



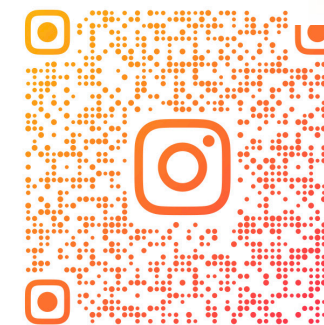
Fracture on patellar implant



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Clinique
de la
Sauvegarde



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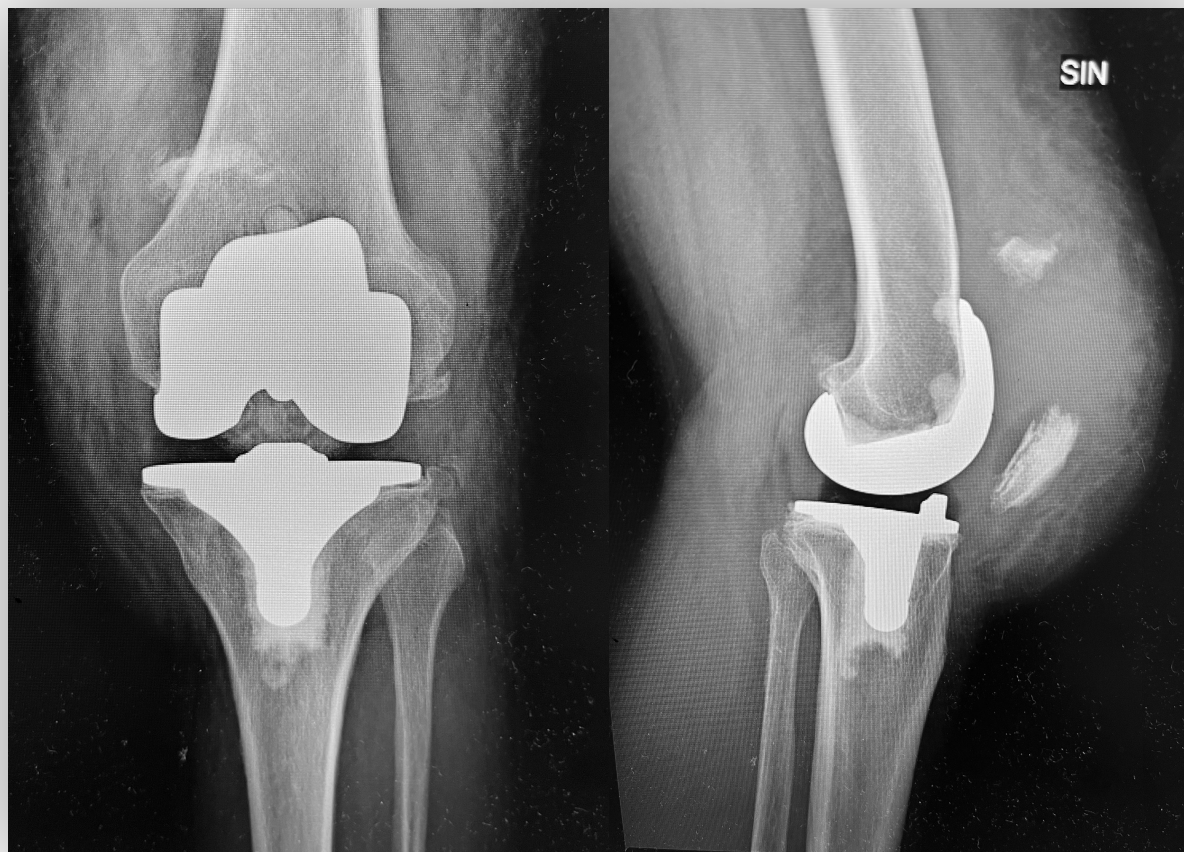
CASE 1

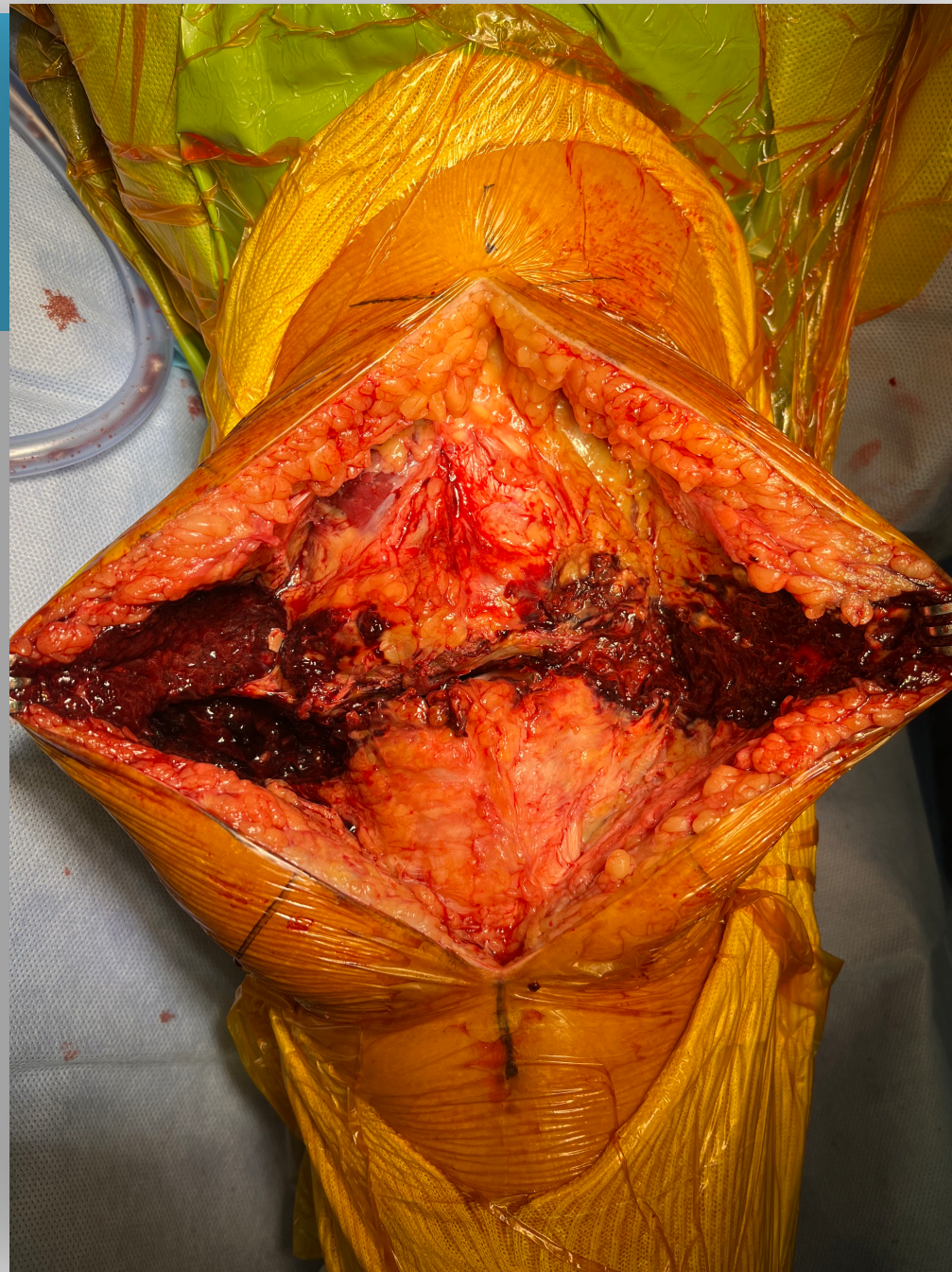


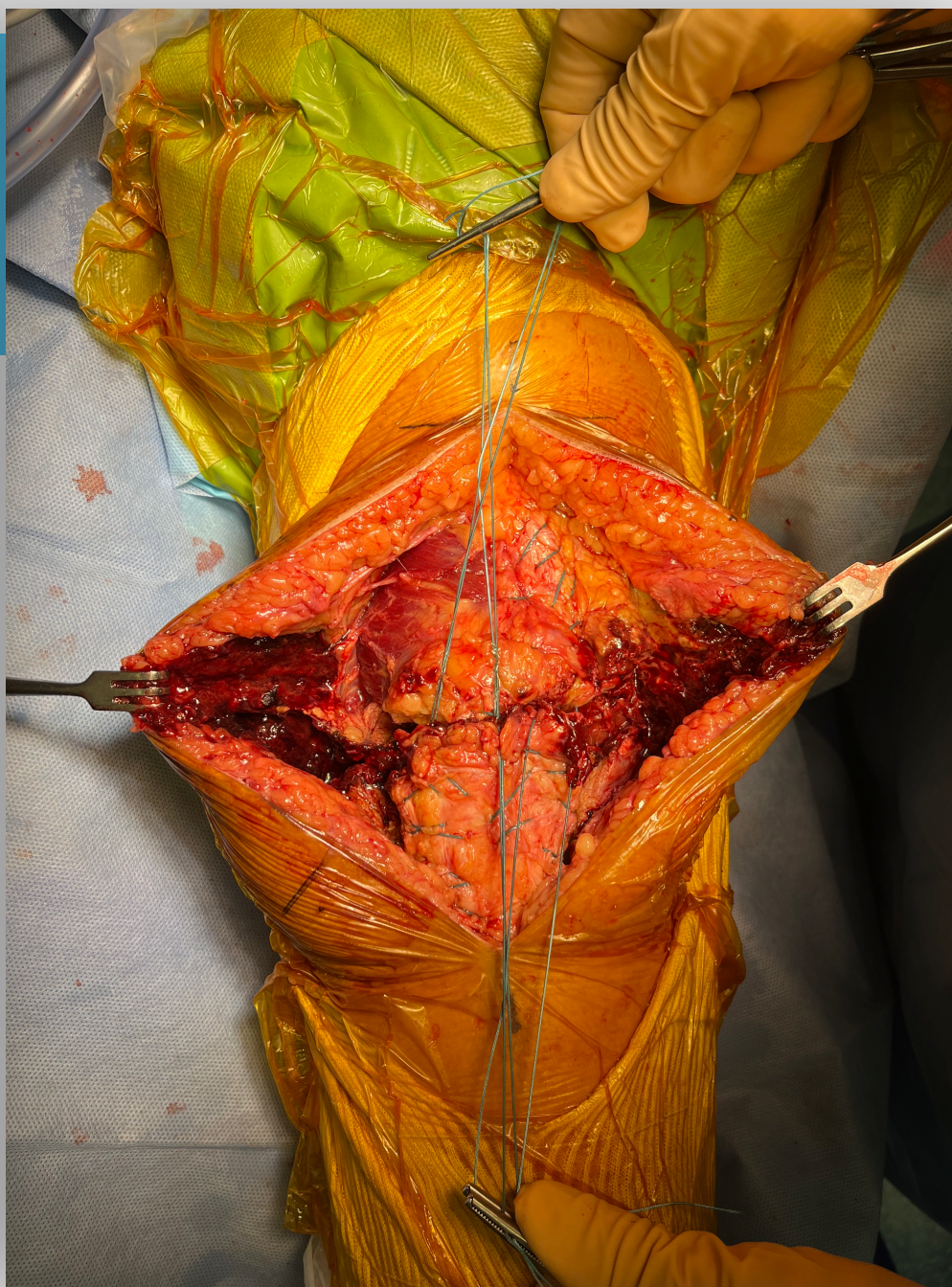
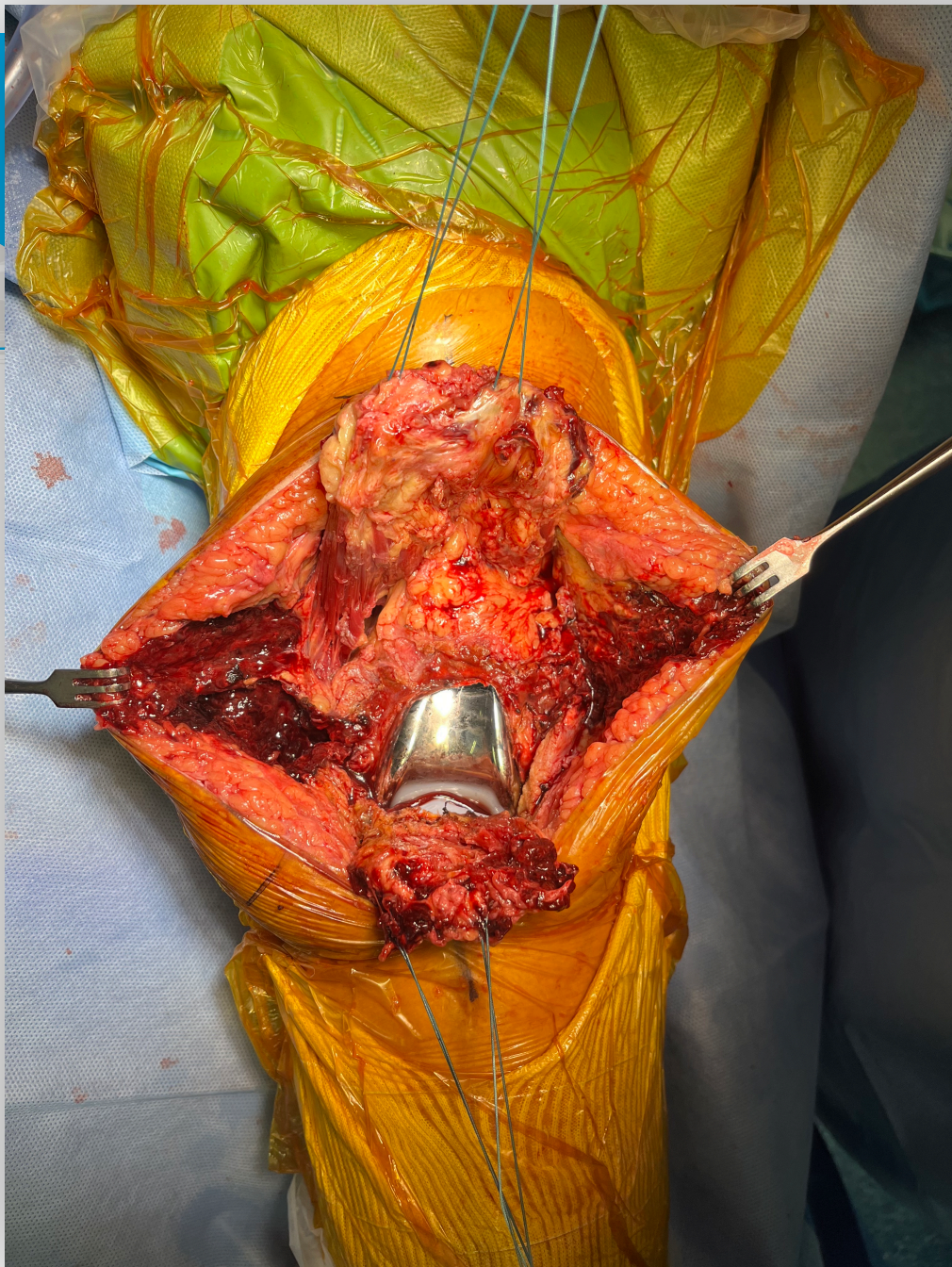
68yo female
TKA left knee in 2018
88Kg/1m70 (BMI 30)
Was going well
Felt during holidays





