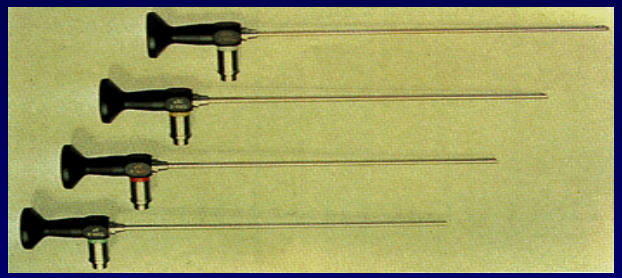
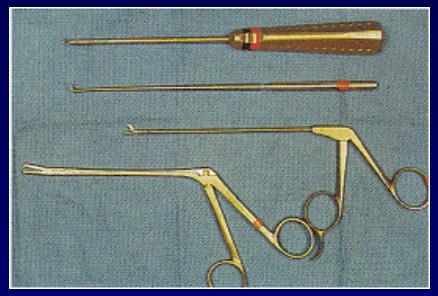
ARTHROSCOPY

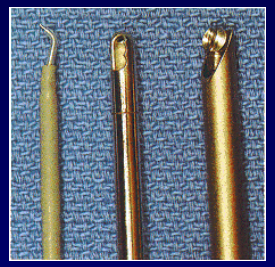
- Endoscopic method
- Imaging and treatment
- In general or spinal anestesia

- knee
- shoulder
- ankle
- elbow
- wrist
- hip
- small joints

Arthroscopy







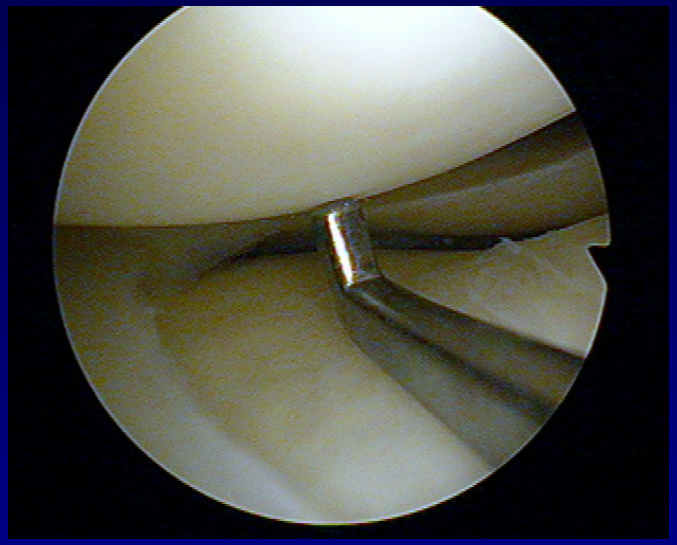
- Camera
- Arthroscop – rigid tube with a lens 30º or 70 º
- Xenon light with optic cabel
- ASC pump
- Instruments
- Shaver
- Vaper
- Printer, VIDEO, DVD

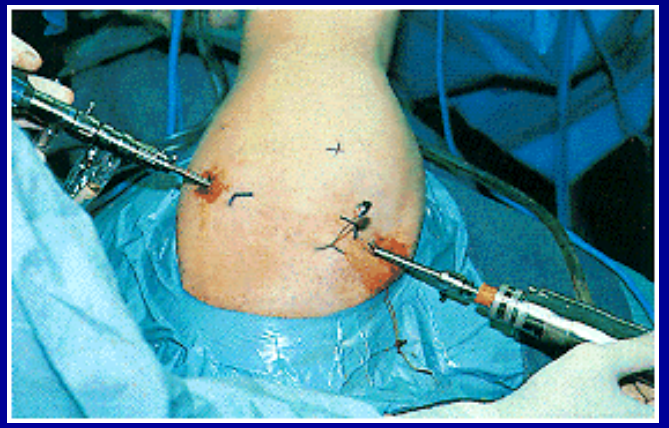
Arthroscopy

Menisci
Chondropathy- shaving, debridement,
abrasion arthroplasty,
microfractures
Plasty of ligaments
Suture of rotator cuff
Instability of shoulder
Repair of transchondral lesions
Support in treatment of intraarticular fractures
Biopsy

Advantages

- Perfect visualisation
- Less postoperative pain
- Fast physioterapy
- Small incision

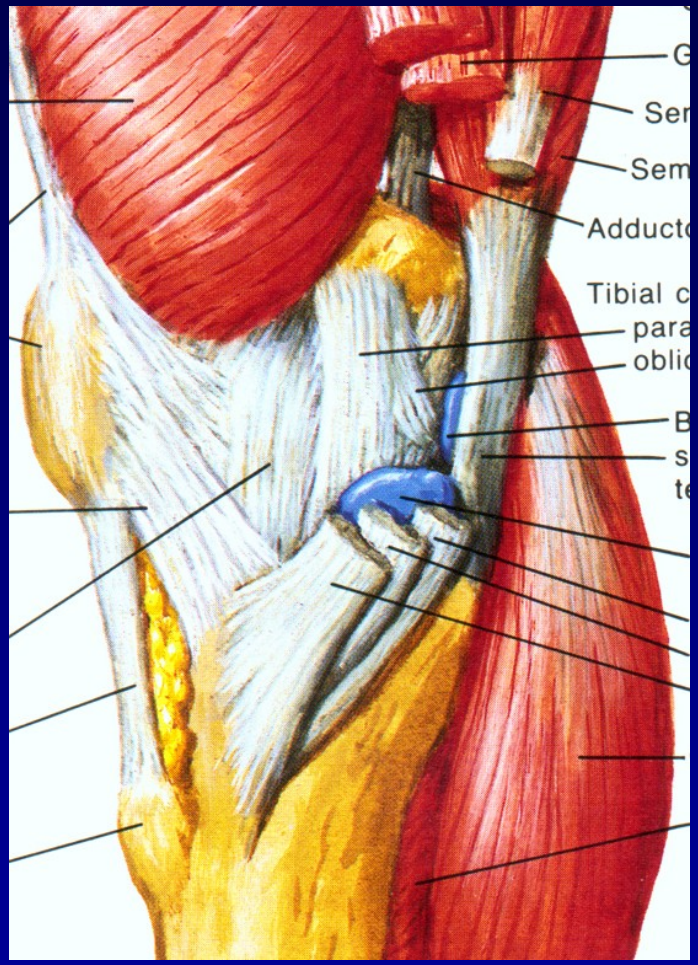




The knee joint- complicated structure

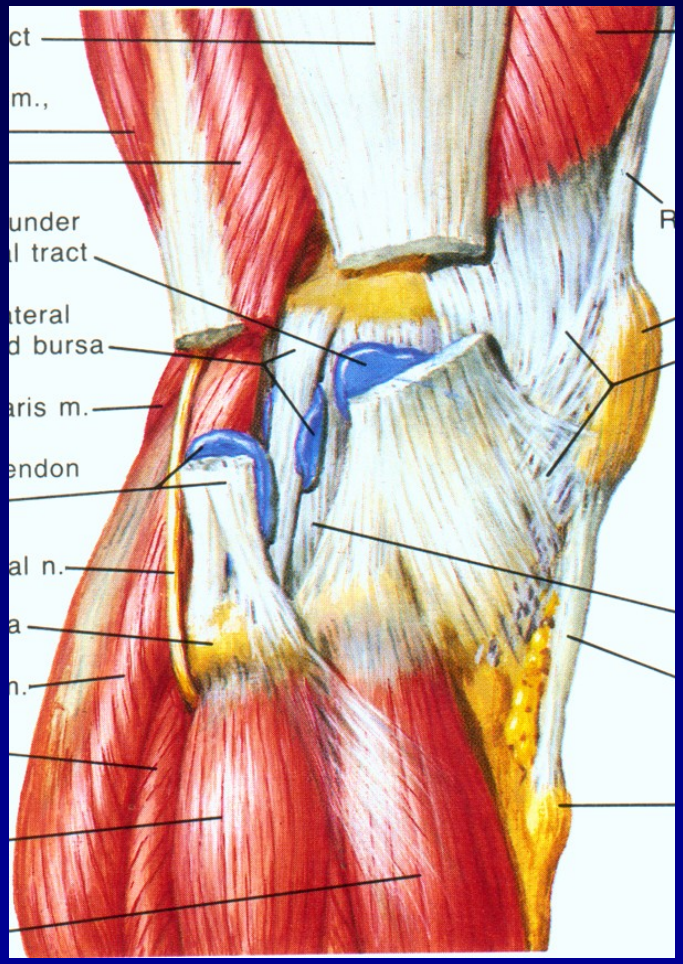
Articulating bones: Femur, tibia and patella

