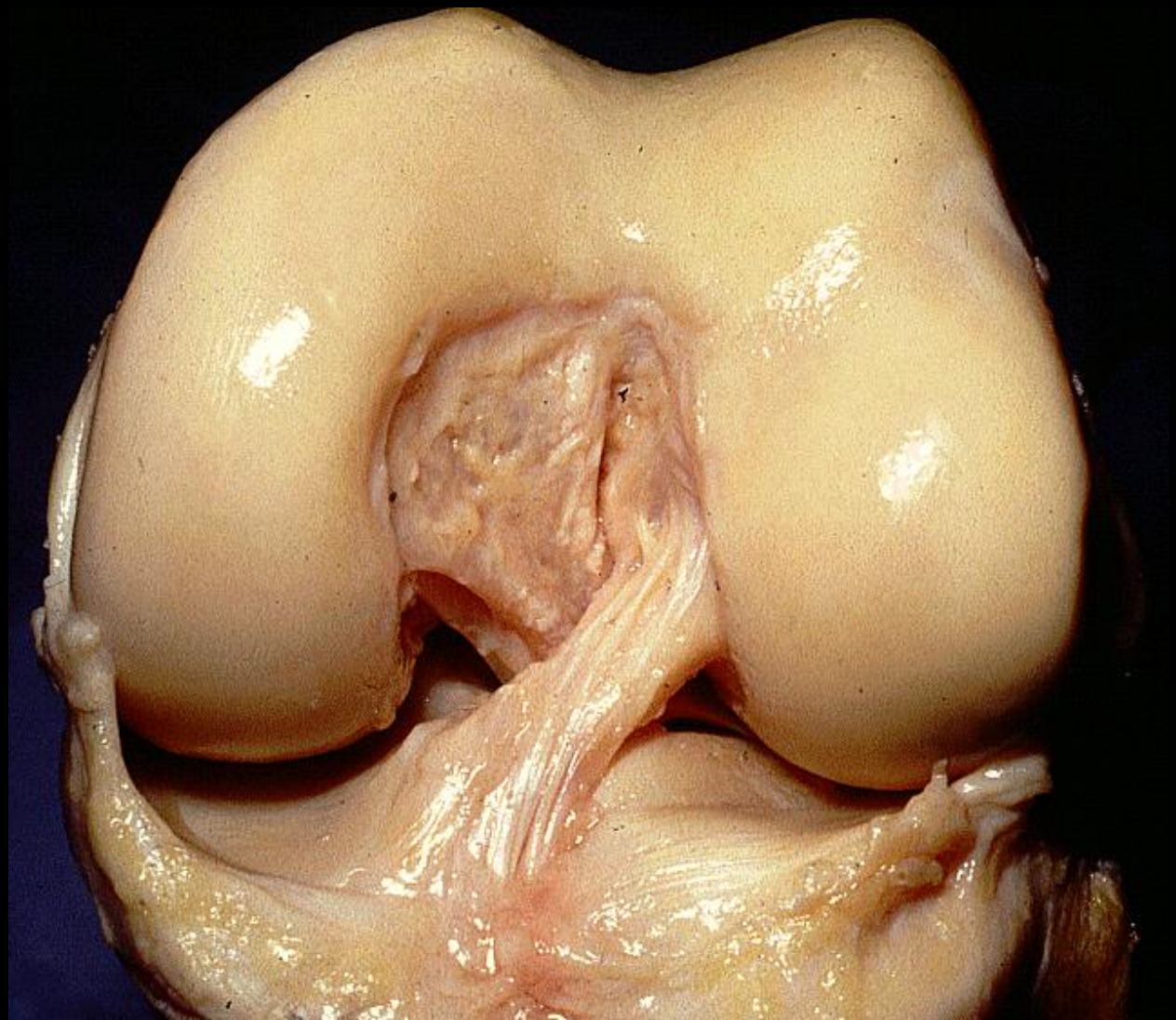
GENOU: IMAGERIE

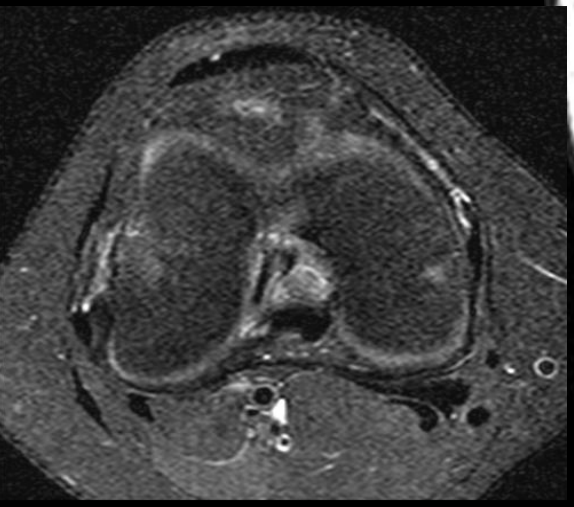
- LESIONS LIGAMENTAIRES

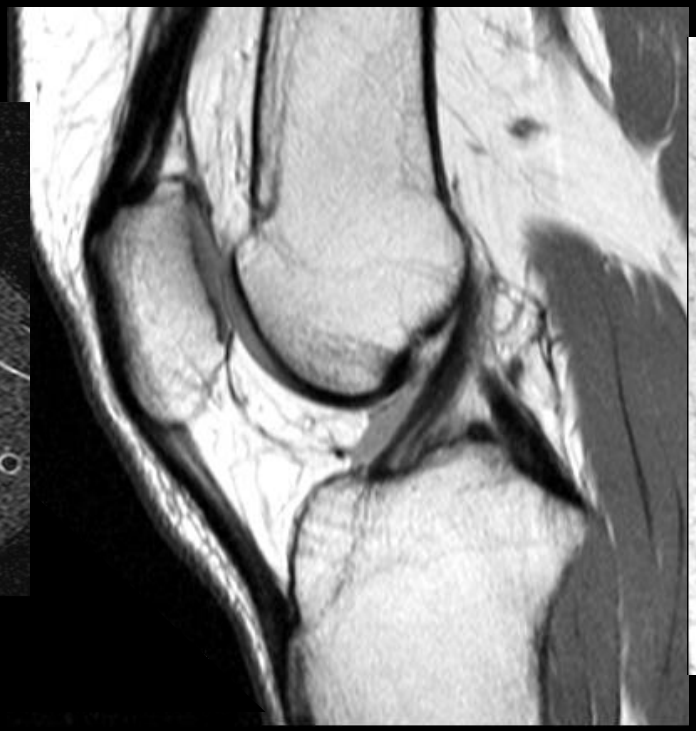
V. Perlepe, F. Lecouvet, S. Acid, T. Kirchgesner, B. Vande Berg

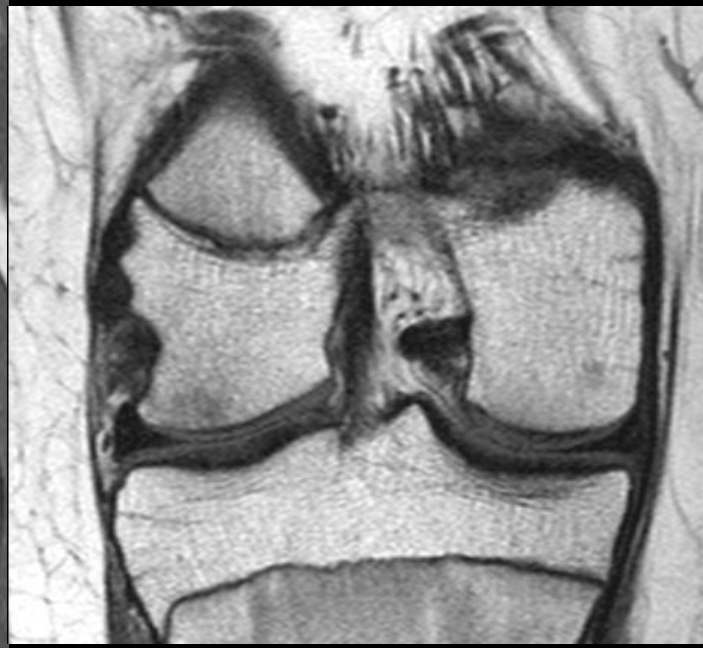
Ligament croisé antérieur (LCA)



Imagerie de reference : IRM





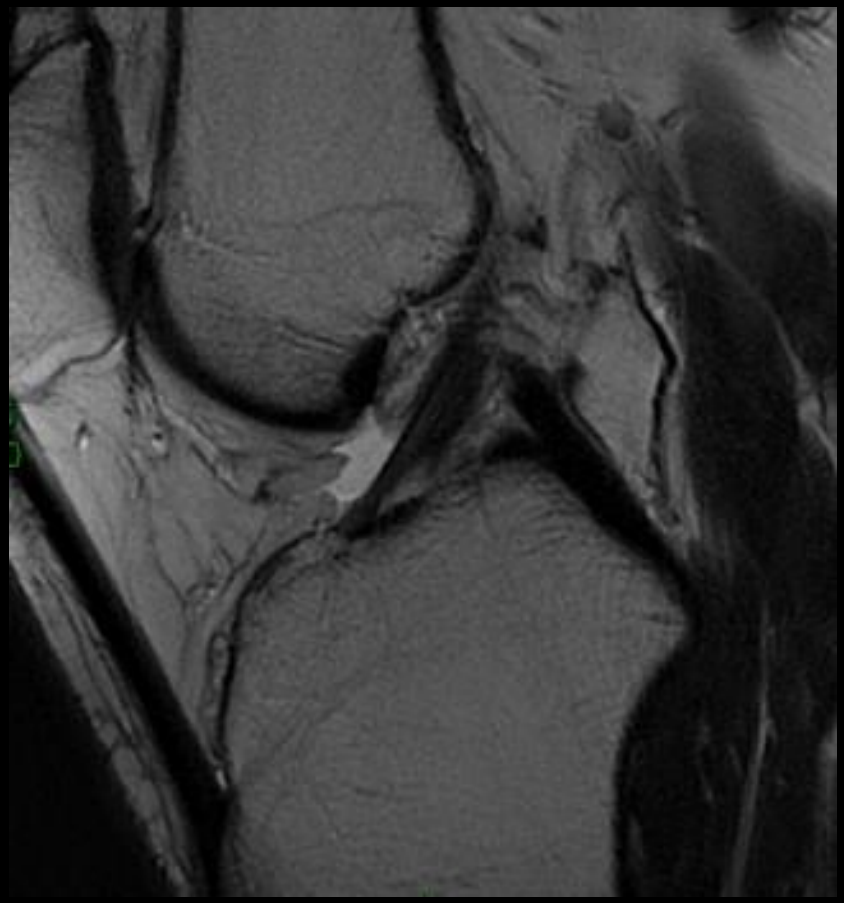


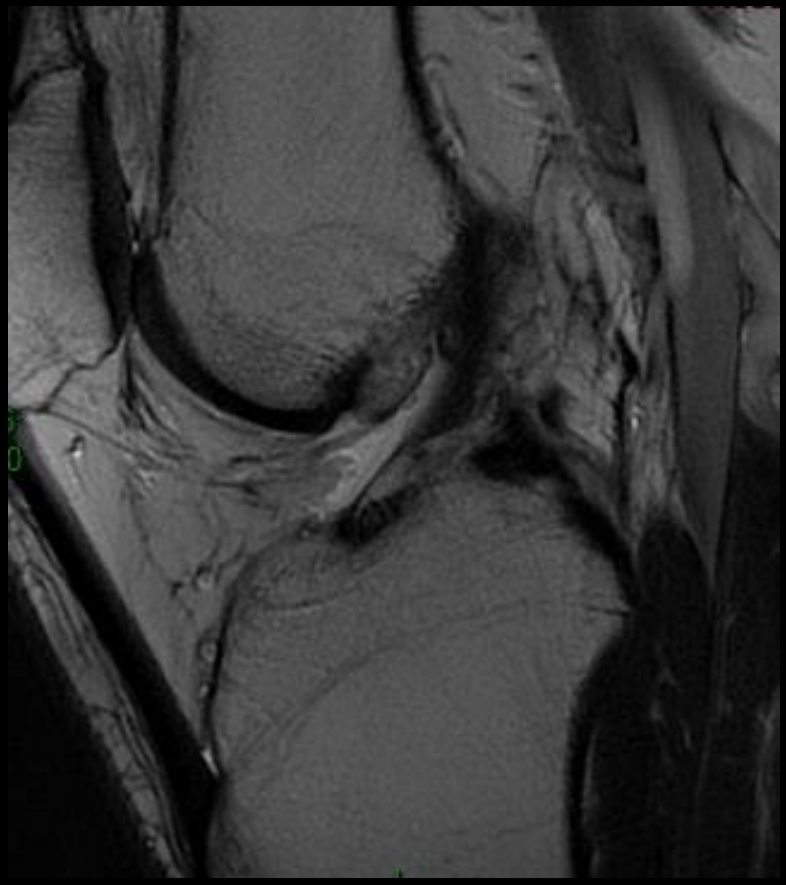
Protocole IRM genou

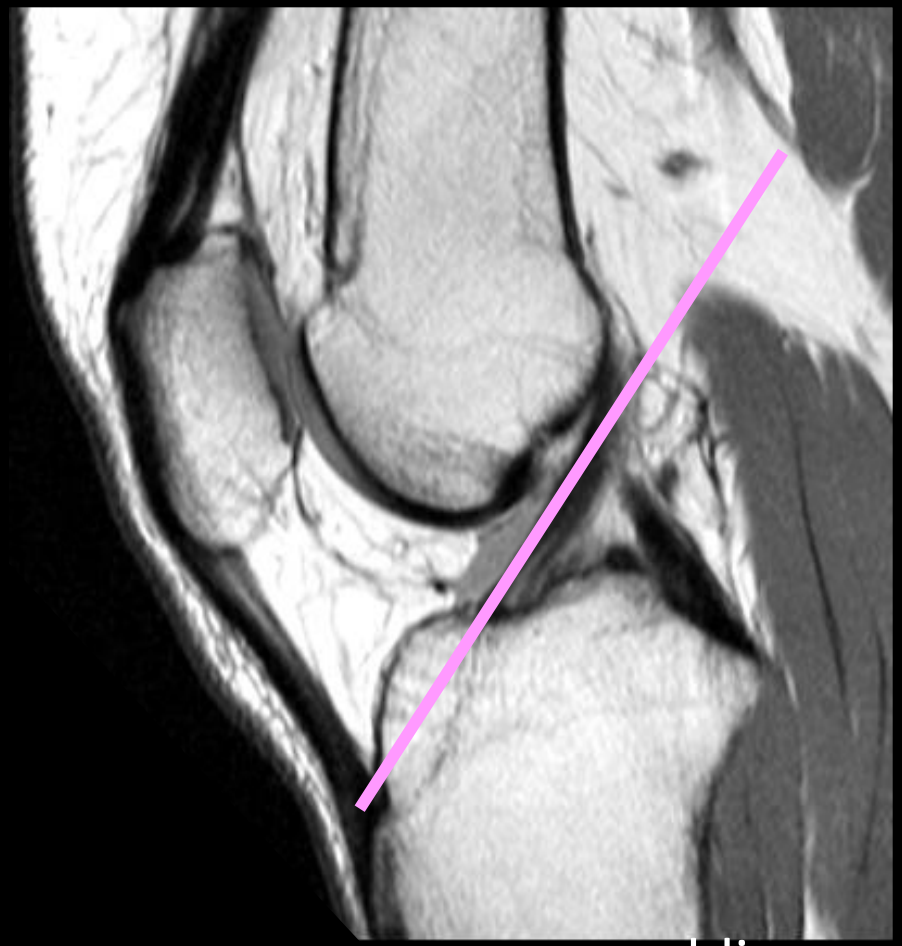
- DP FAT SAT 3 plans
- T1 coronal ou sagittal
- (sagittal T2 SE)

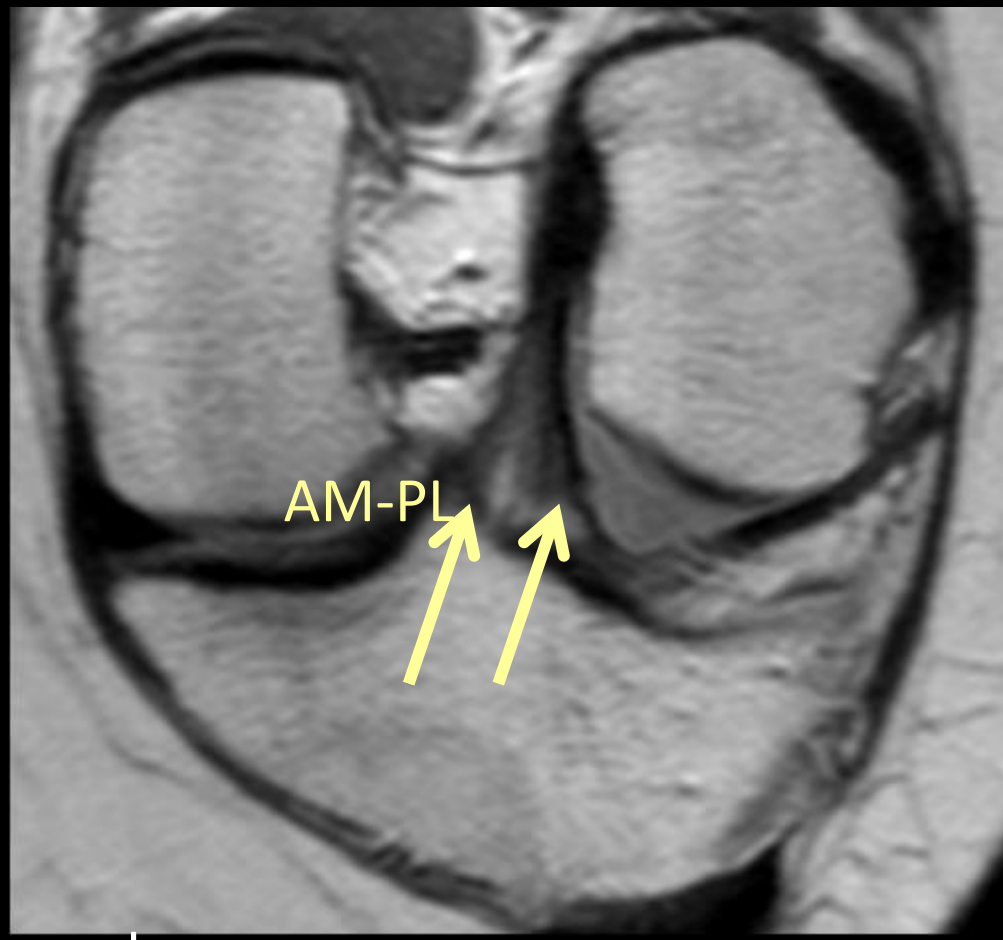
- Protocoles 3D

LCA normal

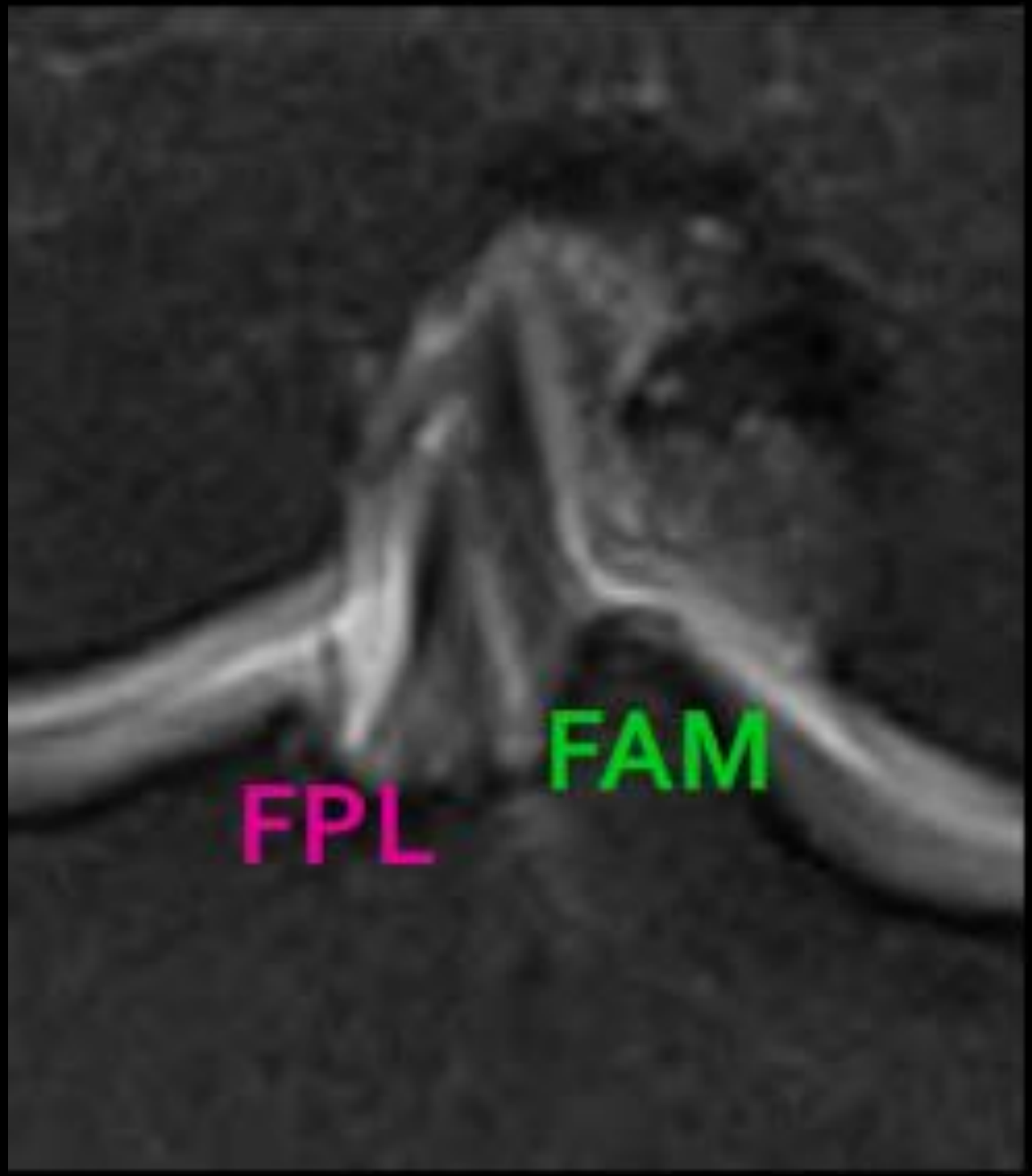








oblique coronal

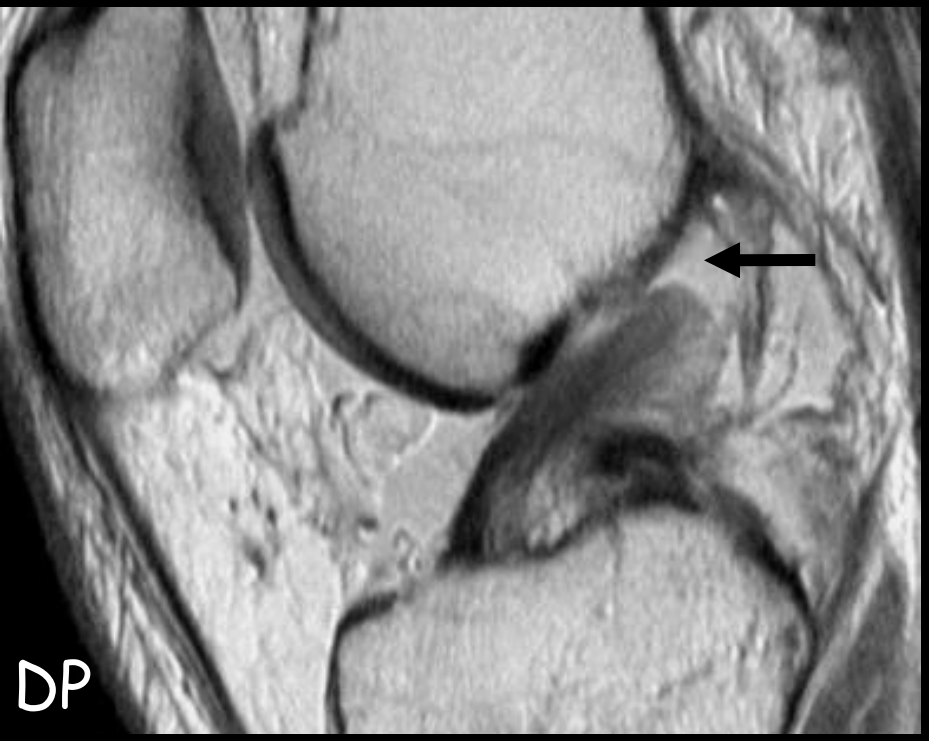

FAM
FPL

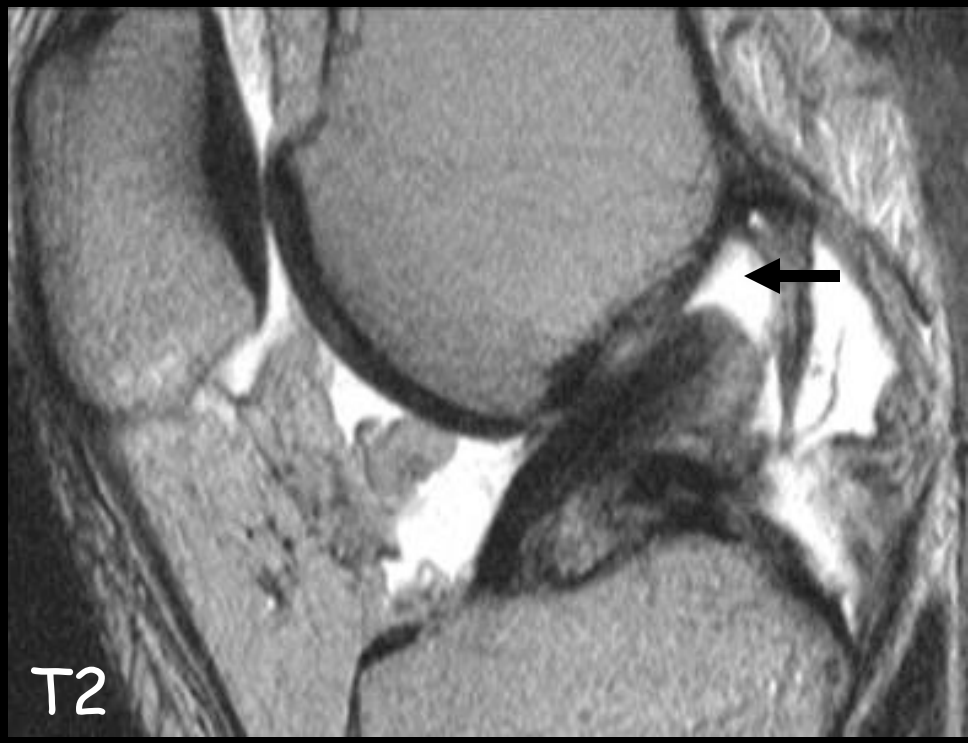
Rupture LCA: signes directs

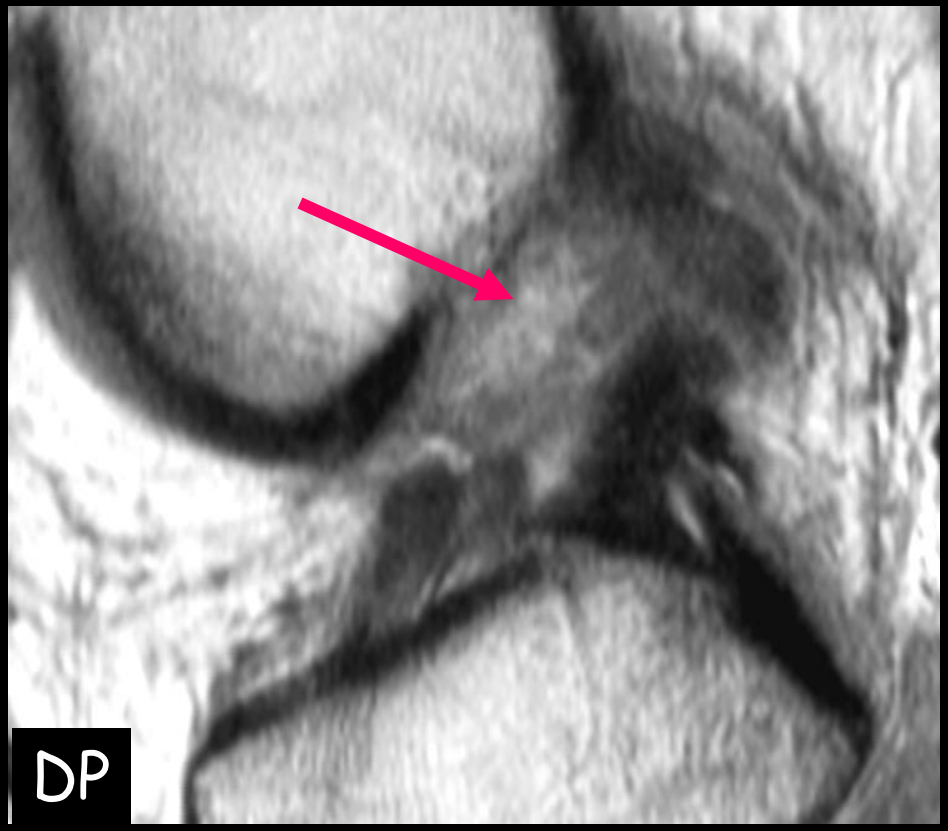
- Continuité: STOP
- Orientation: obliquité anormale, horizontalisation
- Contours: désorganisé, sinueux, élargi
- Signal: interm. – hyper T1, T2

complète-partielle?

Discontinuité



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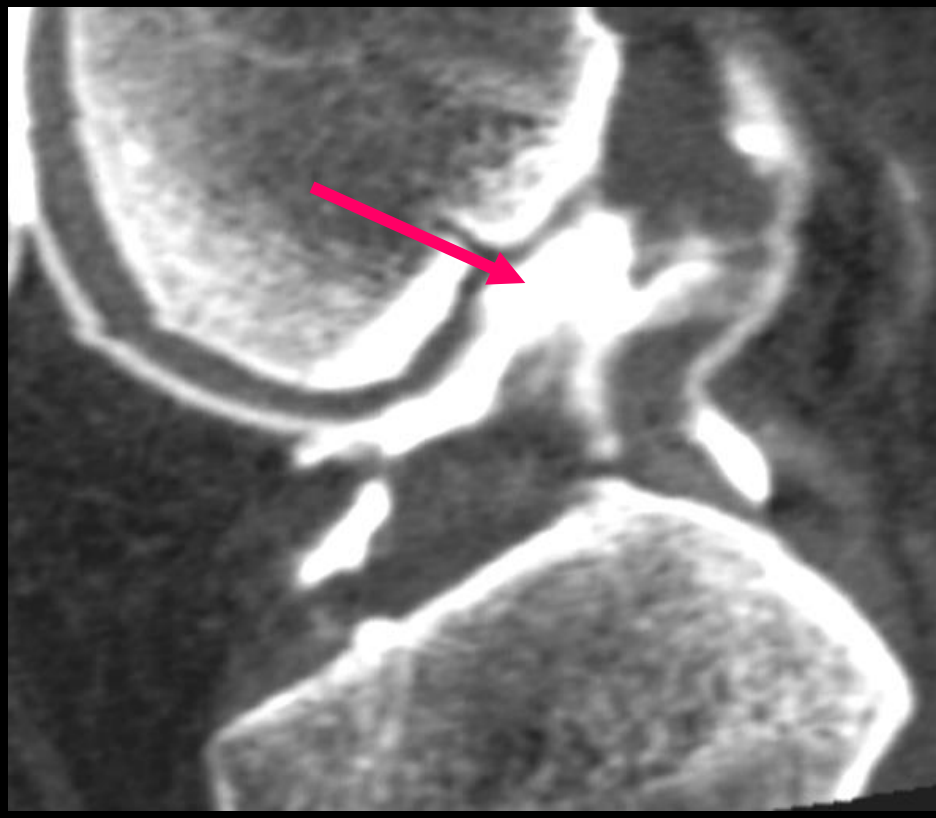
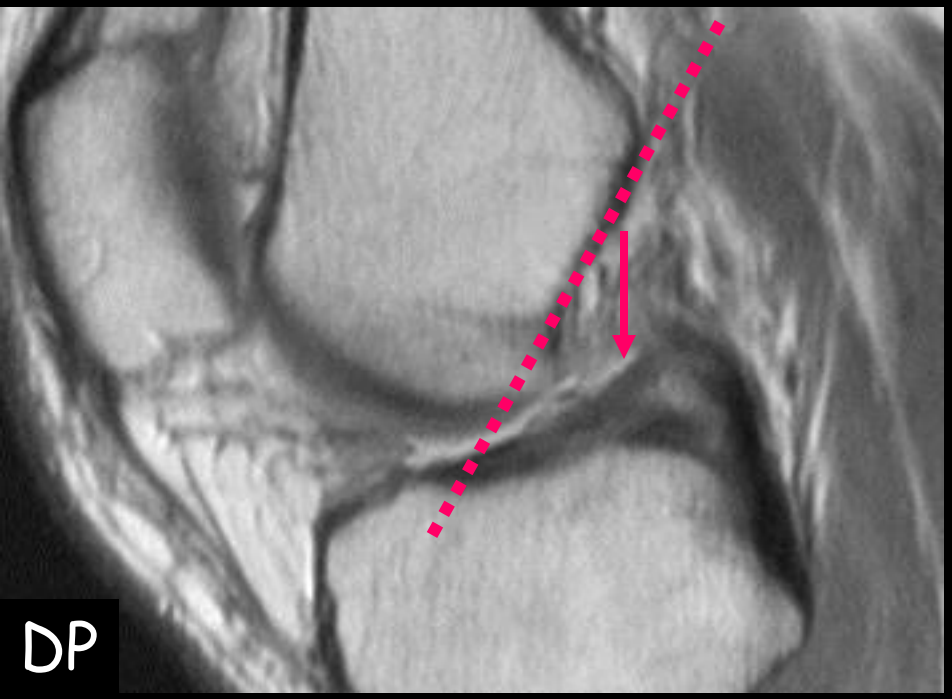
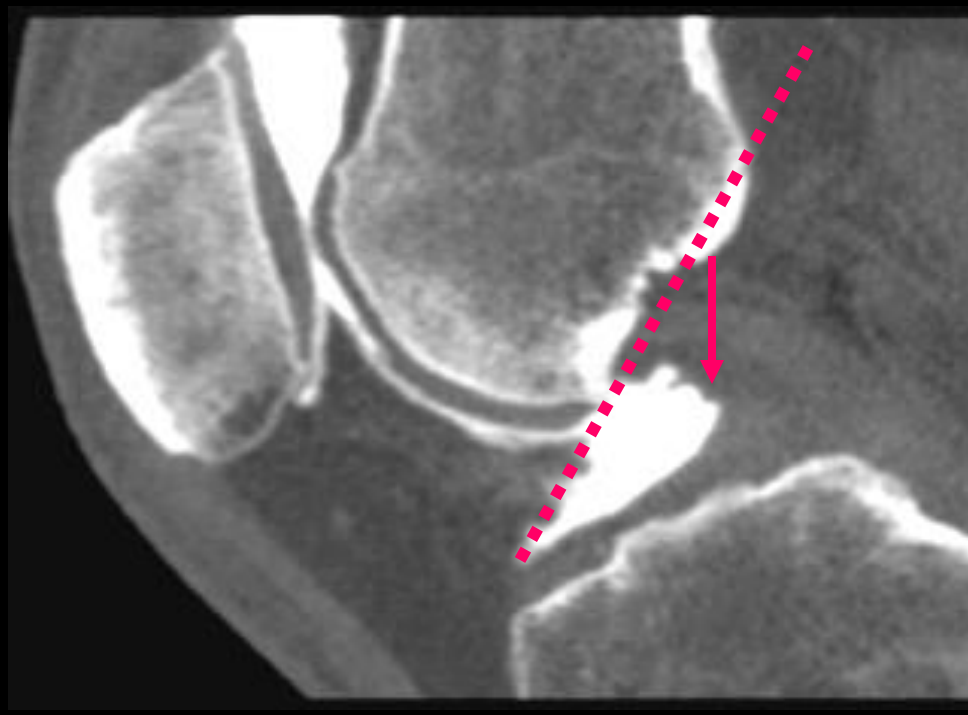
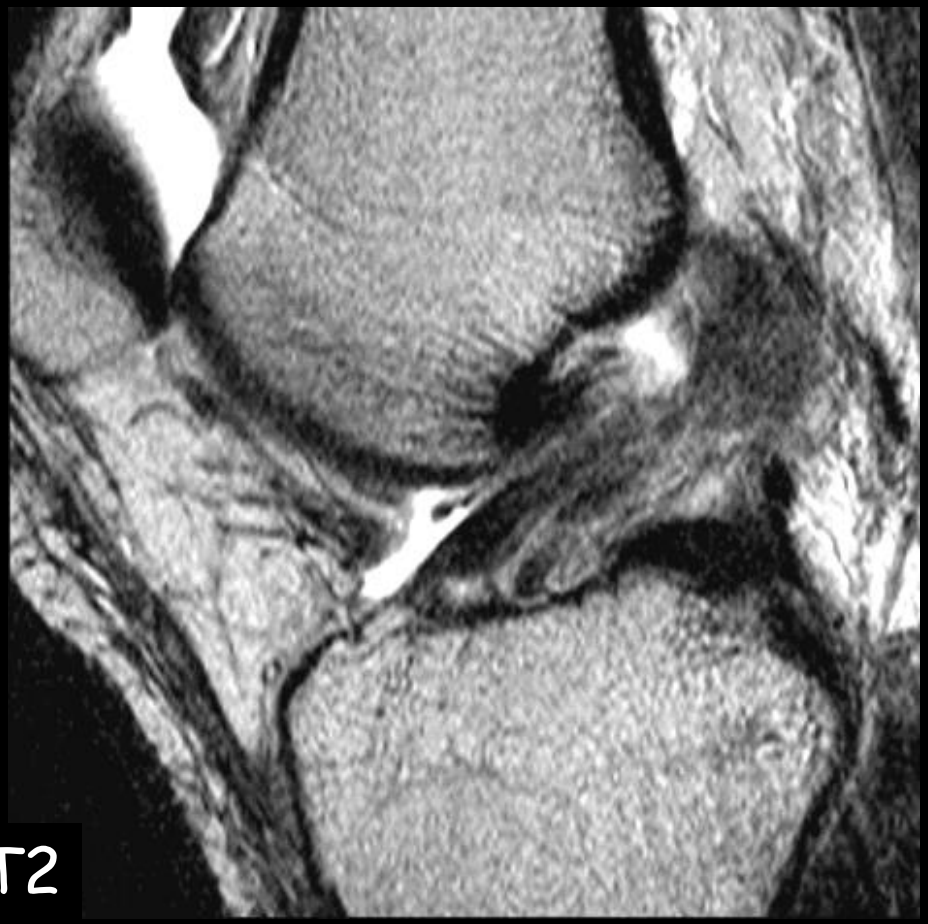