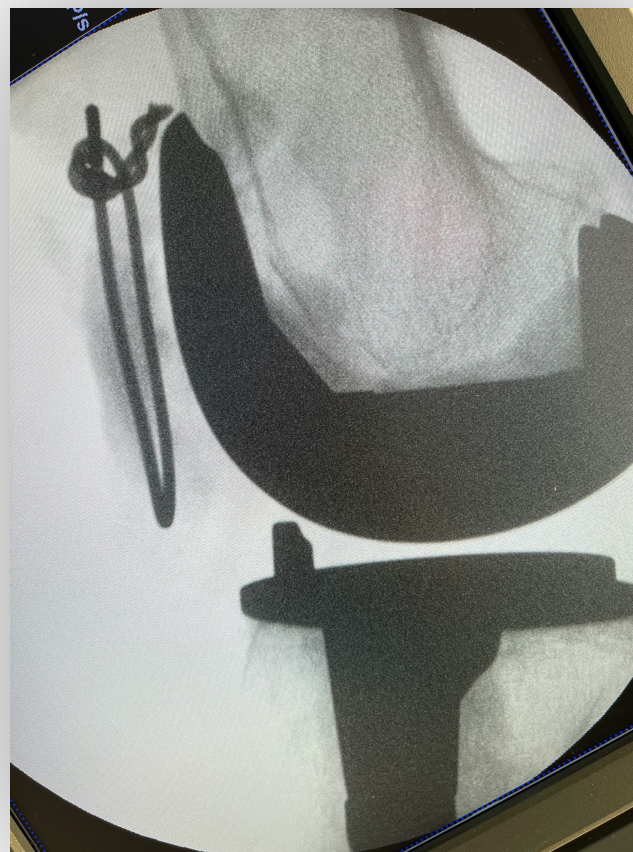


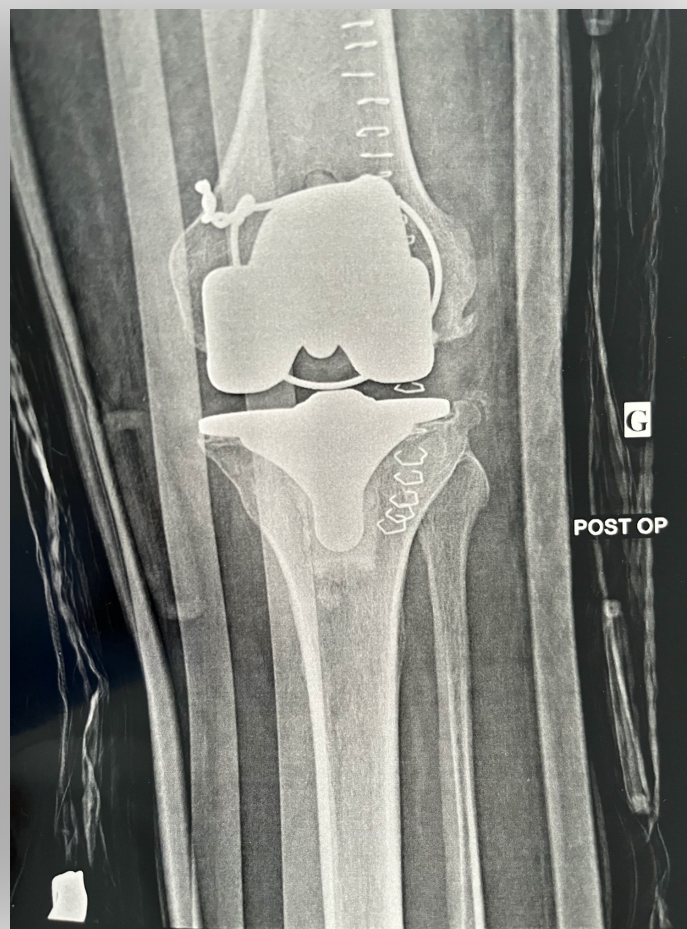


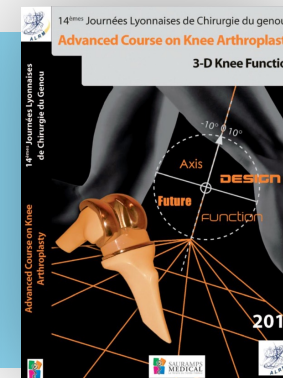






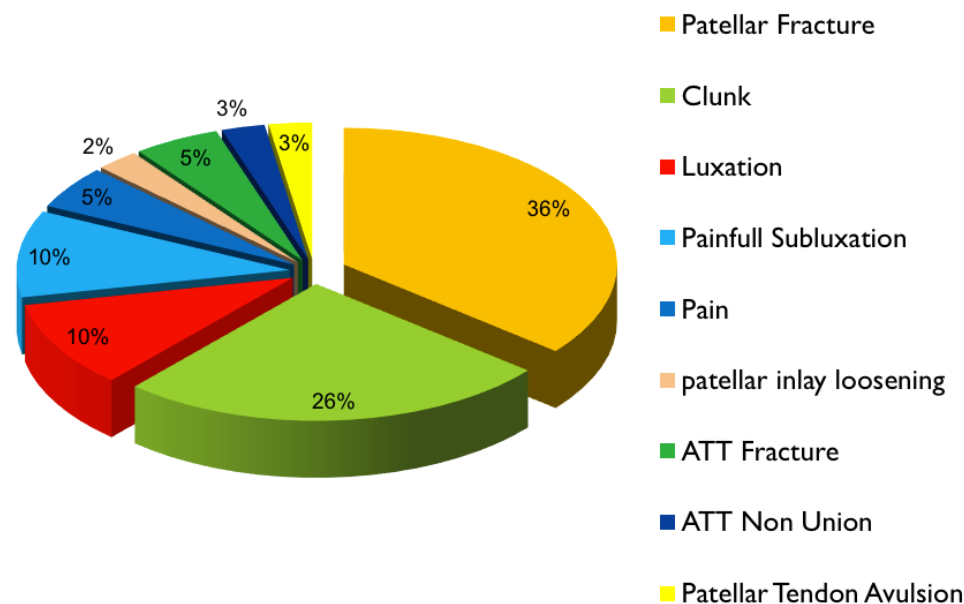






Lyon School of Knee Surgery 2010

39 Complications among 1459 primary TKAs with 3y FU (2.7%)



1. Patellar fracture (0.9%)
2. Patellofemoral instability
3. Extensor mechanism rupture
4. Clunk
5. Pain

Factor of poor outcomes

Infection

Residual subluxation



Clinical examination



- ✓ Anamnesis
- ✓ Lack of active extension +++ (knee extension lag)
- ✓ Palpable gap
- ✓ Risk factors





Risk factors



- ✓ Poor patellar stability
- ✓ Excessive patellar resection (<12mm)
- ✓ History of surgery (OTV, TTA)
- ✓ Patella Infera
- ✓ Associated conditions:
 - Obesity
 - Inflammatory rheumatism
 - Diabetes

SCIENTIFIC ARTICLES

The Management of Extensor Mechanism Complications in Total Knee Arthroplasty

AAOS Exhibit Selection

Nam, Denis MD¹; Abdel, Matthew P. MD²; Cross, Michael B. MD³; LaMont, Lauren E. MD³; Reinhardt, Keith R. MD³; McArthur, Benjamin A. MD³; Mayman, David J. MD³; Hanssen, Arlen D. MD²; Sculco, Thomas P. MD³

[Author Information](#) ☺

The Journal of Bone & Joint Surgery 96(6):p e47, March 19, 2014. | DOI: 10.2106/JBJS.M.00949

Nam et al. JBJS 2014



X-ray findings



➤ RADIOGRAPHS+++

Patellar fracture

Tibial tubercle fracture (TT elevation)

Patellar height (Blackburne-Peel)