Stability of the knee



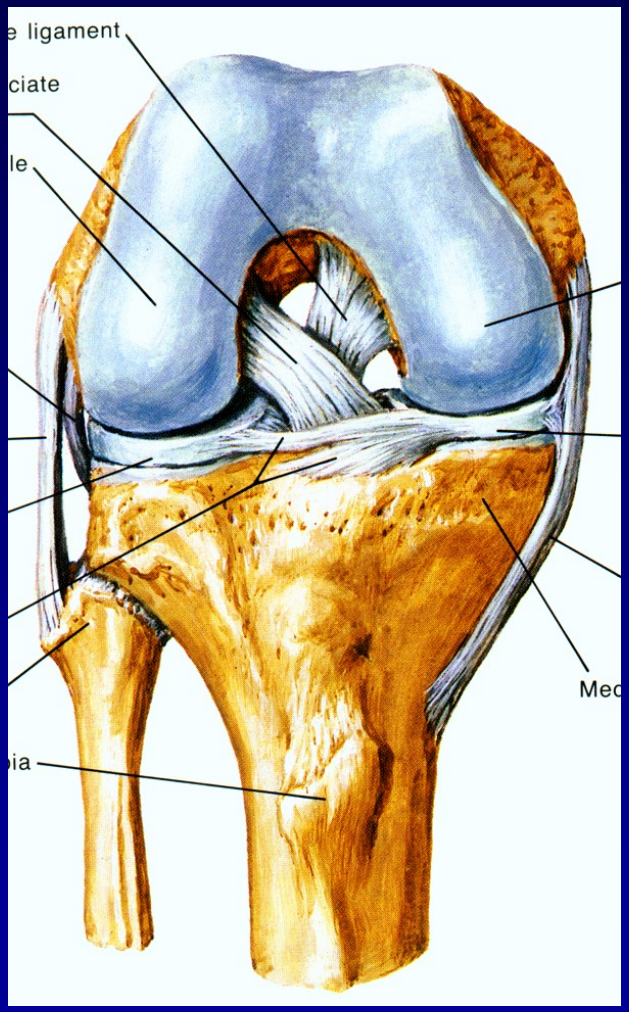
Medial side

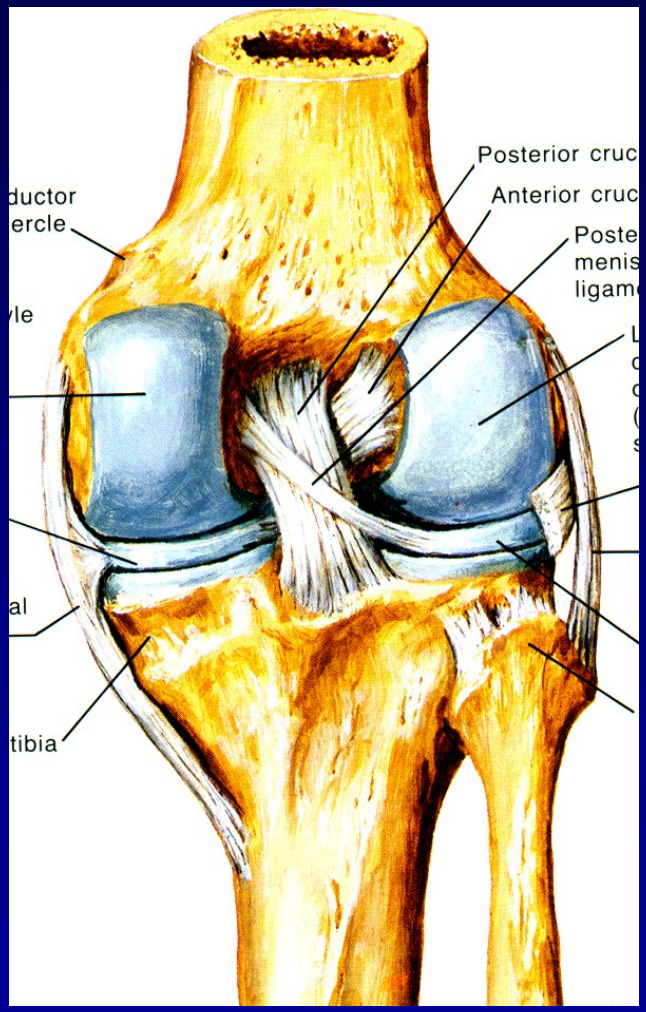
Stability of the knee



Lateral side

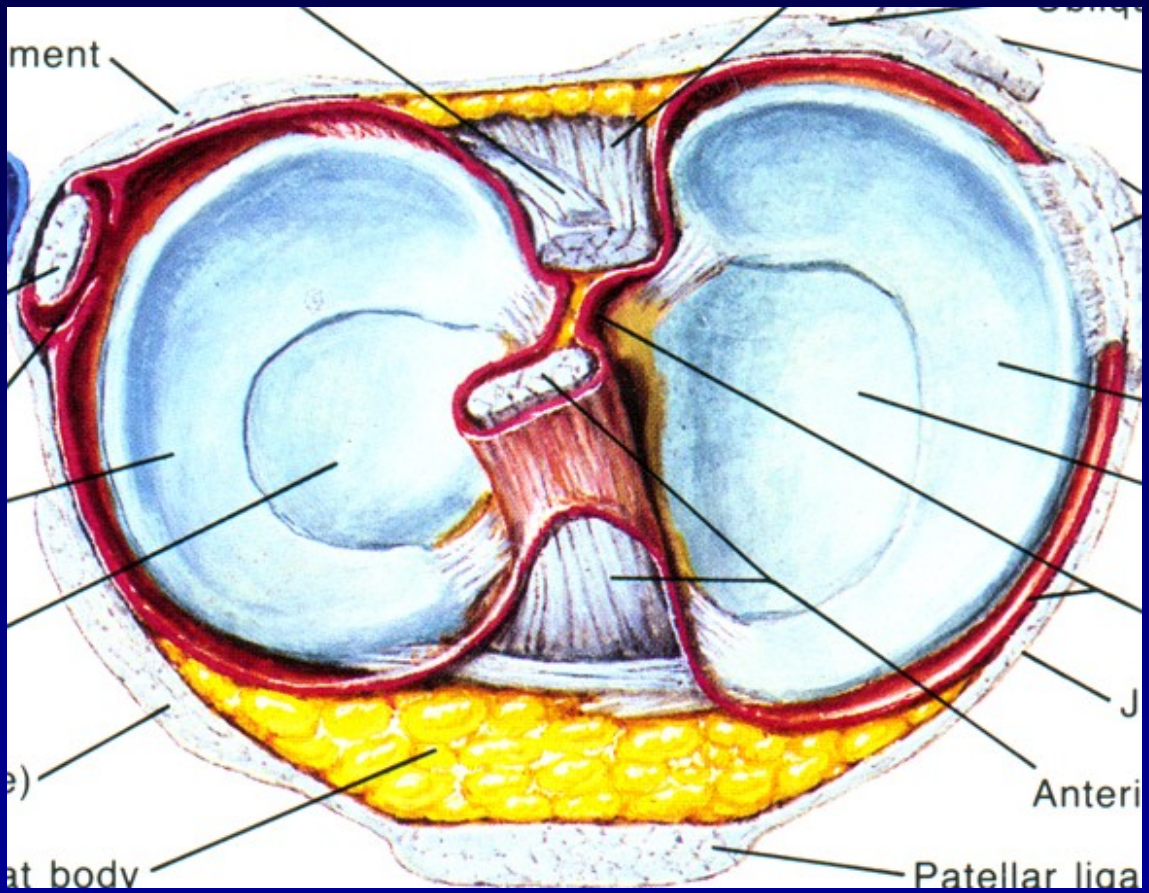
Stability of the knee





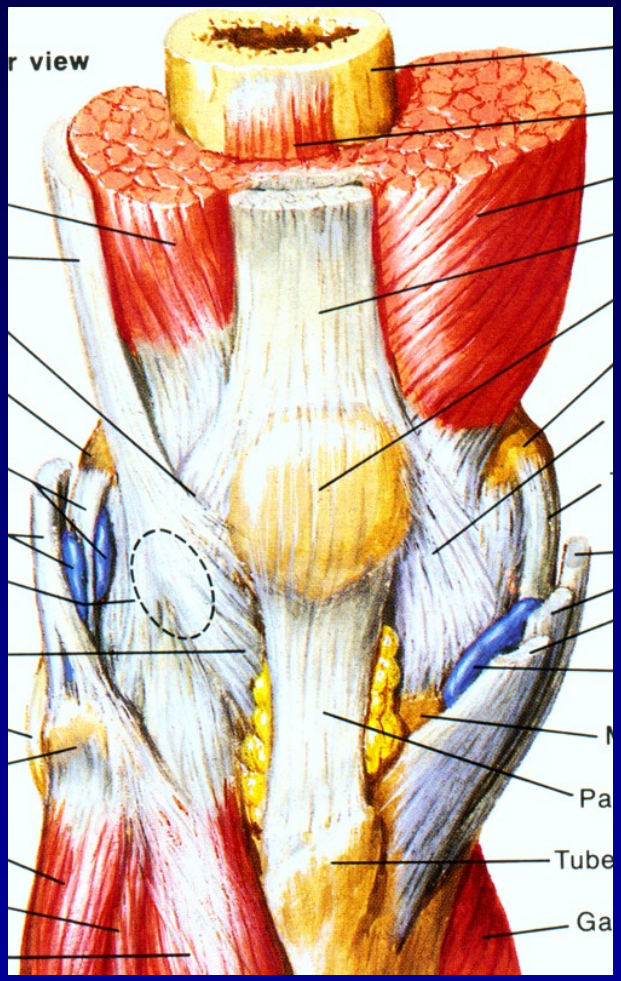
Cruciate ligaments

Stability of the knee joint



Menisci

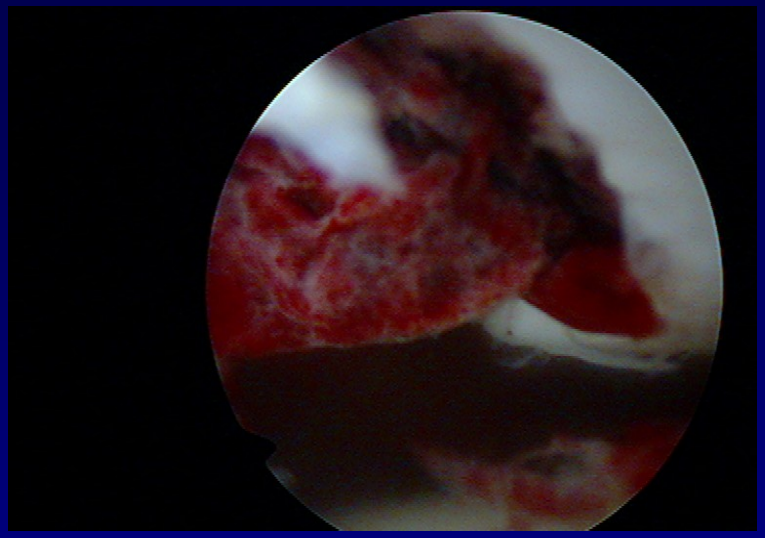
Stability of the knee

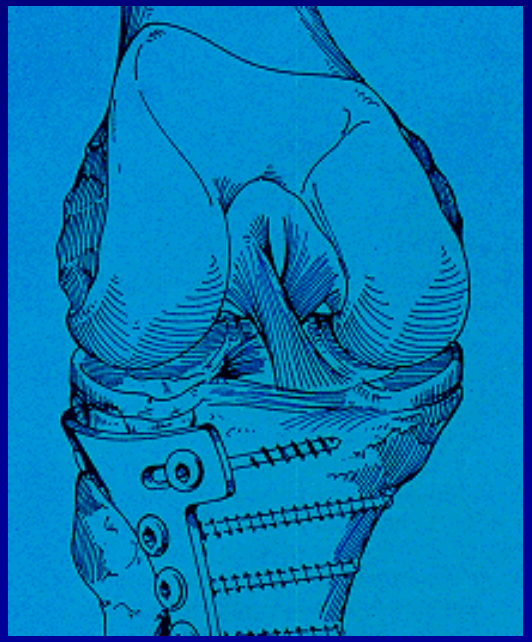


Muscles

The knee joint

- Traumatology
- Chondropathy
- Degenerative findings



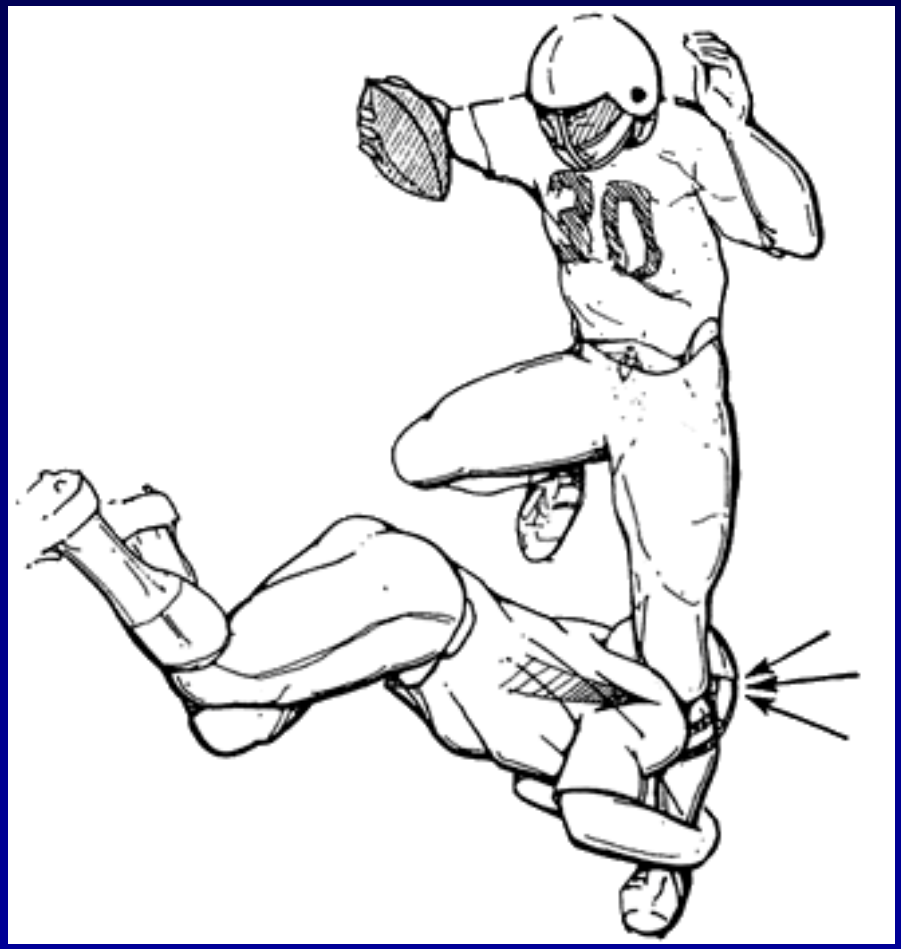


Traumatology

Haemarthrosis
Meniscus lesion
Rupture of ligaments
Dislocations of the patella
Transchondral fractures

History

- History
- Mechanism of injury

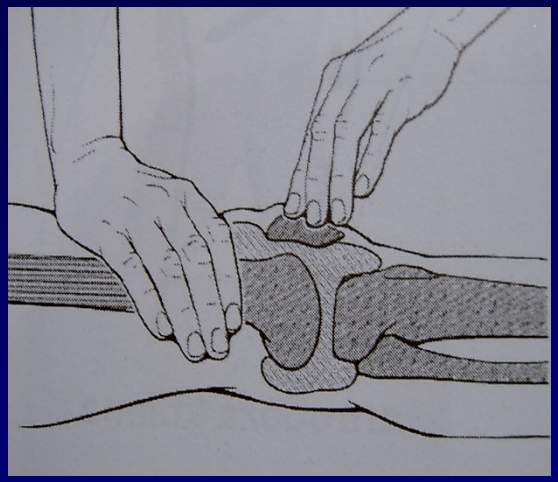


Examination

- Clinical examination
- Aspiration
- Blood patches
- X- ray
- MRI
- Ultrasonography

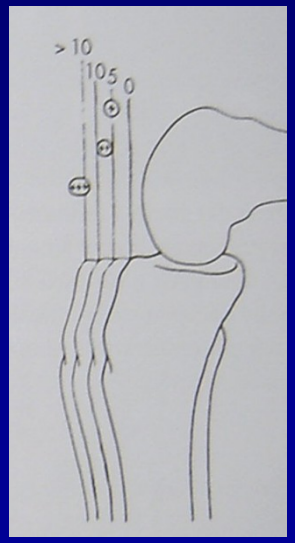
Clinical examination

- Swelling, haematoma
- Effusion
- ROM
- Tenderness
- Stress test for stability
- Maneuvers
- Patela examination

