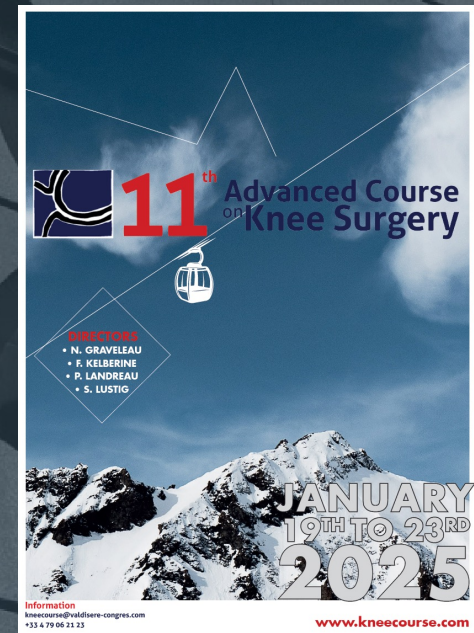


TREATMENT OF CARTILAGE LESIONS

Fixation of fragment

Nicolas GRAVELEAU, Nicolas BOUGUENNEC,
Antoine MORVAN, Pierre LABOUDIE & Aurélien HALLE
Knee surgeons

Clinique du Sport de Bordeaux-Mérignac



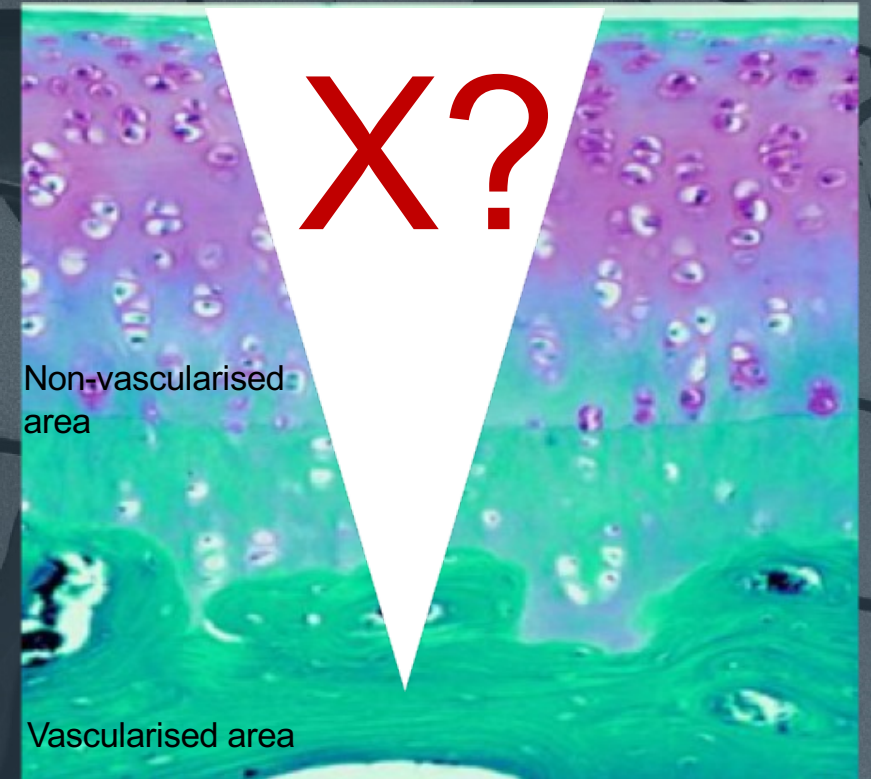
Knee injuries resulting in **purely cartilaginous defects** :

- rare
- controversy remains regarding the reliability of chondral-only fixation

If possible : FIX IT ?