Patellar resurfacing or not

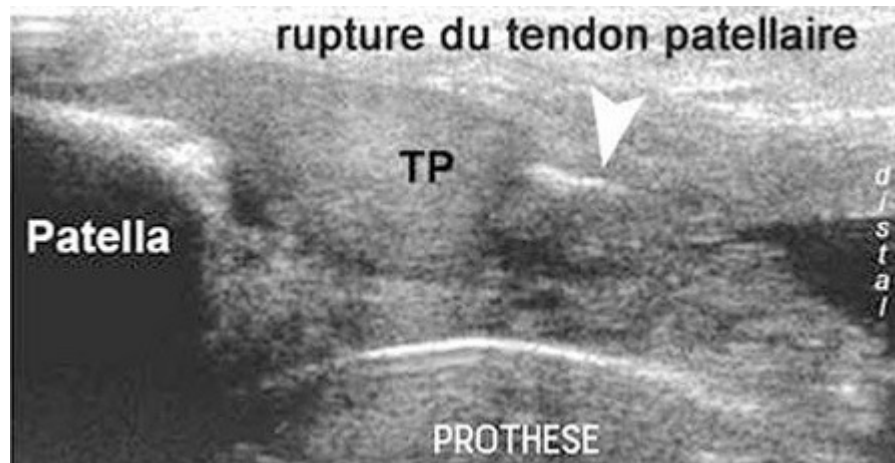




Ultrasound



ULTRASOUND



MRI



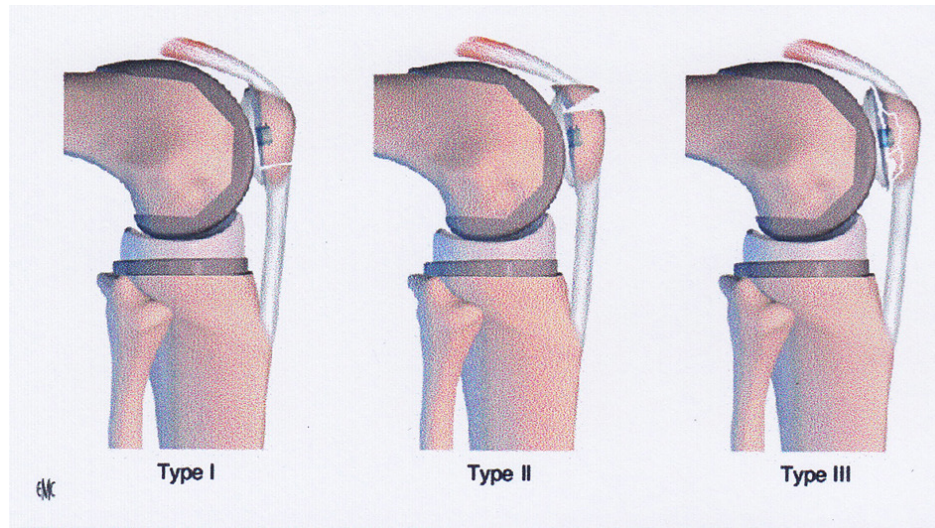


Management of patella fracture



Ortiguera and Berry classification (JBJS Am, 2002)

- ✓ Type 1 : The most common. Do not compromise the continuity of the extensor mechanism
- ✓ Type 2 : the implant is stable, but the extensor mechanism is discontinued
- ✓ Type 3 : the patellar implant is detached



D. Saragaglia

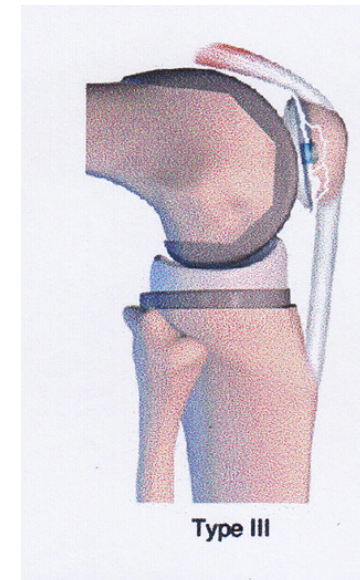
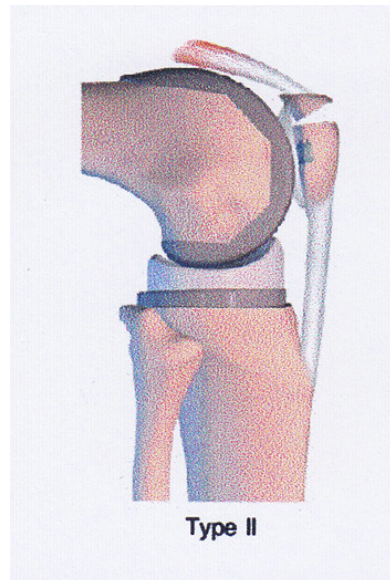
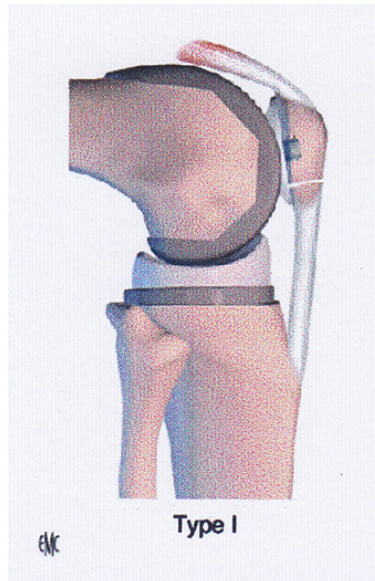


Management of patella fracture



Ortiguera and Berry classification (JBJS Am, 2002)

- ✓ Type 1 : Extensor mechanism intact → Conservative treatment
- ✓ Type 2 : Extensor mechanism ruptured → Fixation, osteosuture, reinforcement
- ✓ Type 3 : Patellar implant detached → Removal of the patellar button



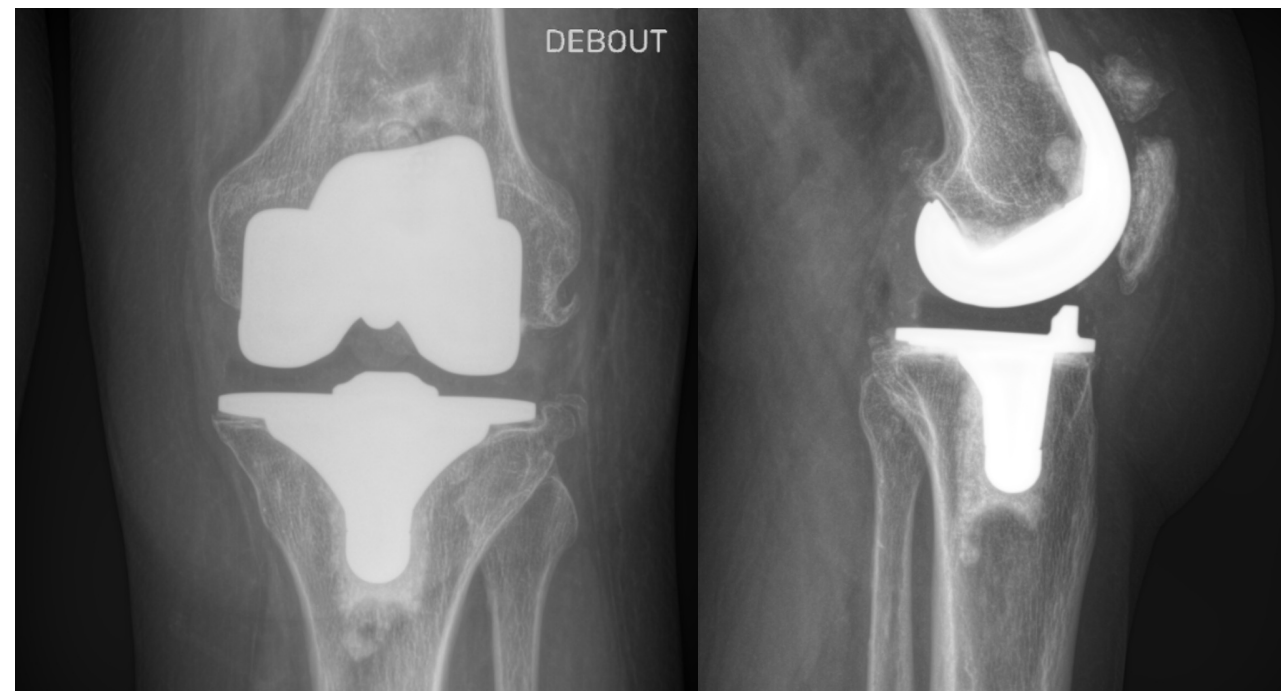


6 months postoperative
Full active extension
110° flexion



1.5 year FU







CASE 2



71-year-old woman

83 kg/1.63 m (BMI = 31)

Active patient

- 2013: Left TKA
 - 4 months postoperative: Patellar fracture / patellar tendon rupture during rehabilitation
 - 2014: Chronic patellar tendon rupture
- Complains of walking difficulties and pain





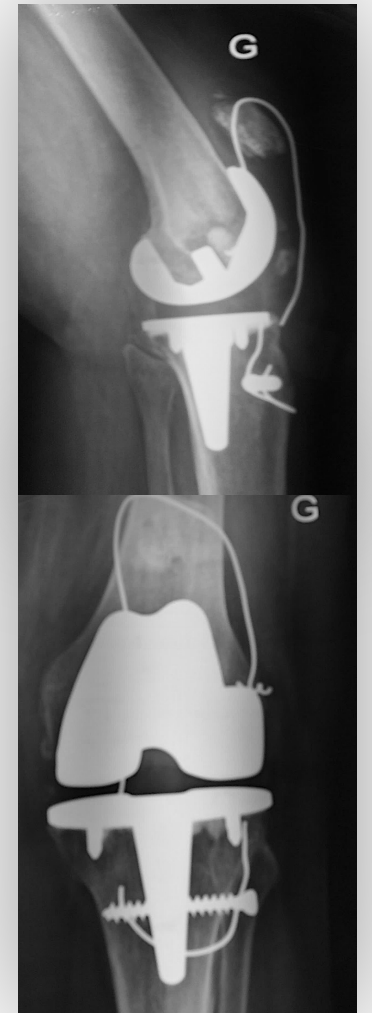
Clinical examination:

- Subpatellar gap
- Passive ROM: 0/0/130
- Lack of active extension : 40°
- No sagittal or frontal laxity
- Patella partially fixed



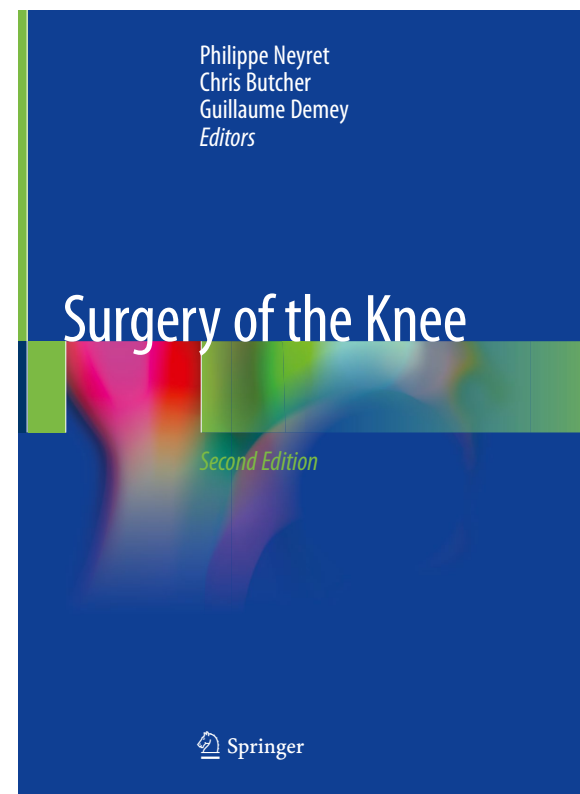
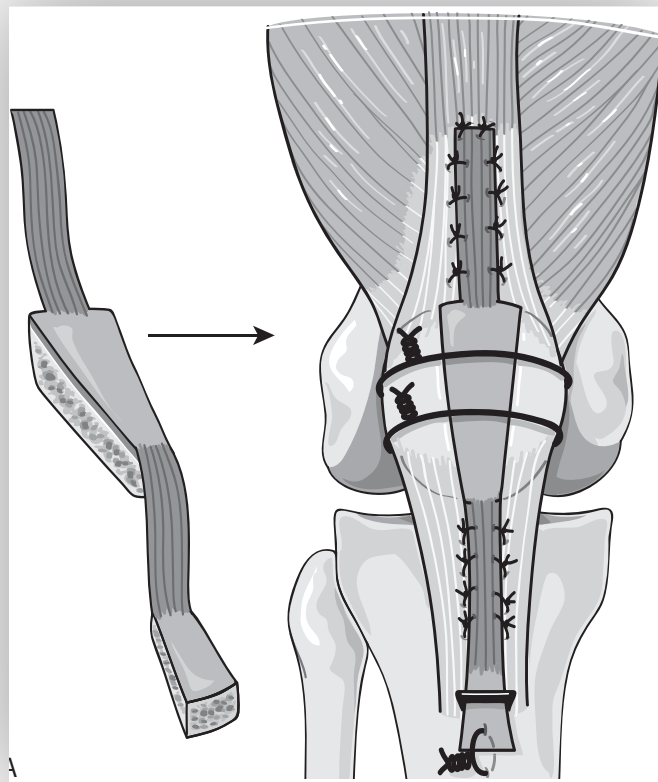
Which surgical option?