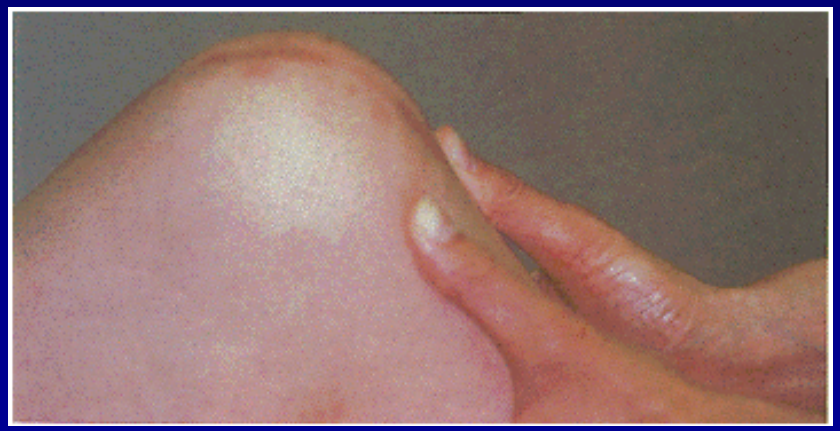


Anterior drawer sign

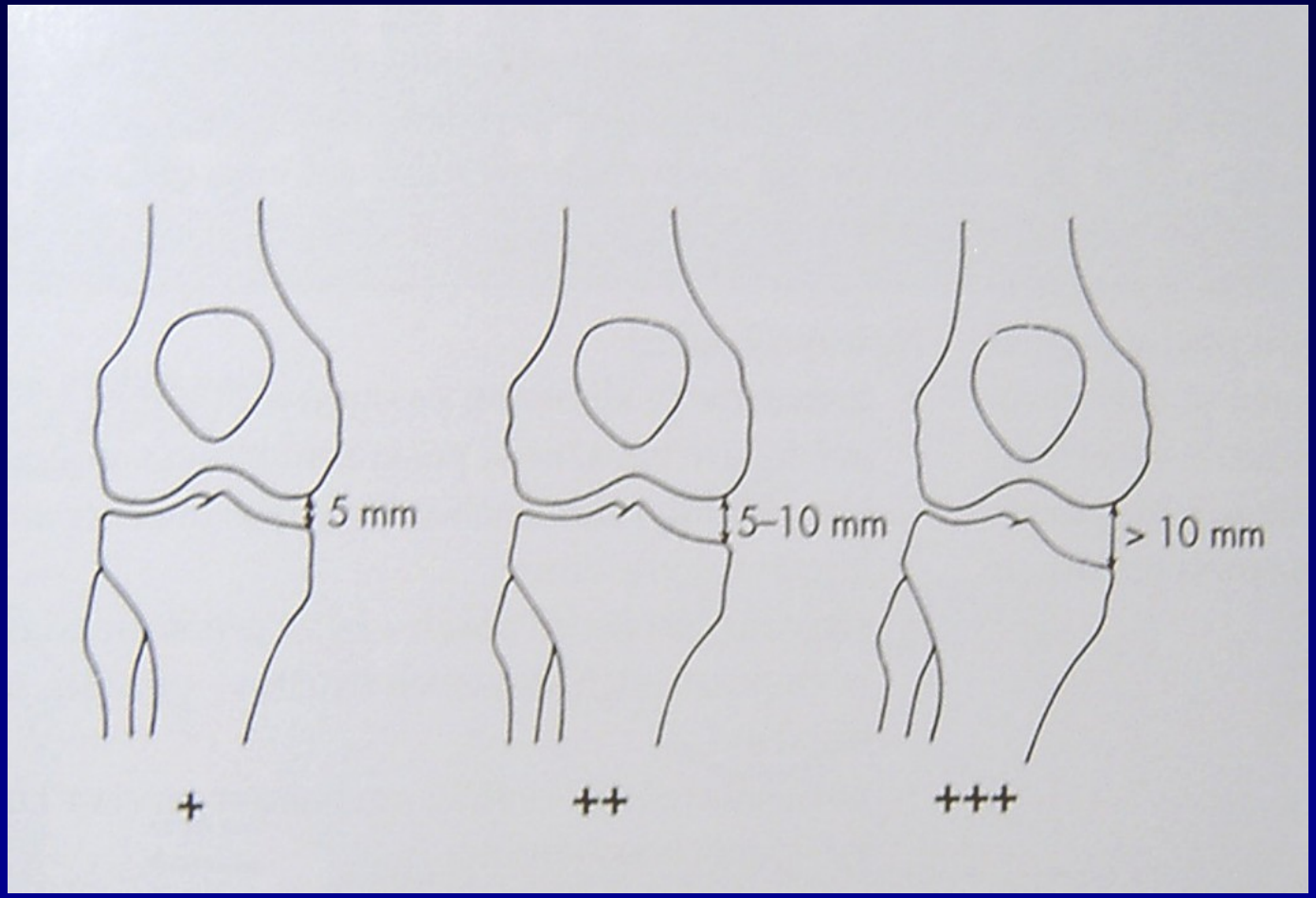
Lachman test



Anterior drawer sign, pivot shift test



Posterior drawer sign



Valgus stress test
Varus stress test

Meniscus

Mechanism of injury

Tests: Mc Murray

Steinmann I

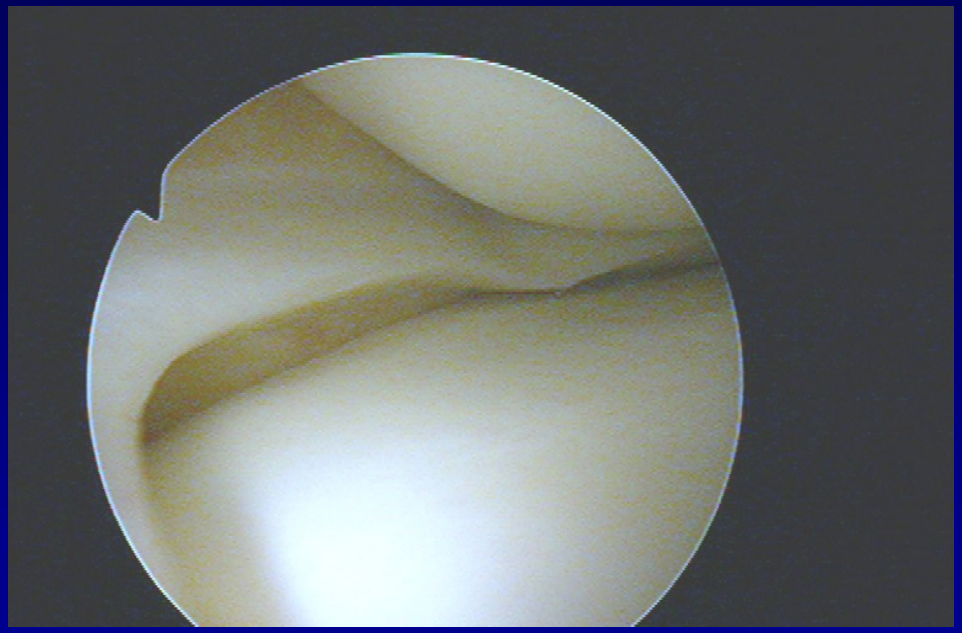
Steinmann II

Appley

Turner

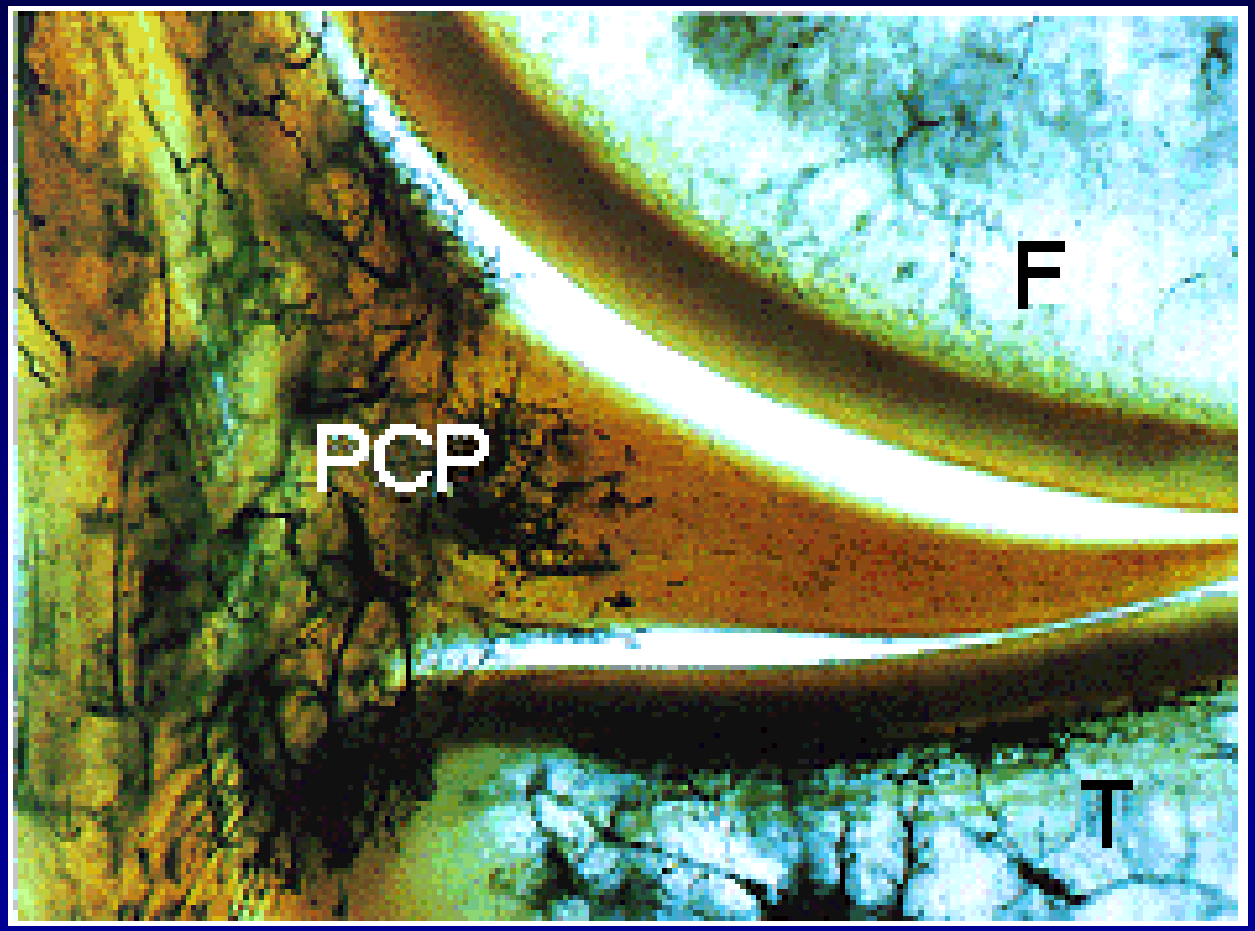
Payer

Childress- squat test



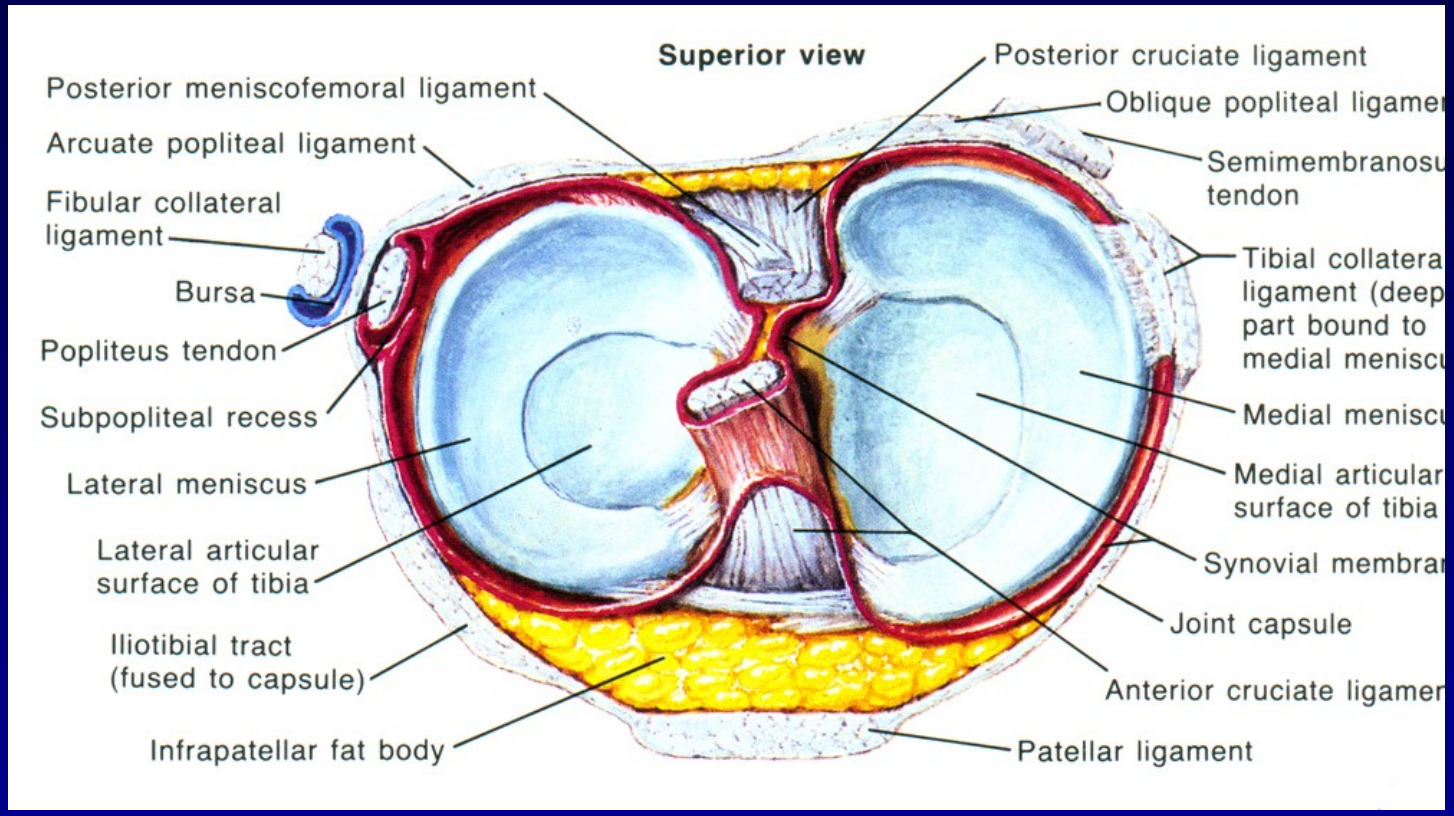
Meniscus

- Fibrocartilago
- High elasticity
- Paracapsular zone
  - vessels



Red zone red- white zone white zone

Functions

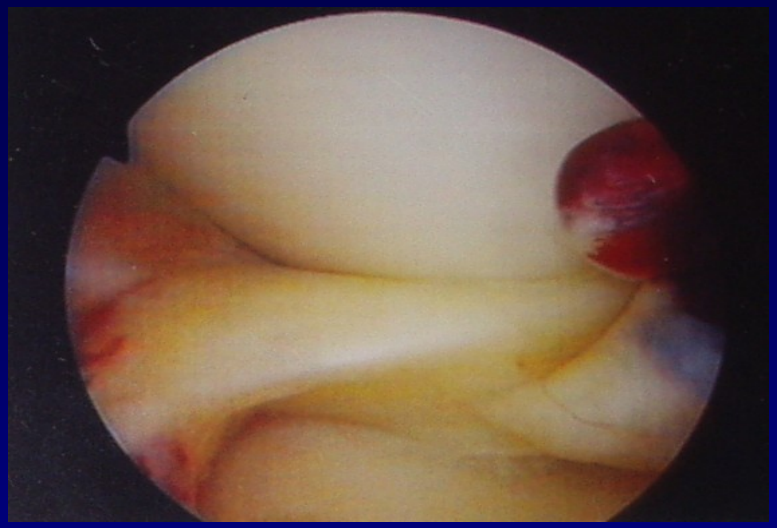


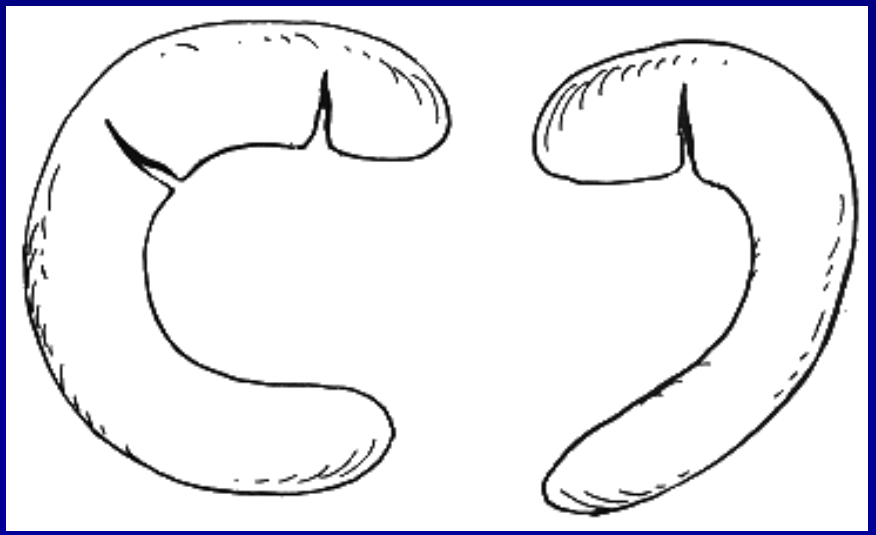
- Bumper
- Stabilisator
- More congruency

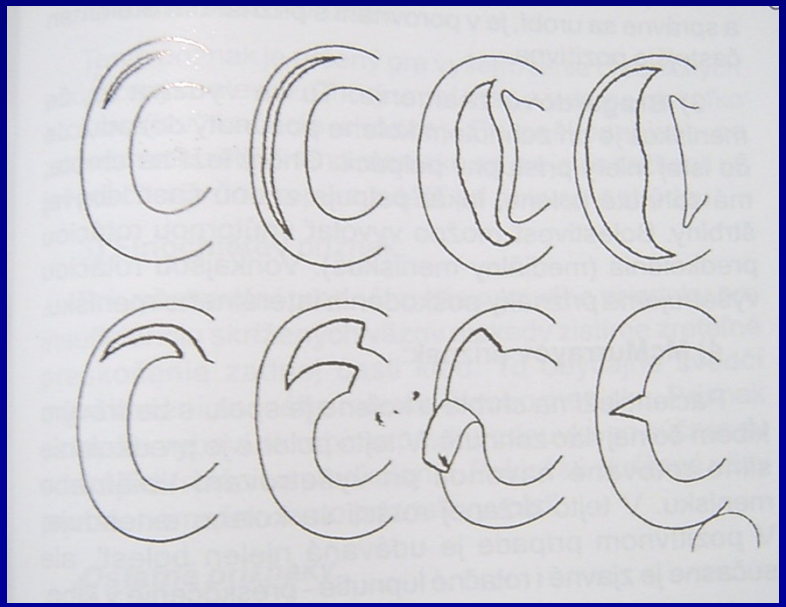
- Distribution of synovial fluid
- LM – more mobile
- MM – prone for injury

Ruptures of menisci

- Longitudinal, horizontal, radial
- „bucket handle type“
  - Typical blockage
- Degenerative lesions
- Discoid meniscus