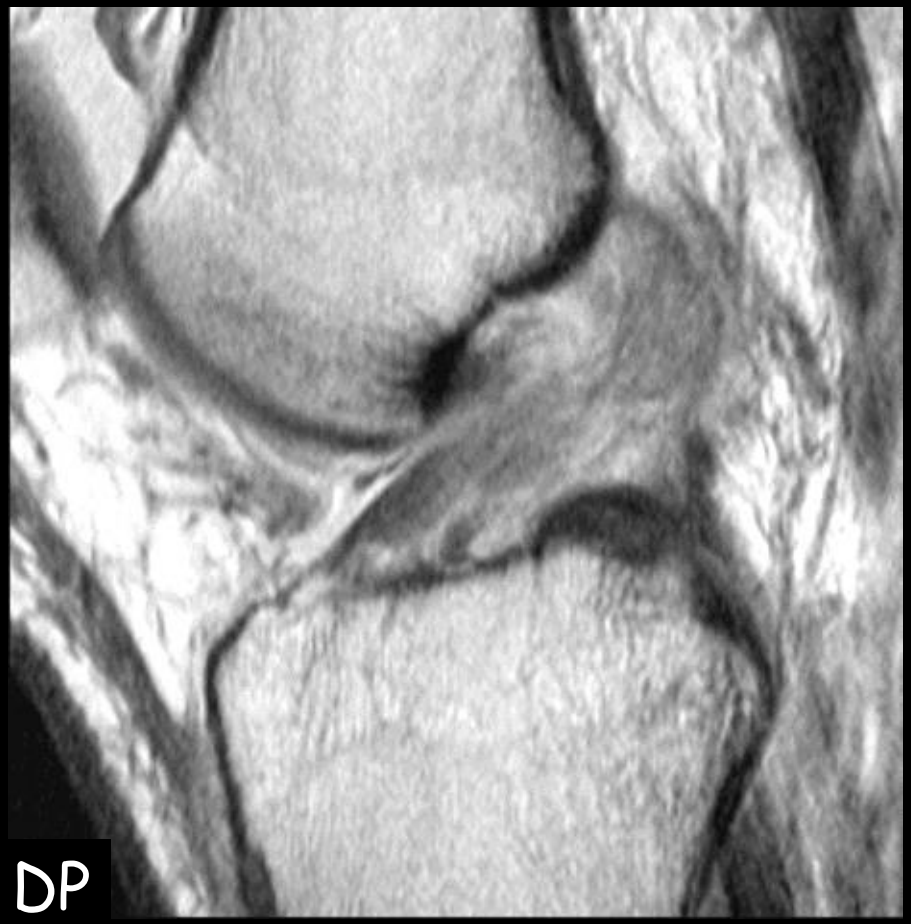
Orientation

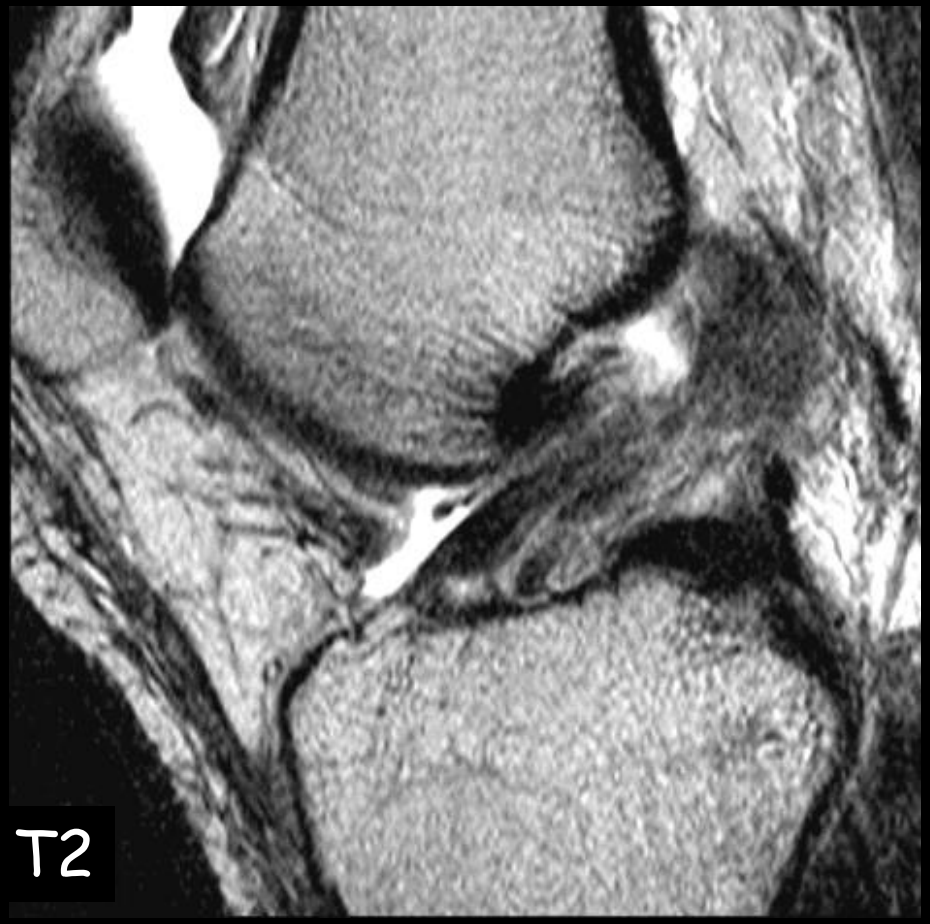


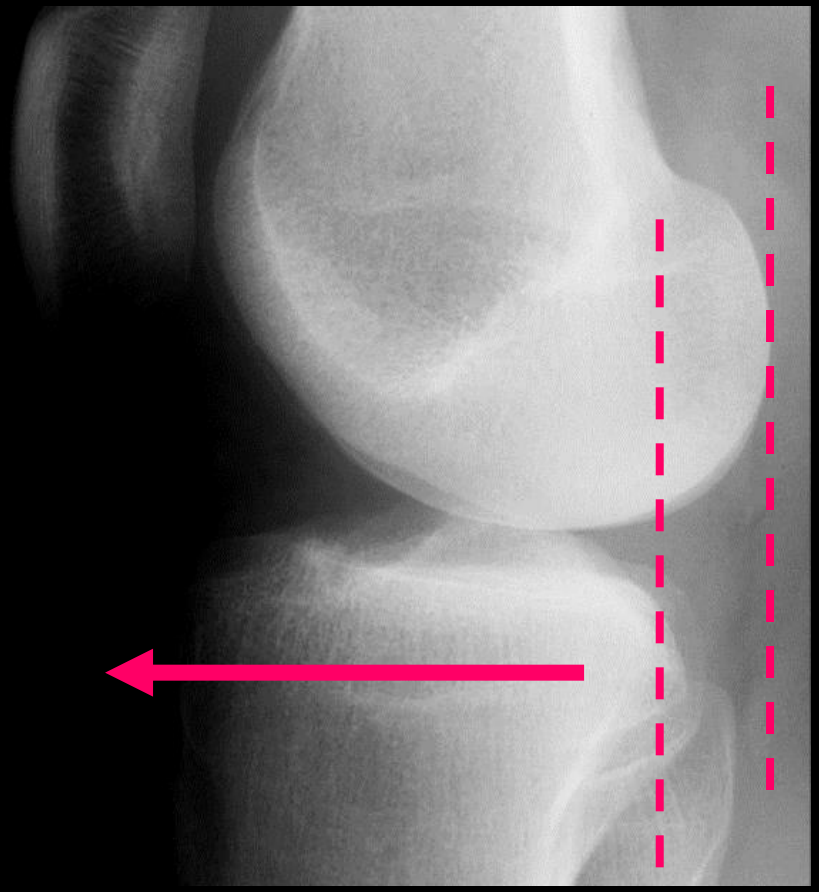


Contours, Signal






T2



Rupture LCA: signes indirects

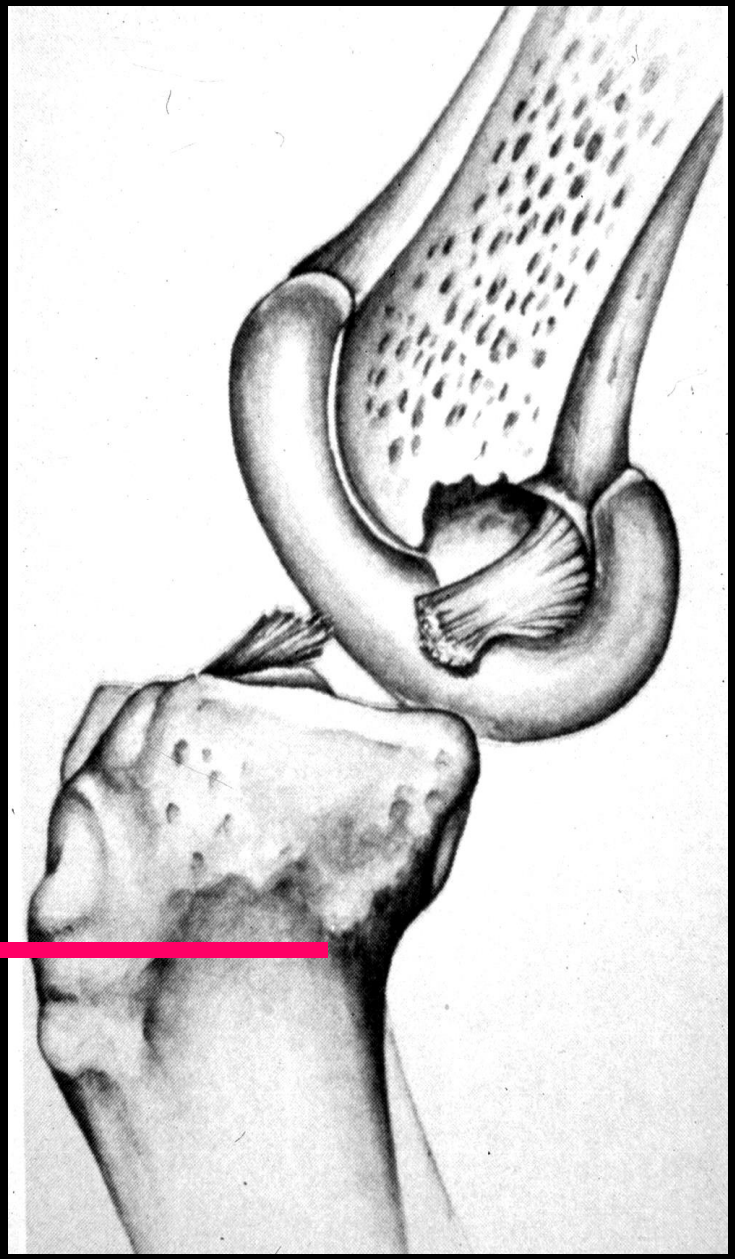
- IMPACTIONS:
  - Moelle osseuse: contusions
  - Corticales:
    - Fract. marge post plateau tibial lateral
    - Encoche condyle femoral lateral

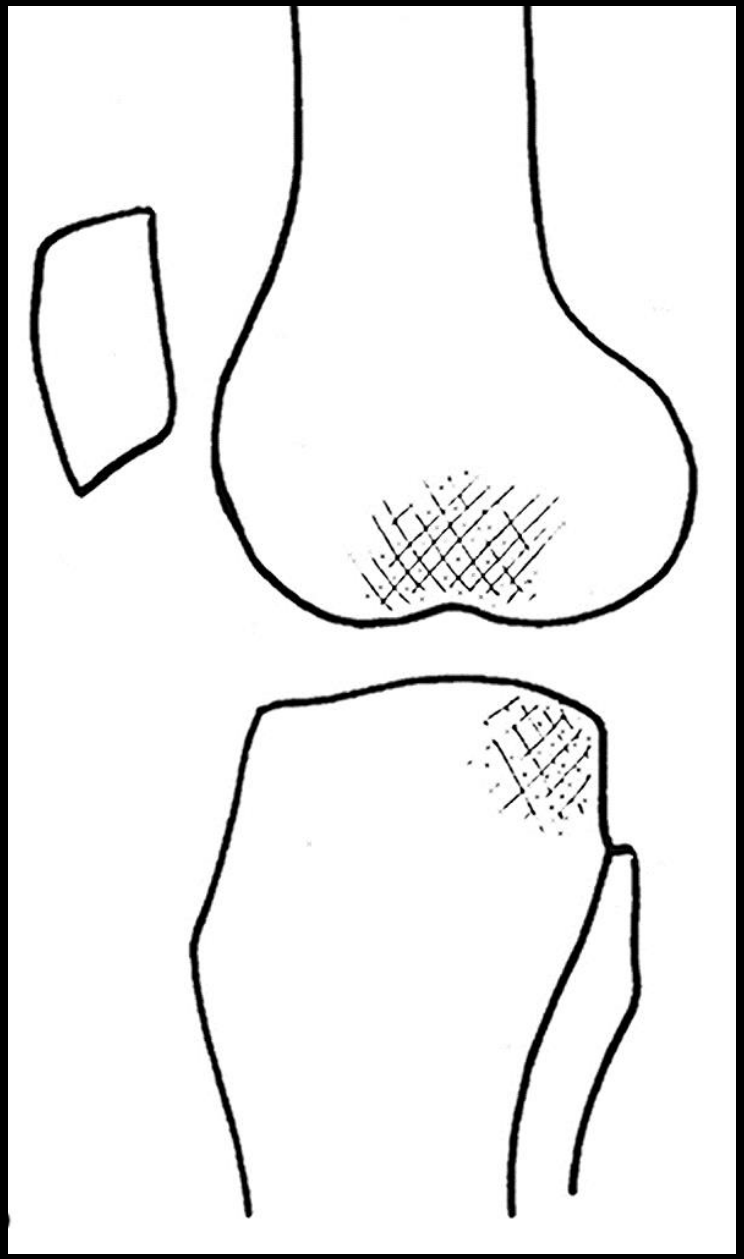
= signes en faveur caractère complet

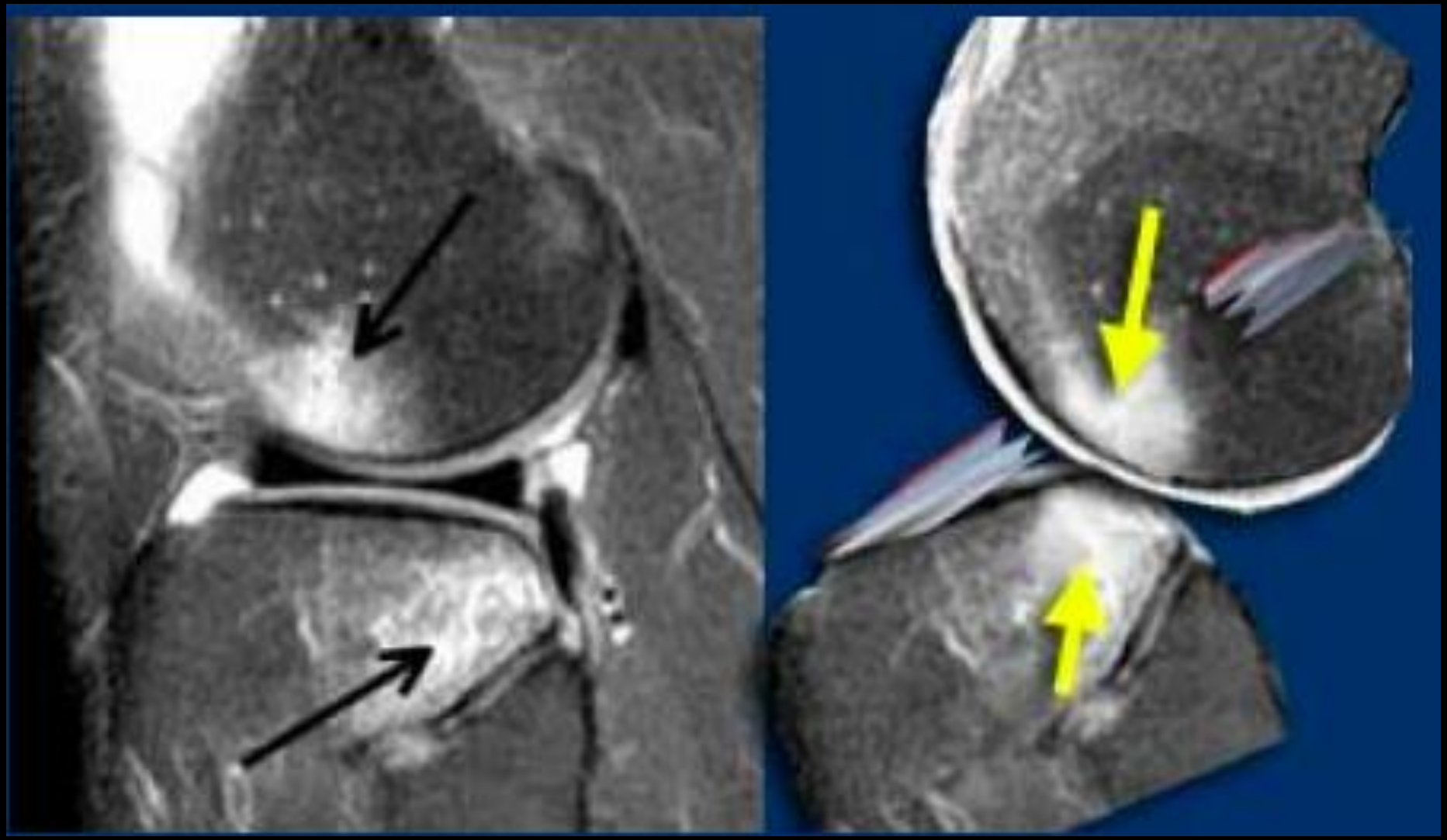
- TRANSLATION TIB. ANT:
  - Tiroir anterier au moins 5mm
  - LCP detendu et curviligne
  - Decouverture corne post menisque lateral

- FRACTURE DE SEGOND

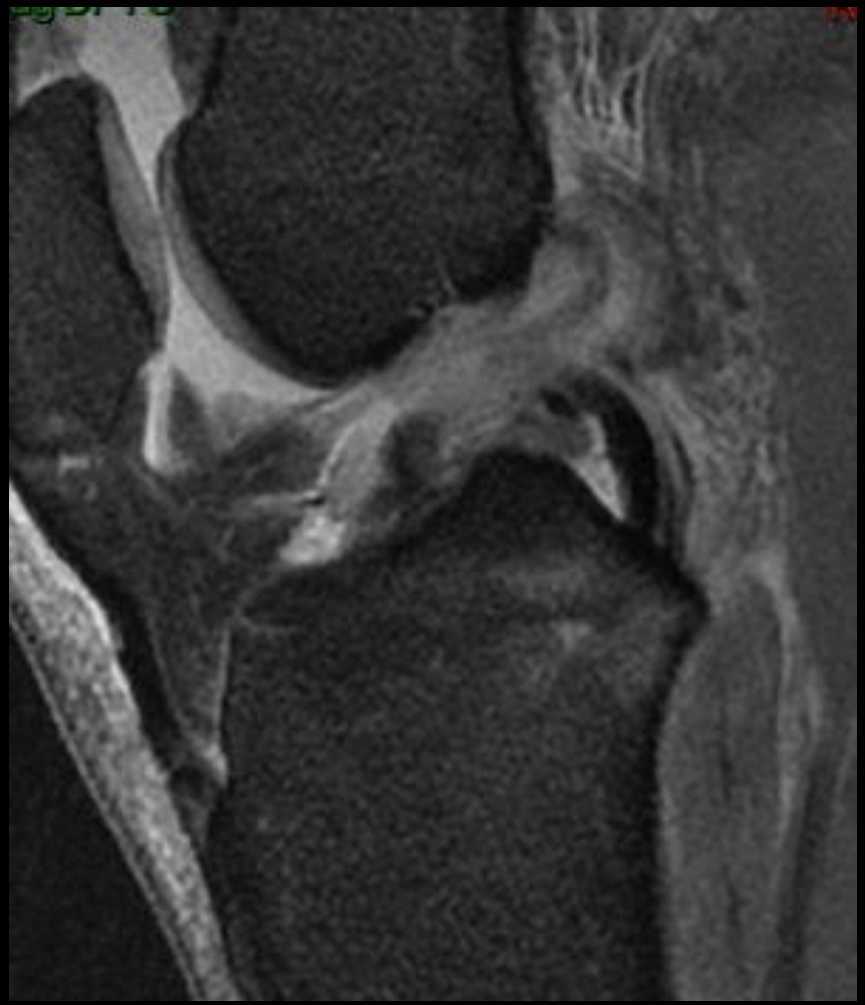
IMPACTIONS

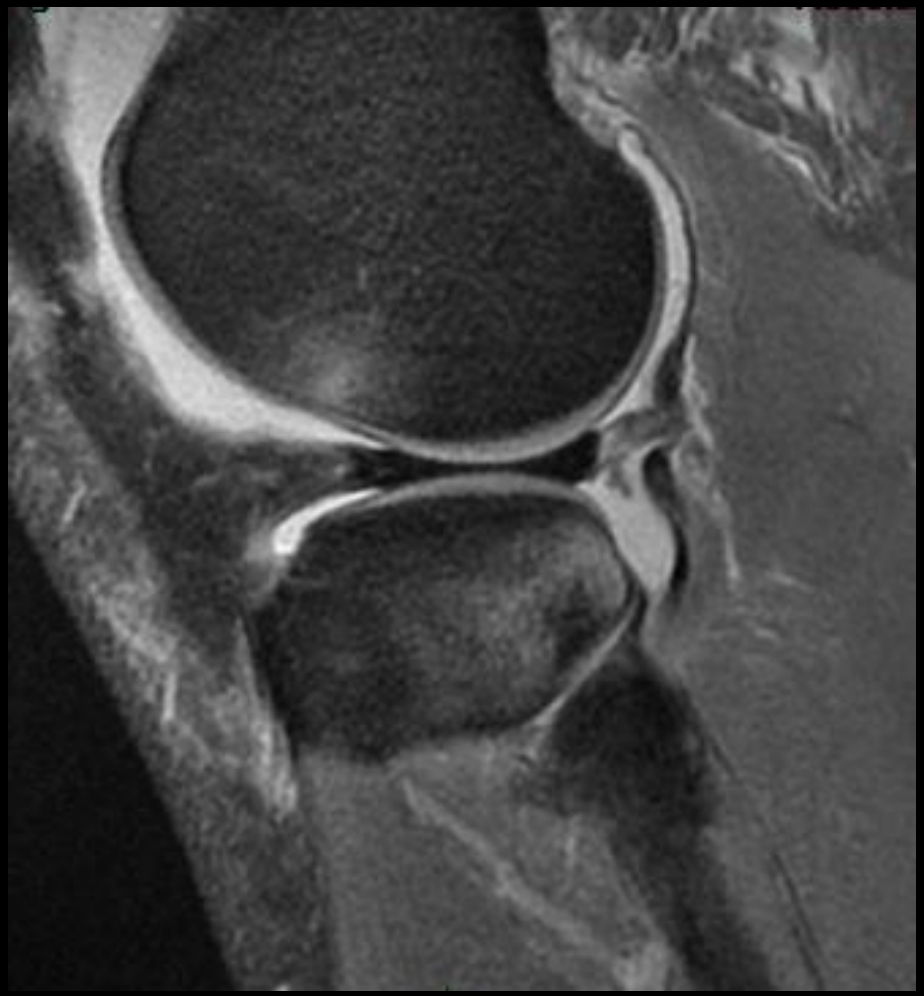


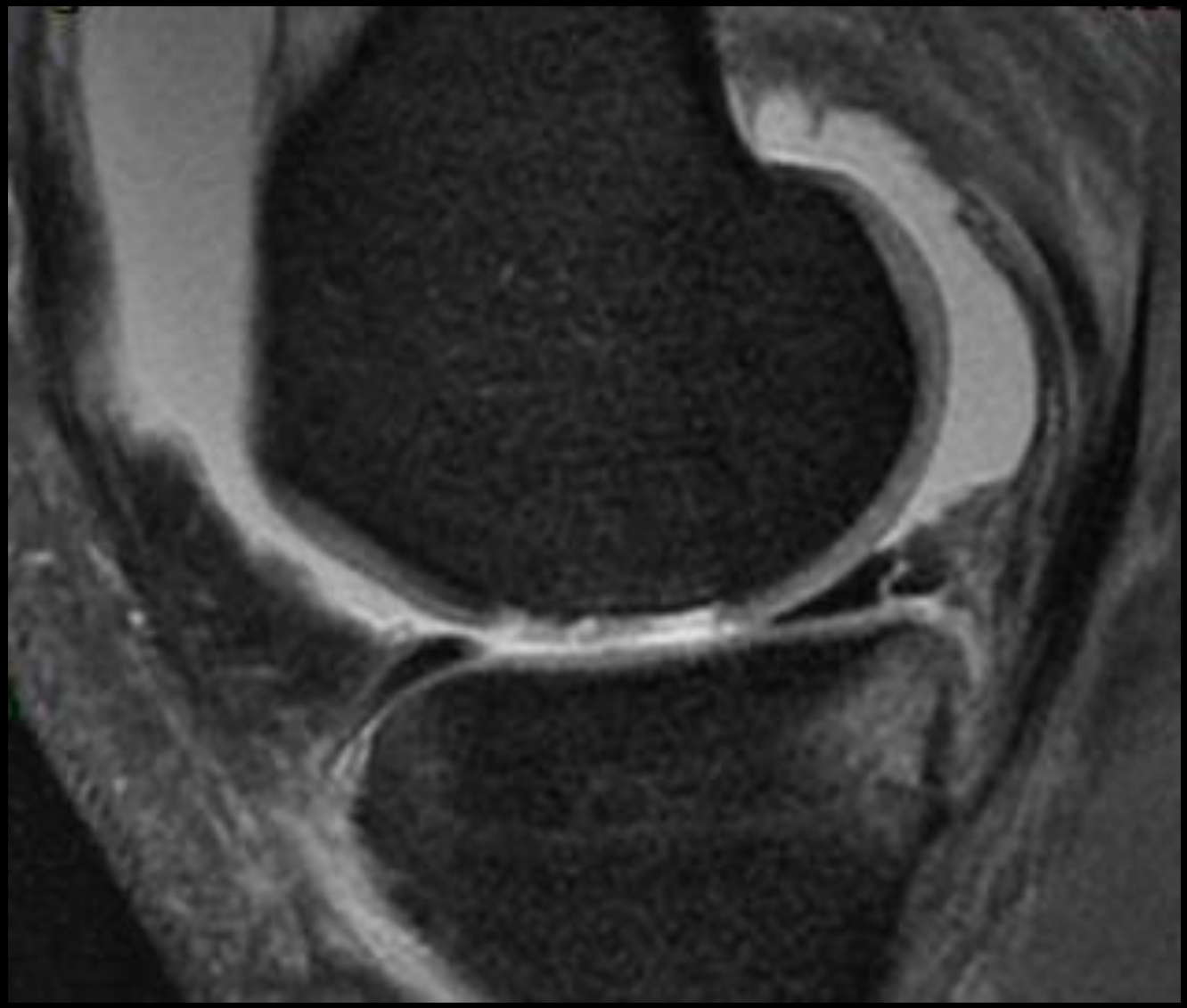


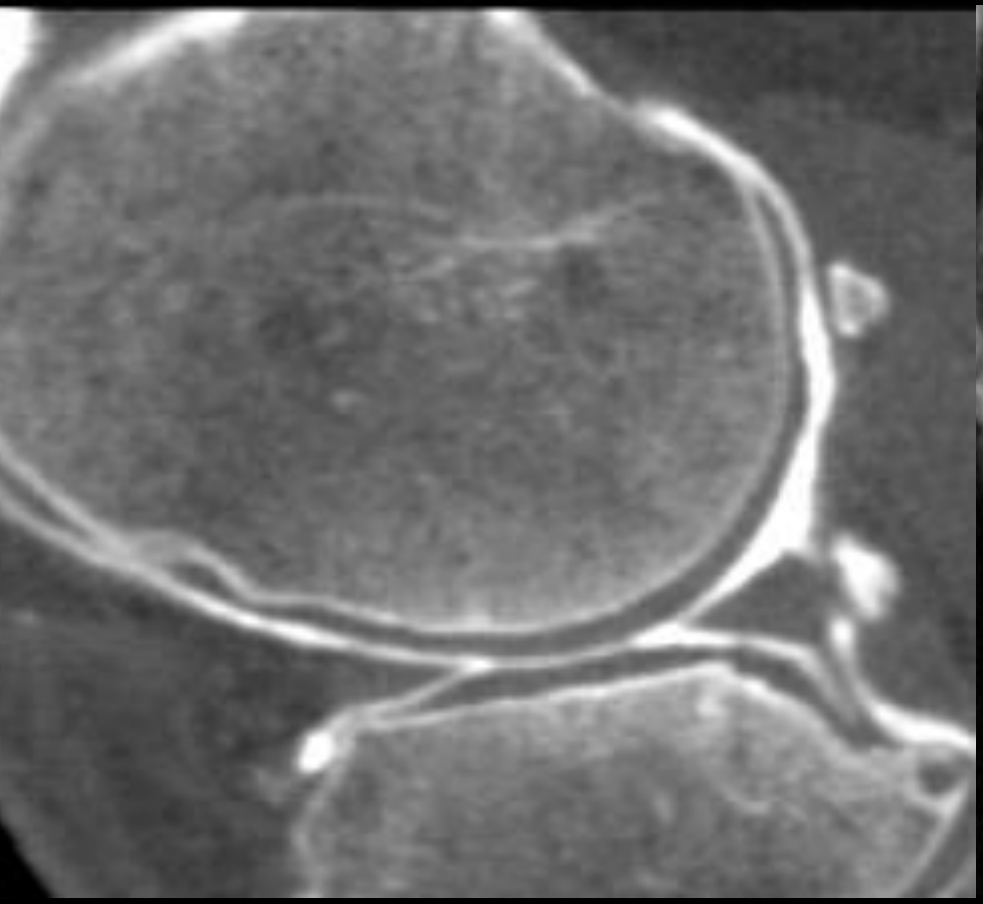


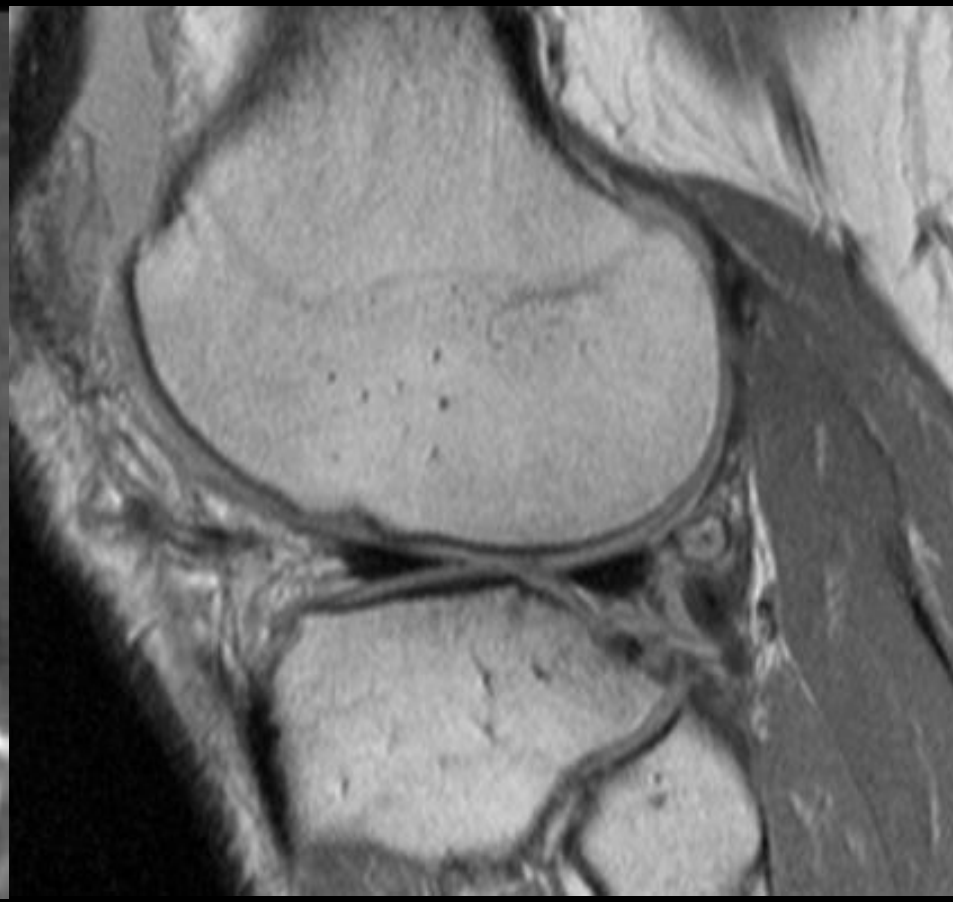
Rupture LCA



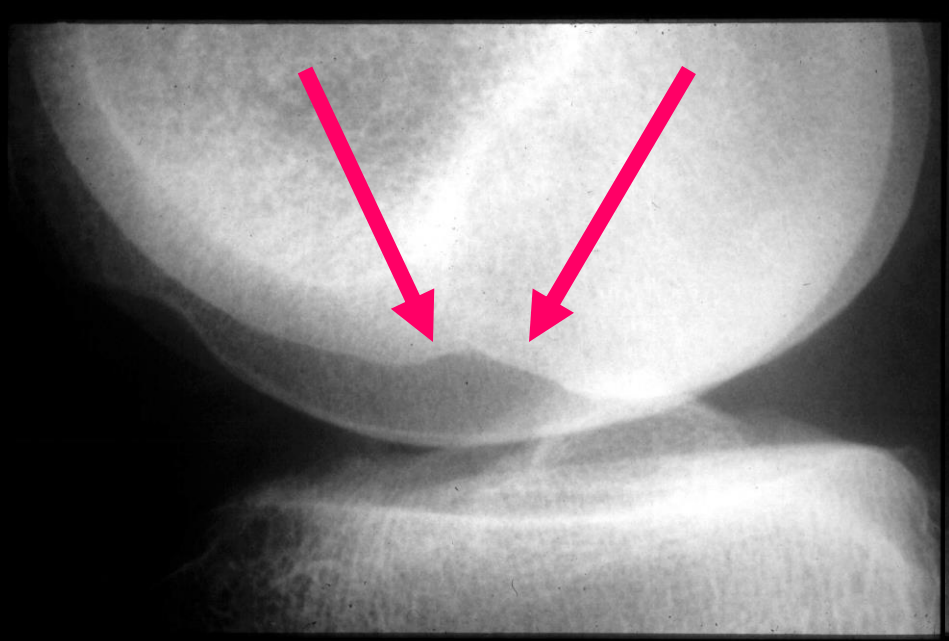


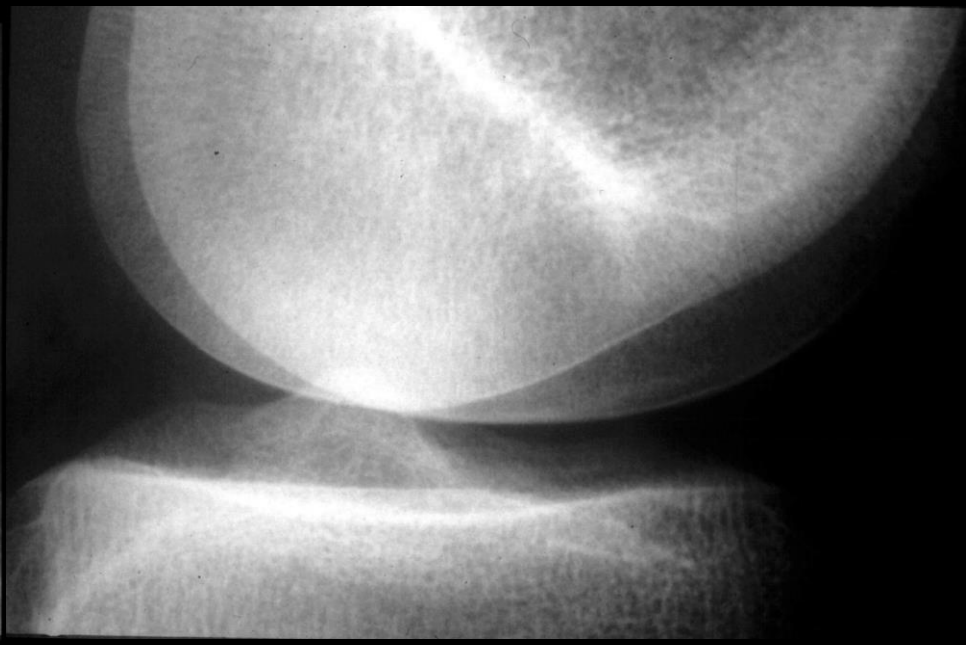


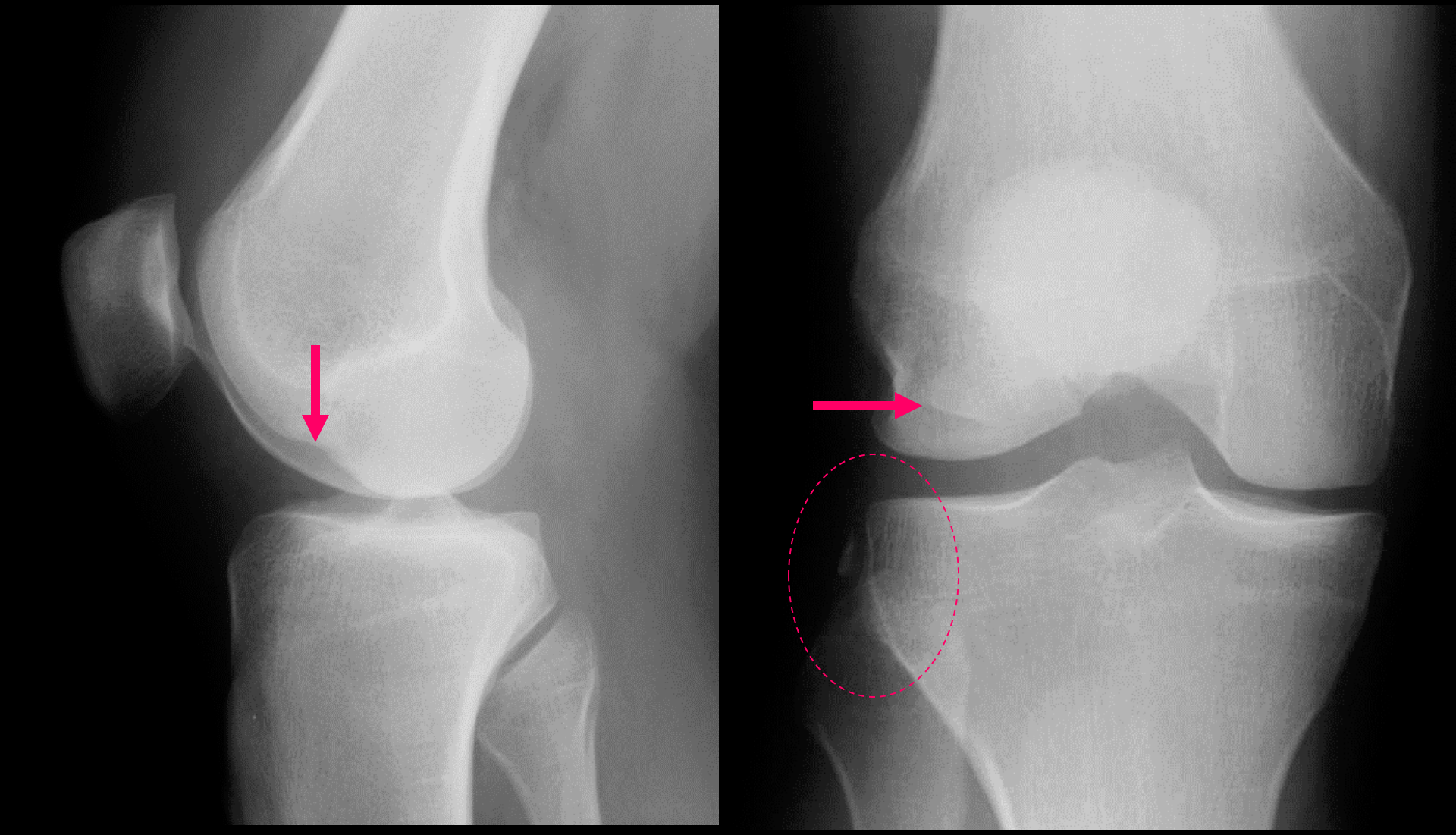


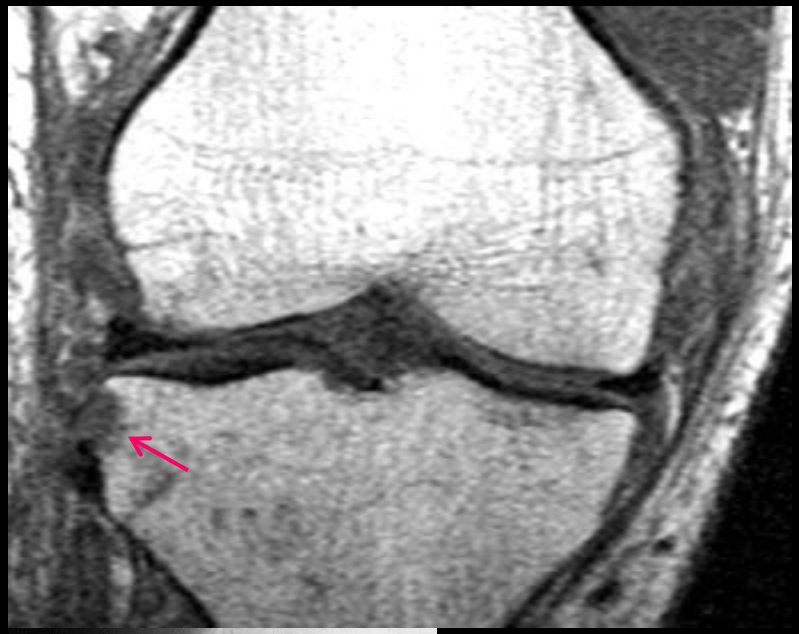


Encoche trop profonde ou dédoublée CFE









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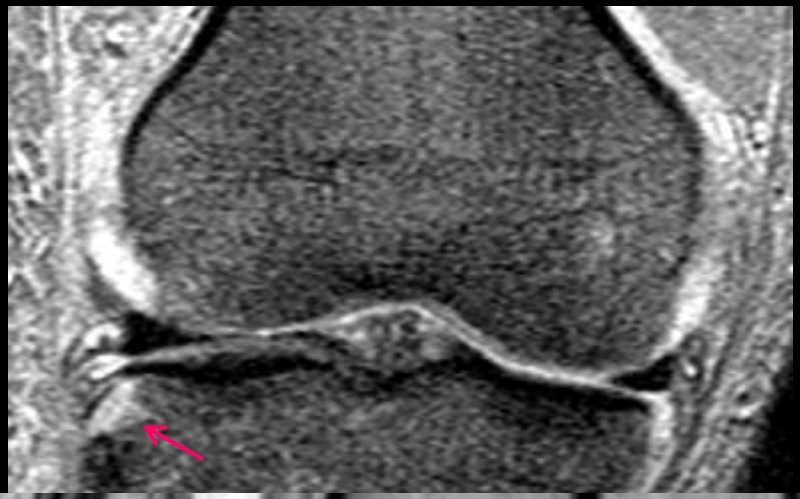

