Collège Hospitalier et Universitaire de Chirurgie Pédiatrique

DESC de Chirurgie Pédiatrique

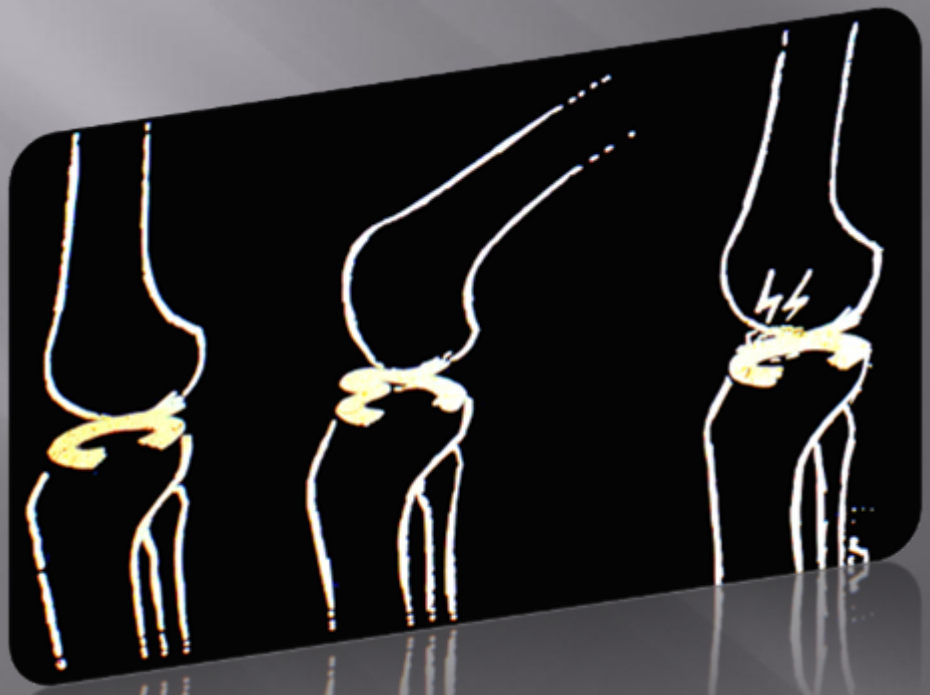
Session de Mars 2011 - PARIS

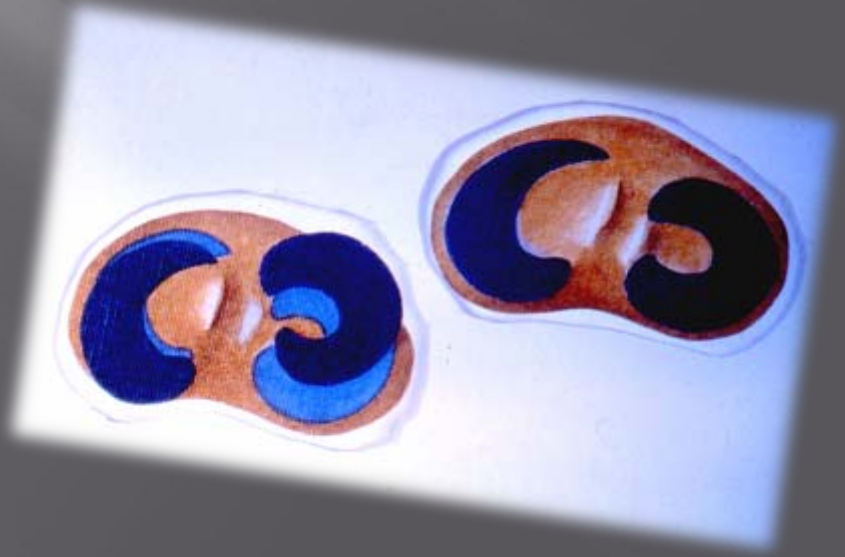
Menisque lateral discoide

Franck CHOTEL

Anatomie

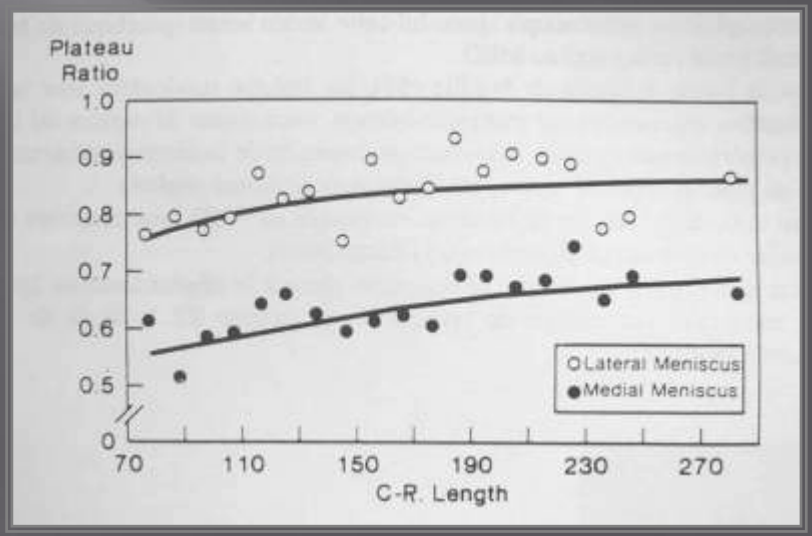
- Compartiment externe = compartiment de mobilité
- Mouvements du ménisque latéral
  - durant le flexion = déplacement antérieur +
  - durant l'extension = déplacement postérieur





Embryologie

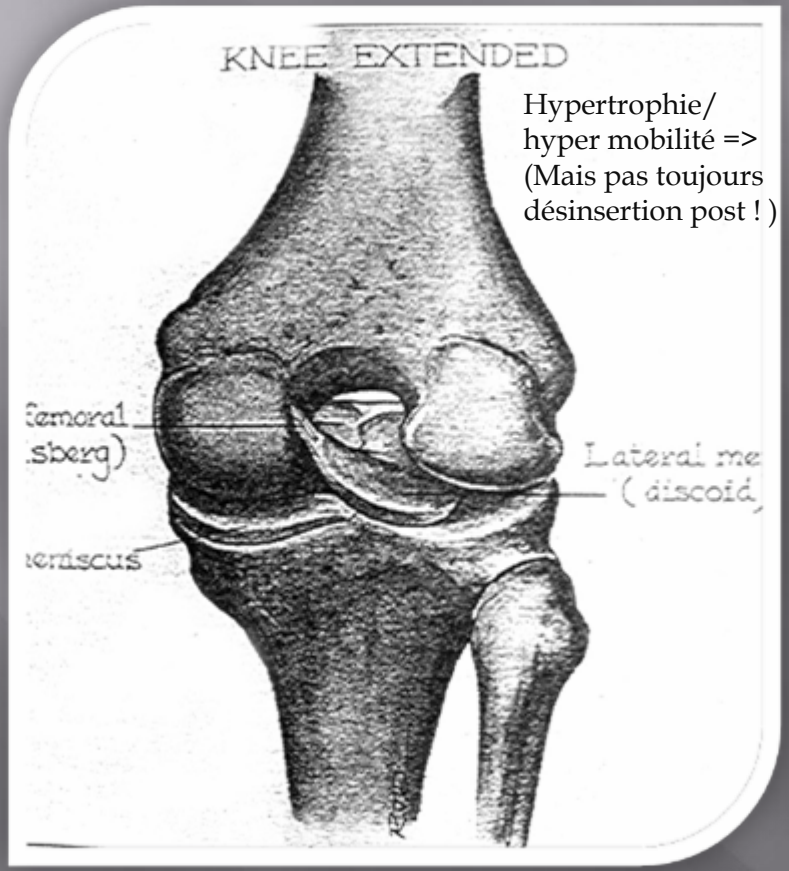
- Pas de stade discoïde embryologique 5 théorie de Smilie) / Ménisque d'emblée semilunaire
- Après la 10 ème sem : modification de volume, structure, revêtement synovial
- Croissance méniscale parallèle à celle de leur plateaux tibiaux



Clark JBJS 1983

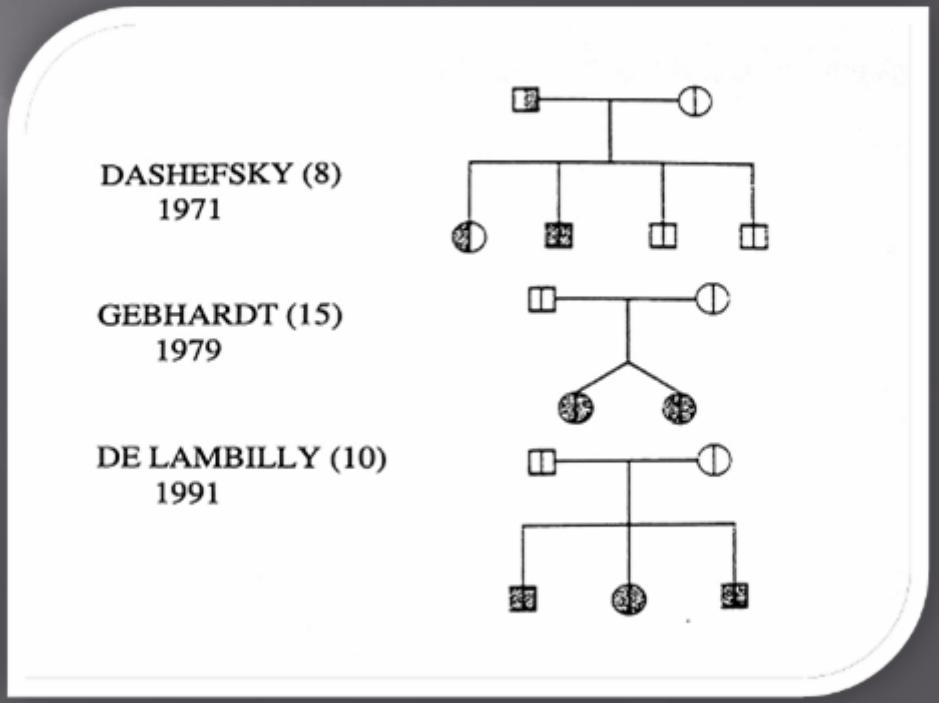
Etiopathogénie

Théorie mécaniciste de Kaplan



Kaplan JBJS 1957

Génétique : Rôle mineur qq cases reports



Généralités MLD

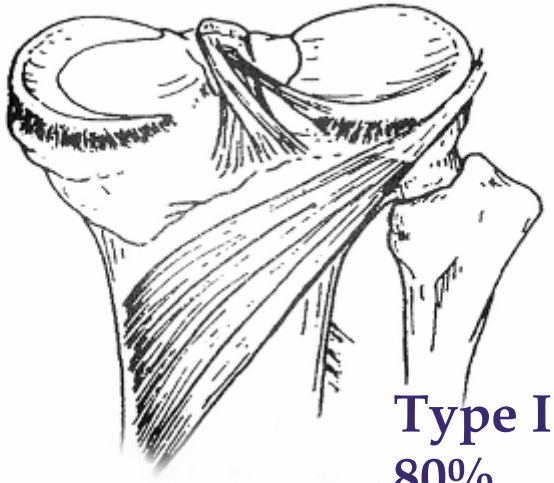
- Première description Young 1889
- Toujours latéral (case reports médial)
- Anomalie méniscale congénitale la plus fréquente