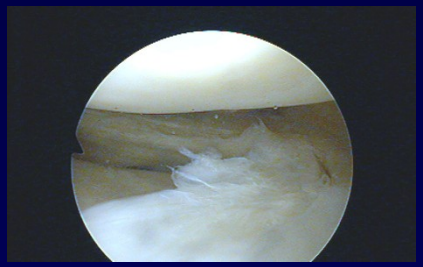


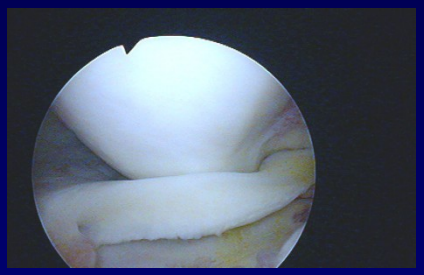


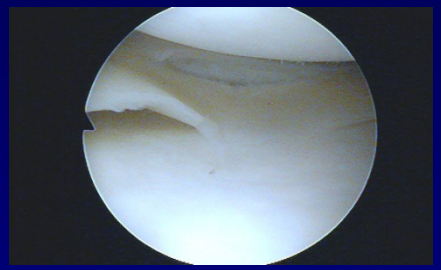


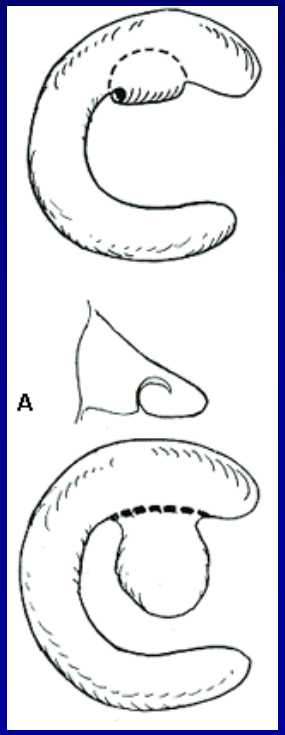
Ruptury menisků

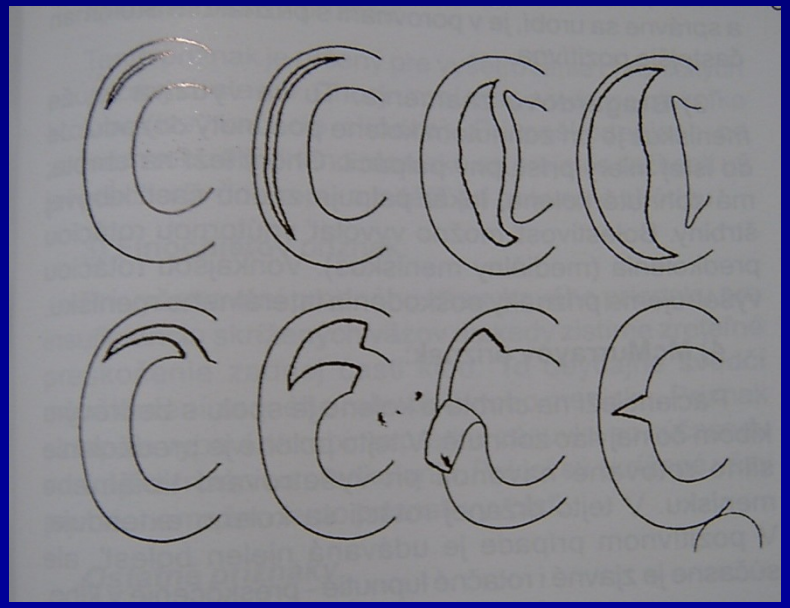
- longitudinální, horizontální, radiální
- „ucho od koše“
  - typické bloky kolena
- degenerativní léze

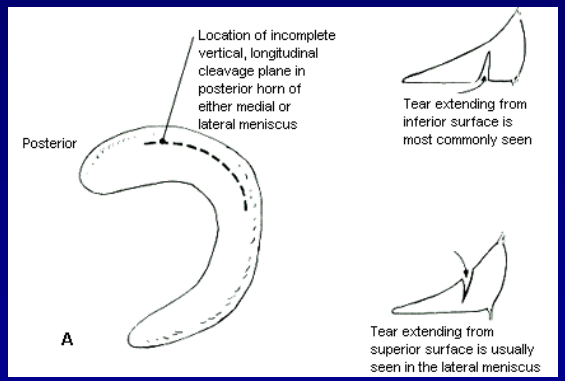


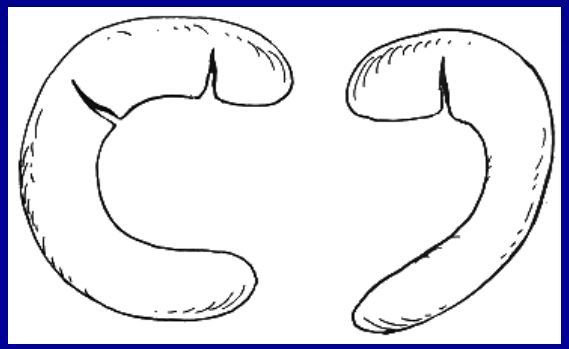






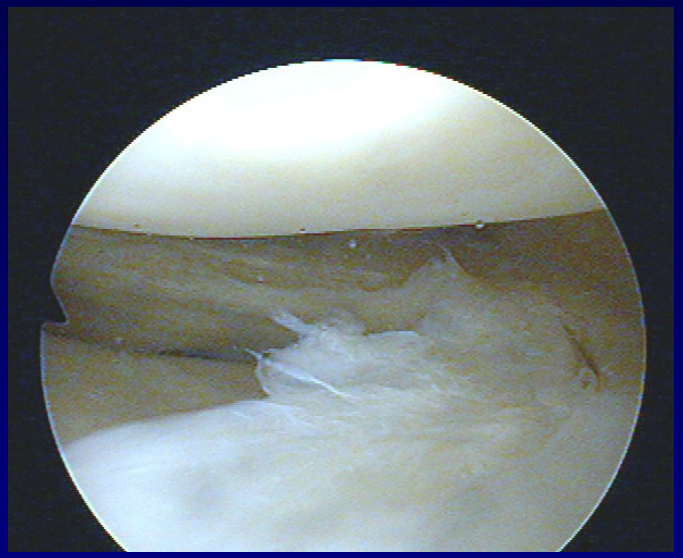


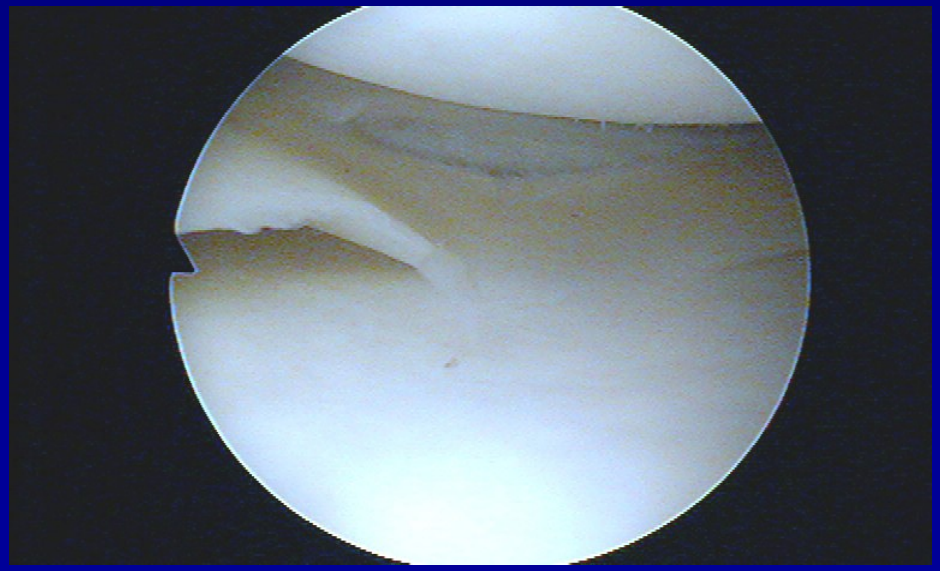


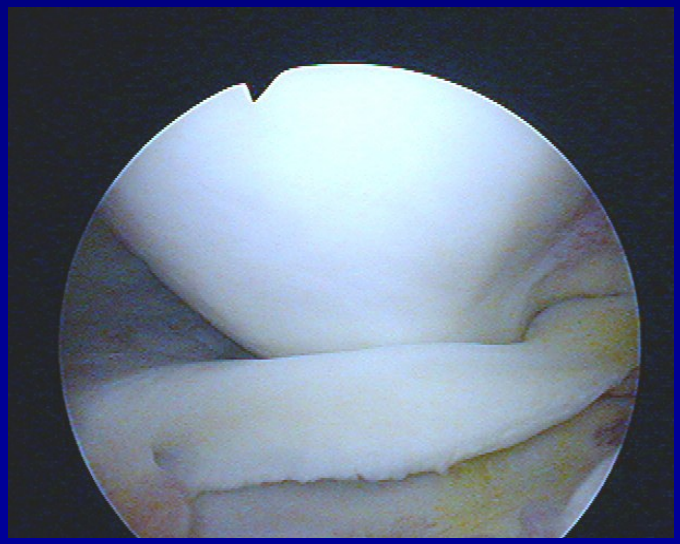


Ruptures of menisci

- Longitudinal, horizontal, radial
- „bucket handle type“
  - Typical blockage
- Degenerative lesions
- Discoid meniscus



