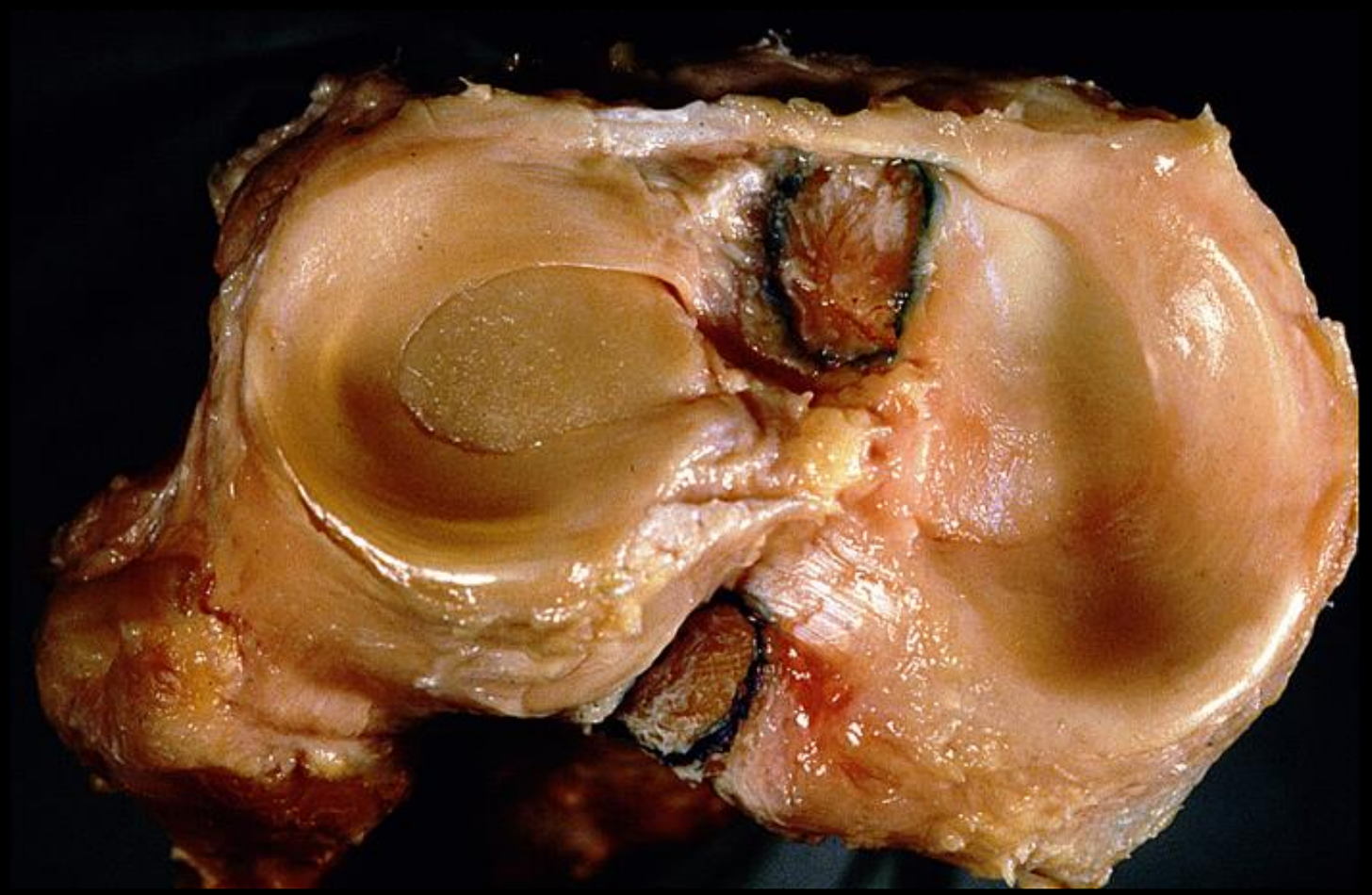
LESIONS MENISCALES

DE LA MÉNISCECTOMIE À L'ALLOGREFFE

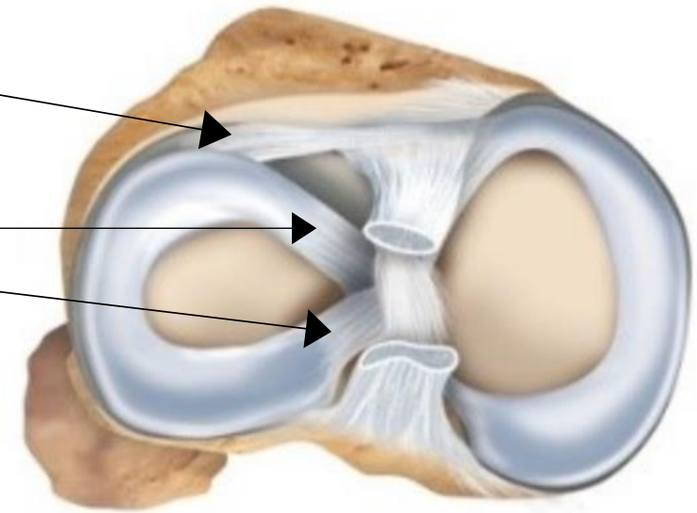
DR YORICK BERGER
CHIREC - DELTA
BOSI

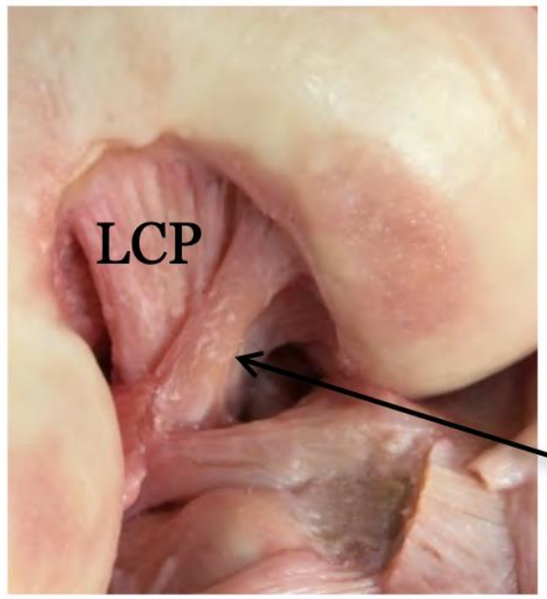
ANATOMIE

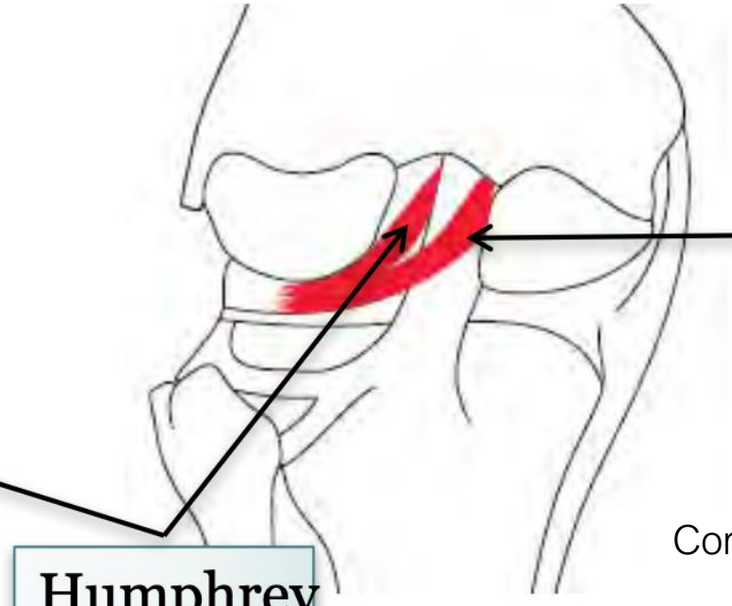


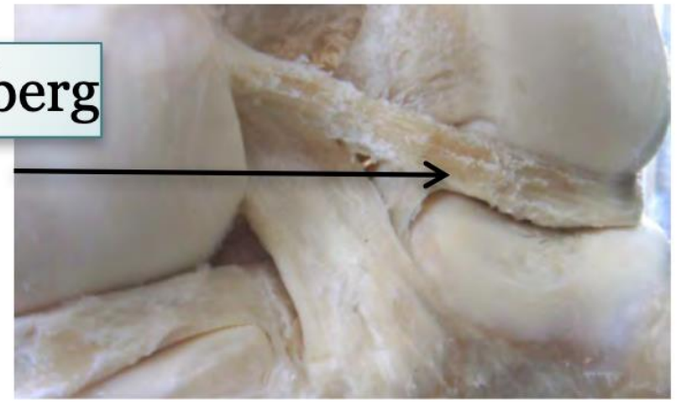
ANATOMIE

- Ligament interméniscal ant
- Insertions ant / post
- Ligaments ménisco-fémoraux





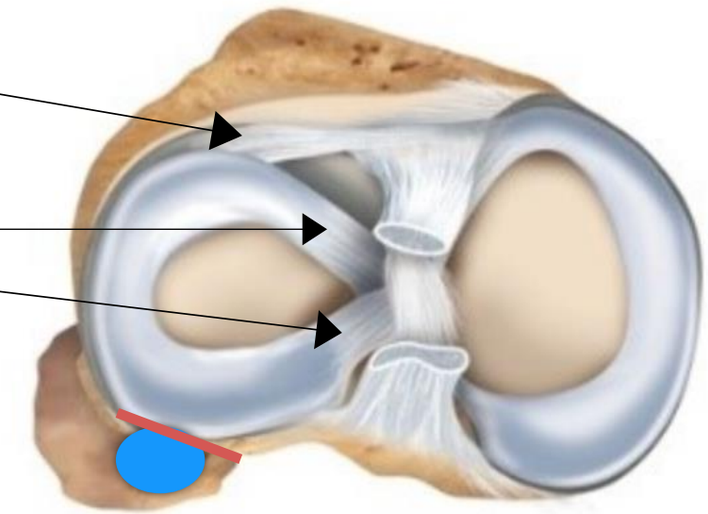




Corne postérieure ménisque latéral ⟶ condyle médial
Humphrey : en avant LCP
Wrisberg : en arrière LCP

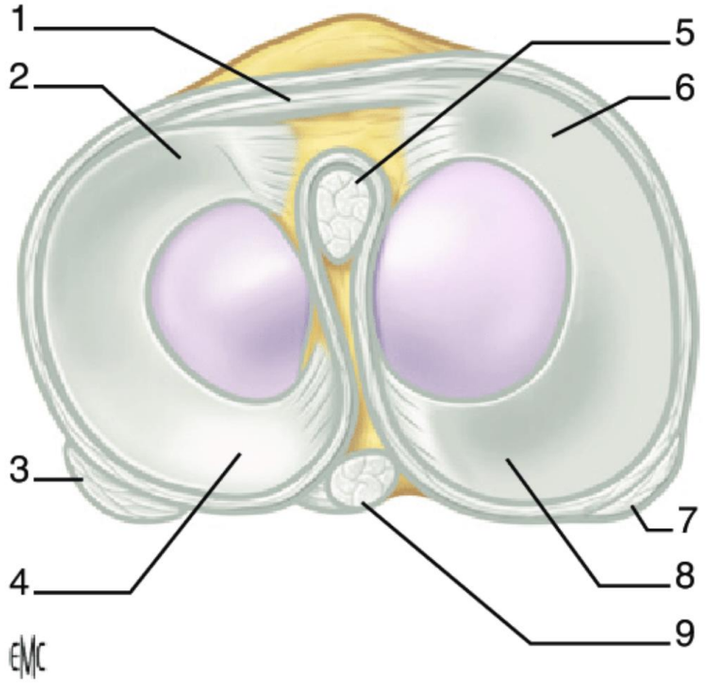
ANATOMIE

- Ligament interméniscal ant
- Insertions ant / post
- Ligaments ménisco-fémoraux