  - Prévalence : 1 à 5 %

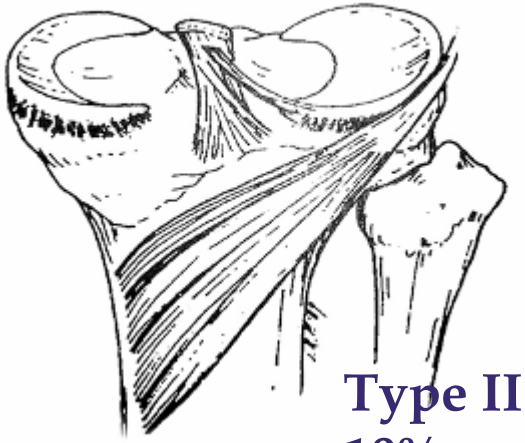
  - Plus importante en Asie (Corée 12% - Japon 16%)
- Formes bilatérales : 5 à 20 % (bcp ++ si imagerie bilat.)
- Pas toujours symptomatique

Anatomopathologie

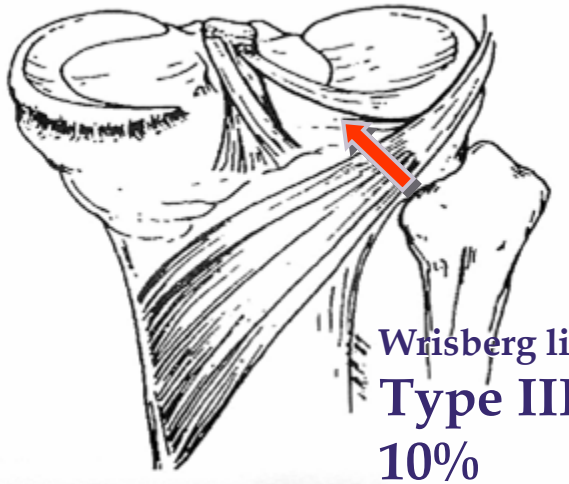
Ancienne Classification : WATANABE (peu d'intérêt pratique)



Type I
80%



Type II
10%



Wrisberg ligt
Type III
10%

Asymptomatiques +

Ressaut ++

- **Type IV : ménisque en anneau**

Arnold Arthroscopy 00
Monllau Arthroscopy 98

Signes cliniques

- **Aucun - découverte fortuite / arthroscopie adulte**
- **Mais le ménisque discoïde est un ménisque fragile !**

  « Il est comprimé entre le joug condylien et un tibia convexe »
- **Il devient symptomatique en cas de lésion associée :**
  - Claquement gênant
    aux changes d'un nouveau-né
    Gène / boiterie, blocages itératifs, flexum …

    ] les plus jeunes
  - Signes banaux : douleurs interligne,
    Sensation de dérangement interne, craquement, clik …

    ] les plus âgés

Signes cliniques

Excellente tolérance jusqu'à l'apparition d'une lésion ou d'une dégénérescence kystique (25%)

- **Selon âge**
  - **Enfant : Ménisque plus hydraté et résistant au centre ☞ plutôt désinsertions périph**

- **Selon type de discoïde**
  - **MED complet ☞ fissure ou clivage horizontal**
  - **MED incomplète ☞ fissure radiaire et complexes**
  - **2 types ☞ fissure longitudinale**

Bin KSSTA 2002

MED et Kyste poplité ?

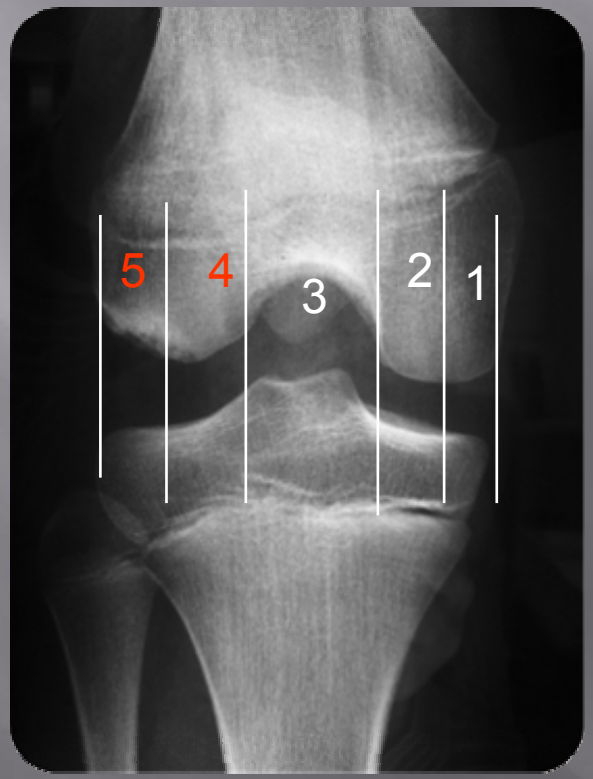
- Les Kystes poplités chez l'enfant sont des masses indolores
- Habituellement sans lésion intra articulaire associée
- De régression souvent spontanée plutôt abstention

Radiographie

- Diagnostic différentiel ++
- Signes évocateurs ?
  - élargissement interligne externe
  - obliquité plateau en bas et dehors
  - hypoplasie des épines tibiales
  - condyle externe carré
- Ostéochondrite ?

MED et Ostéochondrite

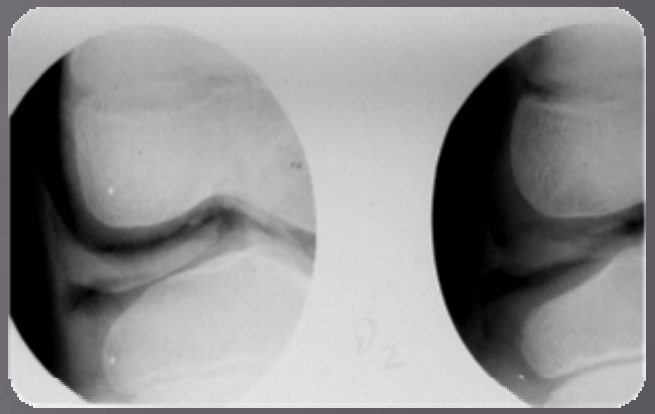
- **Ostéochondrite du condyle externe (13 à 19%) penser à cette association !!**
  - **MED complet : ostéochondrite zone 4**
  - **MED incomplet : zone 5**



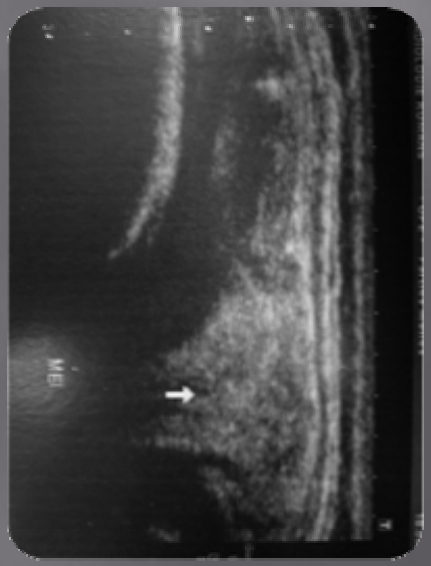
Deie JPO Am 2006

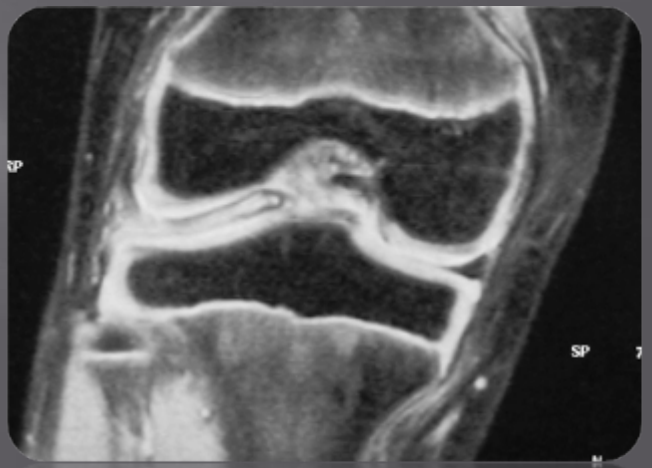
Imagerie complémentaire ?