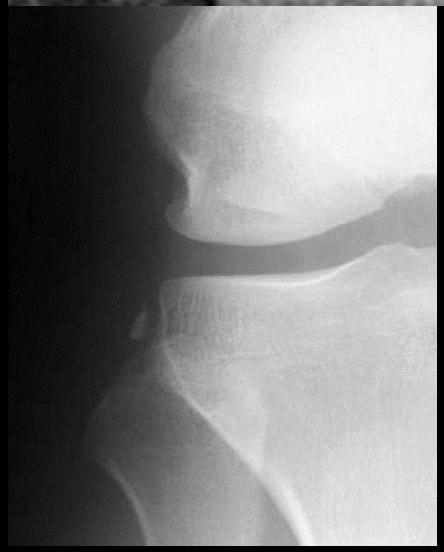

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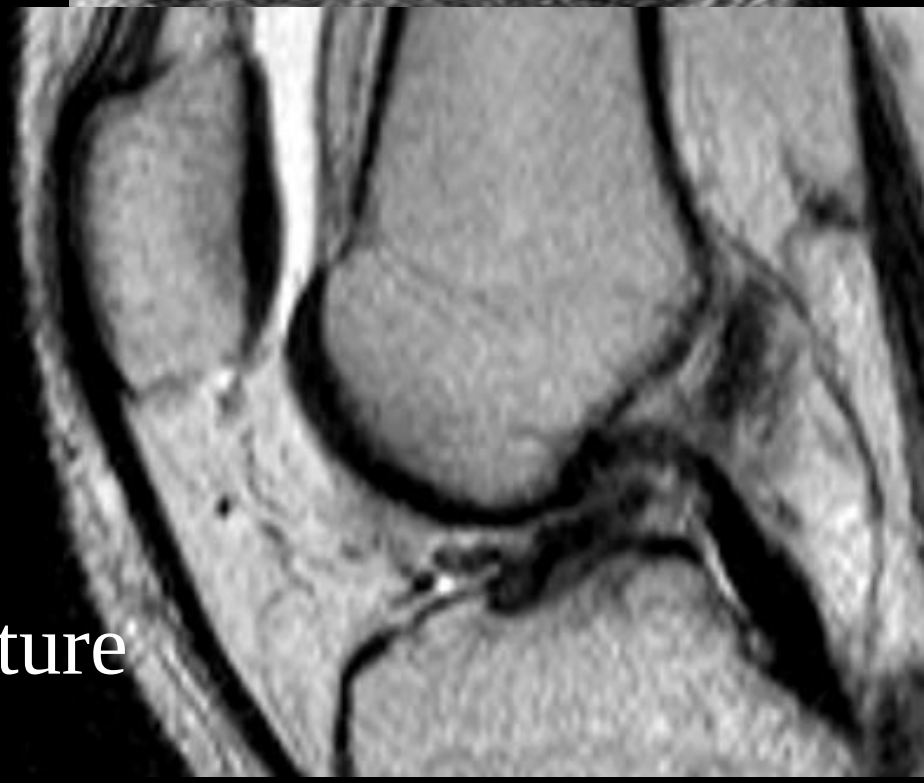
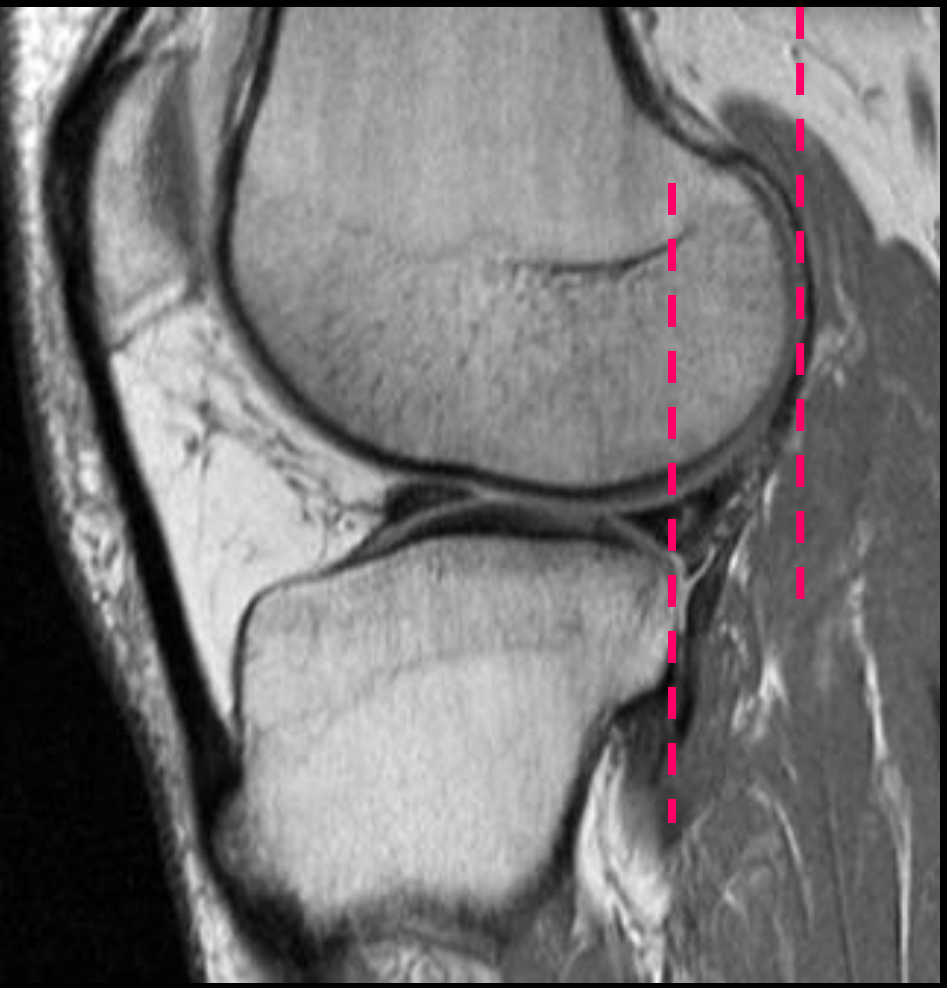
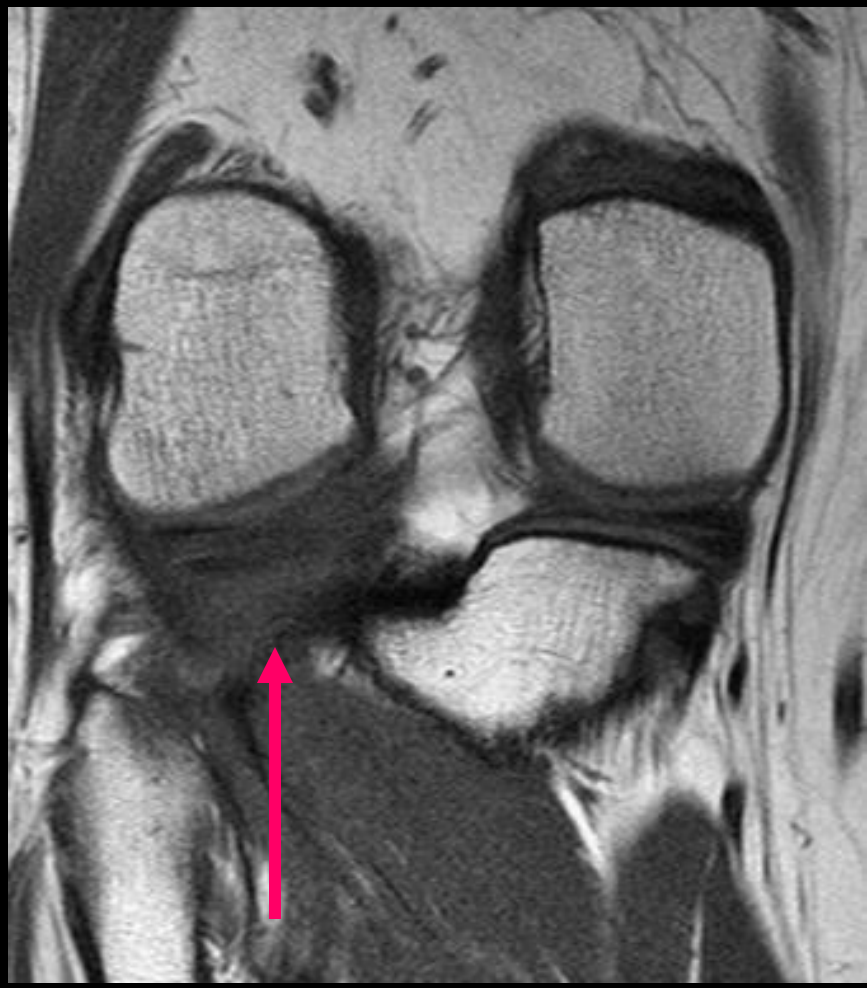


Segond fracture

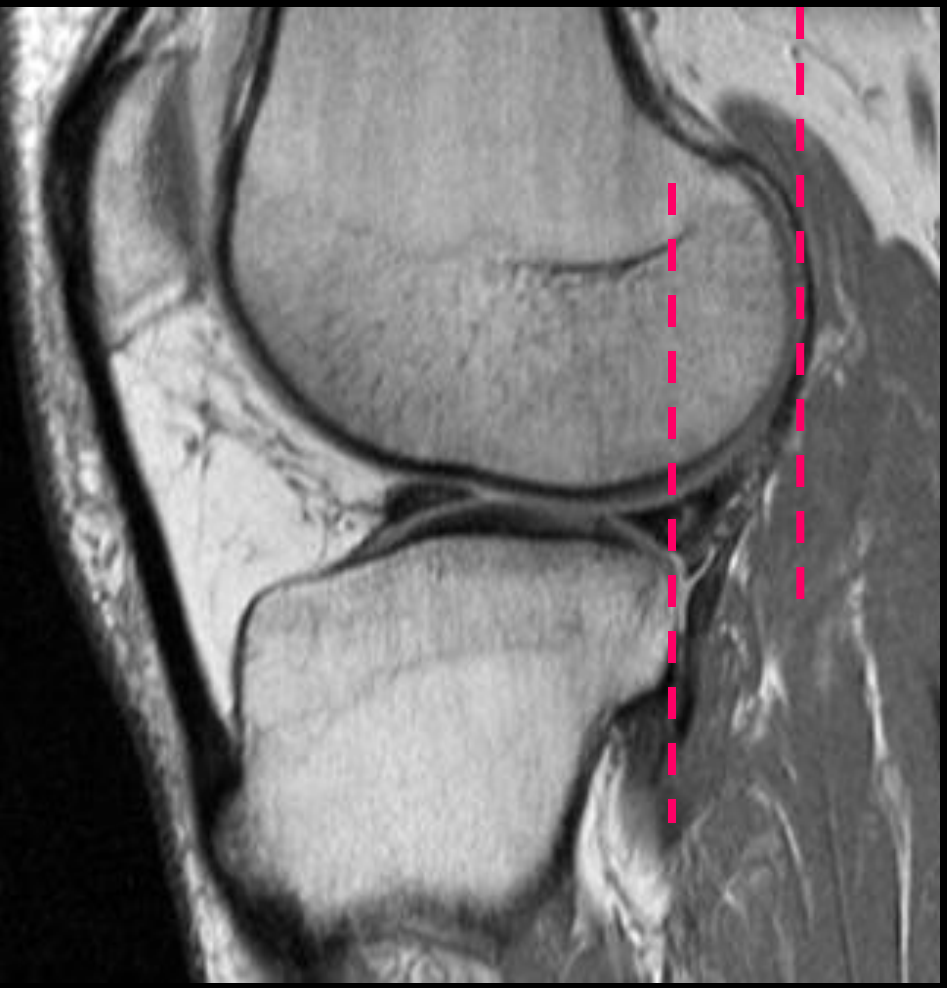
TRANSLATION TIB. ANT.



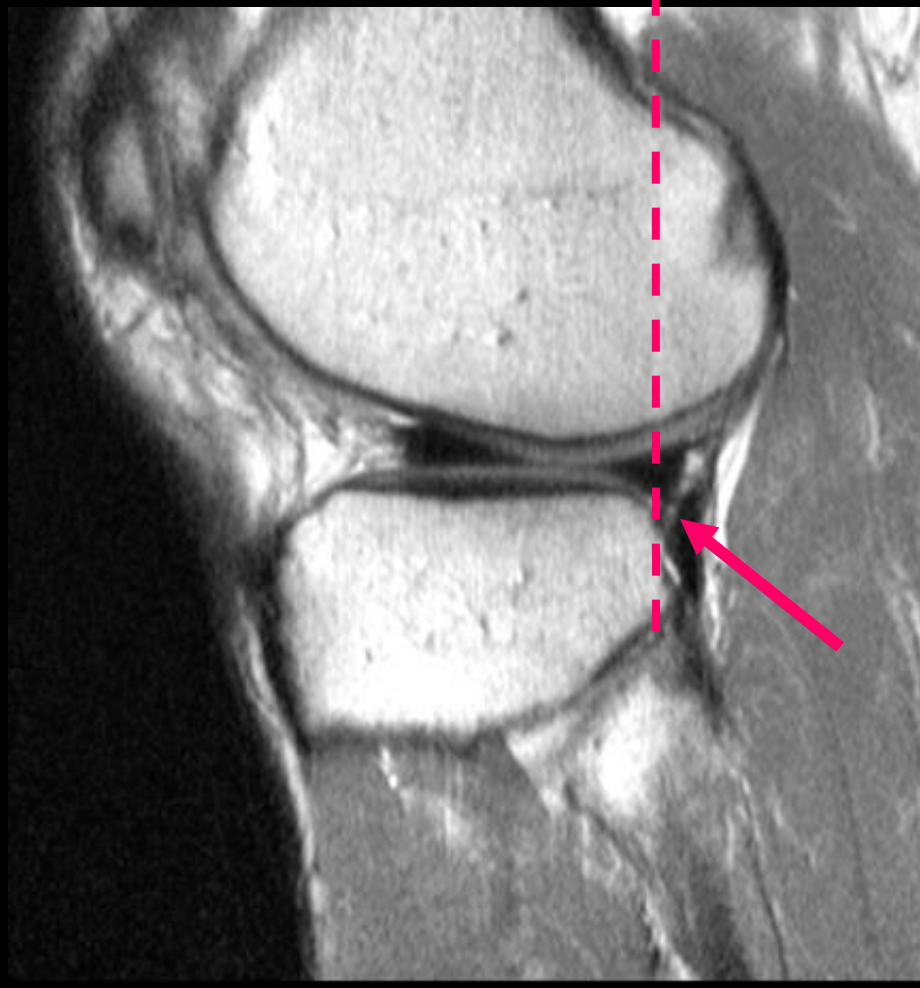


Tiroir tibial ant. spontané

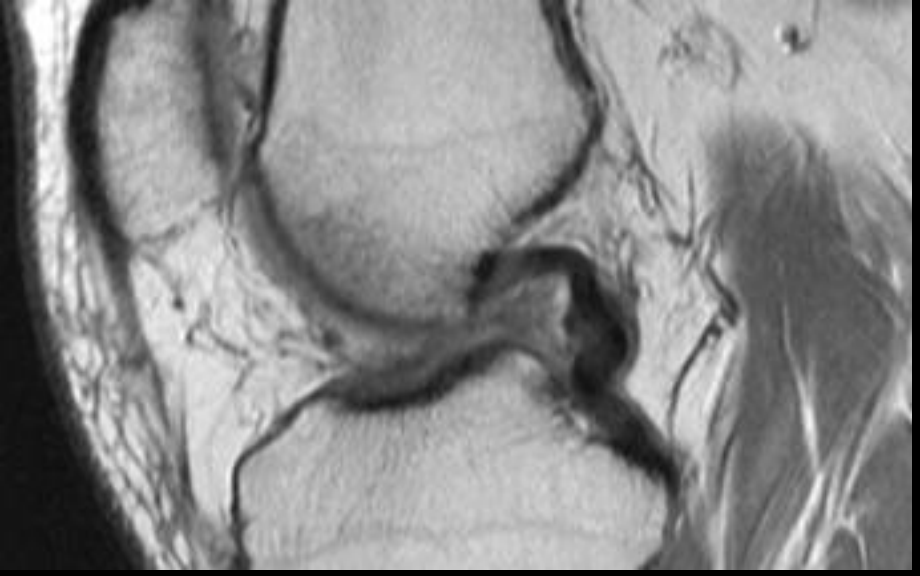
TRANSLATION TIB. ANT.

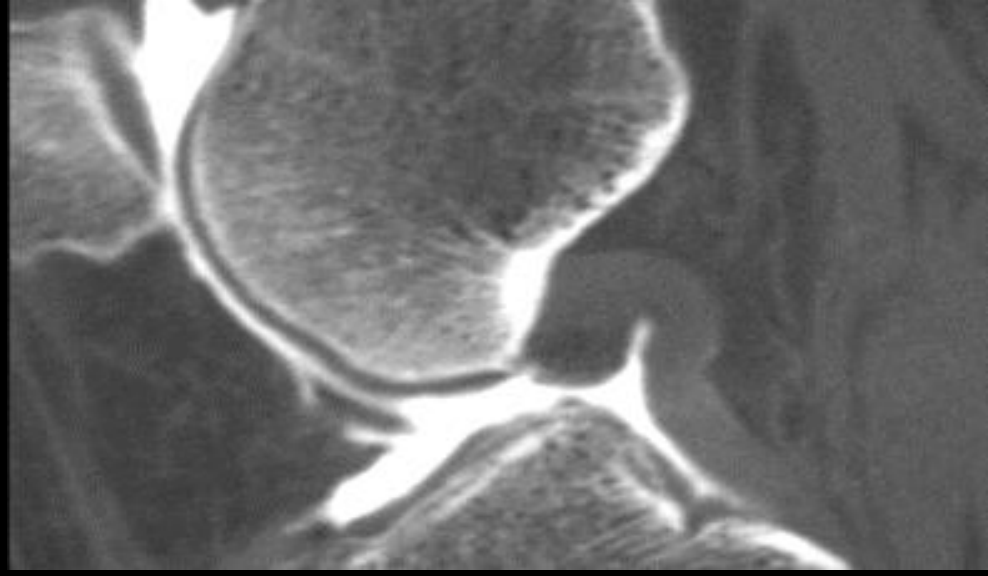


Tiroir tibial ant. spontané



Découverture CPME

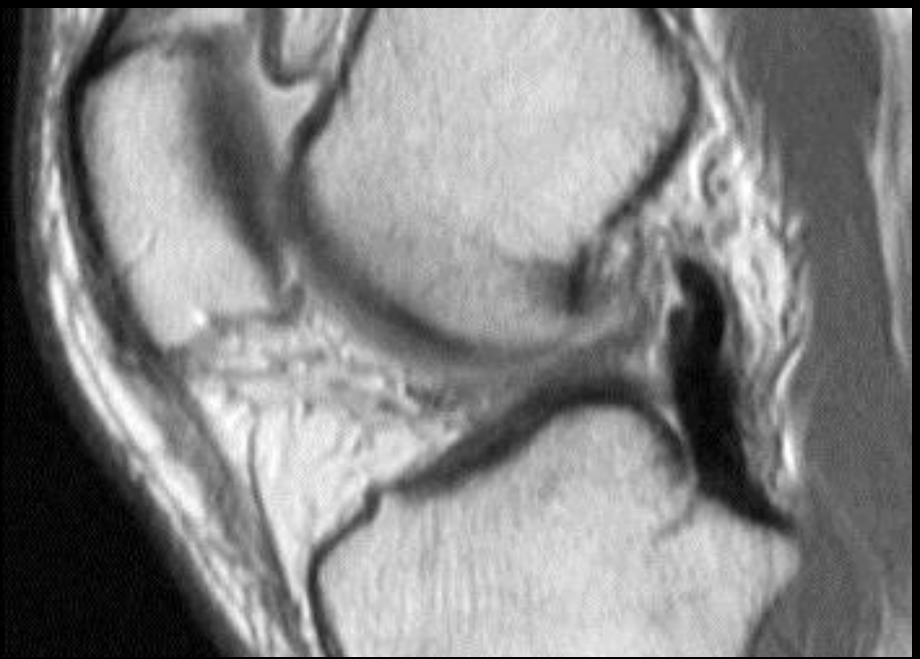


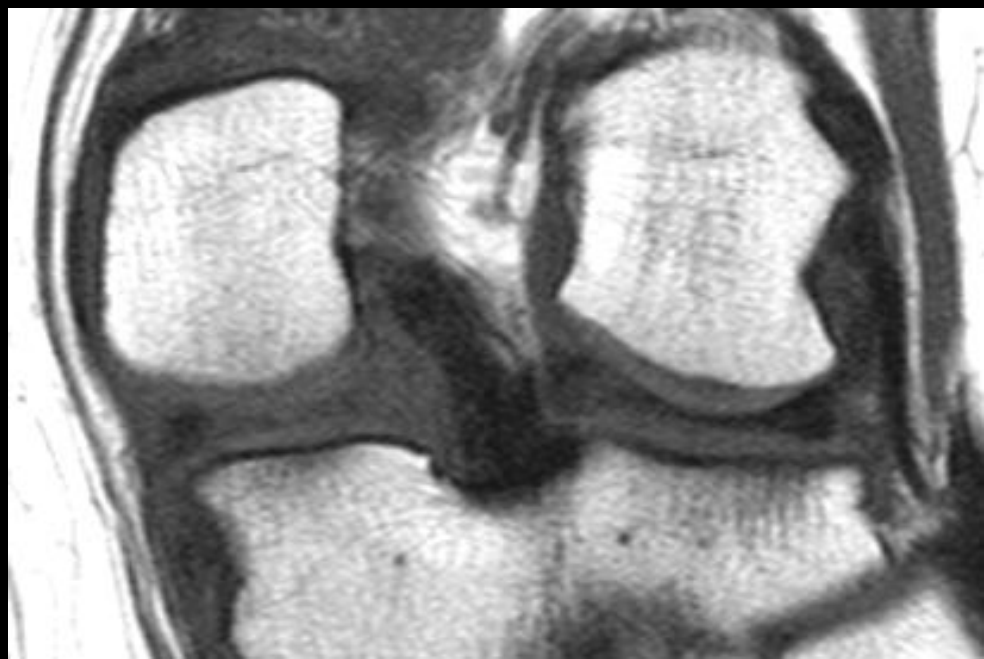


sigmoïde

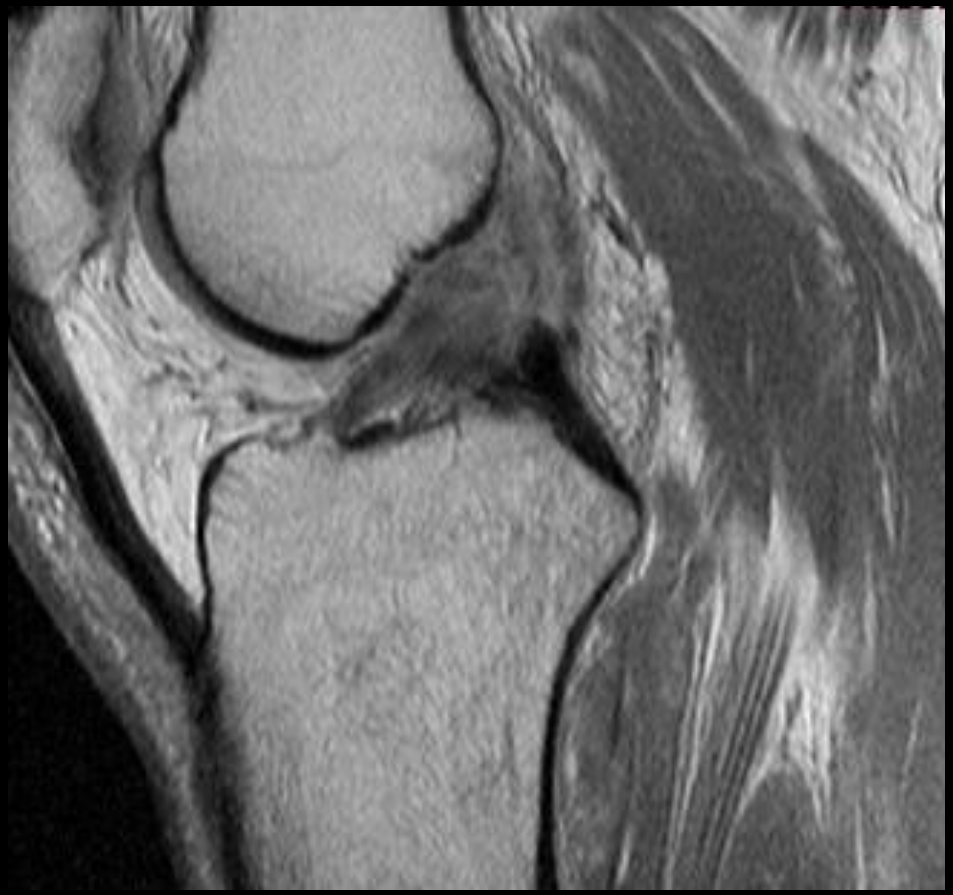
LCP

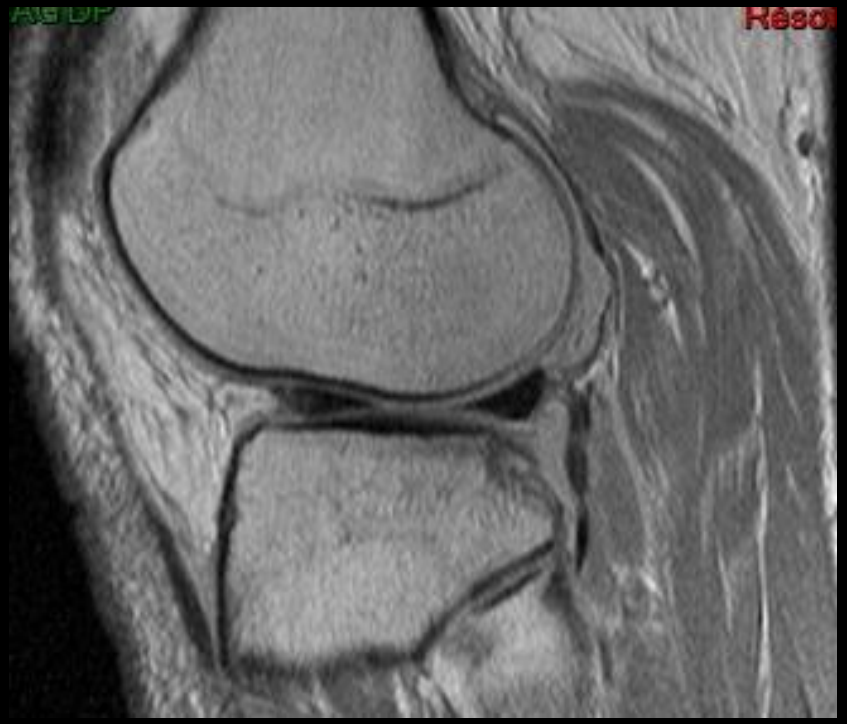
verticalisé

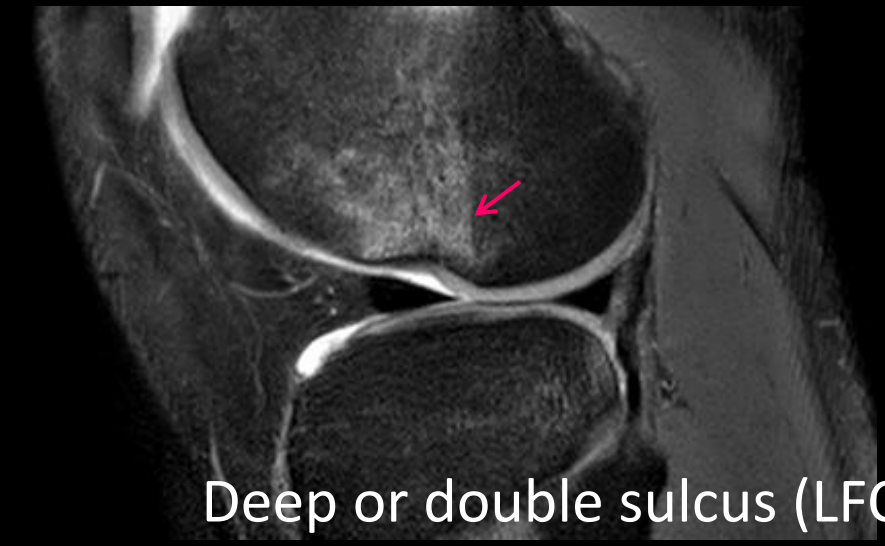




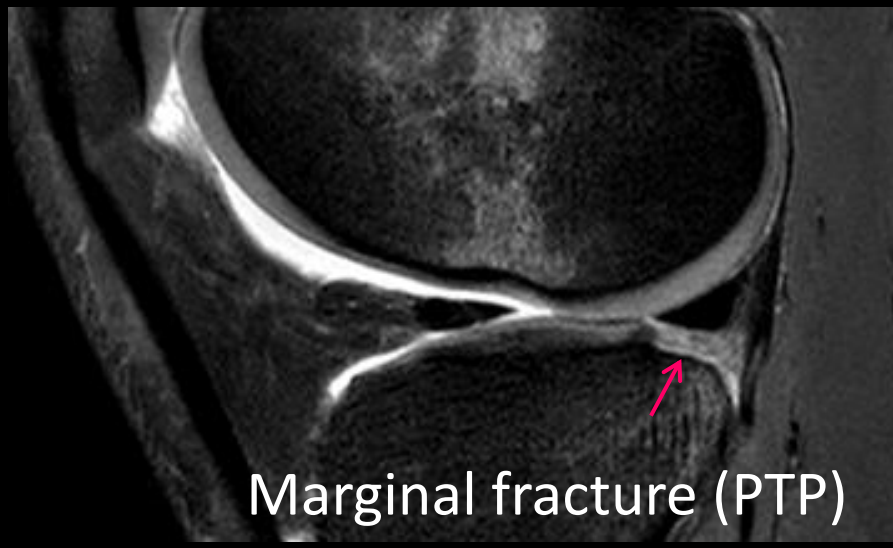
Cas clinique



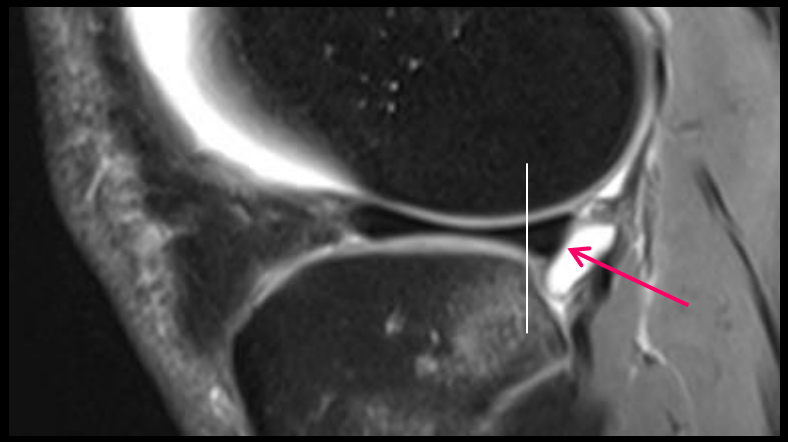




Deep or double sulcus (LFC)



Marginal fracture (PTP)



Uncovered post horn Lat Men

Anterior tibial translation

LCA : rupture

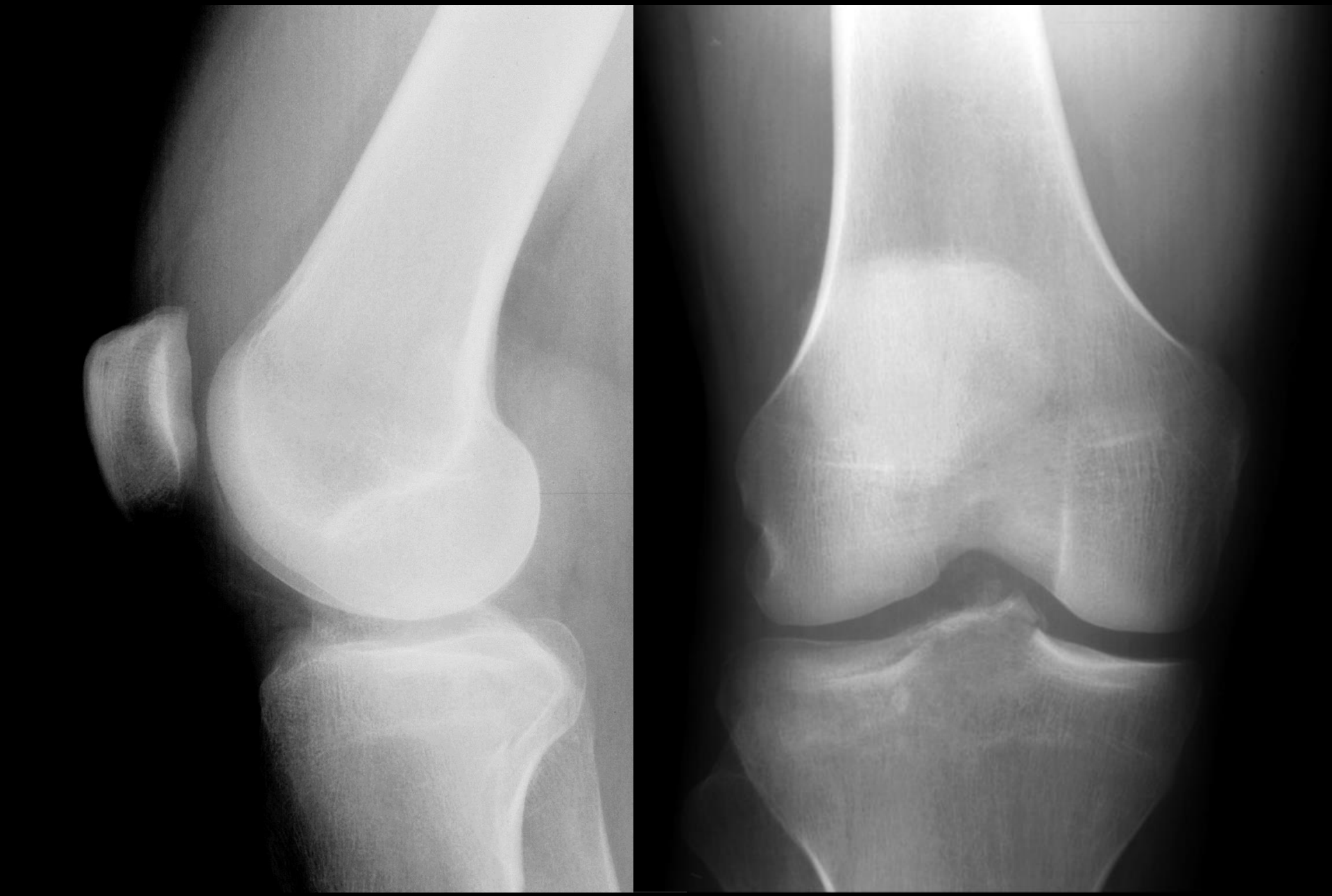
Signes directs :

- Continuité
- Orientation
- Contours
- Signal

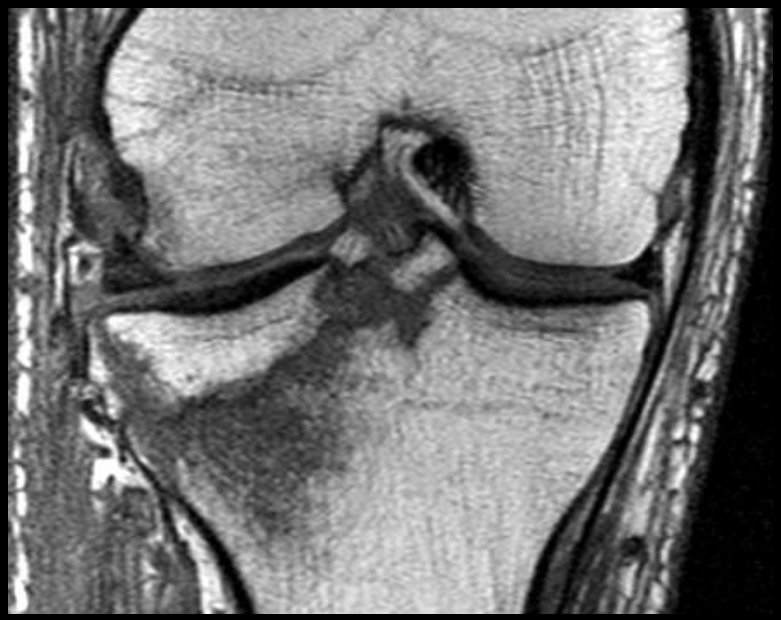
Signes indirects:

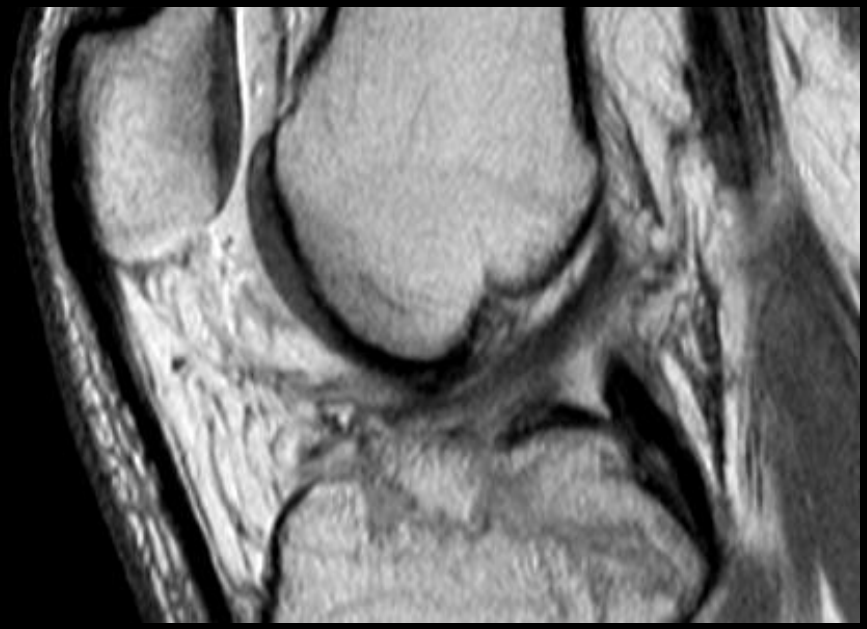
- Impactions
- Translation tib. ant.
- Segond

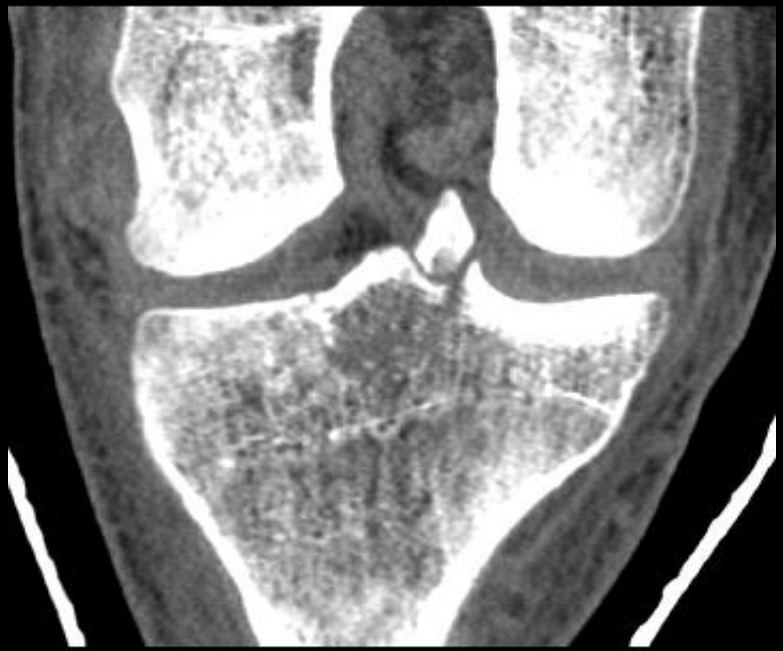
En pratique partiel – complet pas tjrs évident

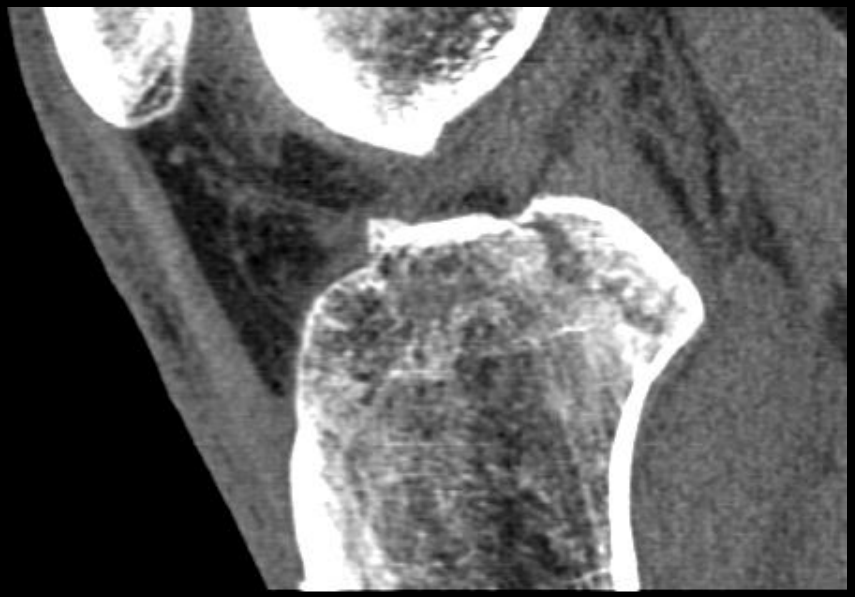


Avulsion insertion osseuse pied LCA (5%)

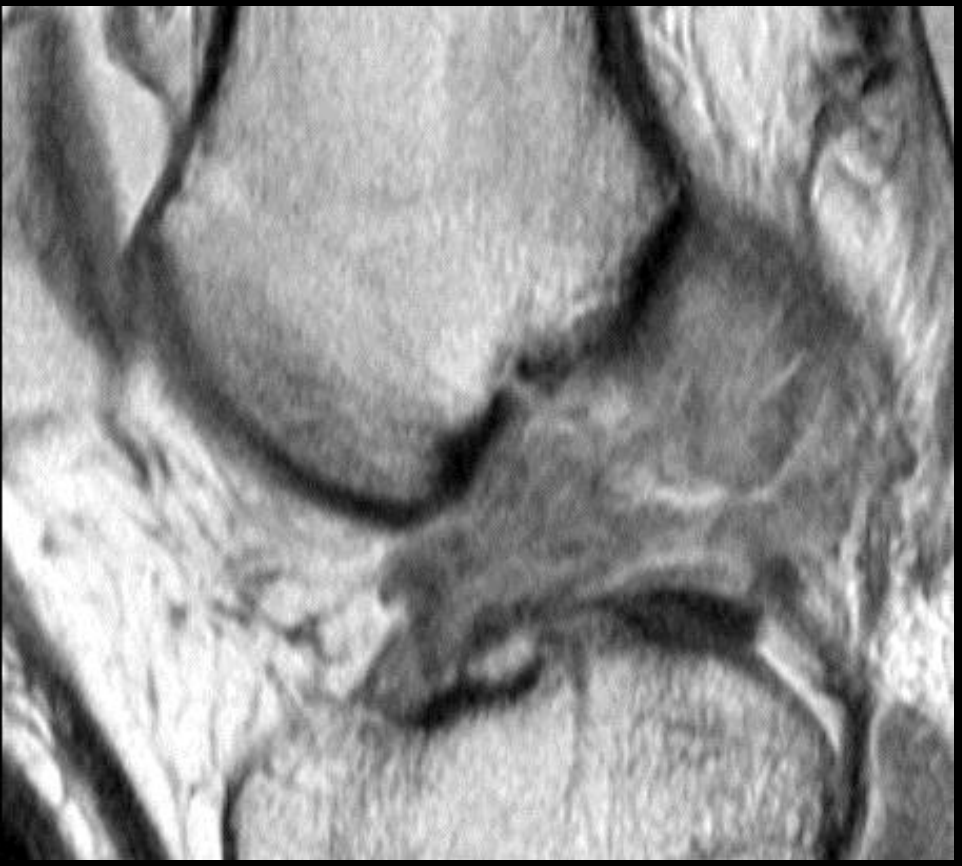




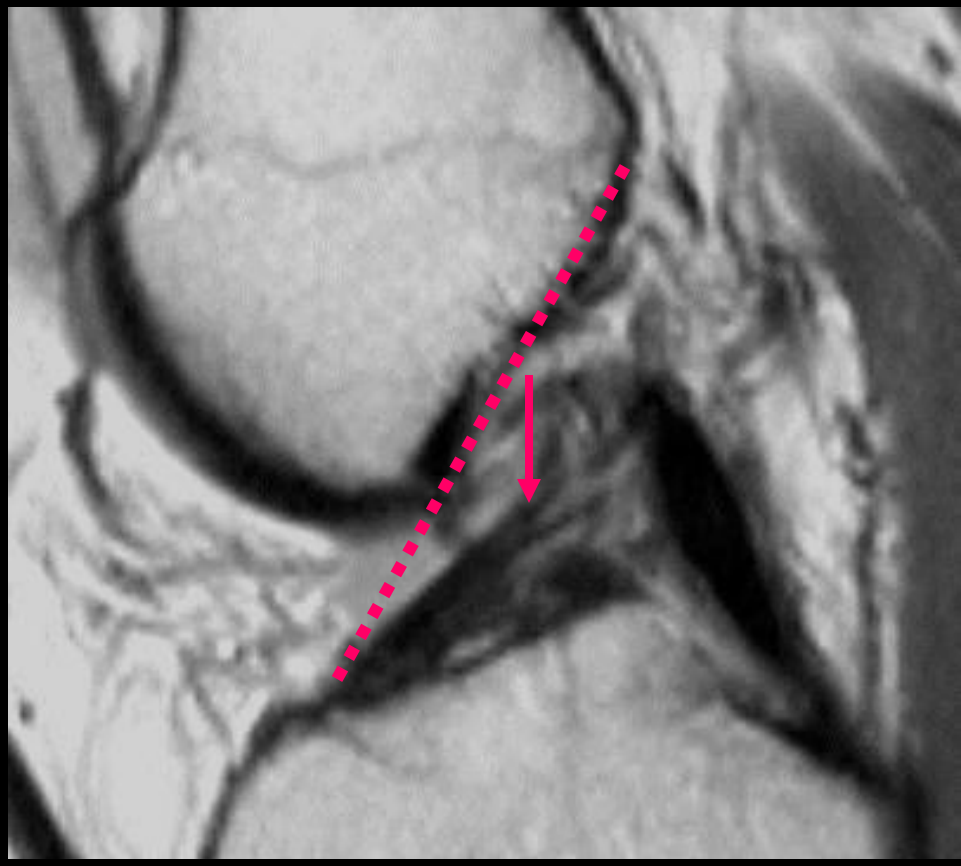




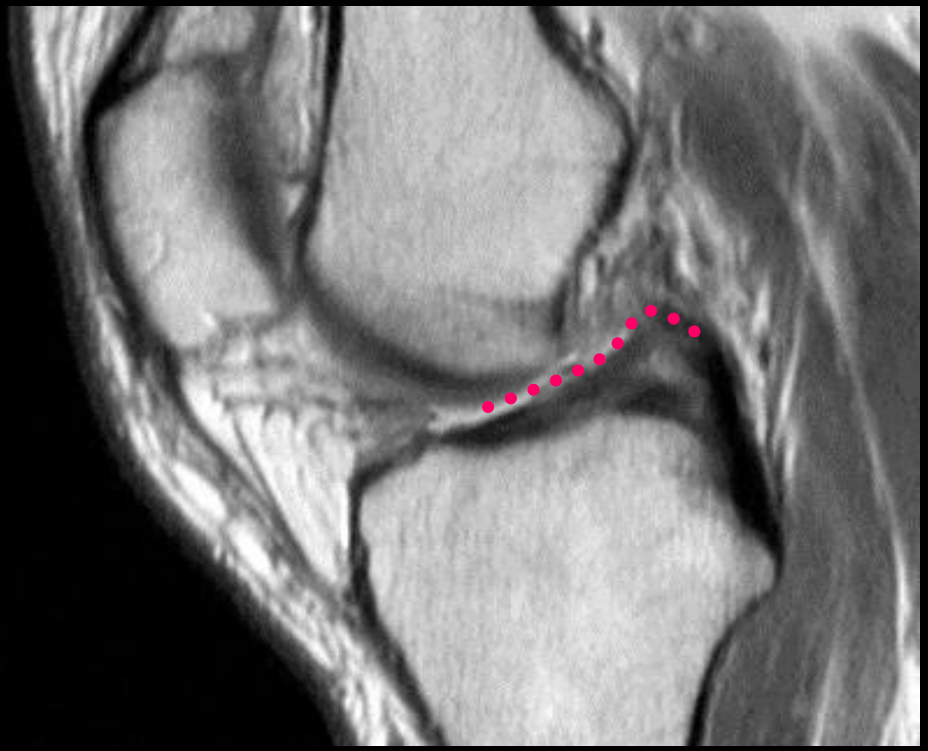
Rupture LCA: ancienne – récente?