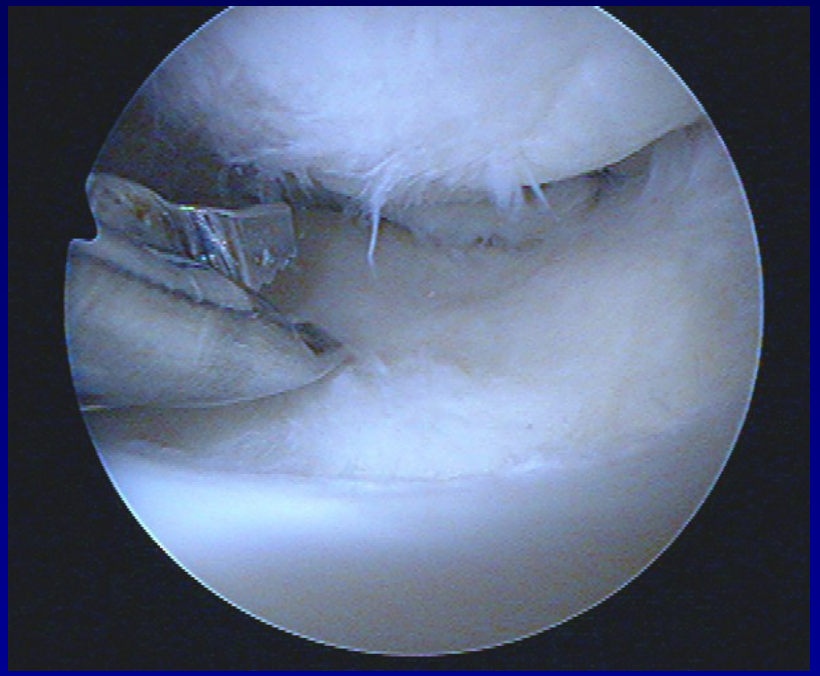




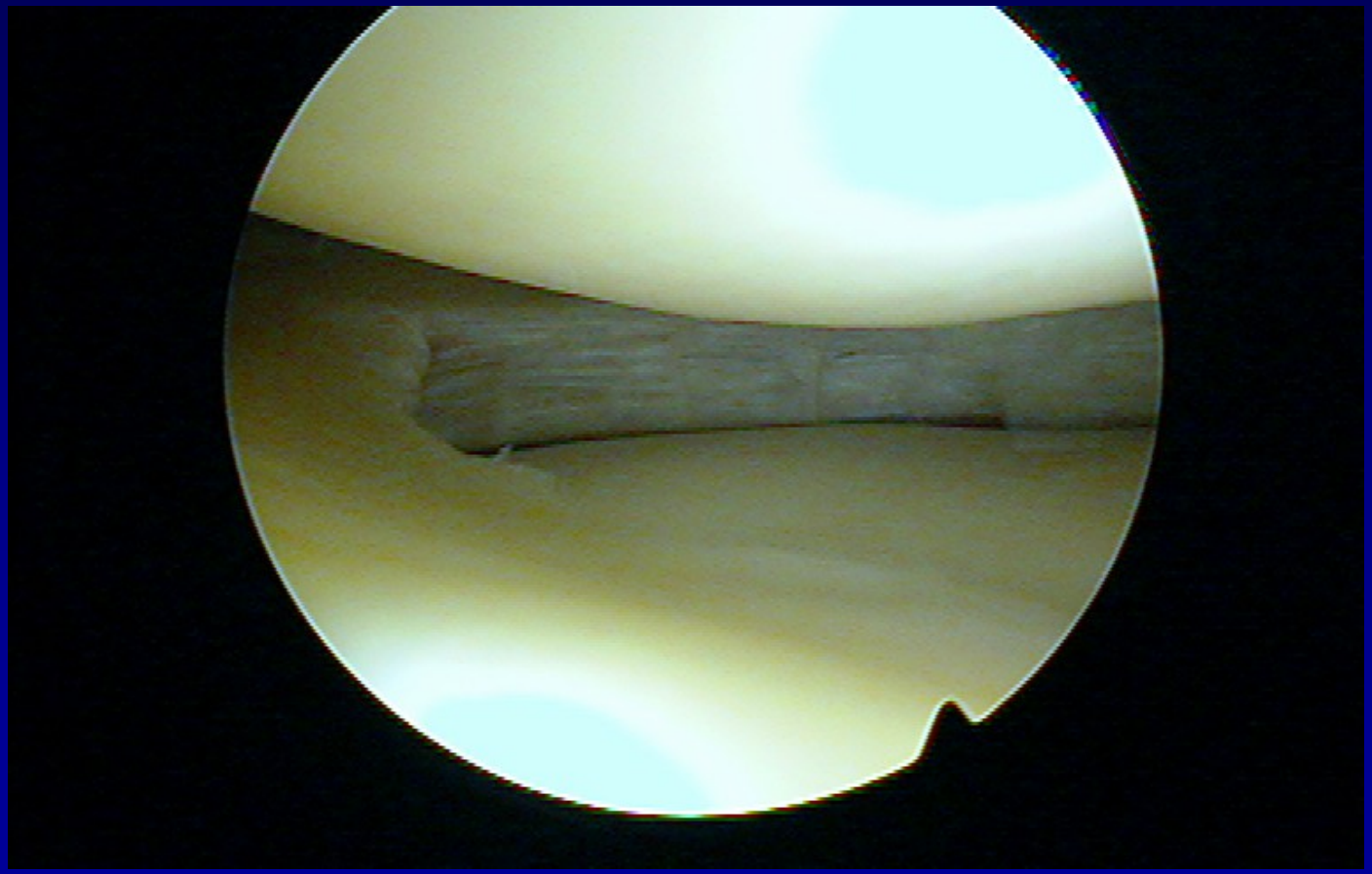
Meniscus treatment

Menisectomy

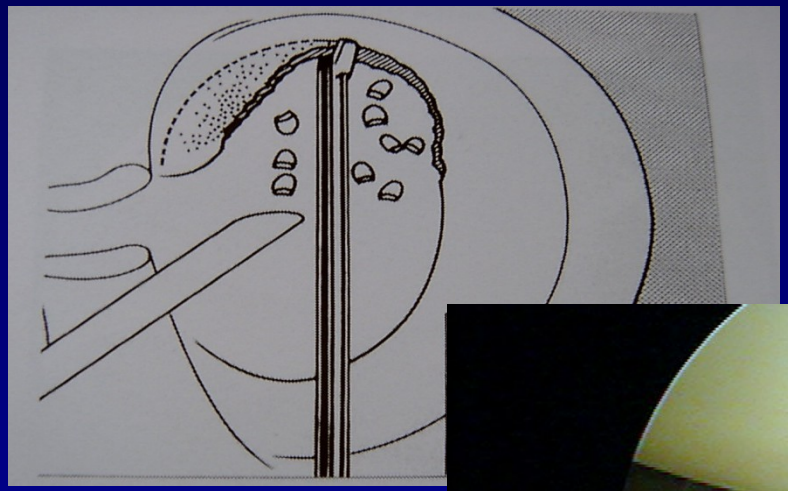
- partial
- subtotal
- complete

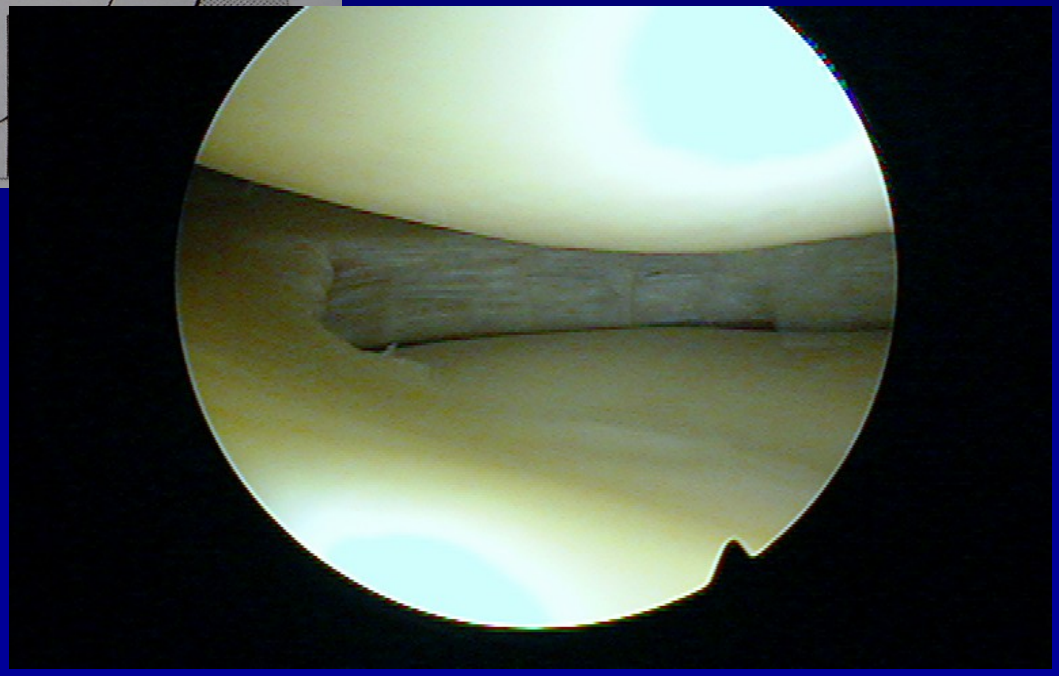


Partial meniscectomy

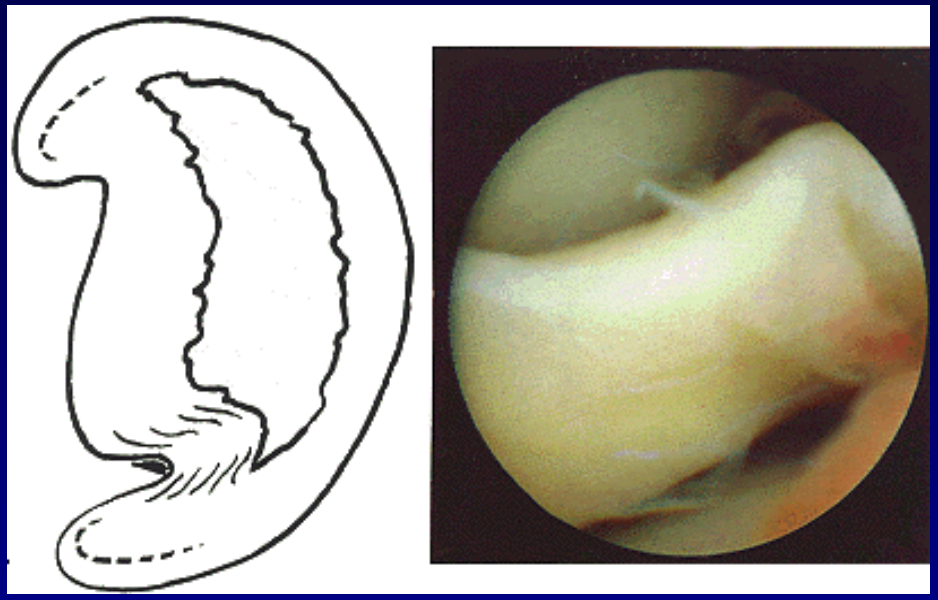


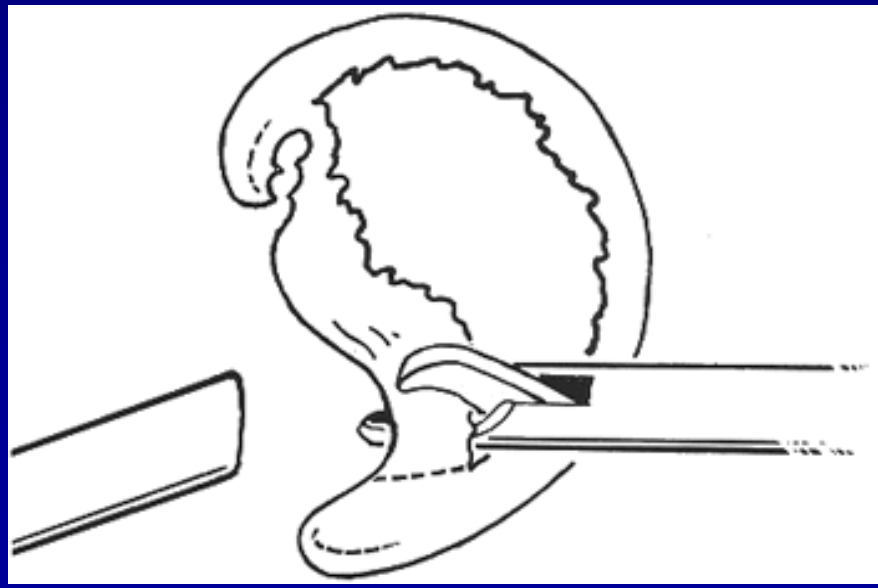
Parciální menisektomie



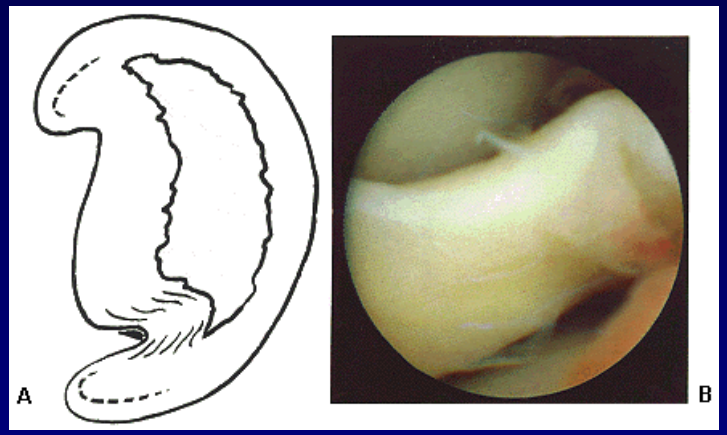


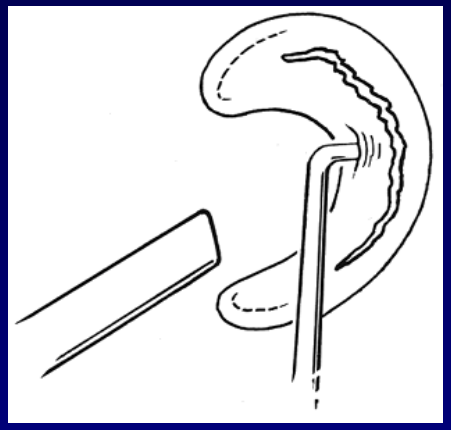
Subtotal menisectomy

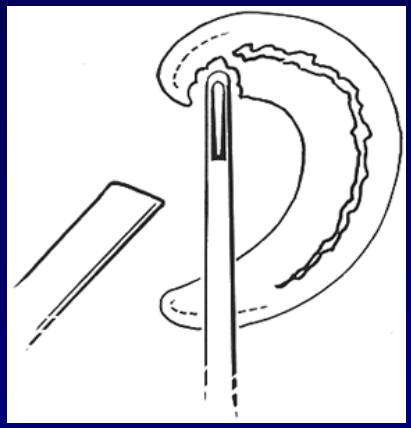


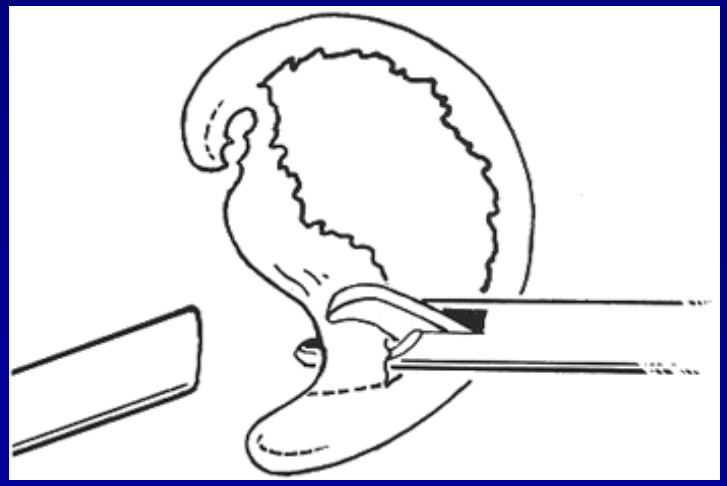


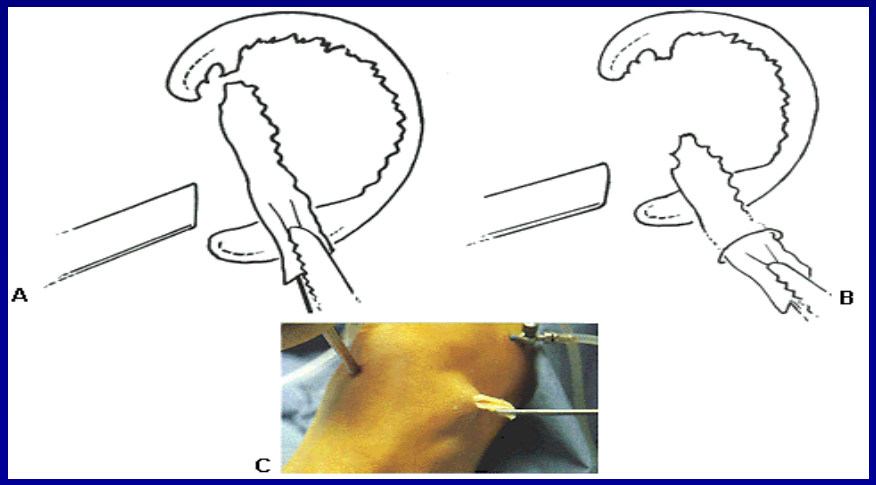
Subtotální menisektomie









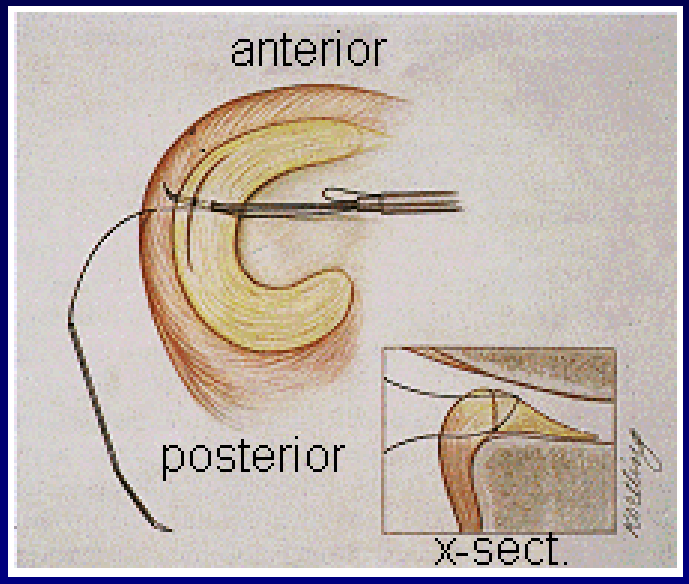


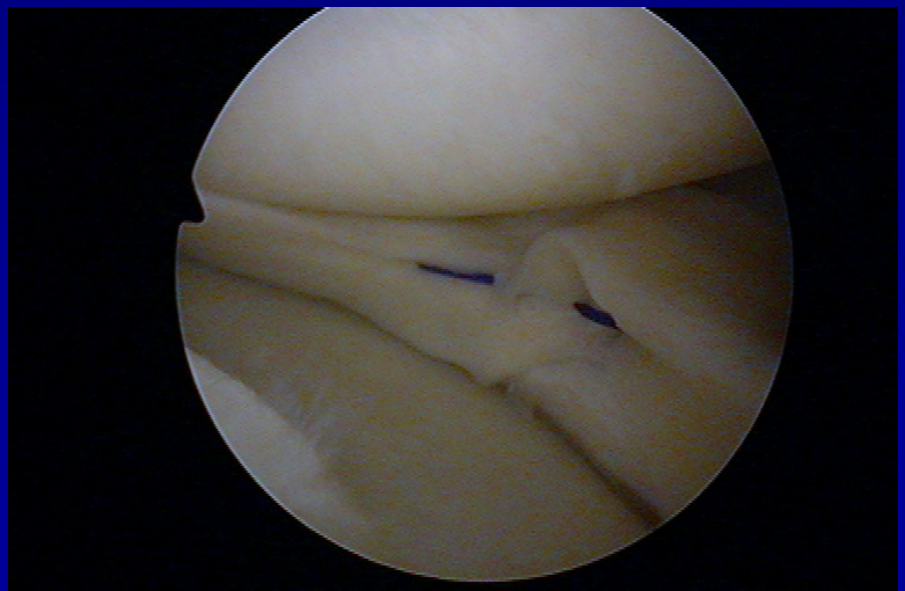
Suture of meniscus- meniscopexis

outside-in

inside-out

all-inside





- Limitována kapacita hojení menisku
- Nejlepší výsledky v red zóně
- Trhliny v rozsahu 0-2mm od pouzdra – nejlepší potenciál k zhojení

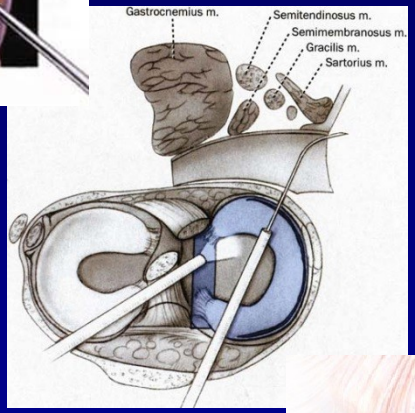
  - sutura v avaskulární zóně – poop. 75% pac. asympt. / follow-up 51m /

- Vertikální horizontální rpt. - ↑ potenciál k zhojení
- Traumatická vs. degenerativní ruptura

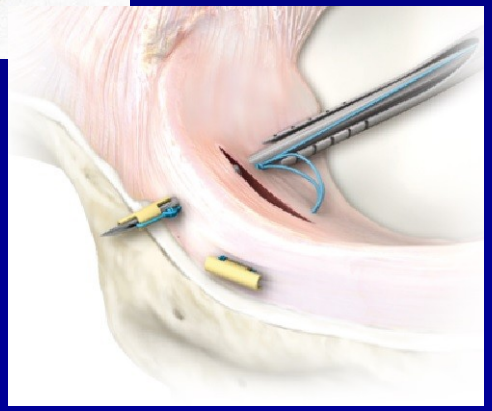
Techniky sutury

Outside – in

Inside – out

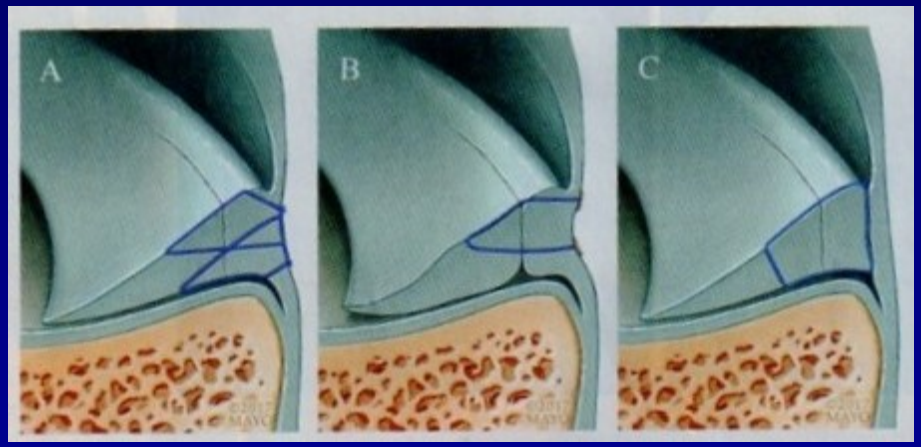


All – inside



Vertikální longitudinální ruptura

- Resekce vede k 3x ↑ kontaktnímu tlaku
- Zlatý standard – inside-out
- Dop. vertikální matracový steh, odstup 3-5mm
  - biomechanicky výhodnější než horizontální steh



- A: Inside-out B: All-inside C: All inside knot tying tech.