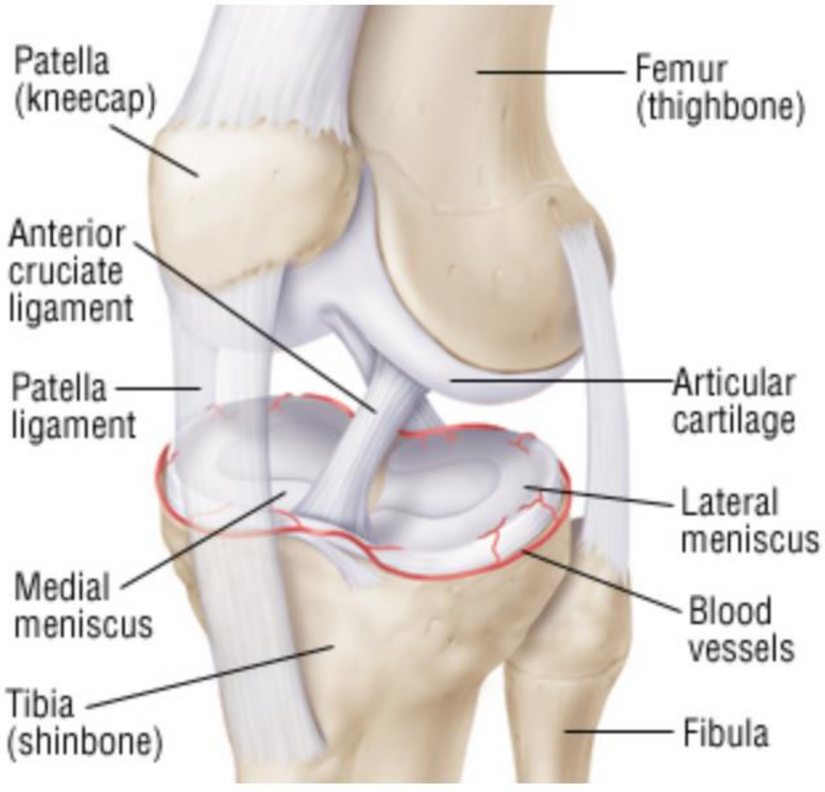
Tendon poplité Hiatus poplité

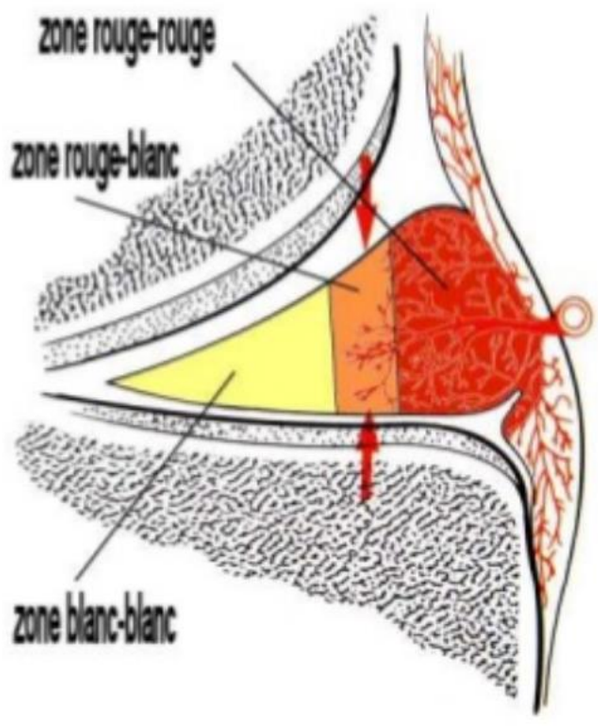
tendon poplité

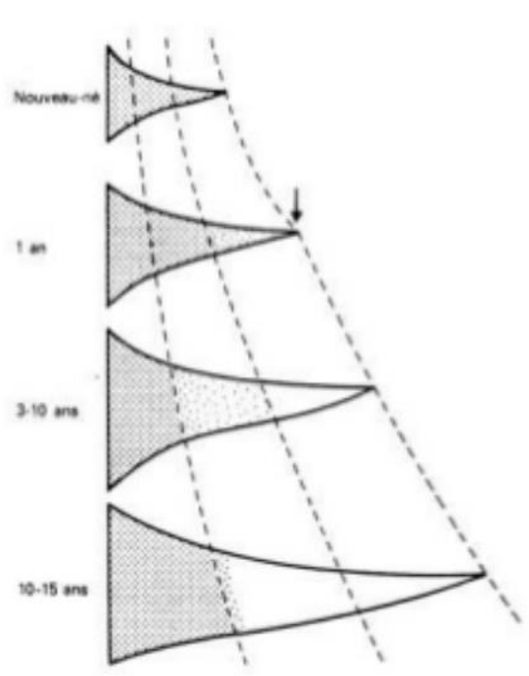


ANATOMIE

- Vascularisation périphérique : 3 zones



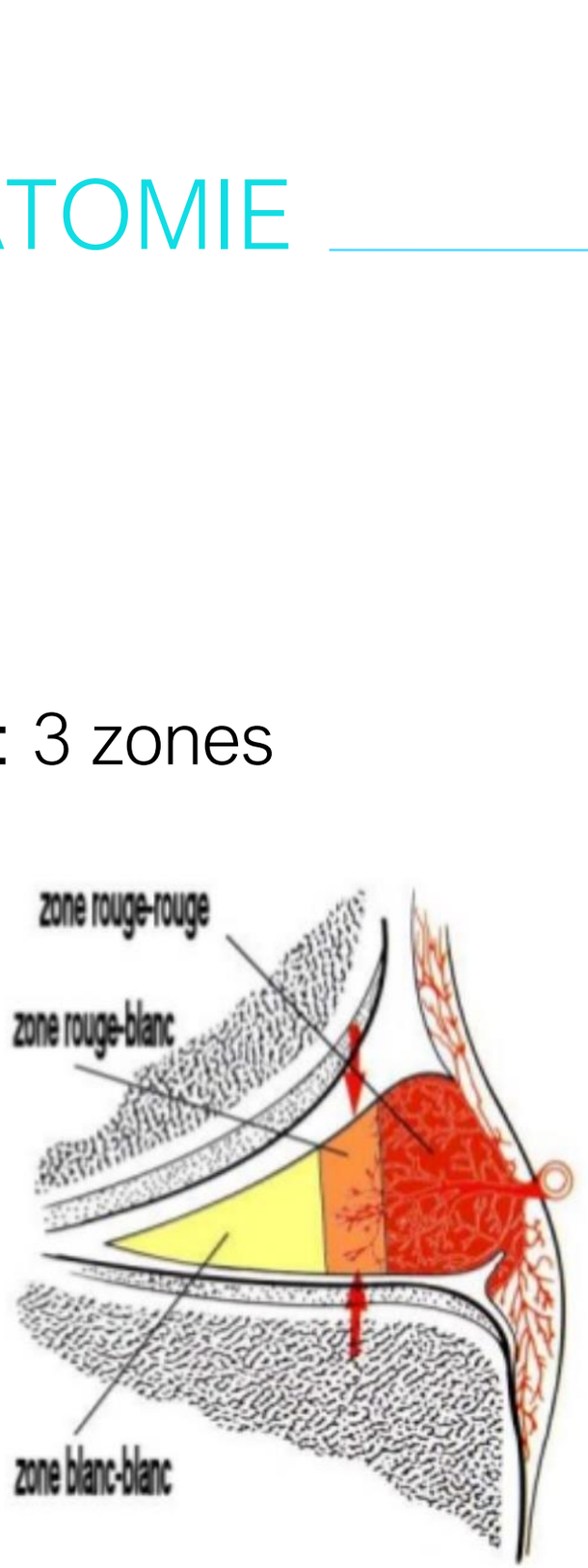


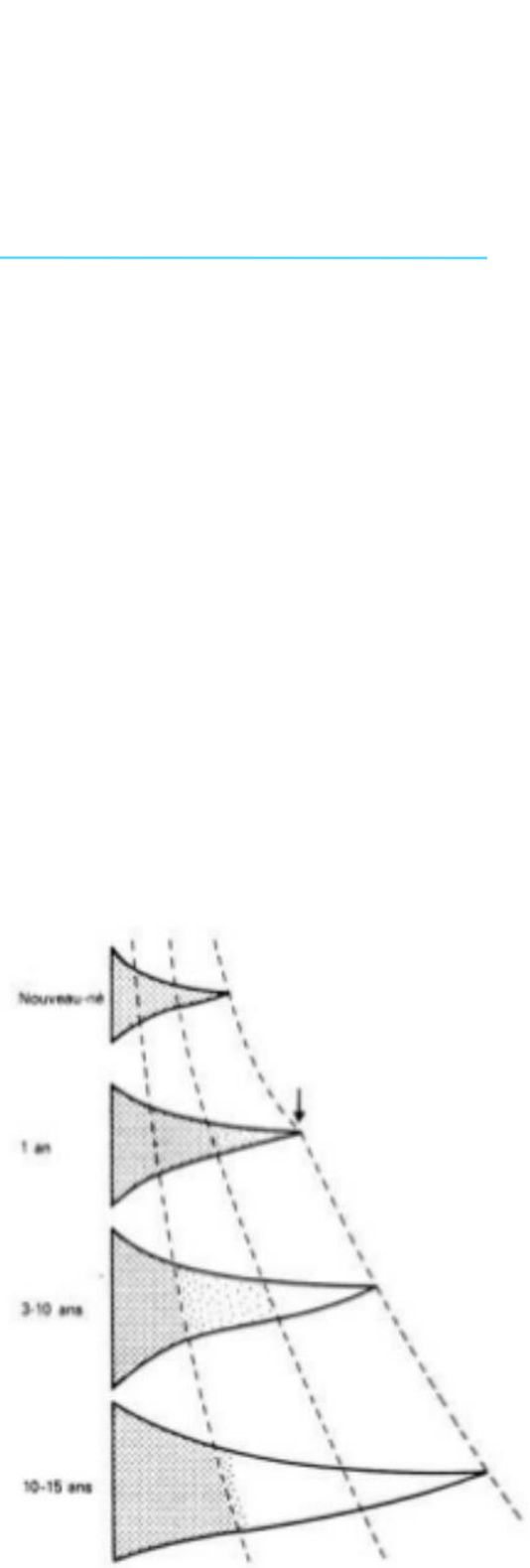


ANATOMIE

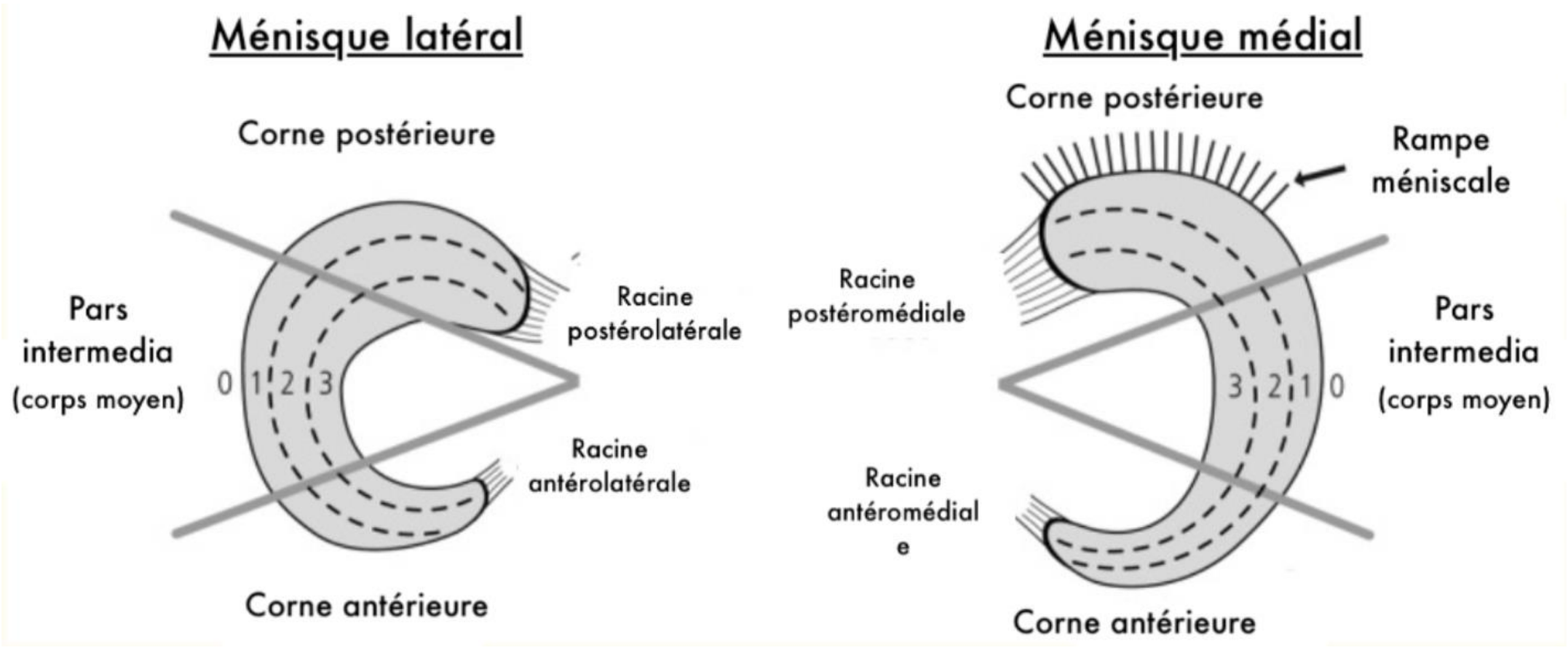
- Vascularisation périphérique : 3 zones
  - Rouge/rouge
  - Rouge/blanc
  - Blanc/blanc

Potentiel de cicatrisation

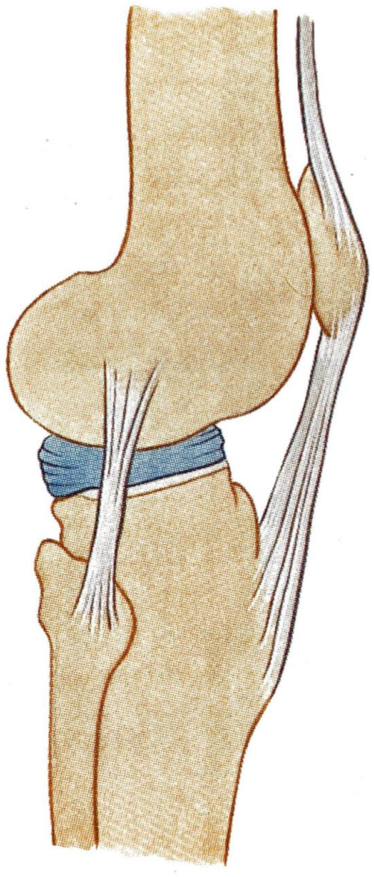


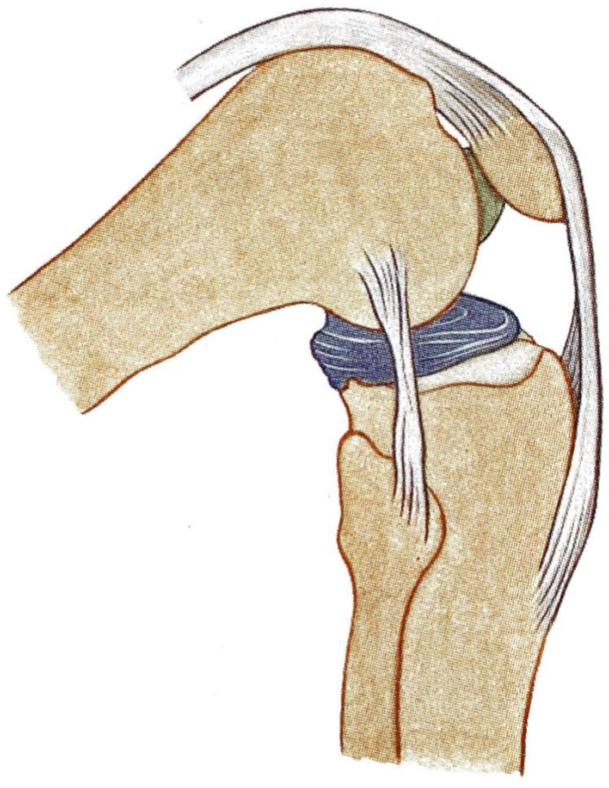


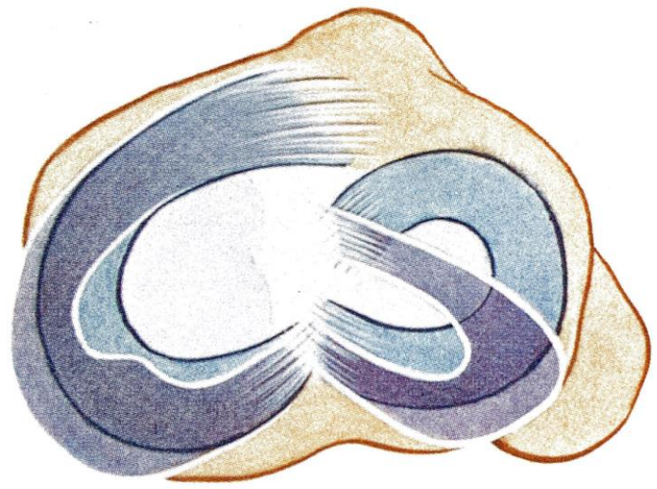
ANATOMIE


Ménisque latéral
Corne postérieure
Pars intermedia (corps moyen)
Racine postérolatérale
Racine antérolatérale
0 1 2 3
Corne antérieure
Ménisque médial
Corne postérieure
Rampe méniscale
Racine postéromédiale
Pars intermedia (corps moyen)
Racine antéromédiale
3 2 1 0
Corne antérieure

ANATOMIE







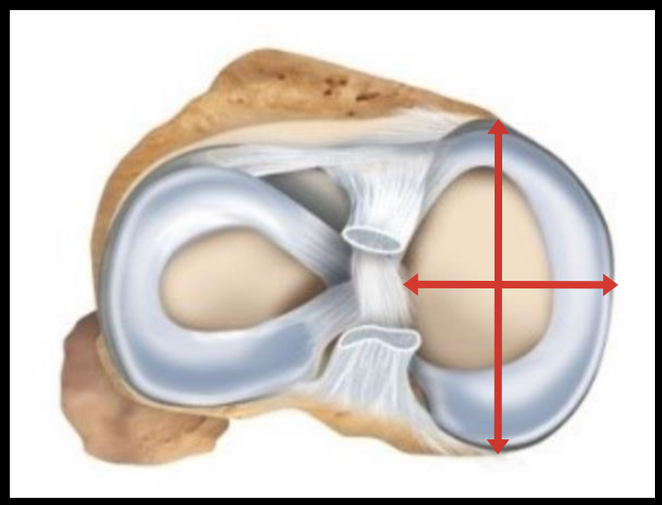
Structures mobiles de soutien

Ménisque interne

Compartiment interne congruent

convexe - concave

30% surface articulaire



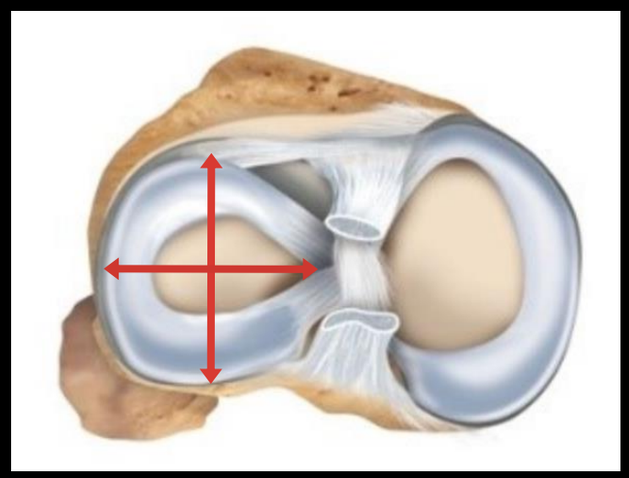
Ménisque externe

Compartiment non congruent

Convexe - Convexe

Surcharge méniscale inhérente

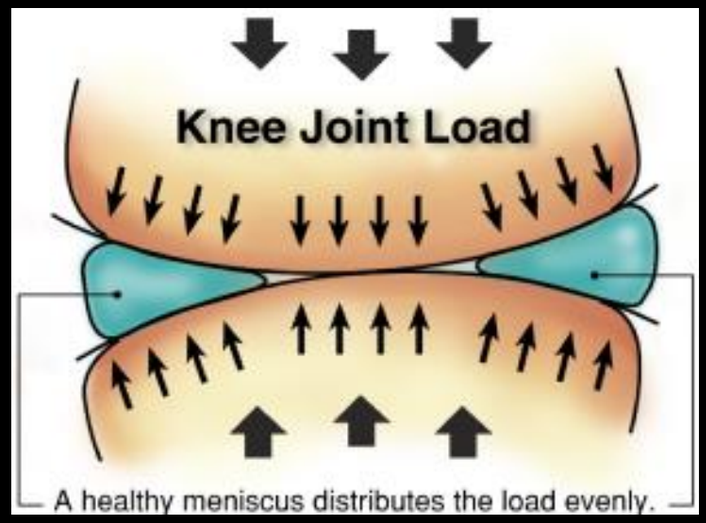
60% surface articulaire



ANATOMIE

Fonction

- Absorption des chocs *
- Transmission des forces *
- Congruence articulaire *
- Stabilisateurs secondaires antéro-postérieurs *
- Proprioception : mécanorécepteurs



** Effet chondroprotecteur = prévention arthrose*

FONCTION

Meniscectomie interne

- Charge + 50%
- Rotation interne majorée
- Glissements majorés

↓

OA

Méniscectomie externe

- Charge + 70%
- frottements majorés
- Perte de congruence

↓

OA

!!! SAVE THE MENISCUS !!!


Review > Am J Sports Med. 2010 Sep;38(9):1907-16. doi: 10.1177/0363546510370196. Epub 2010 Jun 29.

A systematic review of clinical outcomes in patients undergoing meniscectomy

Michael J Salata [1], Aimee E Gibbs, Jon K Sekiya


Review > J Am Acad Orthop Surg. 2018 Dec 15;26(24):853-863. doi: 10.5435/JAAOS-D-17-00256.

Biomechanics and Clinical Outcomes of Partial Meniscectomy

Brian T Feeley [1], Brian C Lau

EPIDEMIOLOGIE

« Déchirure » méniscale

Traumatique

Verticale / Radiaire / Flap / Anse de seau

Medial 75% - Lateral 25%

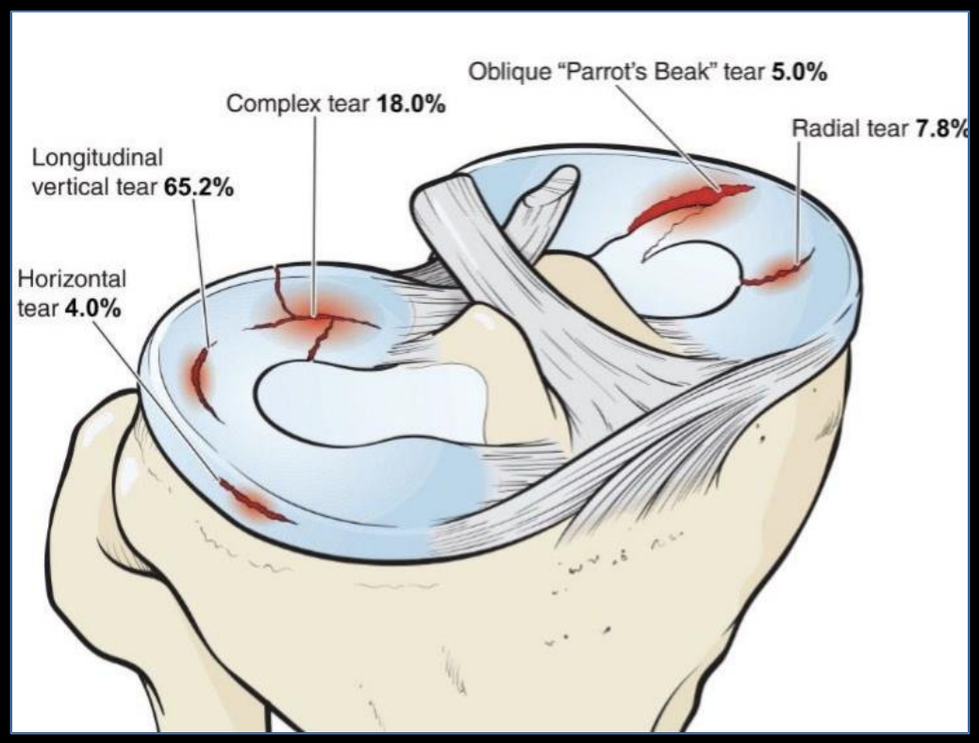
LCA aigu combiné: Latéral > Medial (80%)

LCA chronique: 96% medial > latéral

« Lésion » méniscale

Dégénérative

horizontale



The 2019 ESSKA consensus

EPIDEMIOLOGIE

Pathologie fréquente à l'âge adulte

Majoritairement chez 30-50 ans

Lésions dégénératives : 16% chez 50-59 ans

Jusqu'à 50% chez >70 ans

Très souvent asymptomatiques

Si symptômes : OA ? Ménisque ? Ou les 2?

Englund et Al, NEJM 2008

LESIONS

Ménisque latéral
Corne postérieure
Pars intermedia (corps moyen)
Racine postérolatérale
Racine antérolatérale
Corne antérieure
0 1 2 3
Ménisque médial
Corne postérieure
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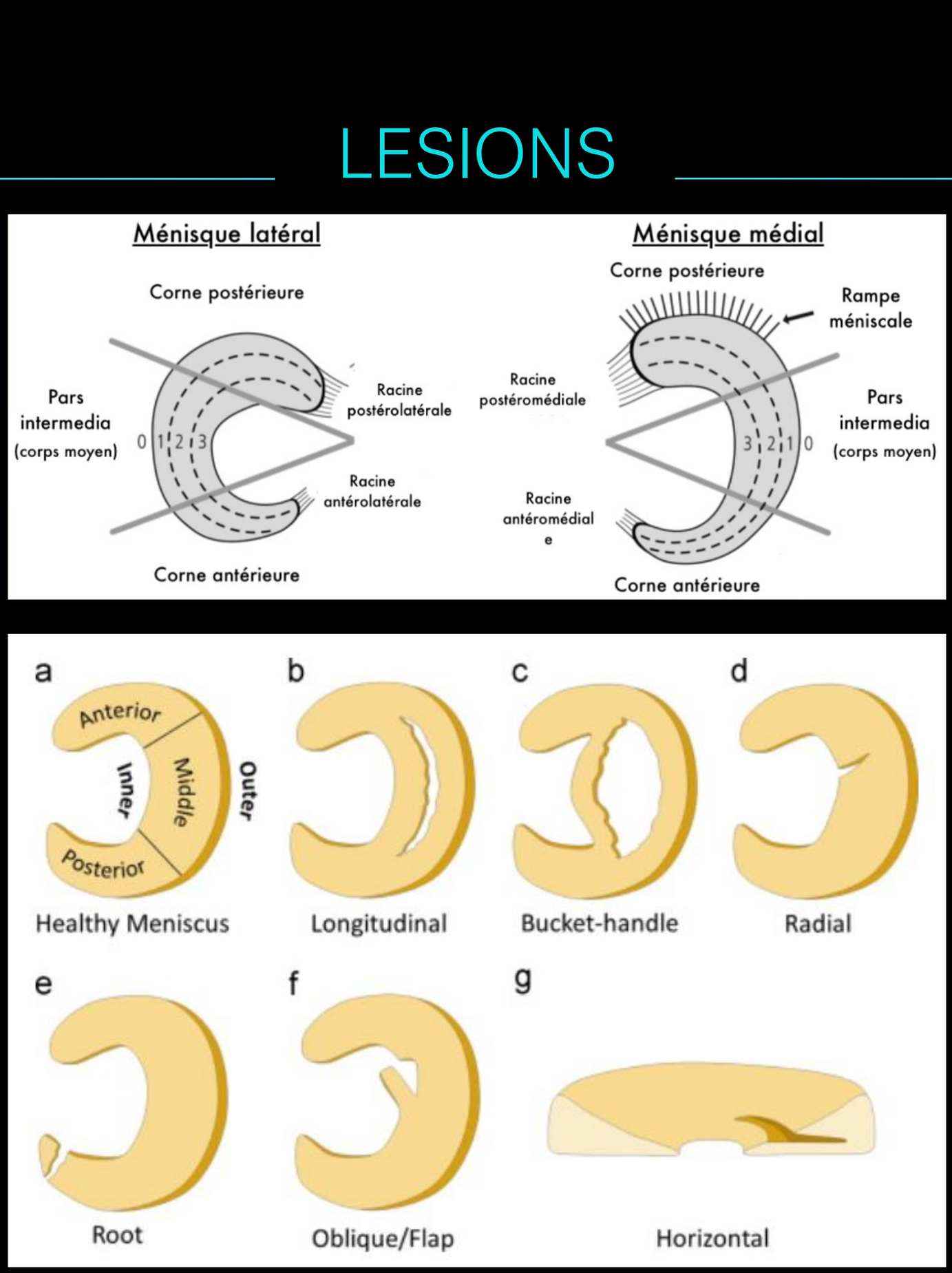
Racine postéromédiale
Pars intermedia (corps moyen)
Racine antéromédiale
Corne antérieure
3 2 1 0


a
Anterior
Middle
Outer
Inner
Posterior
Healthy Meniscus
b
Longitudinal
c
Bucket-handle
d
Radial
e
Root
f
Oblique/Flap
g
Horizontal