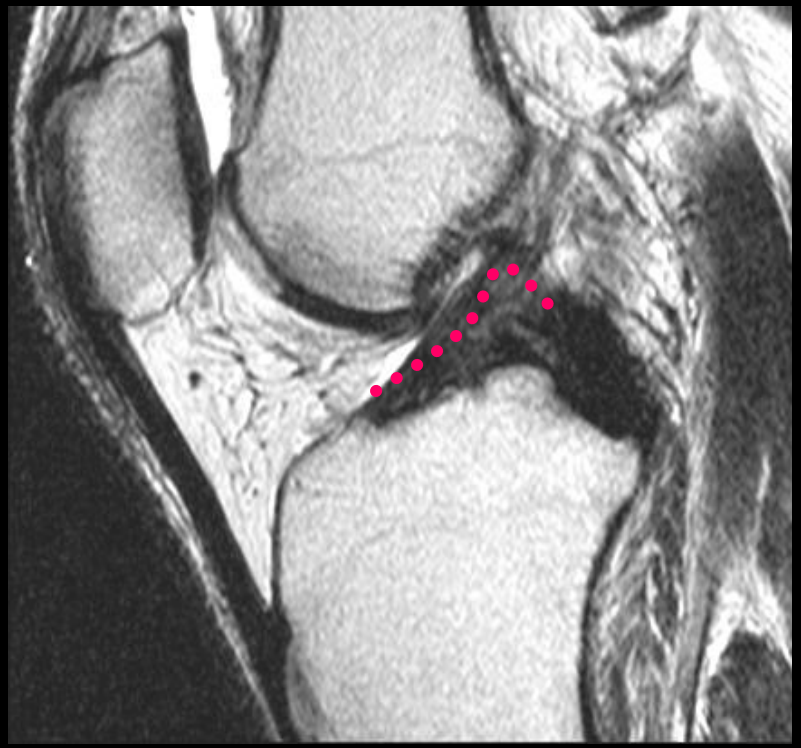


récente



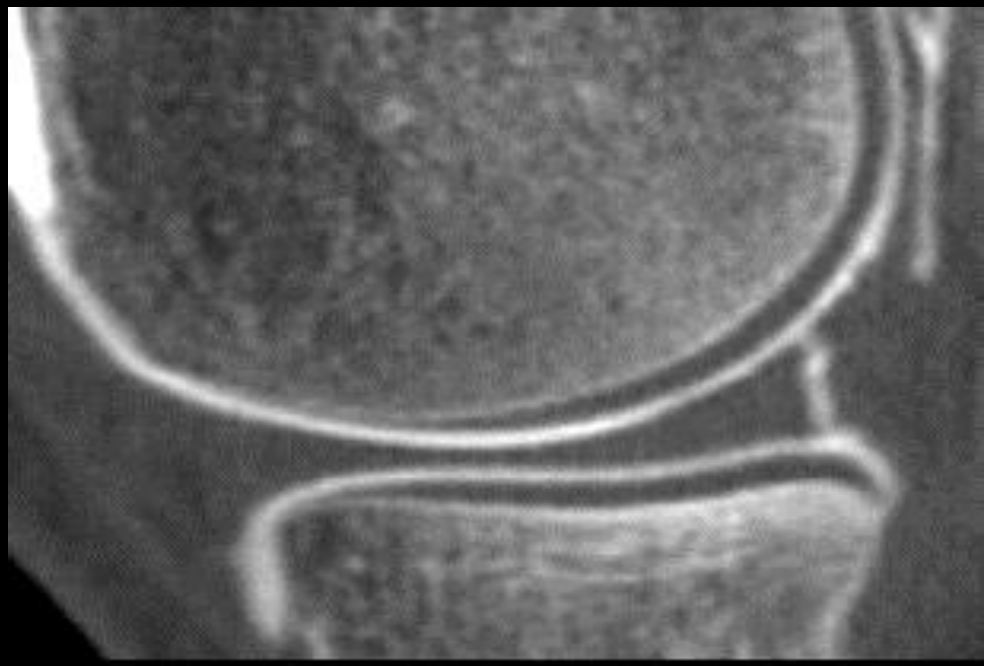
ancienne

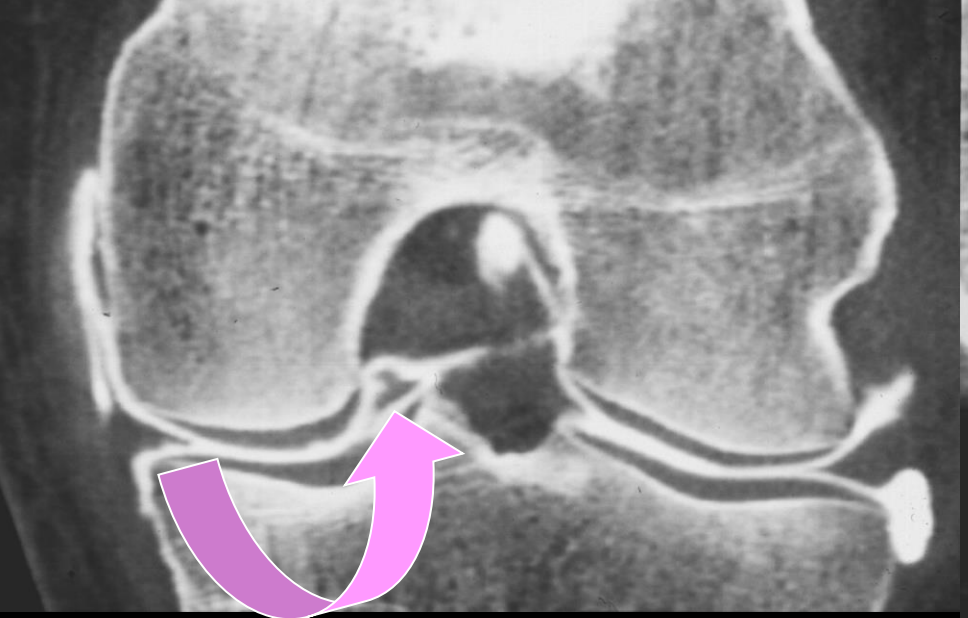


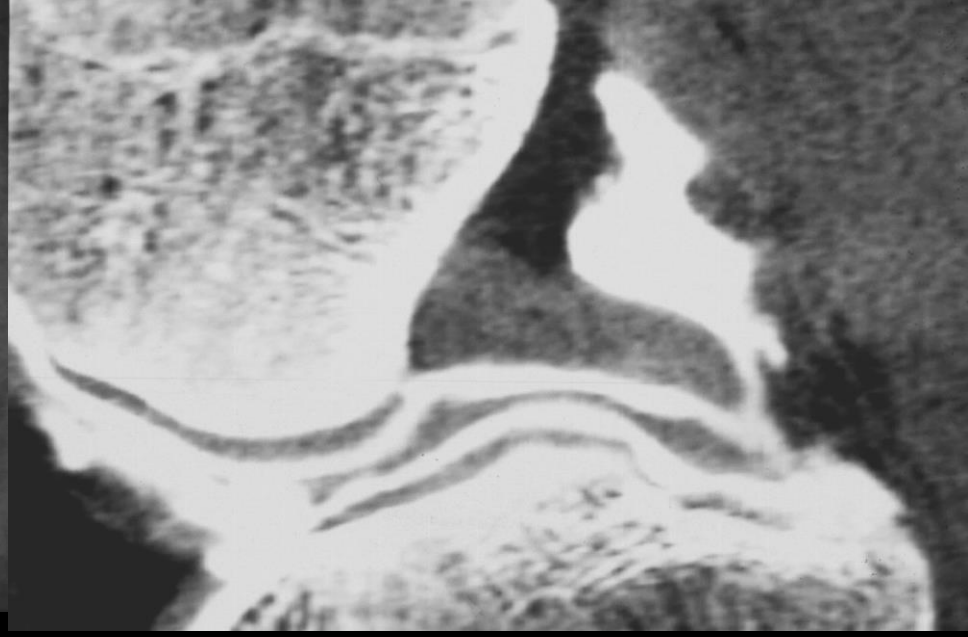


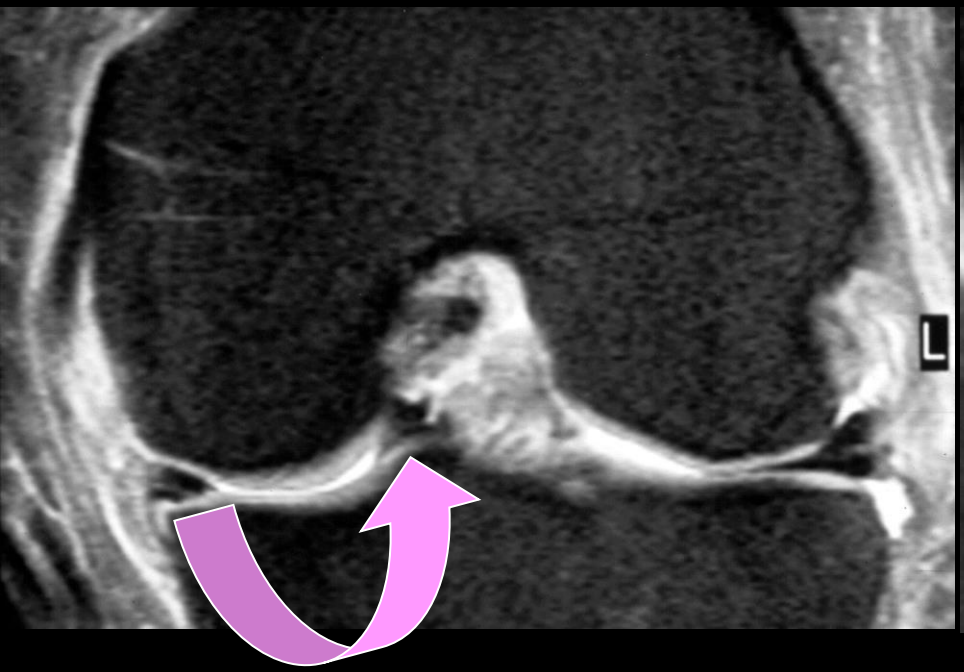
Rupture ancienne LCA

LCA : lésions associées





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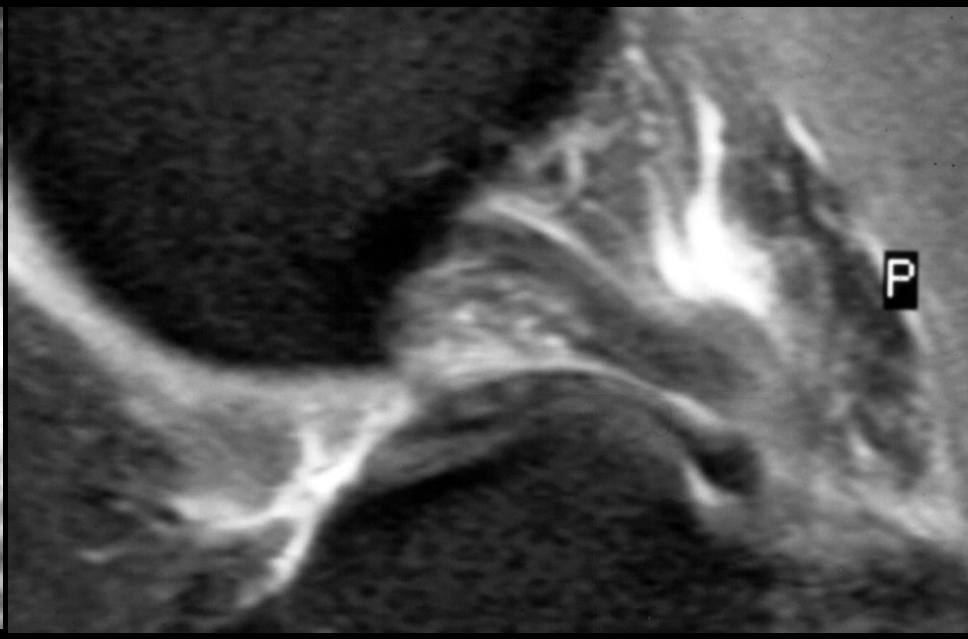
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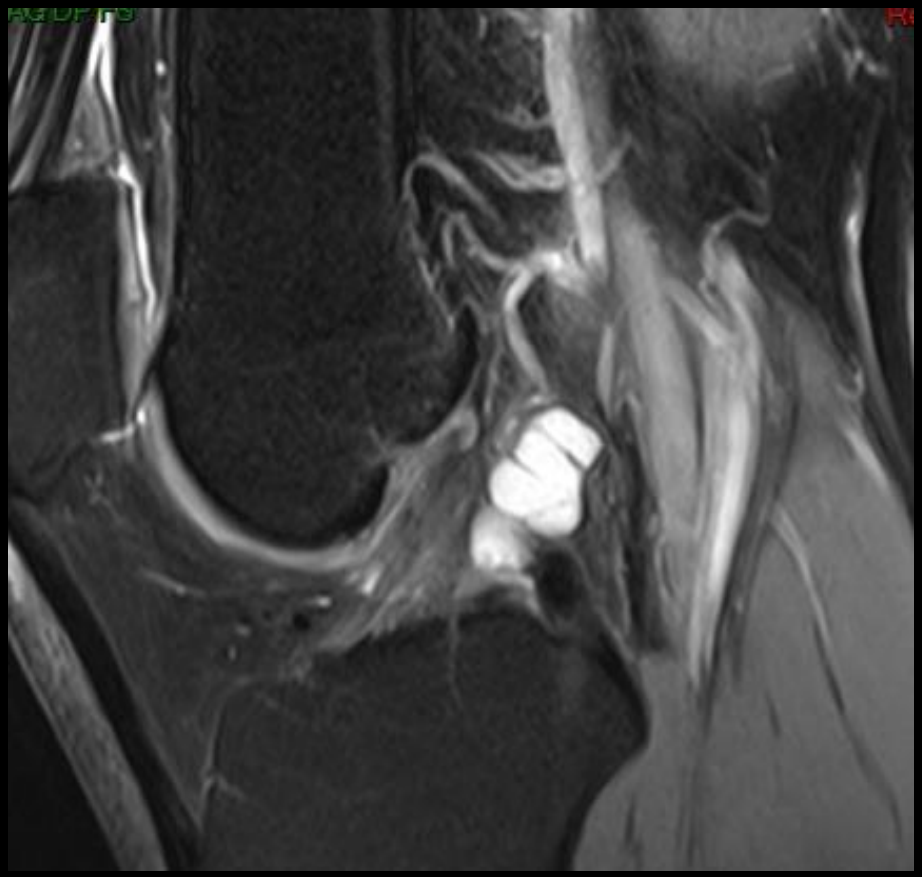
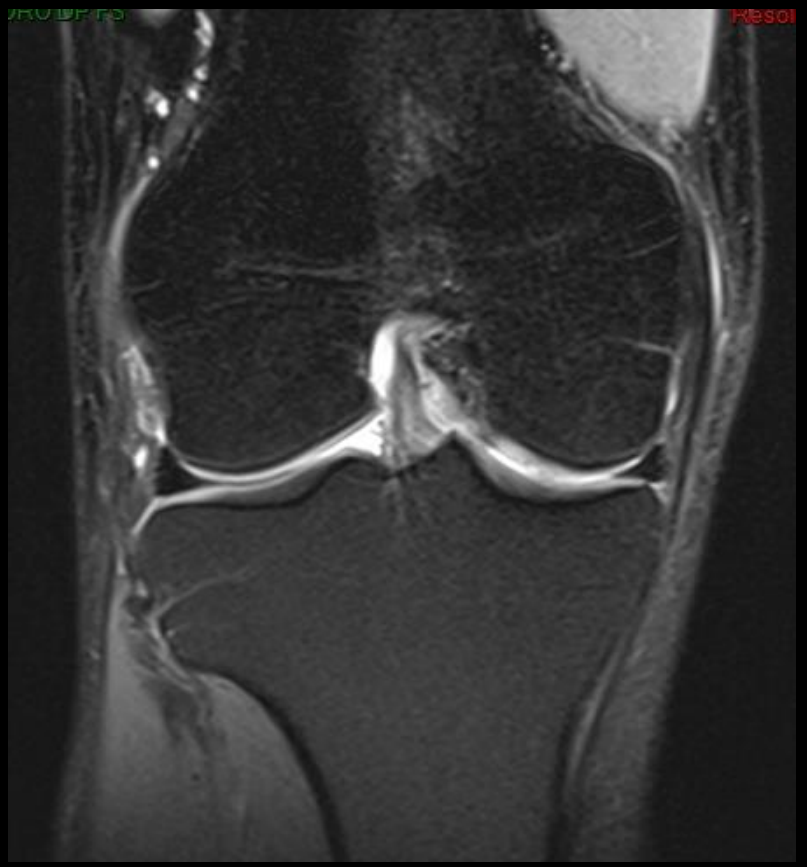
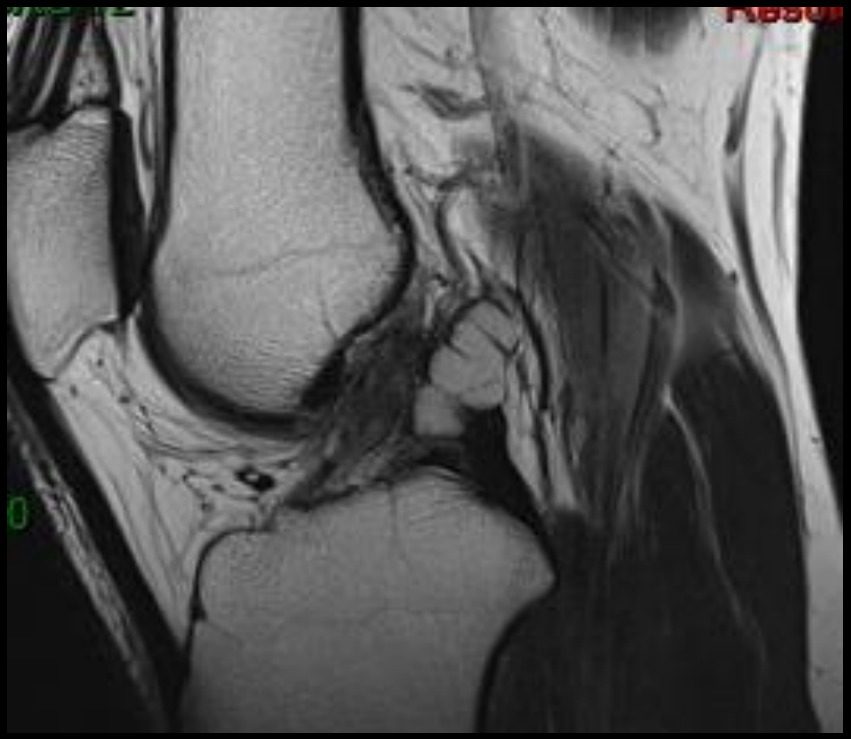
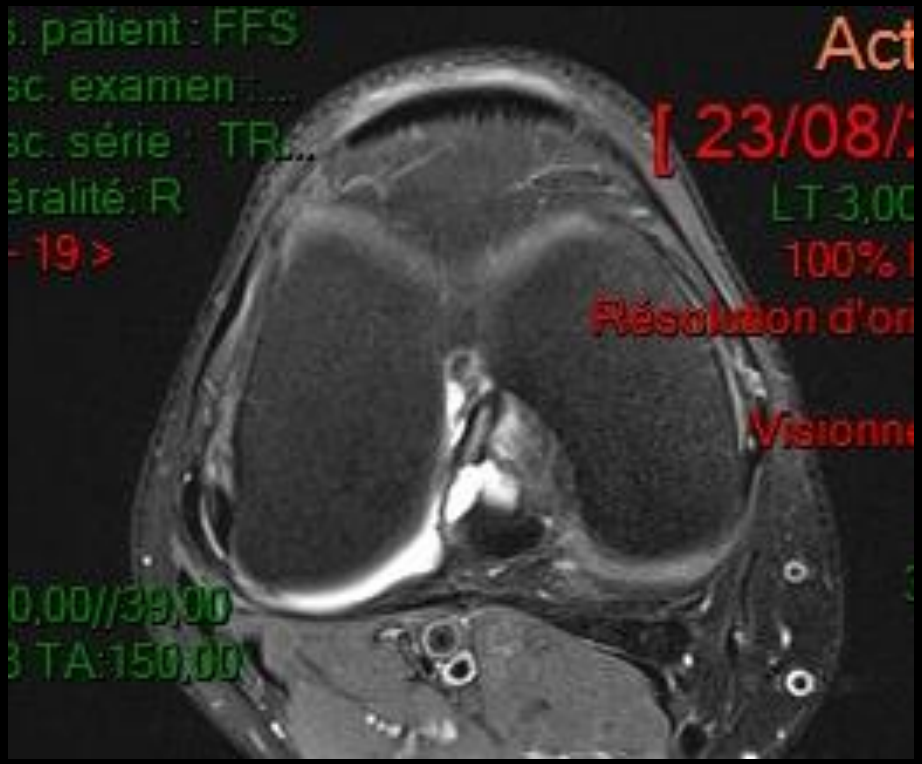
Piège: rupture LCA??



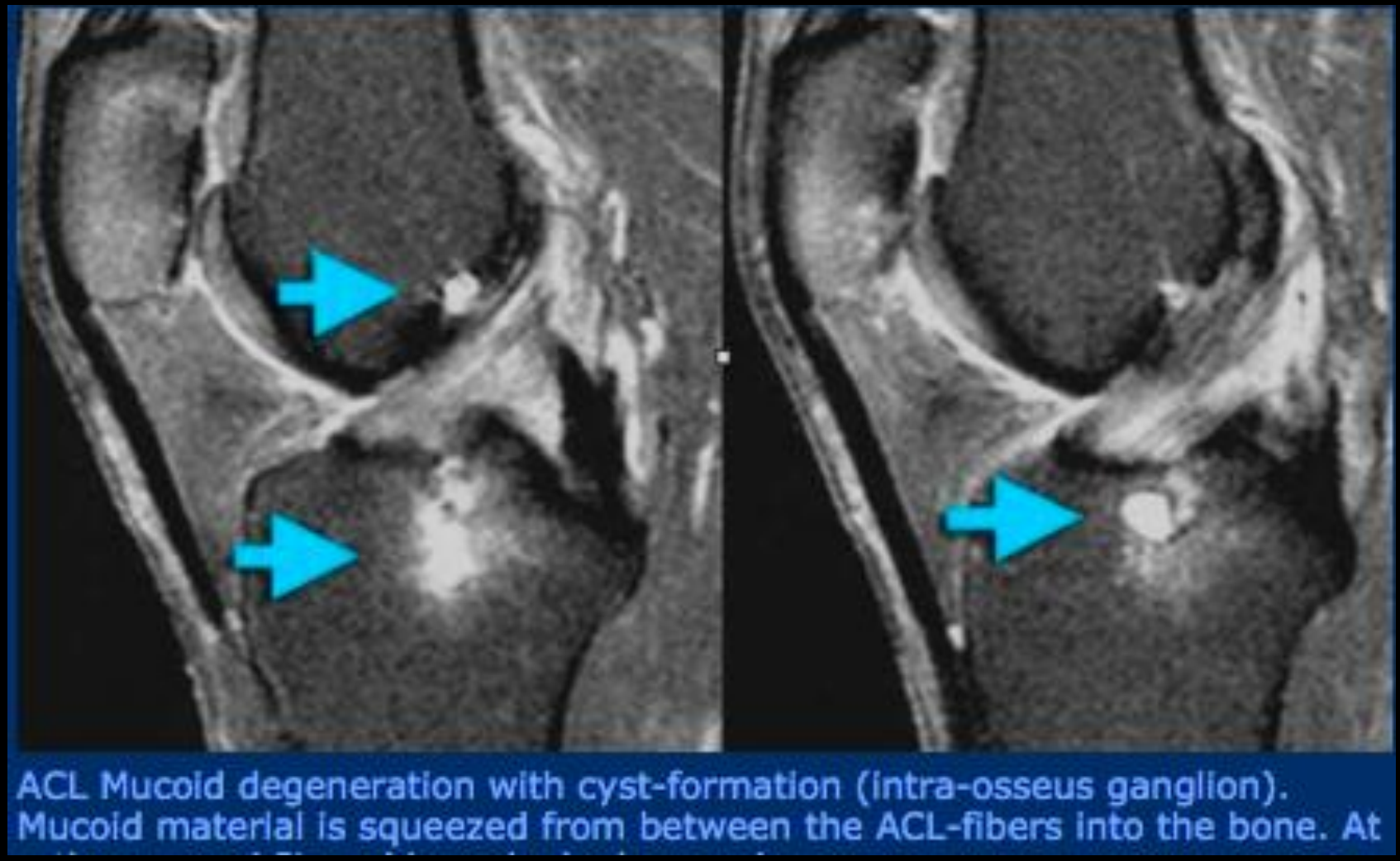


Piège: rupture LCA??



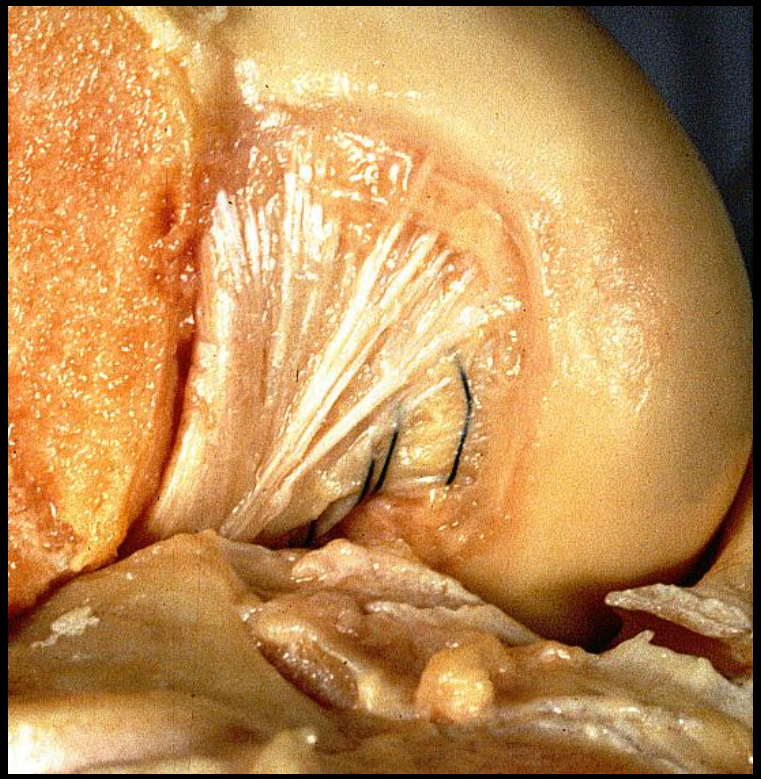


Piège: rupture LCA??

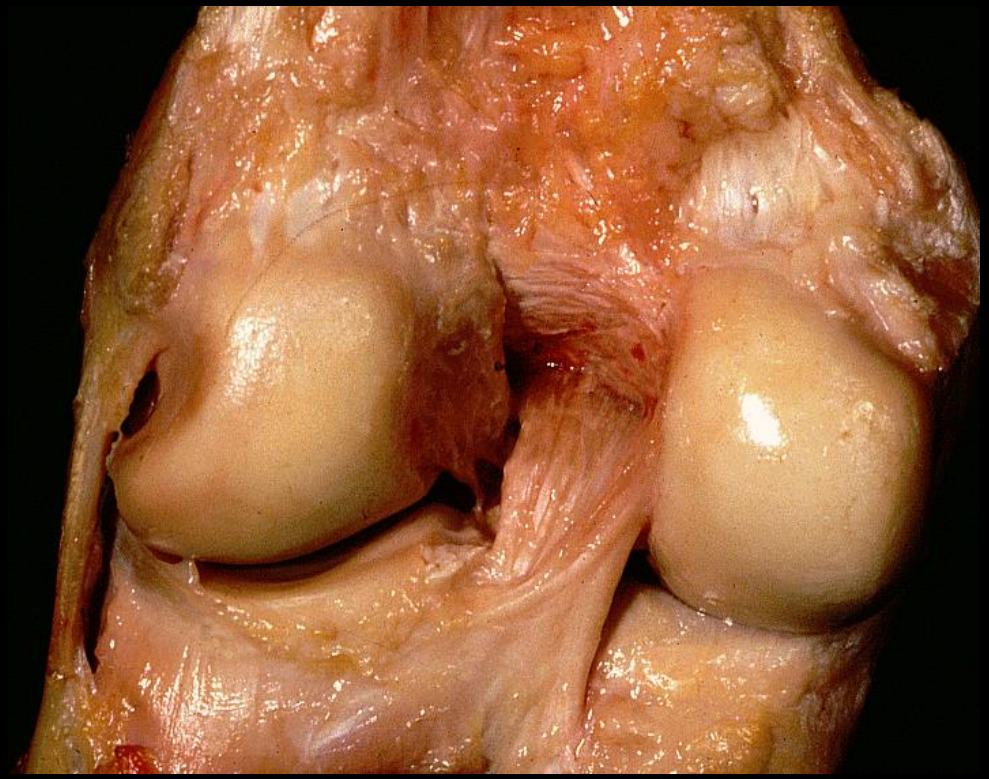


ACL Mucoid degeneration with cyst-formation (intra-osseus ganglion). Mucoid material is squeezed from between the ACL-fibers into the bone. At

Ligament croisé postérieur (LCP)

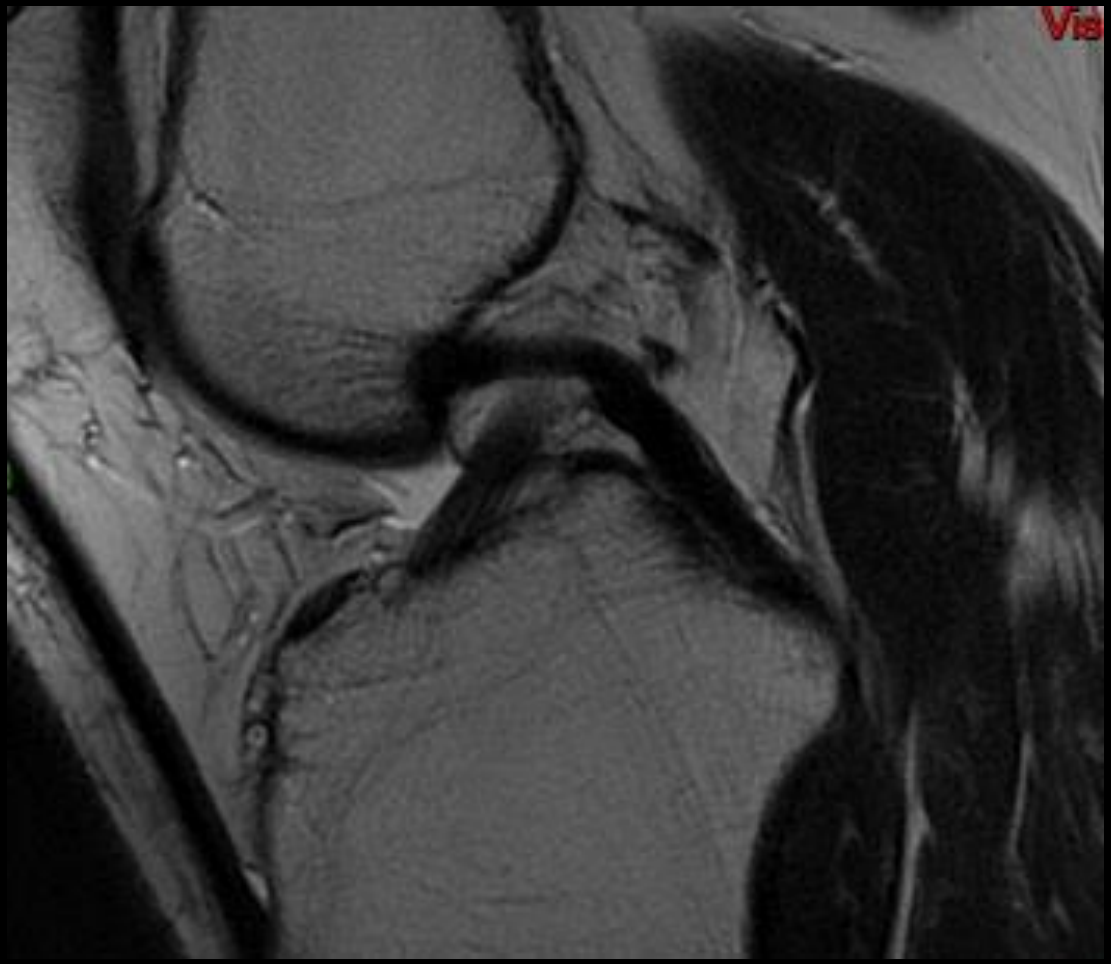


Vue ant.

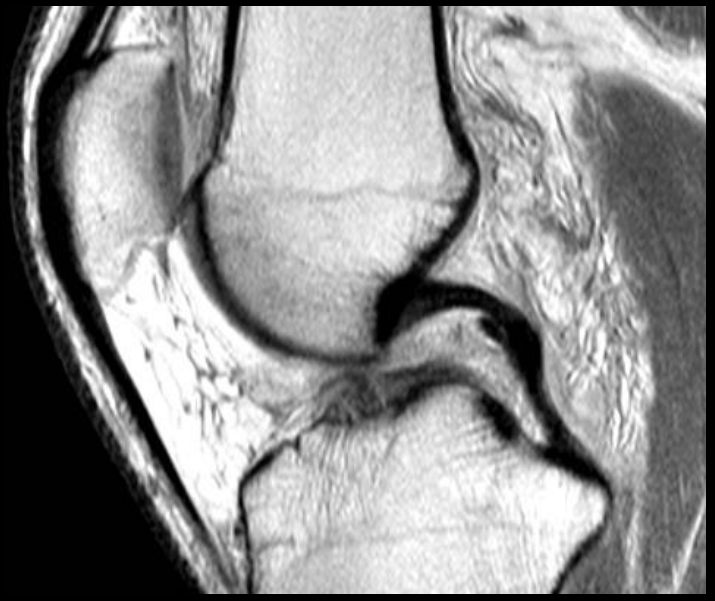


Vue post.

LCP normal

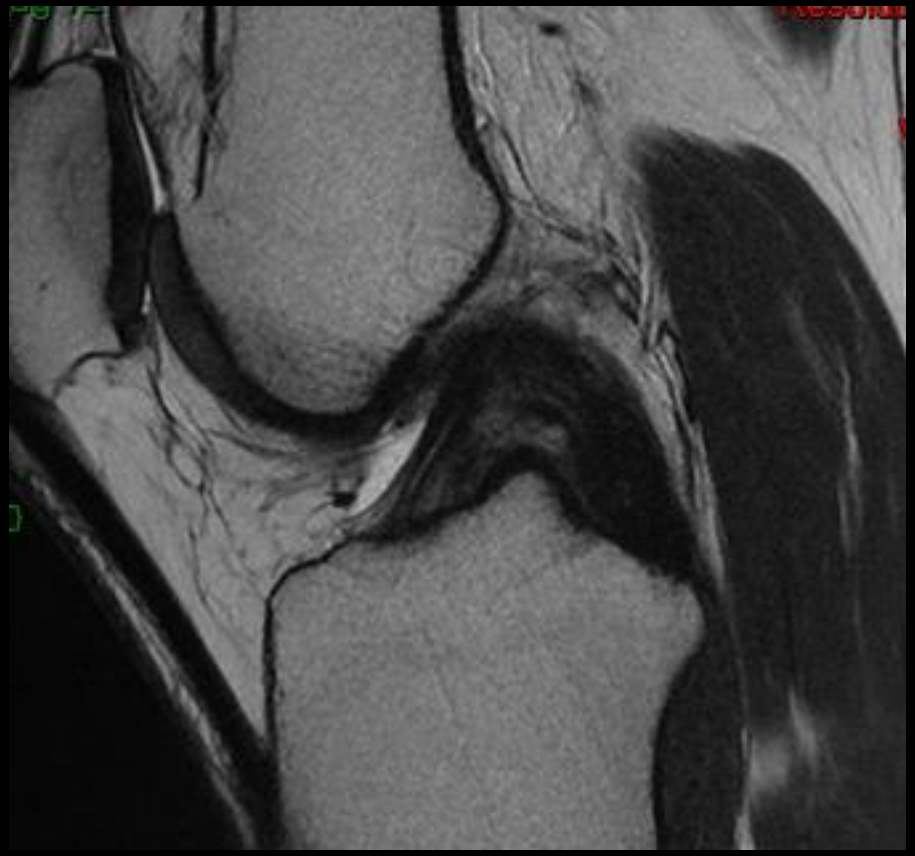


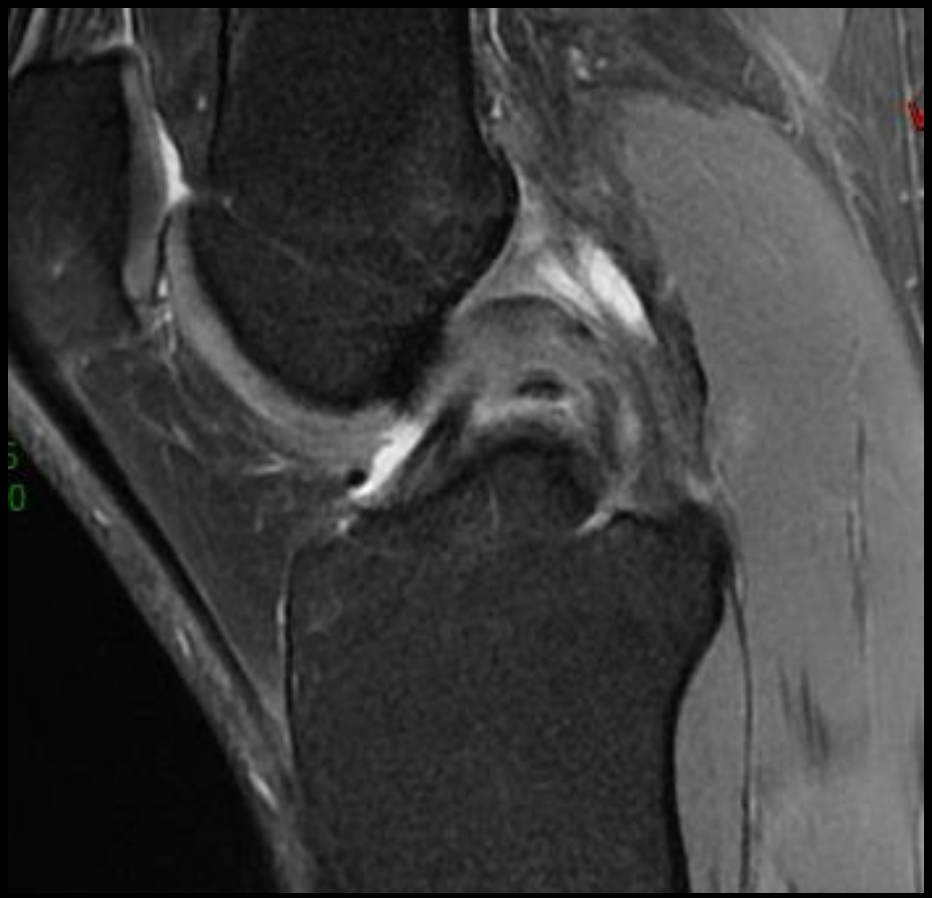
Ligament croisé postérieur (LCP)



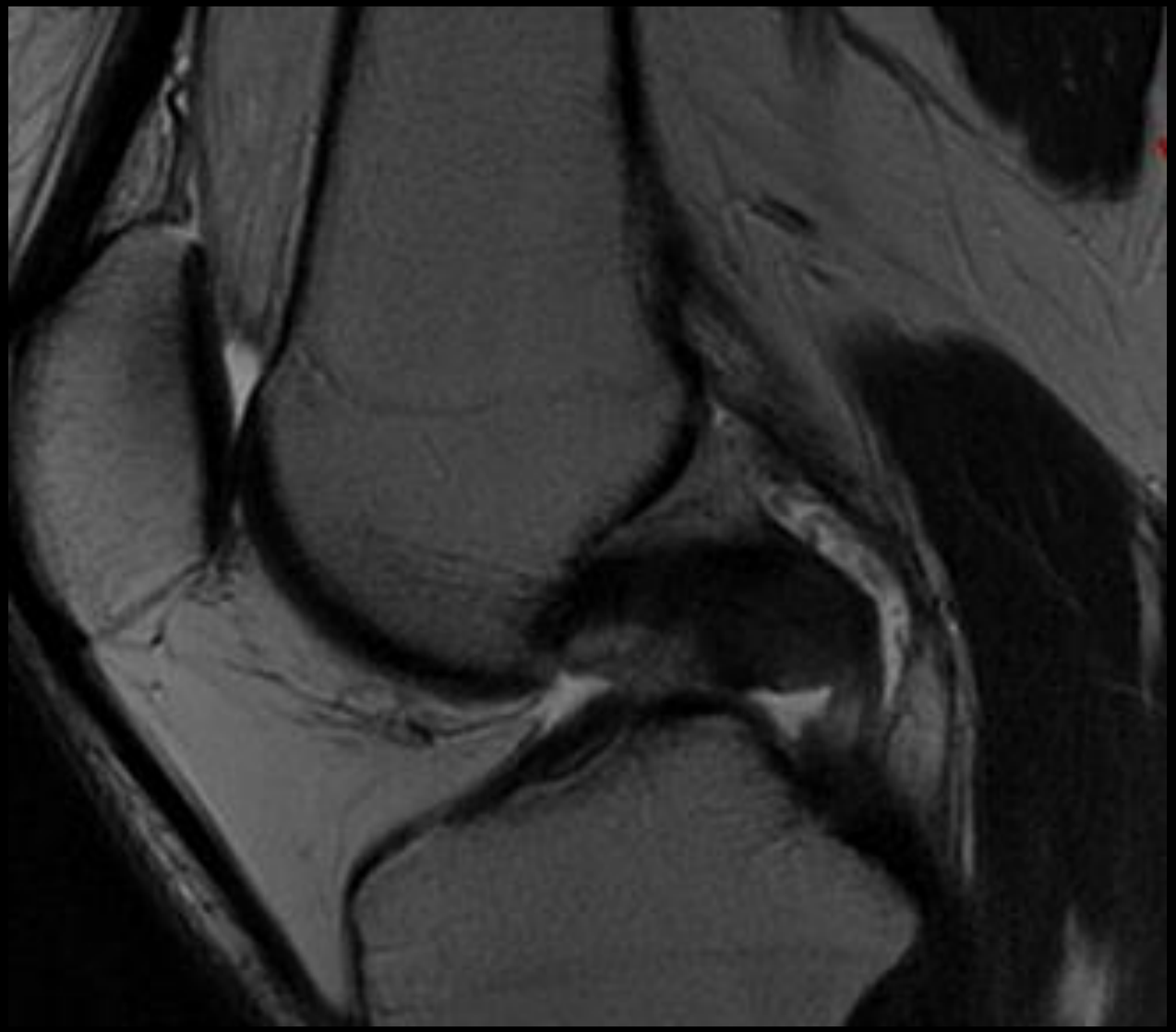
- lésions moins fréquentes
- trauma violent
- retentissement fonctionnel plus limité
- prise en charge chirurgicale plus rare
  - bien toléré si isolée (30%)(adaptation)
  - si lésion ligt associée : arthrose précoce