- A. Suturing, reinforcement with hamstrings or PDS band
- B. Reconstruction with artificial ligament (Hanssen technique)
- C. Autograft of the extensor mechanism
- D. Allograft of the extensor mechanism
- E. Allograft with Achilles tendon
- F. TKA revision and extensor mechanism reconstruction





Allograft with extensor mechanism





+/- Preoperative sizing +++ with radiographs of the contralateral knee



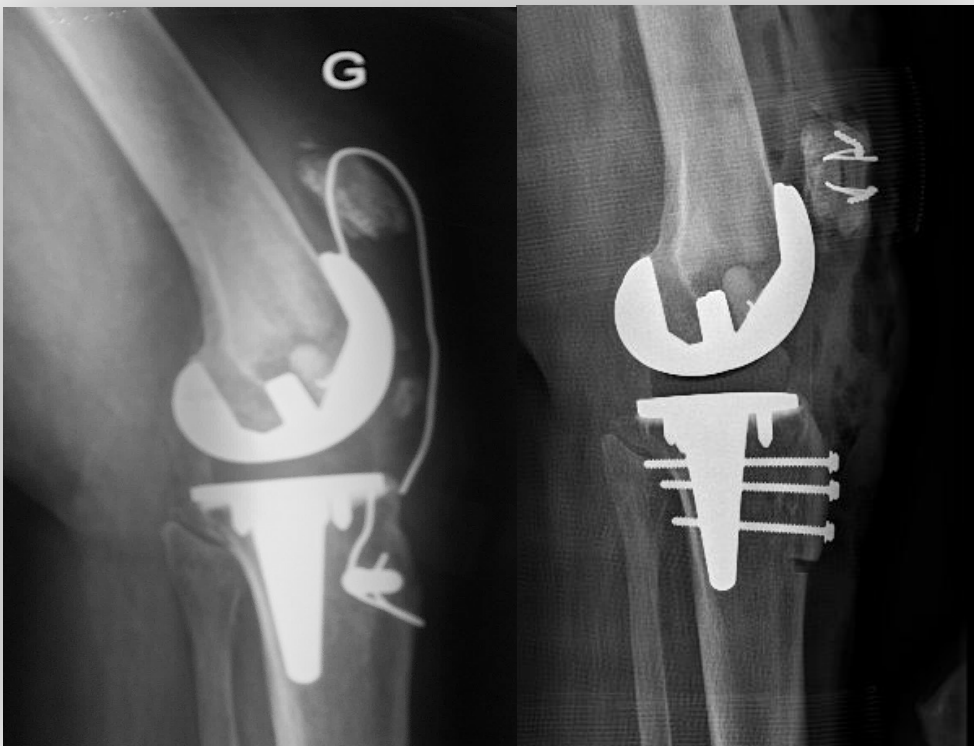
Courtesy Pr Lustig



Courtesy Pr Lustig



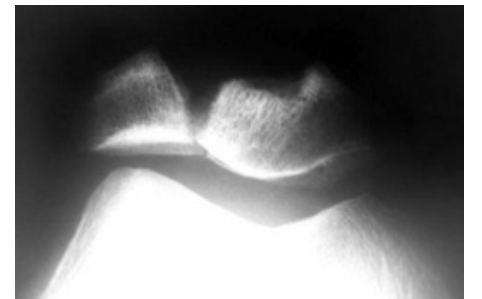
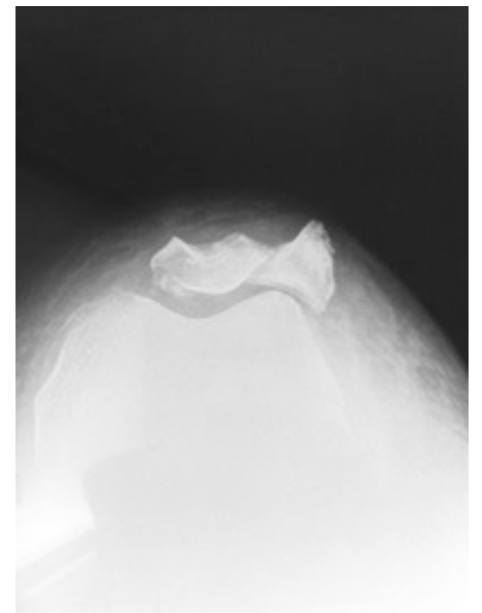
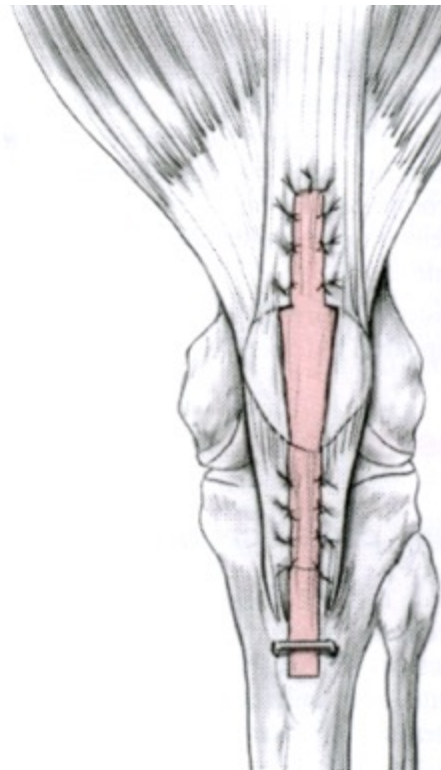
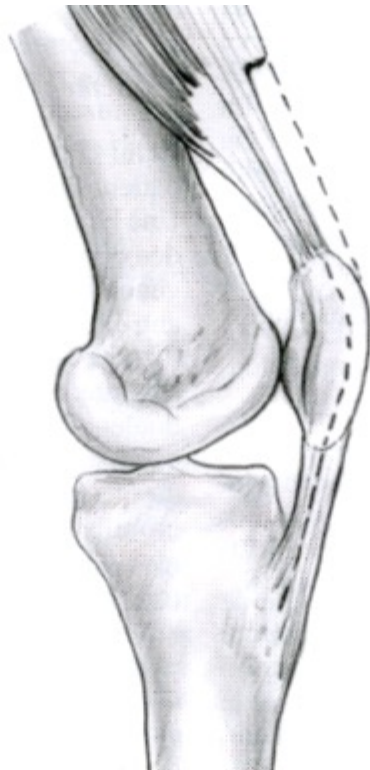
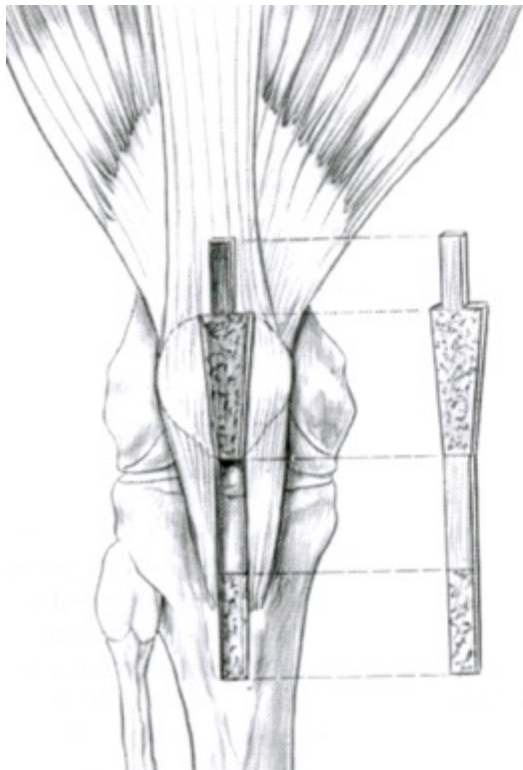
Postoperative



- ✓ Extension brace ++
- ✓ Full weight-bearing with two crutches
- ✓ No mobilization for 3 months +++
- ✓ Mobilization started after 3 months
- ✓ Regular follow-up with radiographs (2, 4, 6, and 12 months)



Alternative : Autograft ?





Alternative: Hanssen procedure

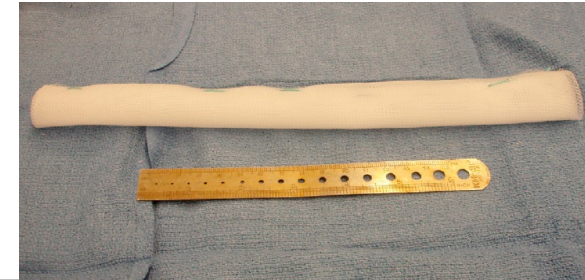
Val d'Isère

Reconstruction of Patellar Tendon Disruption After Total Knee Arthroplasty

Results of a New Technique Utilizing Synthetic Mesh

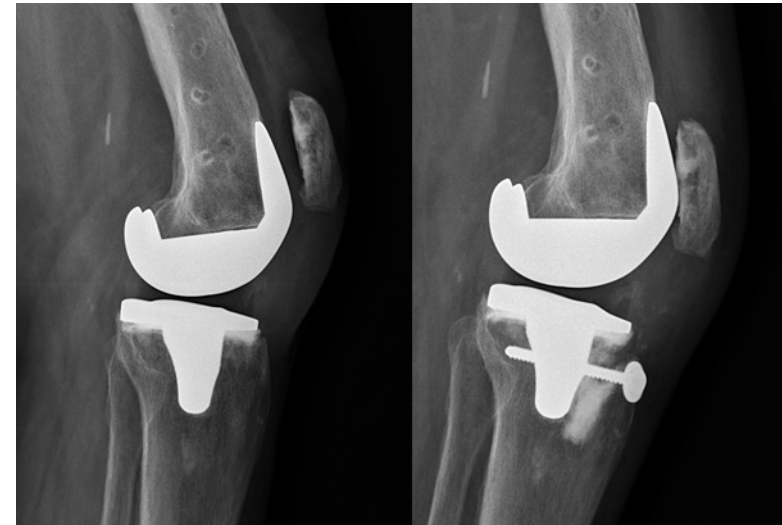
James A. Browne, MD, and Arlen D. Hanssen, MD

JBJS (Am) 2011



Advantages:

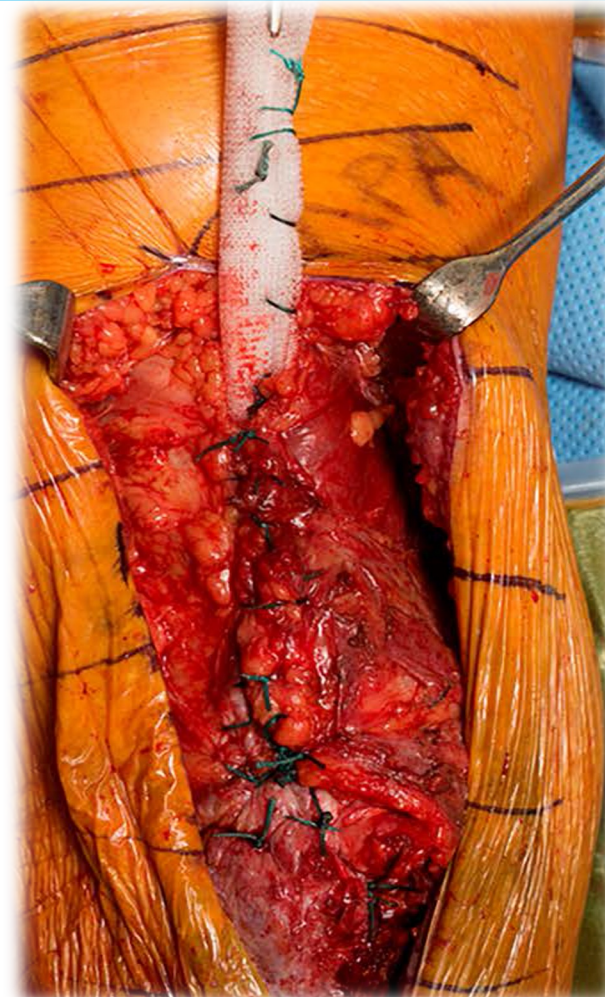
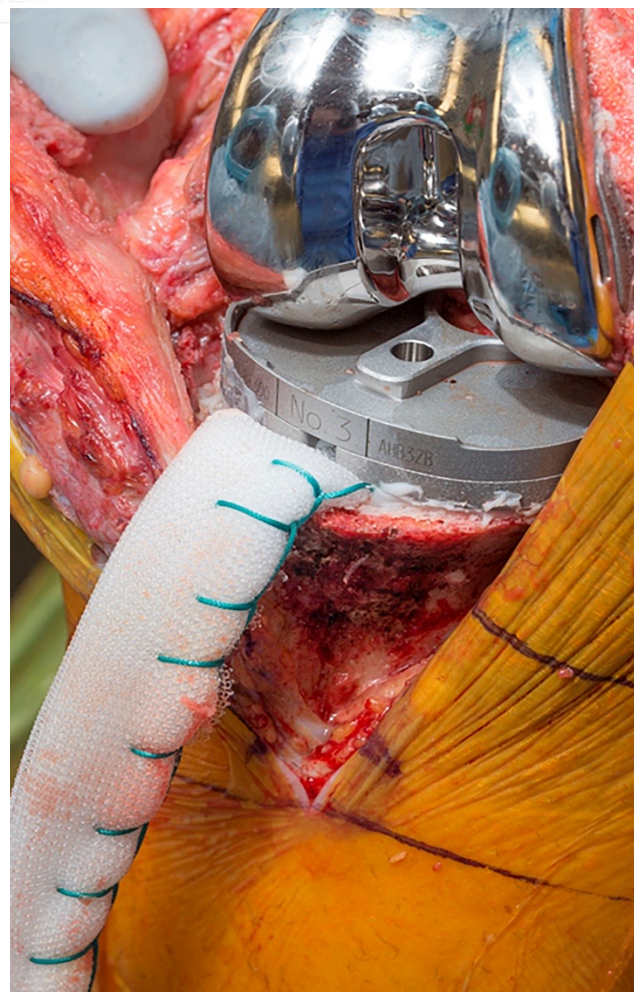
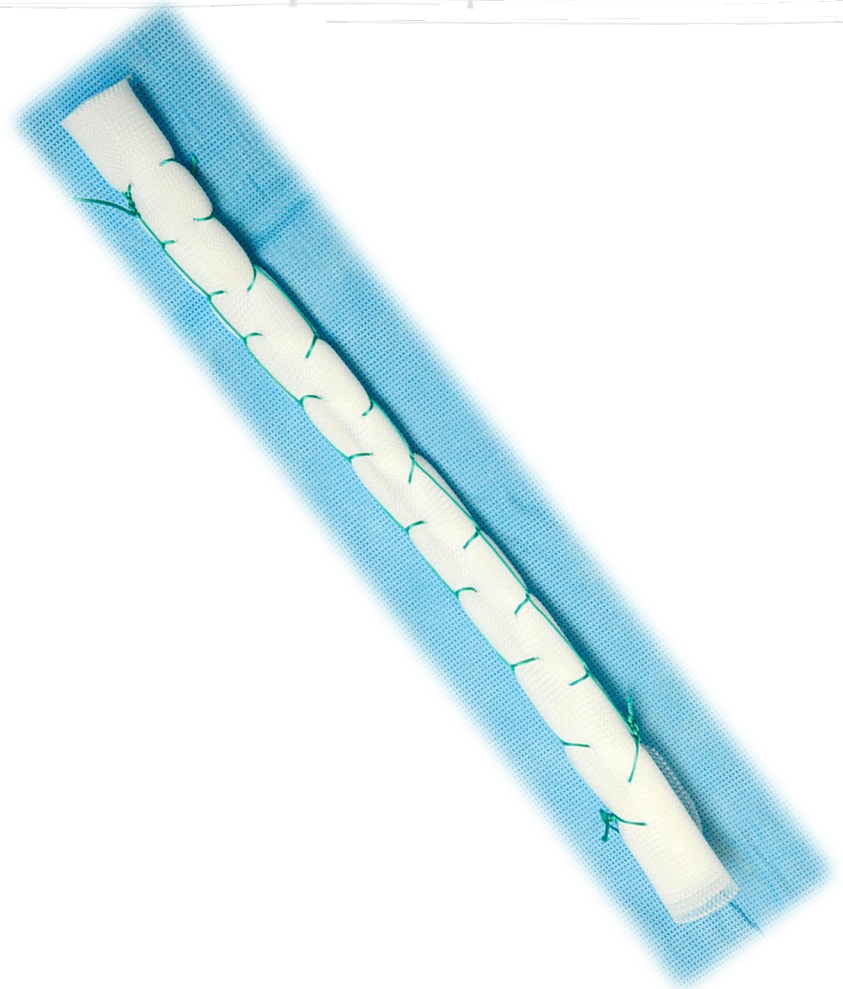
- No tendon elongation (inextensible)
- No risk of transmission of contaminating agents
- Availability





Marlex Mesh

Val d'Isère

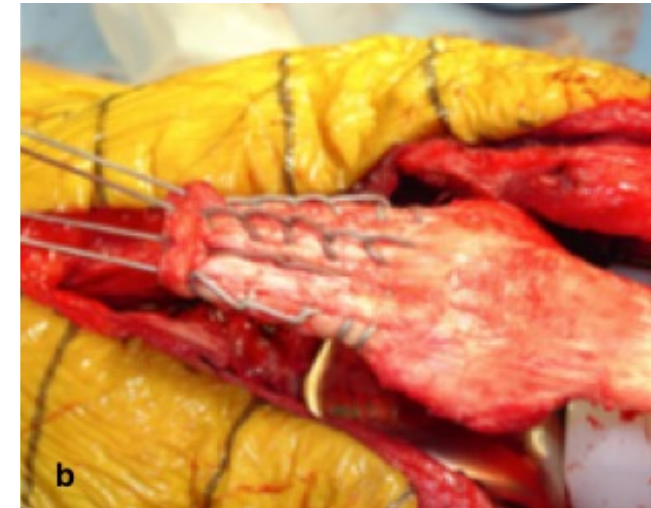




Discussion

Val d'Isère

- **Synthetic ligament :**
 - Hanssen et al, 2011 : **31%**
- **Ext Mechanism Allograft :**
 - Booth et al, 1999 : **27%**
 - Brown et al, 2015 : **38%**
 - Ricciardi et al, 2016 : **31%**
 - Croix Rousse : **33%**





<https://lyon-knee-congress.com>

20^{ÈMES} JOURNÉES LYONNAISES DE CHIRURGIE DU GENOU

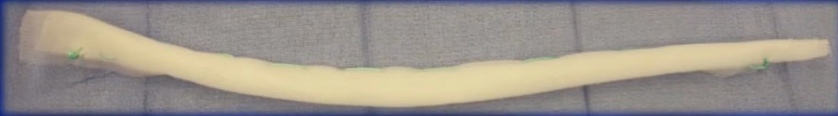


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22-24 SEPTEMBRE 2022
CENTRE DE CONGRÈS DE LYON

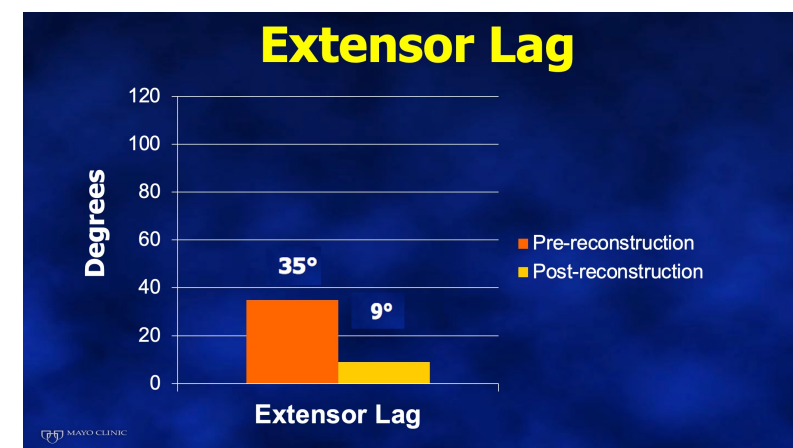
20^{èmes}
Journées Lyonnaises
de Chirurgie du Genou
50 ans d'histoire

LYON KNEE
SCHOOL OF SURGERY

MAYO CLINIC
**Extensor Mechanism Deficiency:
A Marlex Mesh Solution**



Matthew P. Abdel, M.D.
Andrew Sugg Professor of Orthopedic Surgery
Chair, Division of Orthopedic Surgery Research
Mayo Clinic, Rochester