Introduction

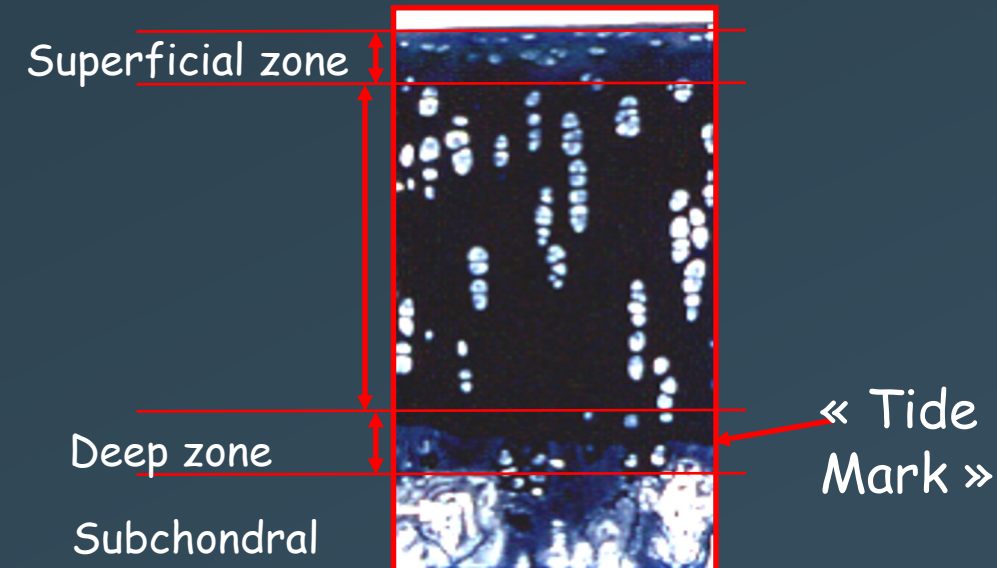
- Self healing potential repair is limited
- Hunter 1743: “when destroyed, it is not recovered”
- When symptomatic : difficult to adress in chronic in young & active sport population
- **ICRS Grade 3 and 4 = SIGNIFICANT**



Brittberg et al.

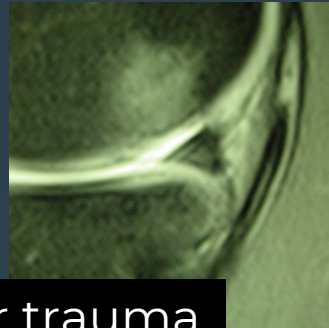
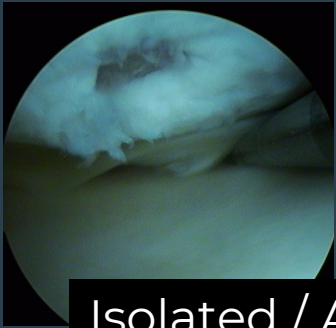
Acute cartilage fracture

- Traumatic: **Isolation** or associated injuries:
 - Ligamentous tear
 - Patella dislocation
- Cartilage full thickness defect leads to Osteoarthritis
- Prognosis :
 - Size of lesion
 - Location
 - Alignment
 - Acute > chronic (window to reappear)
 - Osteochondral lesions better than pure cartilage lesion
 - Age

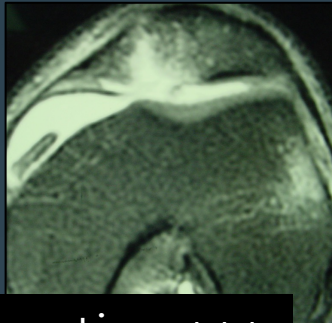


Traumatic cartilage lesions

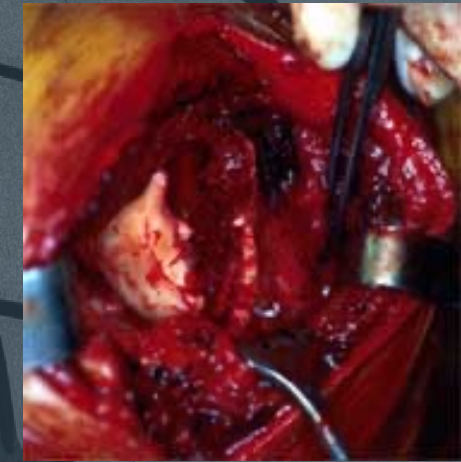
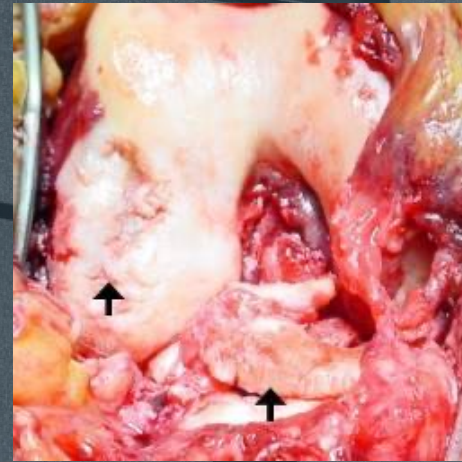
Focal lesions Purely cartilaginous