LESIONS

Flap

depuis zone blanche vers rouge

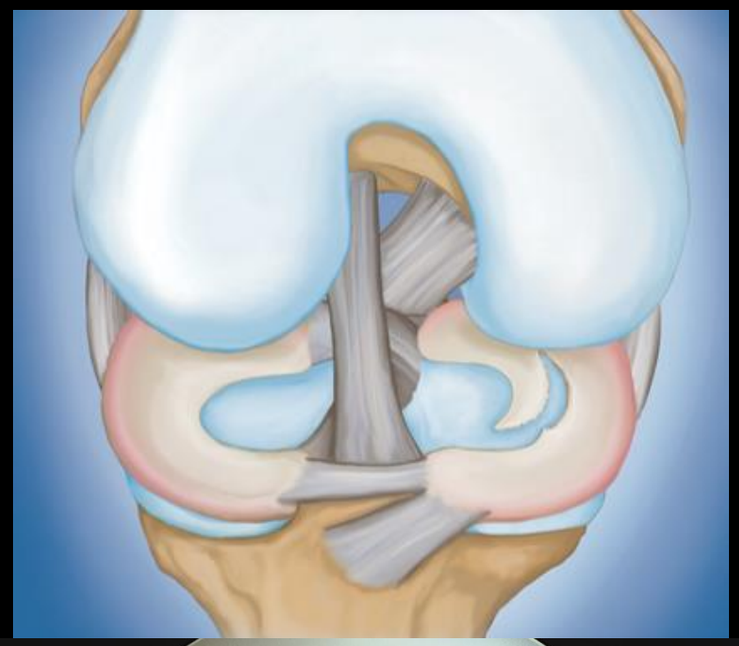
Instable

Clic / pointe récurrente

Rotations +++

Contact +++

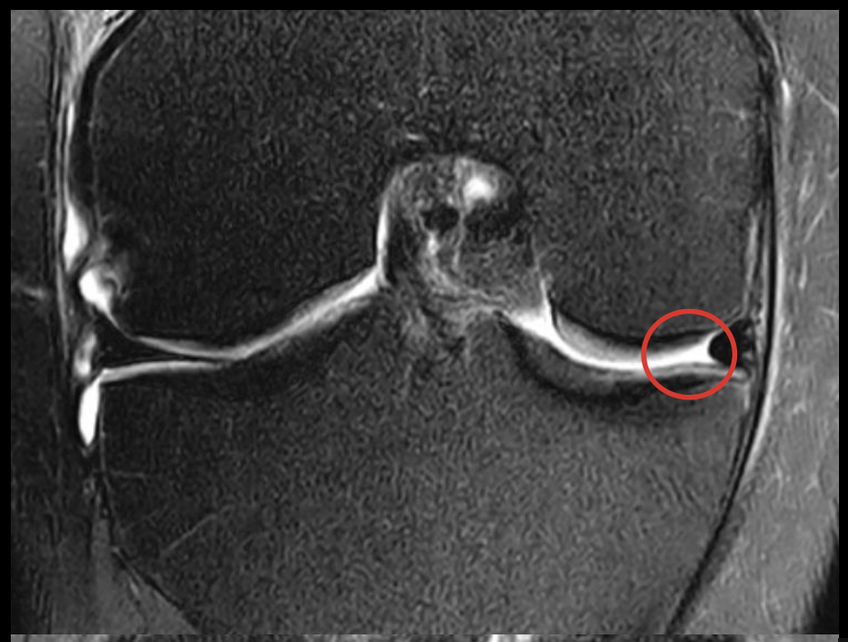
Gonflement +/-

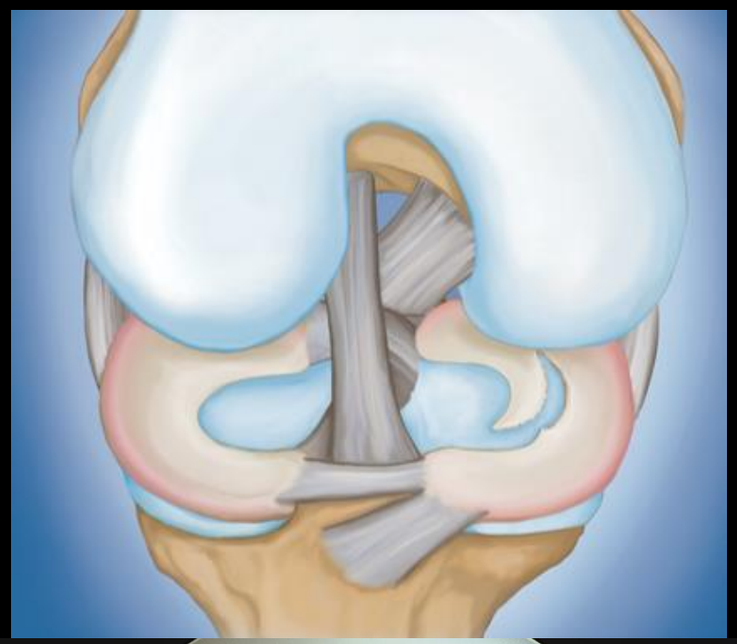


LESIONS

Flap

« Coma sign »



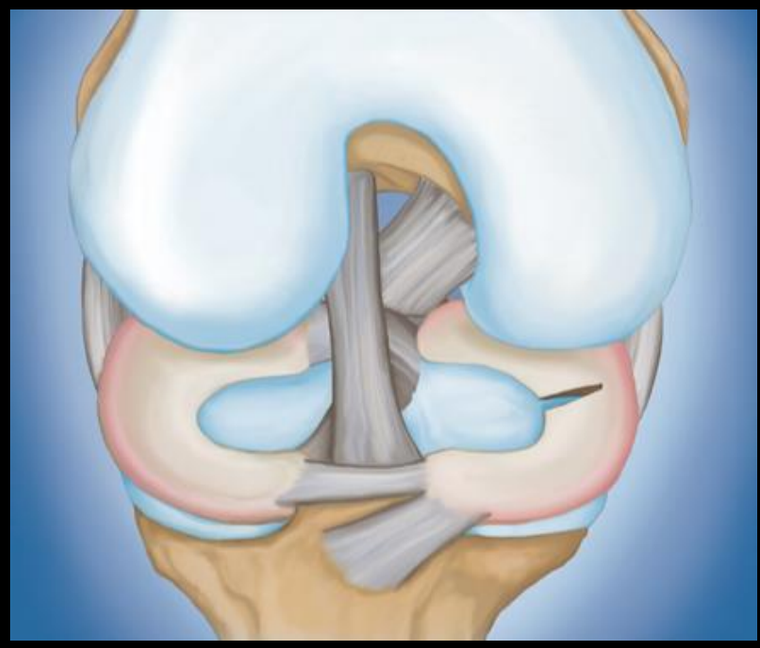


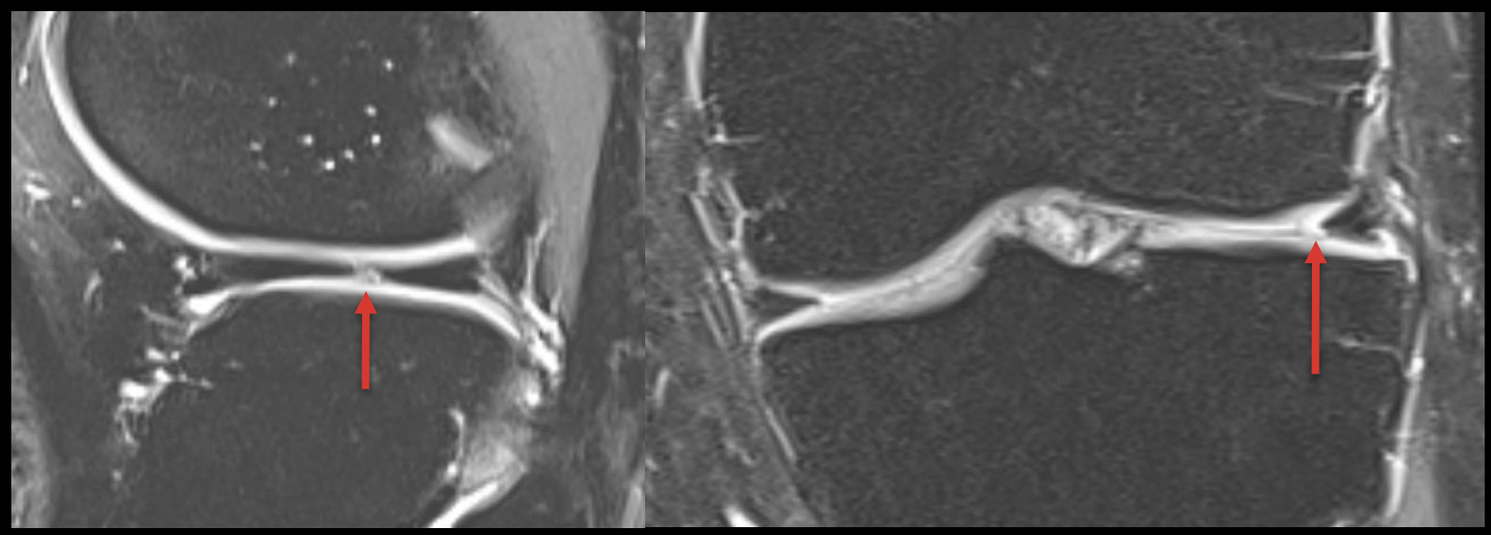
LESIONS

Radiaire

Rectiligne

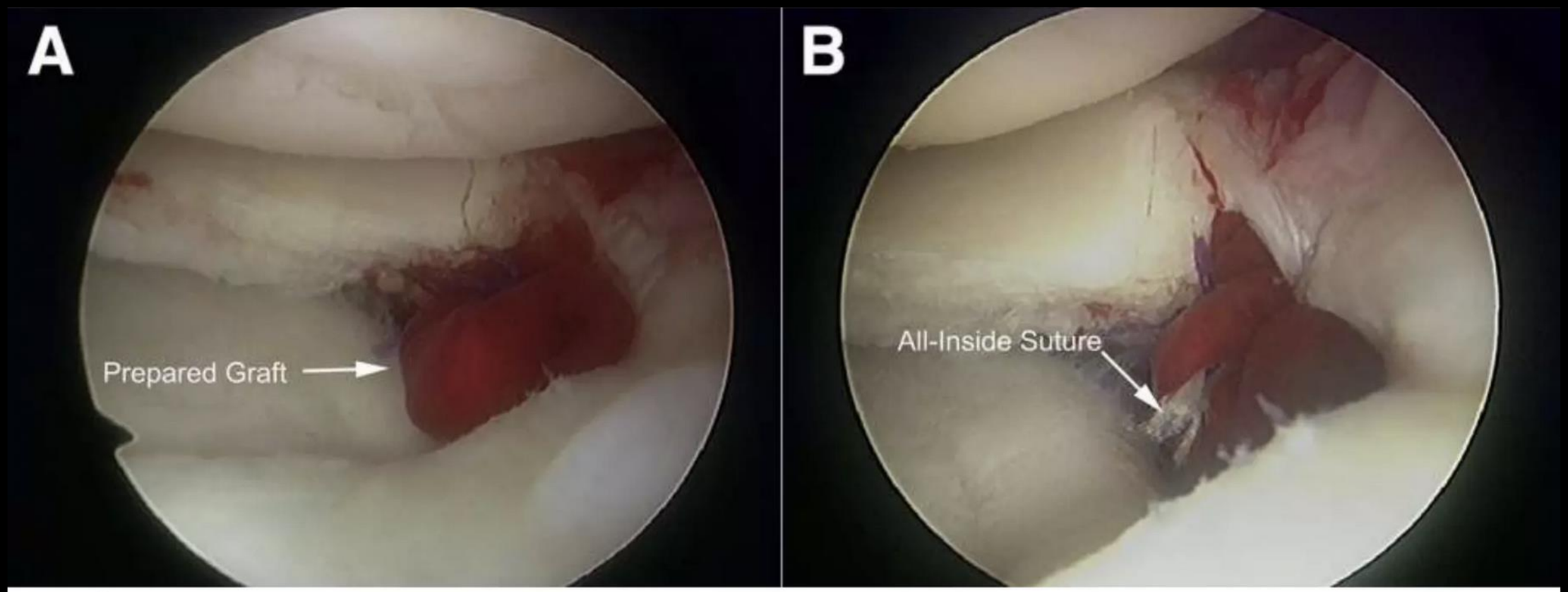
Blanc vers rouge





LESIONS

Radiaire



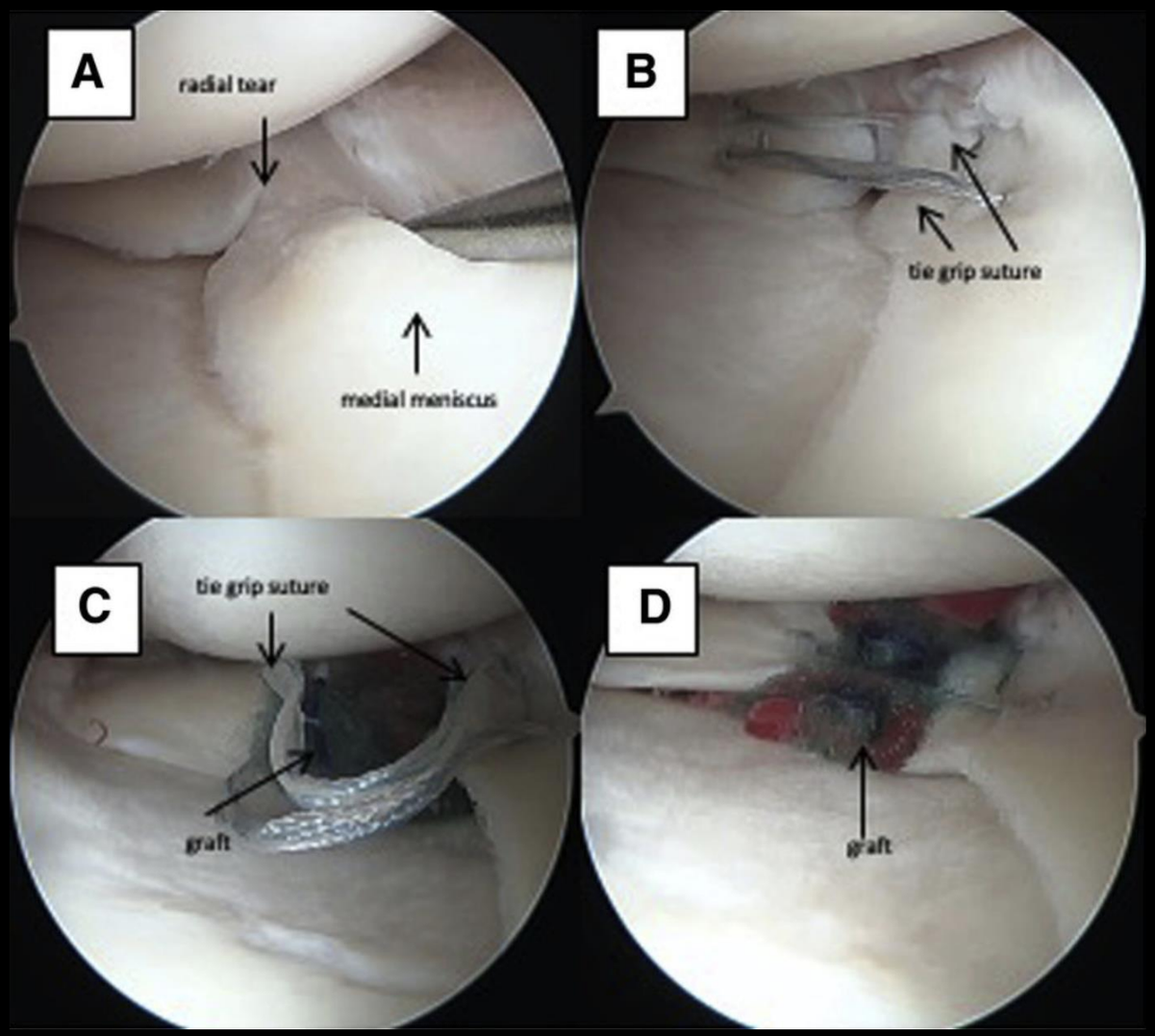
Technical Note

Repair of a Chronic Large Meniscal Defect With Implantation of Autogenous Meniscal Fragments Using a Tubular-Shaped Fibrin Clot

Meniscal Repair: Reconsidering Indications, Techniques, and Biologic Augmentation; JBJS 2017; Woodmass, LaPrade, Sgaglione, Nakamura, Krych