- Arthrographie
- Arthroscanner
- IRM / Arthro IRM

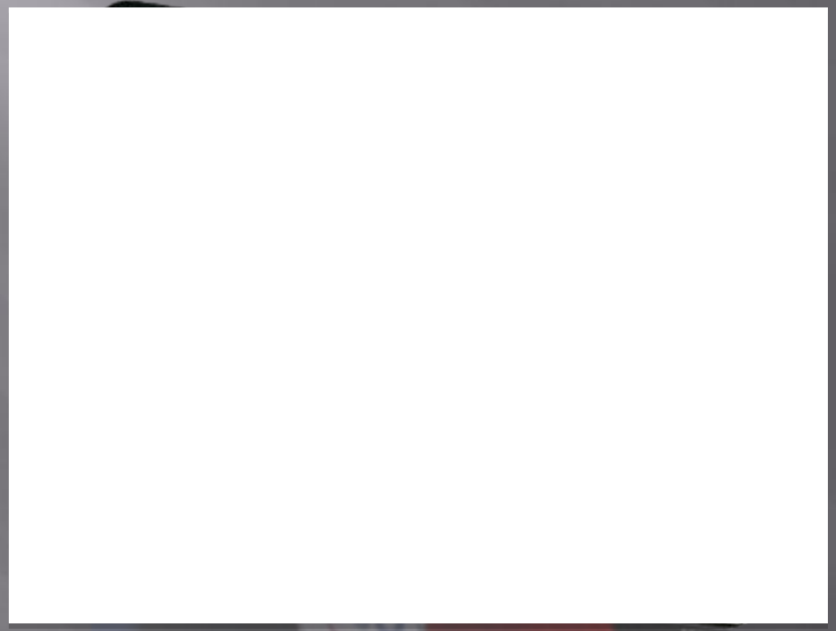


- Échographie ?





A ce jour
Un patient non symptomatique ne justifie d'aucun traitement !



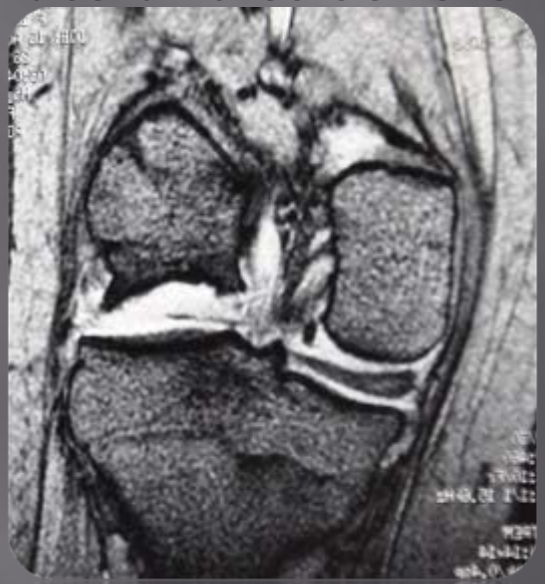
TT seulement si déchirure ou désinsertion méniscale

Traitement traditionnel

Méniscectomie complète / Arthrotomie ou scopie

- Évolution dégénérative précoce ++
  chez l'enfant
- "Hyperfriction" compartiment latéral
  Ostéochondrite condyle latéral très sévère

+4 A méniscectomie latérale complète



Evolution après méniscectomie

- Le pronostic à long terme est fonction du volume méniscal réséqué !

- Méniscectomie complète :
  17 genoux à 20 ans de recul :
  10 lésions dégénératives
  + 2 ostéochondrites

- Méniscectomie partielle :
  85% de bons et excellent résultats à 5 ans de recul
  Pas de long recul

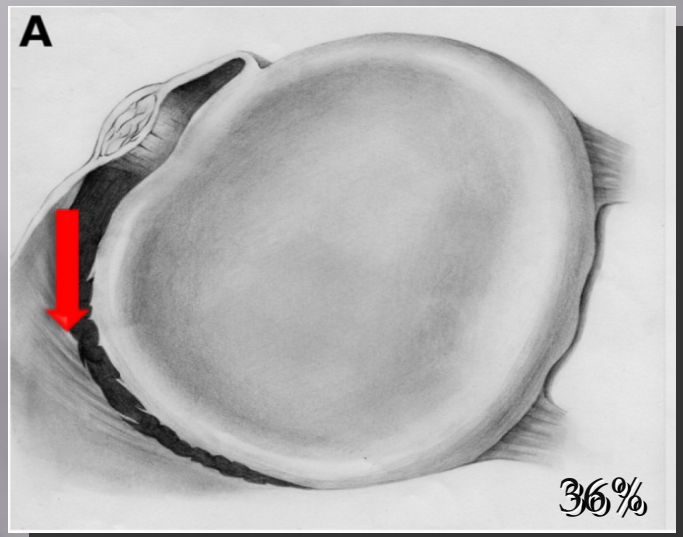
Raber JBJS 98

Apports de l' IRM / arthroscopie

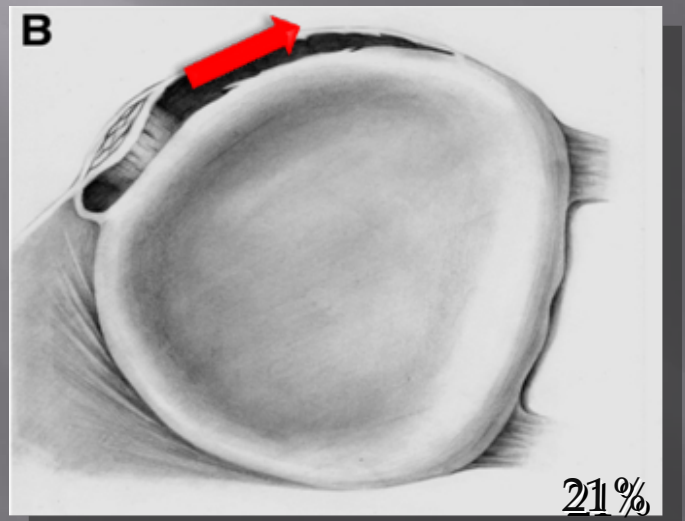
- Meilleure visualisation / compréhension des phénomènes pathologiques
  - ☞ Notion de désinsertion méniscale

- Chirurgie méniscale plus précise
  - ☞ méniscoplastie partielle dite de "saucérisation "

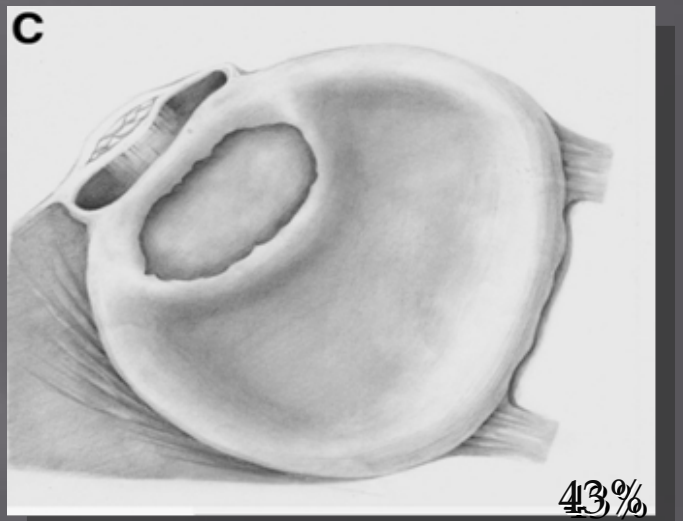
Classification Arthroscopique :
3 types de désinsertions (selon Ahn)



Ménisco Capsulaire Ant
(ancien Watanabe I)



Ménisco Capsulaire Post
(ancien Watanabe III ?)



Angle Postéro Latéral
(Watanabe Type IV ?)

Ahn JH Arthroscopy 2008

Le Ressaut ou Claquement : «Snapping Knee ou Clunk»

- Il traduit une désinsertion périphérique et un ménisque luxable- réductible
- Peut-être visible, audible
- Disparaît en "cabot "

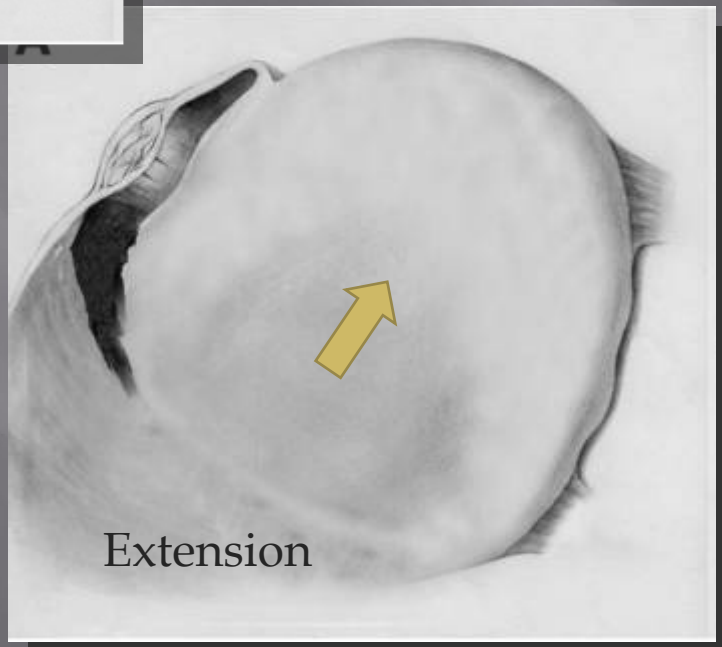
- Peut disparaître si le ménisque se cale derrière le condyle ou dans l'échancrure / Limitation de mobilité

