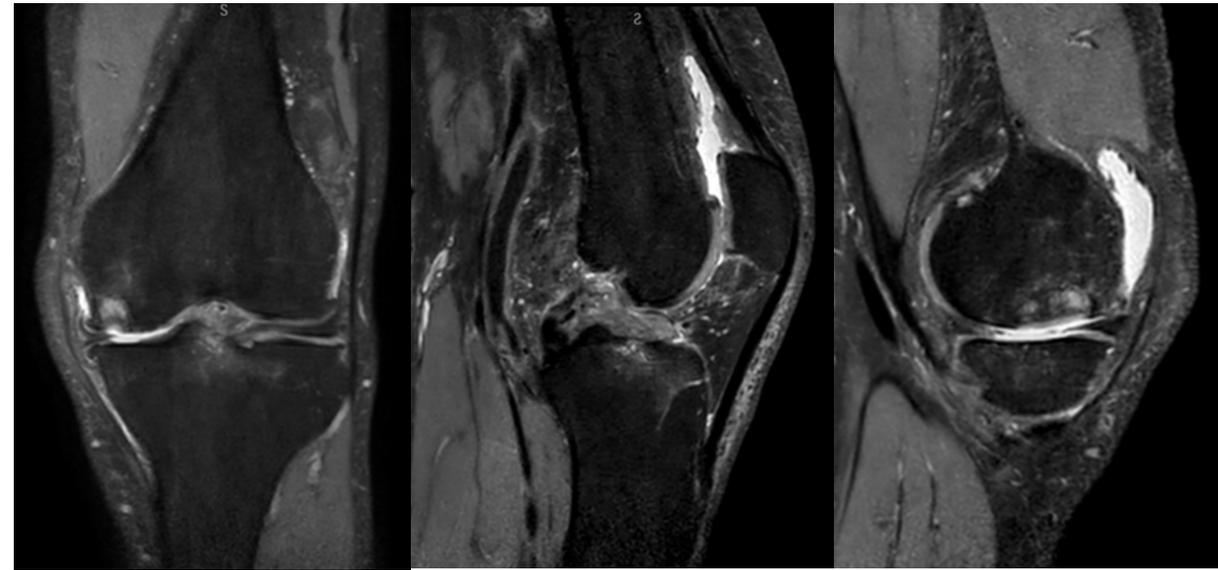
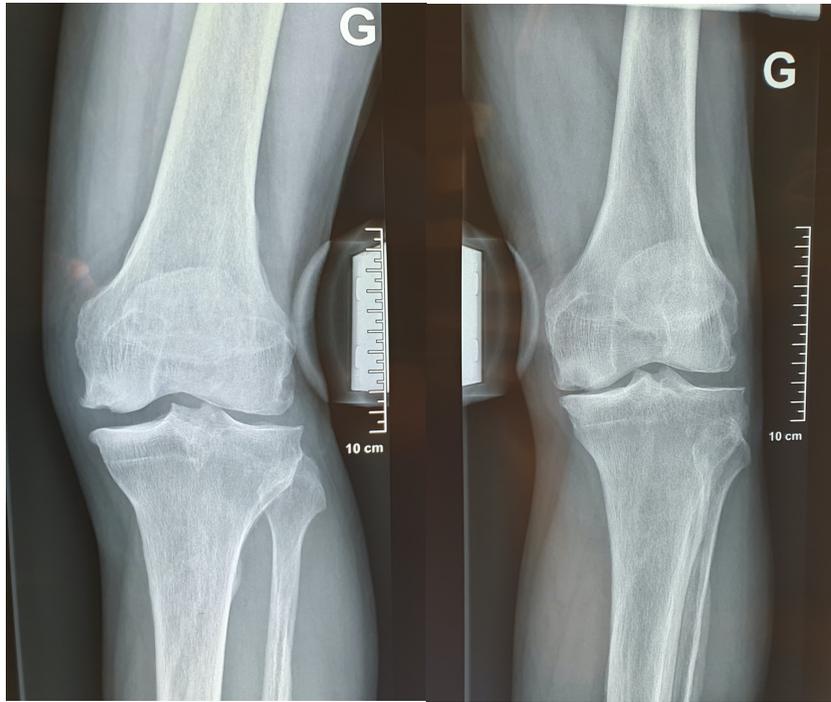
## 2. Radiological evaluation :



# Evaluation

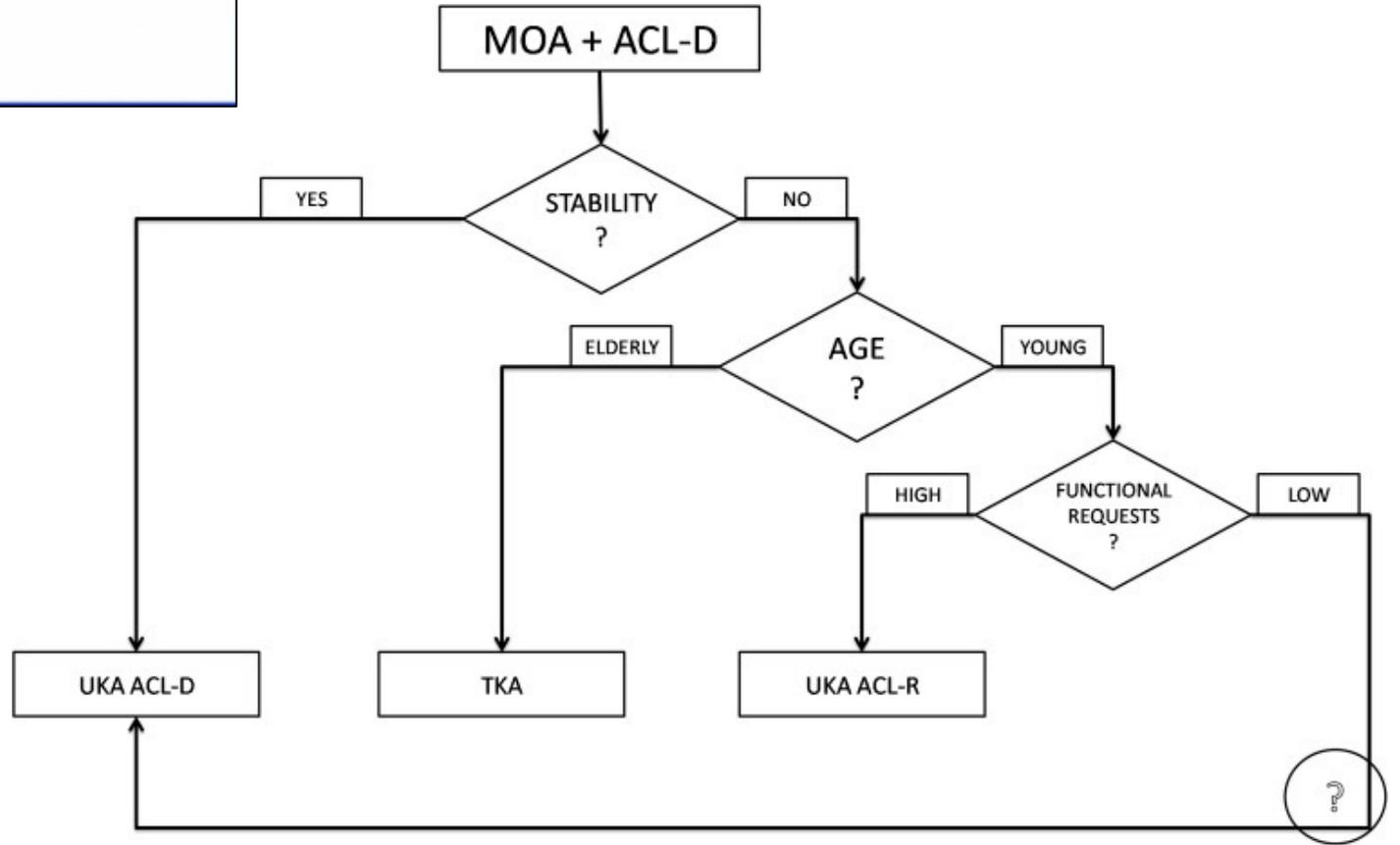


# Evaluation



## Medial unicompartmental knee arthroplasty in the ACL-deficient knee

Francesco Mancuso<sup>1,2</sup> · Christopher A. Dodd<sup>1</sup> · David W. Murray<sup>1</sup> · Hemant Pandit<sup>1</sup>