Isolated / ACL tear trauma



Acute patella dislocation +++



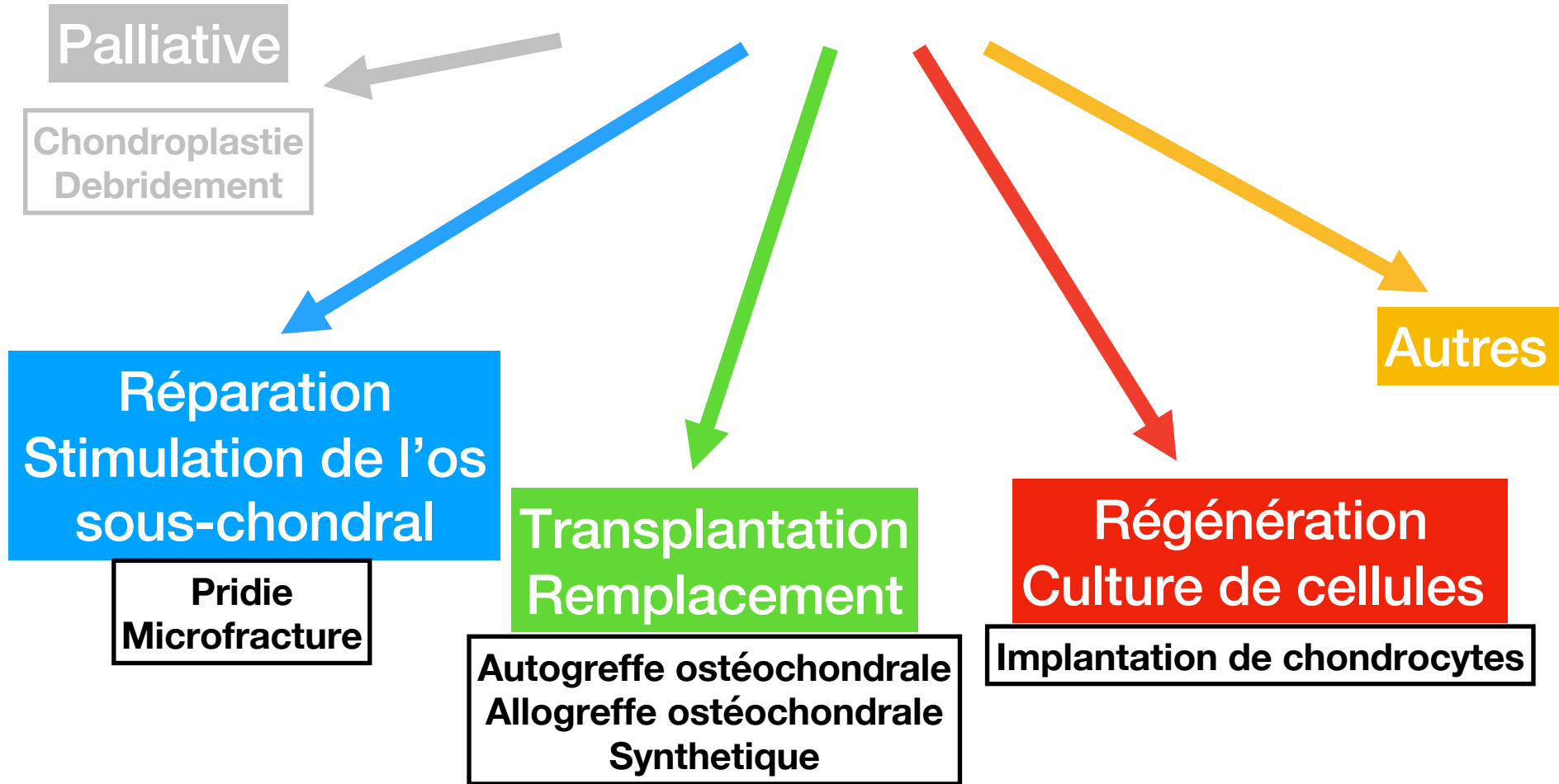
Larger lesions
Cartilage / ostochondral

Traumatic cartilage lesions

- Hemarthrosis & Swelling
- Locking
- Instability
- Pain
- Mechanism of injury !



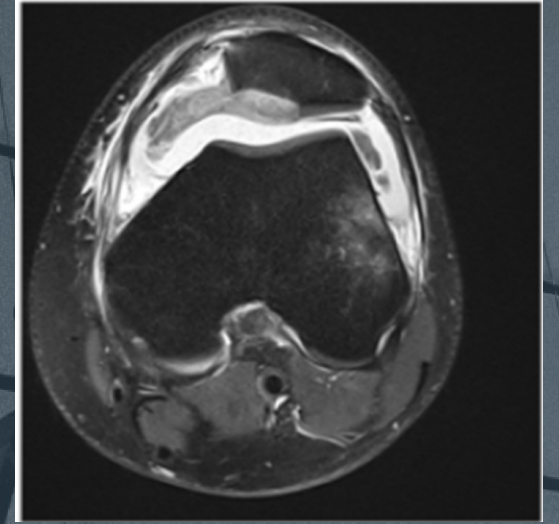
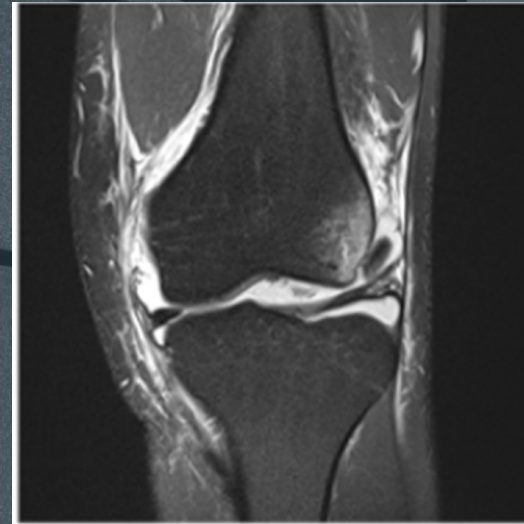
Surgical options



**OUT
of
The
SCOPE**

Imaging

- Xray : poor on pure cartilage
- CT
 - Size
 - Location
 - Bony attachment and depth
- **MRI**
 - **Chondral lesion and planning surgery**
- **Arthroscopy** first :
diagnostic +/- therapeutic



Cartilage repair technique

Access to the lesion : arthroscopy / open
Flip the flap of cartilage or retrieve it in the joint
Debrid the subchondral bone to bleeding
Check the surrounding cartilage
Fix it !