  ☞ ménisque luxé non réductible

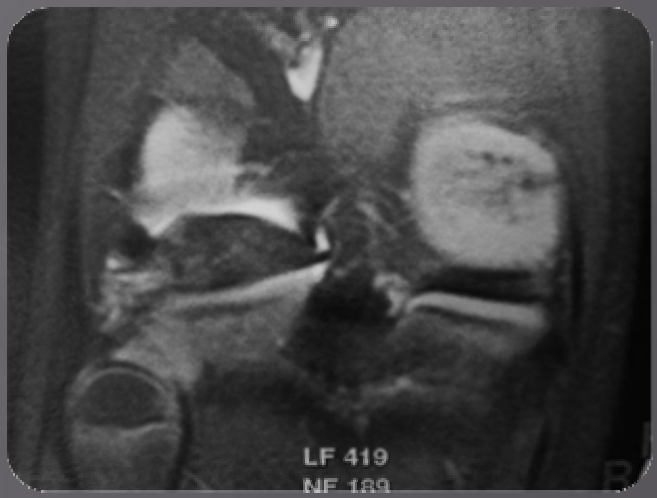
Nathan, 9 ans Film

Désinsertion Ménisco-Capsulaire Antérieure

« Clunk » de luxation postérieur en extension

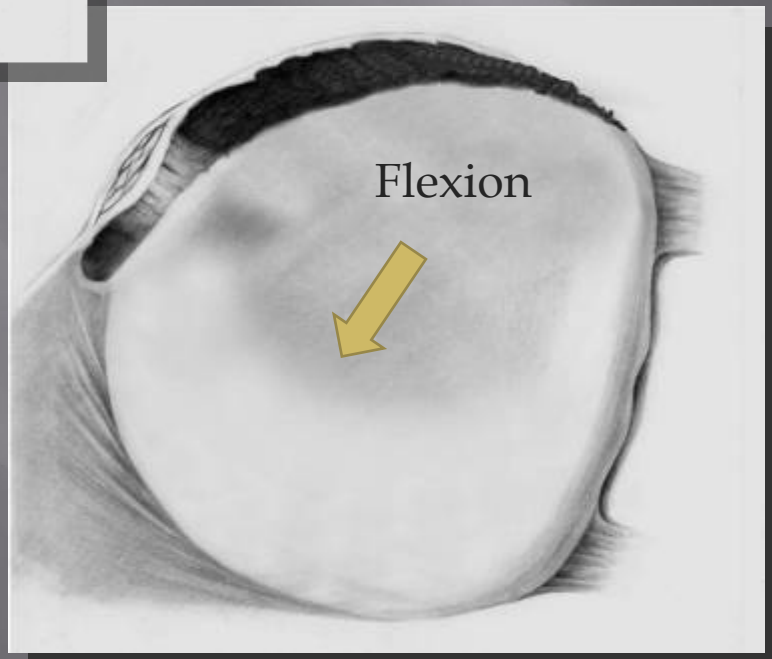


Désinsertion Ménisco-Capulaire Ant.



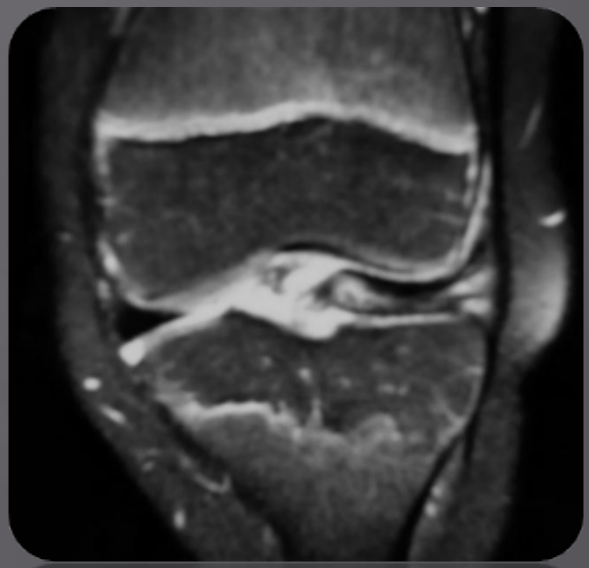
Désinsertion Ménisco-Capsulaire Postérieure

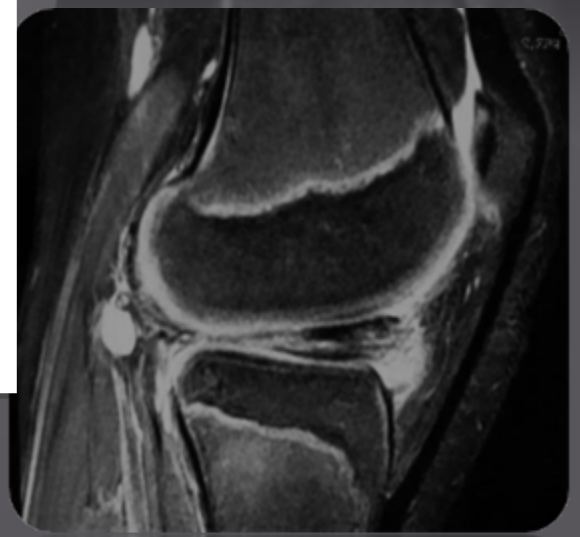
Ancien watanabe Type III
« Clunk » de luxation antérieur
en flexion
… puis flexum



Julie : flexum chronique

- Boiterie
- Flexum "inexpliqué "
  Amyotrophie +
- Pas de claquement

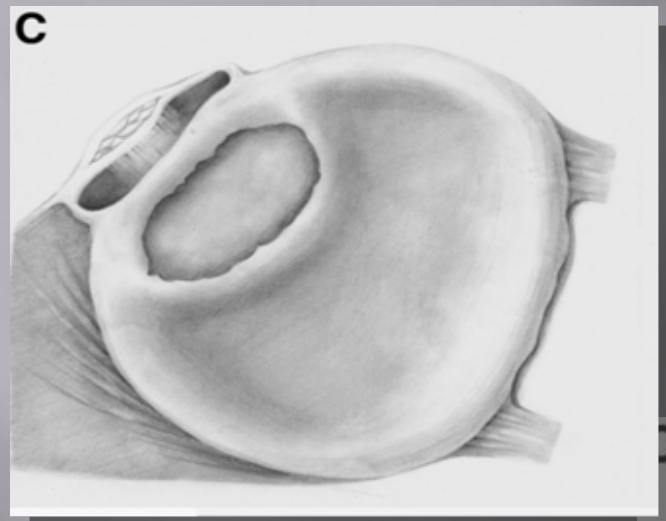


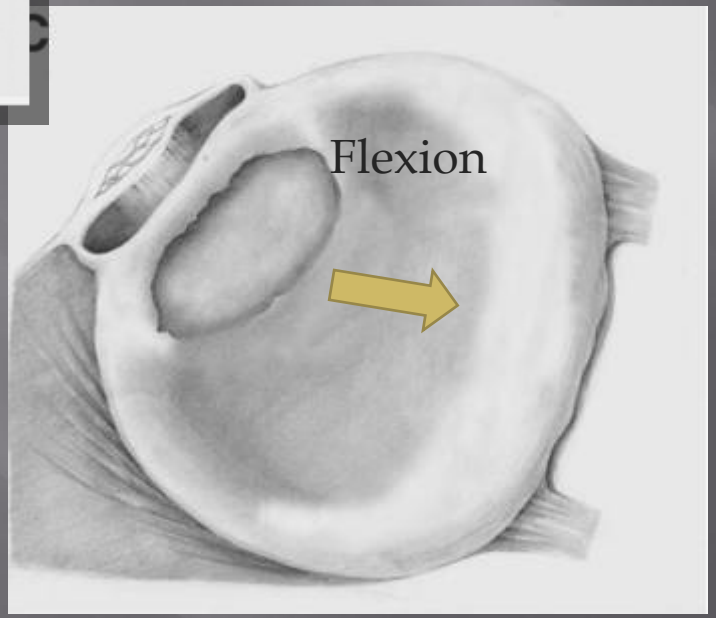


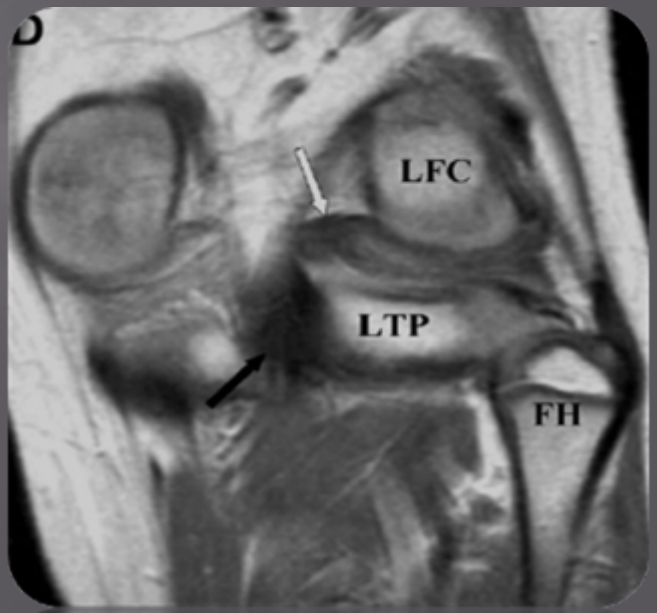
Désinsertion Ménisco Capsulaire Postérieure

IRM = déplacement antéro-central

Lâchage de Angle PostéroLatéral







Vers une autre philosophie : La réinsertion méniscale…

Case Report

Torn Discoid Lateral Meniscus Treated Using Partial Central Meniscectomy and Suture of the Peripheral Tear

Nobuo Adachi, M.D., Mitsuo Ochi, M.D., Yuji Uchio, M.D., Masakazu Kuriwaka, M.D., and Rikuo Shinomiya, M.D.

Abstract: We present the cases of 5 patients with a torn discoid lateral meniscus treated using partial central meniscectomy in conjunction with the suture repair of the tear. The patients were 4 boys and 1 girl with a mean age of 15.4 years (range, 11 to 17). Preoperatively, all patients complained of knee pain during daily or sports activities. At the final follow-up evaluation, more than 2 years later, 4 patients' conditions were graded as excellent and 1 patient's condition was graded as fair according to Ikeuchi's grading scale. The average Lysholm score improved from 83.4 points (range, 70-90) to 95.8 points (range, 89-100) postoperatively. In the 3 patients who underwent second-look arthroscopy, complete healing was seen in 2 patients. One patient had severe degenerative changes in the meniscus; the repaired site was not united and required an additional partial meniscectomy along the tear. We believe that with the current advancement in arthroscopic meniscal repair techniques, a partial central meniscectomy in conjunction with the suture repair of the peripheral tear can be effective treatment for patients with a torn complete or incomplete discoid meniscus. **Key Words:** Discoid meniscus—Meniscal repair—Meniscectomy.