LESIONS

Radiaire



Side - to - side

\+ biologic augmentation

Vascular access channels

PRP

Fibrin Clot

LESIONS

Anse de seau

= Longitunidale étendue instable

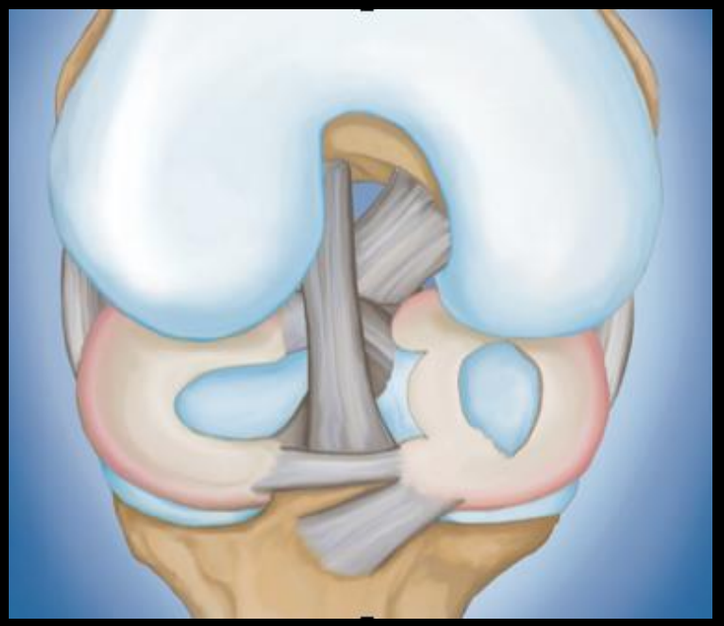
« désinsertion » circonférentielle

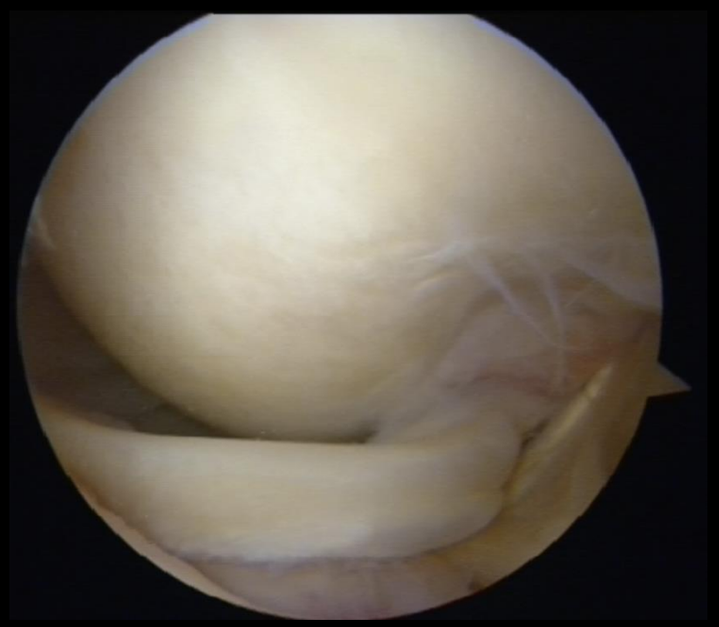
Blocage récurrent

Gonflement +/-

Déficit extension = bloqué dans échancrure

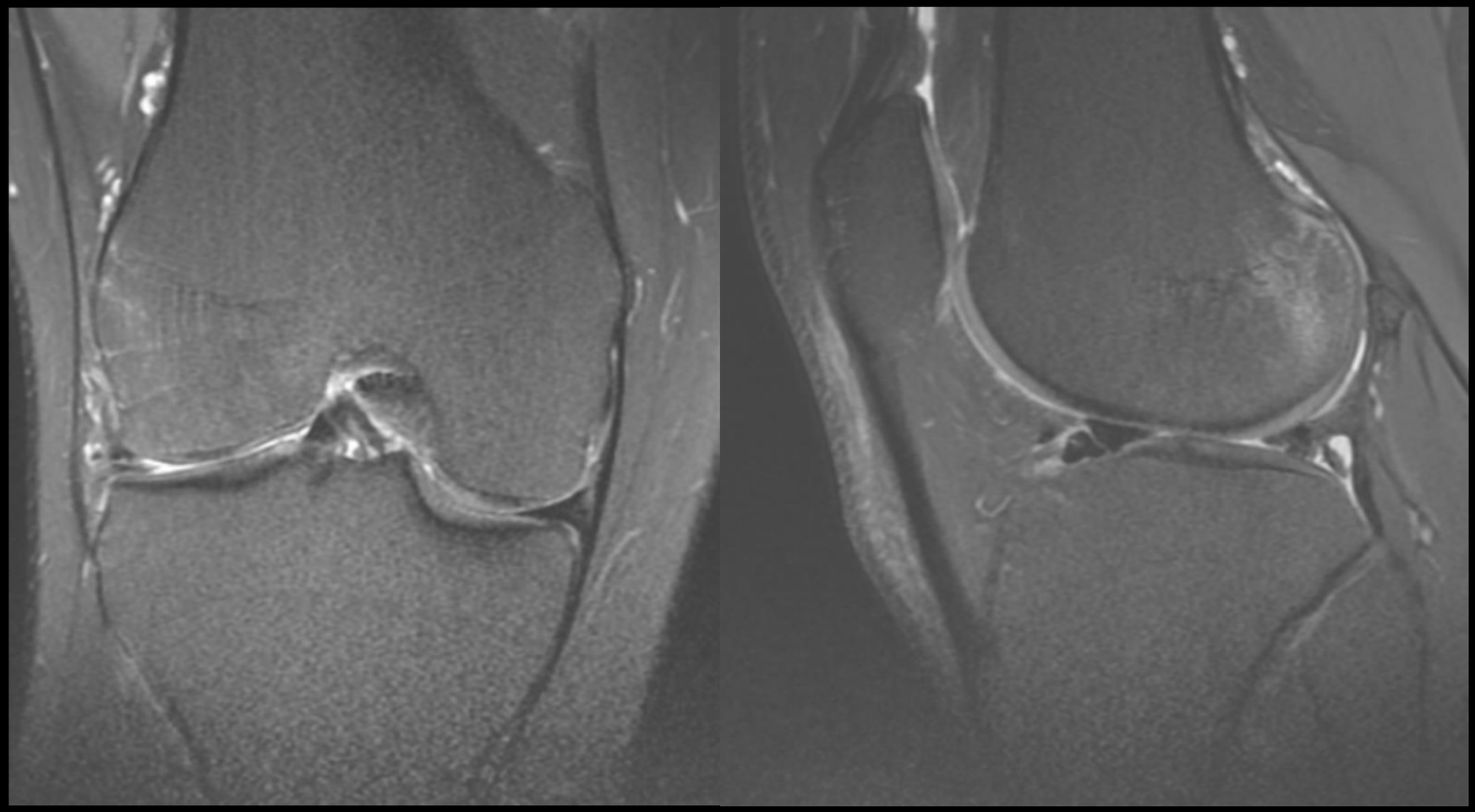
→ **Flexum** irréductible





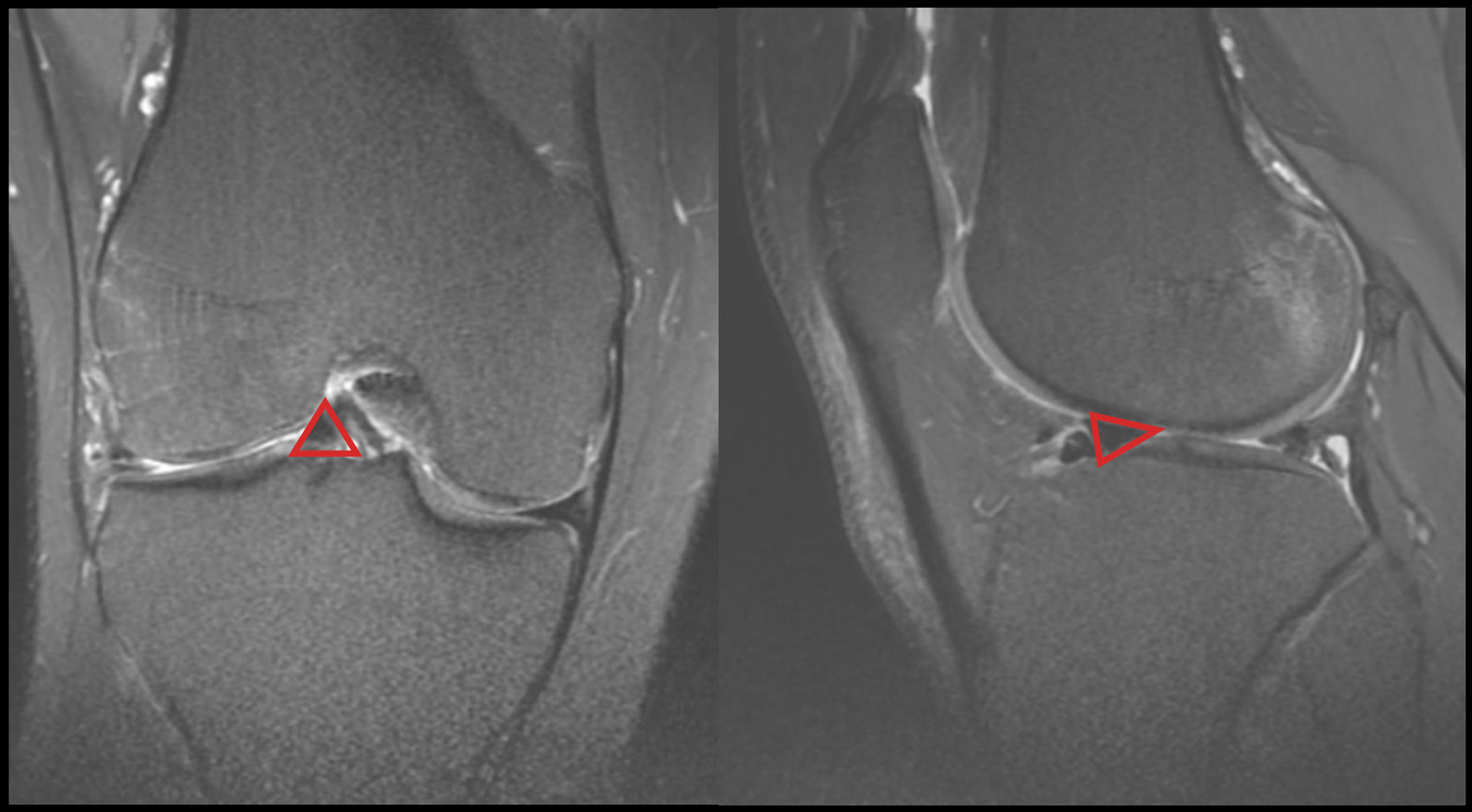
LESIONS

Anse de seau externe



LESIONS

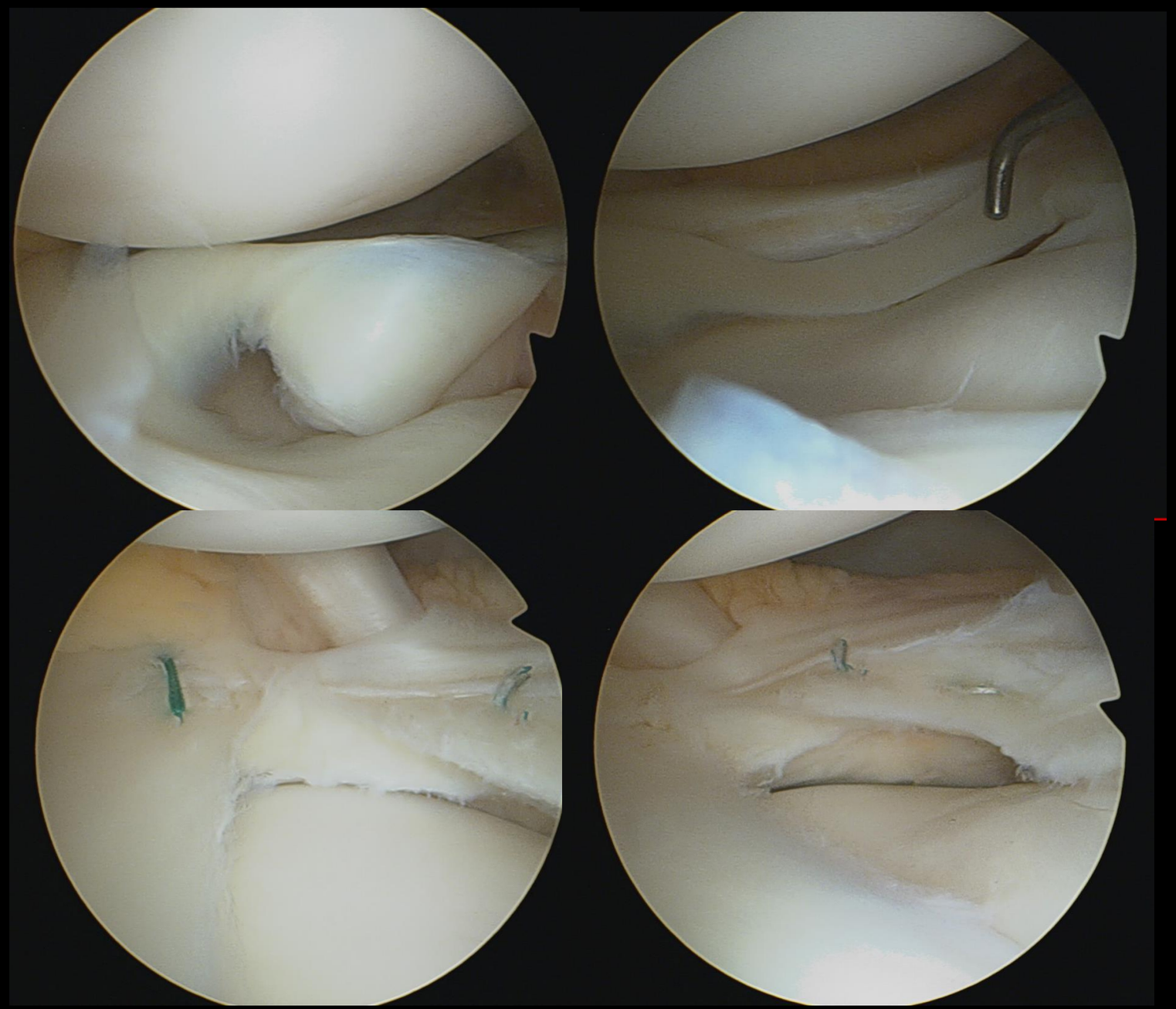
Anse de seau externe



Double corne antérieure

LESIONS

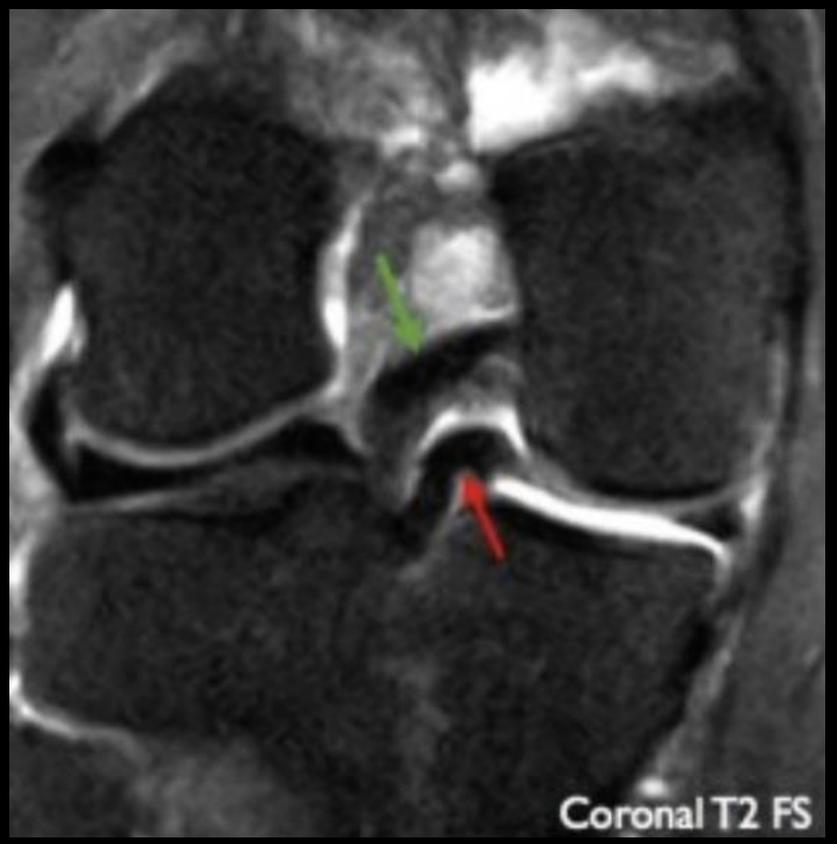
Anse de seau externe



LESIONS

Anse de seau interne

Signe du « **double LCP** »

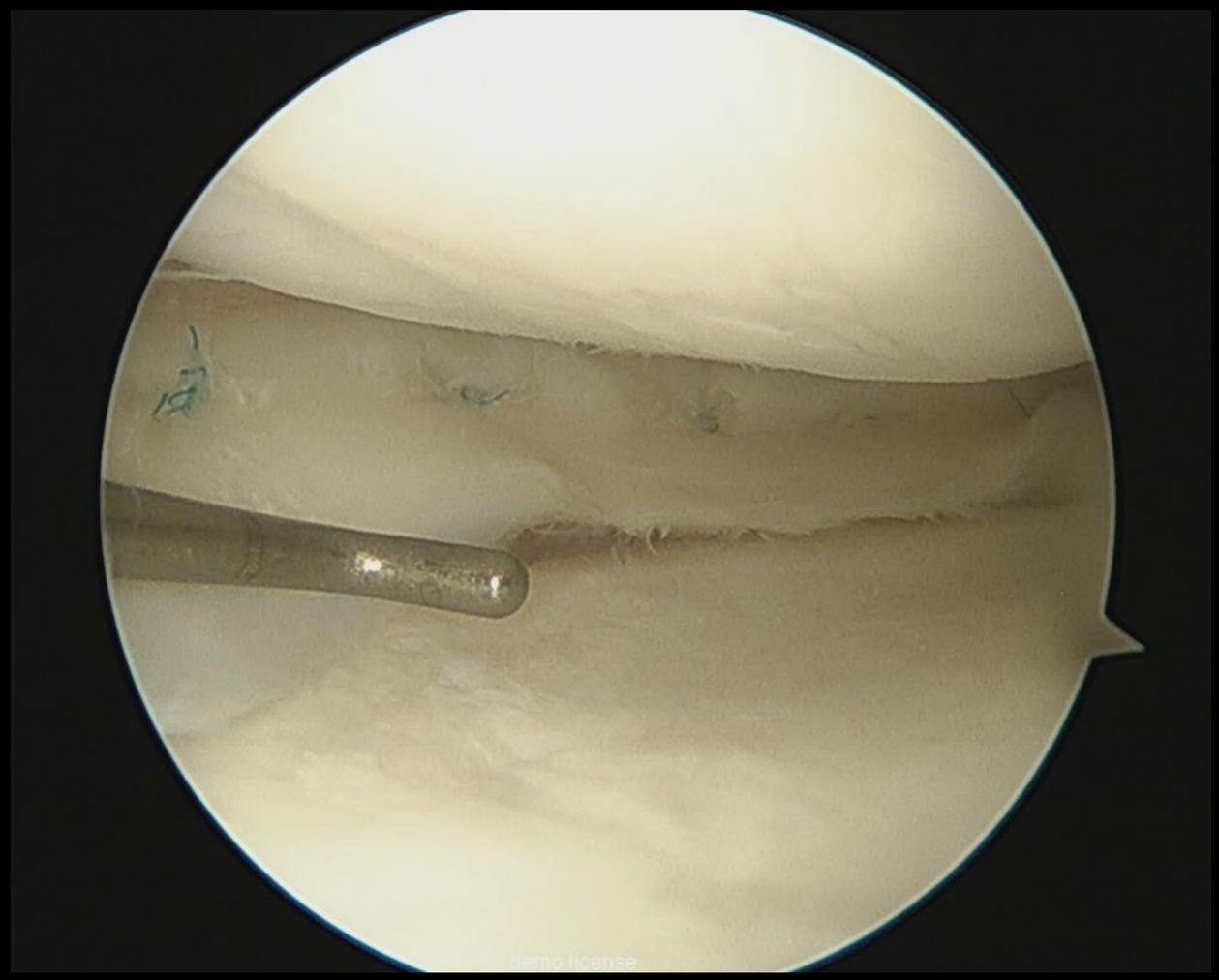


LCP

Anse luxée

LESIONS

Anse de seau interne



LESIONS

Complexe

Combinaison radiaire / flap(s) / oblique

Souvent dégénératif présentant une lésion aigüe

LESIONS

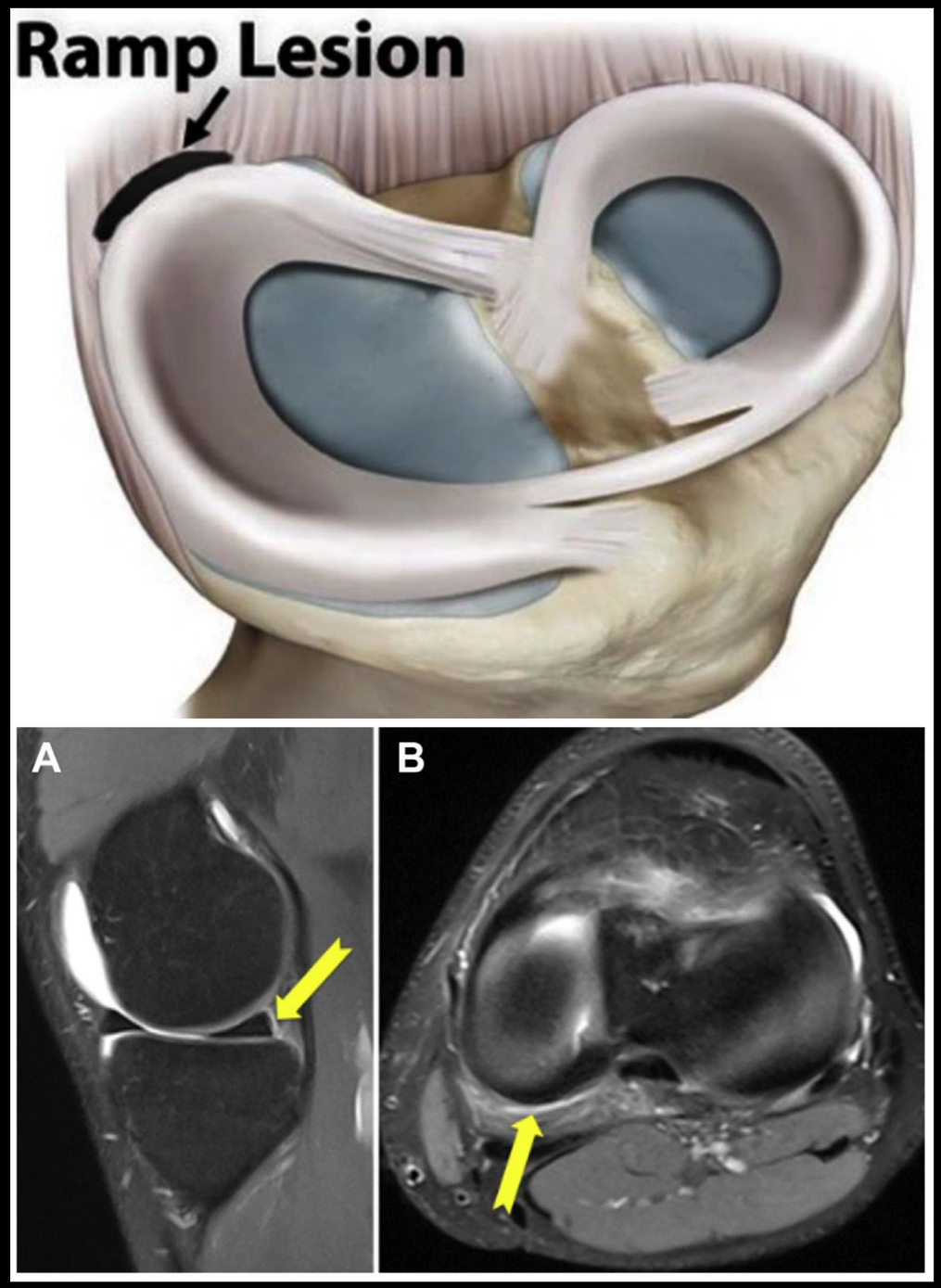
Ramp lesion

Lésion ménisco-capsulaire
corne postérieure

= désinsertion lig. ménisco-tibial

Environ 22% (9-42%)