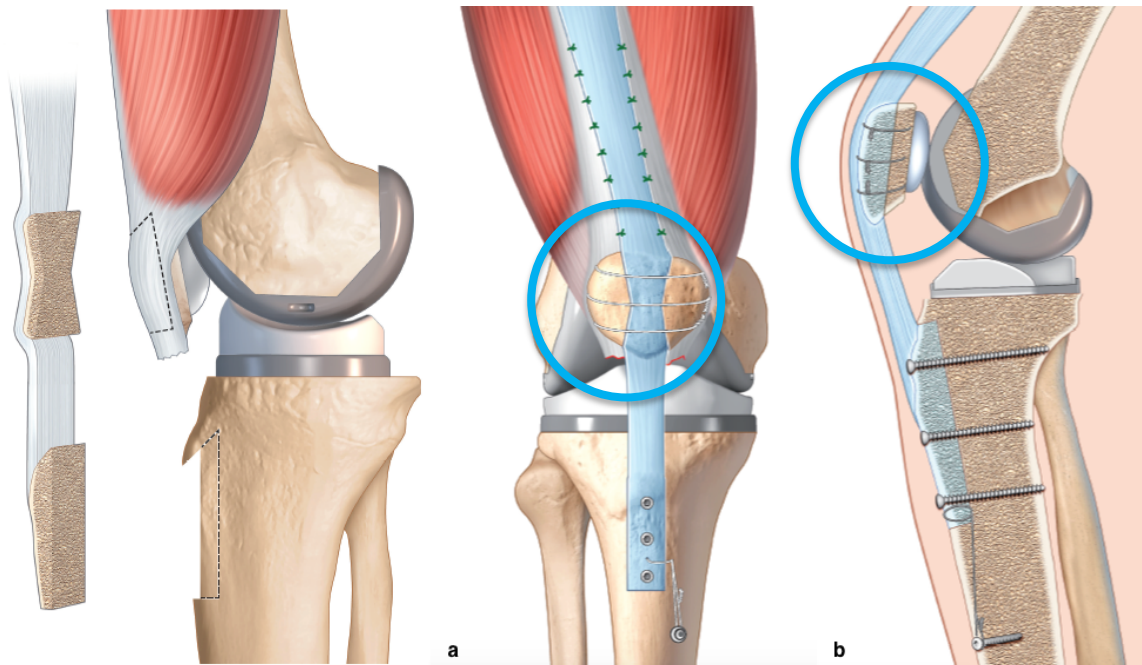
85% in situ at
most recent FU



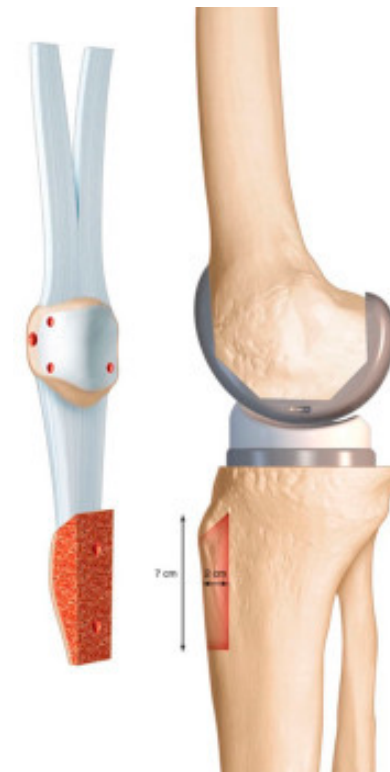
Lyon choice : Allograft



PARTIAL ALLOGRAFT



COMPLETE ALLOGRAFT

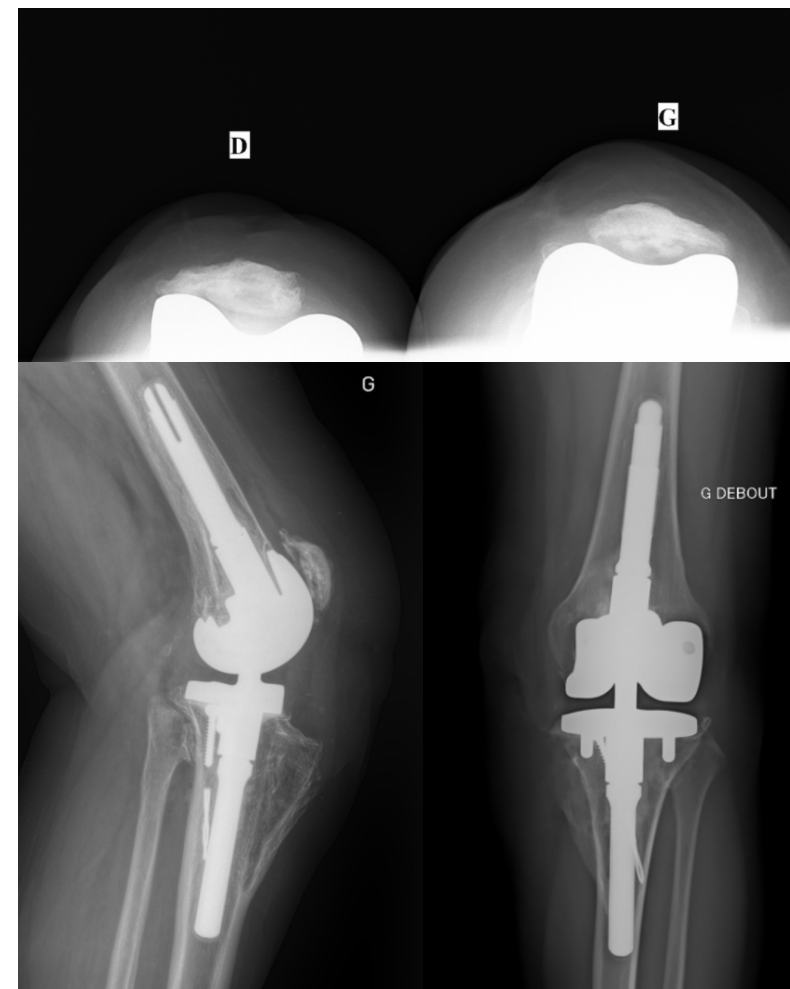




CASE 3



Female 70 yo
Left knee revision TKA 10 years ago

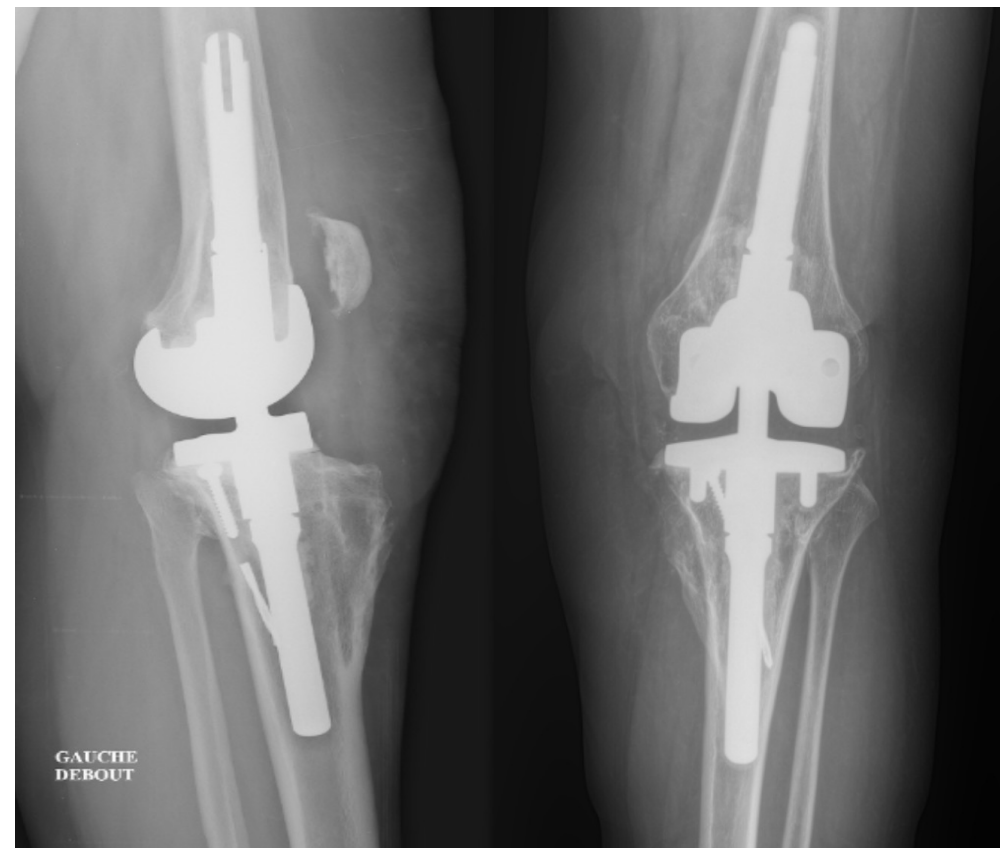




CASE 3

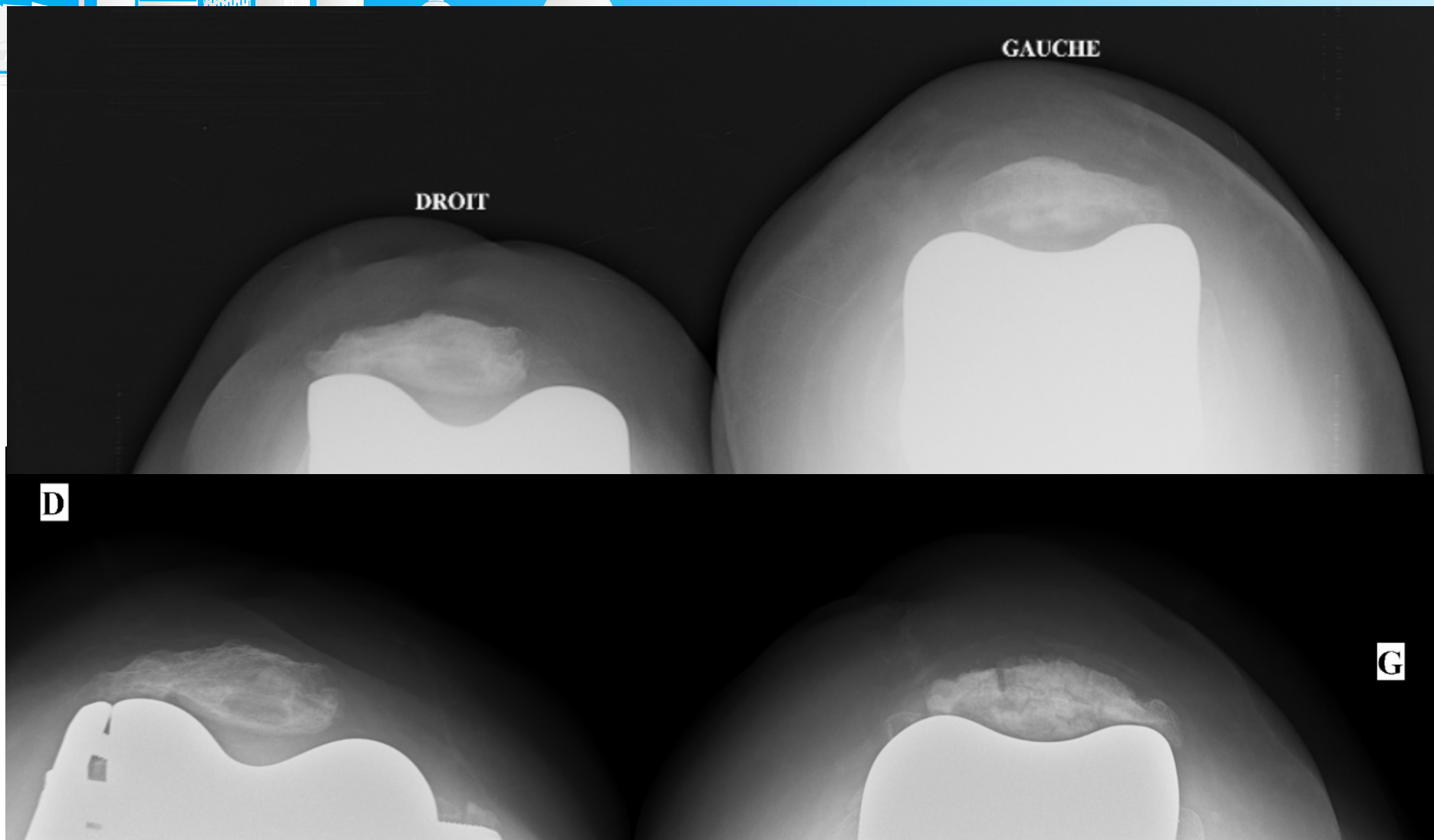


Female 70 yo
Left knee revision TKA 10 years ago
Pain since 6 months



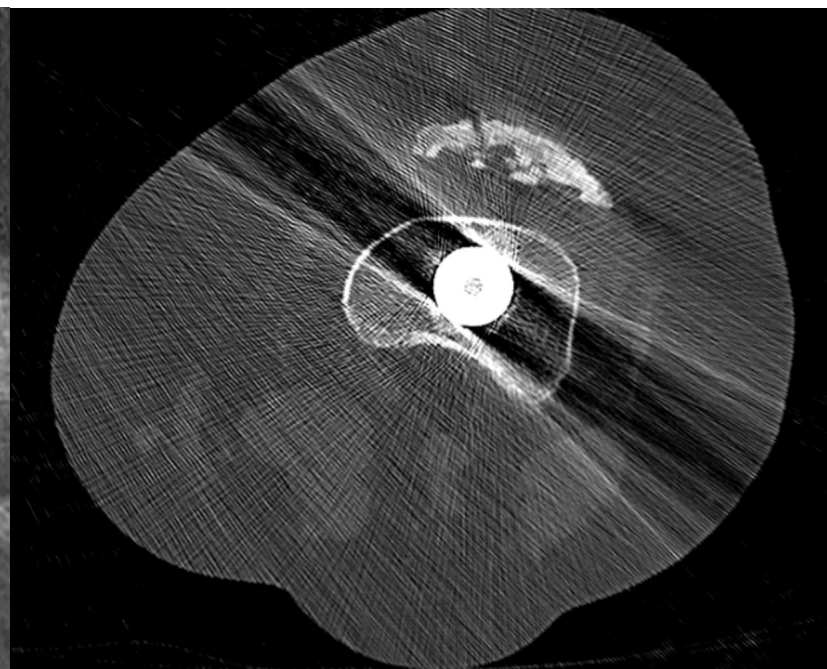
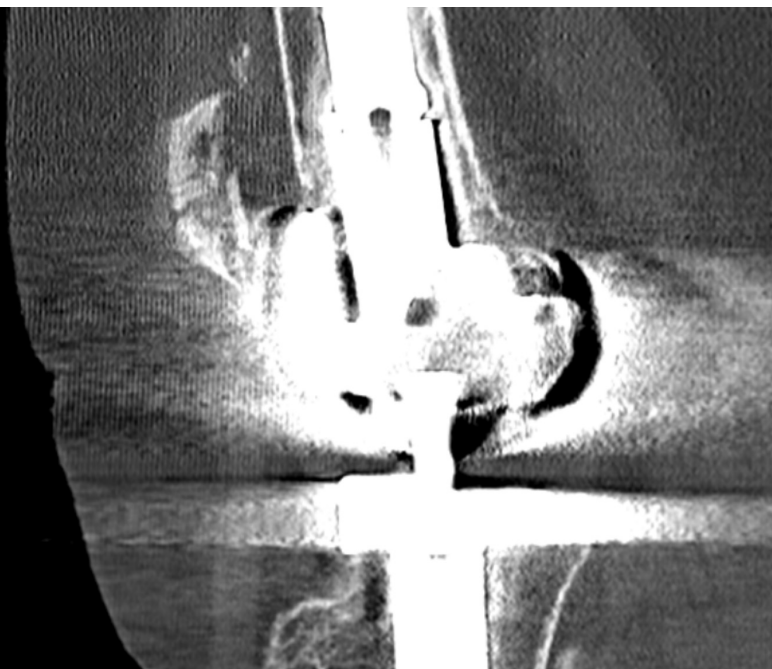
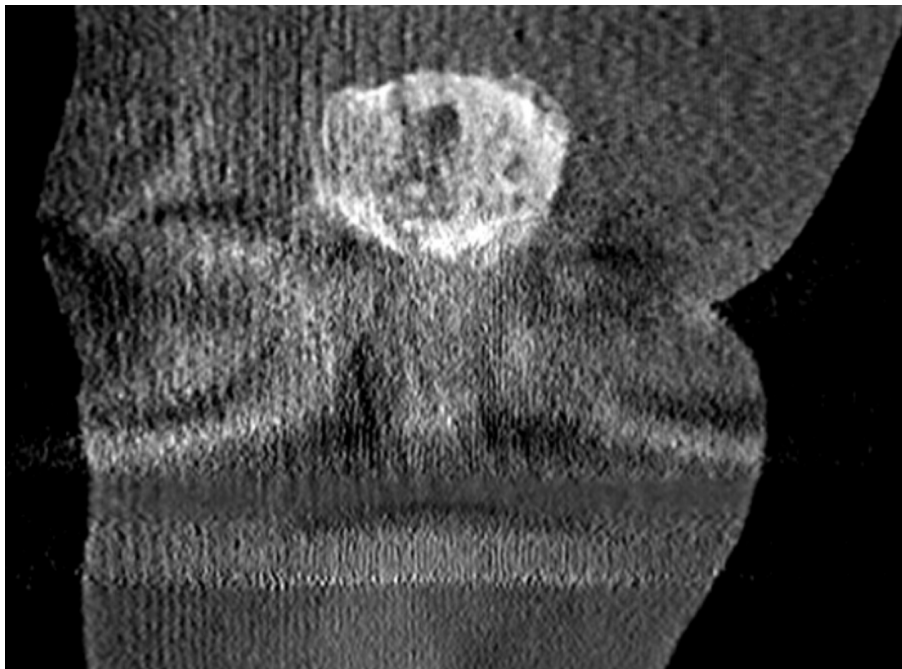


CASE 3