Discoid meniscus is an uncommon congenital meniscal anomaly first reported by Young[1] in 1889 in a cadaver specimen. Watanabe et al.[2] developed the most accepted classification according to the arthroscopic appearance: complete, incomplete, and Wrisberg type. Discoid meniscus is a possible cause of knee pain in children and adolescents, limiting daily and sports-related activities. For patients with symptomatic discoid meniscus for whom conservative treatments failed, surgical treatment should be considered. However, surgical treatment for discoid meniscus is still controversial. Although the accepted treatment for symptomatic discoid meniscus in the past has been total meniscectomy,[3-5] recent long-term results have noted some degree of radiographic degenerative changes after total meniscectomy.[6]

Based on accumulated knowledge on the importance of meniscal function, the generally recommended procedure for symptomatic discoid meniscus is an arthroscopic partial central meniscectomy, or so-called "saucerization procedure."[7-12] In this procedure, resection of the central portion of the meniscus is performed until the remaining rim is established to the width of a normal meniscus. However, for the patient with a peripheral tear in the vascular zone of the discoid meniscus, we often must resect a larger part of the meniscus along the tear. We believe that with current advancement of arthroscopic meniscal repair techniques, a reparable peripheral tear in the vascular zone of the meniscus can be sutured in conjunction with a partial central meniscectomy. In this

From the Department of Orthopaedic Surgery, Graduate School of Biomedical Sciences, Hiroshima University (N.A., M.O., R.S.), Hiroshima; and the Department of Orthopaedics, Shimane Medical University (Y.U., M.K.), Izumo, Japan.

Address correspondence and reprint requests to Nobuo Adachi, M.D., Department of Orthopaedic Surgery, Graduate School of Biomedical Sciences, Hiroshima University, 1-2-3 Kasumi, Minami-ku, Hiroshima 734-8551, Japan. E-mail: nadachi@hiroshima-u.ac.jp

0749-8063/04/2003-3645$30.00/0
doi:10.1016/j.arthro.2004.01.028

Arthroscopic Partial Meniscectomy With Repair of the Peripheral Tear for Symptomatic Discoid Lateral Meniscus in Children: Results of Minimum 2 Years of Follow-up

Jin Hwan Ahn, M.D., Sang Hak Lee, M.D., Jae Chul Yoo, M.D., Yong Seuk Lee, M.D., and Hae Chan Ha, M.D.

Purpose: This study was undertaken to document the clinical results and technical aspects of arthroscopic partial meniscectomy in conjunction with peripheral tear repair for the treatment of symptomatic discoid lateral meniscus in children. **Methods:** From June 1998 to May 2005, the senior author (J.H.A.) performed arthroscopic surgery on 77 children (89 knees) with symptomatic discoid lateral meniscus. Of these patients, we retrospectively studied 23 patients (28 knees) with a peripheral tear that was treated by partial central meniscectomy in conjunction with peripheral suture repair. Mean age at operation was 9.0 years (range, 4 to 15 years), and the mean follow-up period was 50.9 months (range, 24 to 94 months). Arthroscopic findings were categorized into 3 types in terms of peripheral rim stability and tear site: (1) meniscocapsular junction (MC), anterior horn type (MC-A type); (2) MC, posterior horn type (MC-P type); and (3) posterolateral corner (PLC) loss type. These 3 types needed different arthroscopic techniques for saucerization with repair. Clinical results were evaluated using Lysholm knee scores and Hospital for Special Surgery (HSS) scores preoperatively and at final follow-up. **Results:** All patients were able to return to their previous life activities with little or no limitation, and no reoperation was required after an average follow-up of 51 months. Mean Lysholm knee scores improved from 78.5 (range, 69 to 89) preoperatively to 95.5 (range, 85 to 100) at the final follow-up ($P < .0001$), and the mean HSS score improved from 80.3 (range, 69 to 89) preoperatively to 95.9 (range, 90 to 100) at the final follow-up ($P < .0001$). **Conclusions:** We believe that the described arthroscopic partial meniscectomy in conjunction with the meniscal repair of the peripheral tear are effective for treating children with a symptomatic discoid lateral meniscus. **Level of Evidence:** Level IV, therapeutic case series. **Key Words:** Children—Discoid lateral meniscus—Meniscal reshaping—Repair.

Discoid lateral meniscus (DLM) is the most common congenital anatomic variation found in children, and was first described by Young in 1889.[1] The reported prevalence of discoid menisci ranges from 0.4% to 16.6%,[2-5] and is slightly higher in Asian populations.[3,6-9] Many children with discoid meniscus may remain asymptomatic and require no treatment. Symptoms often present in children and adolescents with unstable DLM when an associated tear of the anterior or posterior segments is present.[2,8,10,11] However, if peripheral rim tears in a DLM are not treated, the remnant meniscus can become unstable and may not be able to be preserved.[12]

The traditional treatment for a symptomatic DLM is total meniscectomy via open or arthroscopic means.[3,4,13-15] However, the long-term results of total meniscectomy in children are poor because of early degenerative changes and lateral instability.[14,16,17]

From the Department of Orthopaedic Surgery, Sungkyunkwan University School of Medicine, Samsung Medical Center, Seoul, Korea.

The authors report no conflict of interest.

Received September 13, 2007; accepted March 3, 2008.

Address correspondence and reprint requests to Sang Hak Lee, M.D., Department of Orthopaedic Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, 50 Ilwon-Dong, Kangnam-Ku, Seoul 135-710, Korea. E-mail: sanglee1102@empal.com

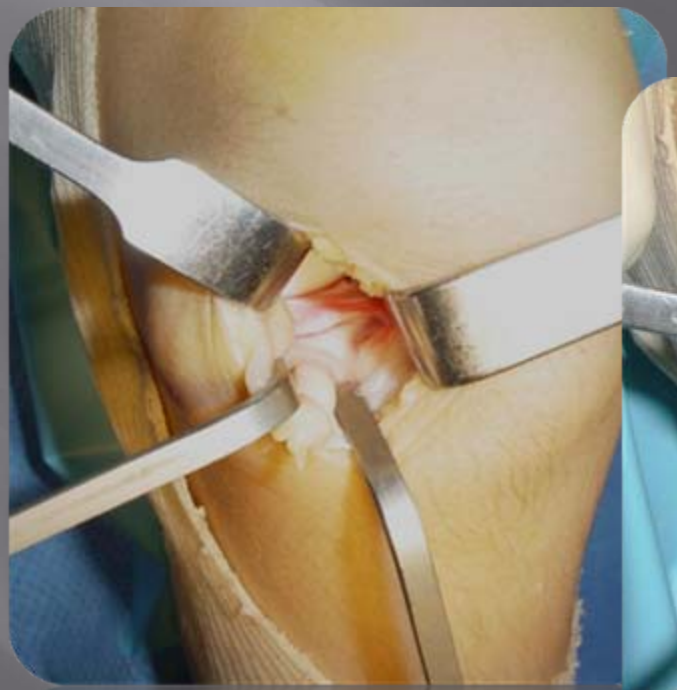
0749-8063/08/2408-3470$34.00/0
doi:10.1016/j.arthro.2008.05.002