# *Pain, OA, no instability, older, low demand*

- *Conventional UKA*
- *Posterior slope 0°*



# *Pain, OA, no instability, older, low demand*

## POSTERIOR SLOPE OF THE TIBIAL IMPLANT AND THE OUTCOME OF UNICOMPARTMENTAL KNEE ARTHROPLASTY

By PHILIPPE HERNIGOU, MD, AND GERARD DESCHAMPS, MD  
Investigation performed at Hôpital Henri Mondor, Creteil, France

*>7° of slope should be avoided*



TABLE I Data on the Status of the Anterior Cruciate Ligament and the Posterior Slope Among Knees with and without Loosening of the Tibial Implant

Status of Anterior Cruciate Ligament (At Implantation/At Revision or Latest Follow-up)	Loosening		No Loosening	
	No. of Knees	Posterior Slope* (deg)	No. of Knees	Posterior Slope* (deg)
Normal/Normal	3	1 (-2 to 3)	37	6 (-4 to 10)
Damaged/Damaged	2	-2 (-5 to 2)	29	4 (-6 to 7)
Normal/Absent	5	14 (13 to 18)		
Absent/Absent	7	11 (9 to 12)	11	0 (-6 to 4)

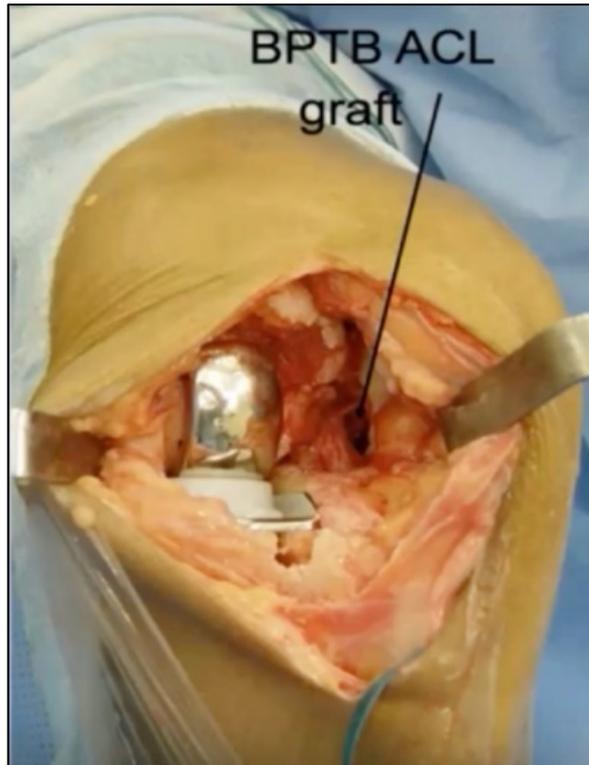
\*The data are given as the mean, with the range in parentheses.

# *Instability and pain, younger - higher demand*

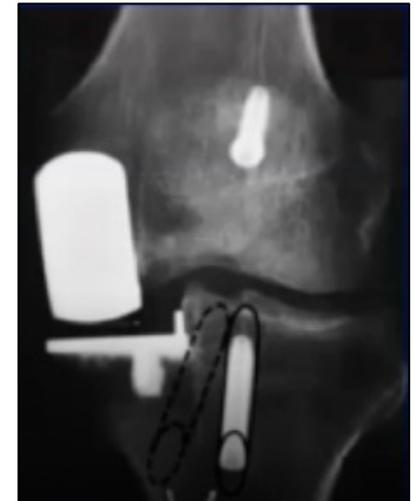
- UKA + ACL reconstruction
- One stage or 2 stages
- Arthro + open
- BTB versus harmstring
- Fixed versus mobile

*Do what you do well and often*

# Oxford : BTB or Harmstring + mobile bearing UKA



- 1/3 medial of the BTB to preserve the tendon vascularisation
- Tunnel through the harvesting site



# *My preference*

- *Fixed bearing UKA and harmstrings*
- *One stage*
- *Arthro + Open*
- *Outside in femur*
- *Robotic*

# *Instability and pain, younger - higher demand*

- Left knee
- History : ACL rupture 2 years ago
- Sports : marathon & trail, ski, tennis
- Symptoms :
  - Painful day and night
- Treatments :
  - Rehabilitation
  - Viscosupplementation and CS injection : no pain relief

*Mr P.  
58 years old*

# *Instability and pain, younger - higher demand*

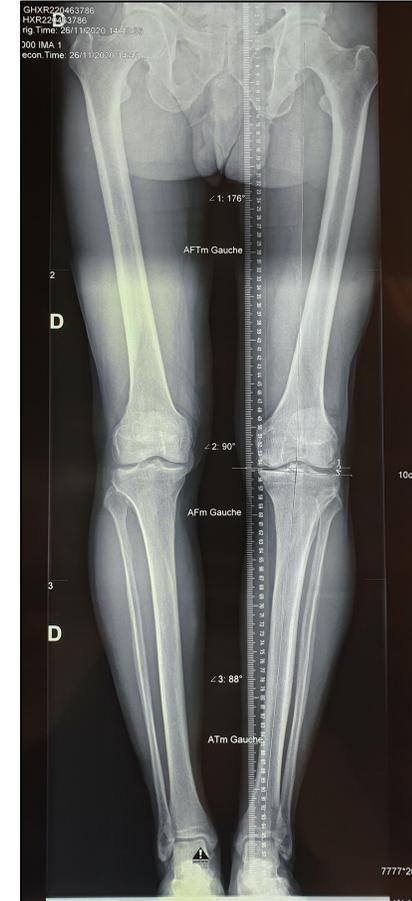
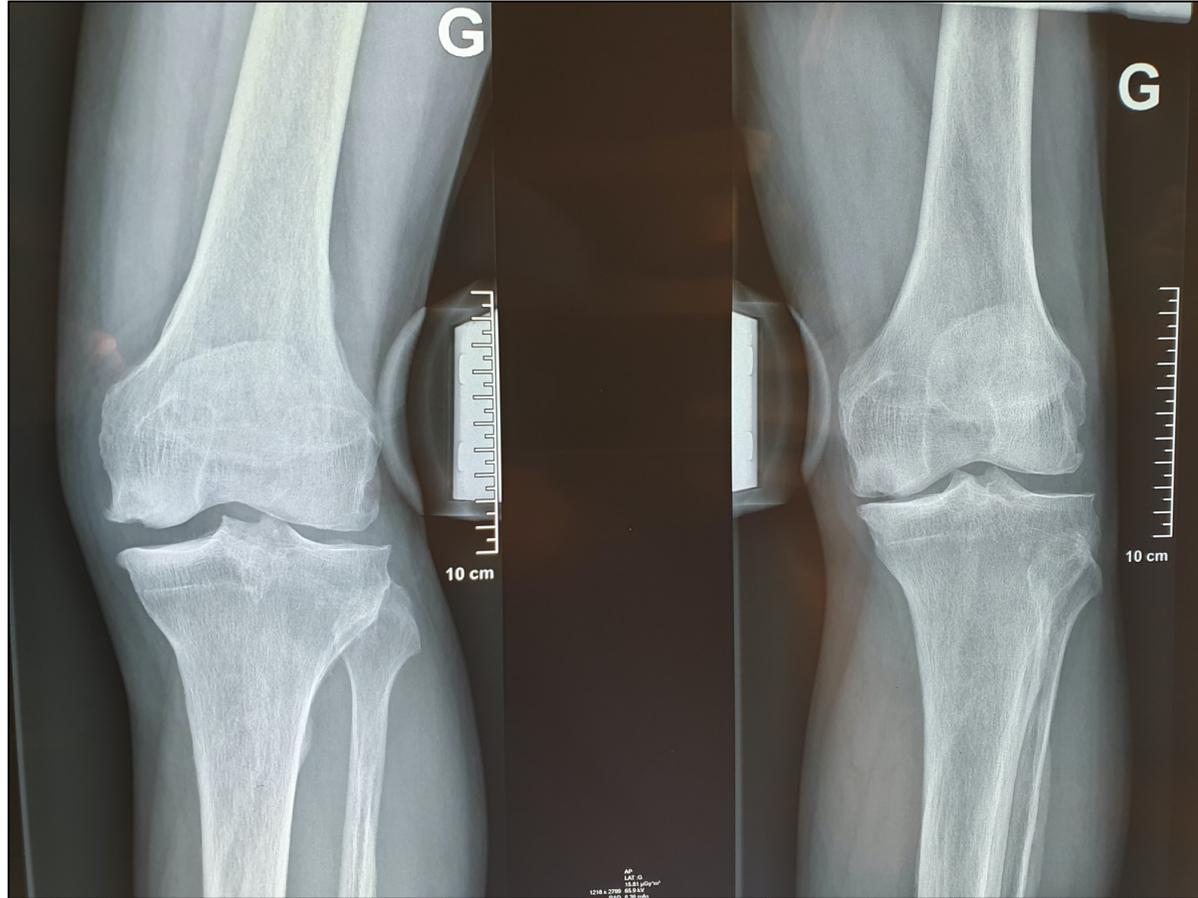
- Clinical exam :
  - 174 cm, 75 kg
  - Varus : 0,5 FB
  - ROM : 0/2/130
  - Lachman : delayed firm end point
  - Pain +++ medial compartment only