Horizontální ruptura

- Nevede k ↑ tlaku
- Resekce 1 lišty => redukce kontaktní plochy o 59 % => ↑ tlaku
- Sutura horizonzální rpt. snižuje kontaktní tlak
  k minimálním hladinám
- Menší potenciál k zhojení
- Snaha o zachování obou lišt menisku
- Healing rate 78,6 %

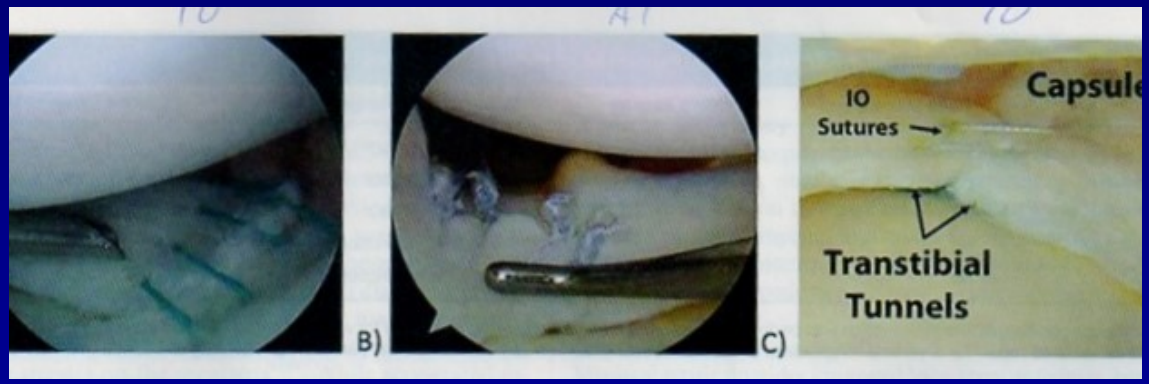
- Excelentní výsledky zhojení u mladých pac.

- All – inside – kompresní cirkumferentní steh po obvodu léze

Radiální ruptura

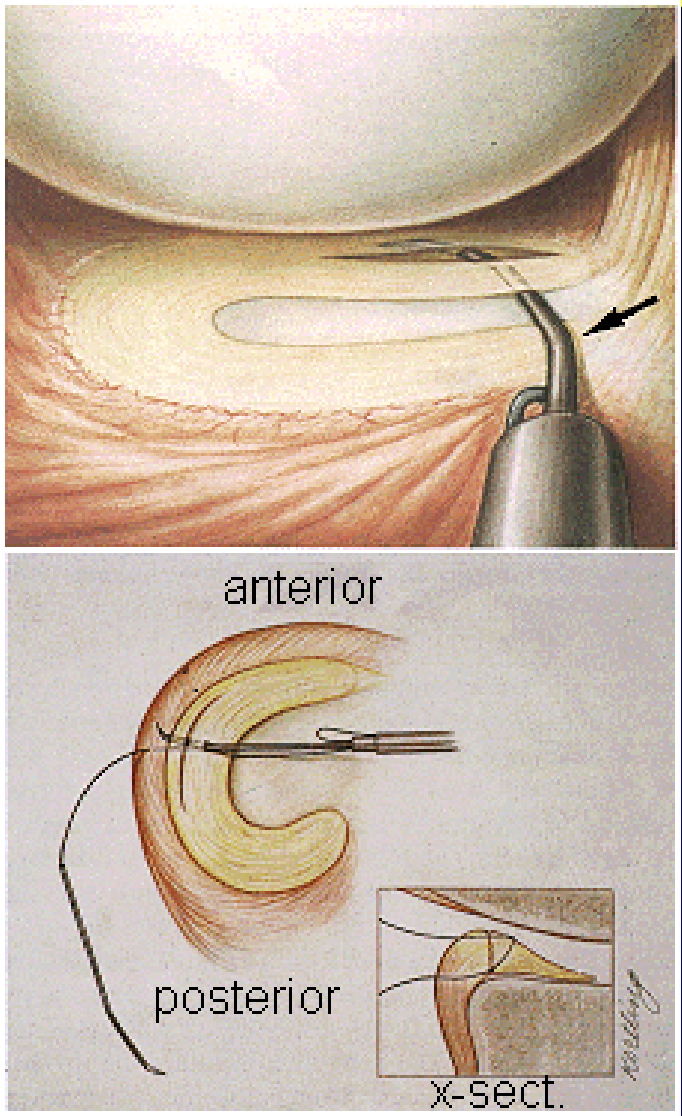
- Rpt. 60 % centrální zóny nemá vliv na ↑ tlaku
  - parc. menisektomie

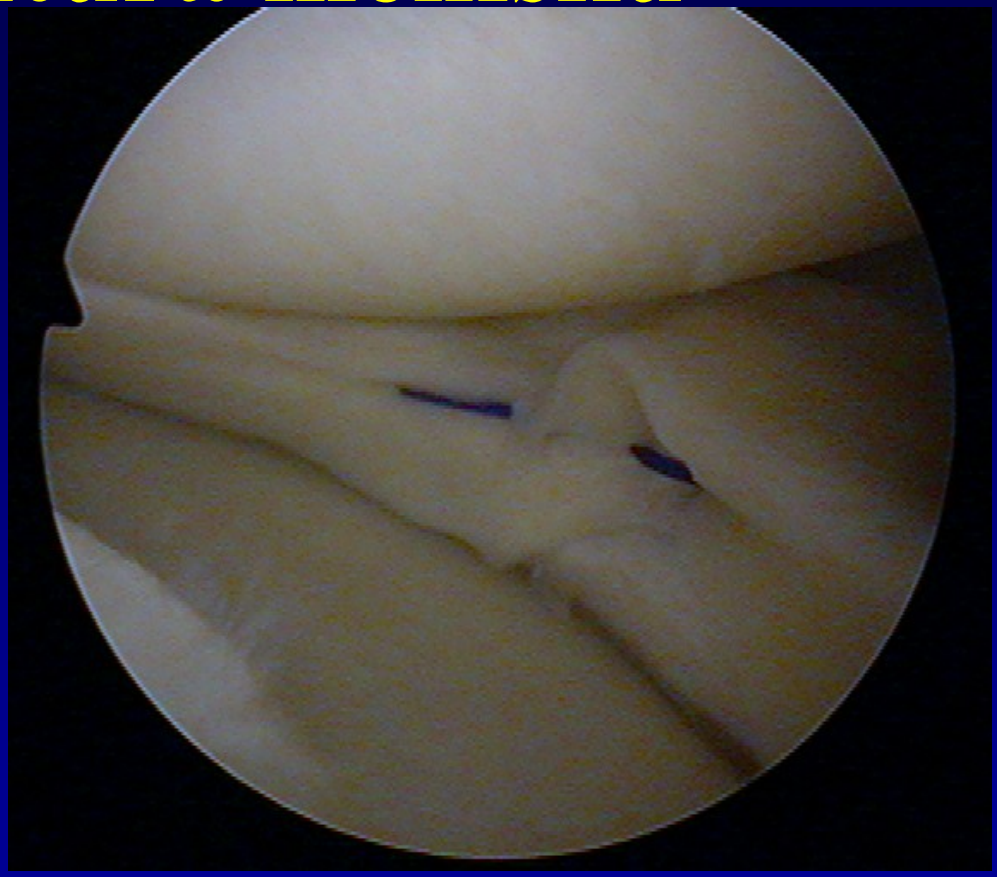
- Rpt 90 % siginifikantně ↑ tlak
  - sutura



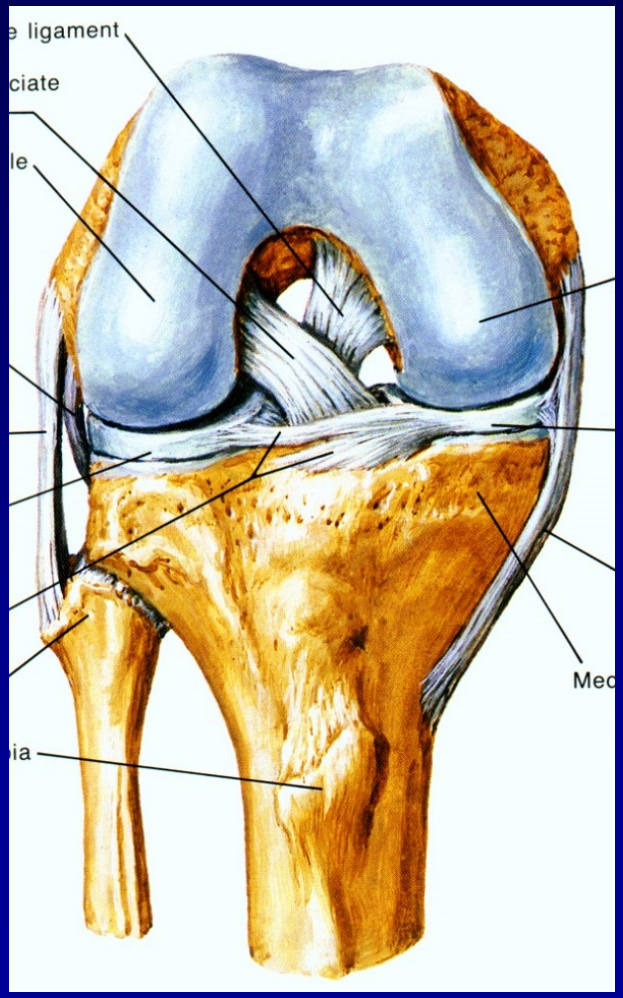
- A: Inside-out -horizontální matracový steh
- B: All-inside knot tying
- C: Transtibiální technika

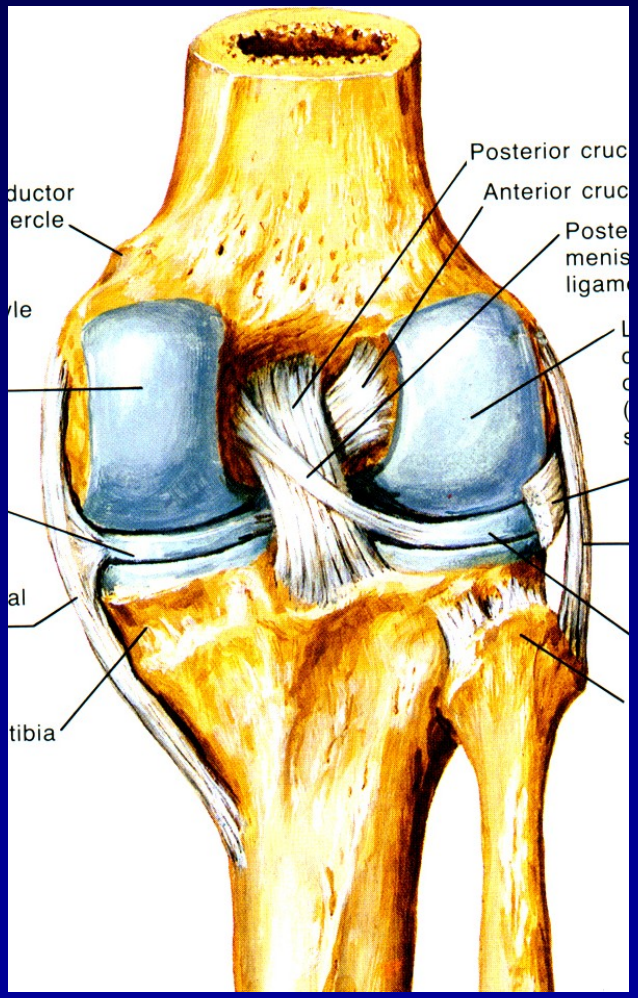
ASK sutura menisku





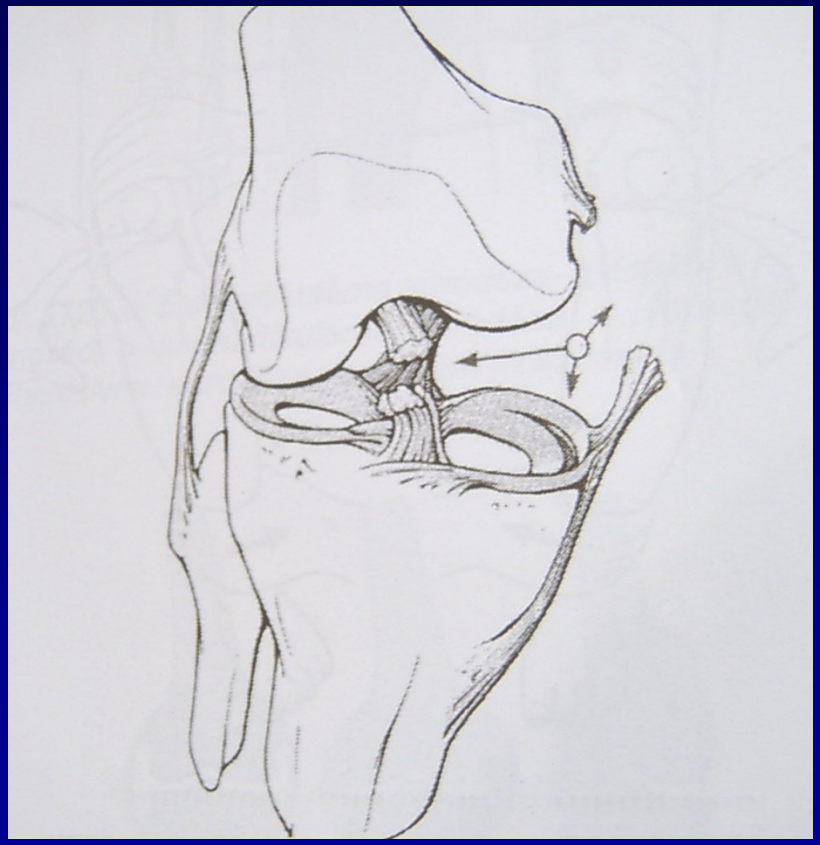
Ligaments- ACL, PCL





Rupture of ligaments

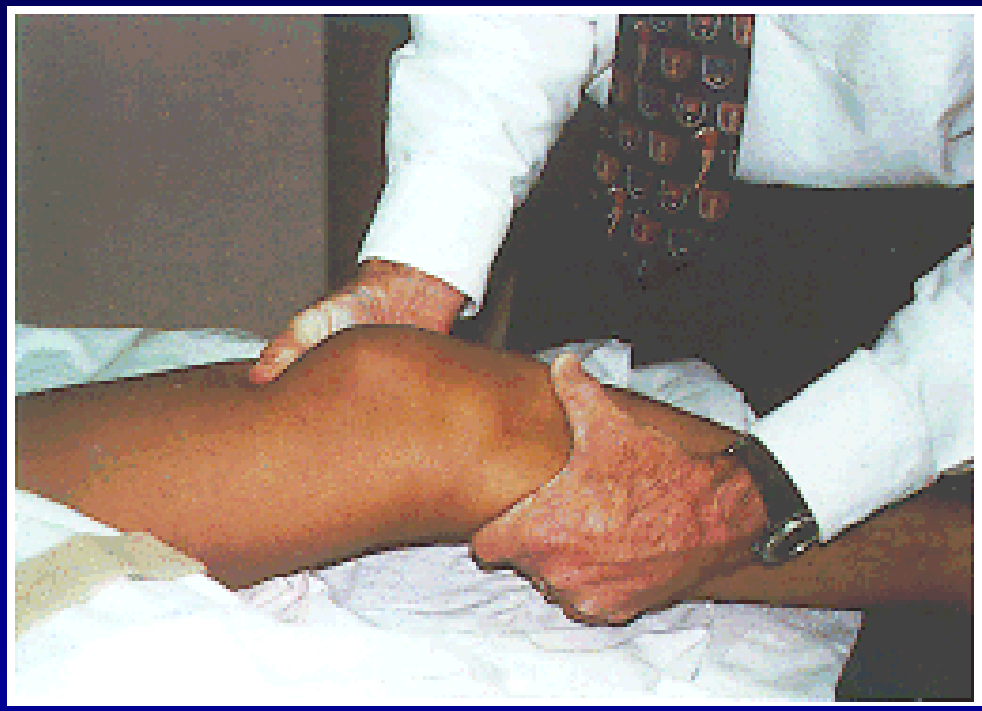
- **Sprain**
- **partial rupture**
  total rupture
- Mechanism of injury
- Tests of stability