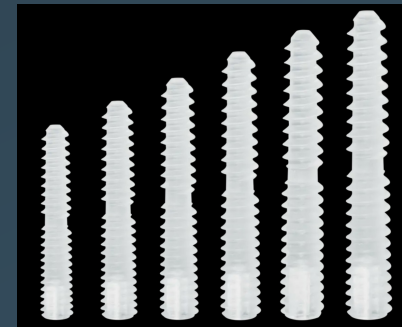
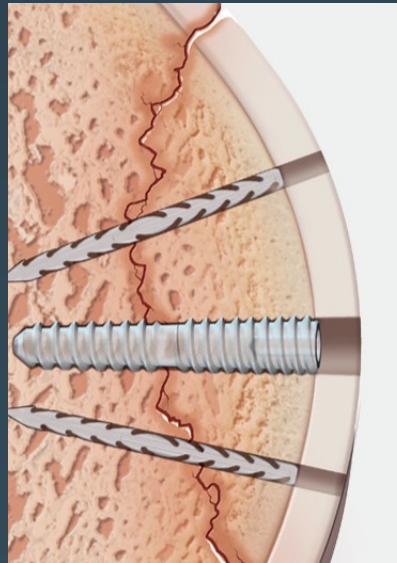
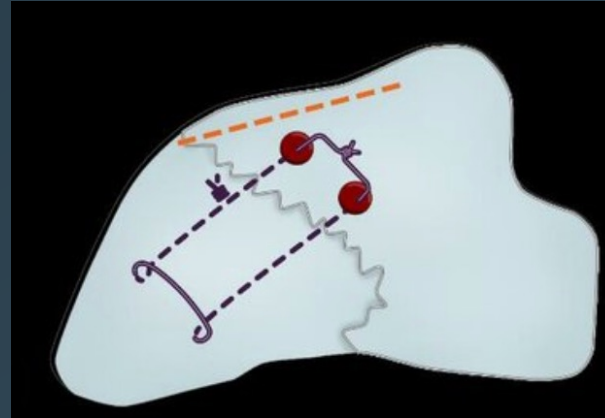
- Suture it
- Screw it
- Stich it

Emergency procedures : should be “simple”