# XRay

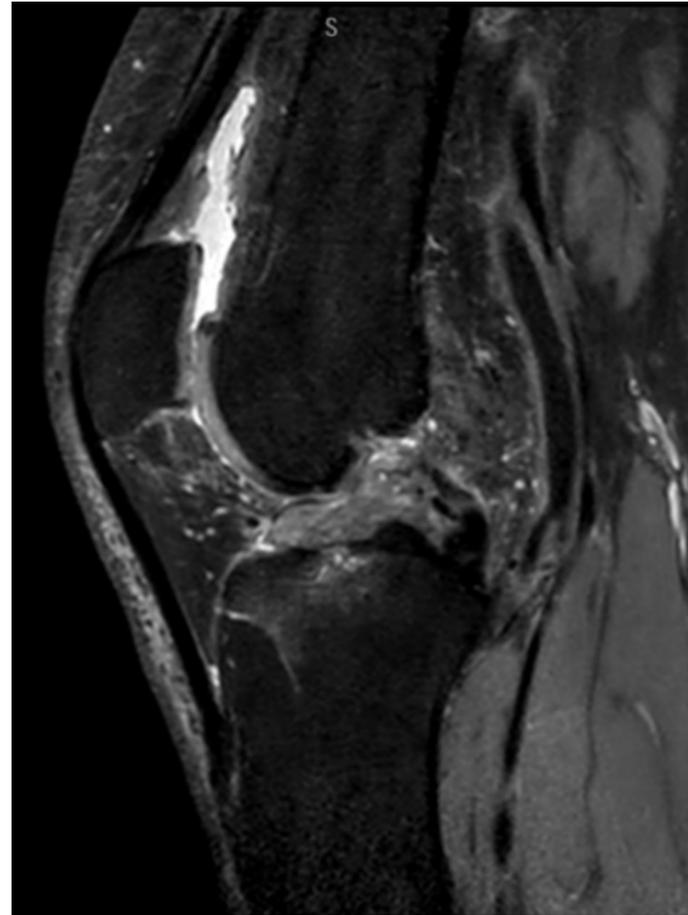


# XRay



**HKA 176**

# MRI

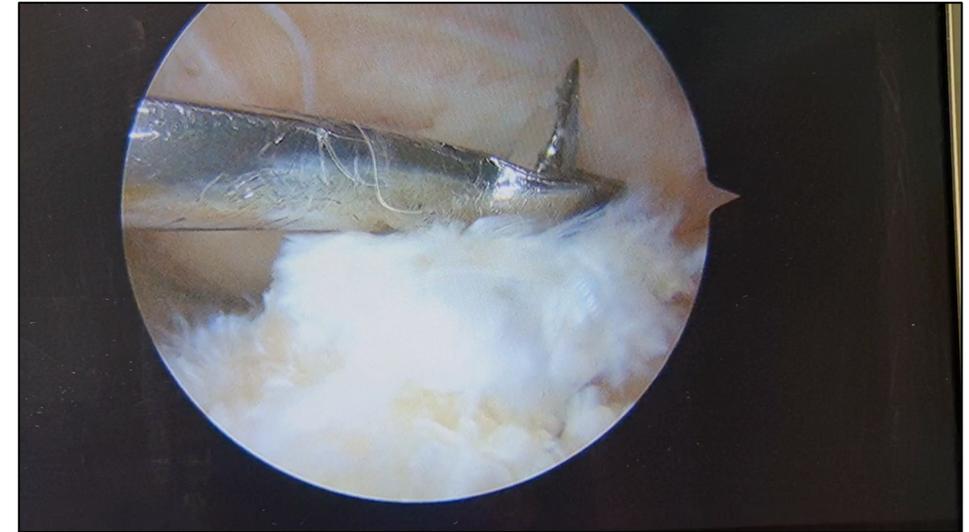
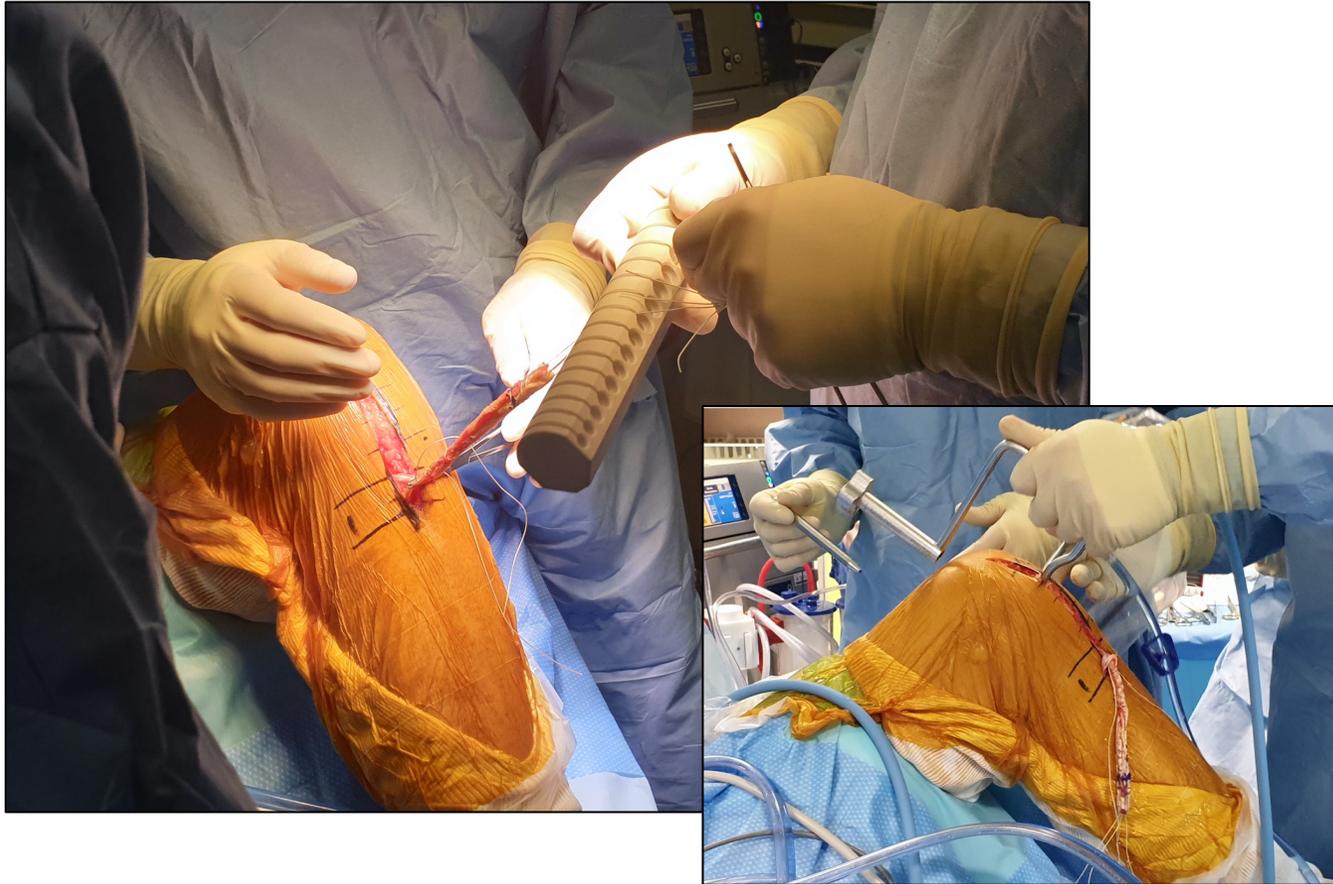