Rupture LCP

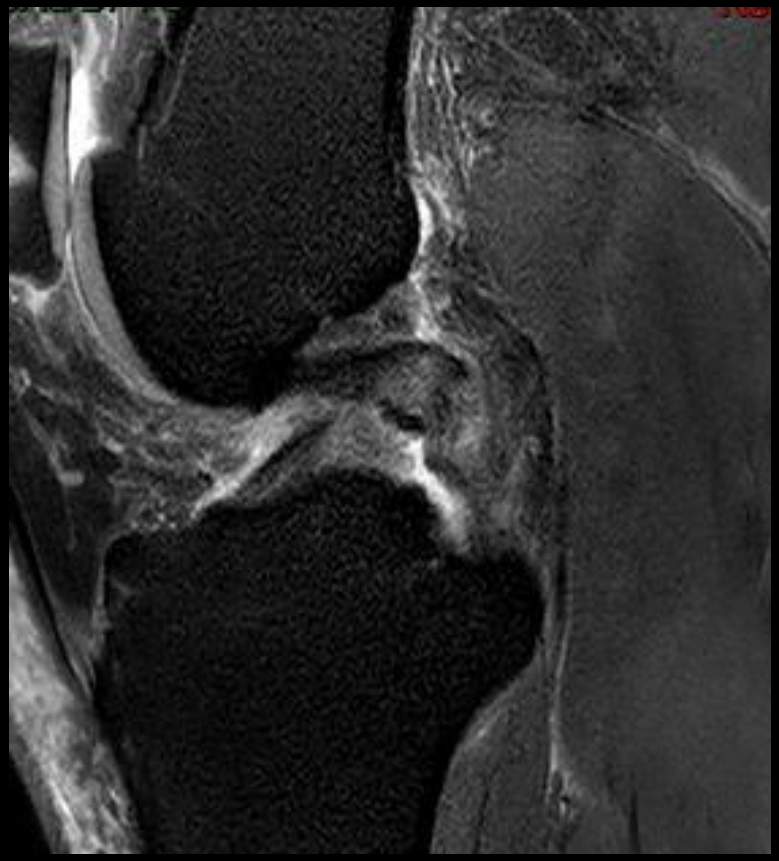


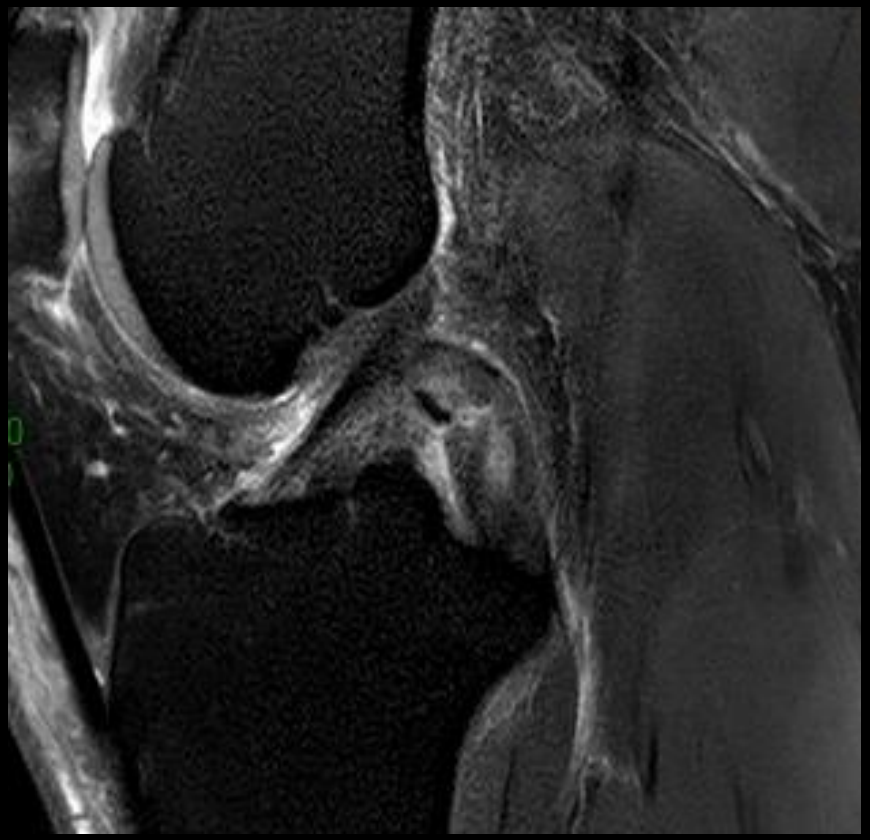


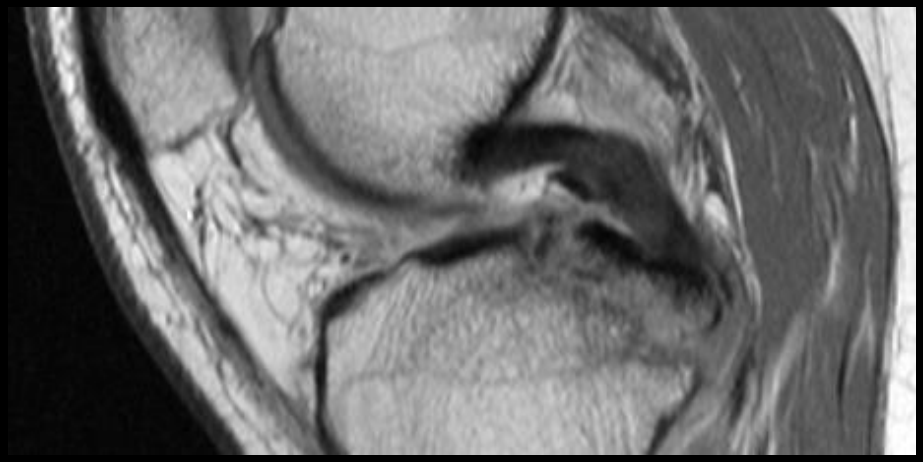
Rupture LCP

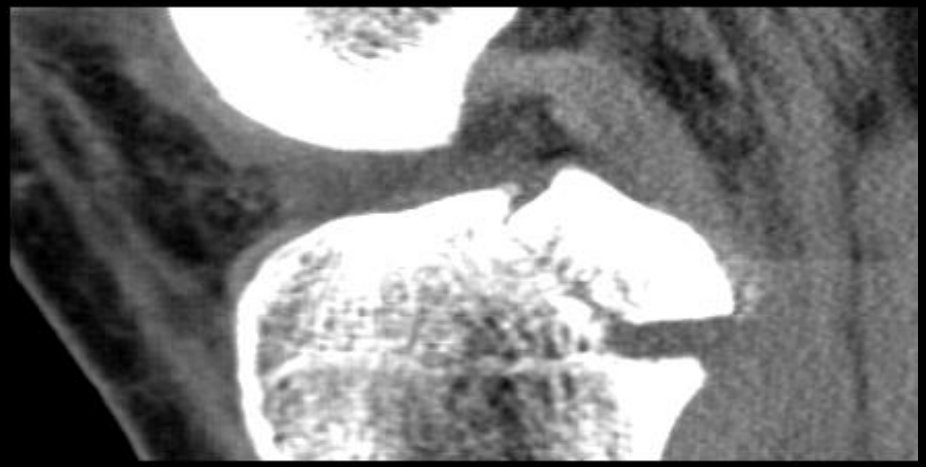


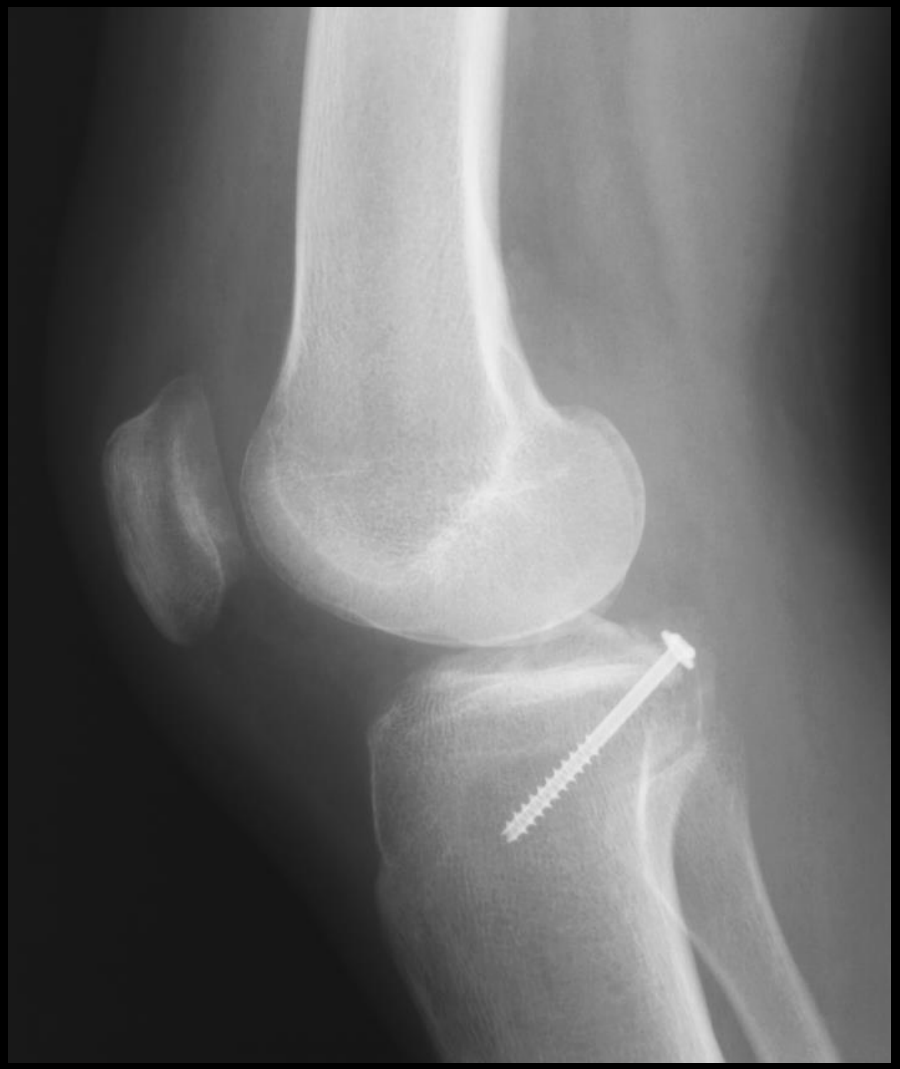
Rupture LCP



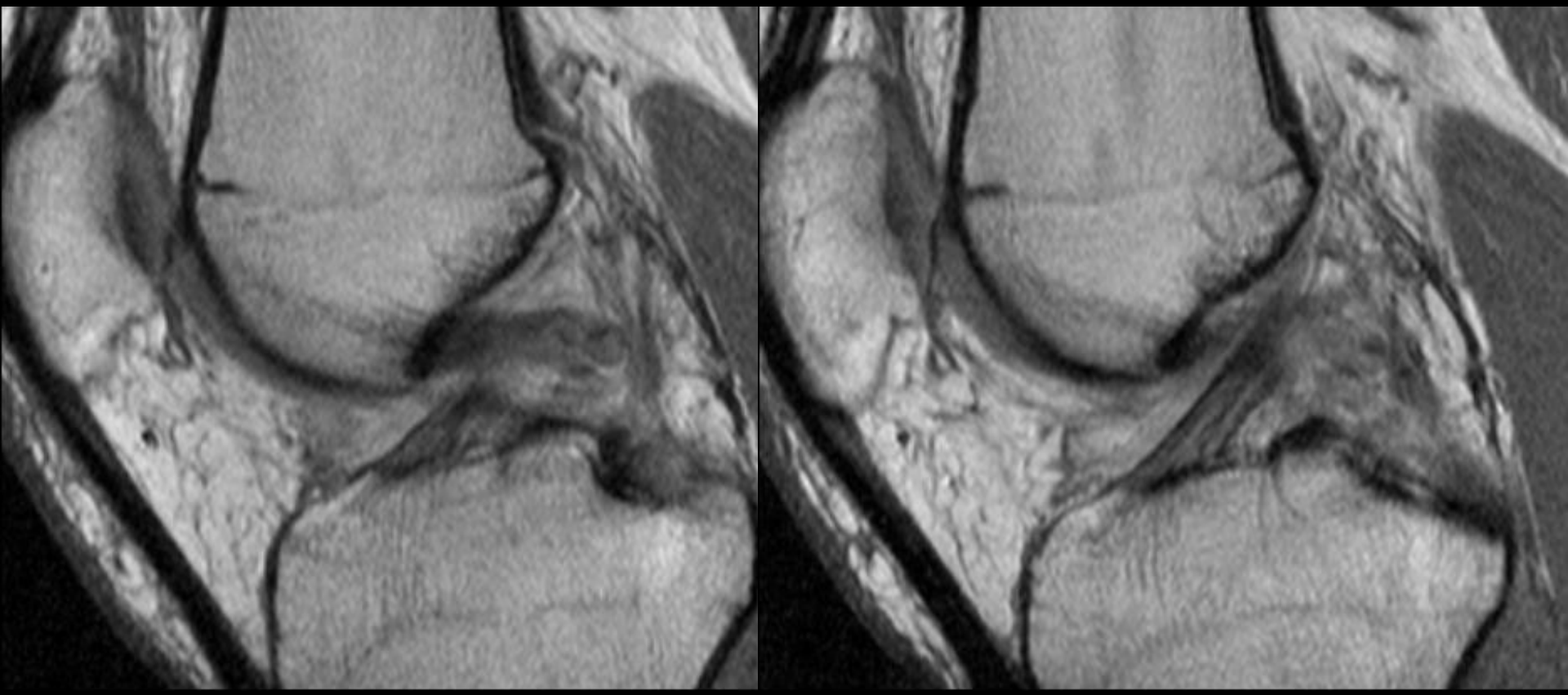






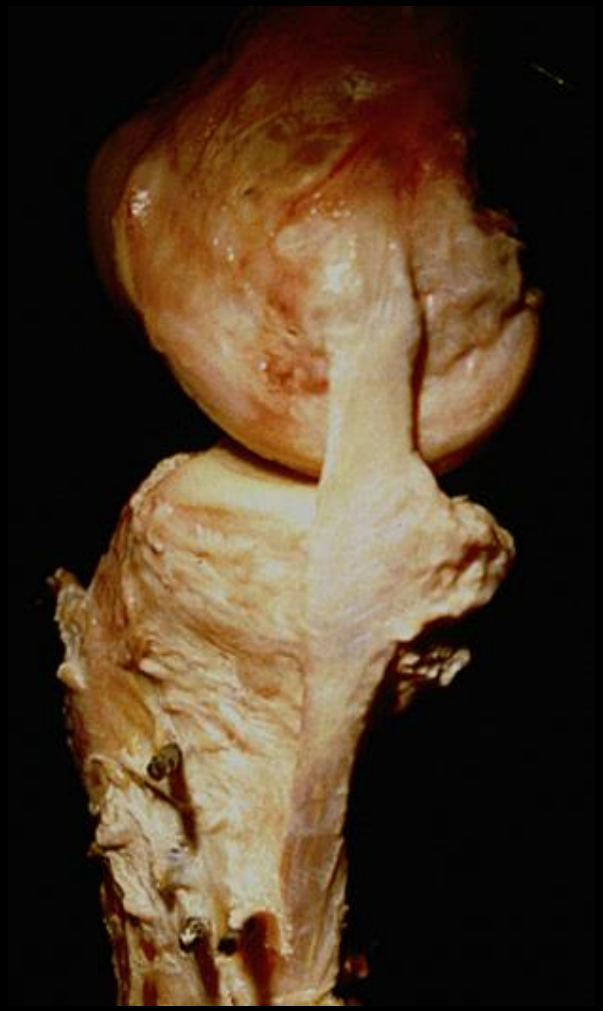


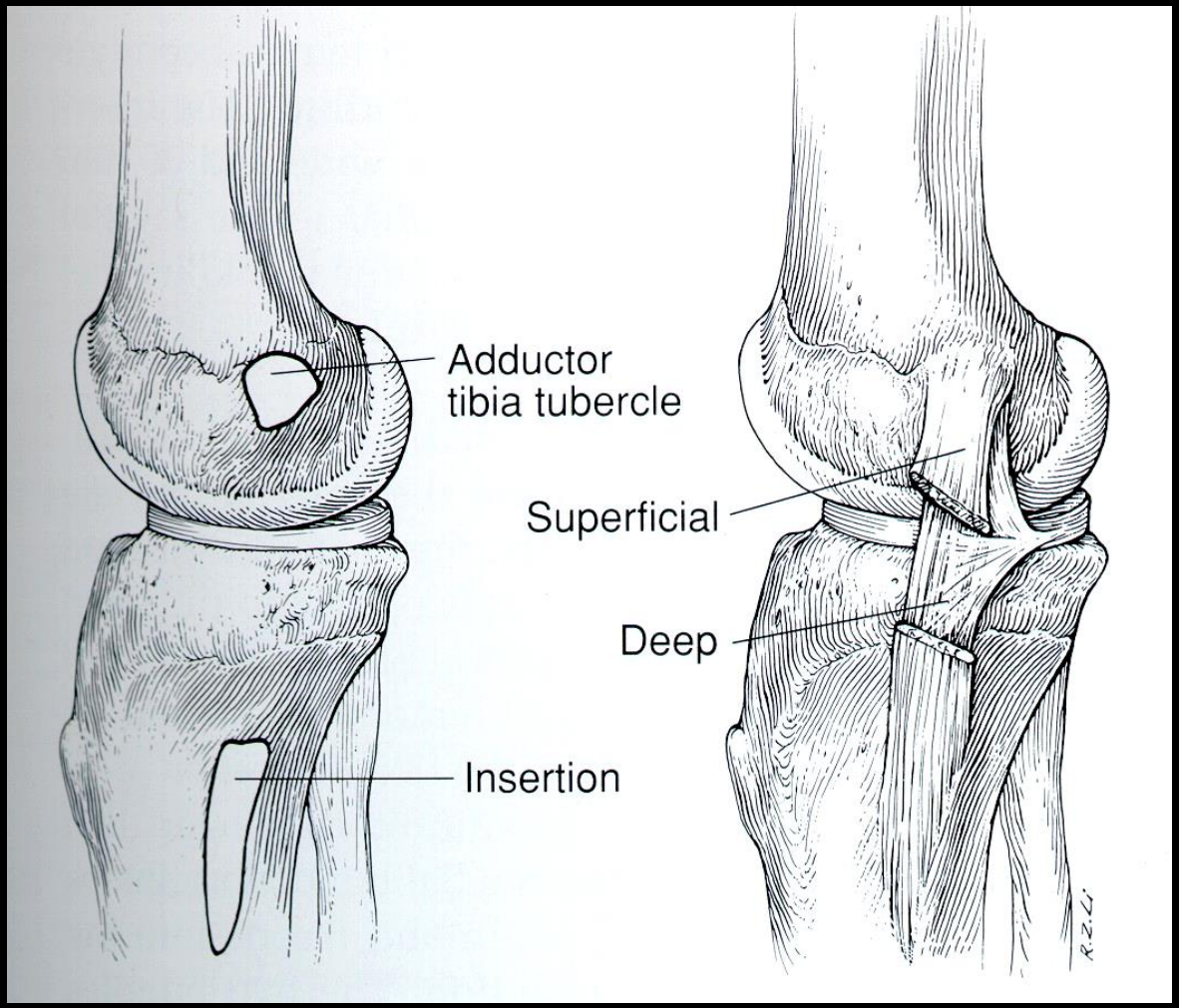
Avulsion insertion osseuse pied LCP (10%)



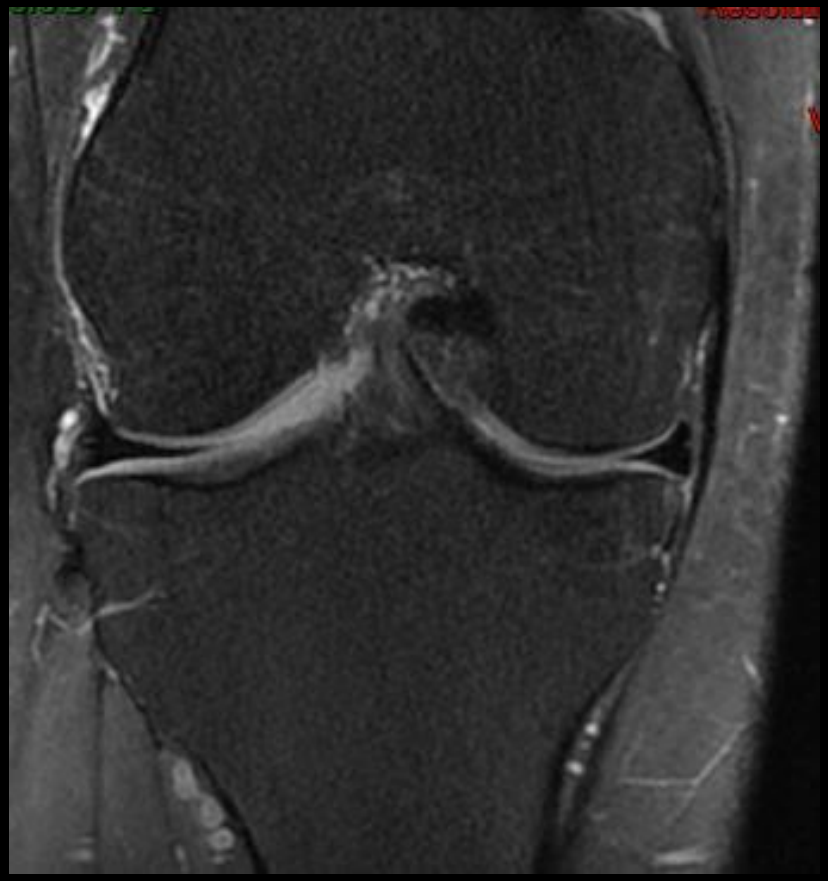
Solution continuité complète (rare)

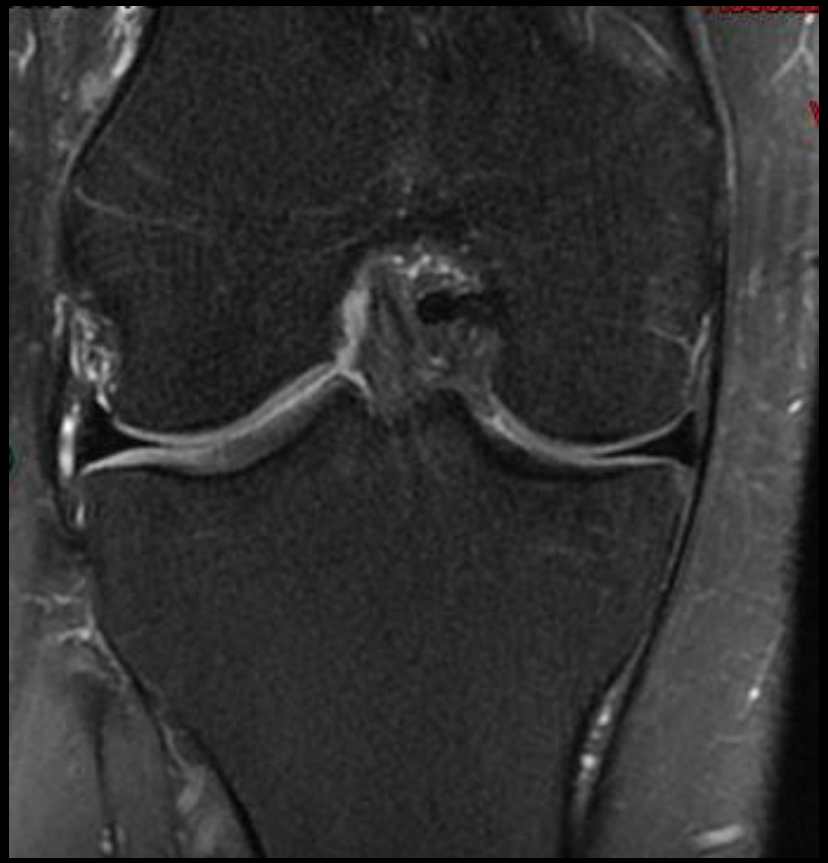
Ligament collateral medial (LCM)