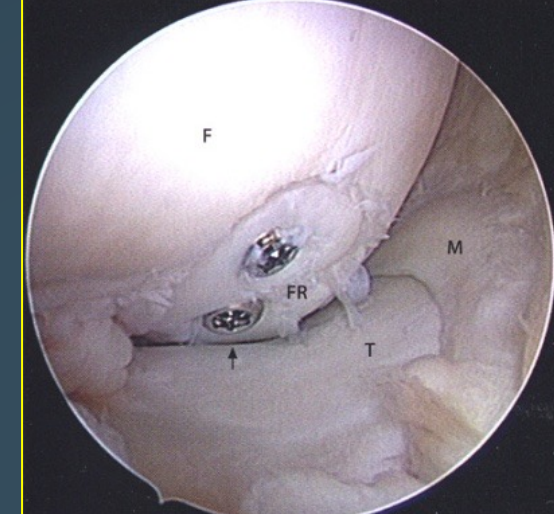
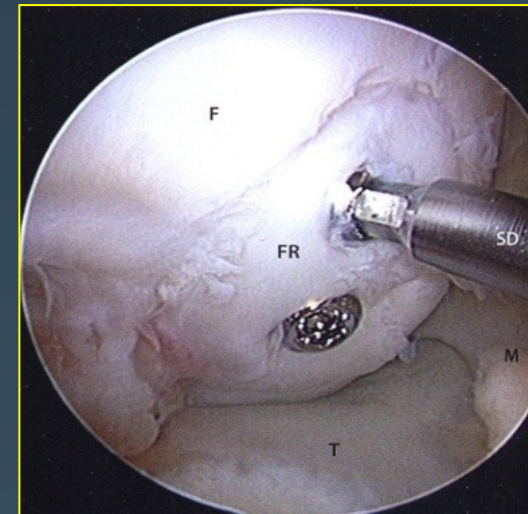
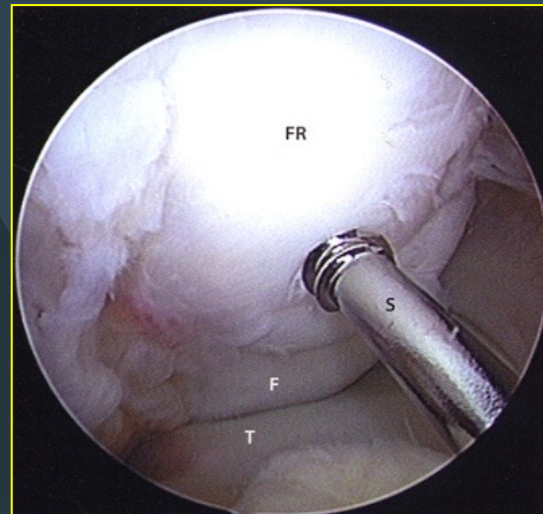
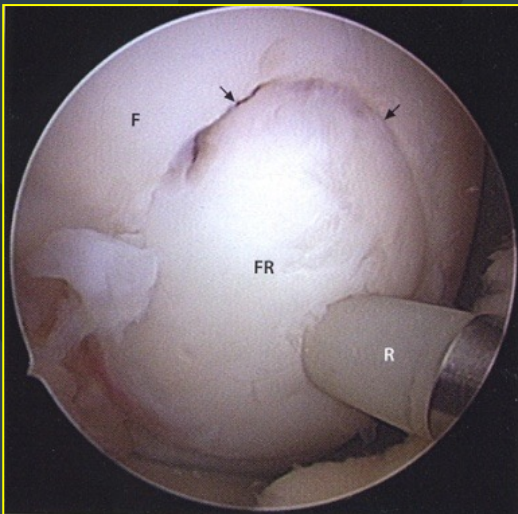
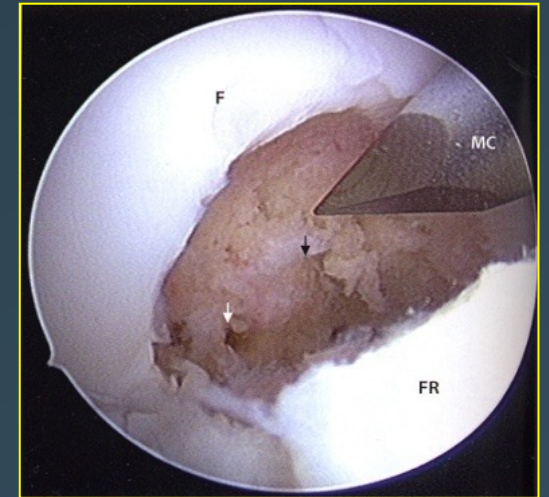