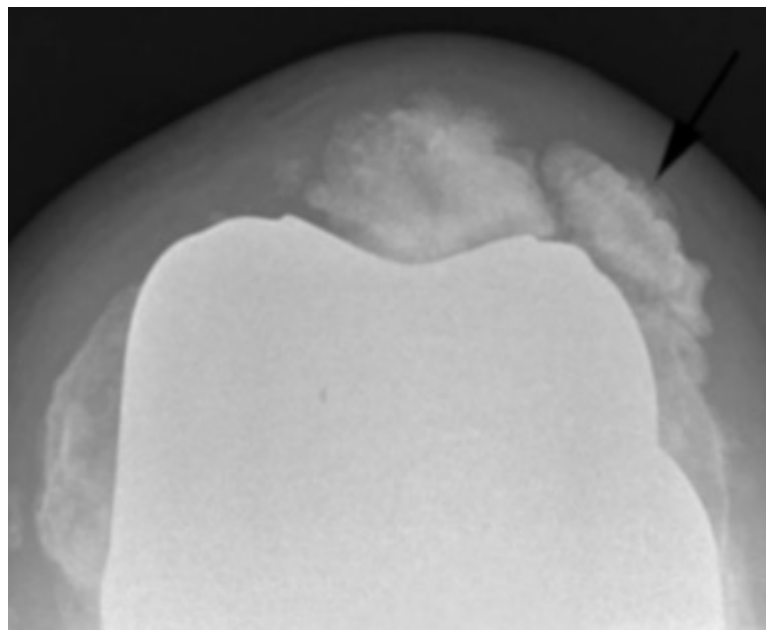


CASE 3





Osteonecrosis of the patella



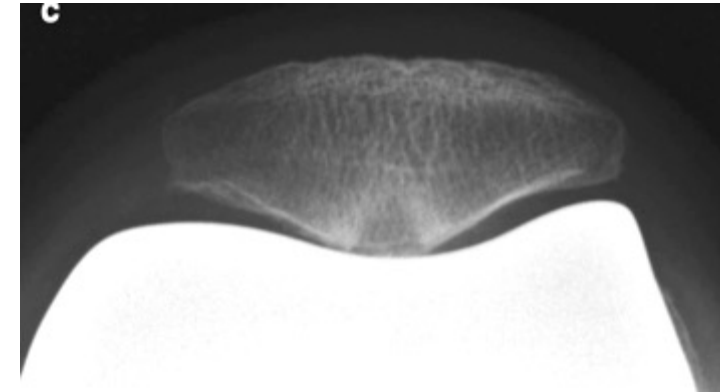
*Osteonecrosis and resorption of the patella after total knee replacement: a case report, Holtby et al.
Osteonecrosis of the patella and prosthetic extrusion after total knee arthroplasty, Noorpuri et al.*



Sometimes Difficult diagnosis



Non traumatic patellar fracture
Radiolucent zone of the patella
Unresurfaced patella



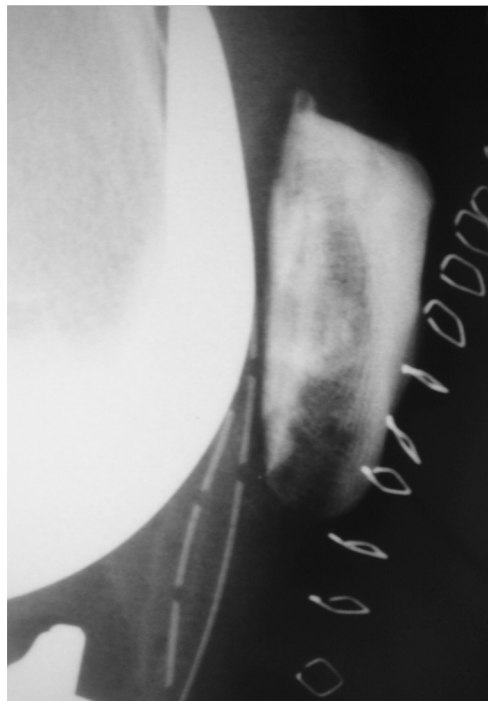
Radiolucent zone of the patella following total knee arthroplasty without patellar resurfacing, Takahashi et al.