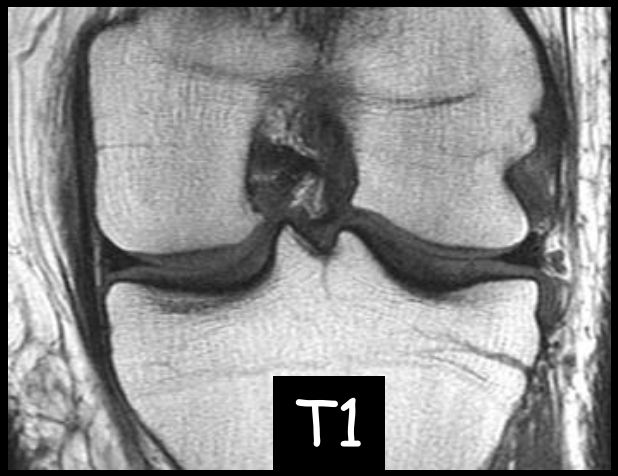


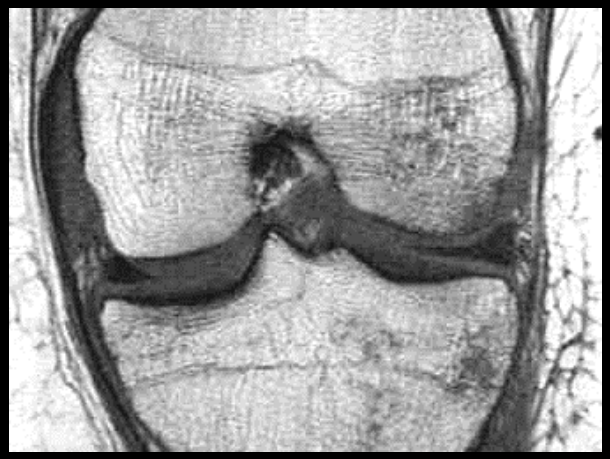


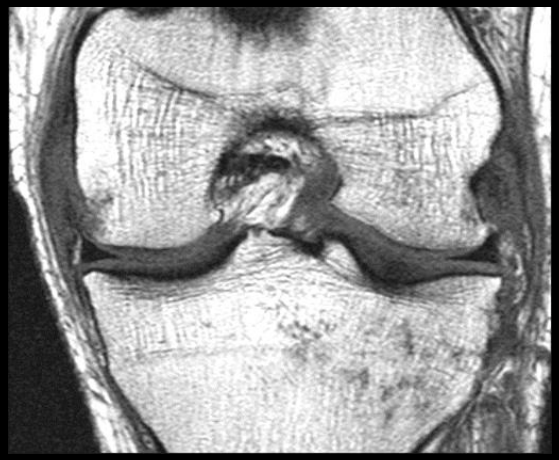
LCM normal

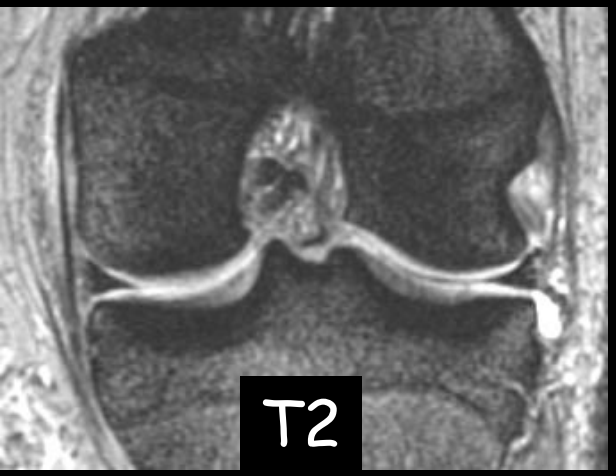


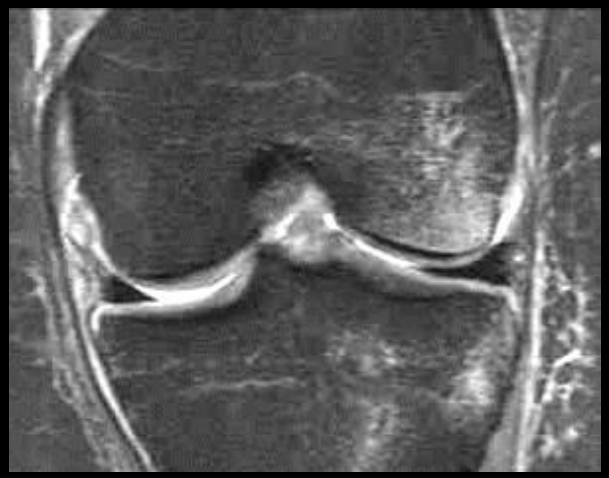


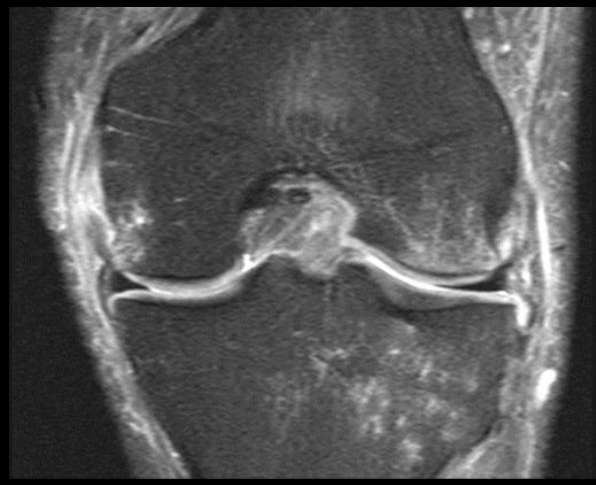










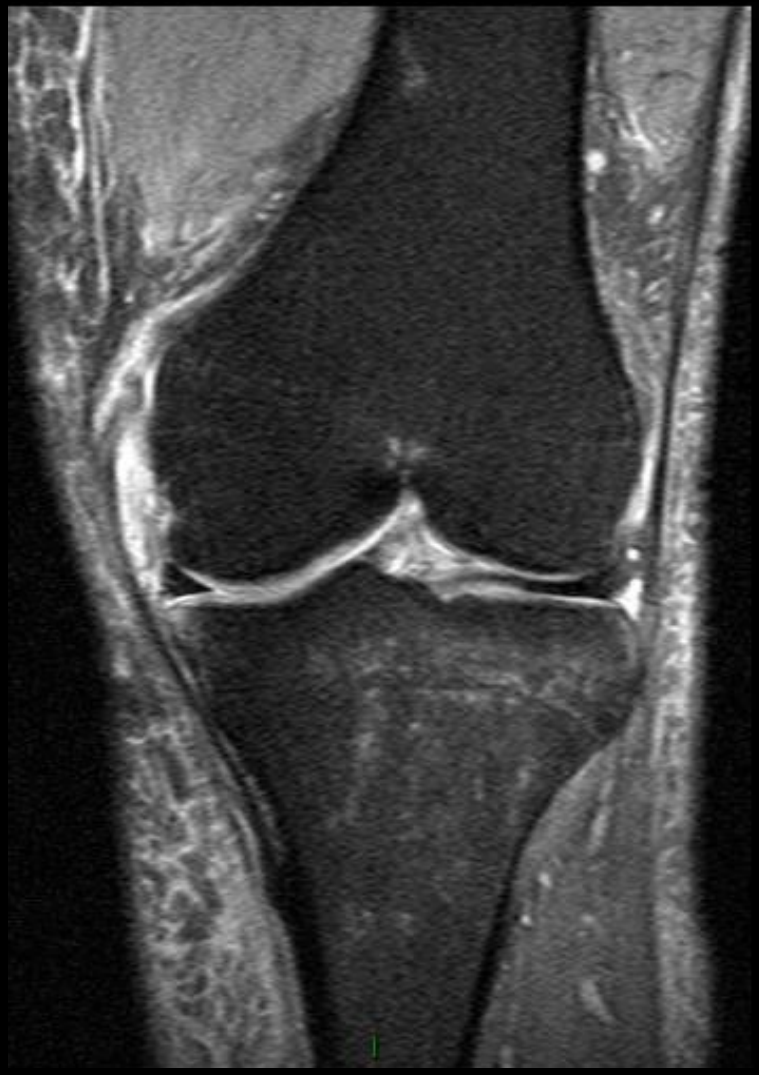


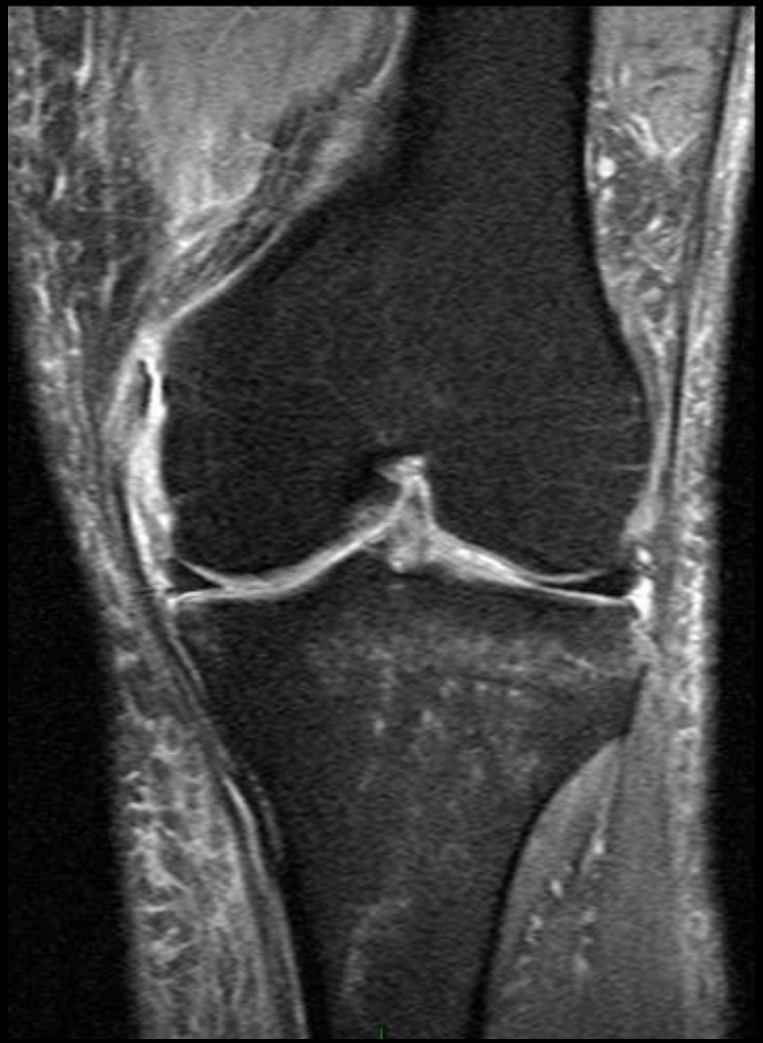
grade 1

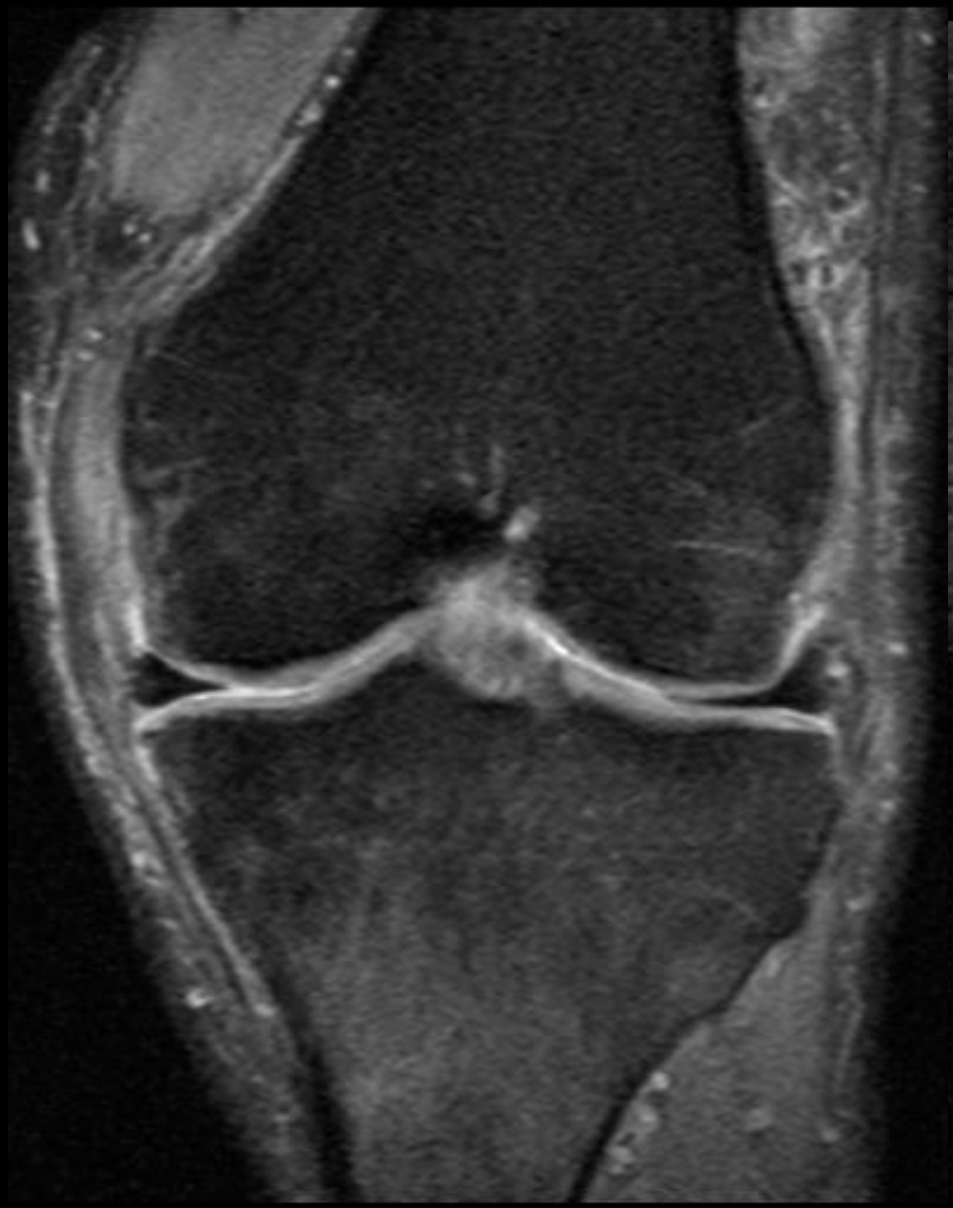
grade 2

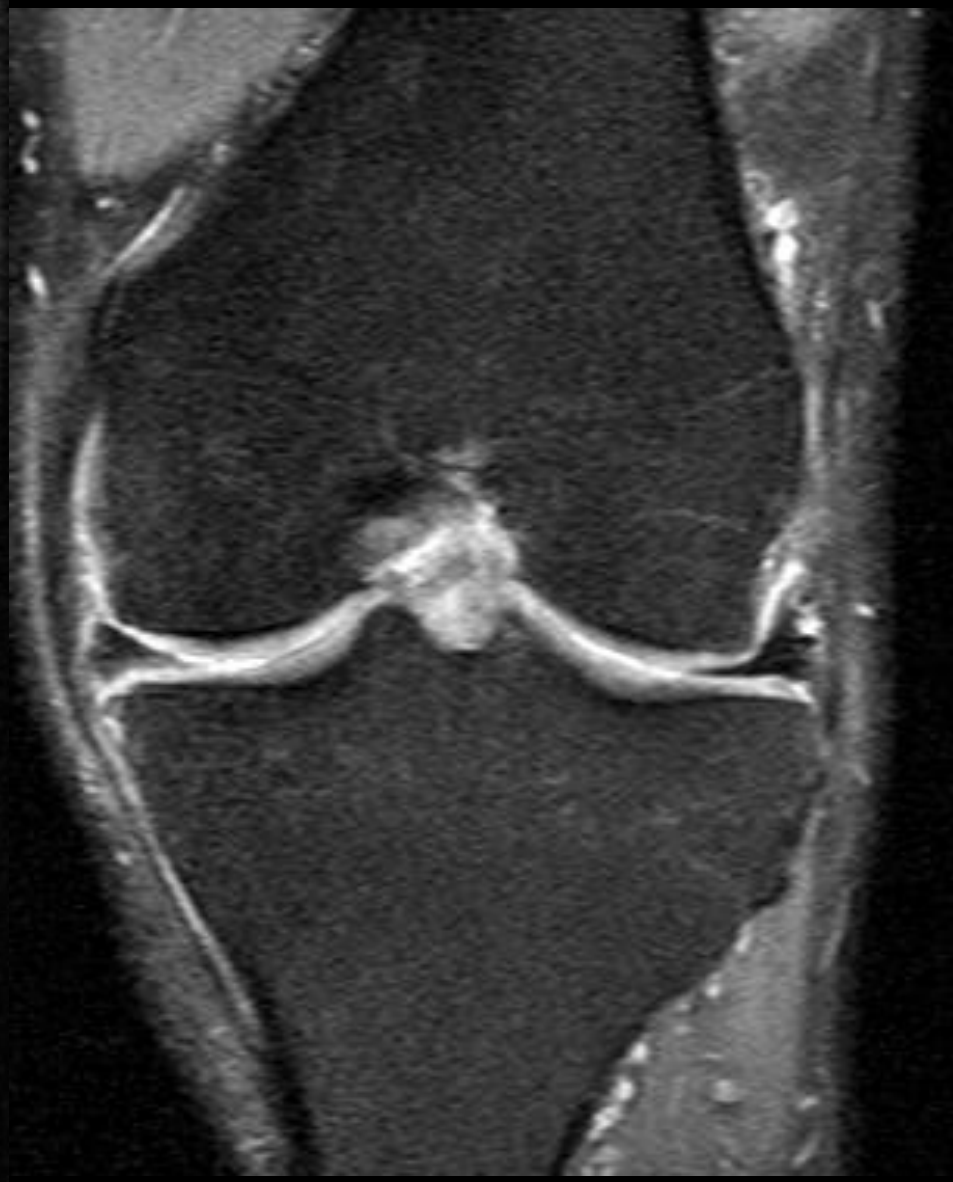
grade 3

Rupture LCM



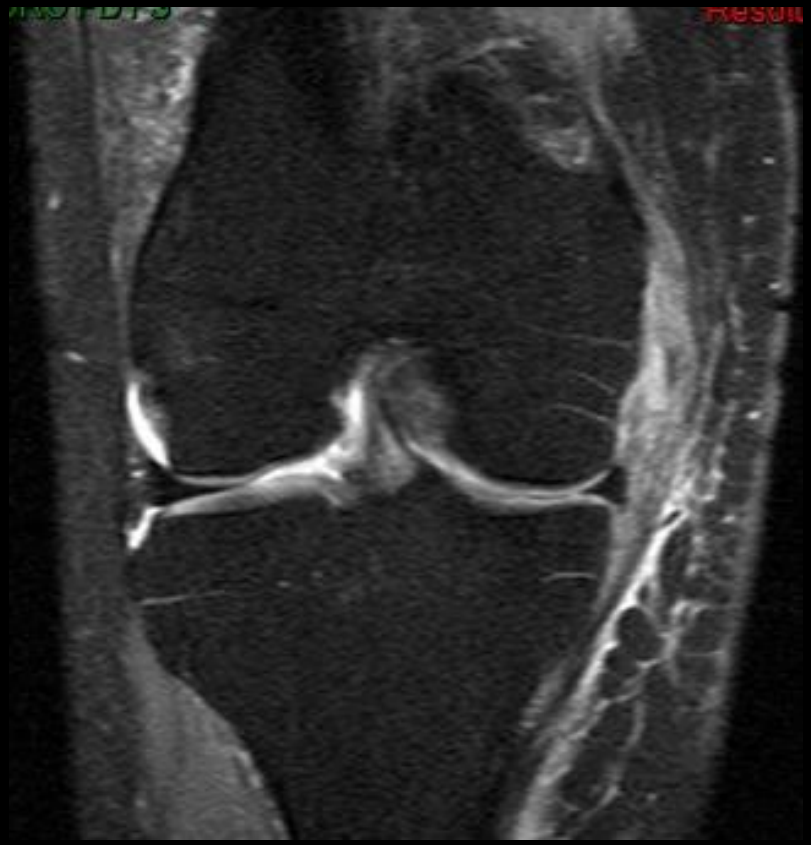


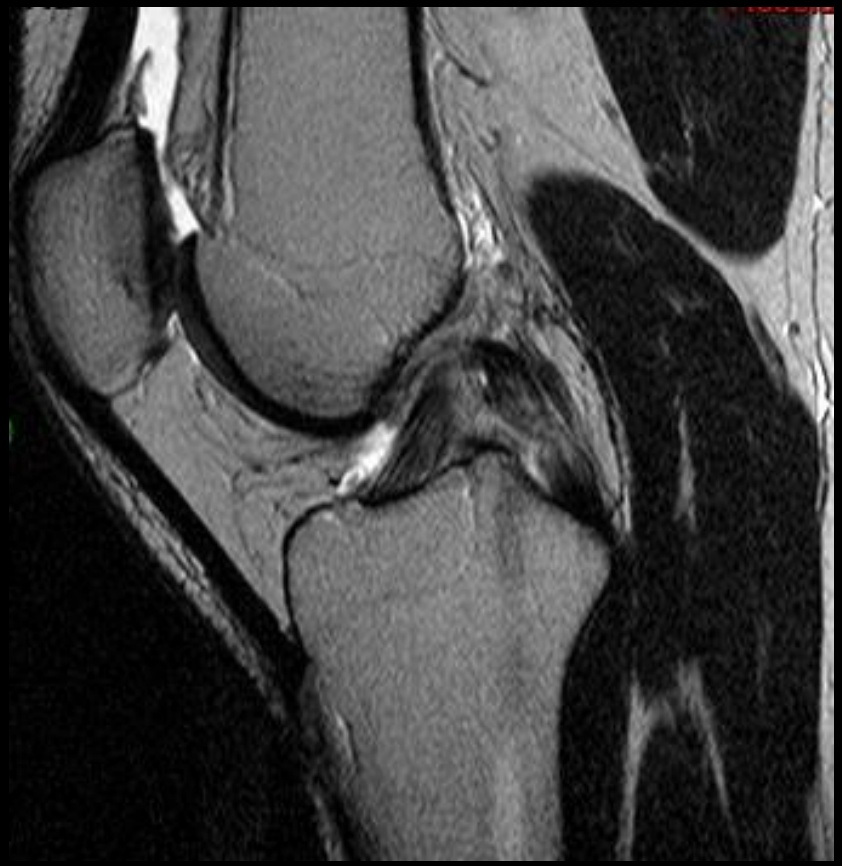




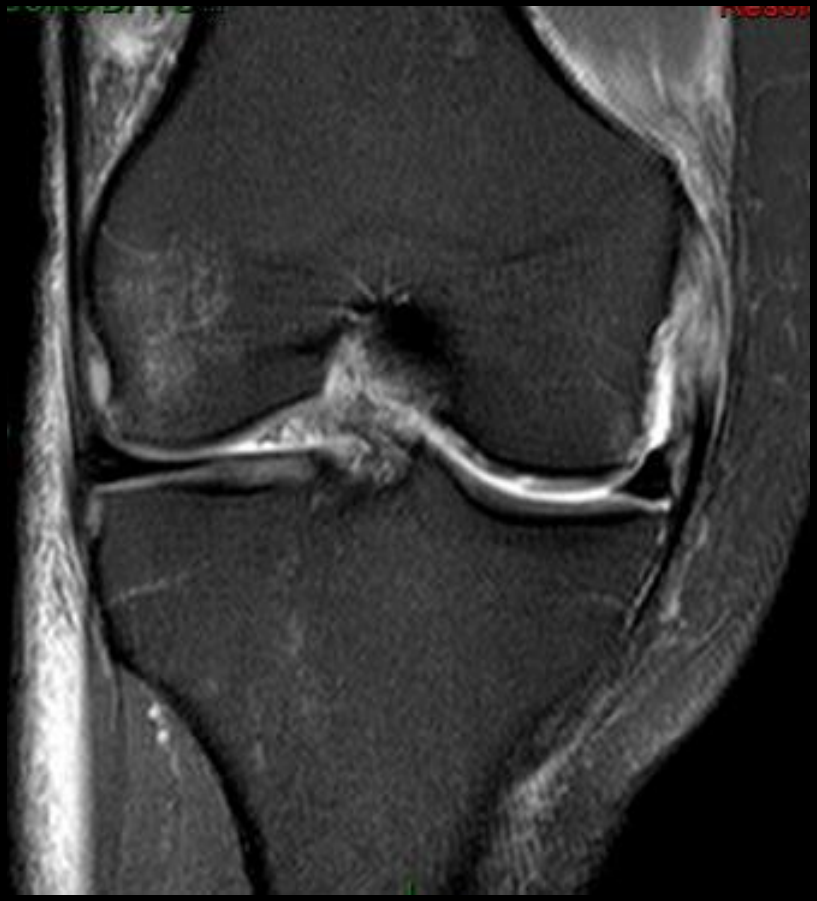
+ 6 mois

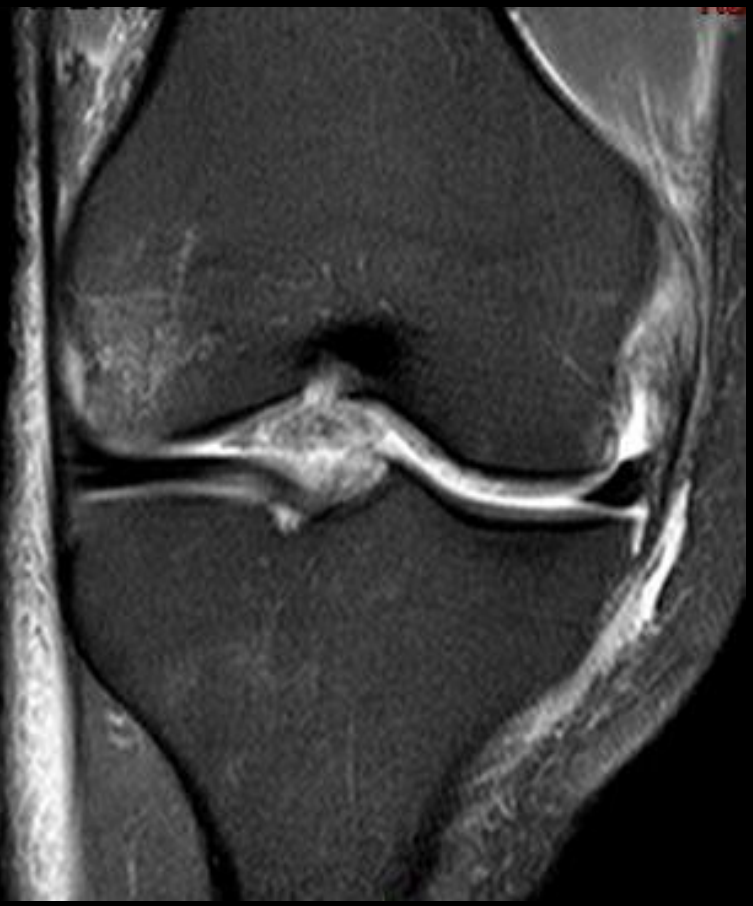
Cas clinique 1

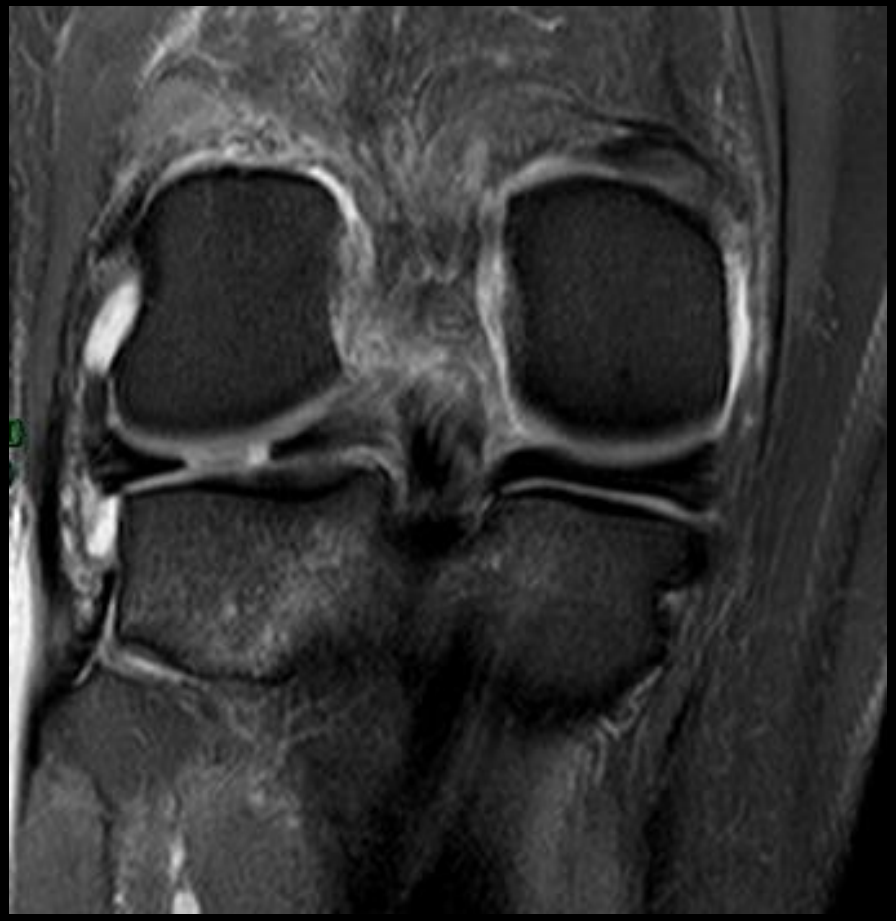


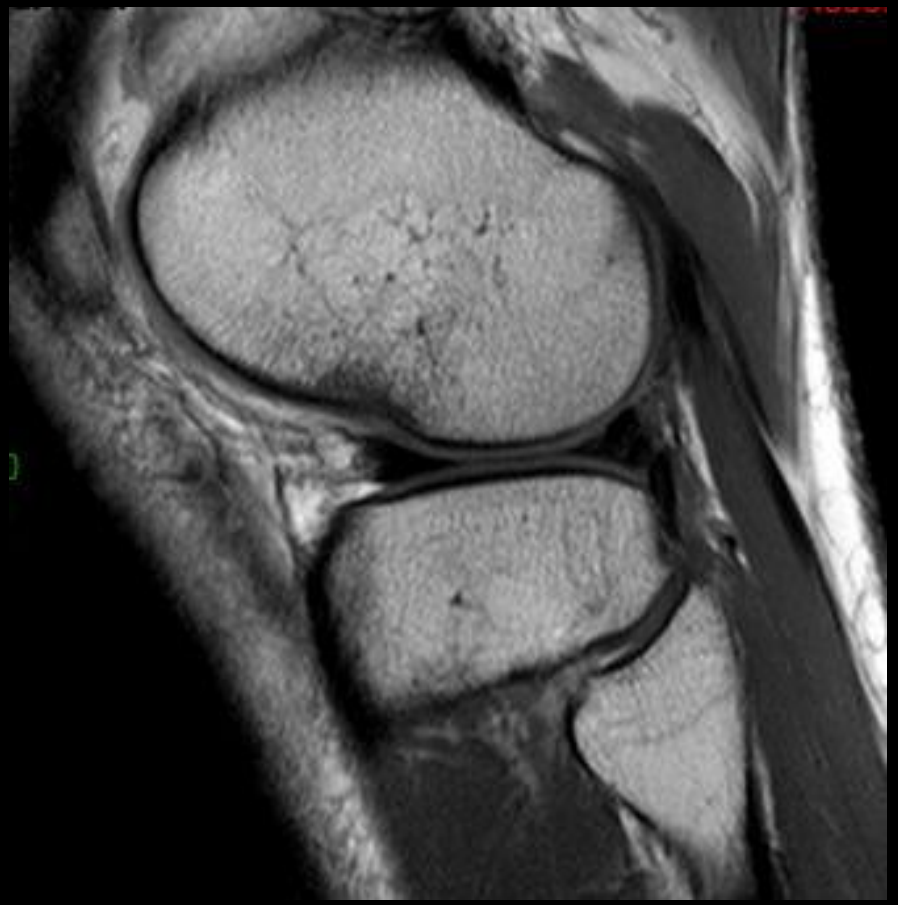


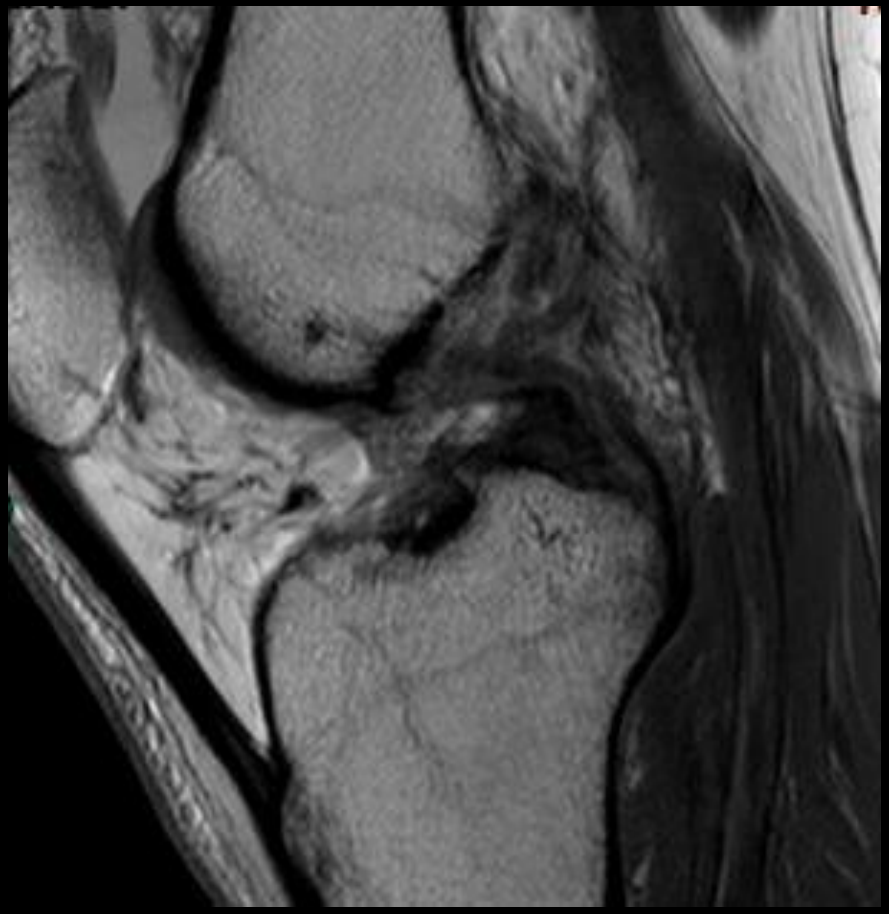
Cas clinique 2

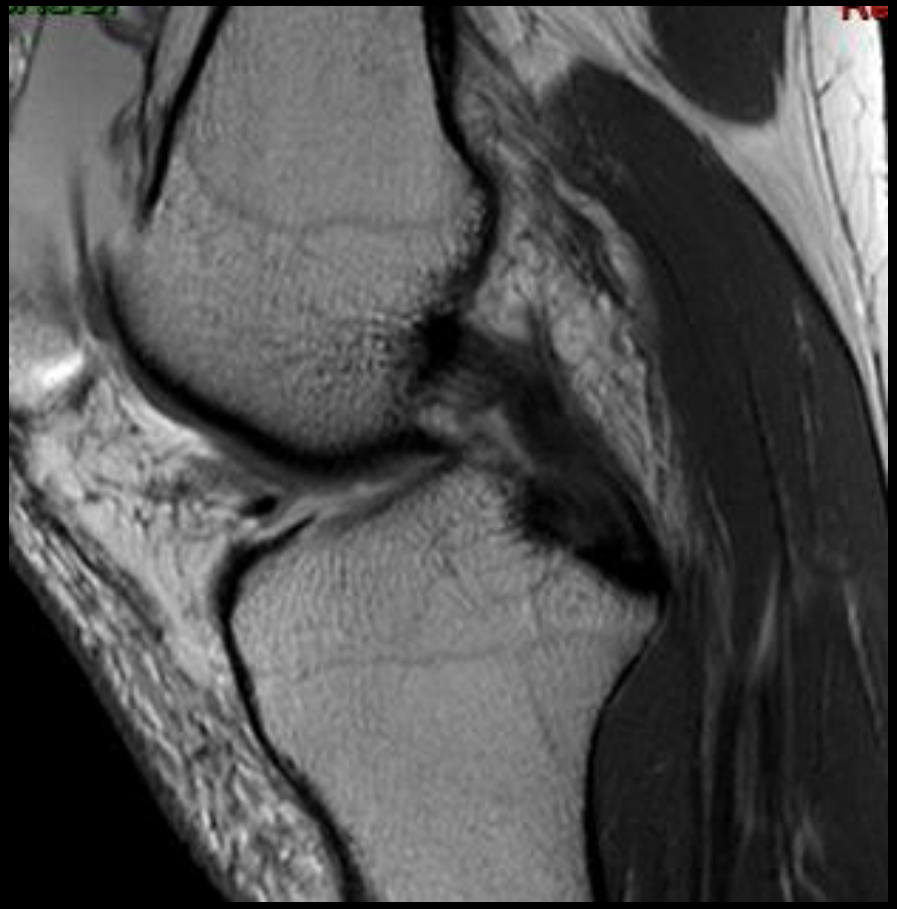




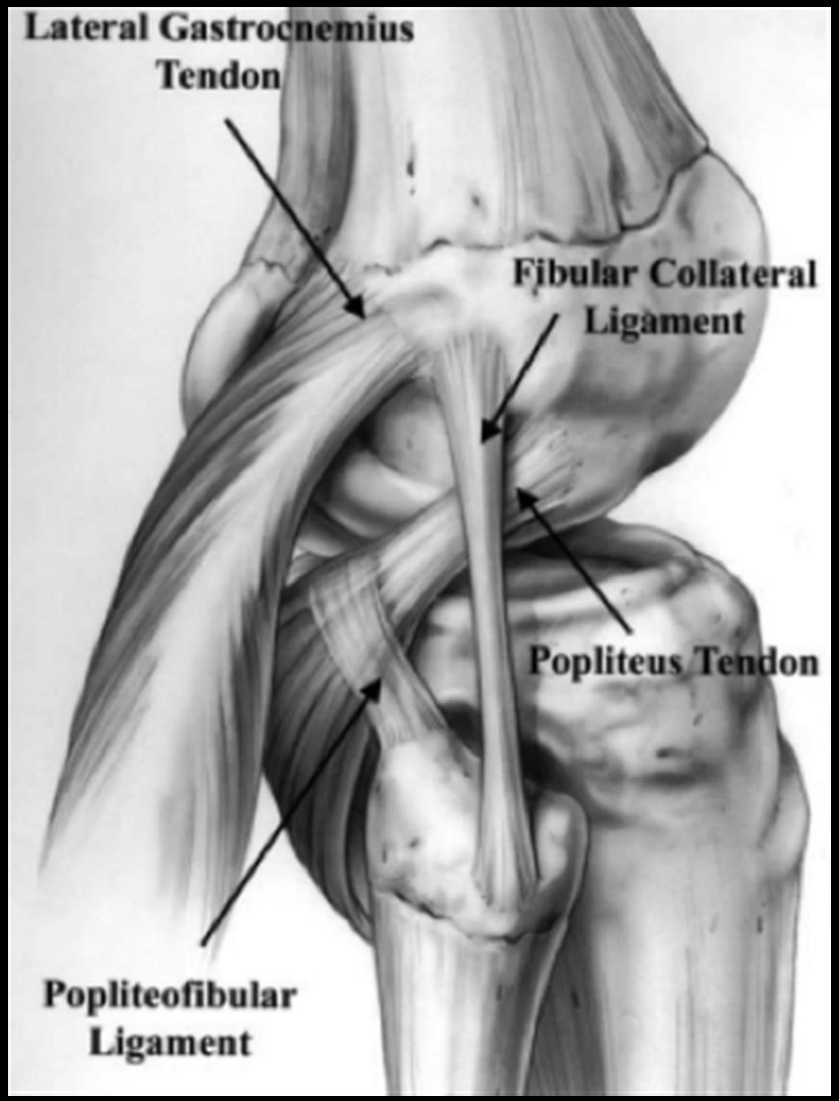








Ligament collatéral latéral (LCL)



Posterolateral Corner injury

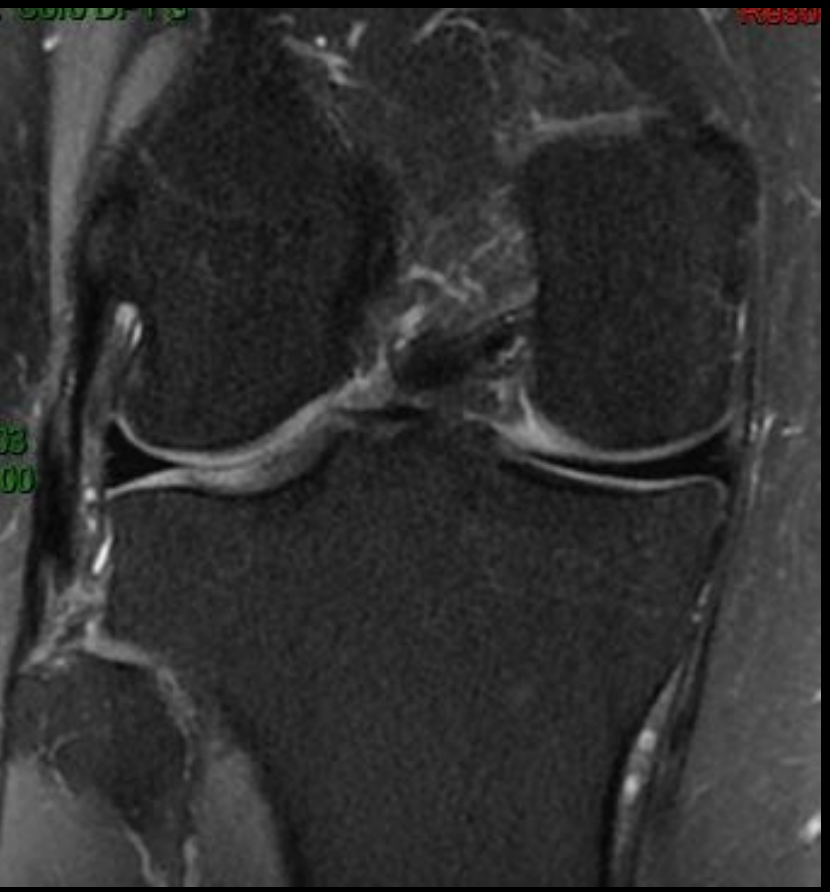
Normal anatomy

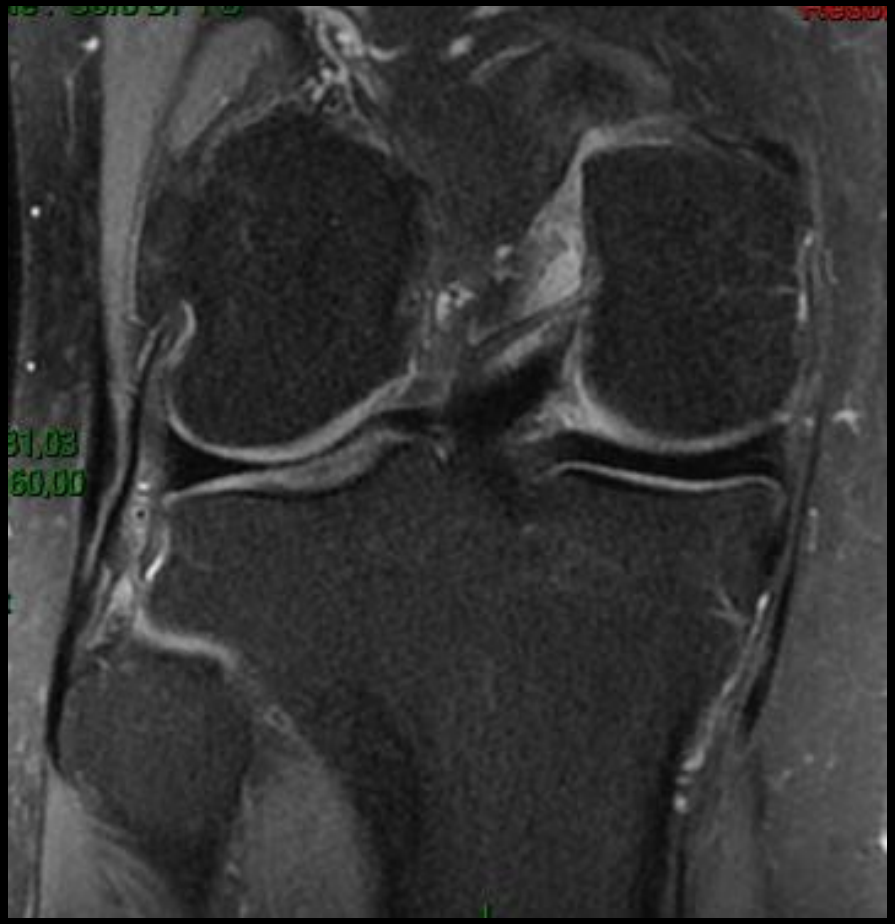
Posterolateral corner contains seven or eight structures.
Only three of them are important to us because they are visible on MR and because the surgeon might want to fix them.
These structures are:

1. Fibular collateral ligament
2. Biceps femoris muscle and tendon.
3. Popliteal tendon

The fibular collateral ligament together with the tendon of the biceps femoris form the letter V on sagittal images.
They inserts on the fibulahead as the conjoined tendon.

LCL normal

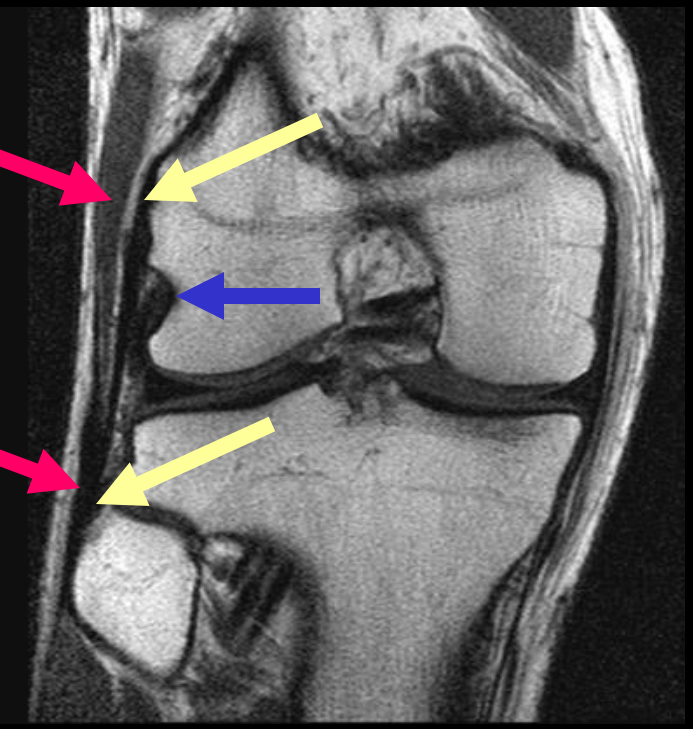


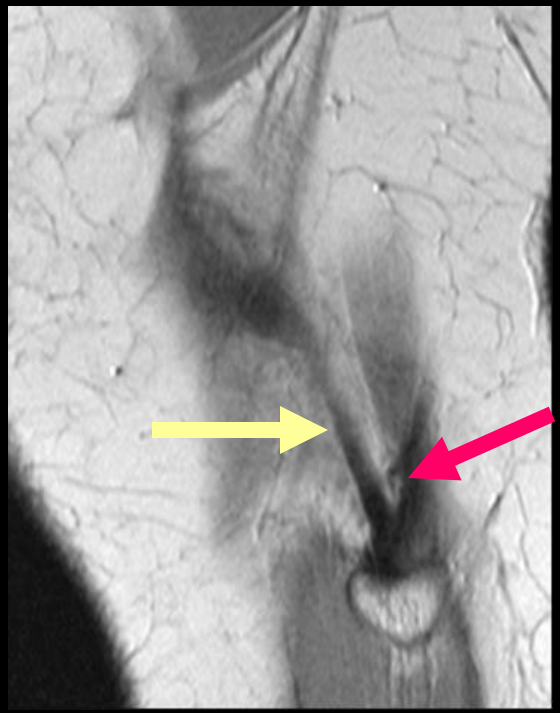


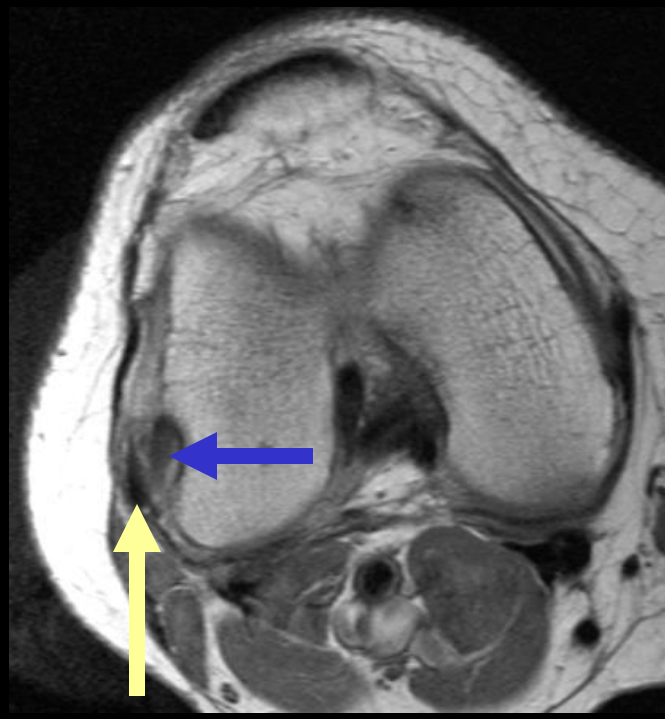
LCL : anatomie

Bic.

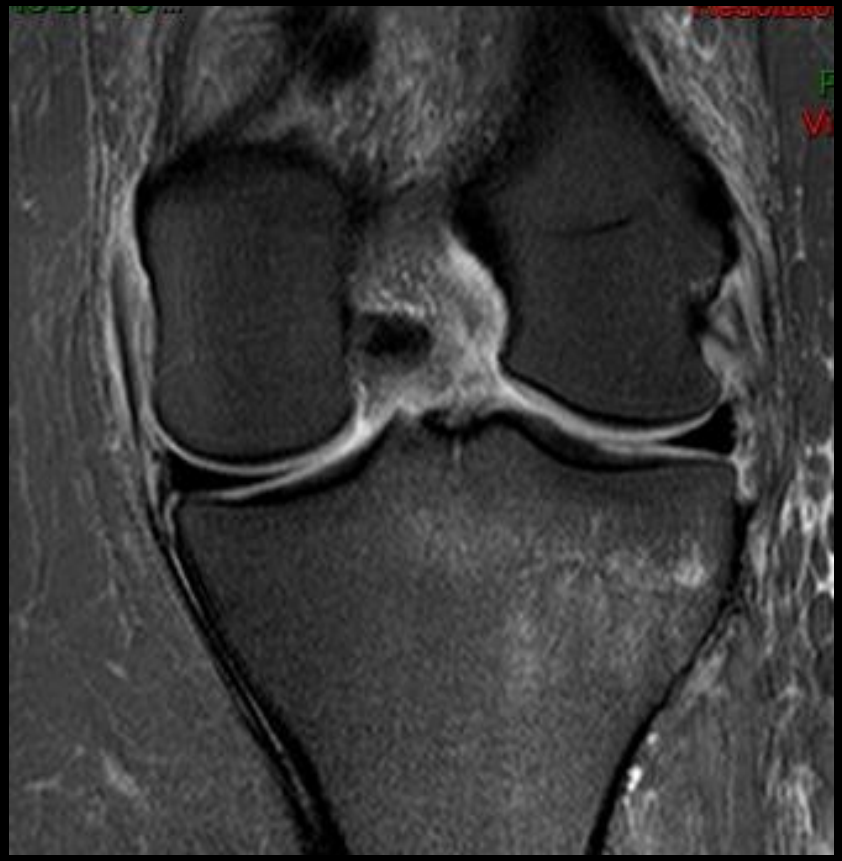
Pop.