Jusque'à 55% des lésions méniscales lors des ruptures de LCA



LESIONS

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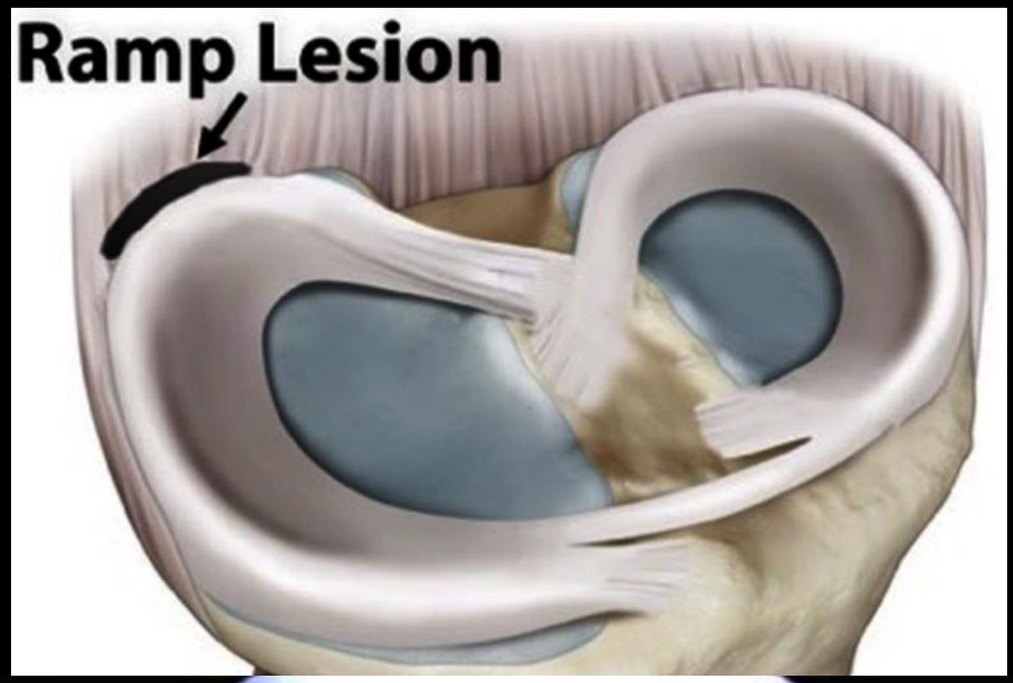
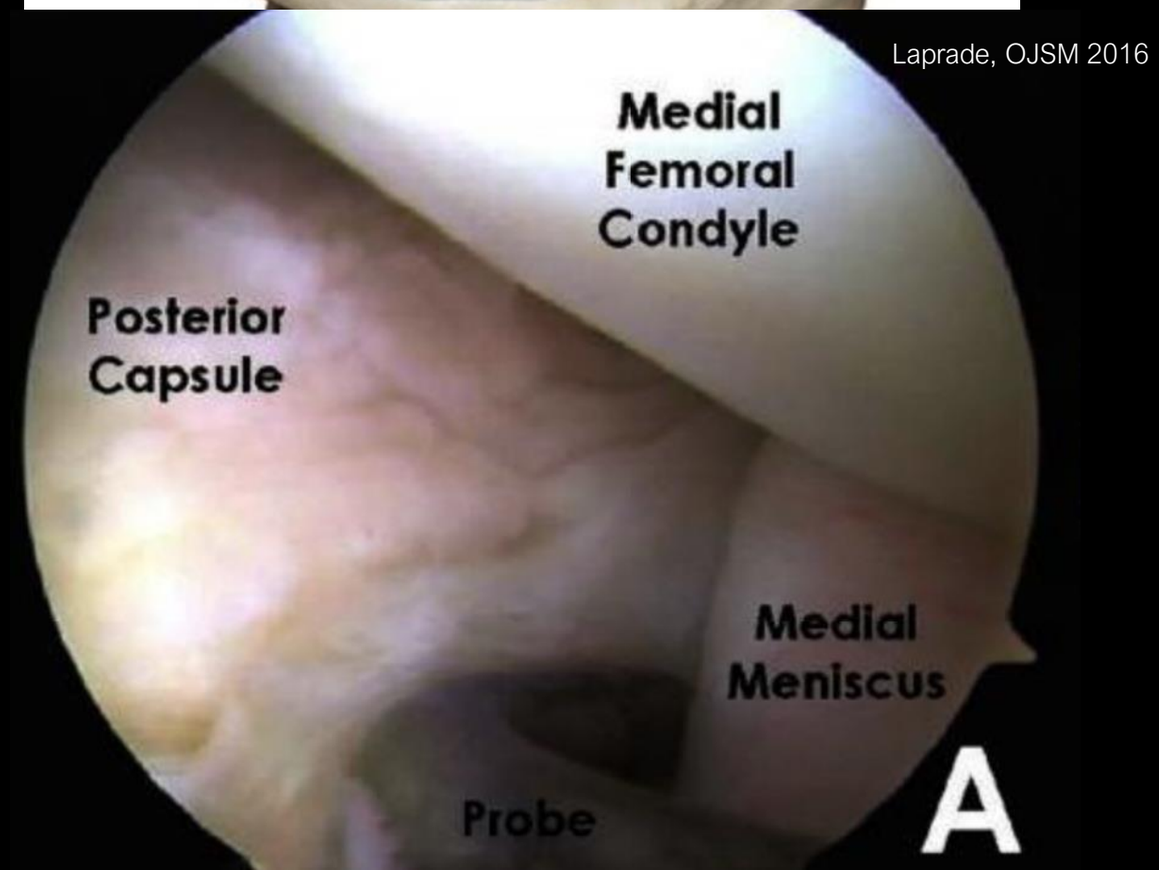




Laprade, OJSM 2016

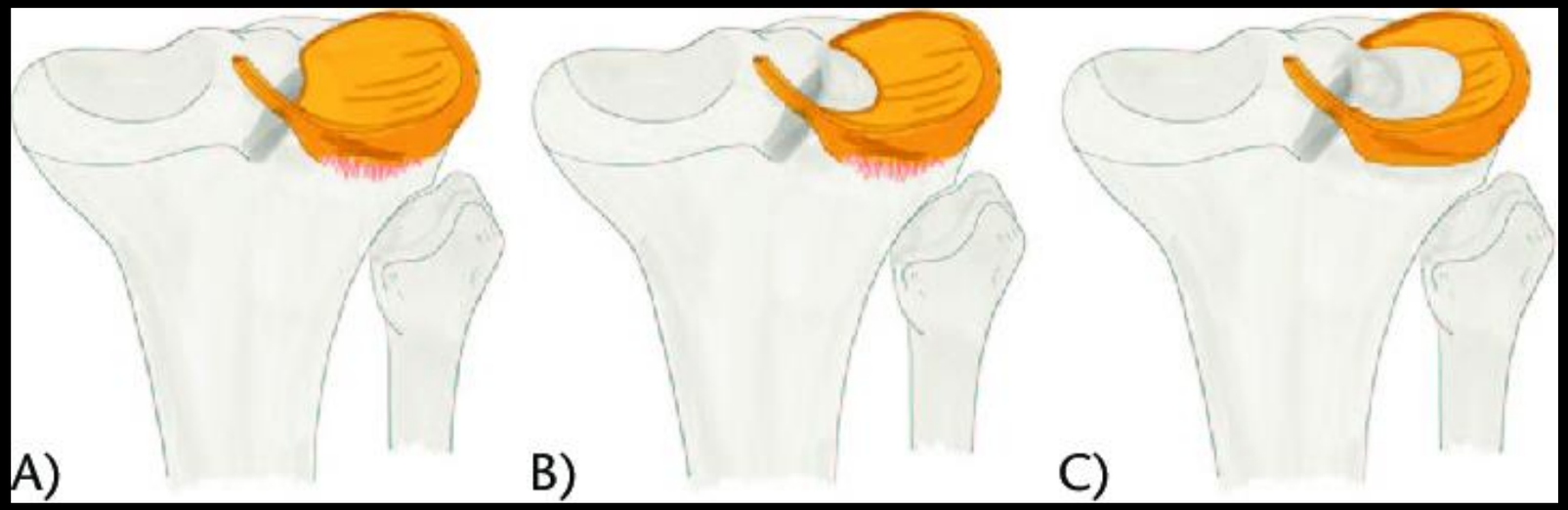
LESIONS

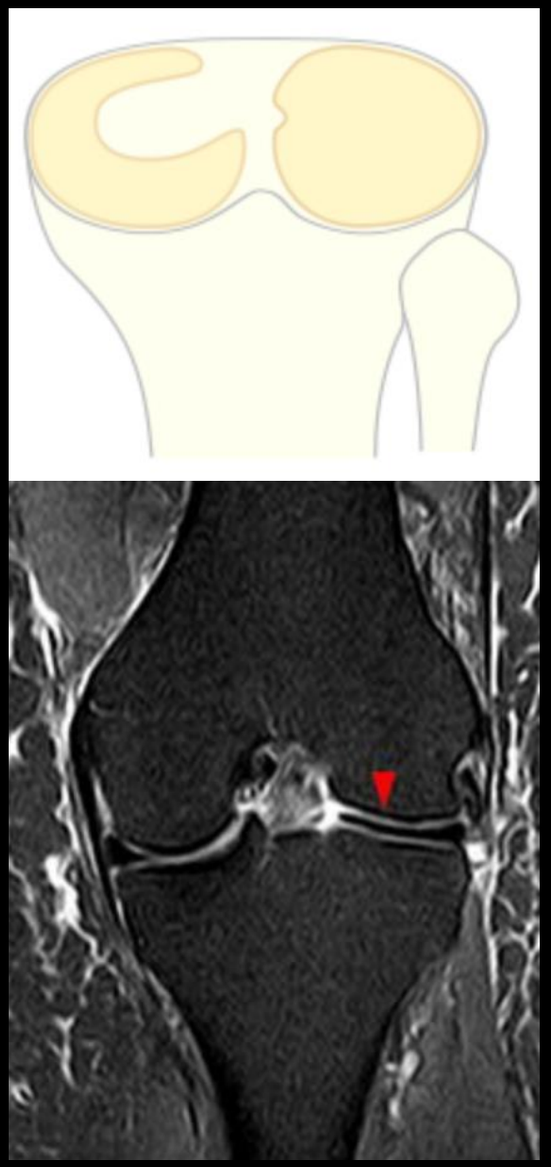
Ménisque discoïde

Latéral >>> médial

Congénital

Classification Watanabe :





LESIONS

Ménisque discoïde

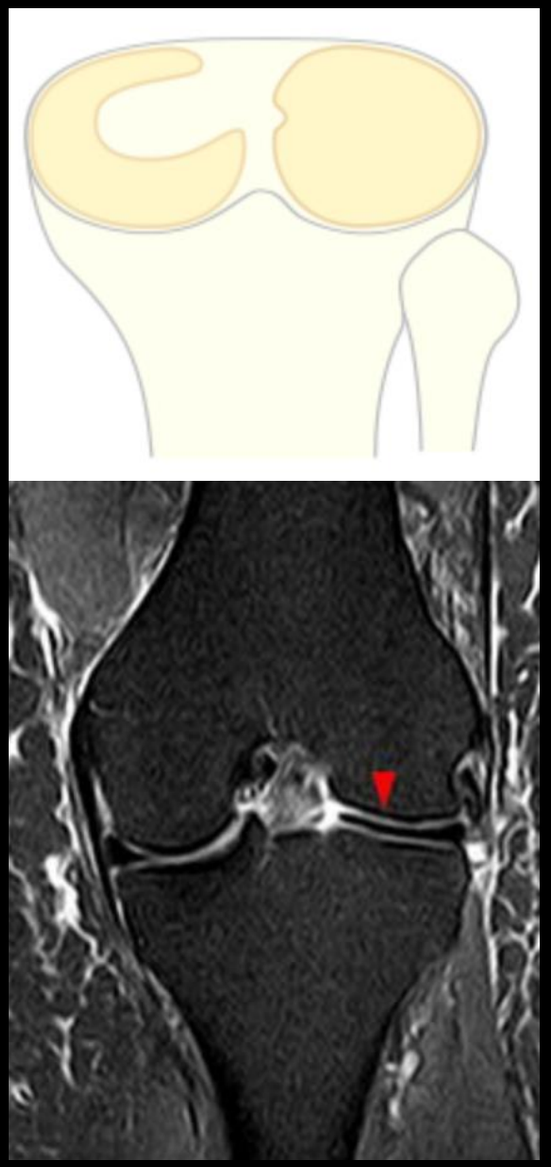
Latéral > médial

Congénital

Couvre la (quasi) totalité de la surface articulaire

Fragile par sa large portion de faible épaisseur

Non pathologique = Ne pas toucher



LESIONS

LESIONS

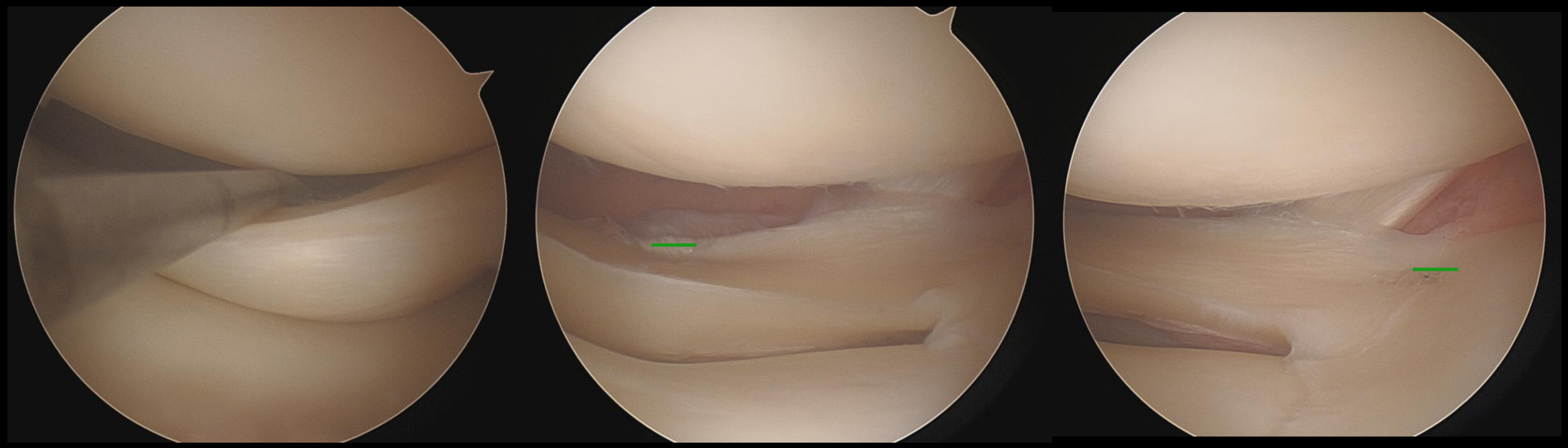
Ménisque externe hypermobile

= Cas particulier

= Diagnostic **clinique** >> radiologique

Hiatus poplité élargi ?

« Seul cas » d'arthroscopie diagnostique



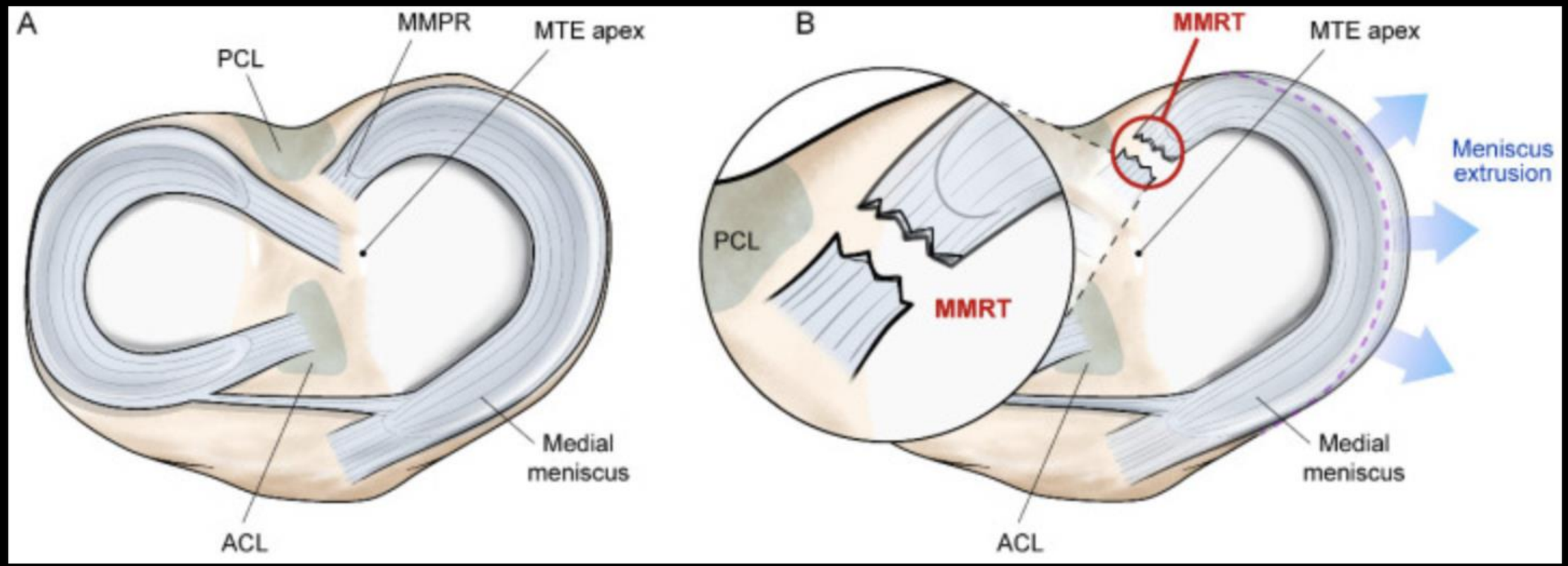
LESIONS

Root tear

Dégénérative > post-traumatique

Zone d'insertion

→ **Extrusion** = Perte de fonction

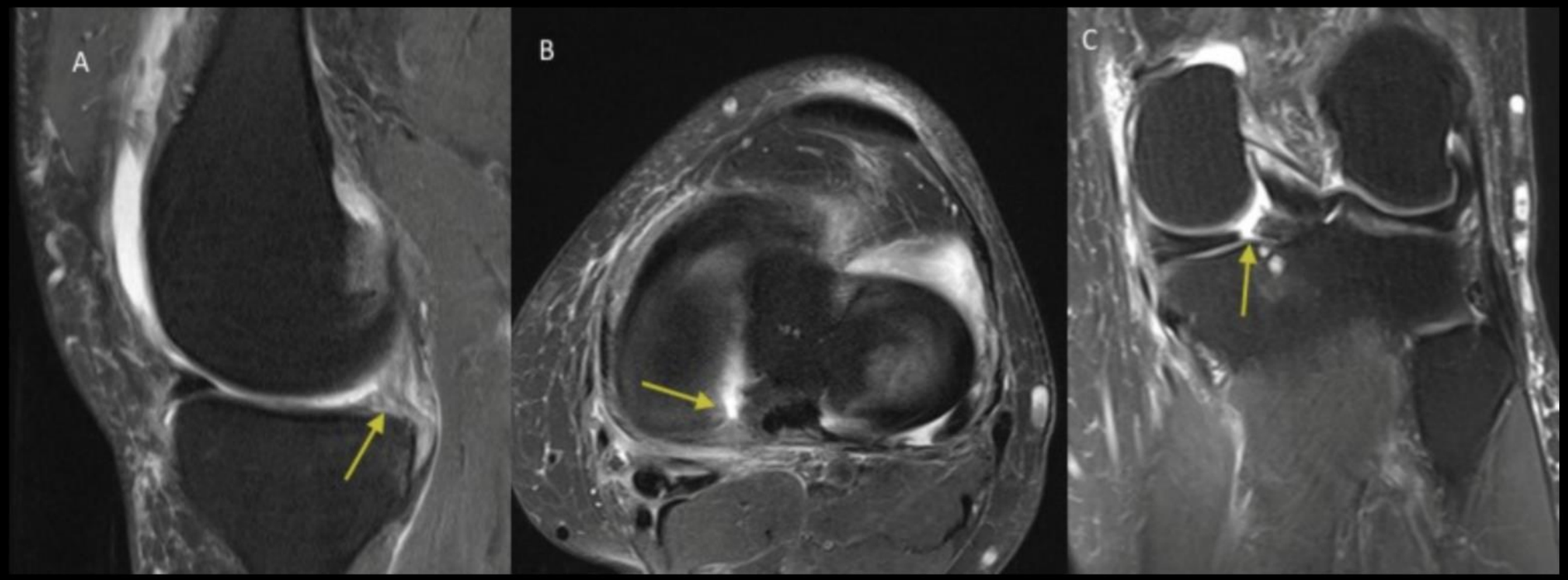


Review > Medicina (Kaunas). 2023 Jun 21;59(7):1181. doi: 10.3390/medicina59071181.