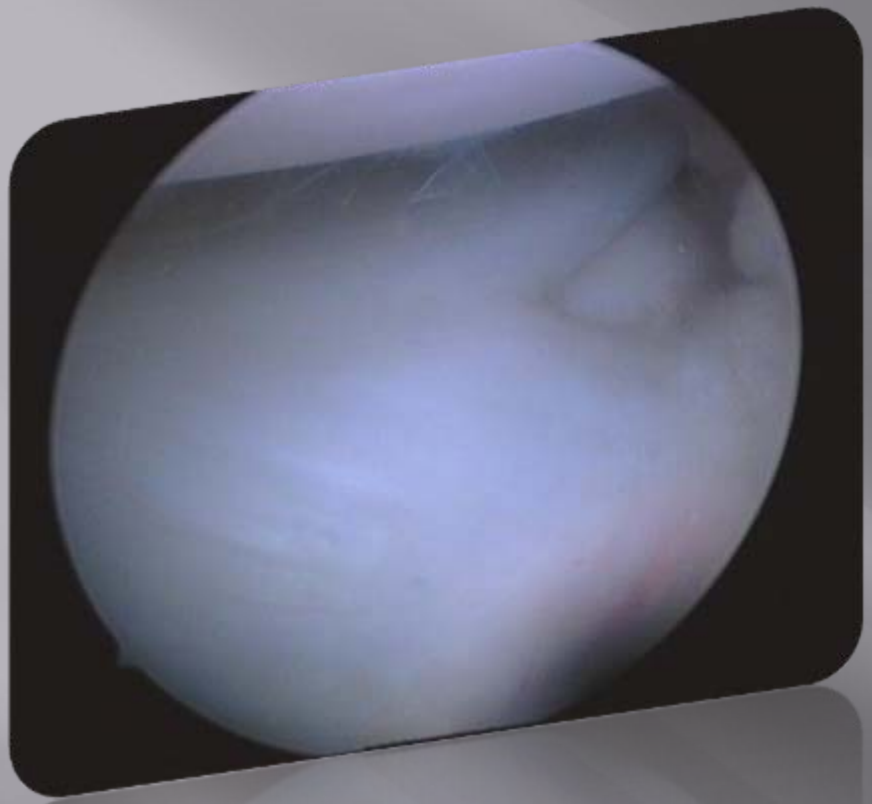
Désinsertion type MC Ant

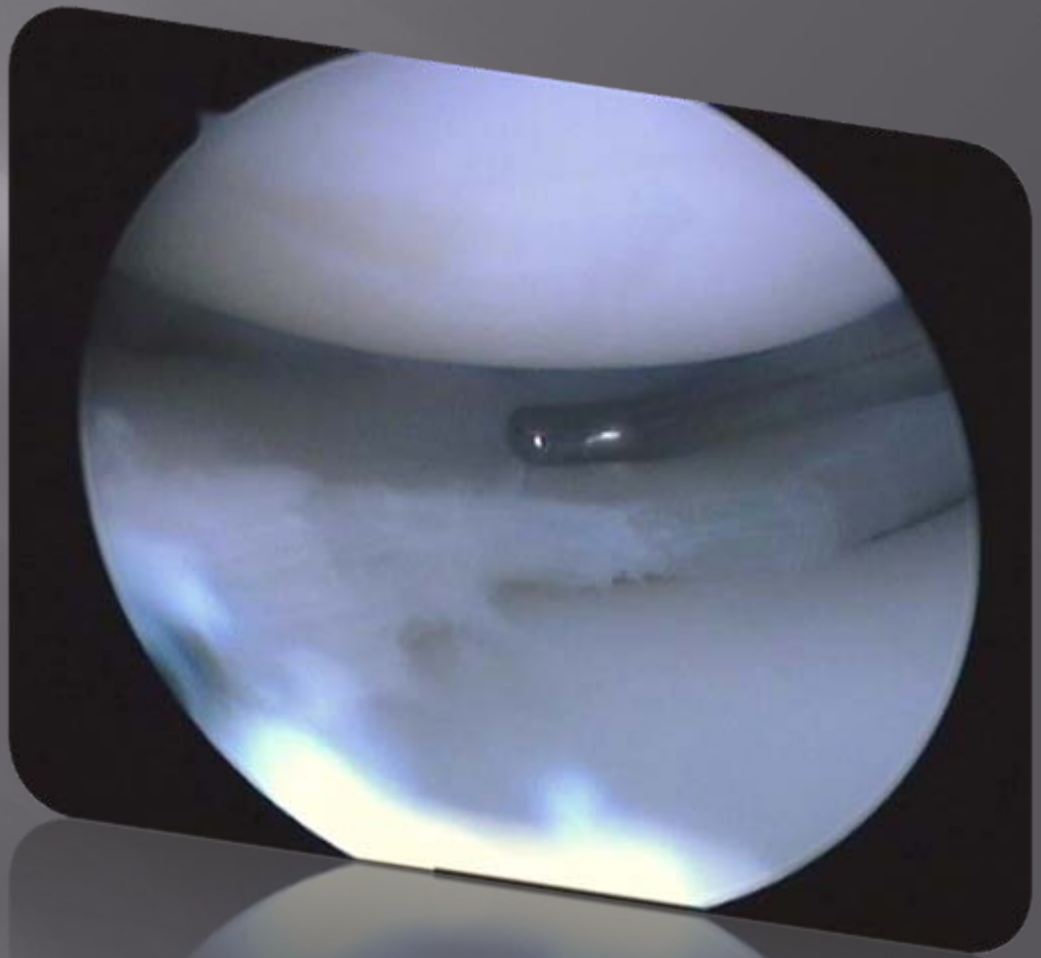
1- Saucérisation Post/Scopie

2- Réinsertion Ant /Tomie - Ancre

3- Complément de saucérisation



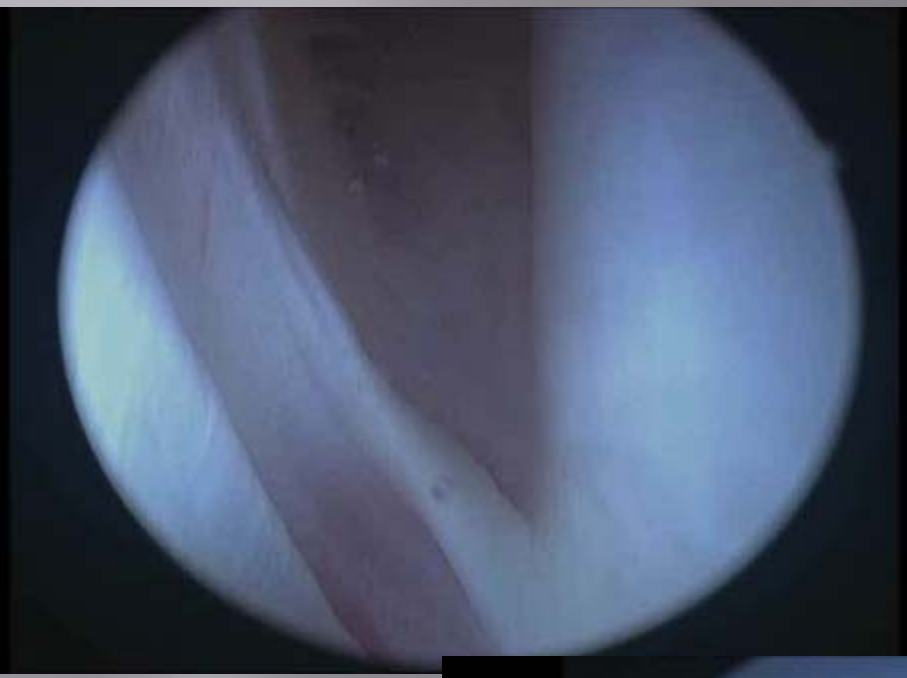




Méniscectomie économique et anatomique !