# 1. Arthroscopy 1st

- Confirm indication
  - Lateral and PF compartment debridement if necessary
- Notch : osteophytes removal ++



## 2. Graft harvesting and tunnels drilling



**Tibial tunnel in skin incision  
More laterally to avoid conflict with  
tibial cut.**

# 3. Femoral and tibial preparation

## Robotic assisted surgery

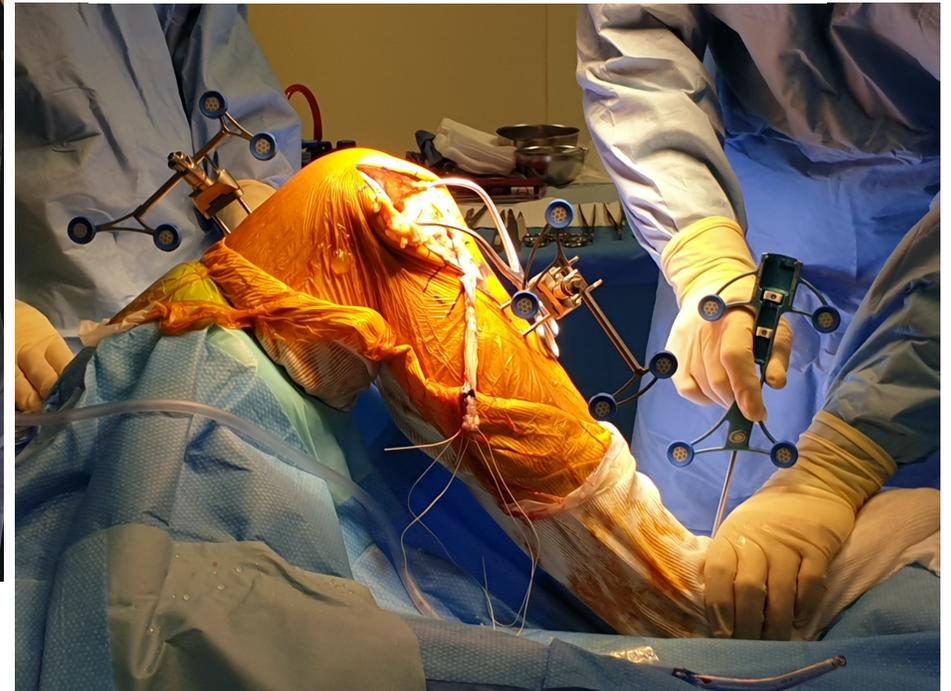
Accuracy in UKA positioning and ligament balancing



> *Knee Surg Sports Traumatol Arthrosc.* 2019 Apr;27(4):1232-1240.  
doi: 10.1007/s00167-018-5081-5. Epub 2018 Jul 31.

**Improved implant position and lower revision rate with robotic-assisted unicompartmental knee arthroplasty**

Cécile Batailler <sup>1</sup>, Nathan White <sup>2</sup>, Filippo Maria Ranaldi <sup>2</sup>, Philippe Neyret <sup>2</sup>, Elvire Servien <sup>2</sup>, Sébastien Lustig <sup>2</sup>

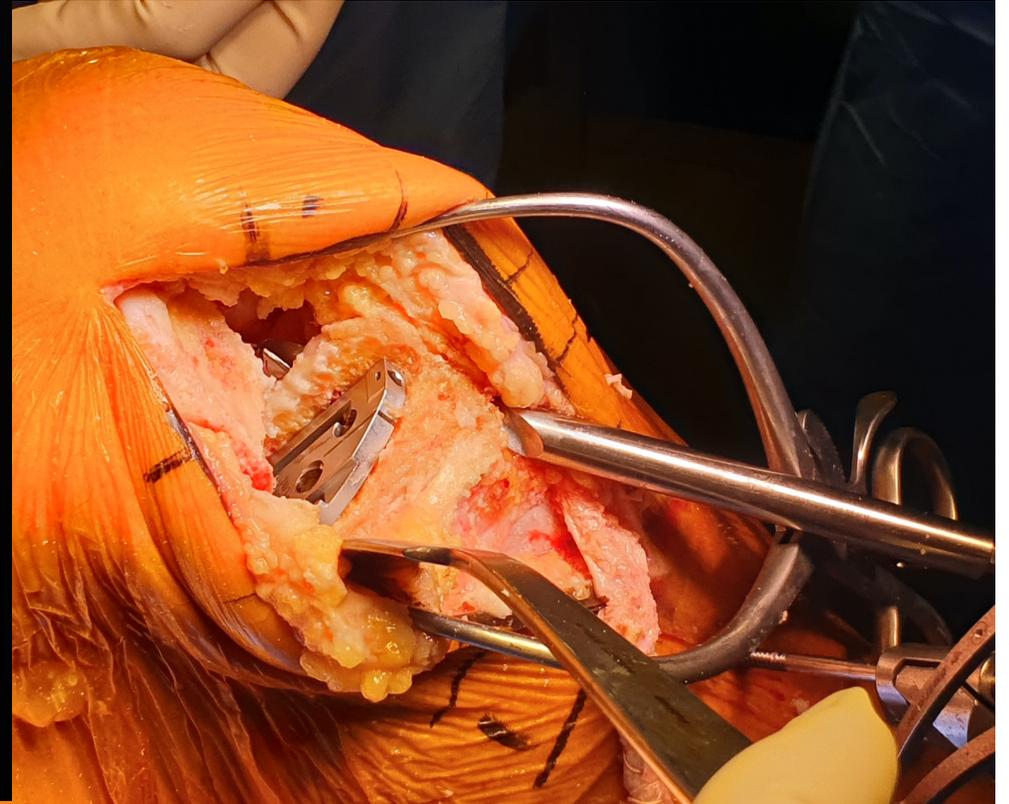
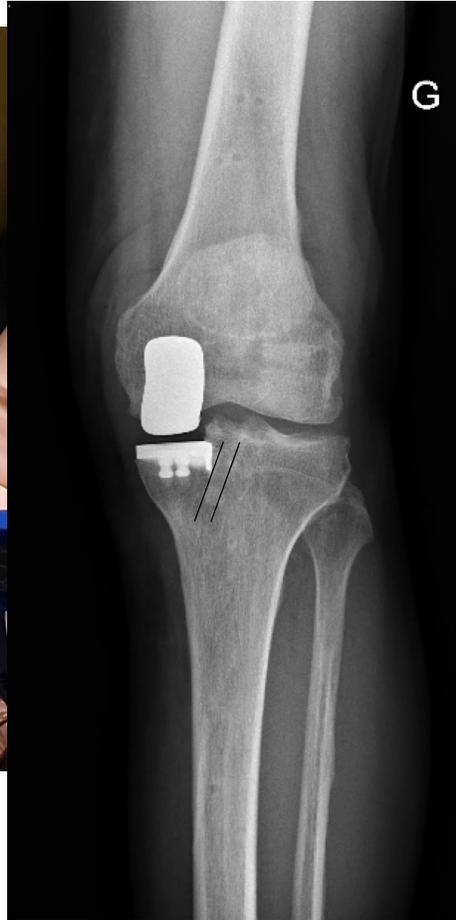
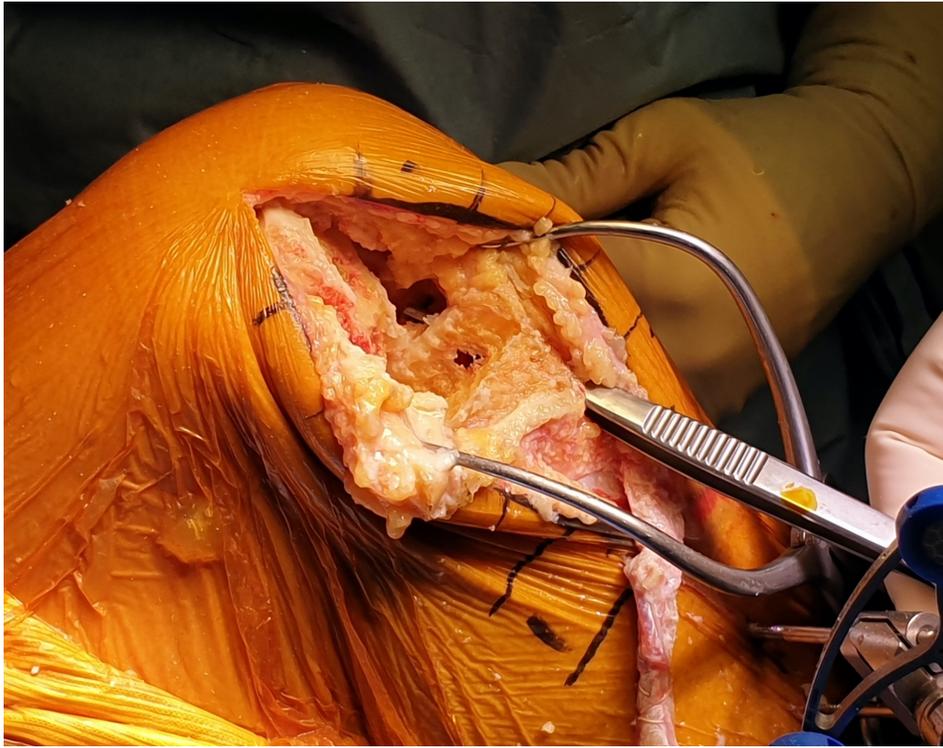