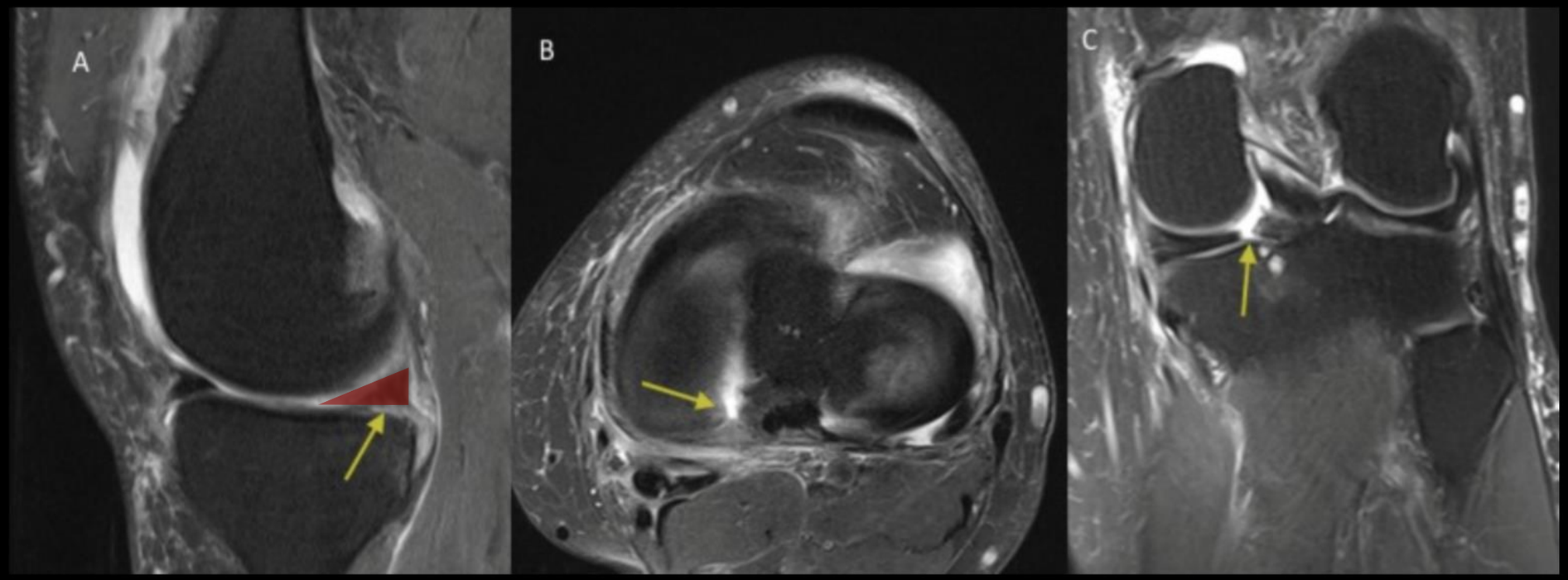
Medial Meniscus Posterior Root Tear: How Far Have We Come and What Remains?

Hyun-Soo Moon [1 2], Chong-Hyuk Choi [1 3], Min Jung [1 3], Kwangho Chung [1 4], Se-Han Jung [1 5], Yun-Hyeok Kim [3], Sung-Hwan Kim [1 5]

LESIONS

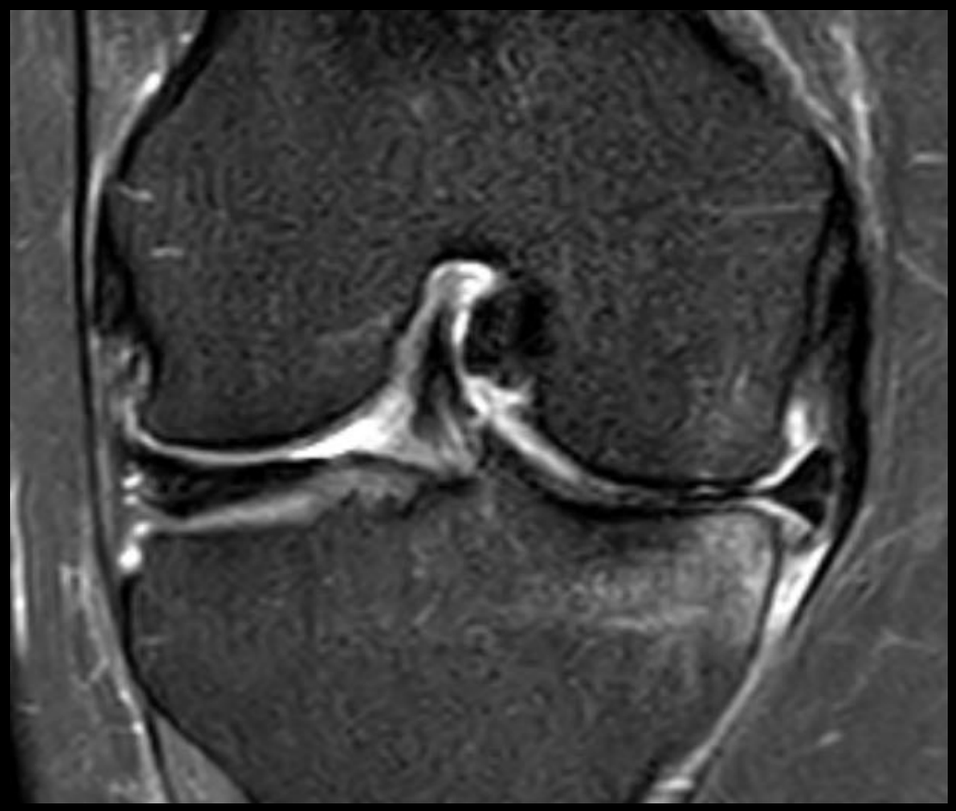


LESIONS



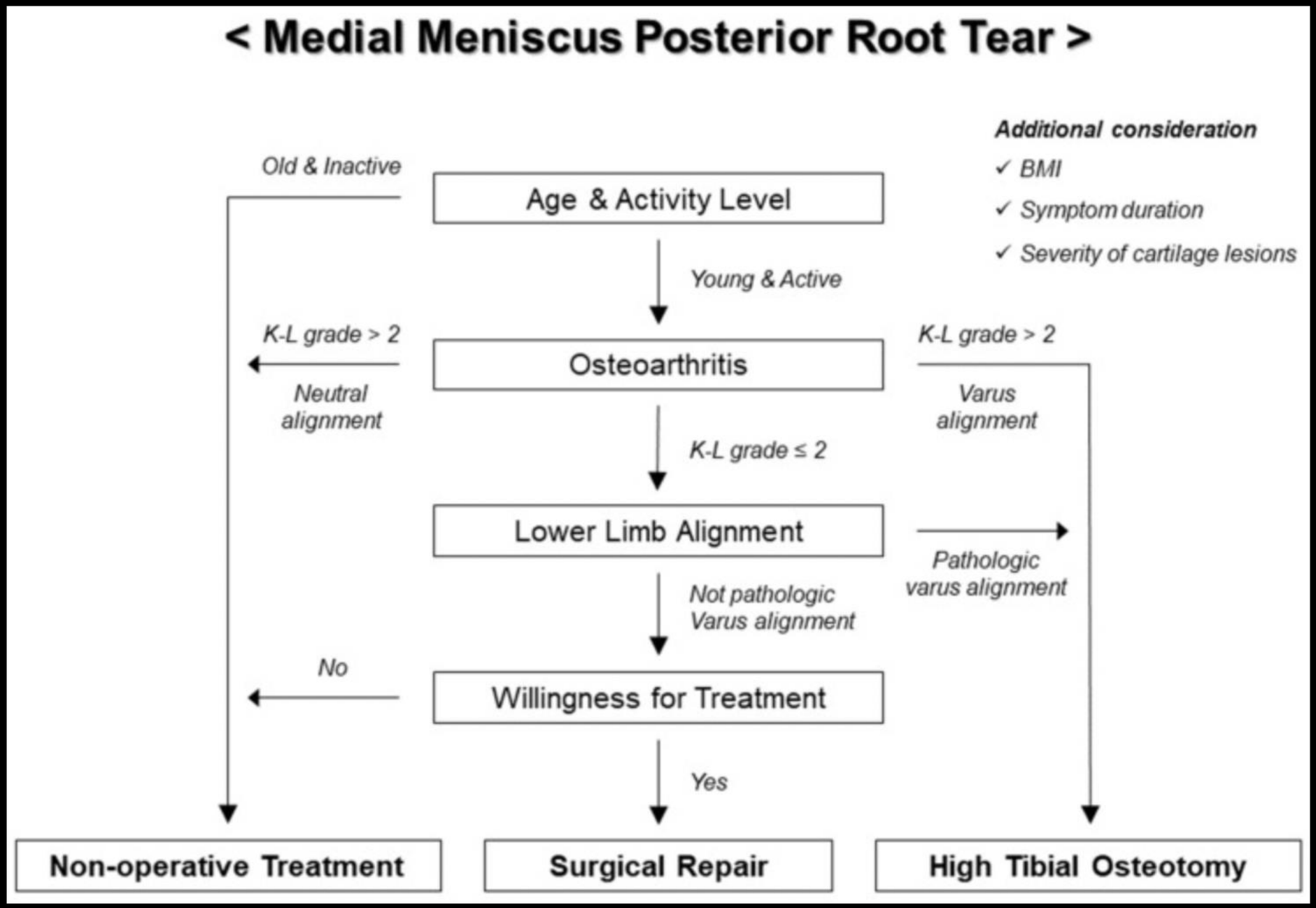
Empty space

LESIONS



LESIONS

LESIONS

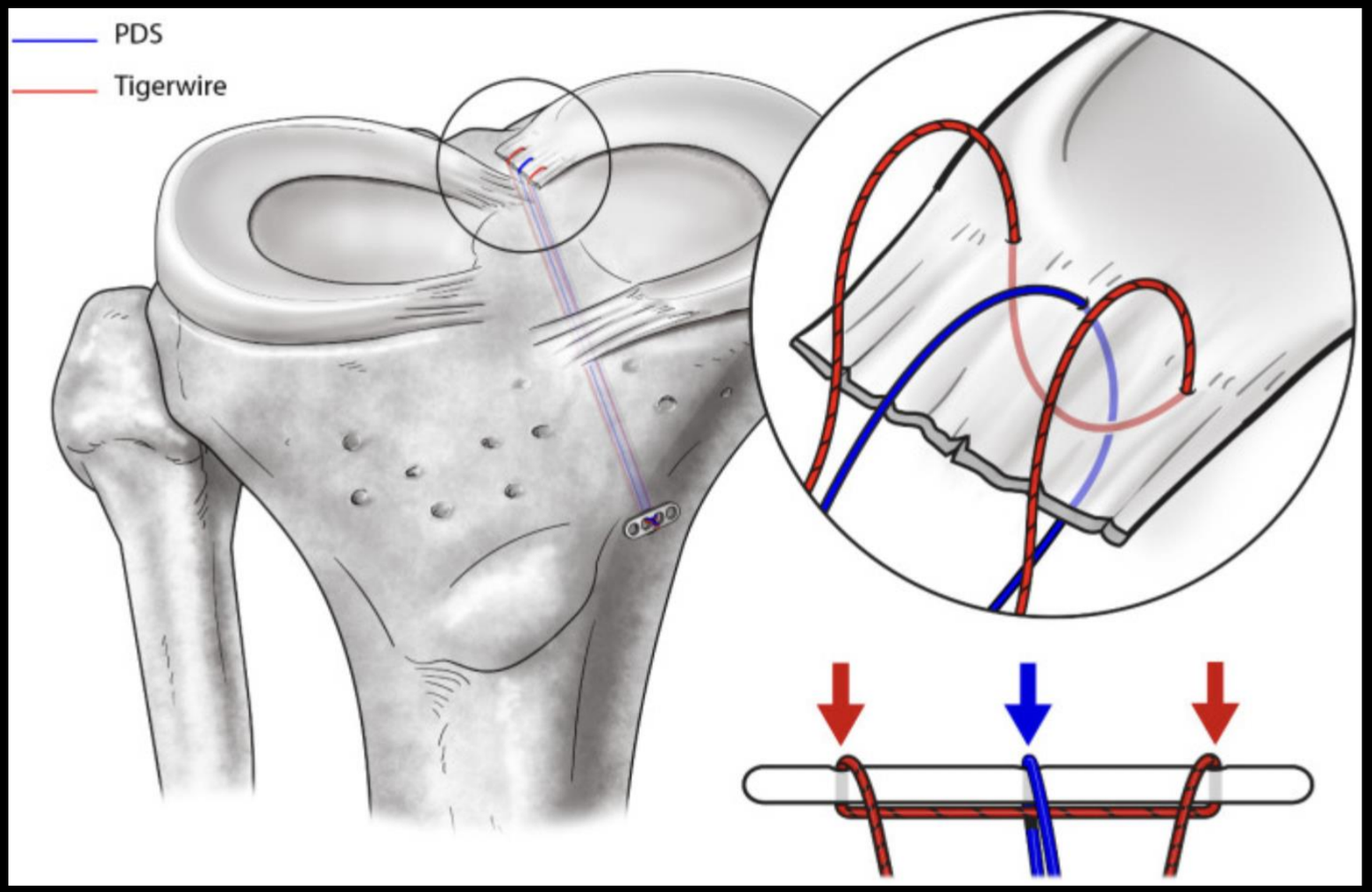


Review > Medicina (Kaunas). 2023 Jun 21;59(7):1181. doi: 10.3390/medicina59071181.

Medial Meniscus Posterior Root Tear: How Far Have We Come and What Remains?

Hyun-Soo Moon [1,2], Chong-Hyuk Choi [1,3], Min Jung [1,3], Kwangho Chung [1,4], Se-Han Jung [1,5], Yun-Hyeok Kim [3], Sung-Hwan Kim [1,5]

LESIONS



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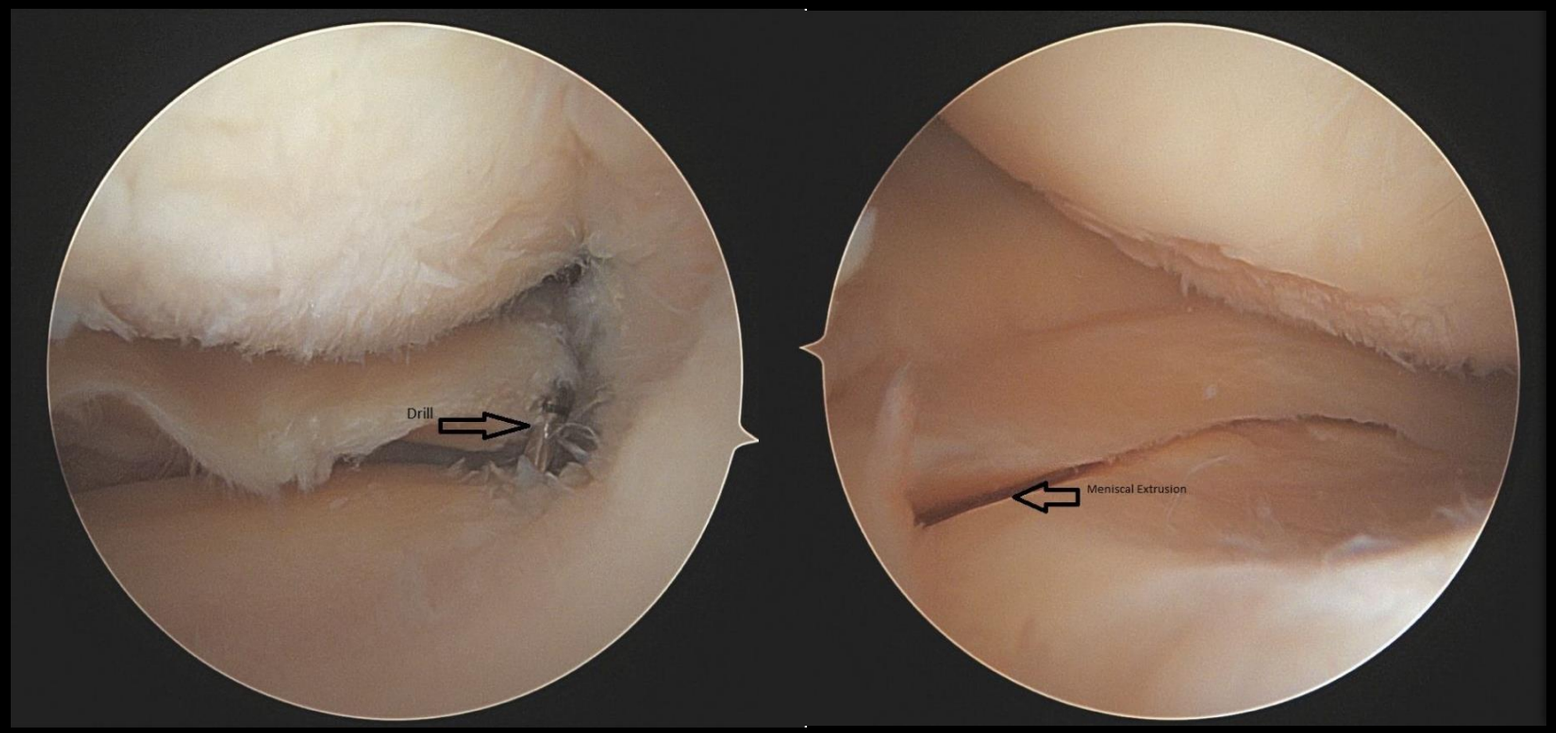
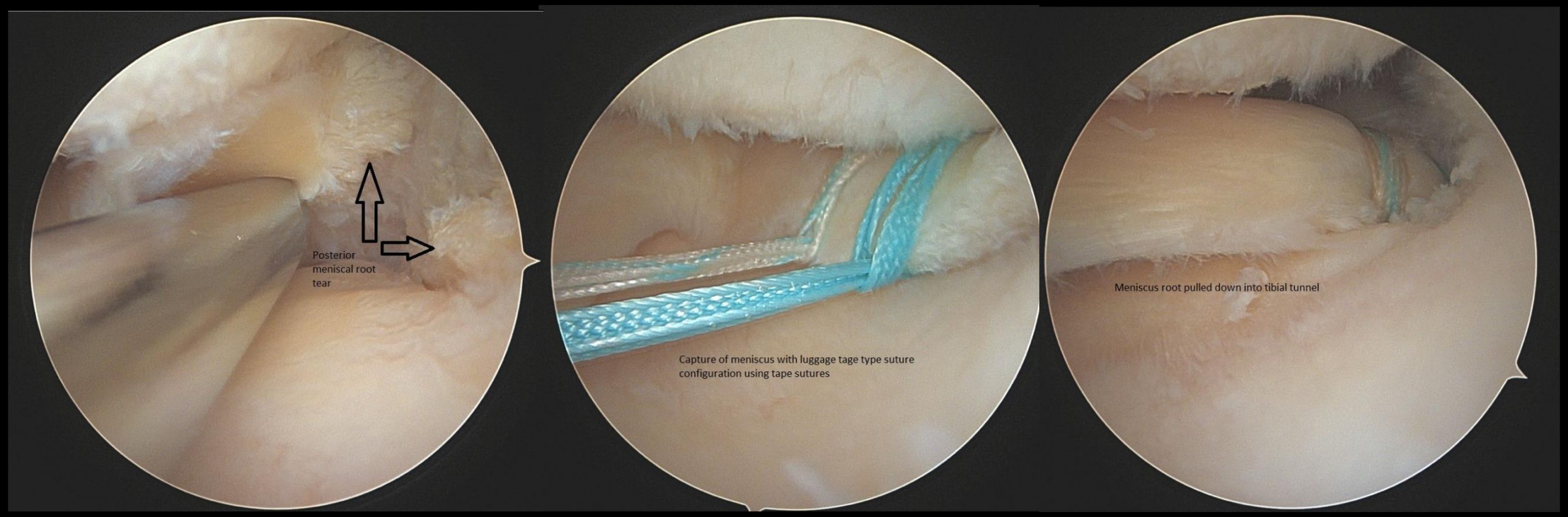