„Unhappy trias“

Rupture of ACL

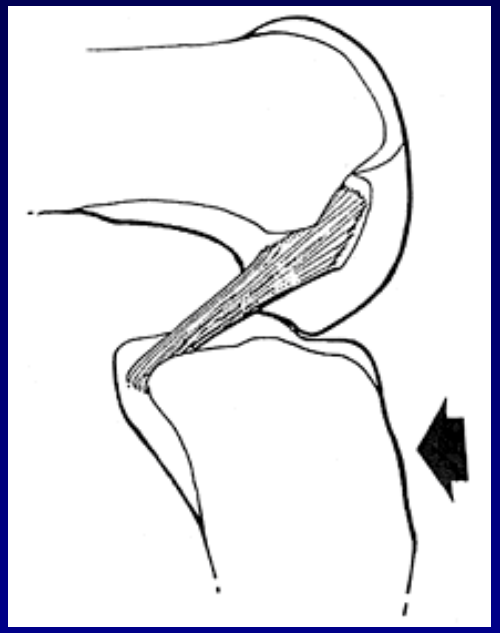
- Tests of stability
- Lachman test
- Anterior drawer sign
- Pivot-shift test

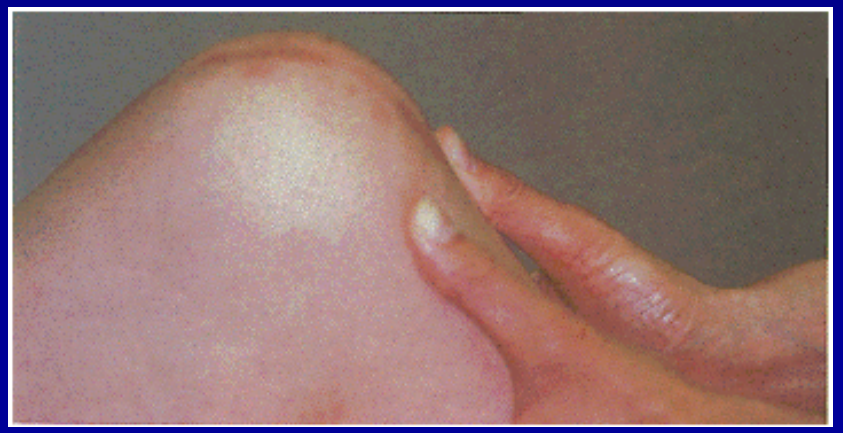


Lachman test

Rupture of PCL

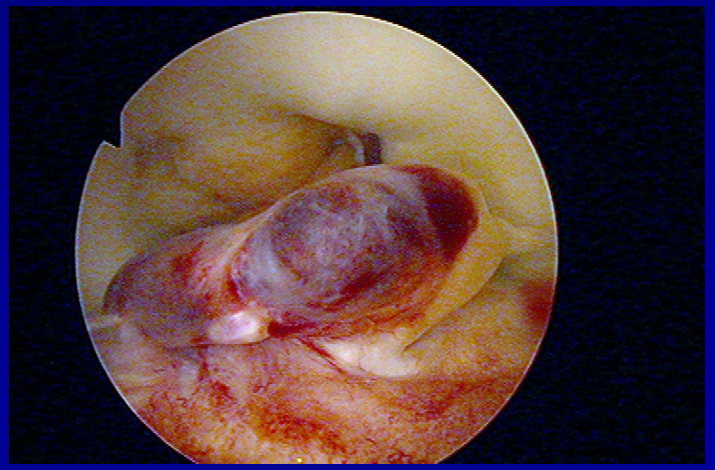
- In **dashboard injury**
- Posterior drawer sign