# 3. Femoral and tibial preparation

- Balance during complete ROM
- Centered position
- Control the slope



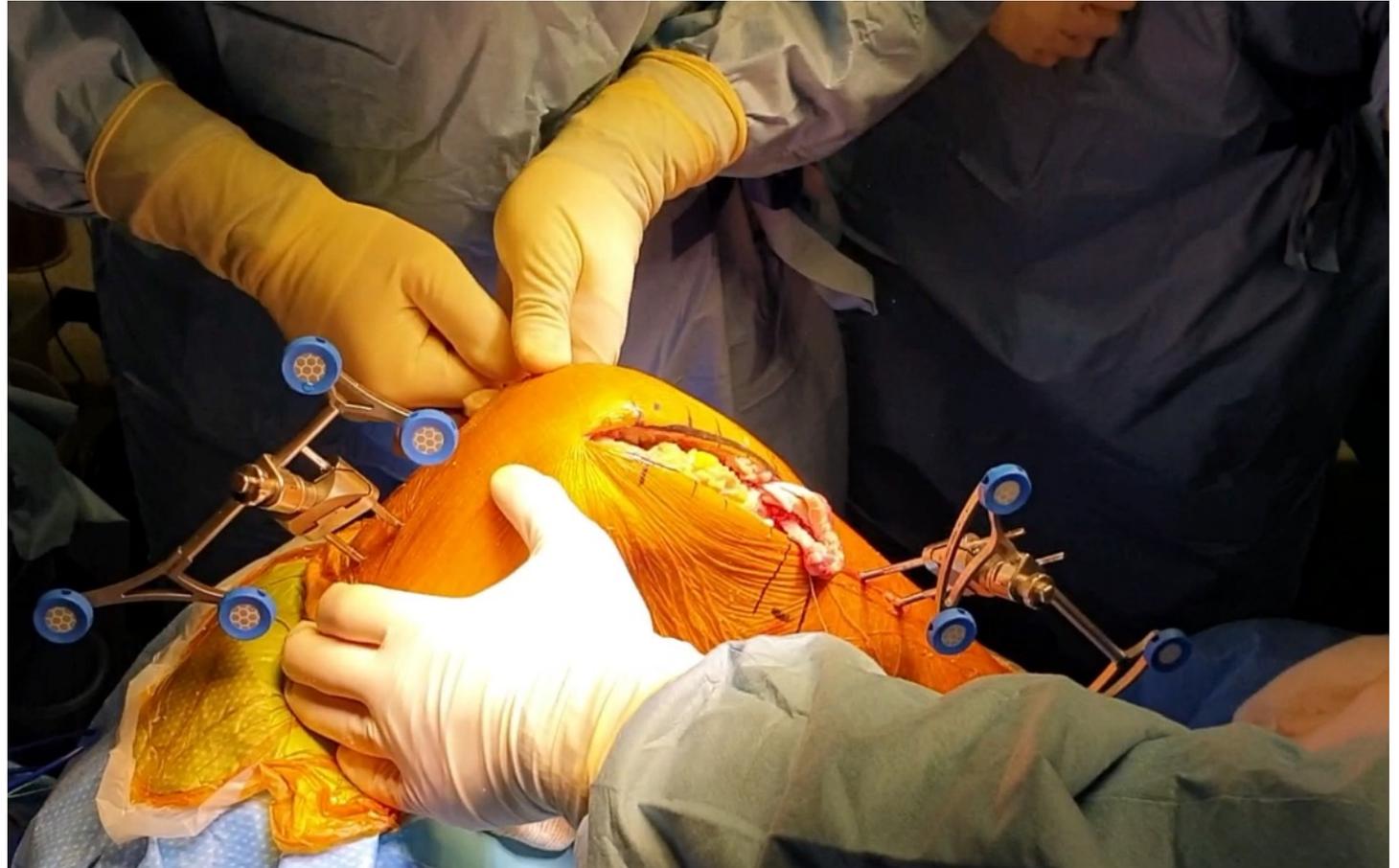
## 4. No conflict with tibial tunnel



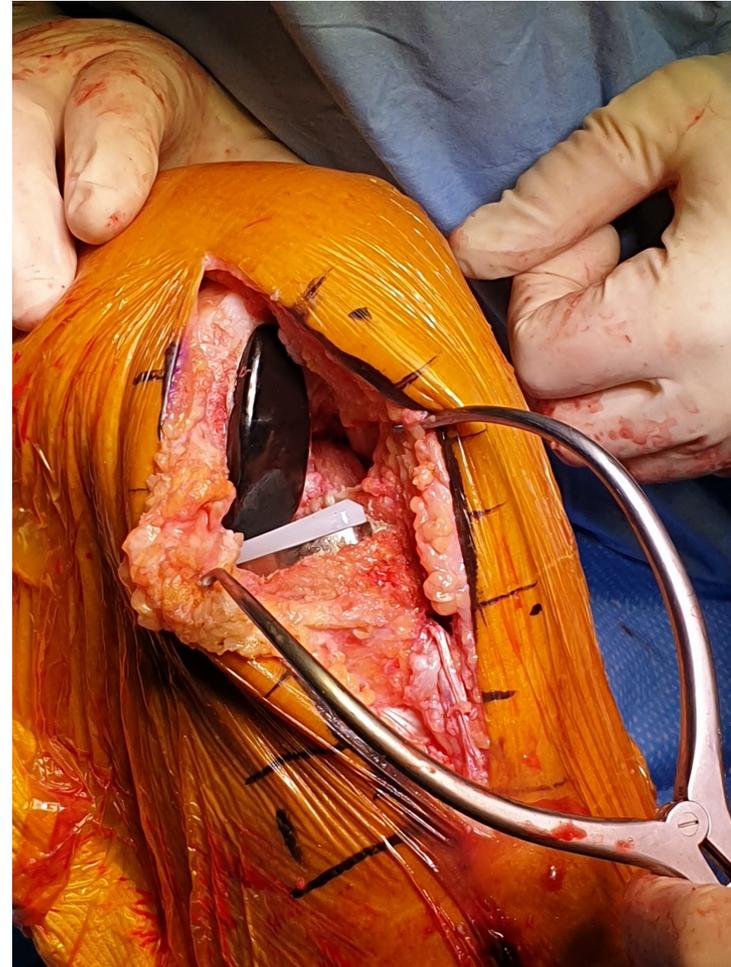
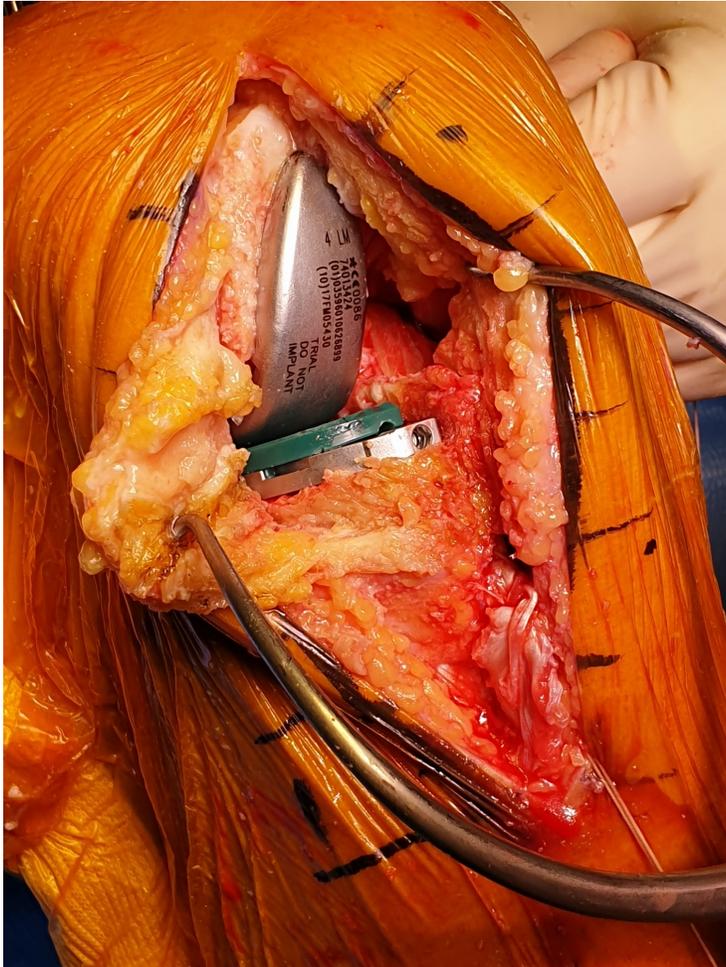
Check there is no conflict between the tibial tunnel and the tibial component