Credit : Dimitri Thomas, MD

LESIONS

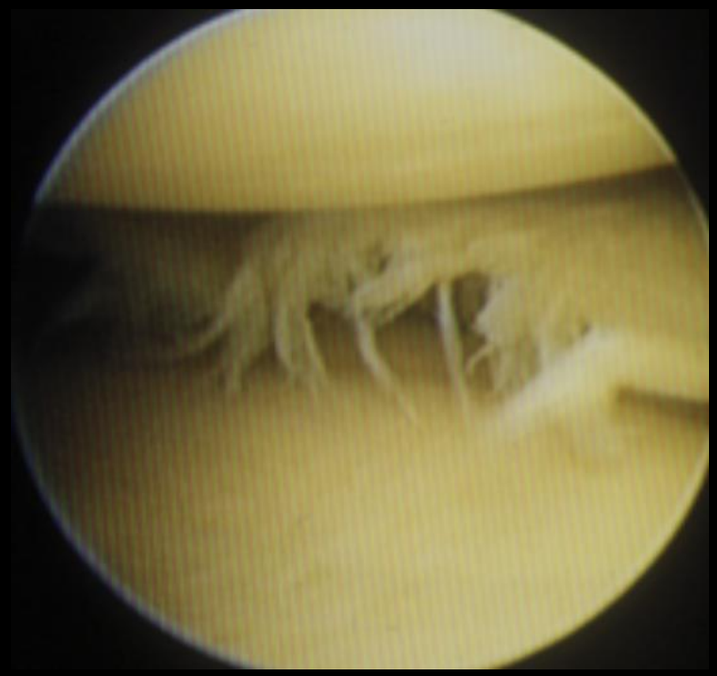
Dégénérative

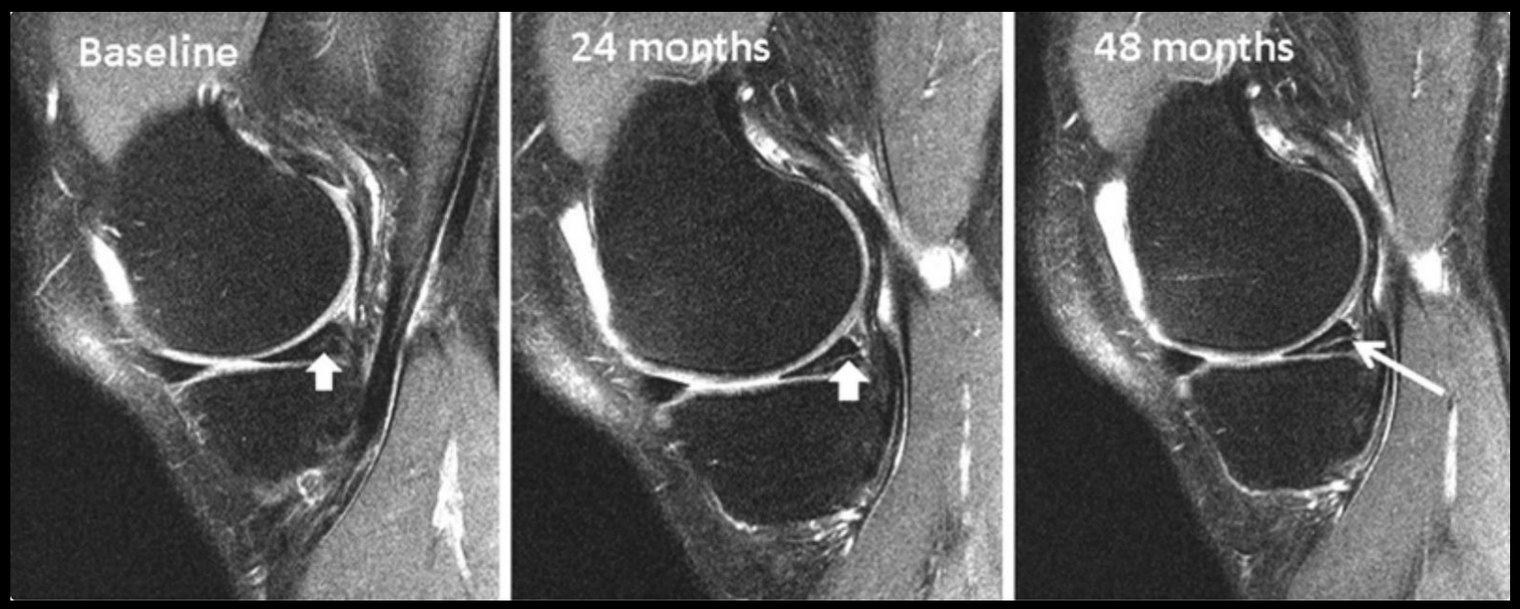
Dans l’épaisseur

Horizontale / oblique

Partielle / complète

Symptômes variables (ou **inexistants !**)





Joints. 2017 Jun; 5(2): 59–69. PMCID: PMC5672871
Published online 2017 Jul 28. doi: 10.1055/s-0037-1603813 PMID: 29114633

Surgical Management of Degenerative Meniscus Lesions: The 2016 ESSKA Meniscus Consensus

P. Beaufils,[1] R. Becker,[2] S. Kopf,[3] M. Englund,[4] R. Verdonk,[5] M. Ollivier,[1] and R. Seil[6,7]

LESIONS

Dégénérative

!!! Facteurs de risque / associés importants

- Propres aux patients : âge, poids, morphologie

- Chondropathie

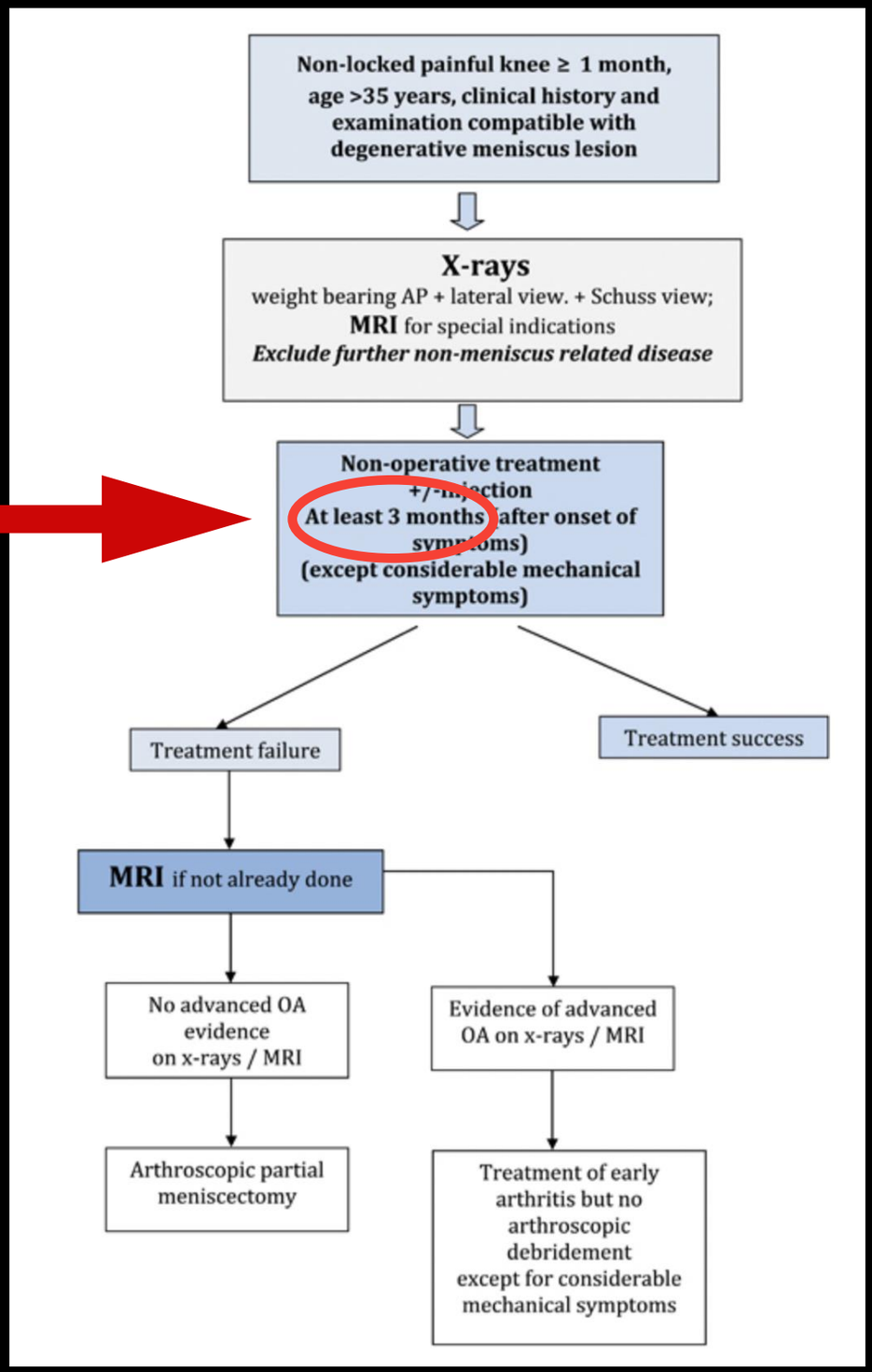
- Oedème osseux (! ONA / SONK)

TRAITEMENT

Conservateur

Est-ce possible et/ou raisonnable ?

Oui



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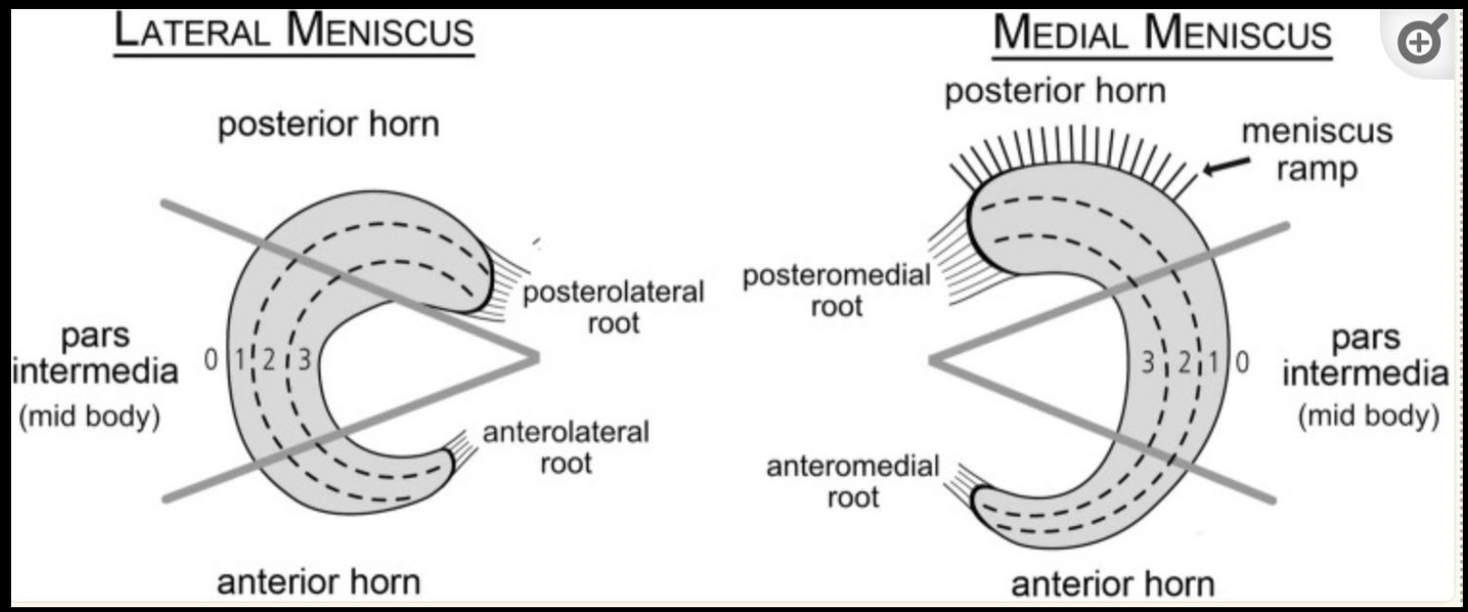
2019 ESSKA meniscus consensus

Knee Surg Sports Traumatol Arthrosc. 2020; 28(4): 1177–1194.
Published online 2020 Feb 13. doi: 10.1007/s00167-020-05847-3

PMCID: PMC7148286
PMID: 32052121

Management of traumatic meniscus tears: the 2019 ESSKA meniscus consensus

Sebastian Kopf,[1] Philippe Beaufils,[2] Michael T. Hirschmann,[3] Niccolò Rotigliano,[3] Matthieu Ollivier,[4] Helder Pereira,[5] Rene Verdonk,[6] Nikica Darabos,[7] Panagiotis Ntagiopoulos,[8] David Dejour,[9] Romain Seil,[10,11] and Roland Becker[12]



Zones 1 and 2 = excellent and good clinical mid-term results (from 64 to 91%)

- **zone 1** statistically significantly better healing rate (from 87 to 91%)
- zone 2 (from 59 to 79%)

Zone 3 ?

some studies have reported good clinical outcomes (from 75 to 87%) in selected patients

No correlation between the location of the tear and the results

We concluded that the location of the tear in this zone should not be considered as an absolute contraindication for meniscus repair.

TRAITEMENT

J Exp Orthop. 2021 Jun 26;8(1):46. doi: 10.1186/s40634-021-00365-8.

Does practice of meniscus surgery change over time? A report of the 2021 'THE MENISCUS' Webinar

Christophe Jacquet [1], Caroline Mouton [2 3], Roland Becker [4], Hideyuki Koga [5], Matthieu Ollivier [1], Peter Verdonk [6], Philippe Beaufils [7], Romain Seil [8 9 10]

National trends in meniscus surgery; APM: Arthroscopic Partial Meniscectomy; N/E: Not Evaluated

Countries	Period	APM	Repair
France	2005–2017	- 21.4% (rate)	+ 320% (rate)
Belgium	2007–2017	- 28.6% (rate)	N/E
Germany	2010–2017	- 30% (number)	+ 55% (number)
Japan	2011–2016	91% to 75% (ratio: APM/meniscus procedures)	9% to 25% (ratio: repair/meniscus procedures)

TRAITEMENT

Conservateur

Est-ce possible et/ou raisonnable ?

Oui, d'autant plus si :

- Petite lésion
- Début récent
- Surtout >50 ans et/ou lésions chondrales

Non pour lésions instables (anse de seau, grand flap, etc.)

TRAITEMENT

Conservateur

1. Expectatif - antalgiques

2. Semelles +/- orthèse

3. Infiltrations

TRAITEMENT

Conservateur

3. **Infiltrations**

À visée diagnostique et thérapeutique

Corticoïde - contrôle 6-8 semaines

Idéal si petite lésion instable / clivage horizontal

+/- chondropathie…

Méfiance : risque majoration symptômes post-op si méniscectomie hâtive

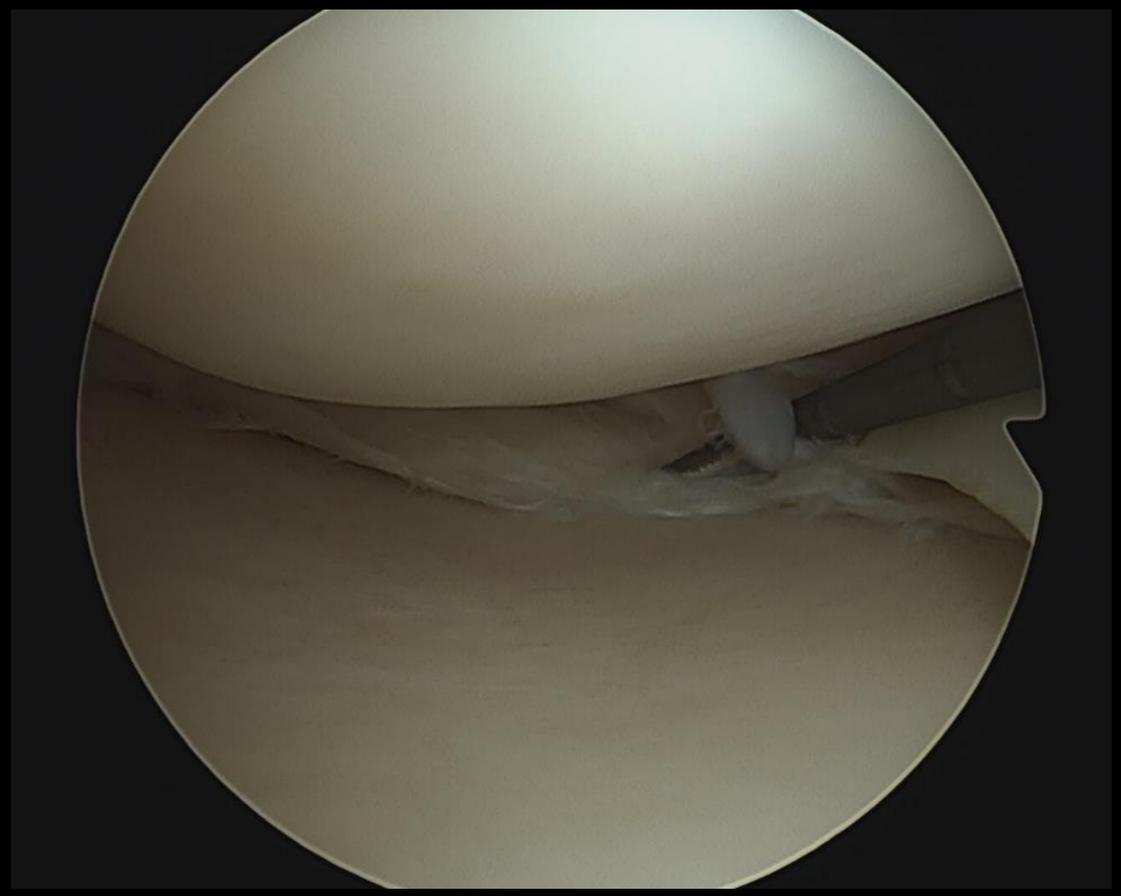
TRAITEMENT

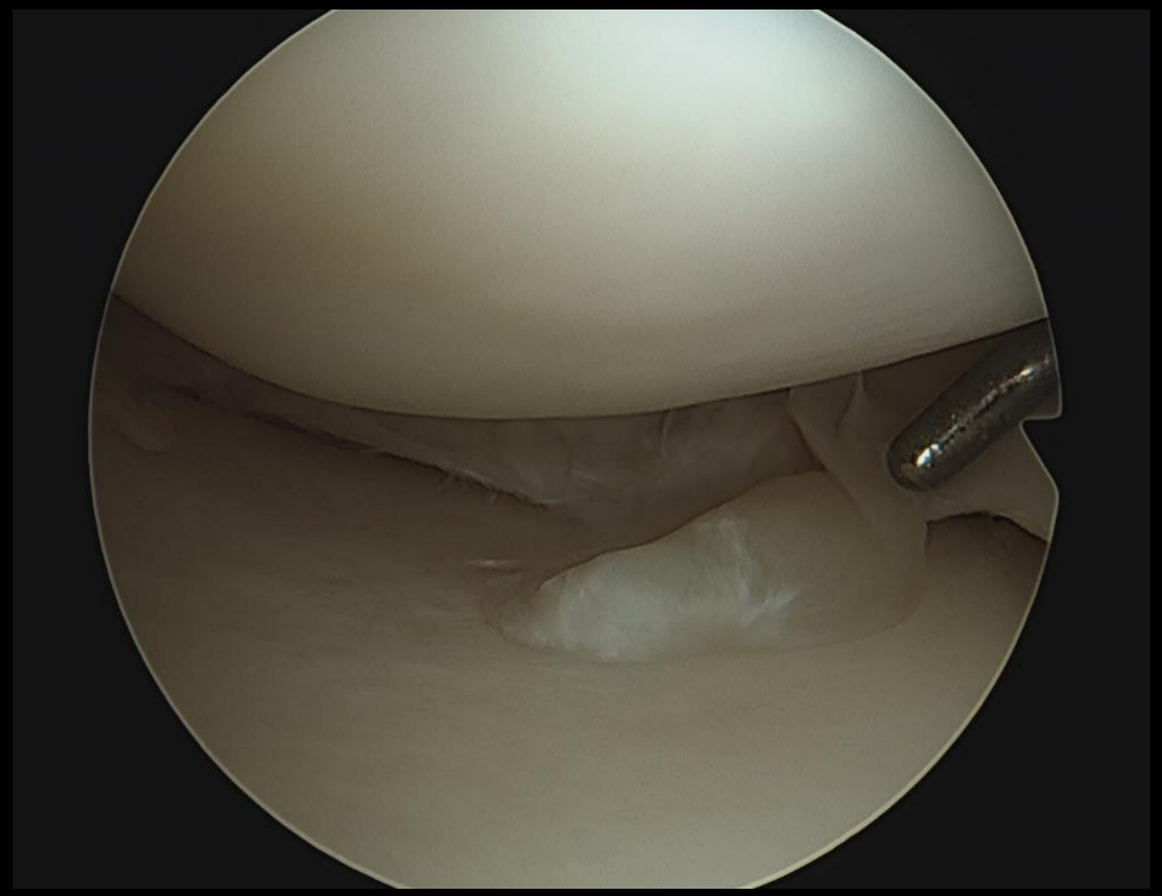
Chirurgical

= Arthroscopie

- Lésions complexes réfractaires / instables
- Symptômes persistants
- Anse de seau
- Root / Ramp