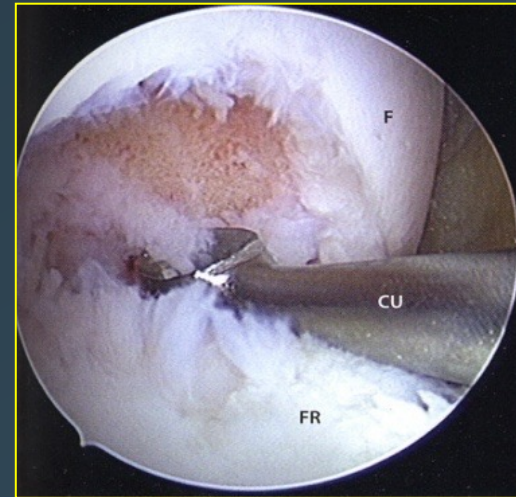
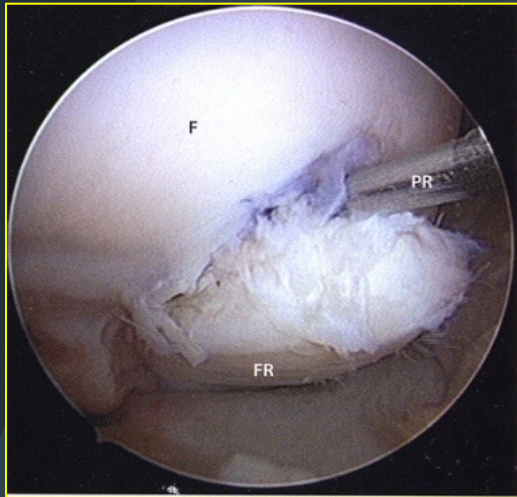
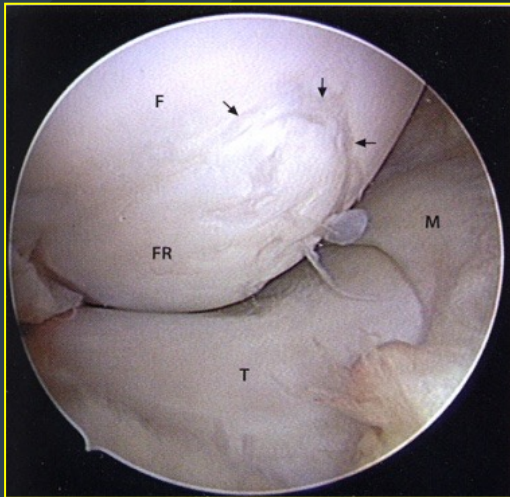
Test the stability of fixation during ROM