# 5. Trials - Graft

- *Trials*
- *Graft through tunnels*
- *Tibial fixation*
- *Check ROM and gaps*

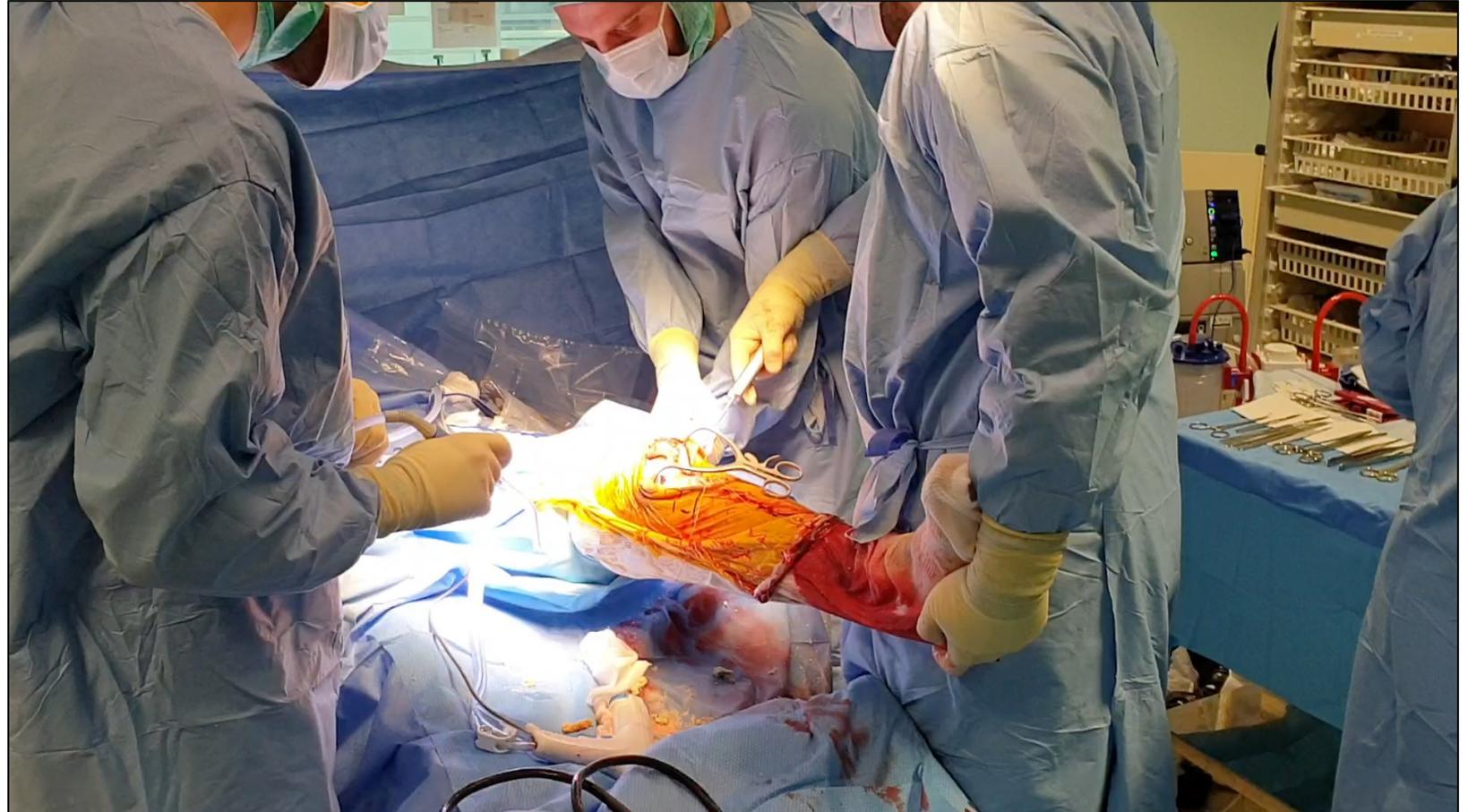


## 6. UKA cementing



# 7. Graft fixation

**Anisometry**  
**Full extension**



D



# Rehab

- Full weight-bearing
- Similar to UKA
- Return to sport 4 months

Comparative Study > Arch Orthop Trauma Surg. 2018 Dec;138(12):1765-1771.  
doi: 10.1007/s00402-018-3042-6. Epub 2018 Sep 21.

**Faster return to sport after robotic-assisted lateral unicompartmental knee arthroplasty: a comparative study**

R Canetti <sup>1</sup>, C Batailler <sup>2</sup>, C Bankhead <sup>3</sup>, P Neyret <sup>1</sup>, E Servien <sup>1</sup>, S Lustig <sup>1</sup>



# Results



Review > [Knee Surg Sports Traumatol Arthrosc.](#) 2018 Sep;26(9):2594-2601.  
doi: 10.1007/s00167-017-4536-4. Epub 2017 Mar 31.

## Satisfactory outcomes following combined unicompartamental knee replacement and anterior cruciate ligament reconstruction

[Andrea Volpin](#)<sup>1</sup>, [S G Kini](#)<sup>2</sup>, [D E Meuffels](#)<sup>3</sup>

- Systematic review.: 8 studies
- 186 patients, 50.5 years
- Mean follow-up of 37.6 months
- Tibial inlay dislocation (n = 3)  
Conversion to a total knee arthroplasty (n = 1)  
Stiffness requiring manipulation under anaesthesia (n = 1)  
Retropatellar pain requiring arthroscopic adhesiolysis (n = 1)