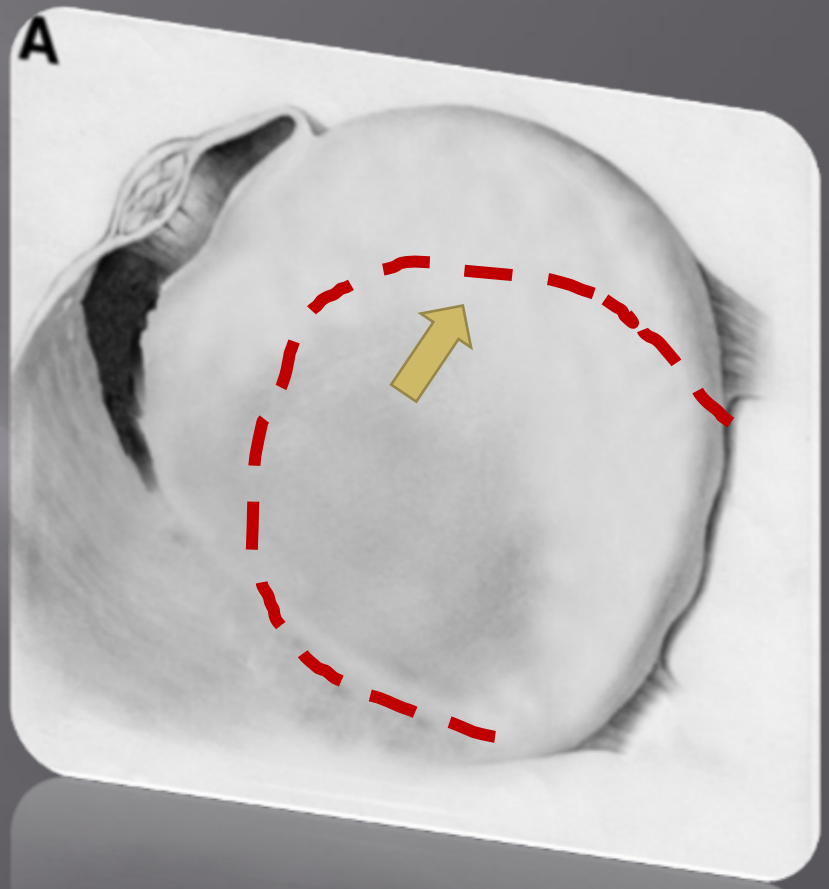
Kloé, 5 ans chutes ++

flexum intermittent réduit par ostéopathe

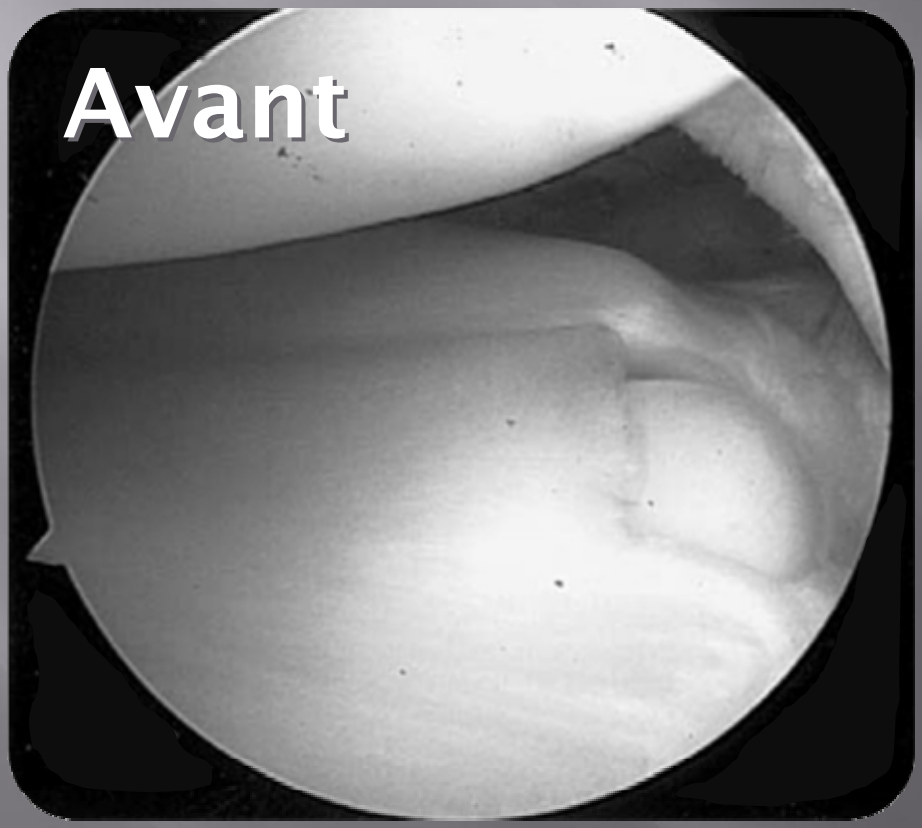


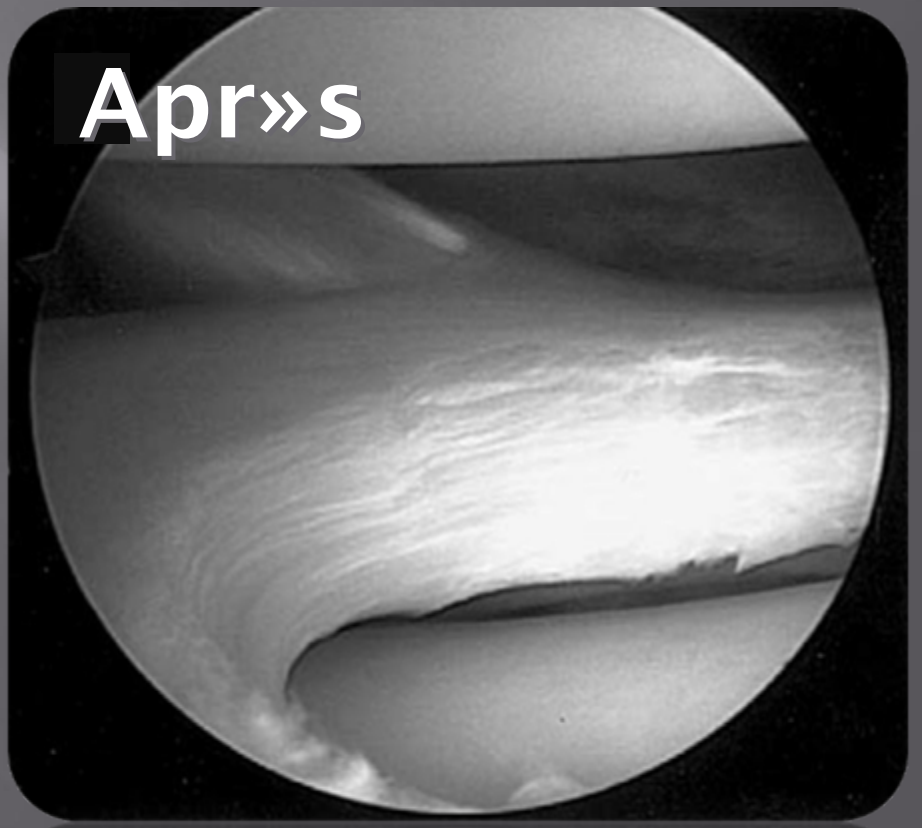
3 Films

Une stabilisation par "saucérisation" isolée aurait réalisée une méniscectomie assez large (surtout en avant !)



Réinsertion périphérique et méniscoplastie de saucérisation "économique"