Fixation method

- Absorbable suture
- Non absorbable sutures
- Suture anchors
- Suture bridge
- K wires
- Headless screws
- Cannulated screws
- Absorbable devices
- Fibrine glue (Hedgehog technique)



Cartilage fixation « *OCD like* » Arthroscopy



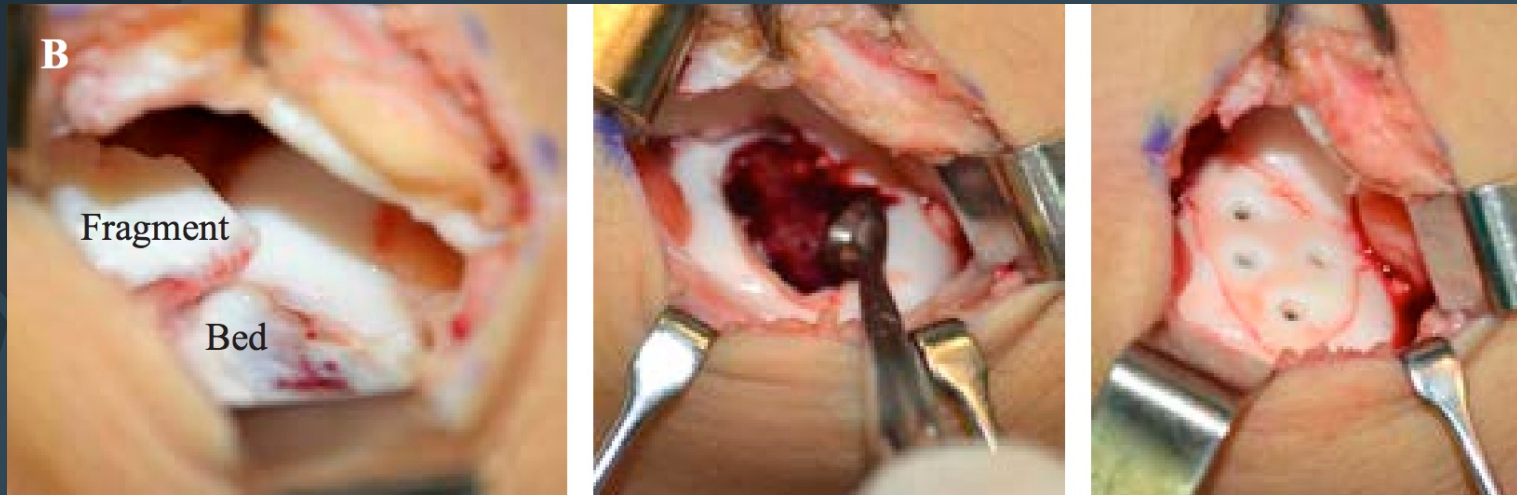
Cartilage fixation « OCD like » *Open*

Good result after fixation surgery also for small fragments

Associated ligament treatment:

- patellar stabilization (MPFL reconstruction)
- ACL / PCL tear

Puzzitiello et al 2019

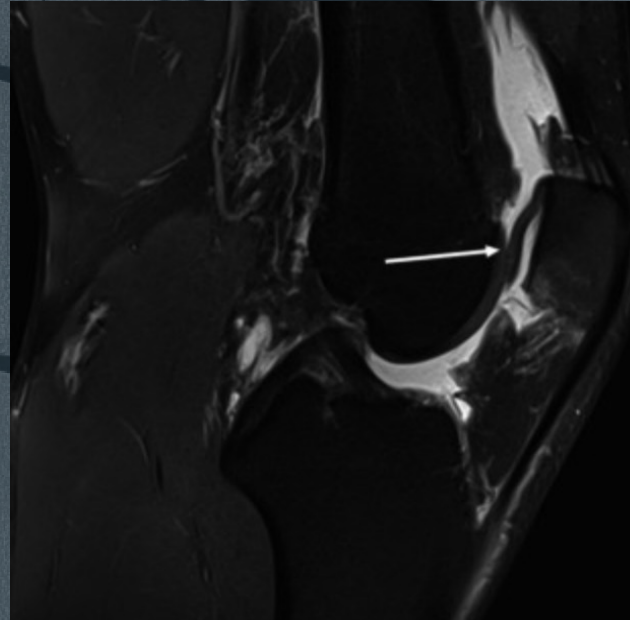


Cartilage flap fixation concomitant to patella dislocation

Patellar dislocation Flake fractures

WHO

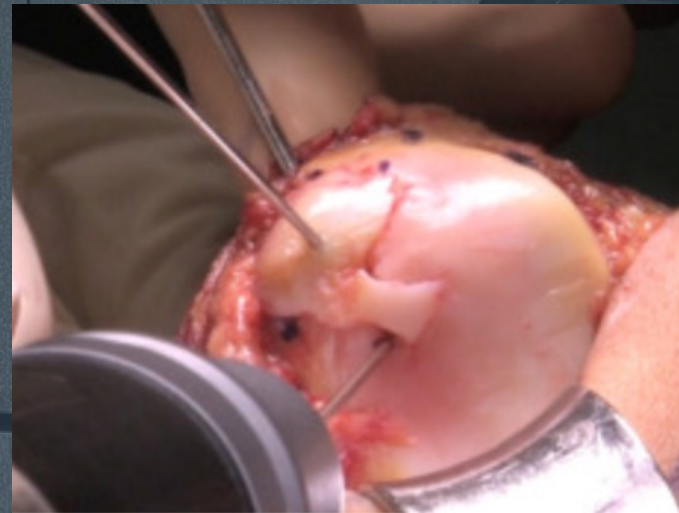
1. Debride it ?
2. Fix it ?
3. Graft it ?



Cartilage flap fixation concomitant to patella dislocation



[Refixation of osteochondral flake fractures after patellar dislocation-The parachute technique]



Trochlear chondral fragment



Rehab post surgery

- Important to start early ROM as tolerated
- Non weight bearing if lesion in the weight bearing area for six weeks
- Progress thereafter with weight bearing
- No contact sports for 4-6 months

Fixation Methods, Complications, and Outcomes After Primary Fixation of Isolated Chondral Fragments in the Knee: A Systematic Review

Sina Tartibi ¹, Garrett R Jackson ², Tanya Boghosian ³, Robert H Brophy ¹, Matthew V Smith ¹,
Matthew J Matava ¹, Derrick M Knapik ¹

Affiliations + expand

PMID: 39755949 DOI: [10.1177/03635465241254520](https://doi.org/10.1177/03635465241254520)

Bioabsorbable implants and absorbable sutures are the most common fixation methods

Primarily performed via OPEN ARTHROTOMY after diagnostic arthroscopy

10 % of complications:

1. Failure of fixation
2. Implant irritation

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Primary fixation of chondral-only defects can lead to **low rates of failure and revision surgery**

High return to sport/activity in young patients
Even with relatively large lesions

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18 studies

N = 93 patients

mean age = 16 years (11-32 years)

mean final follow-up of 42.4 months (5-61.2 months)

Men : 81% (n = 59/73)

Bioabsorbable implants : commonly reported fixation
method

Successful return to sport : **90%**

Intact fixation reported in 85% : *MRI / CT / second-look arthroscopy*

If not repairable or fail to repair

Remove the free cartilage loose body AND ...

1. OATS
2. ACI or MACI
3. Osteochondral Allograft transplant
4. Scaffold Synthetics
5. ...

Debridement, chondroplasty, microfractures

M. Karahan 8'

Enhanced microfractures

C. Fink 8'

OAT

A. Imhoff 8'

Osteochondral allograft

J-C. Monllau 8'

Discussion

30'

Coffee break - 17h45 / 18h15

Synthetic cell free substitution (agili)

P. Verdonk 8'

ACI, MACI

D. Parker 8'

Cartilage autograft implantation system

P. Landreau 8'

Mini-metal option

P. Verdonk 8'

Discussion

15'