# Our experience

International Orthopaedics

<https://doi.org/10.1007/s00264-022-05544-5>

ORIGINAL PAPER

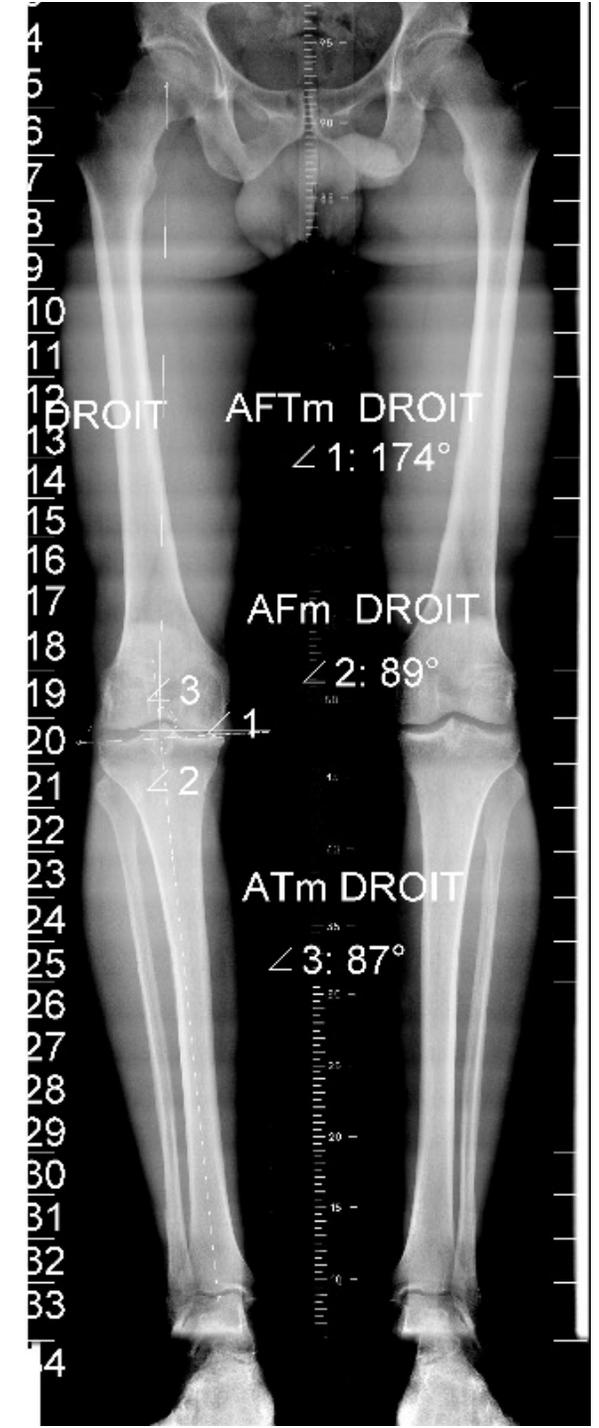


## Is combined robotically assisted unicompartmental knee arthroplasty and anterior cruciate ligament reconstruction a good solution for the young arthritic knee?

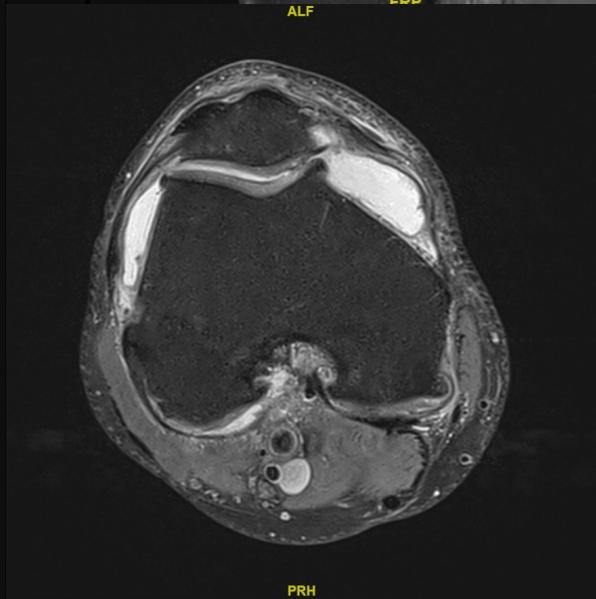
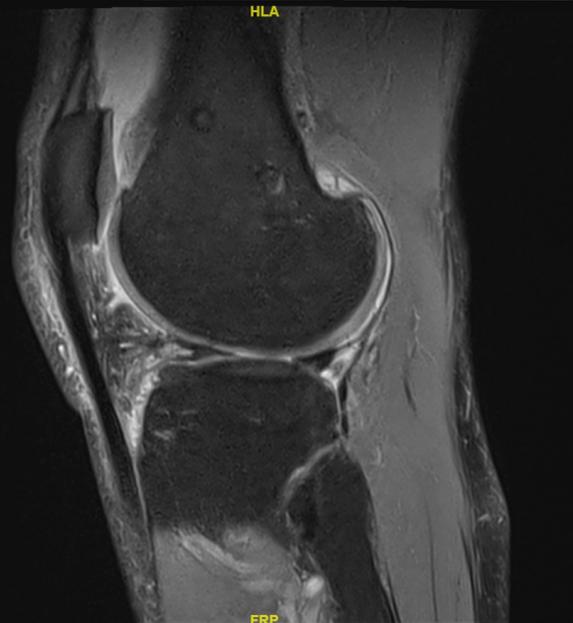
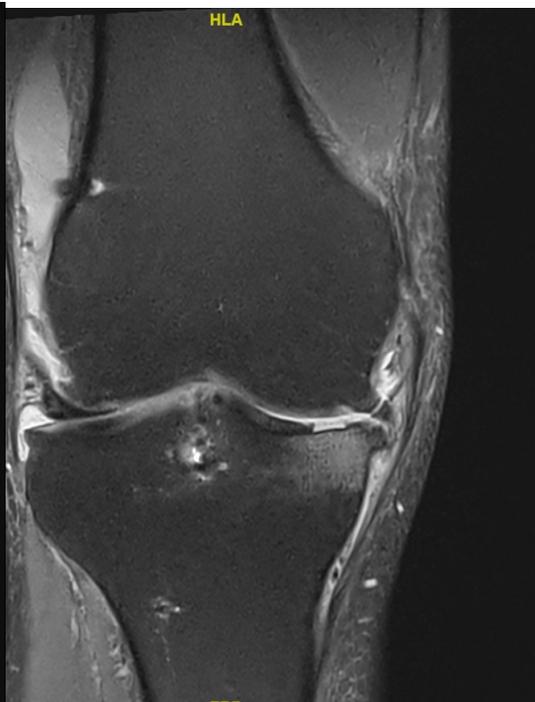
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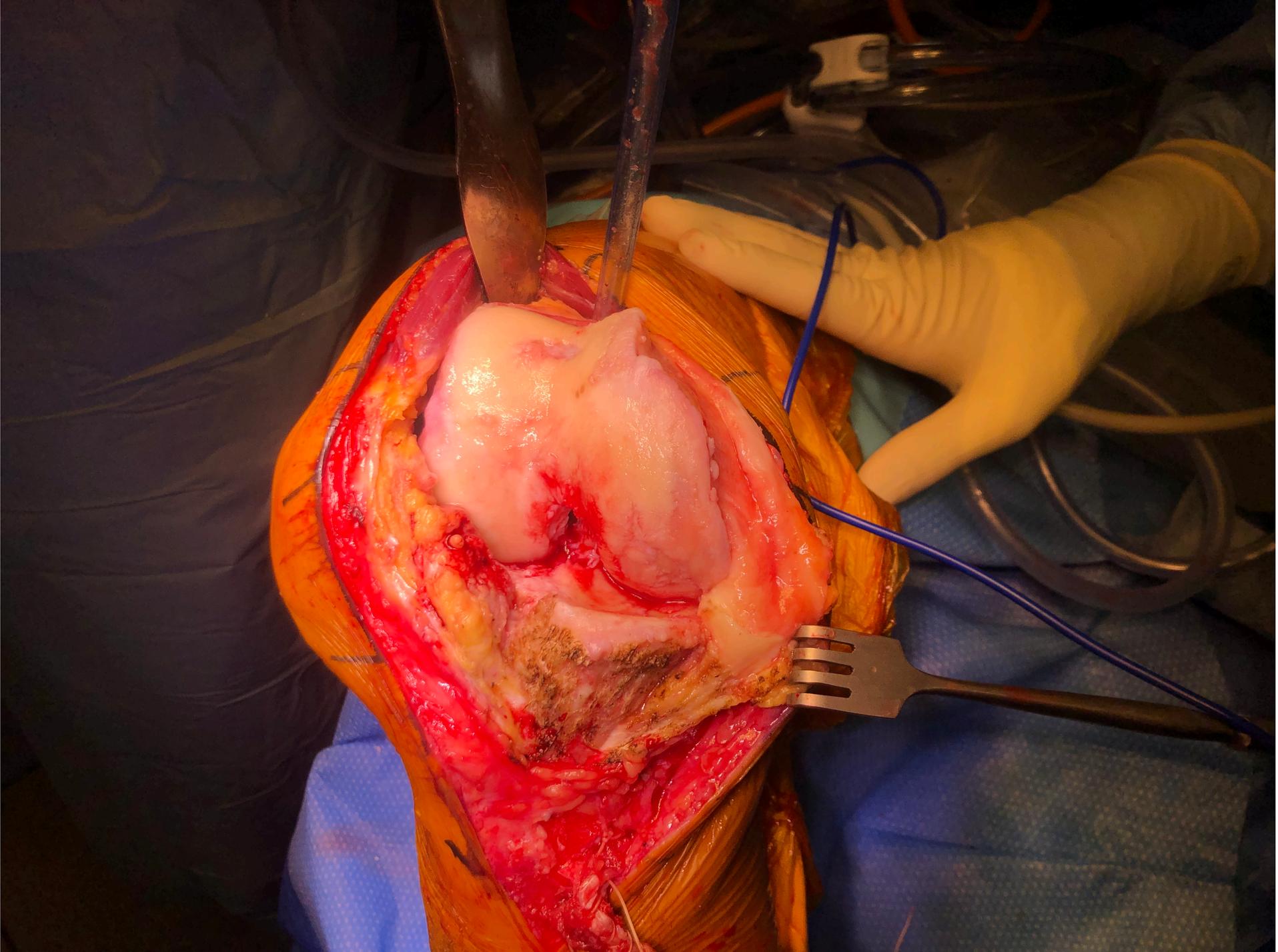
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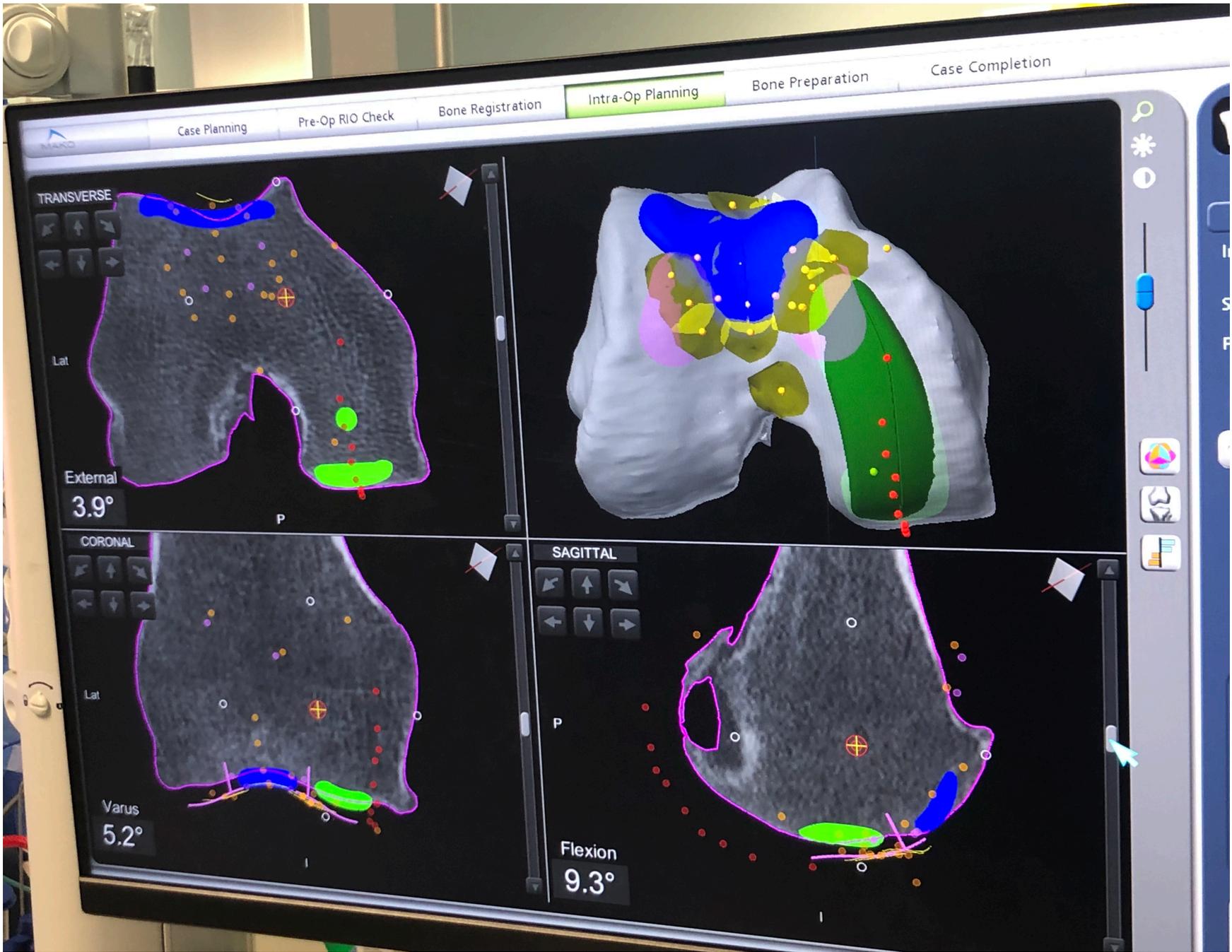