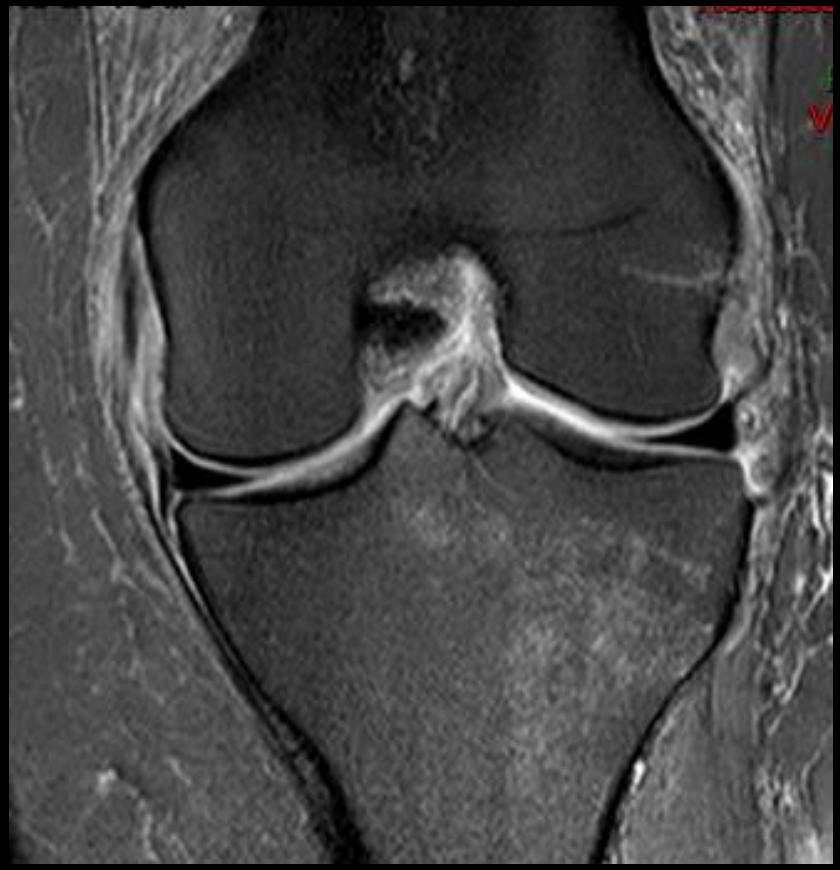


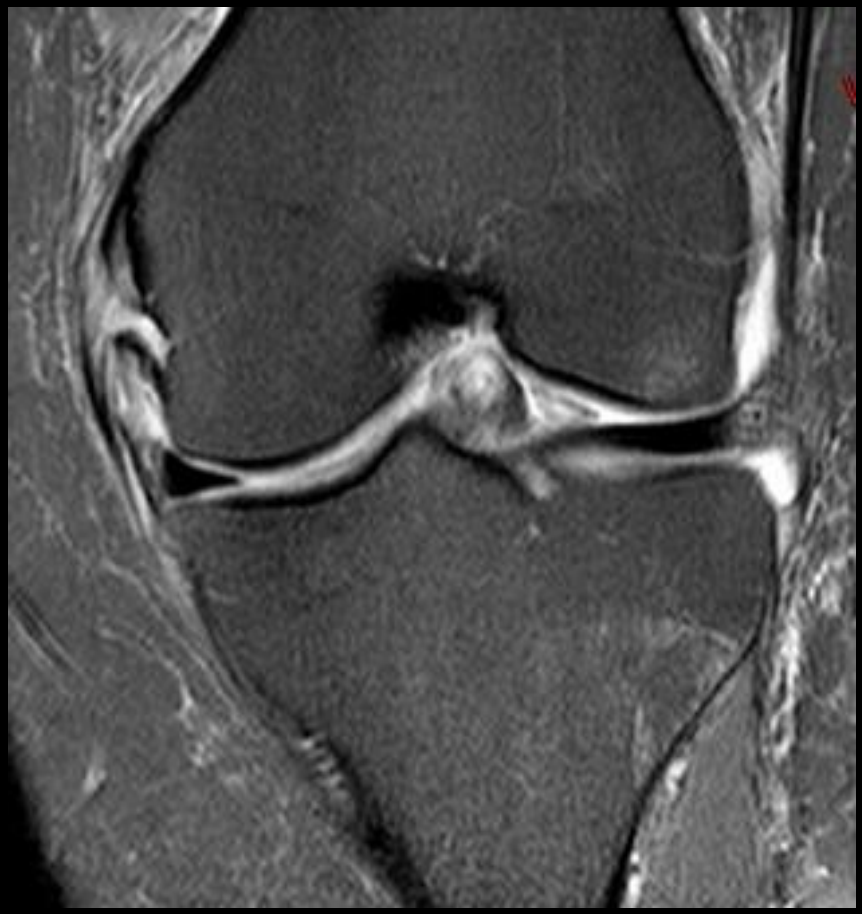


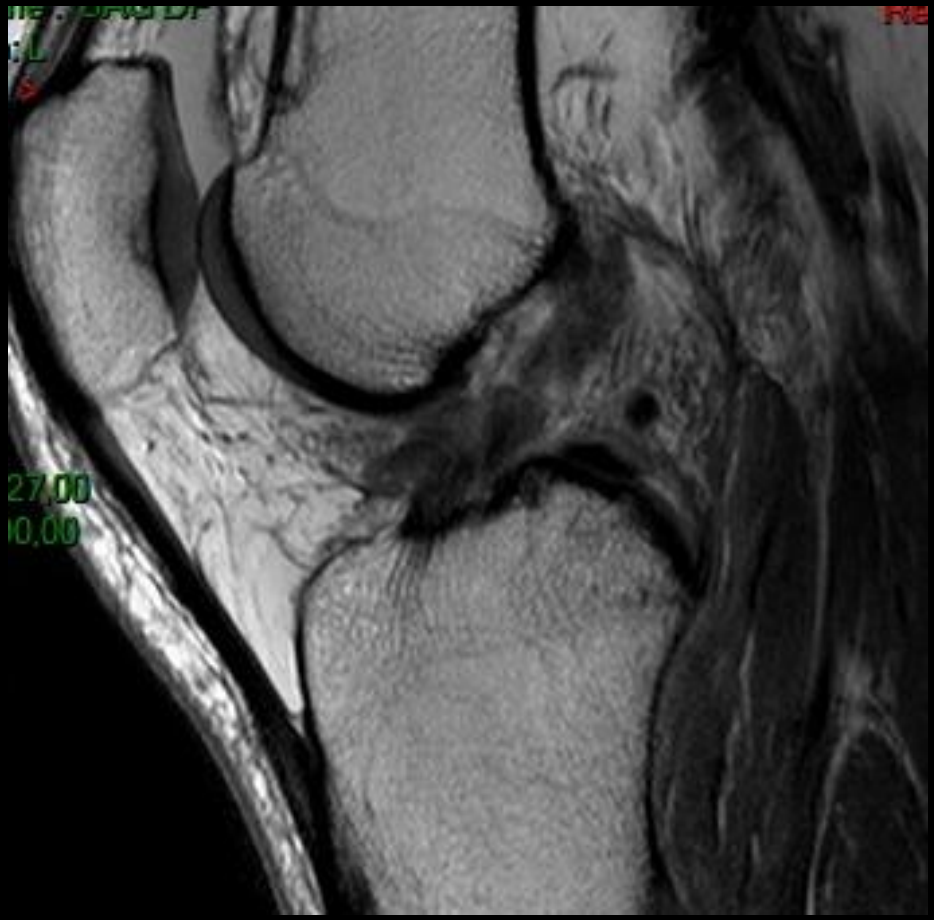


Rupture LCL

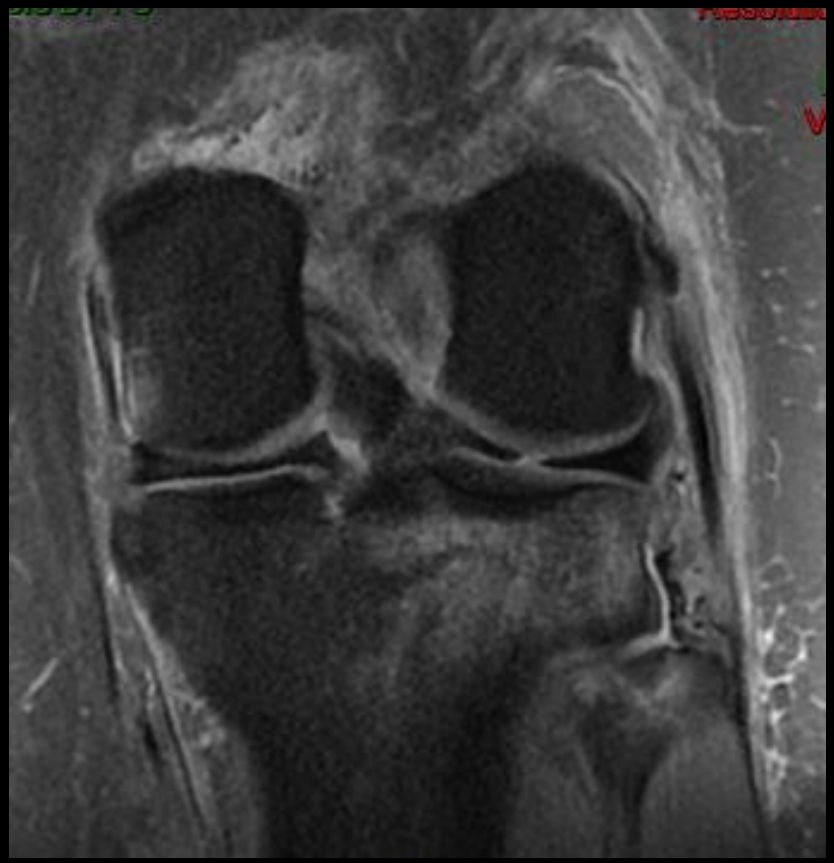


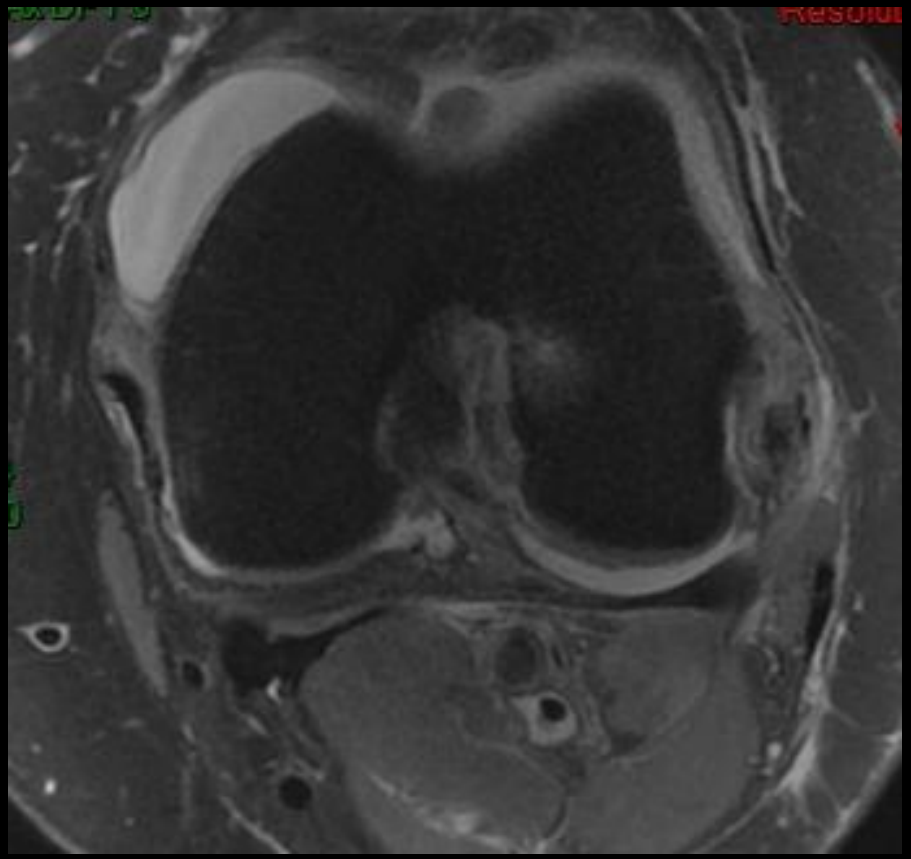


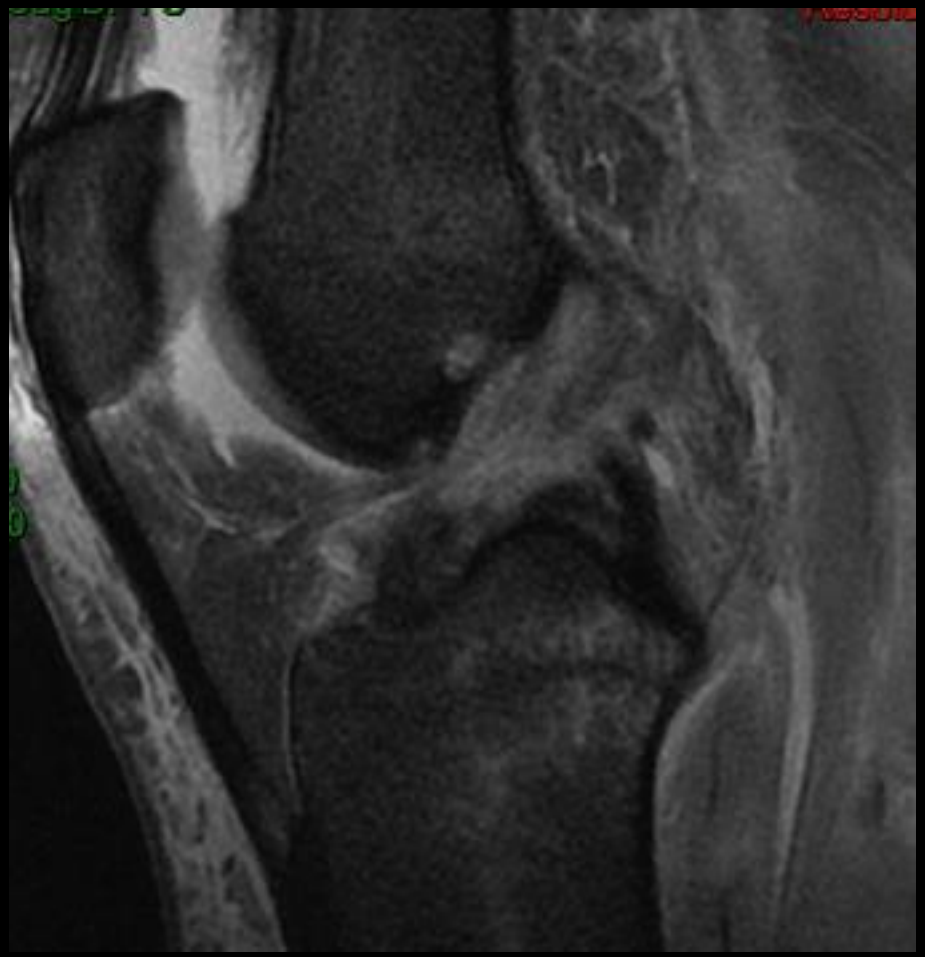


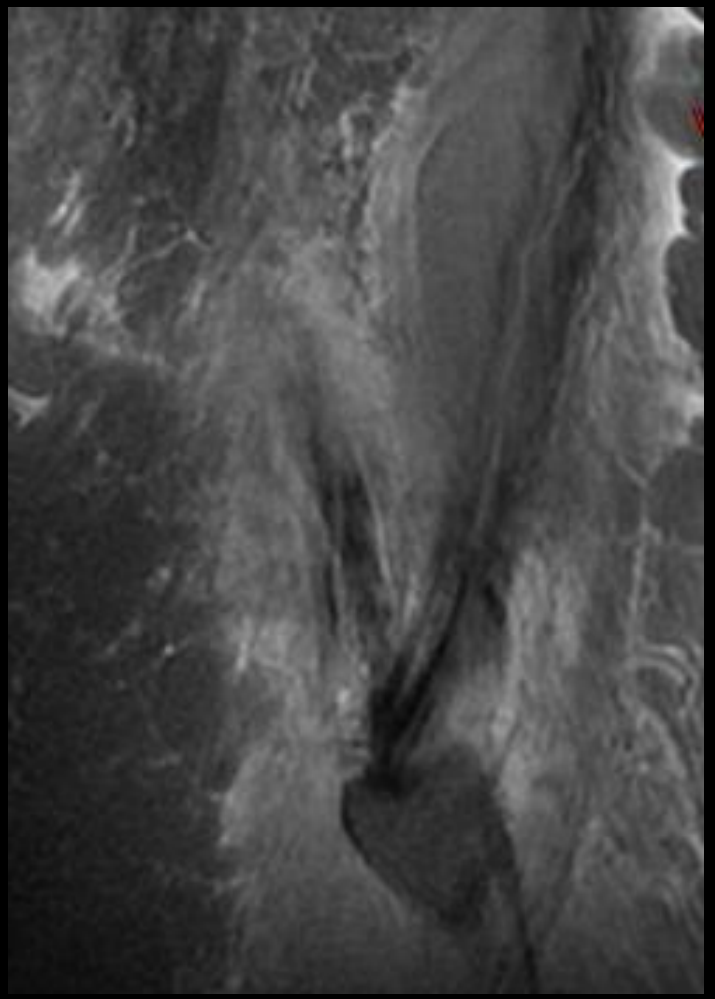


Cas clinique

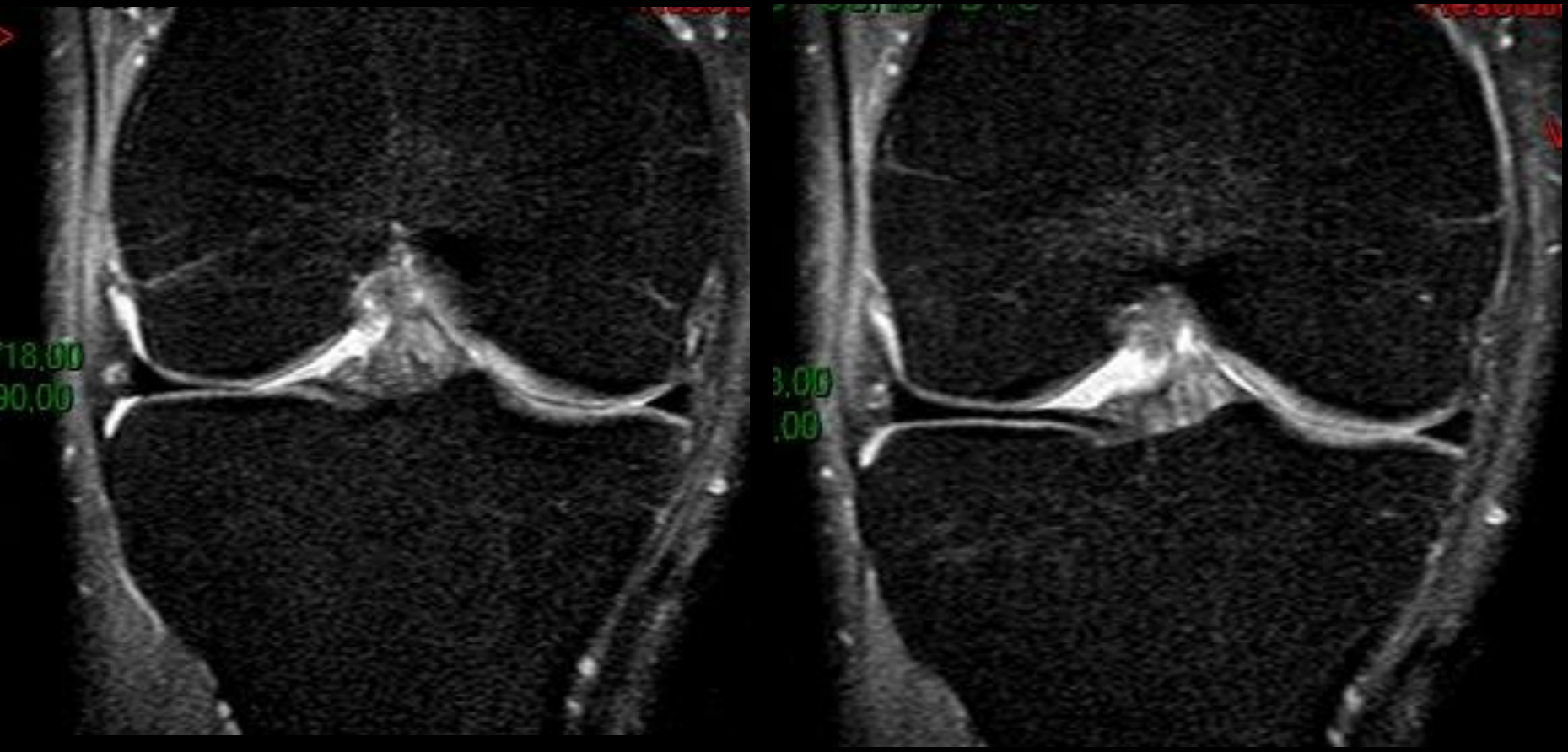




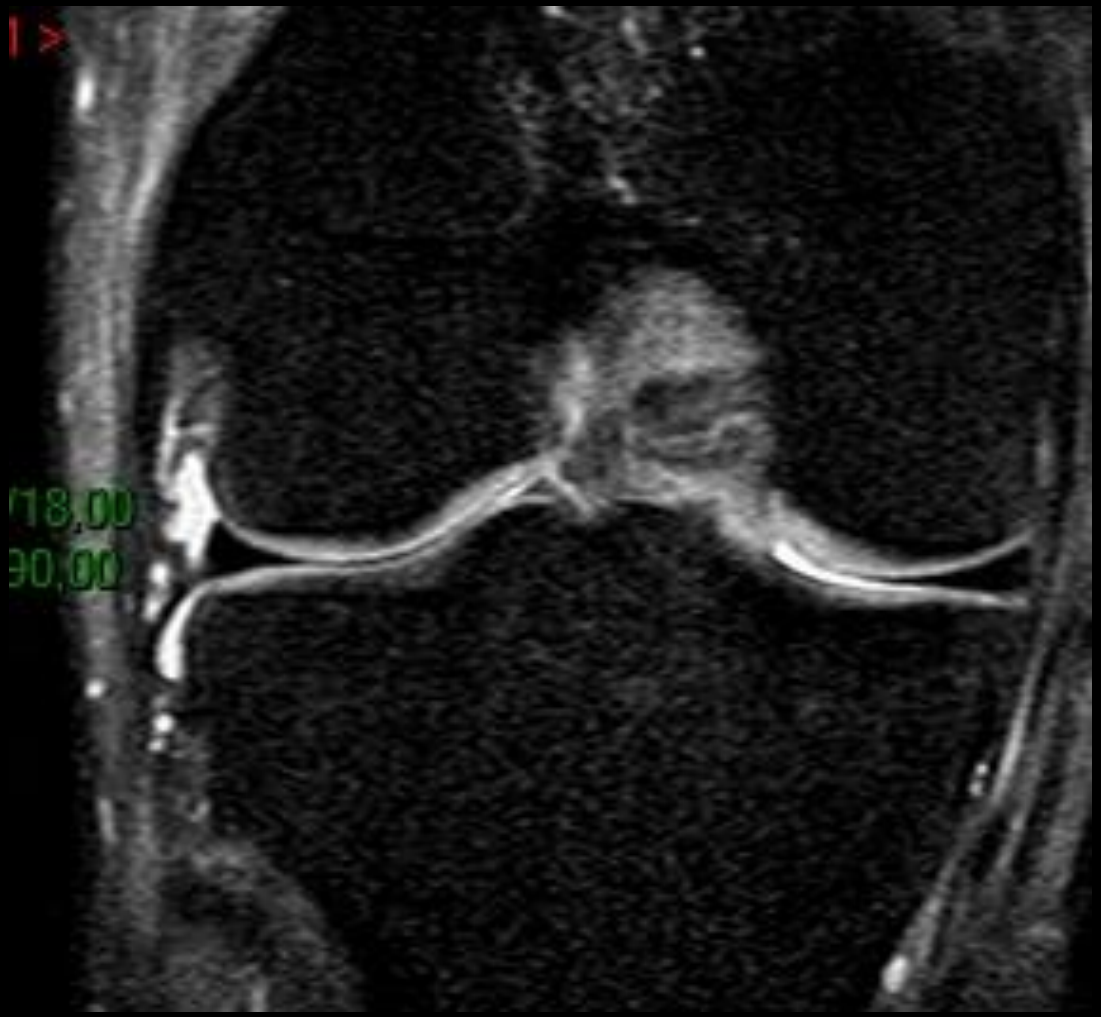




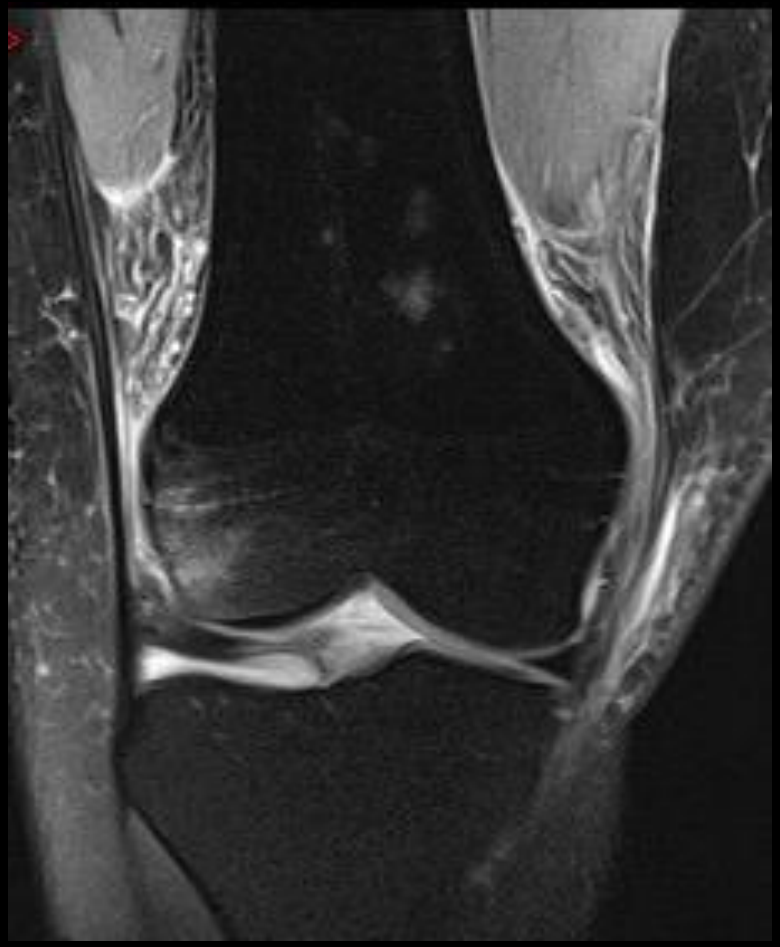
Lésion LCL?

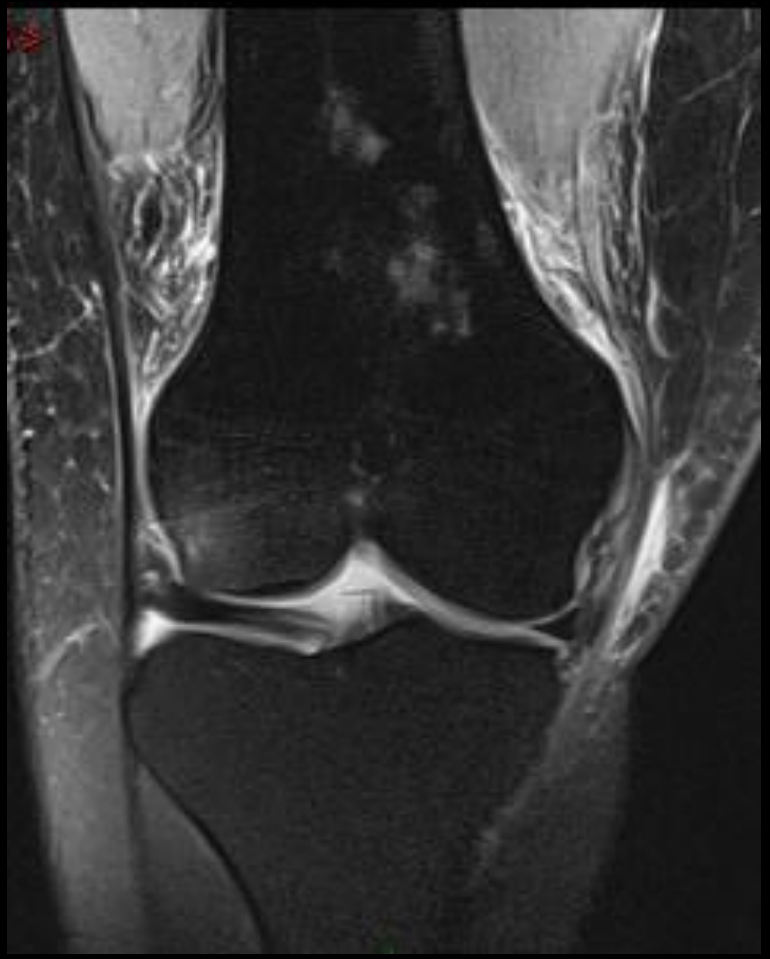


LCL normal!

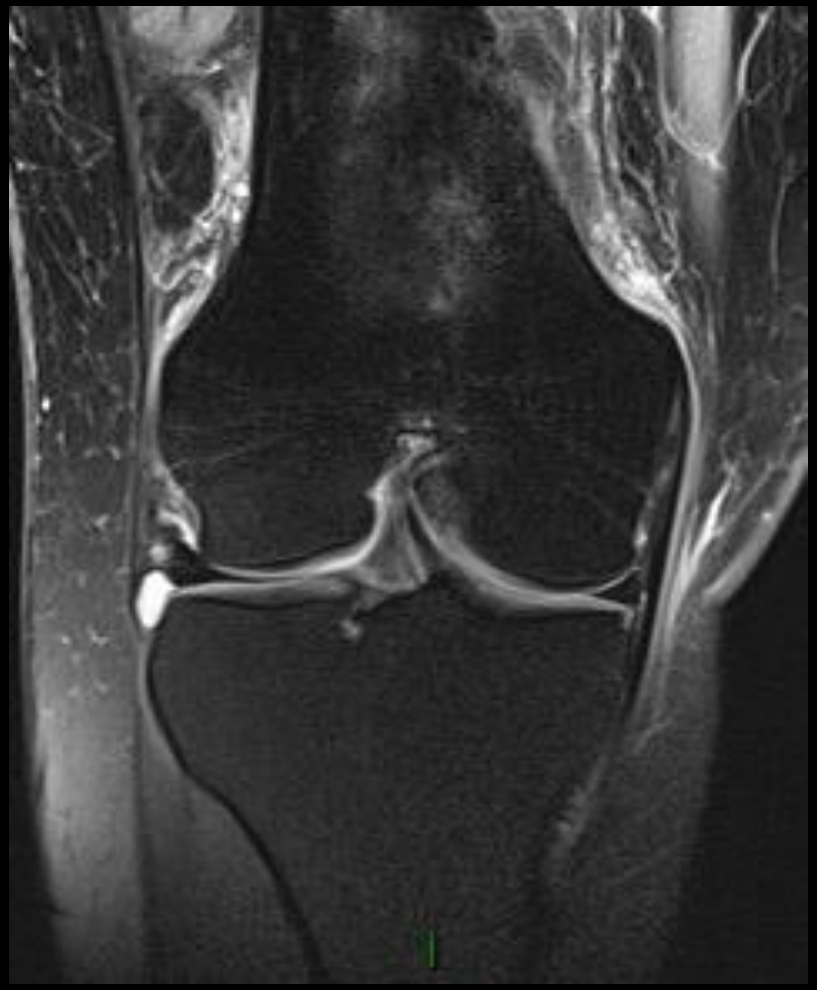


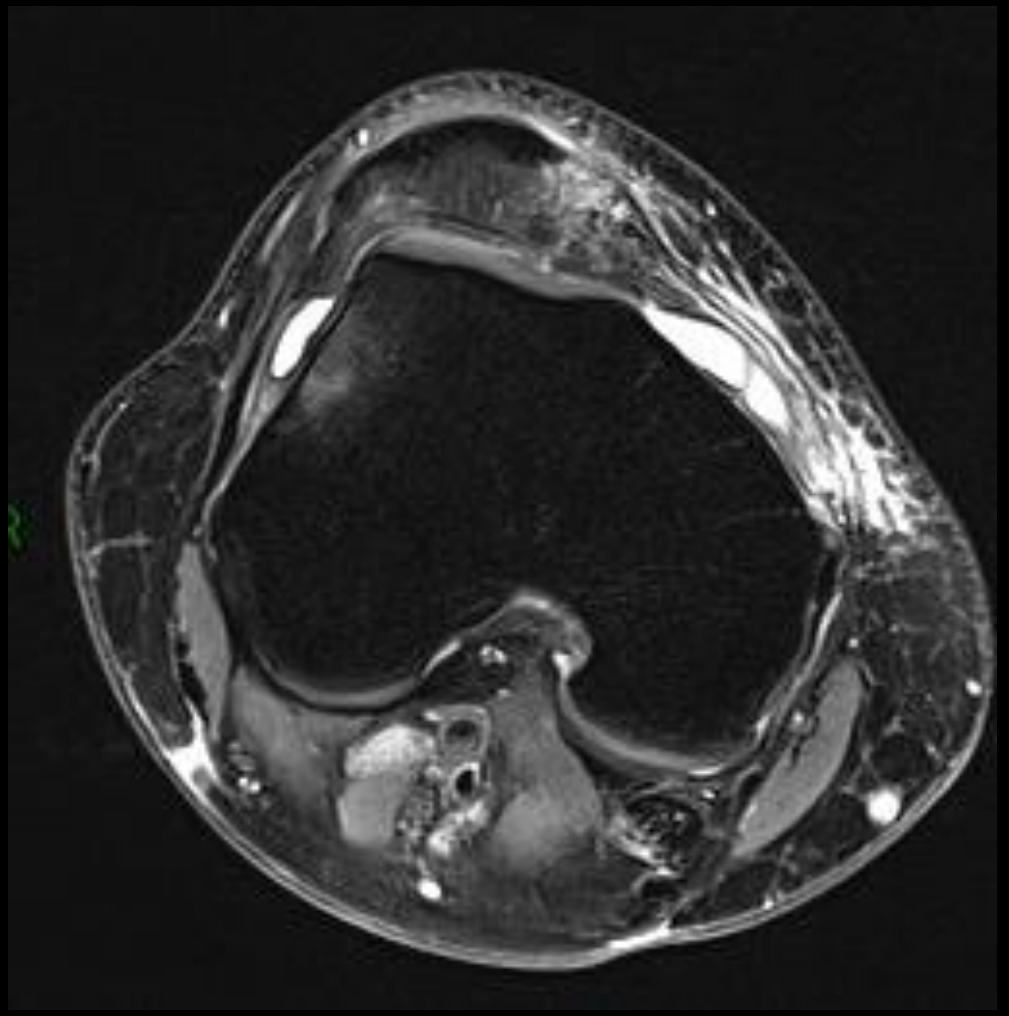
Lésion LCM?





Luxation patellaire





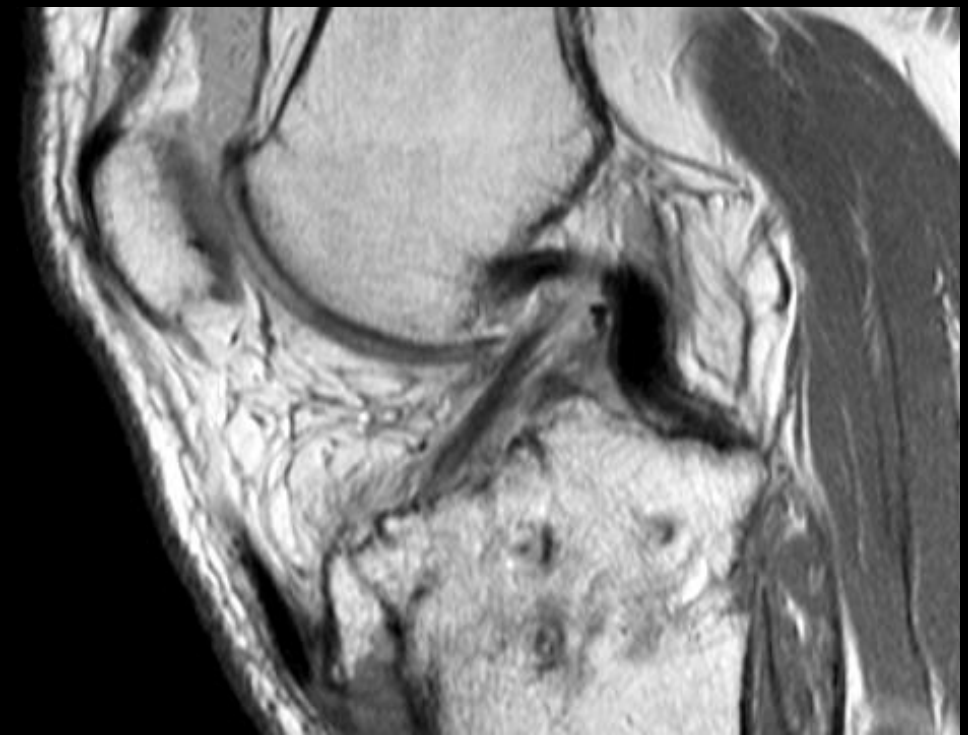
Pièges pour les ligaments collatéraux

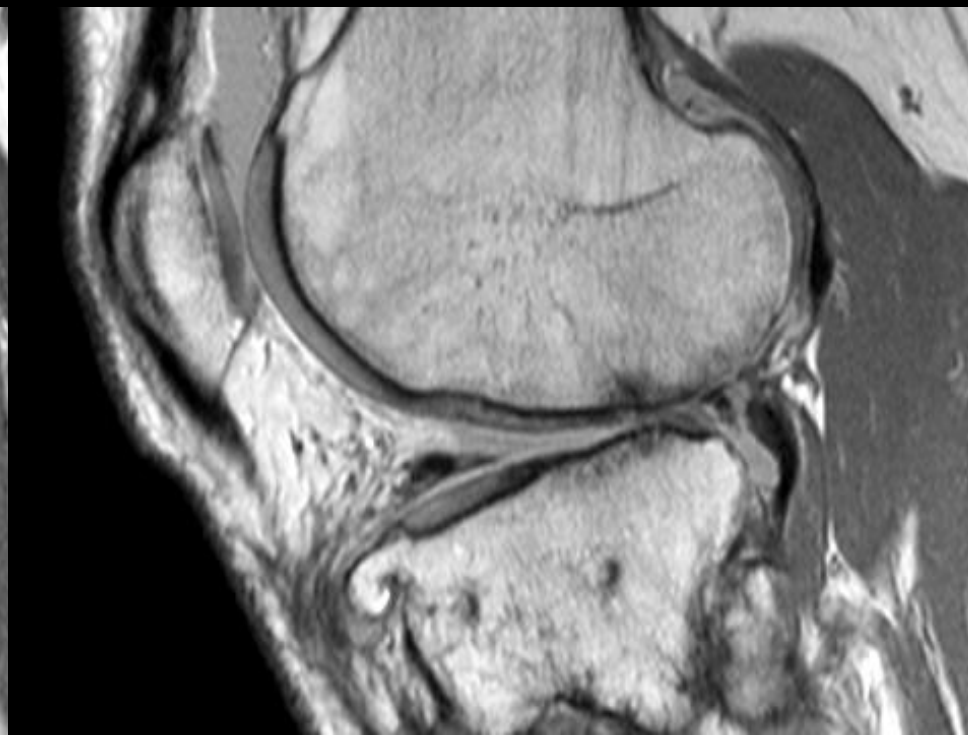
- Lésions des retinaculum patellaires
- Syndrome essuie-glace (BIT)

IMAGERIE DES PLASTIES LIGAMENTAIRES DU GENOU

Plasties ligamentaires

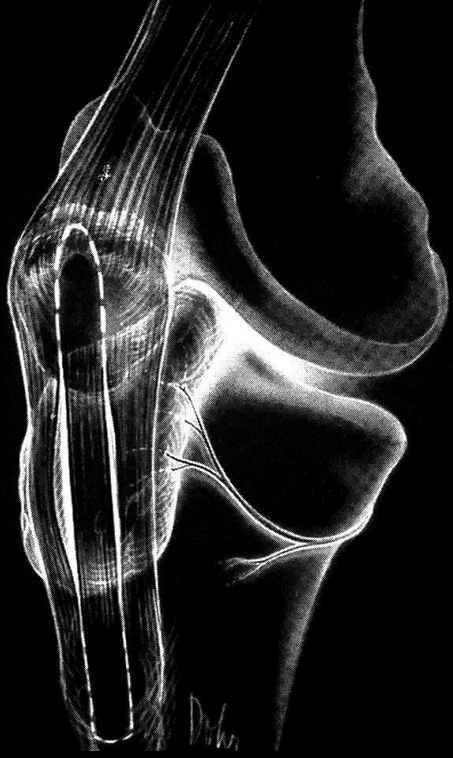
- Surtout LCA
- Fréquence ↑ (France: 25000 rupt./an, 14000opérées, 4 000 000 000 FF)
- But : éviter complications liées à instabilité

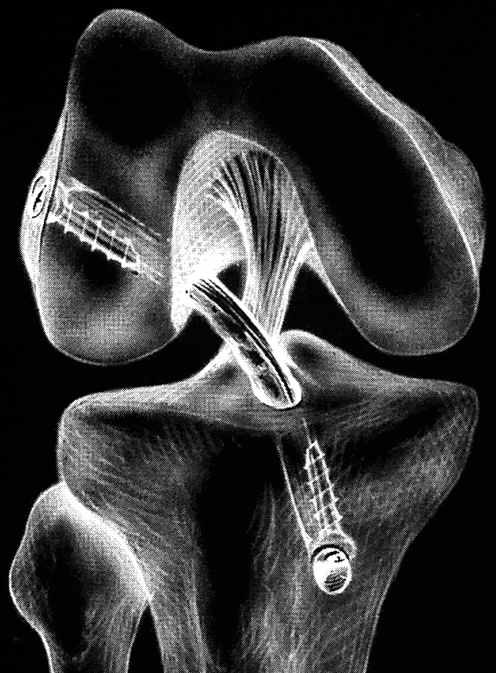




Technique

- Arthroscopique: intra-artic.
- Surtout autogreffe
  - Os – tendon rotulien – os
  - « DI-DT »
- Tunnels- tibial
  - fémoral
  + fixation

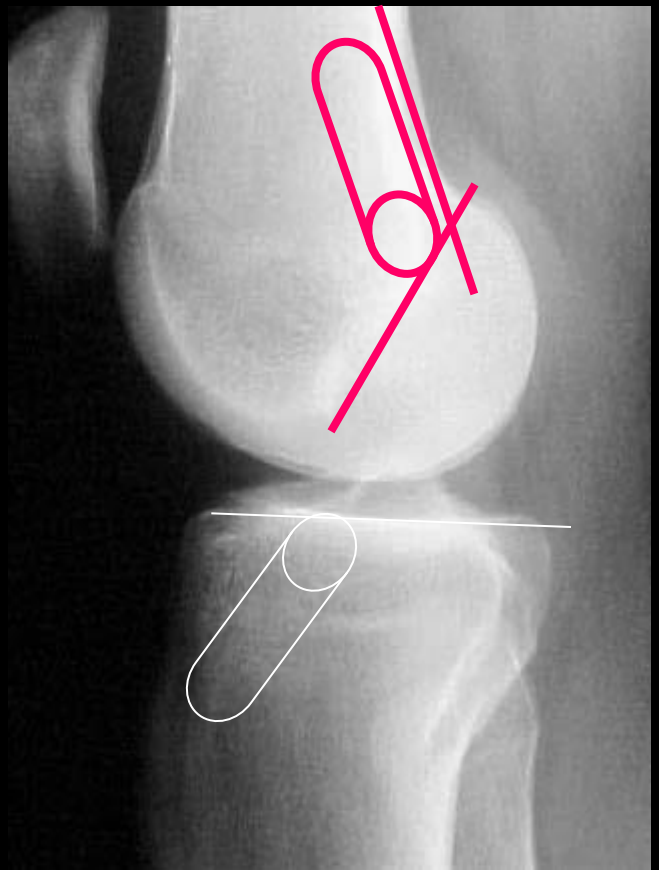


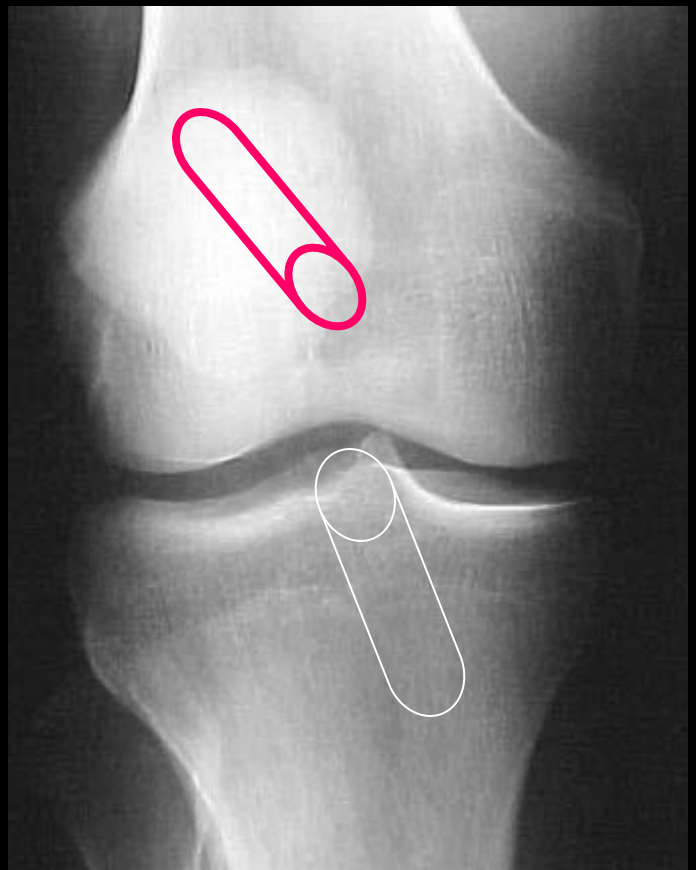


Positionnement : tunnel fémoral

Plan sagittal : U toit et corticale post-fémur

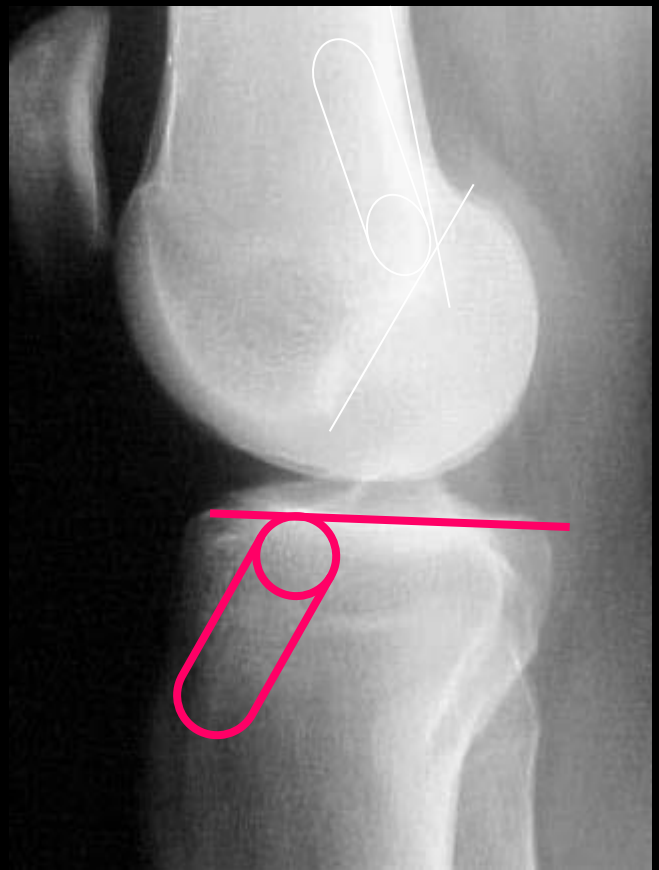
Plan frontal : quadrant sup.-lat. échancrure