Osteonecrosis of the patella



Post-op



1 year
anterior knee pain +++



Management



If no pain and no extension lag : NONE

No metallic fixation

Partial patellectomy could be discussed





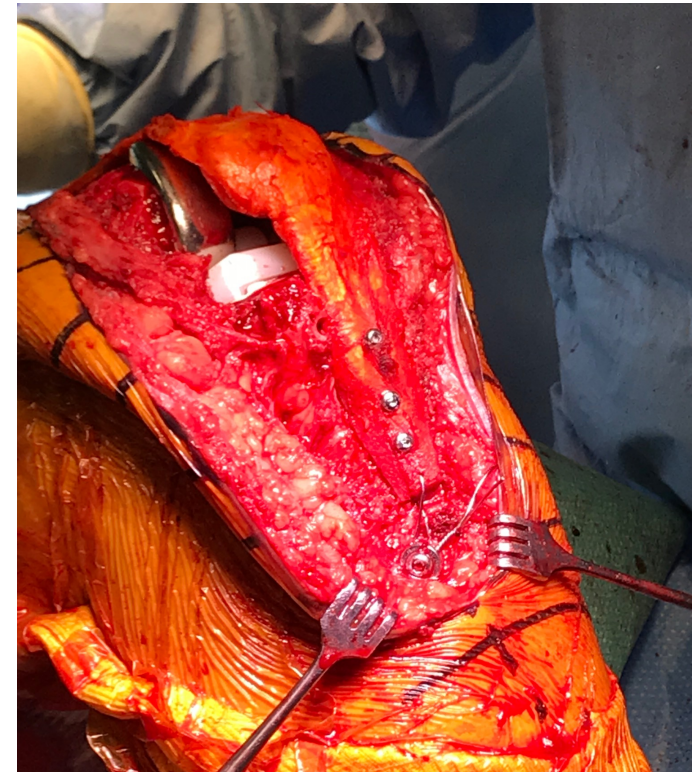
Management



Total extensor mechanism allograft ++

Extension lag

Good skin quality





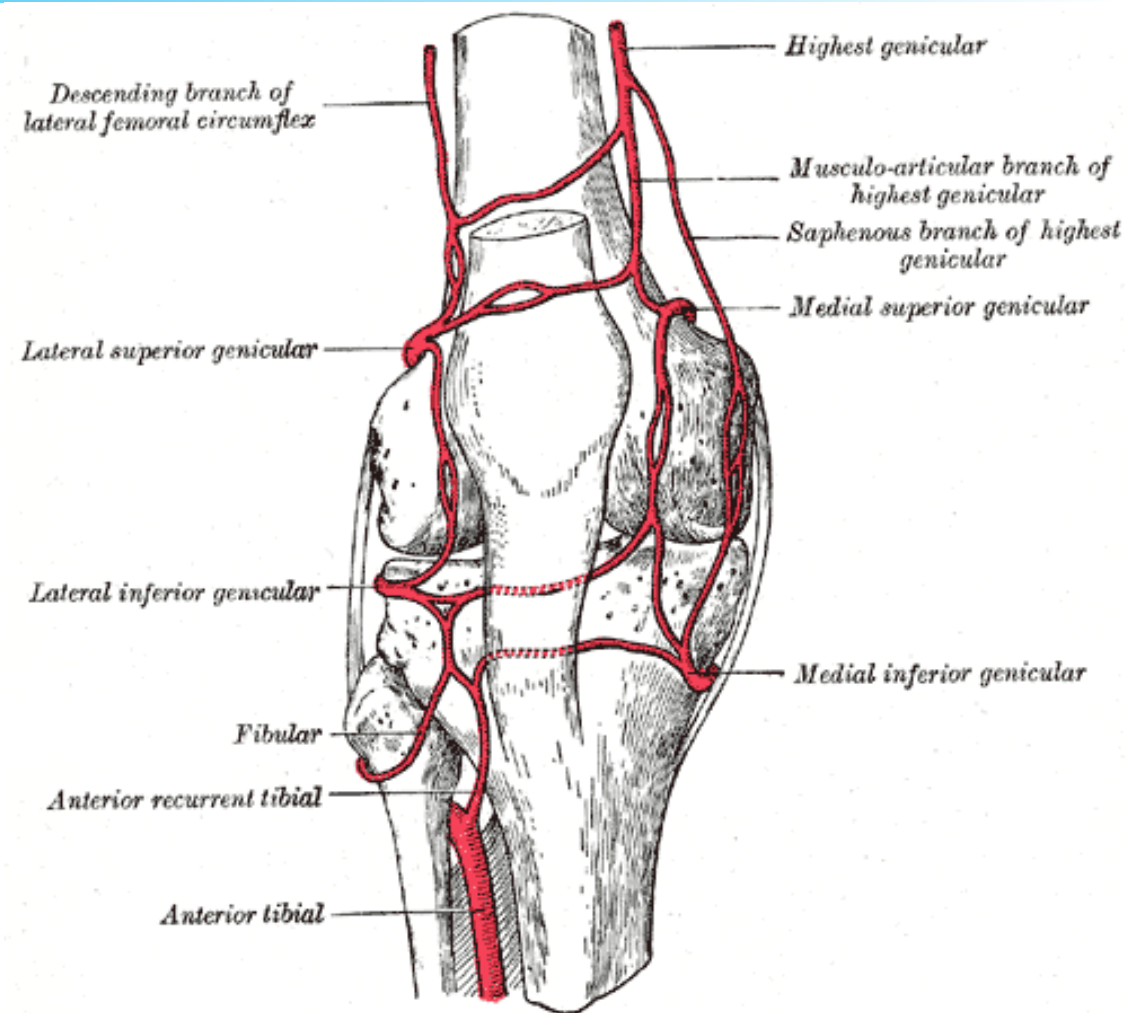
Prevention

Val d'Isère

Preserve vascularization

Imperatively use previous scar
No bilateral arthrotomy

Lateral approach for valgus knee
Promote patellar tracking

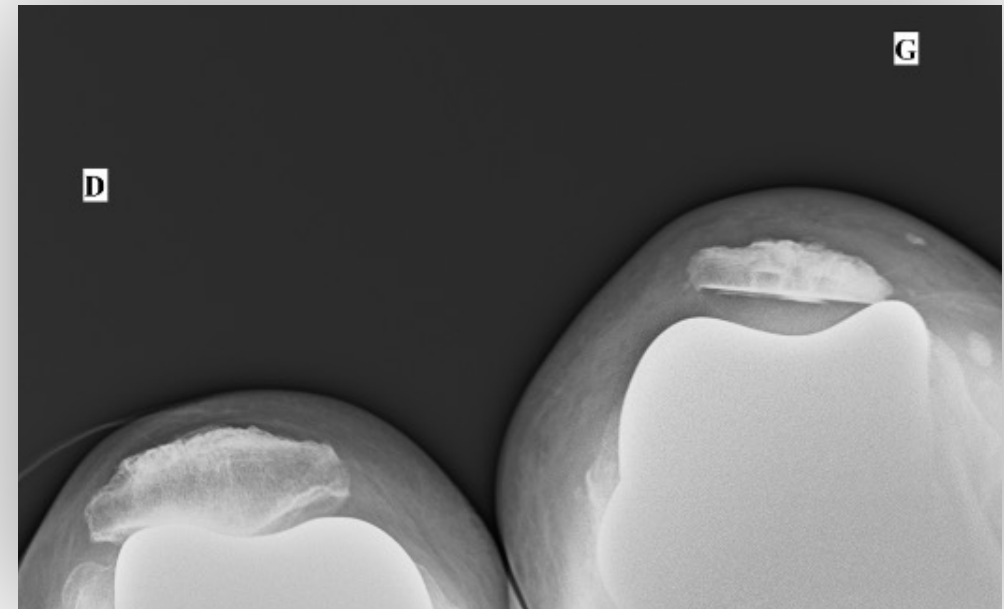




Prevention



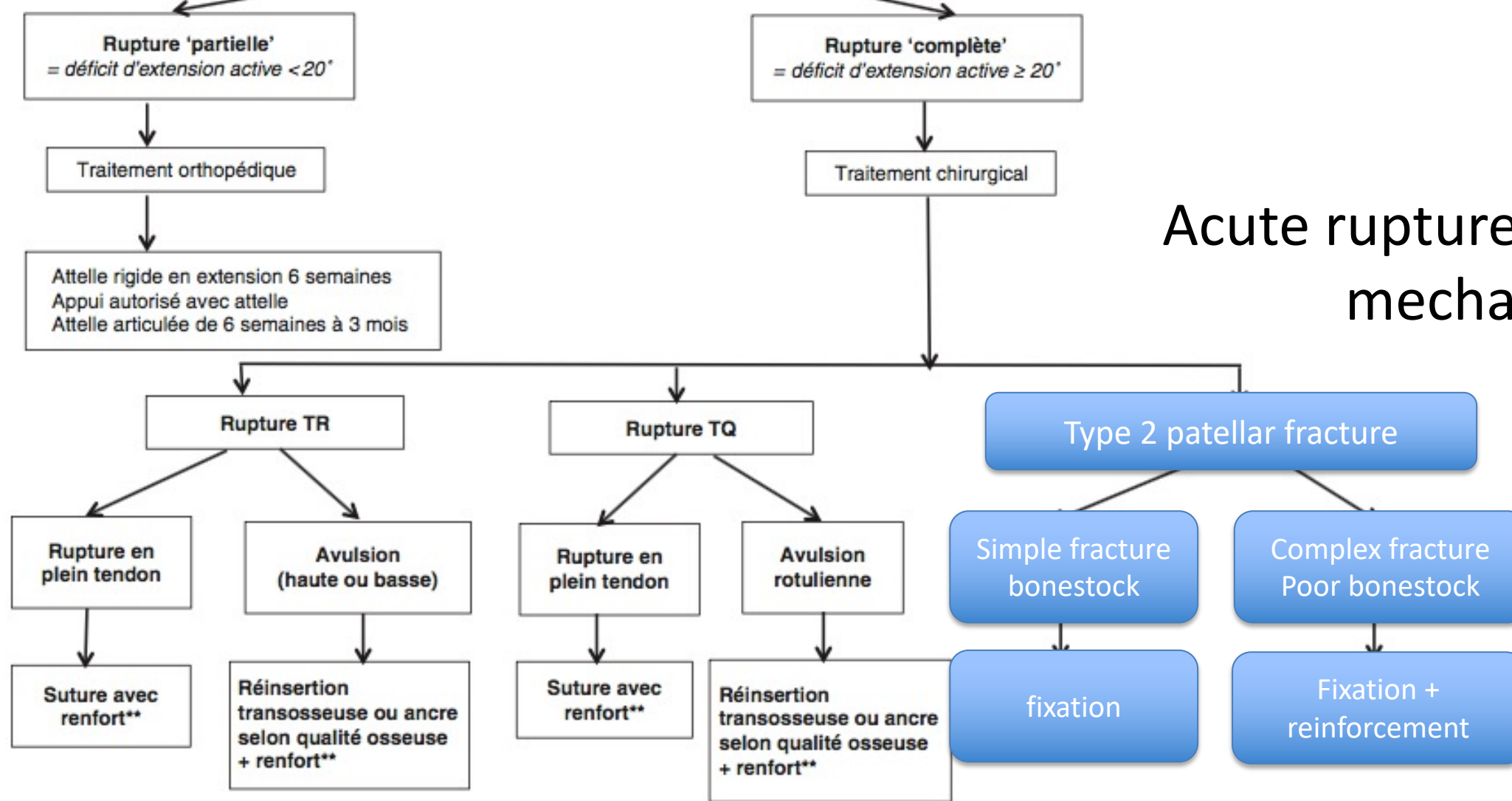
Avoid a too thin patella
in case of patellar resurfacing



The need for patellar resurfacing in total knee arthroplasty: a literature review, Swan et al.



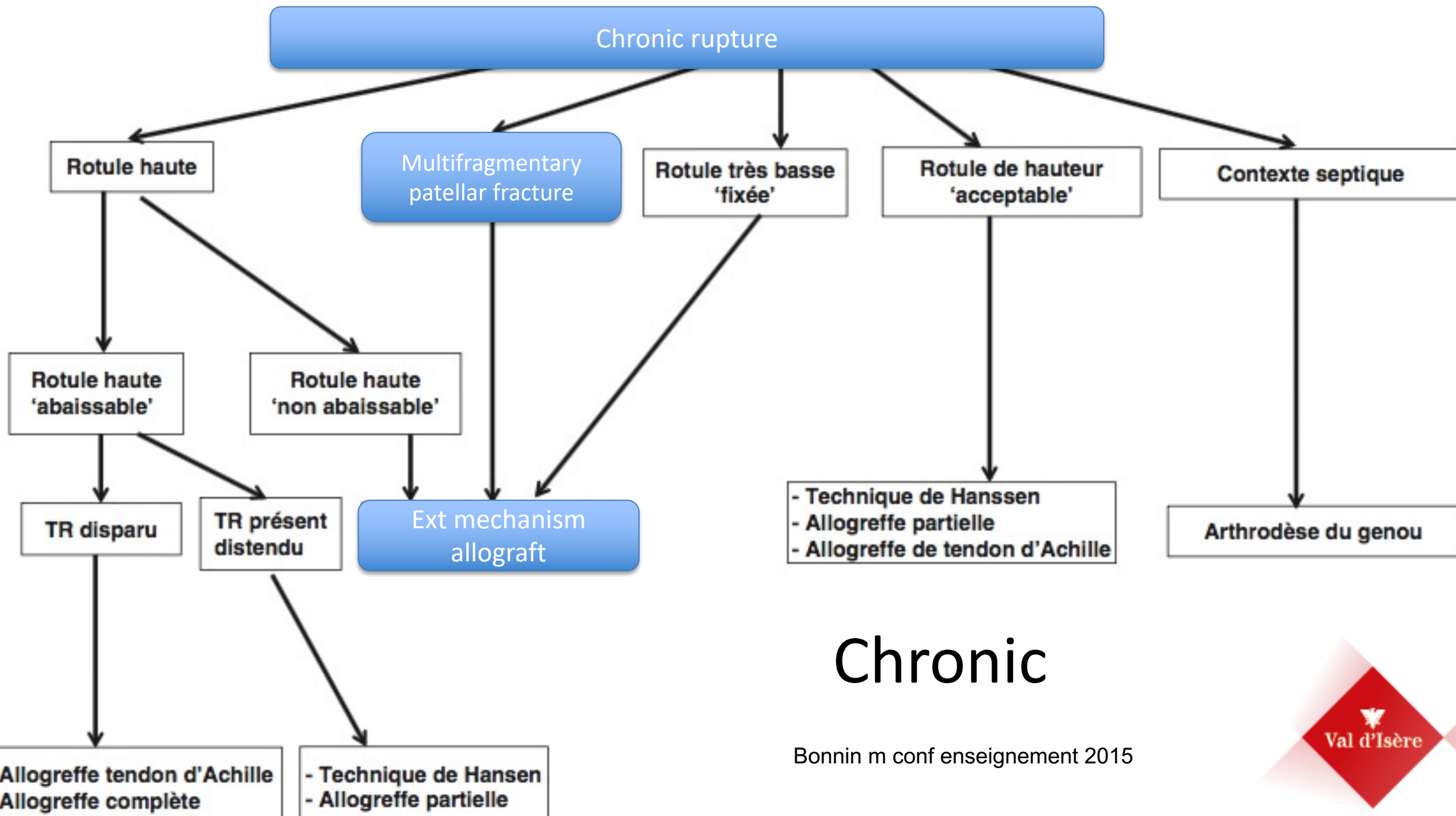
Acute rupture



Acute rupture of extensor mechanism

* La hauteur rotulienne était normale sur les clichés postopératoires et il ne s'agit pas d'un genou multi-opéré. On suppose que les tissus sont souple et non retracts.

** Toujours préférer un renfort autologue lorsque cela est techniquement possible. Renfort supplémentaire avec cadrage métallique parfois utile.



Chronic

Bonnin m conf enseignement 2015



20^{èmes}
Journées Lyonnaises
de Chirurgie du Genou

*50 years
of history*

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**Reviver le congrès LA PATELLA
avec le Replay LYSKS**

20^{èmes}
Journées Lyonnaises
de Chirurgie du Genou

50 ans d'histoire

LA PATELLA

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