# MRI

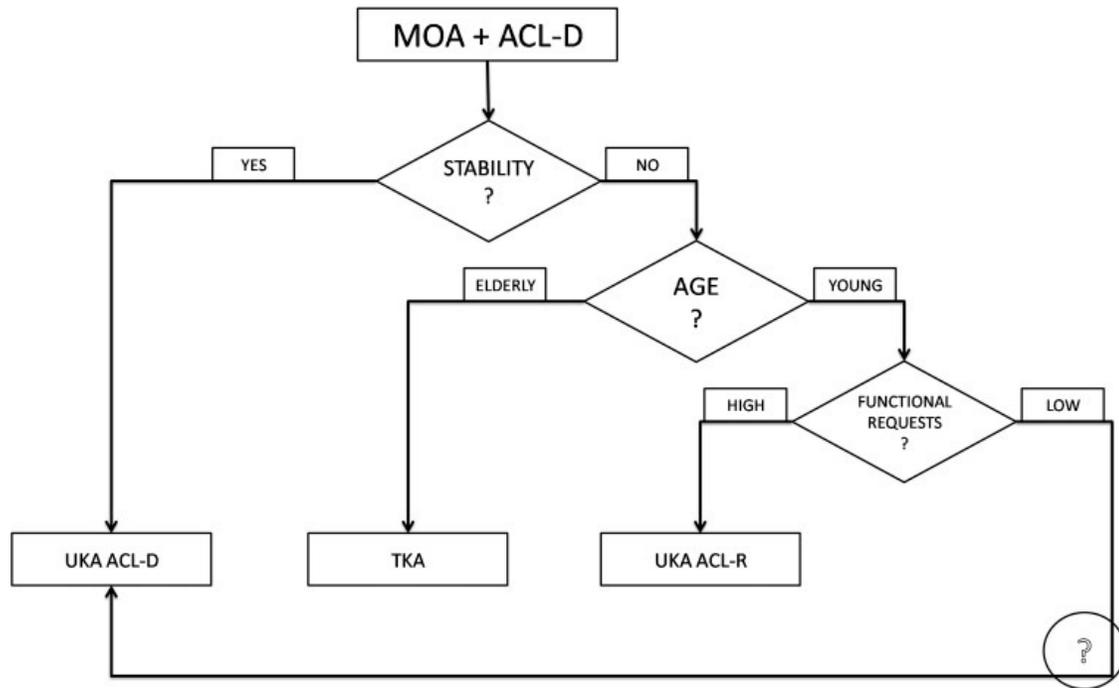








# Take Home Message



- Chief complain.
- Low demand and older, no instability : **UKA + slope management.**
- Young and active, instability and pain : **UKA + ACL.**

- Technically demanding procedure
- Flexion / Extension gap  
→ robotic surgery ++

*Lyon - FRANCE*



# Thank you

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