ARTHROSCOPIE

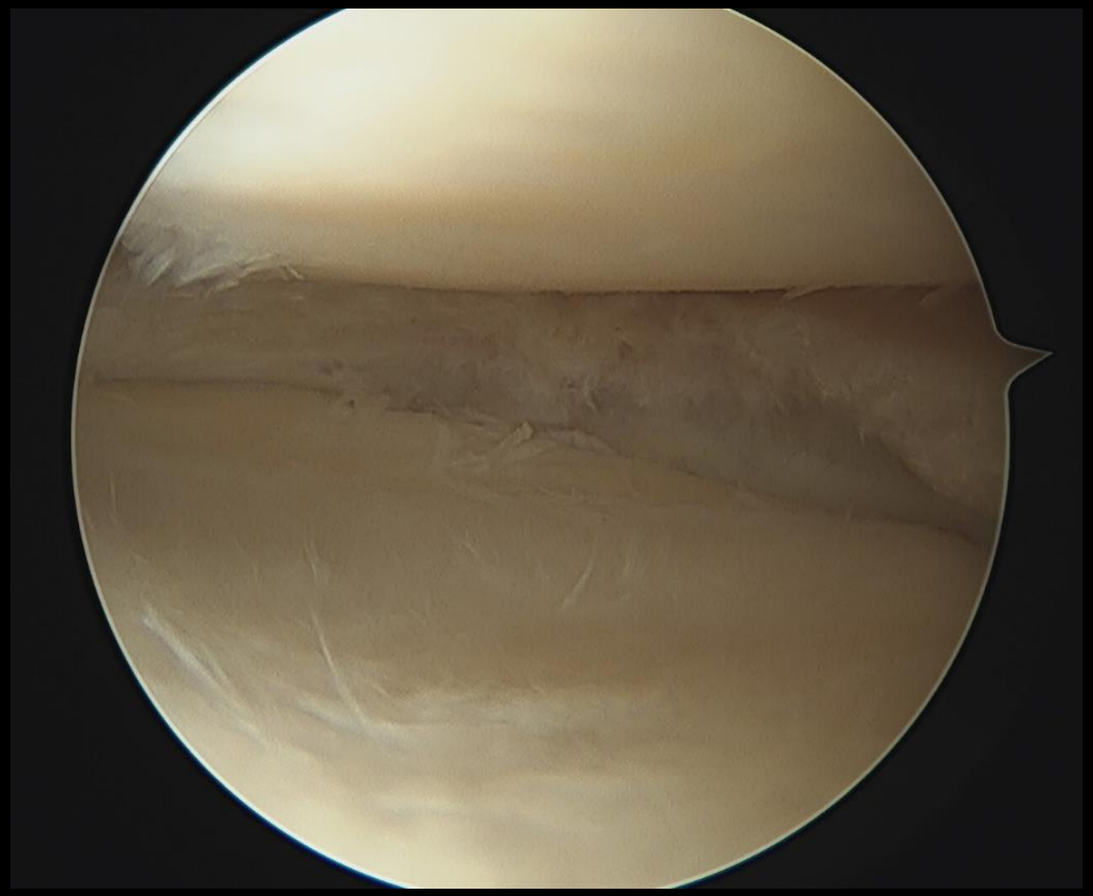


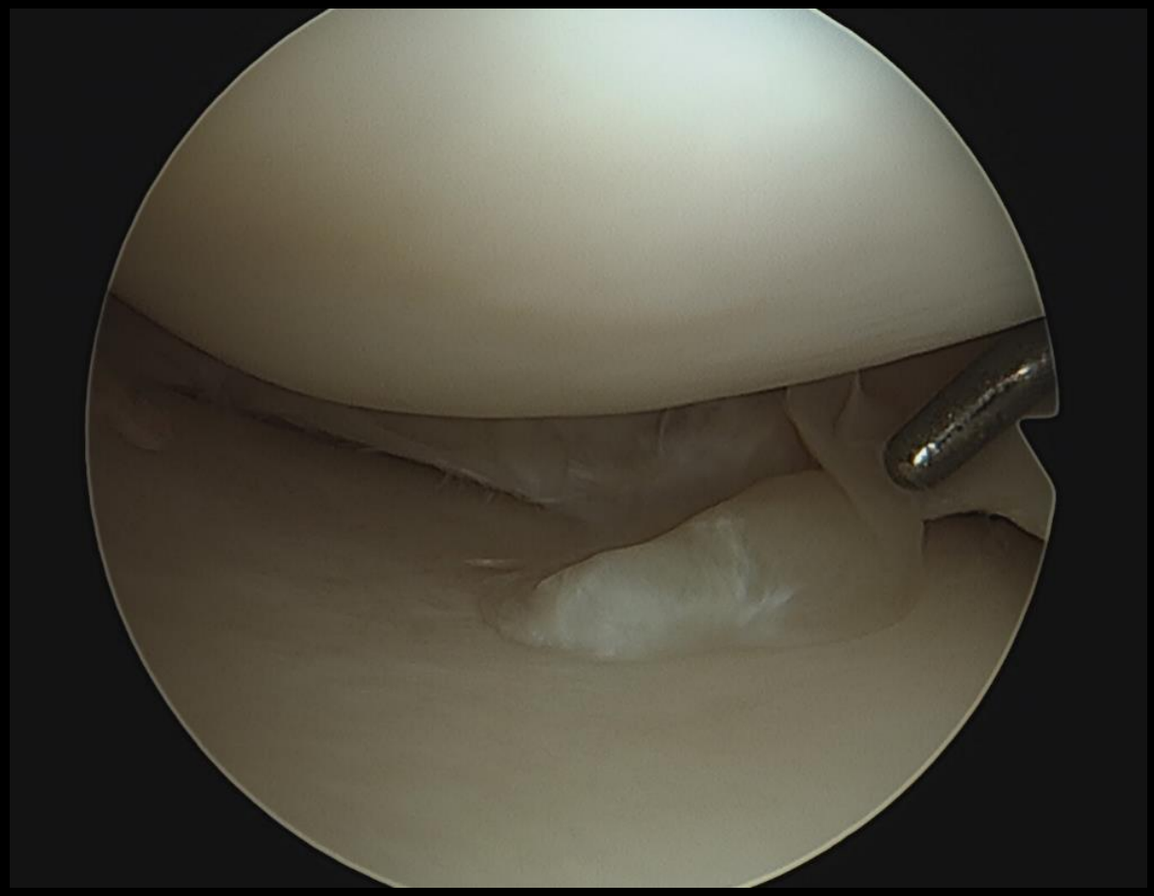


Flap **instable**

Majoritairement jonction corne moyenne-postérieure

ARTHROSCOPIE

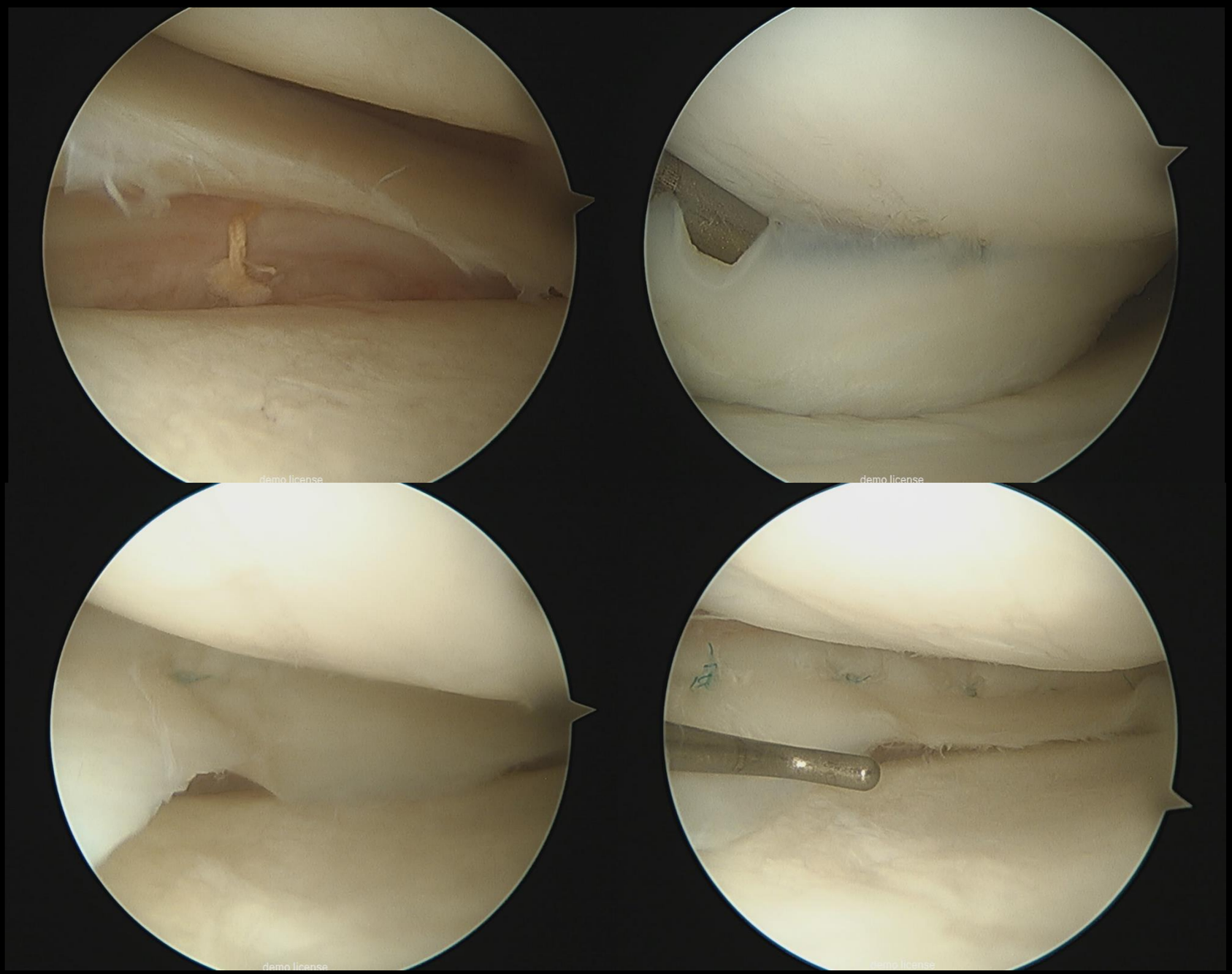




Résection fragment déchiré

+ régularisation à proximité (éviter nouvelle lésion en zone « fragile »

ARTHROSCOPIE



<u>REVISION de sutures</u>

Plastie LCA 3 ans auparavant

1ère suture interne

Plaintes postéro-internes lors des frappes au football

SAVE THE MENISCUS

LESIONS

MENISCECTOMIE (SUB)TOTALE

Reste-t-il des solutions ?

MENISCECTOMIE (SUB)TOTALE

Reste-t-il des solutions ?

Substituts synthétiques

Allogreffes

GREFFE MENISCALE ?

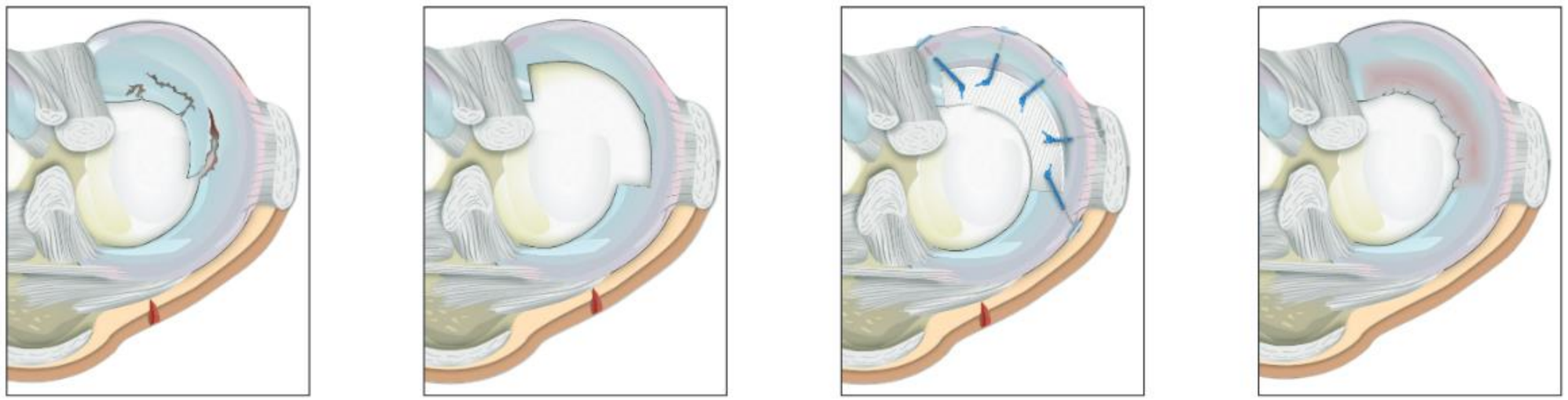
Synthétique

CMI (Collagen Meniscus Implant) ®

GREFFE MENISCALE ?

Synthétique

CMI (Collagen Meniscus Implant) ®



GREFFE MENISCALE ?

Outcome After Partial Medial Meniscus Substitution With the Collagen Meniscal Implant at a Minimum of 10 Years' Follow-up

Juan Carlos Monllau M.D., Ph.D. [a b], Pablo Eduardo Gelber M.D., Ph.D. [a b], Ferrán Abat M.D. [a], Xavier Pelfort M.D. [b c], Rosa Abad M.D. [d], Pedro Hinarejos M.D., Ph.D. [c], Marc Tey M.D. [b]

Conclusions

Although there were several different types of patients and acute and chronic tears were treated in a limited number of patients, meniscal substitution with the CMI provides significant pain relief and functional improvement after a minimum of 10 years' follow-up. The implant generally diminished in size, but the procedure proved to be safe and had a low rate of implant failure on a long-term basis. No development or progression of degenerative knee joint disease was observed in most cases.…

ALLOGREFFE MENISCALE

INDICATIONS

- < 40ans
- Résection subtotale
- Lésion de cartilage bas grade (I-II)
- Genou stable
- Absence de lésion inflammatoire

CONTRE-INDICATIONS

- Maladies inflammatoires
- Obésité
- Instabilité ligamentaire
- Lésions cartilagineuses sévères
- Infection antérieure

Review > Knee Surg Sports Traumatol Arthrosc. 2020 Nov;28(11):3539-3550.
doi: 10.1007/s00167-020-06058-6. Epub 2020 May 15.

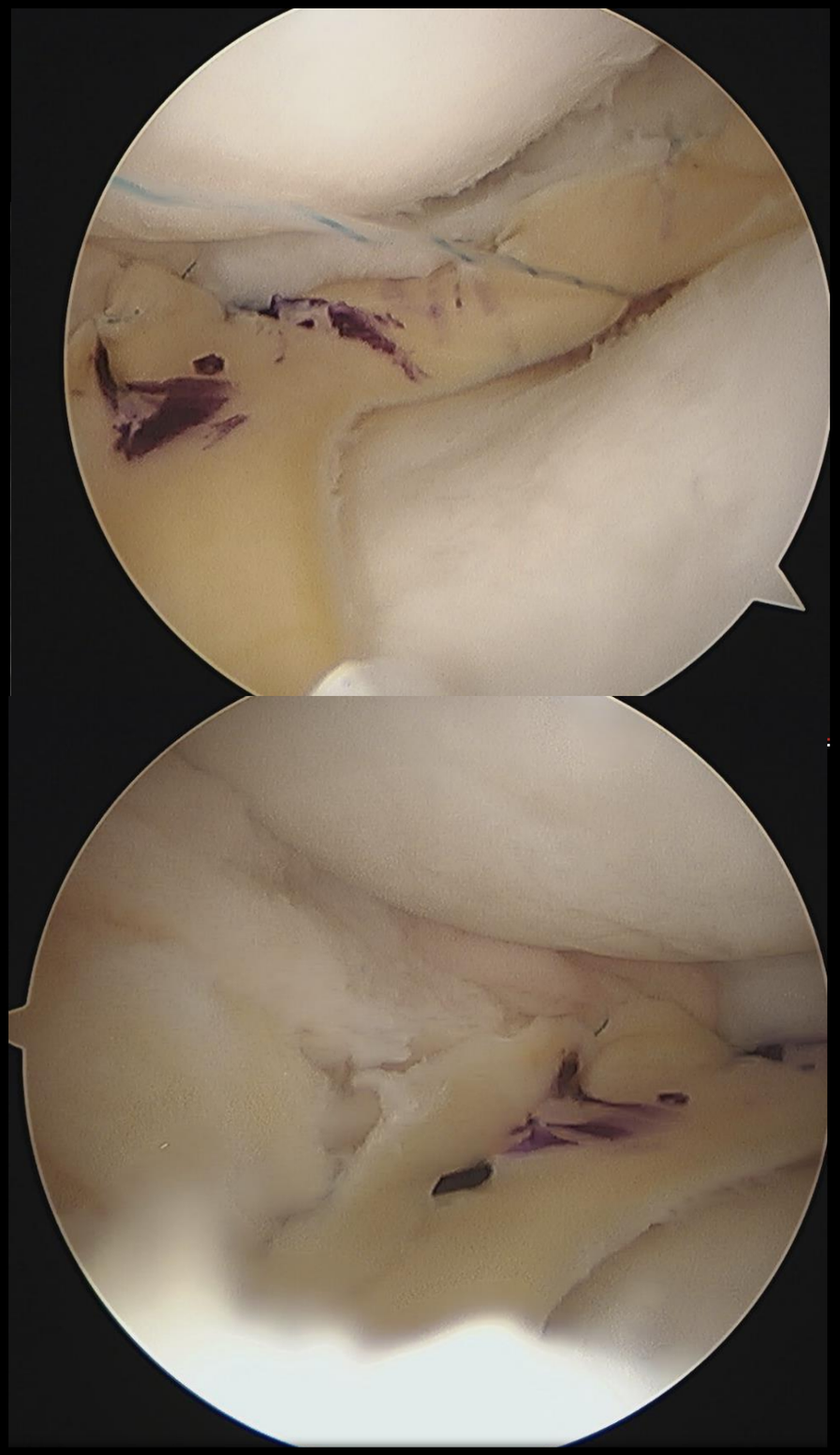
Meniscal allograft transplantation: a review of indications, techniques, and outcomes

Parker A Cavendish [1], Alex C DiBartola [2], Joshua S Everhart [2], Scott Kuzma [2], Walter J Kim [2], David C Flanigan [3 4]

ALLOGREFFE MENISCALE

A. Deltour

ALLOGREFFE MENISCALE



A. Deltour

ALLOGREFFE MENISCALE

A. Deltour

28 ans footballeur

Méniscectomie externe >2 ans

Douleur et gonflement

Incapacité de reprendre le foot

Greffe méniscale externe

ALLOGREFFE MENISCALE

Impact Factor: 4.8 / 5-Year Impact Factor: 6.1

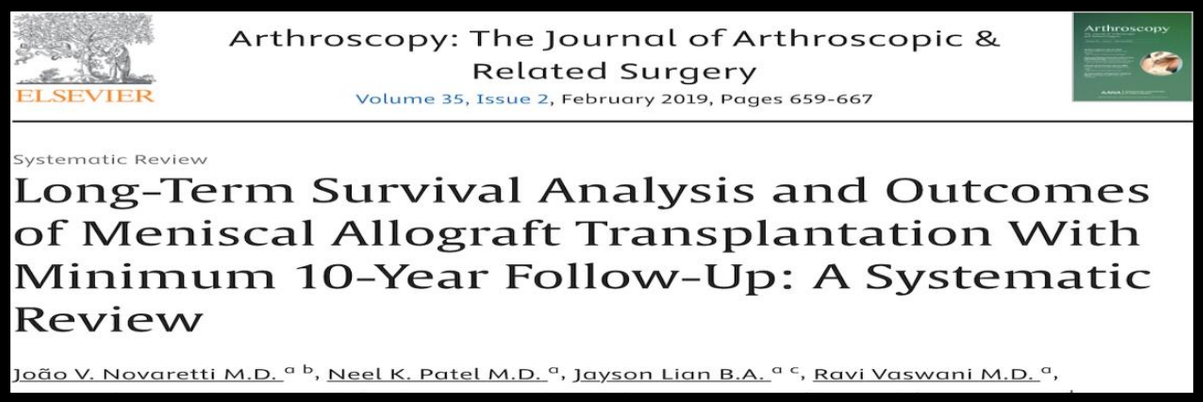
JOURNAL HOMEPAGE

Restricted access | Research article | First published online June 13, 2017

Midterm and Long-term Results of Medial Versus Lateral Meniscal Allograft Transplantation: A Meta-analysis

Seong-Il Bin, MD, Kyung-Wook Nha, MD, [...], and Young-Soo Shin, MD ✉ +1 View all authors and affiliations

85.8% of medial and **89.2%** of lateral meniscal allograft transplants survive at **5-10 years** while **52.6%** of medial and **56.6%** of lateral meniscal allograft transplants survive long term **(>10 years**).



ELSEVIER

Arthroscopy: The Journal of Arthroscopic & Related Surgery

Volume 35, Issue 2, February 2019, Pages 659-667

Systematic Review

Long-Term Survival Analysis and Outcomes of Meniscal Allograft Transplantation With Minimum 10-Year Follow-Up: A Systematic Review

João V. Novaretti M.D. [a b], Neel K. Patel M.D. [a], Jayson Lian B.A. [a c], Ravi Vaswani M.D. [a],

MAT can yield good long-term survivorship rates, with **73.5%** and **60.3%** of allografts remaining functional after **10 and 15 years**, respectively. Functional outcomes 10 years after MAT were fair and improved compared with preoperative scores.

Knee | Published: 30 September 2014

Meniscal allograft transplantation. Part 2: systematic review of transplant timing, outcomes, return to competition, associated procedures, and prevention of osteoarthritis

Gonzalo Samitier, Eduard Alentorn-Geli, Dean C. Taylor, Brian Rill, Terrence Lock, Vasilius Moutzouros & Patricia Kolowich ✉

MAT successfully improves symptoms, function, and quality of life at 7-to-14 years of follow-up (level IV evidence); (c) the **overall failure rate** (need for knee arthroplasty) is **10–29 %** at long-term follow-up; (d) MAT allows return to same level of competition in **75–85 %** of patients at short- to mid-term follow-up

CONCLUSION

- Lésions méniscales TRES fréquentes
- Identification de la lésion
- Plaintes correspondantes à la lésion ?
- Traitement conservateur
- Infiltration = bonne option précoce et/ou long terme
- Chirurgie « Save the meniscus »

MERCI POUR VOTRE ATTENTION

CHIREC DELTA

BOSI Knee Academy