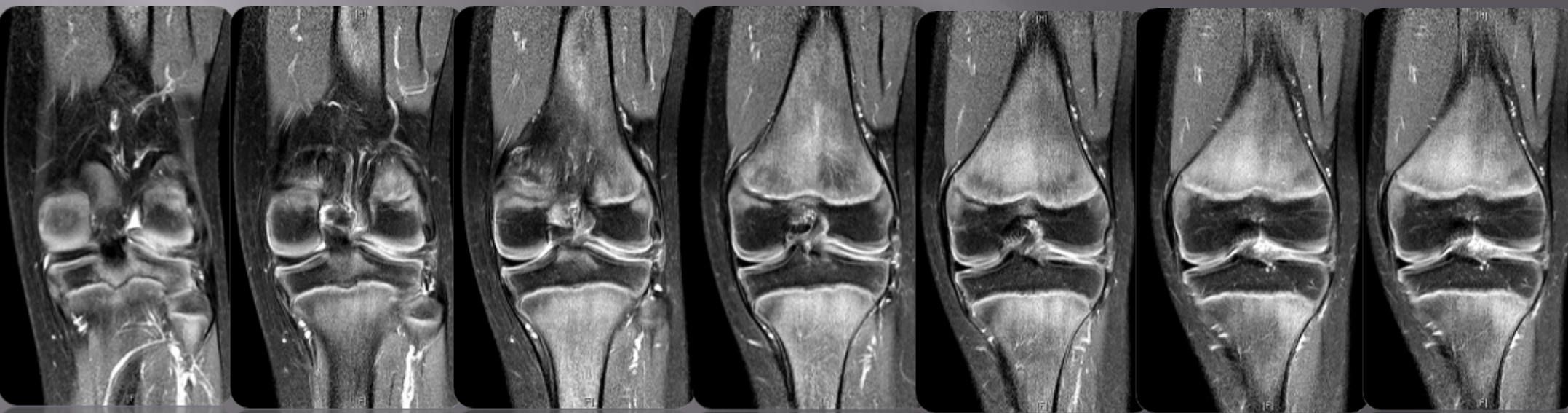




Adachi N Arthroscopy 2004

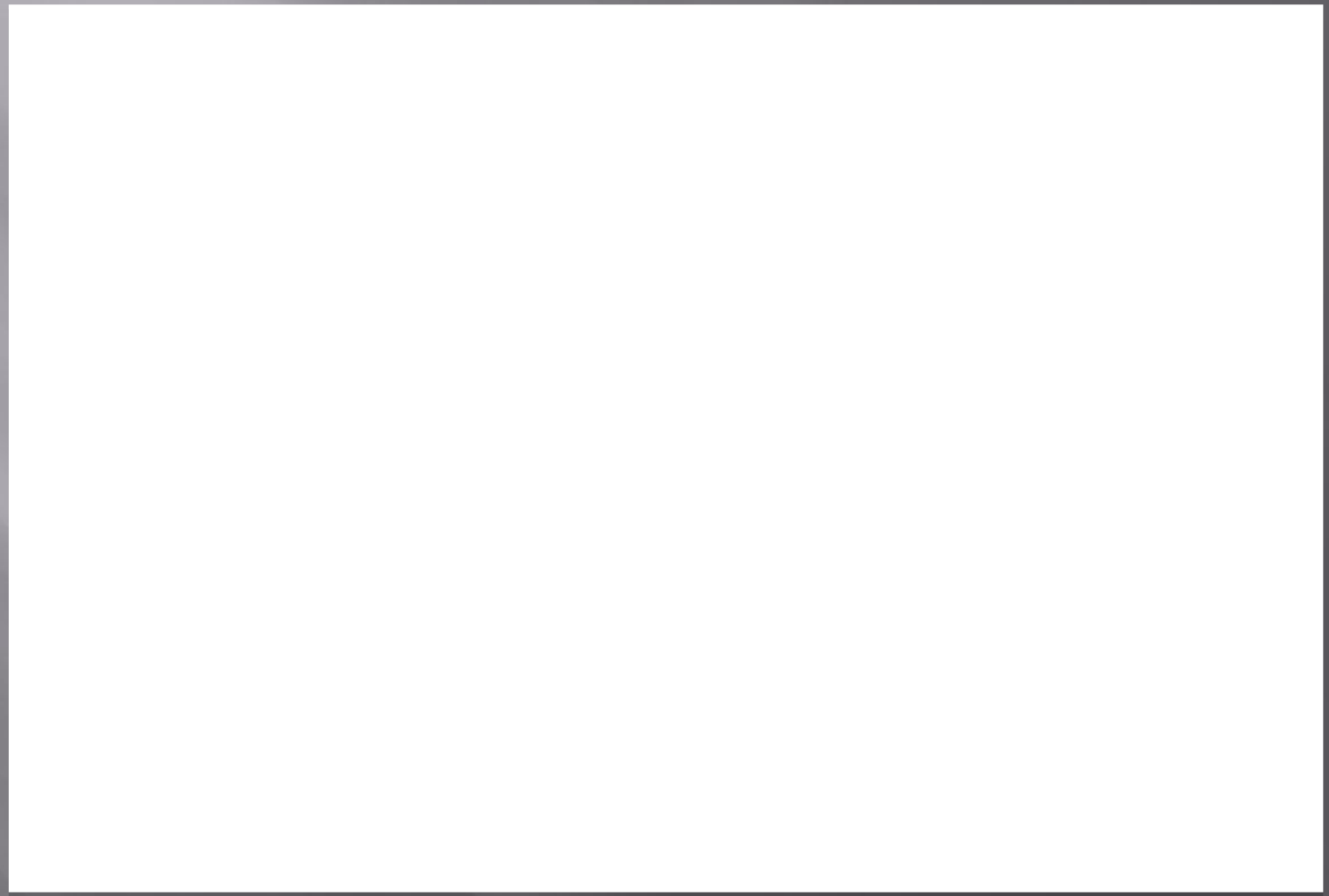
Mathis

Premiers ressauts
à l'âge de 4 ans

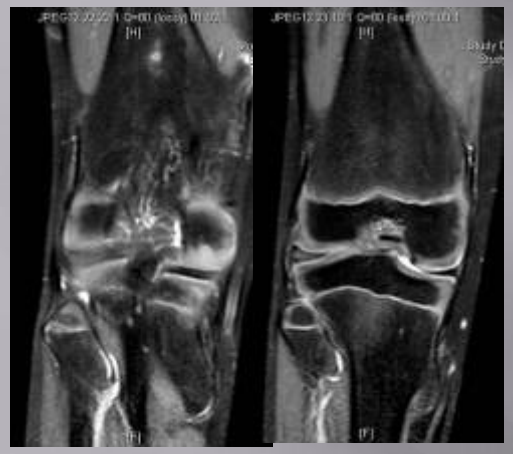


Mathis : Ressaut / désinsertion MC Ant

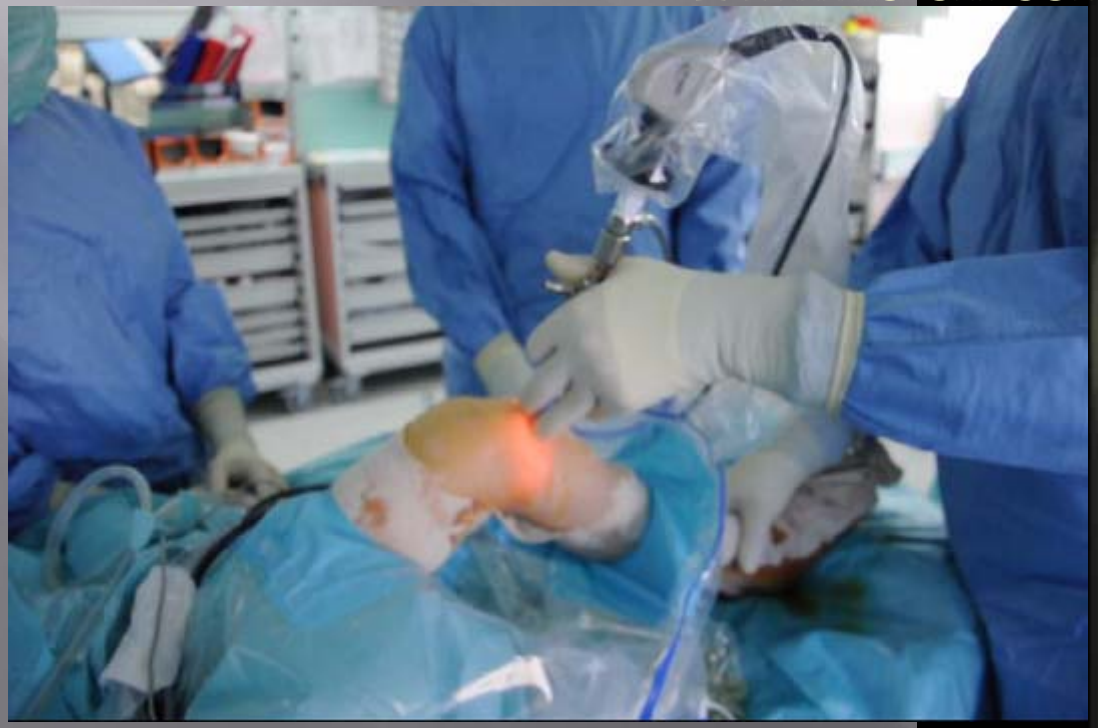
Film



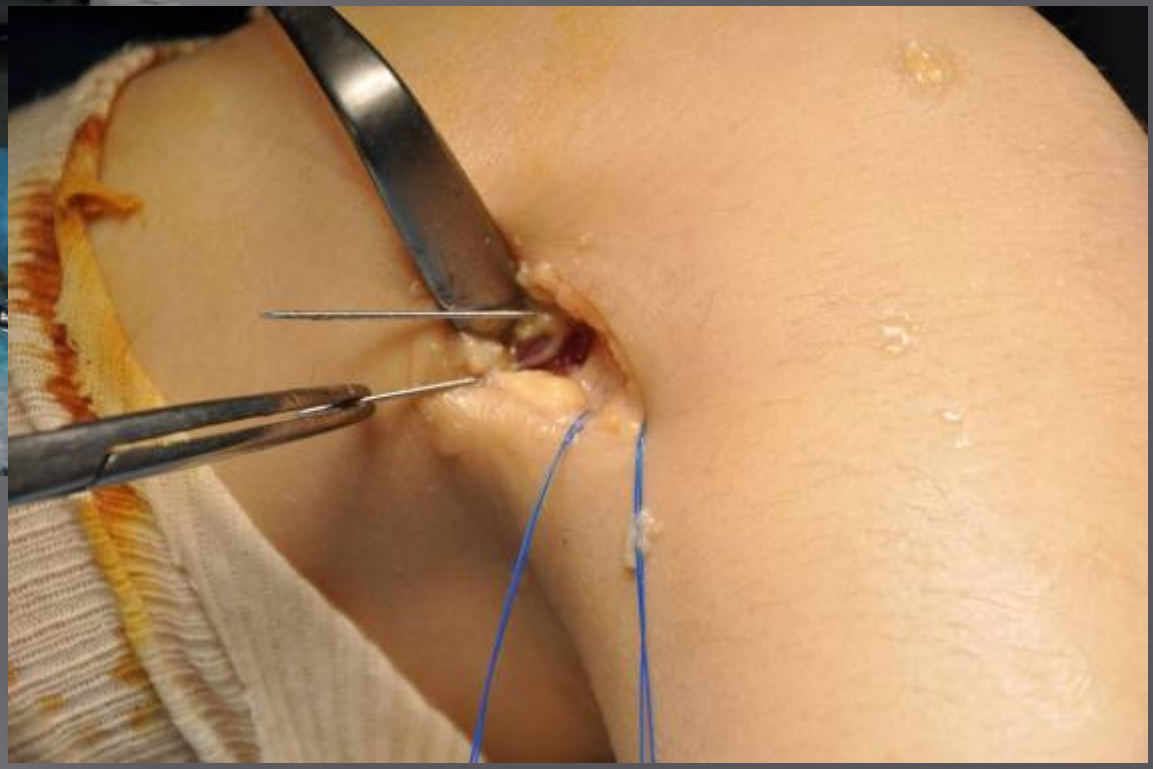
Mélissa, 8 ans ½ claquements et blocages genou Dt



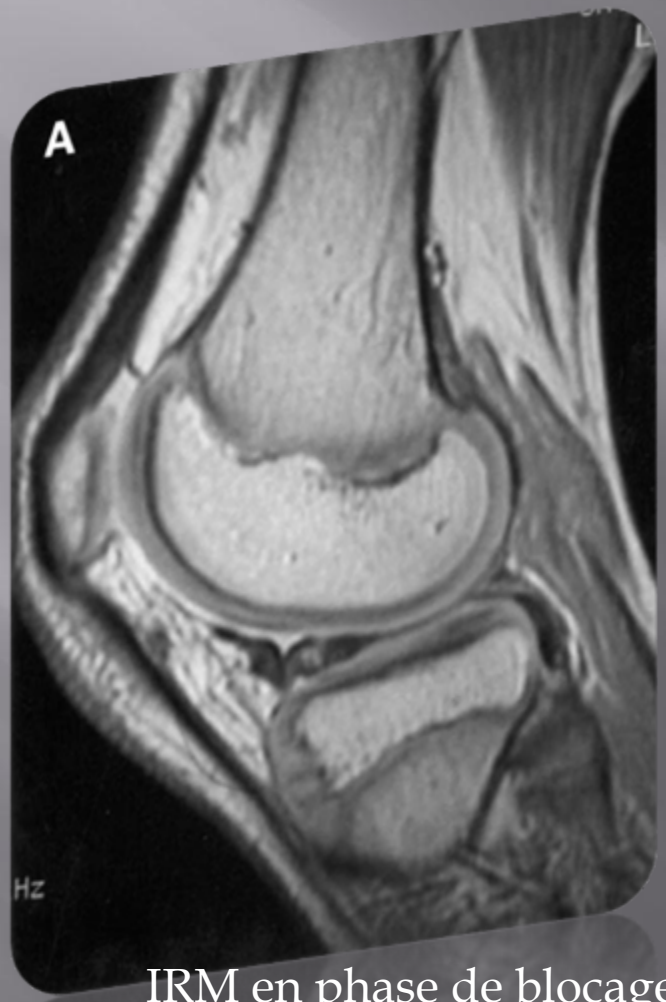
2 Films en correspondance



Stabilisation «*In-Out*» contre incision externe / SPE



Garçon 9ans ½, blocages itératifs du genou en flexion complète / déblocage en extension forcé
Première arthro "blanche" : ménisque normal

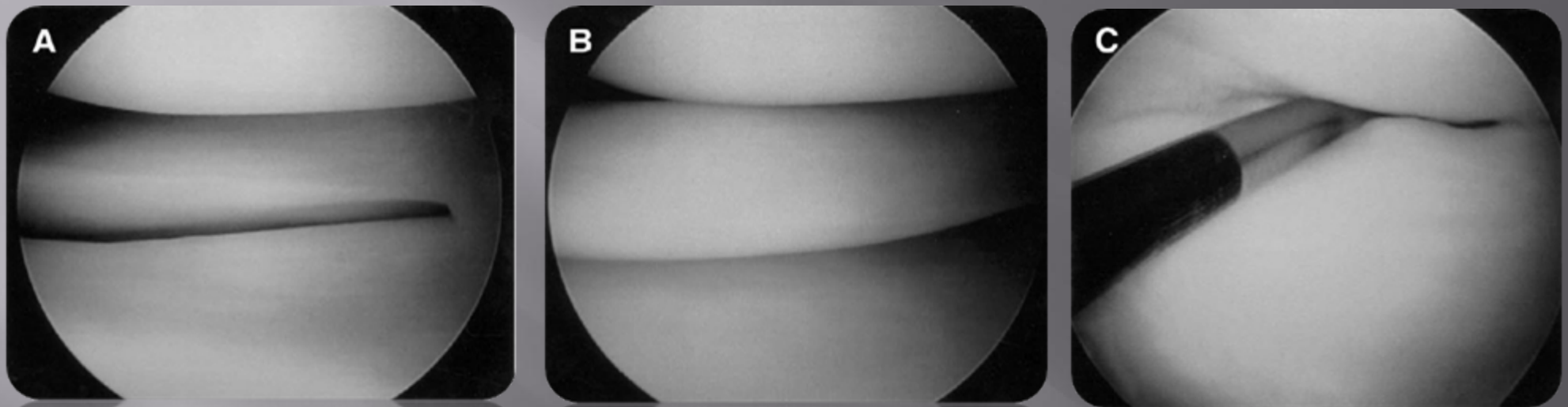


IRM en phase de blocage

George M Arthroscopy 2003

IRM après déblocage

Arthroscopie = palpation au crochet !



George M Arthroscopy 2003

Conclusion

- Nombreuses formes & entités
- Apport de l'IRM / arthroscopie
- Bien connaître la séméiologie clinique et IRM
- Arrêter les méniscectomies à ciel ouvert !
- Nouvelles perspectives / Chirurgie de réparation sous arthroscopie ☞ méniscoplastie – réinsertion
- Préserver le capital méniscal !