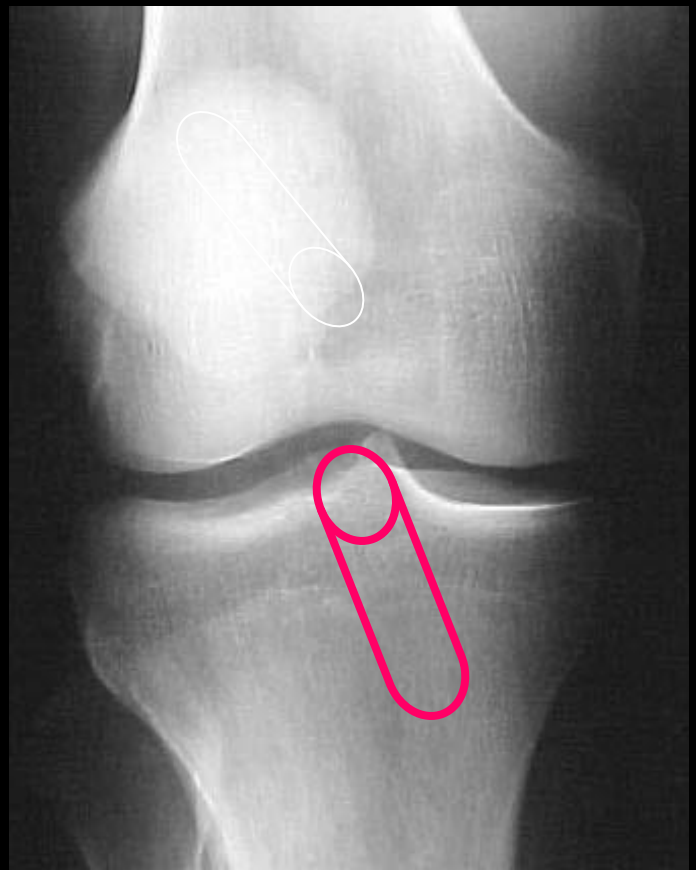




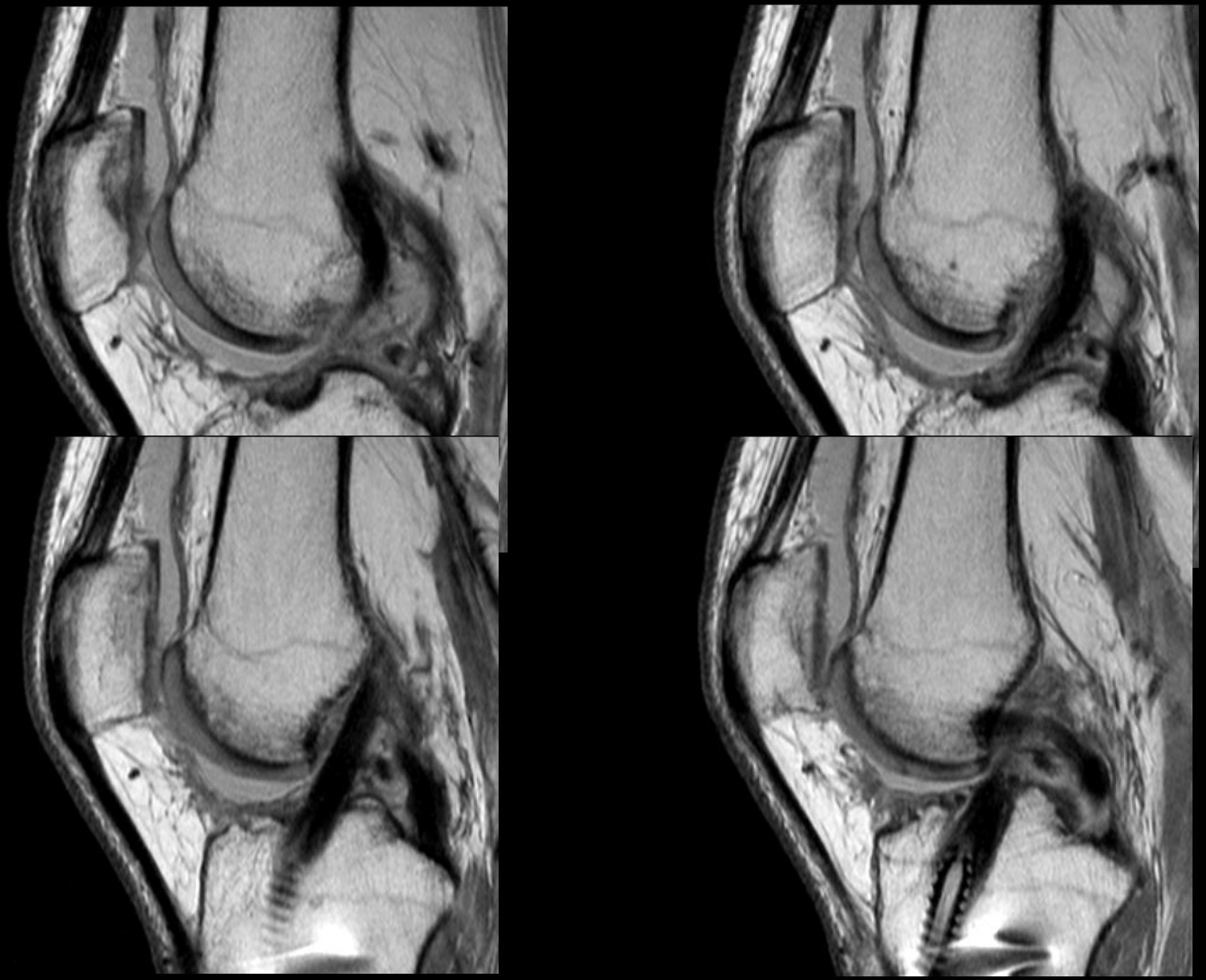
Positionnement : tunnel tibial

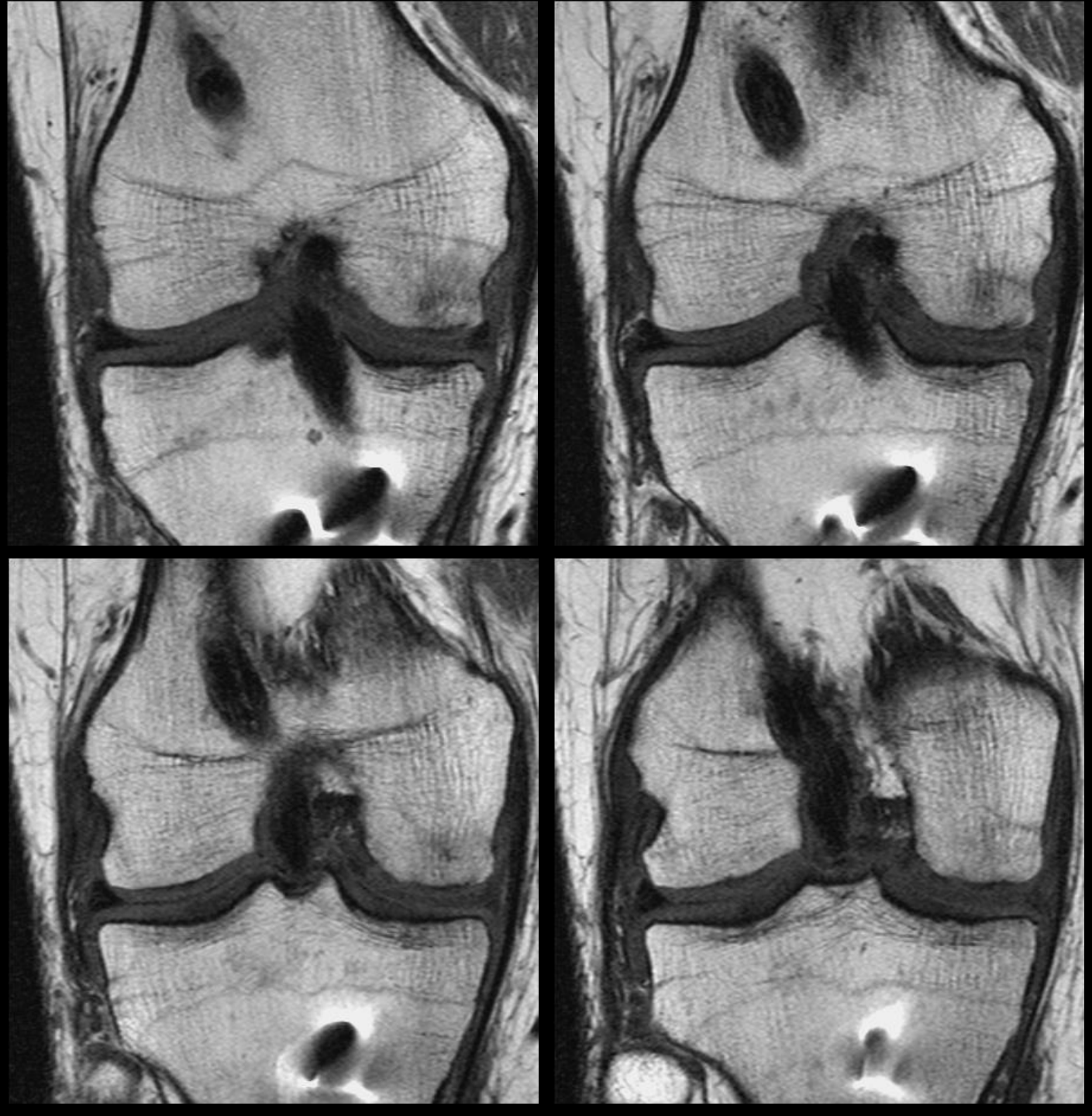
- Plan sagittal :2ème $\frac{1}{4}$ ant. platx tib., prolongemt toit, devt ép. tib. ant., jusque région TTA
- Plan frontal: légère obliquité distale médiale (75° PTI)



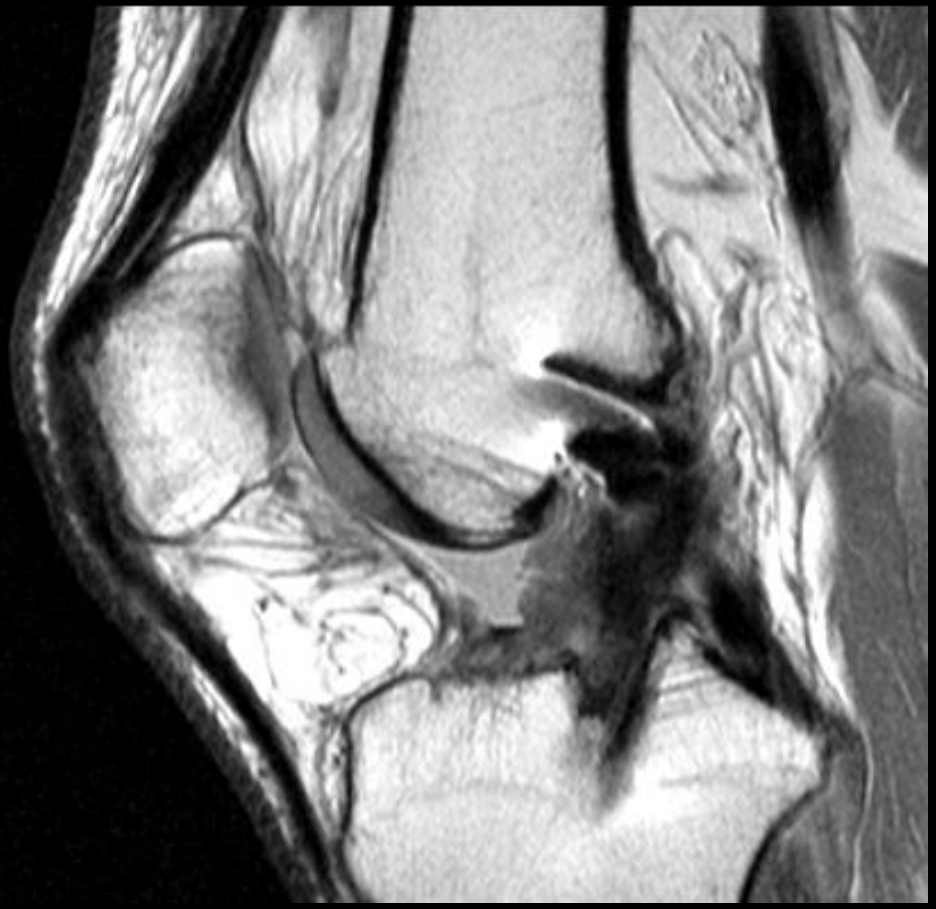


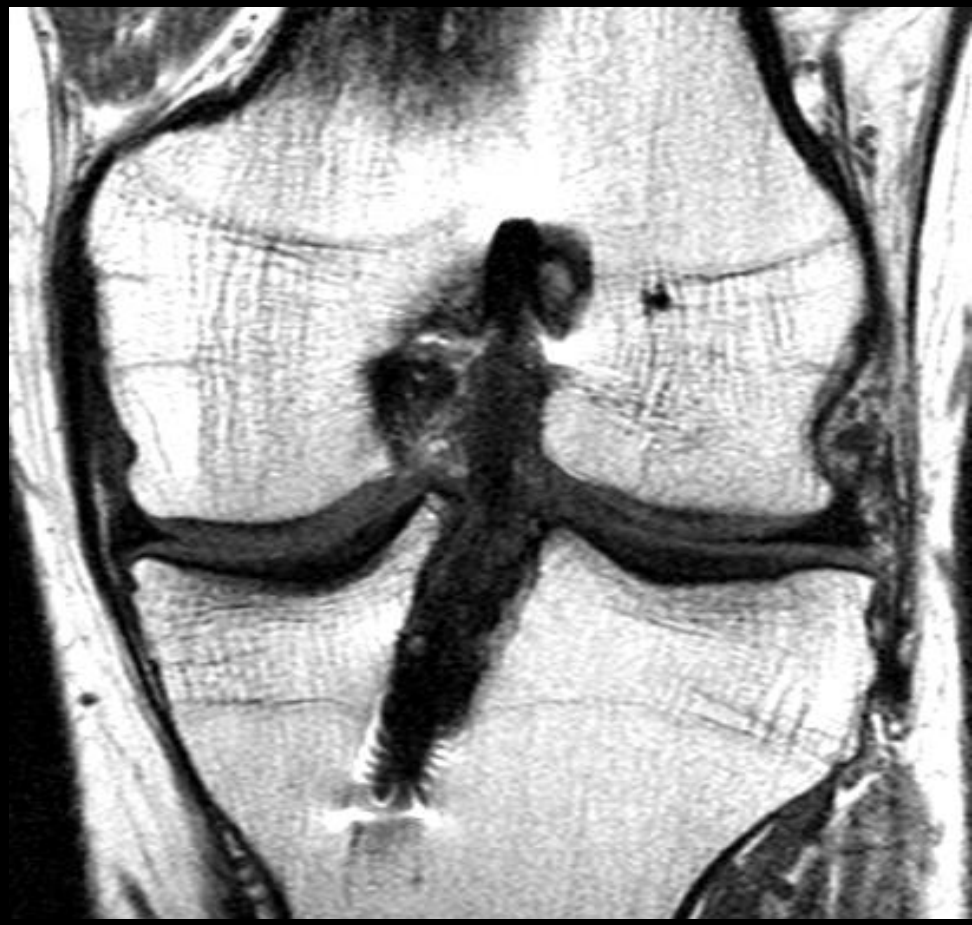
Normal findings





Position of tunnels / stability

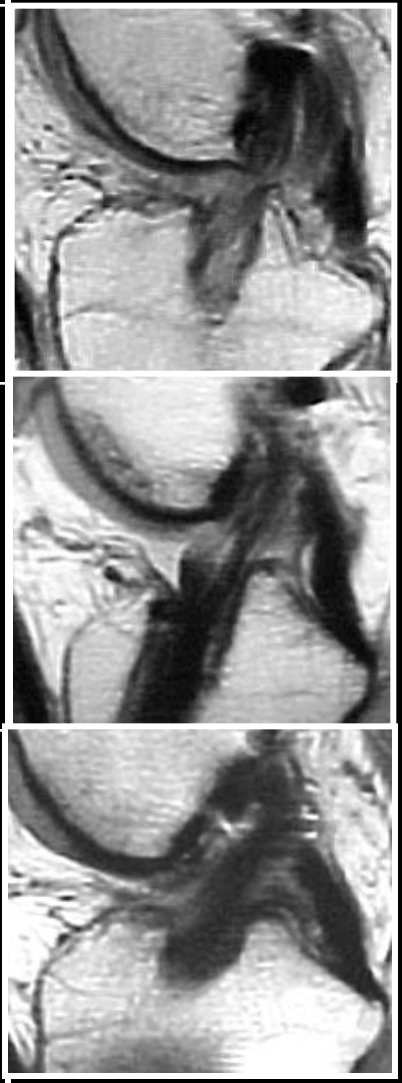




Too posterior tibial tunnel….

Evolution greffon ds temps (maturation)

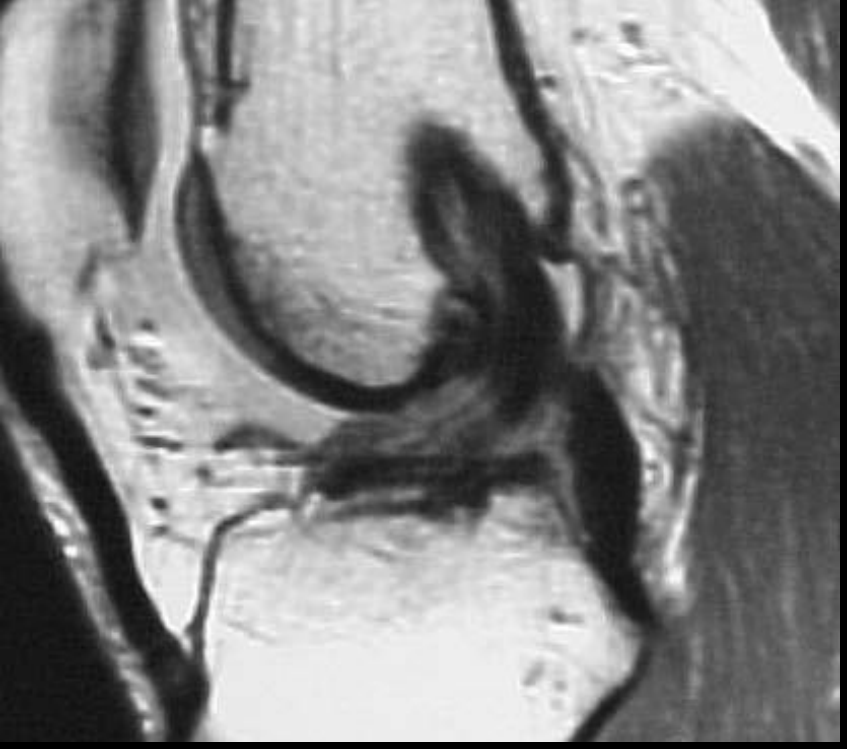
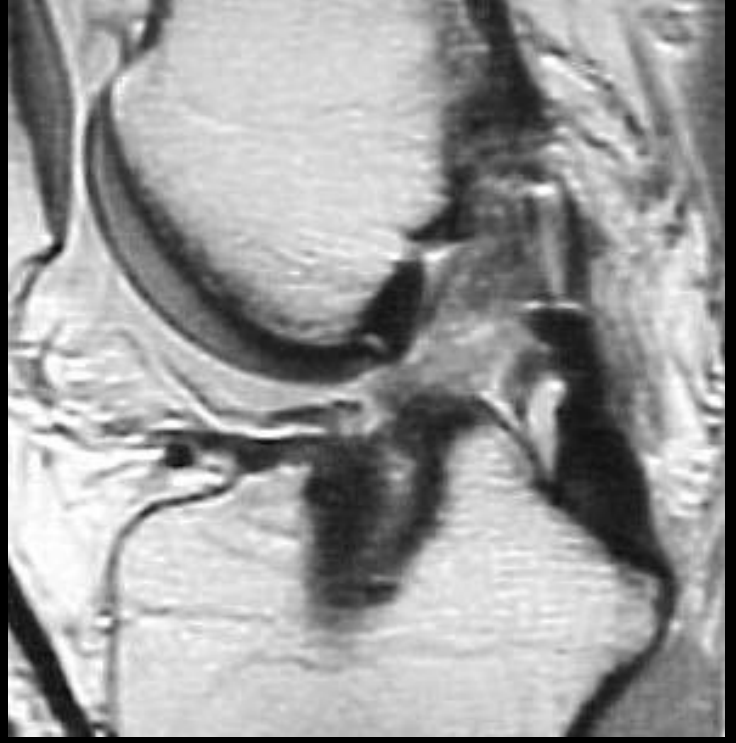
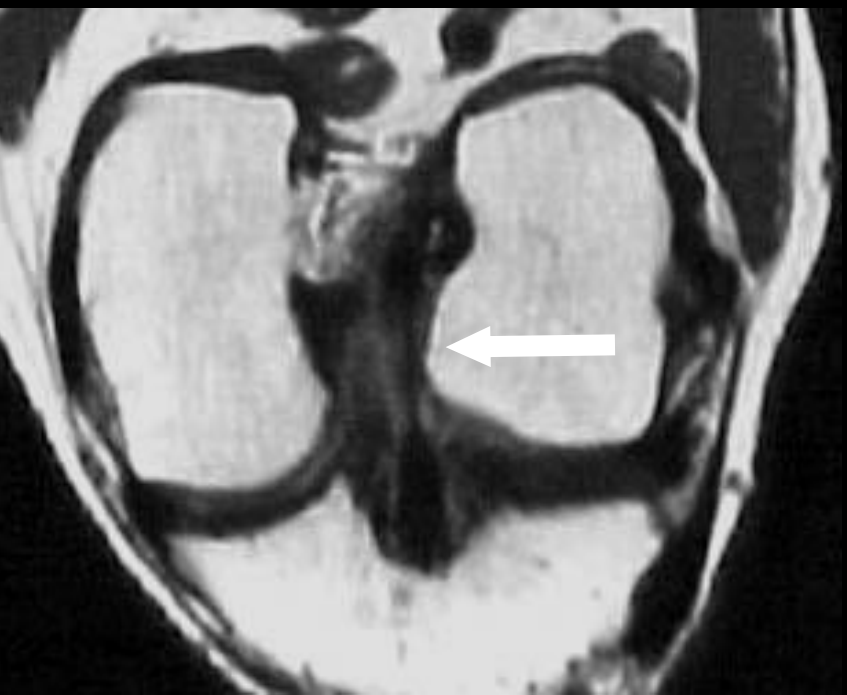
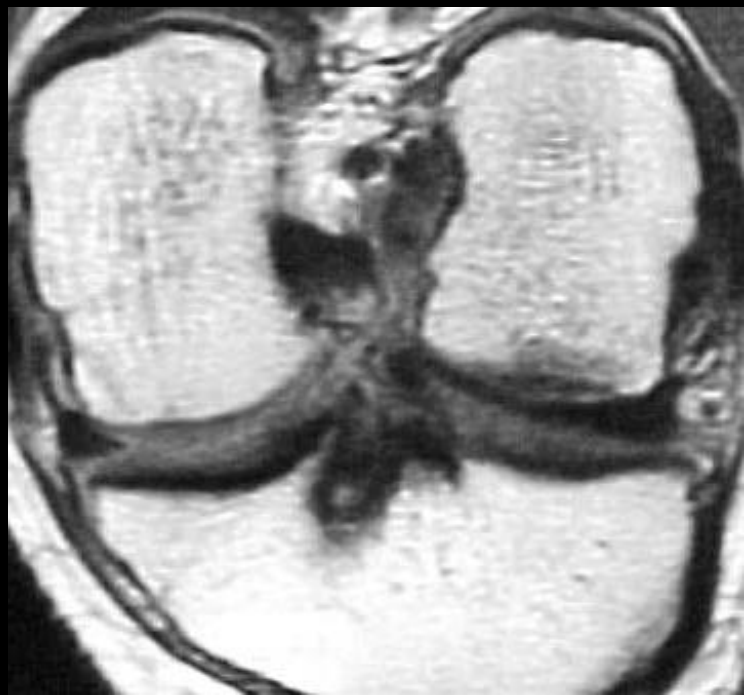
	Histo	Signal IRM
0-2 m.	Néovascul.	Hyper T_1 et T_2, Épais
2-12 m.	Prolif. cell. + collagène	Hyper T_1 et T_2
1-3 a.	Maturation collagène, ↓ fibrobl. et vaissx	Hypo T_1 et T_2



Conflit (« impingement »)

- T. tib. trop antérieur
- Greffon osseux trop long, vis
- Trajet anguleux

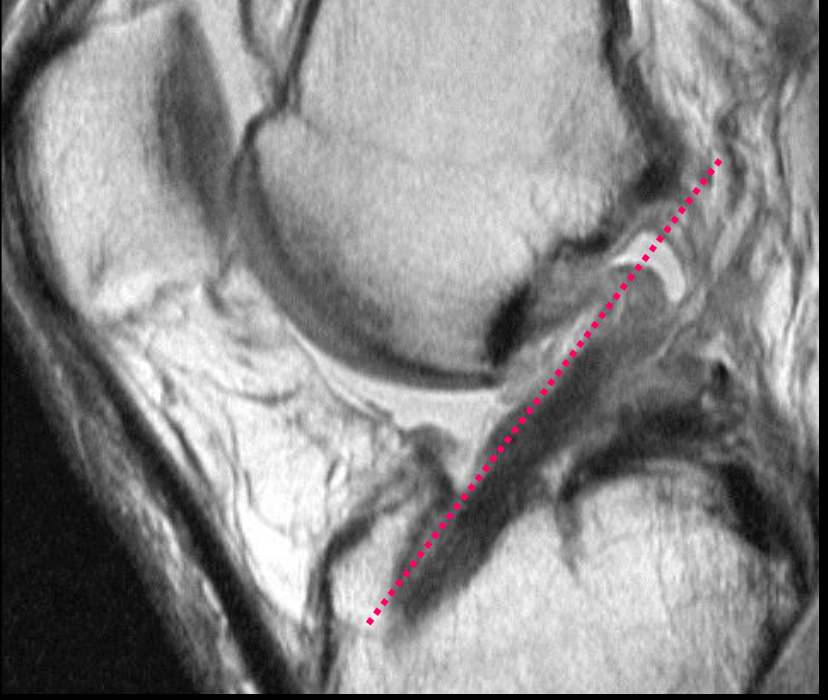
→Anomalies de signal
→Rupture « spontanée »

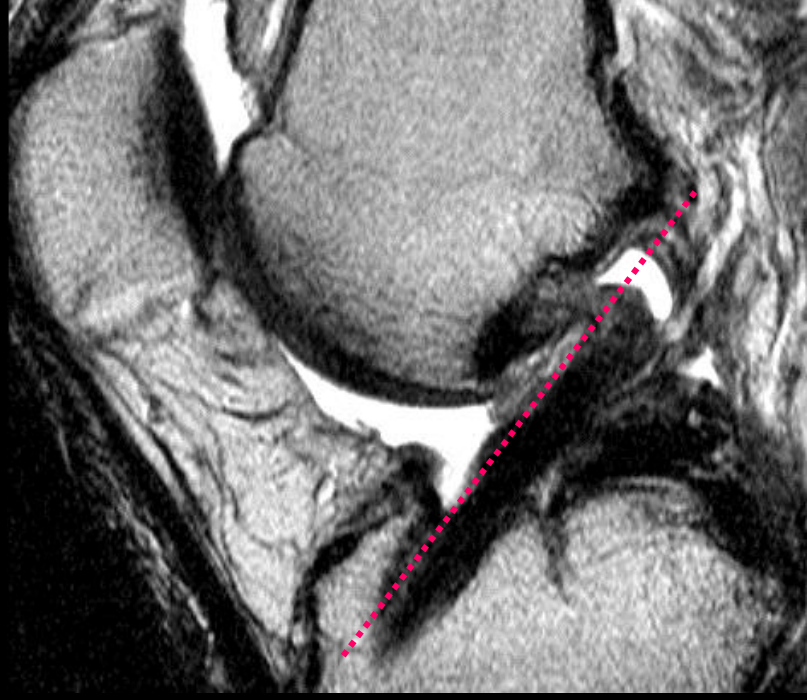





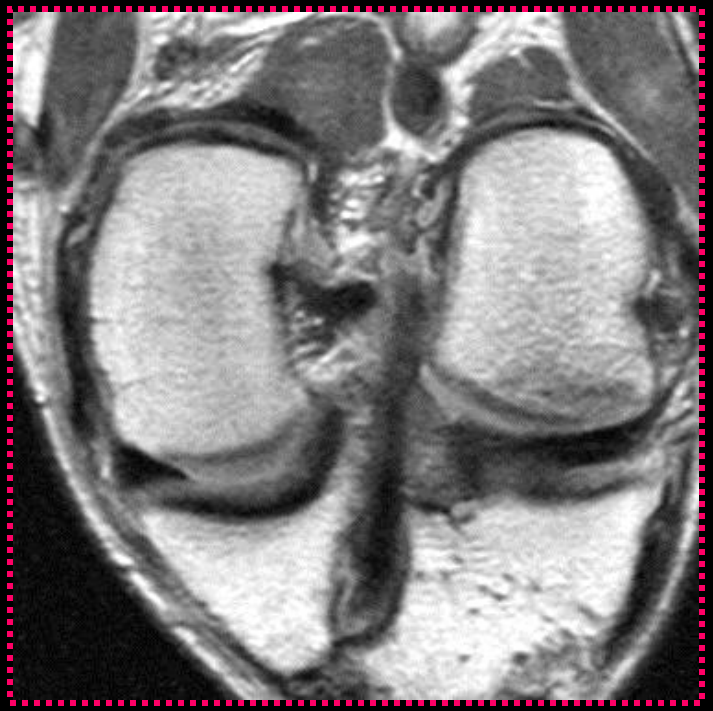
Rupture traumat. greffon

- IRM

Même signes que rupt. ligt natif



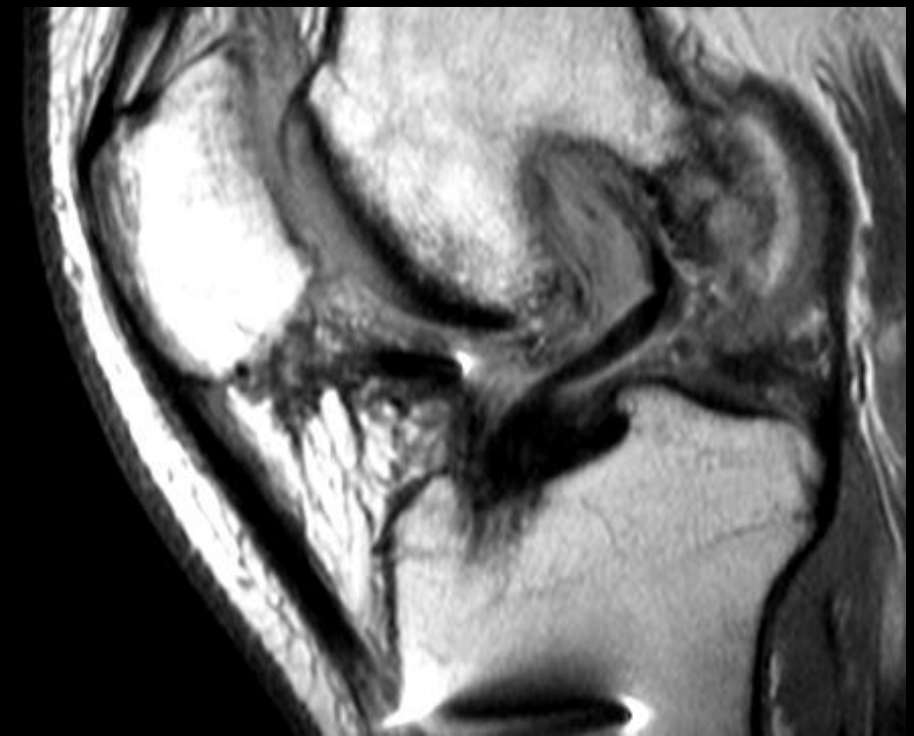


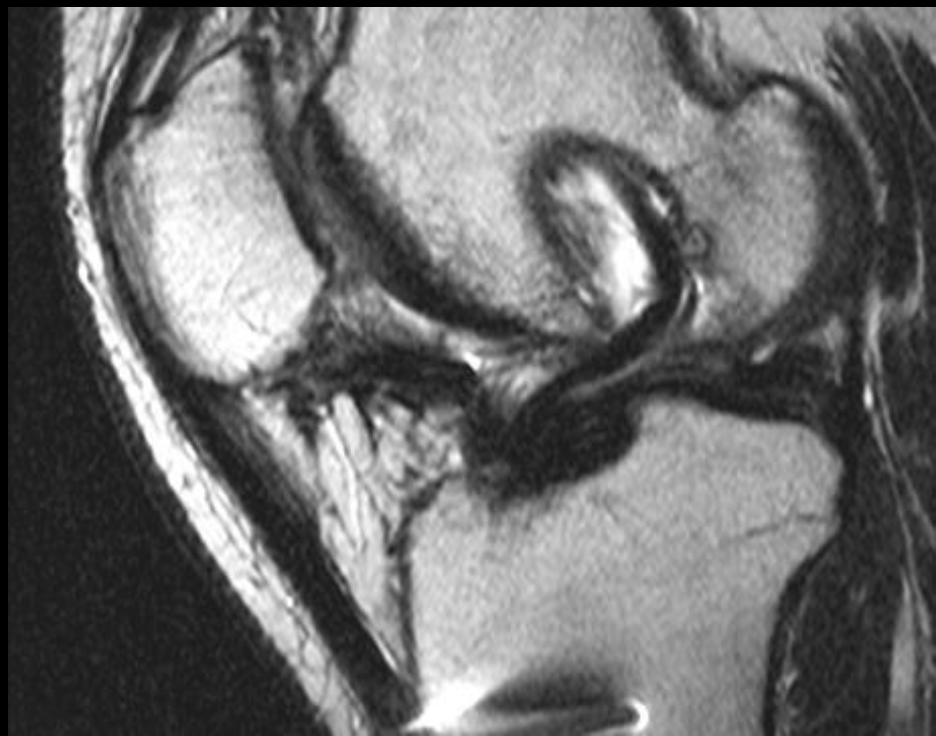


Elargissement et kystes

-élargissement physiologique est possible
(15-30% :de 10-13 à 18-20 mm)

- kyste : réaction lytique, conflit ostéo-ligt. ?
(parfois prolongement sous-cut)






+30 mois

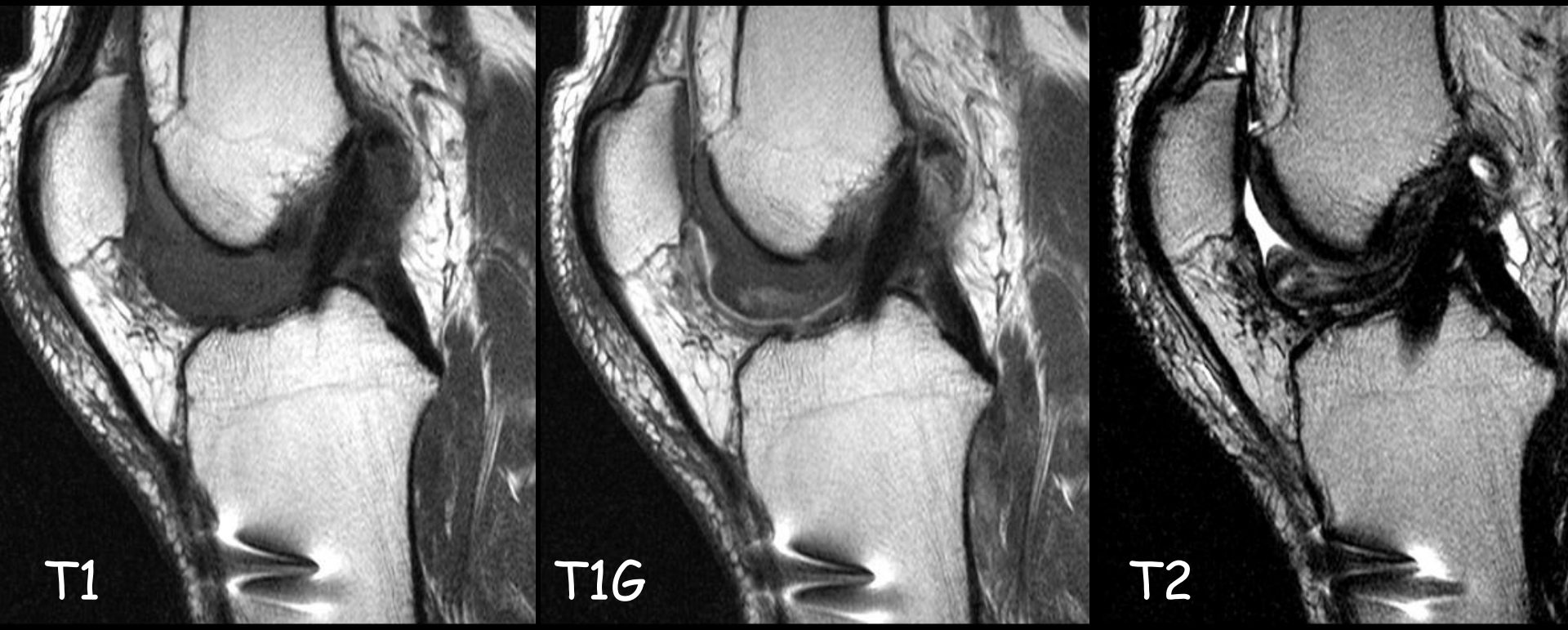
Arthrofibrose

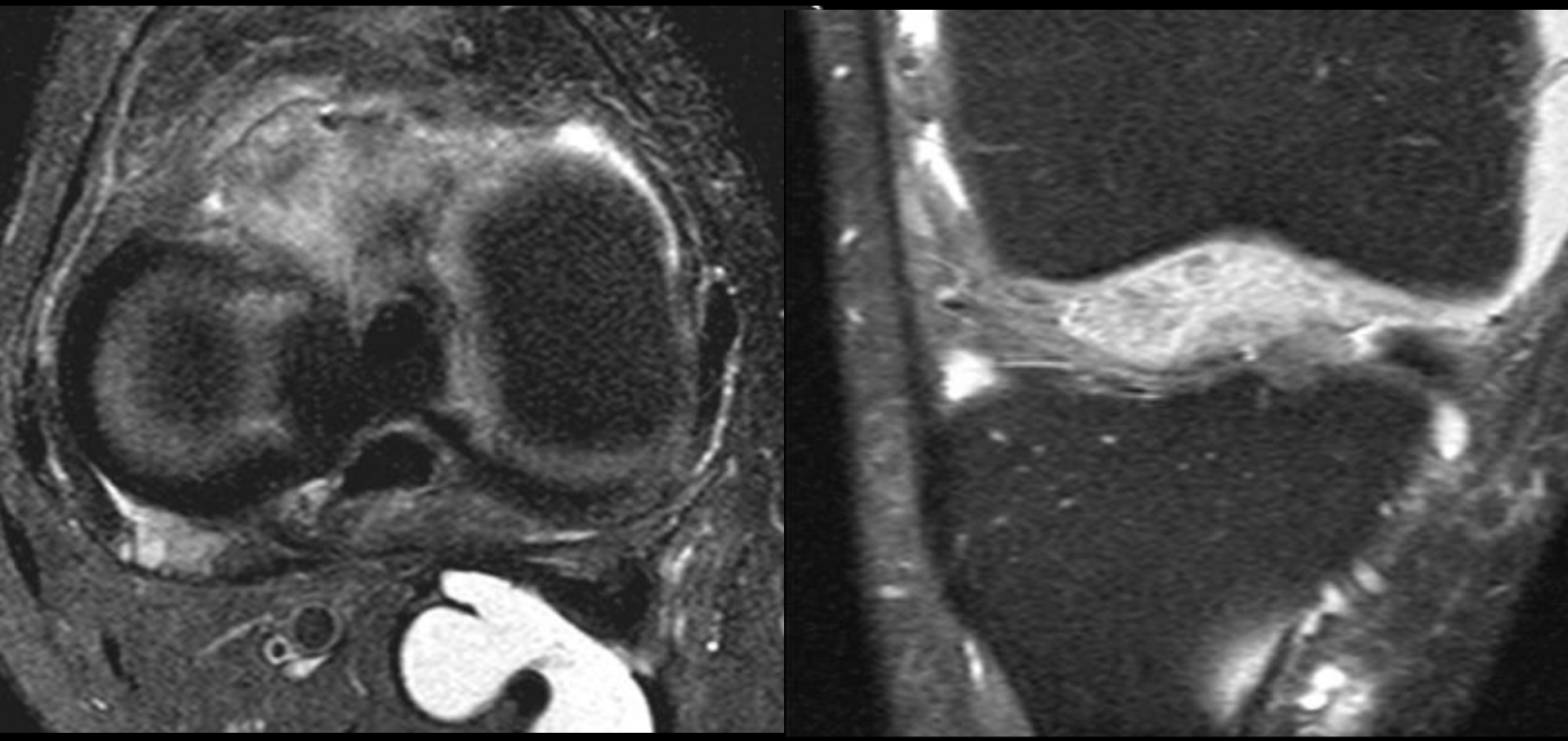
= hyperplasie fibreuse 2re à inflammation

- « Cyclope » = forme localisée
  - Aspect arthroscopique
  - Histo : nodule, fibrose périph., t. granul. central (? réaction autour moignon distal ?)
- Formes diffuses

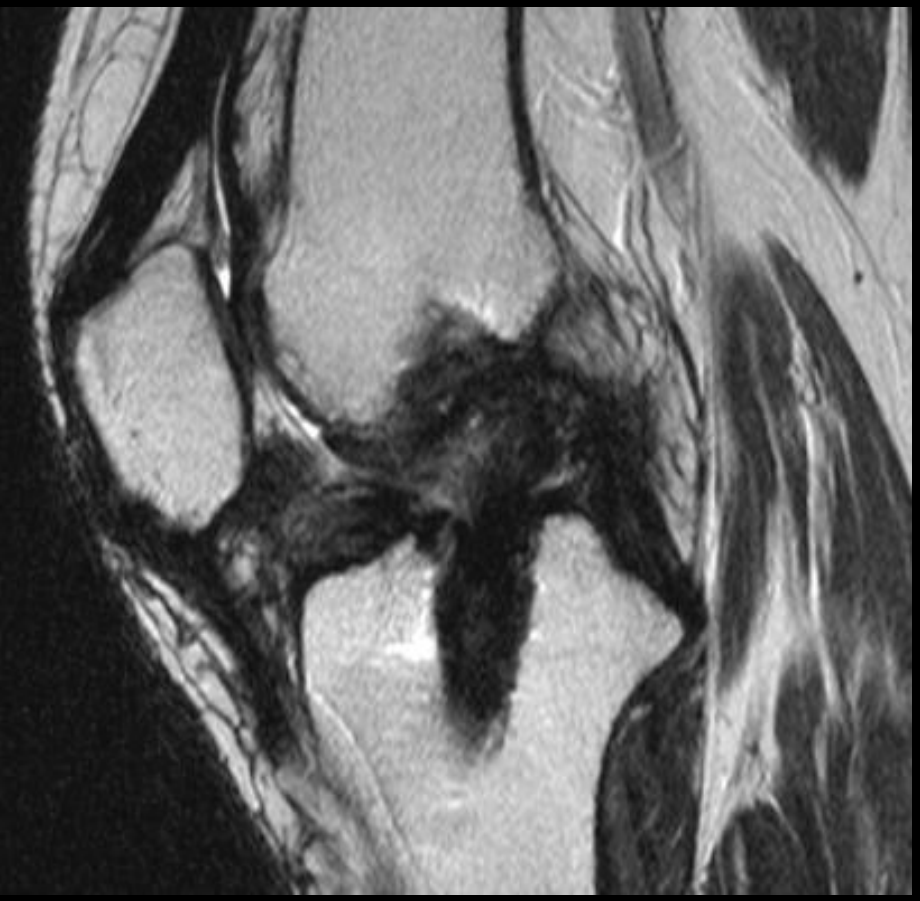
Clin : d+, limitation fonctionnelle

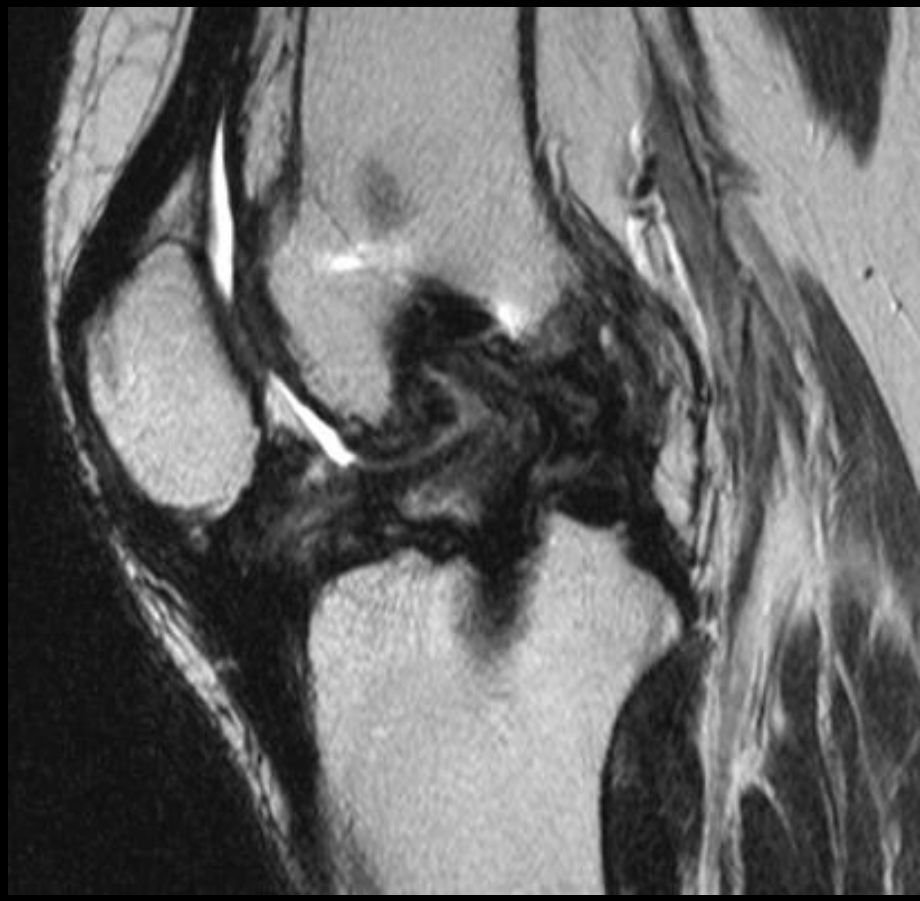
R/ : débridement arthroscopique


T1
T1G
T2



T2





T2