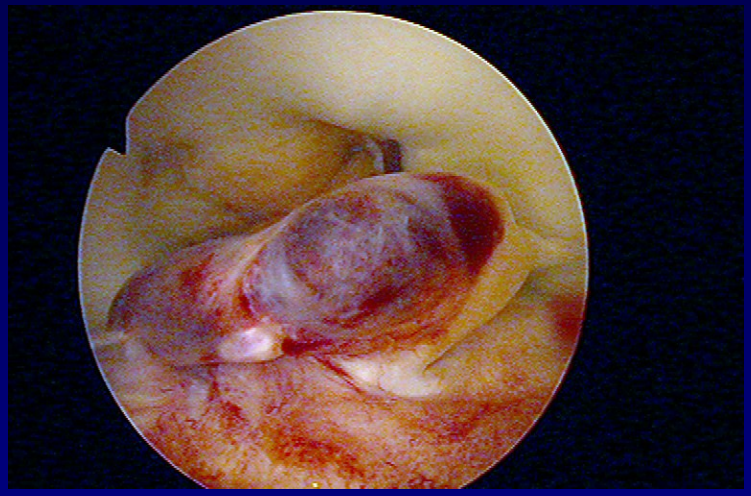
Rupture of ACL

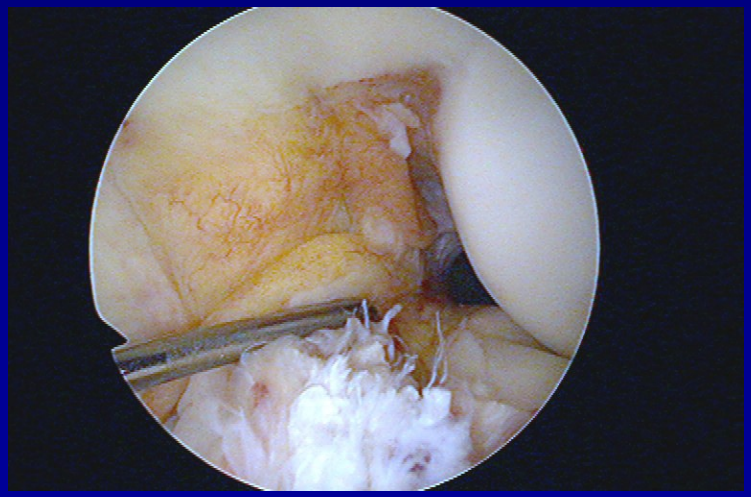
- Frequent injury



Acute rupture of ACL

- Debridement
- Physiotherapy
- Limited activity
- Orthesis



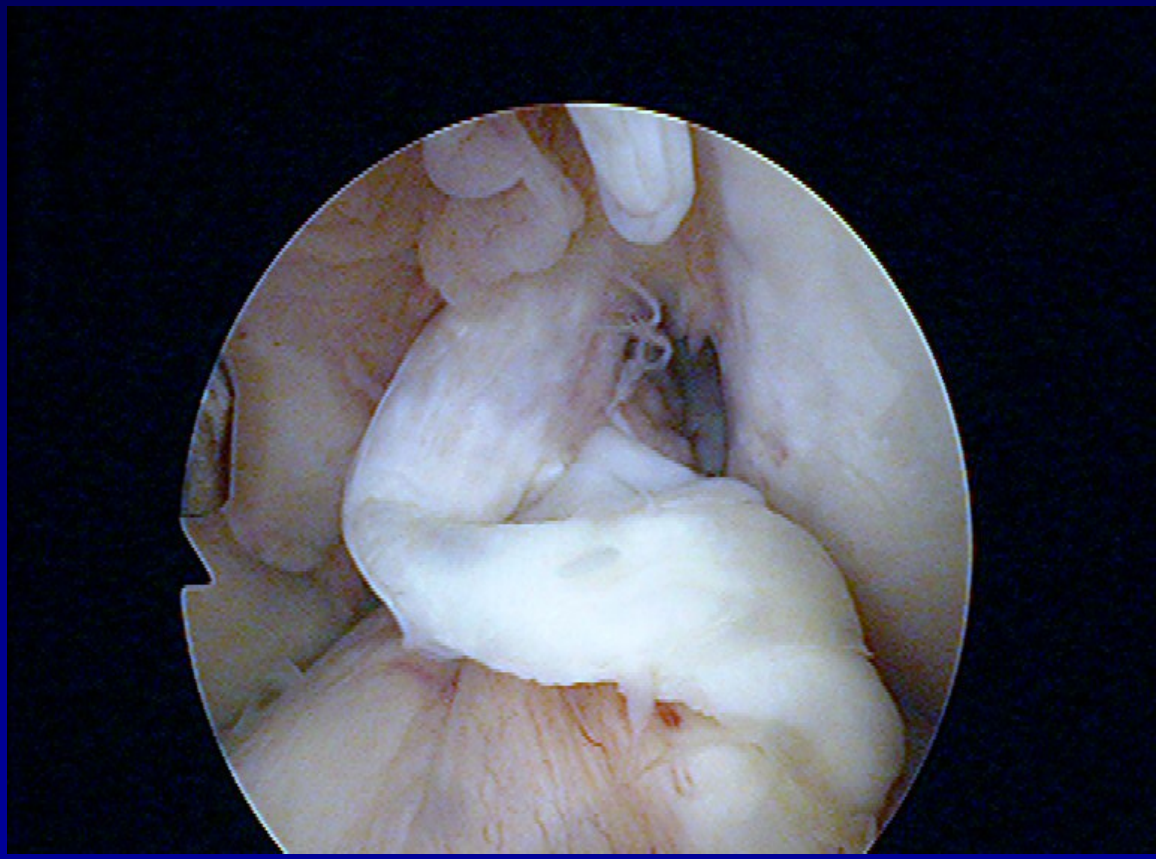


Physiotherapy

Orthesis

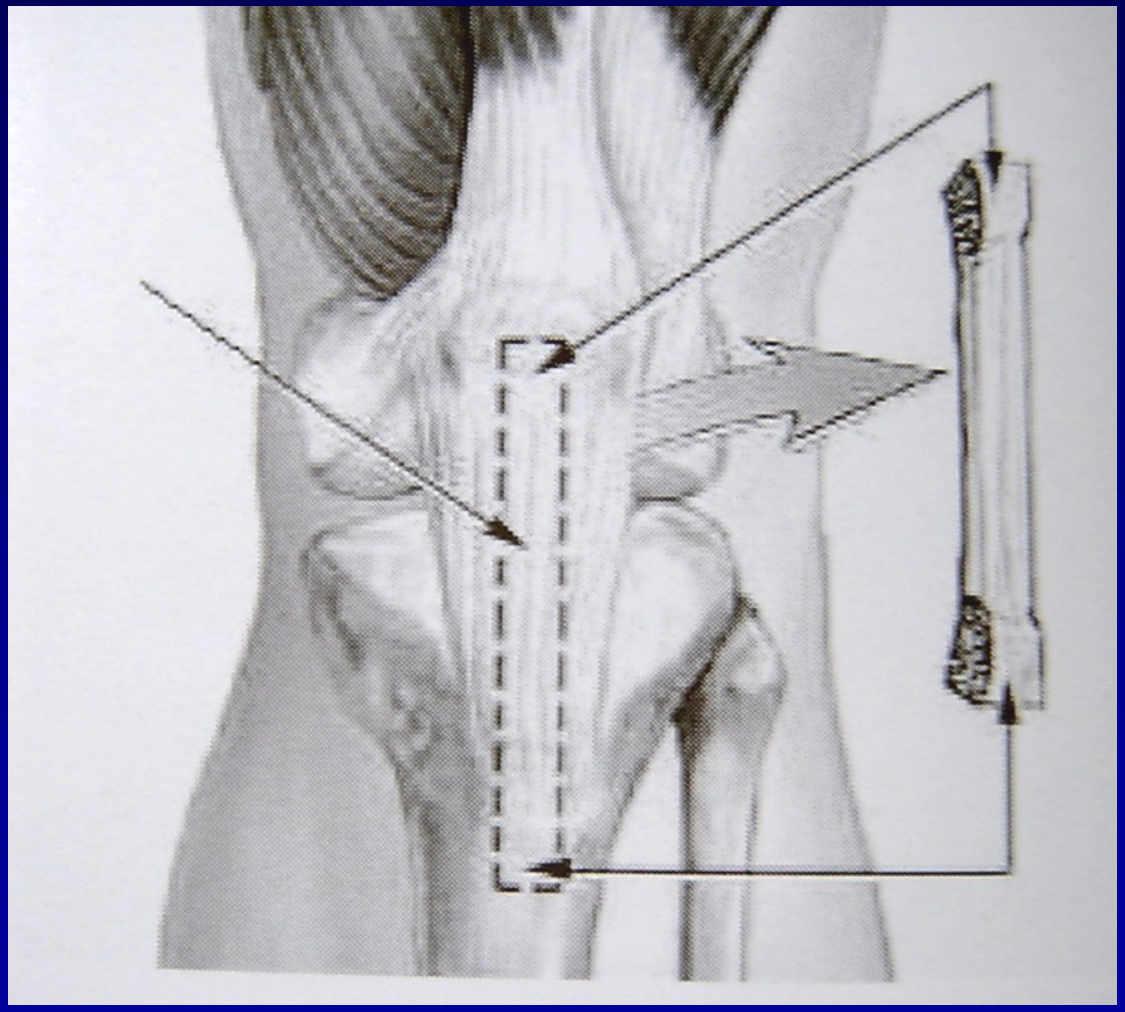
Indication for reconstruction

- 1/3 of cases



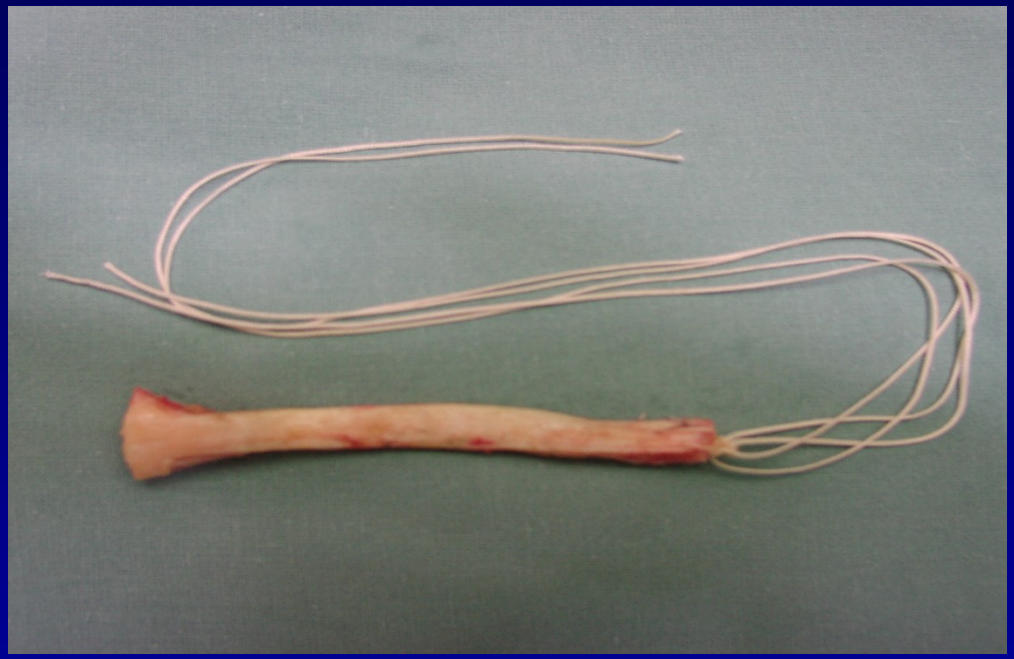
BTB graft

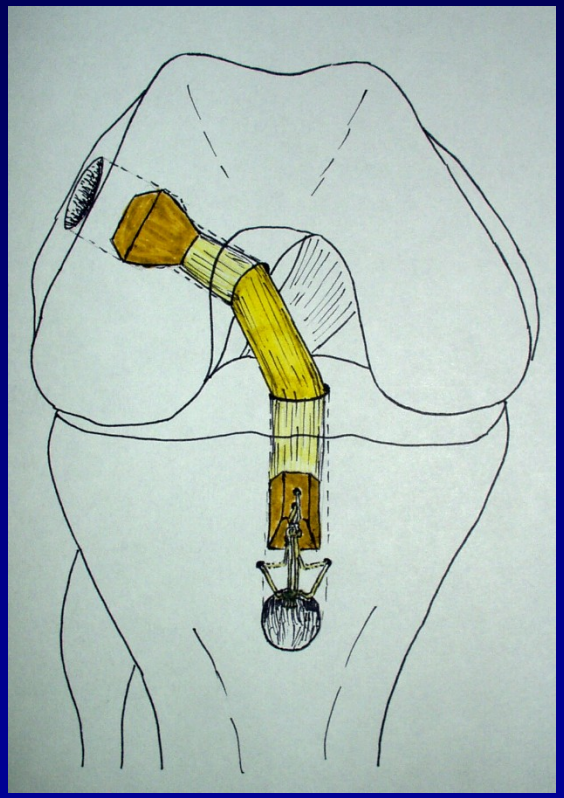
- **B**one-**T**endon-**B**one



BTB graft

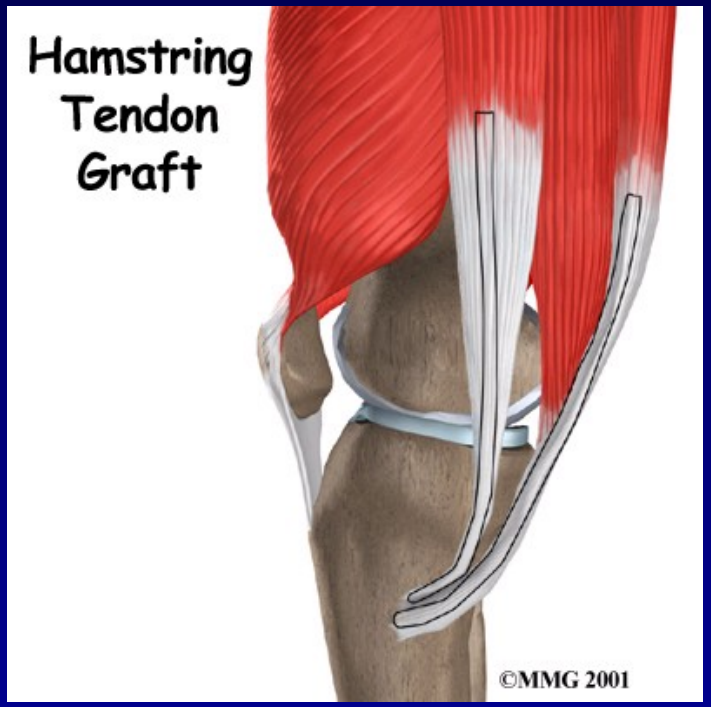
- Bone-Tendon-Bone

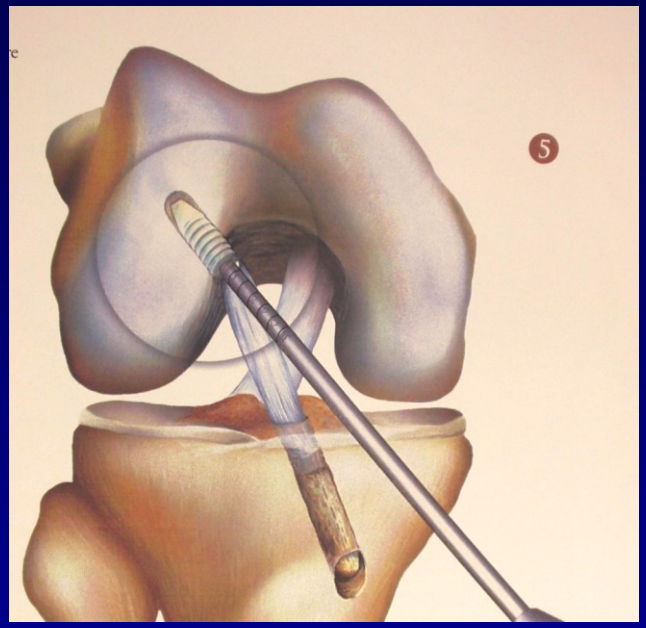


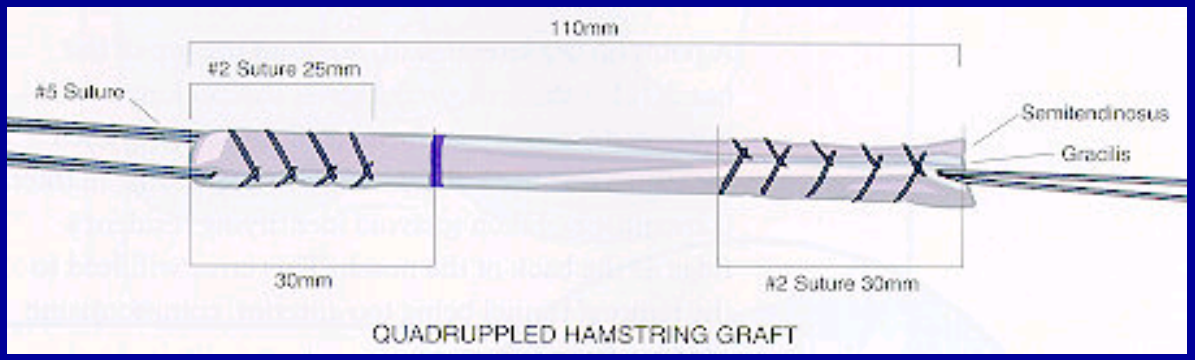


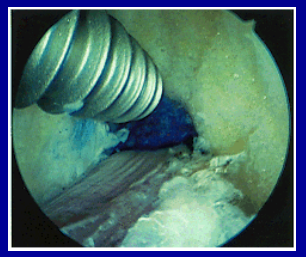
Press fit technique

Hamstrings
(m. semitendinosus + m. gracilis)



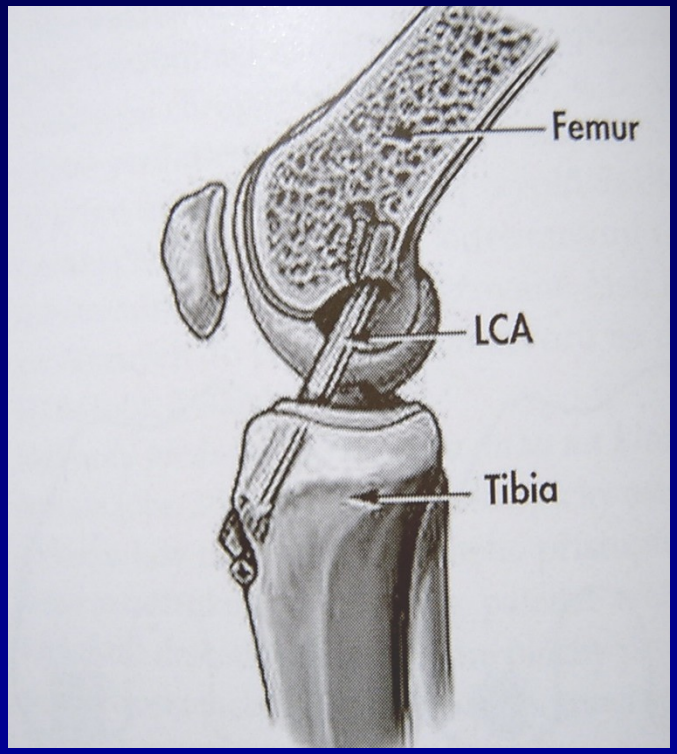


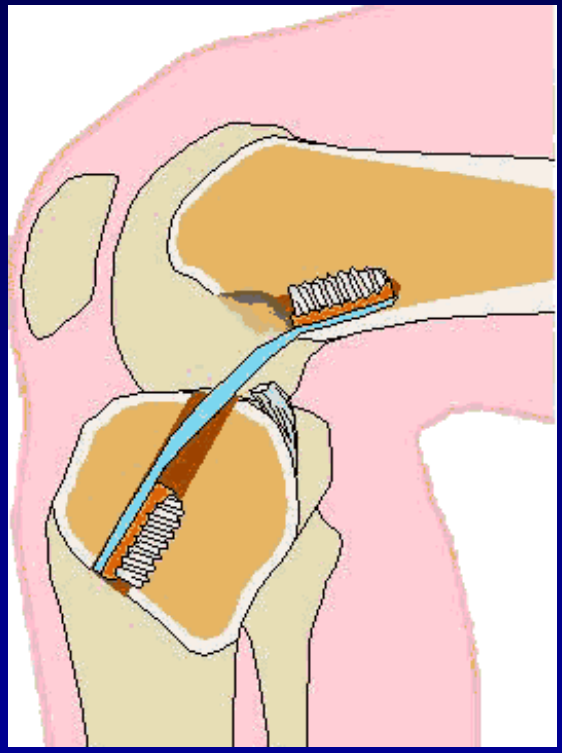




Fixation by screws

Technique

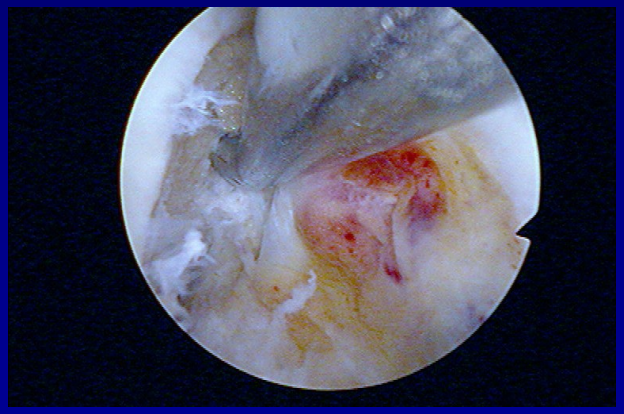
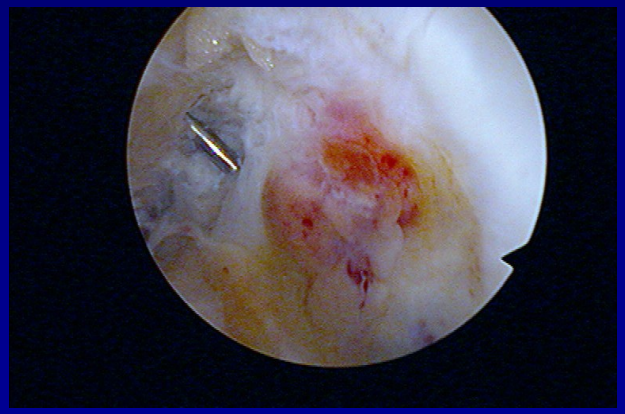




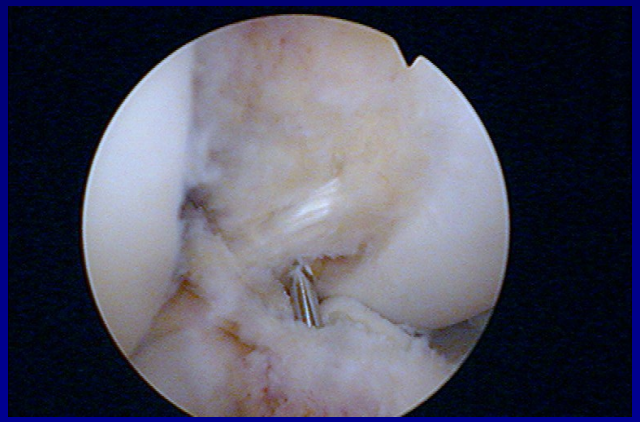
ACL plasty- press fit technique

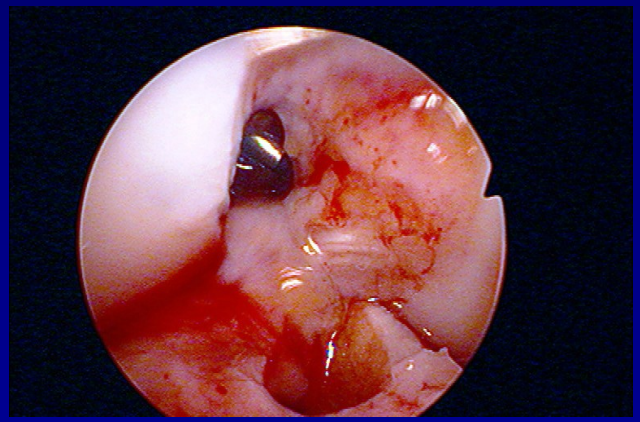
Femoral canal



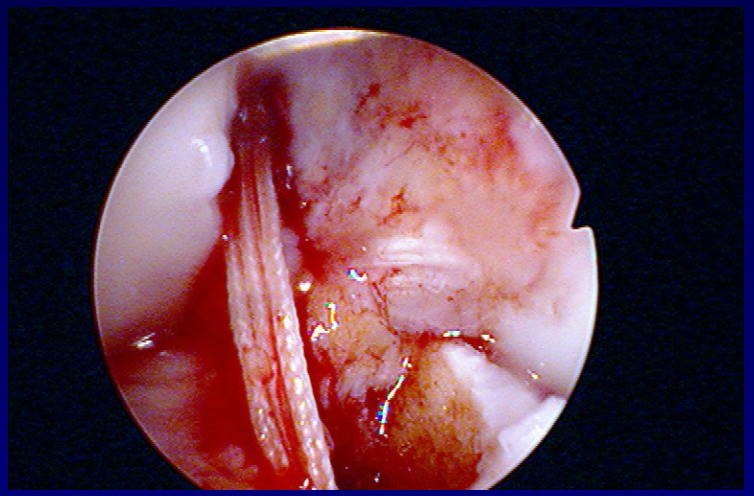




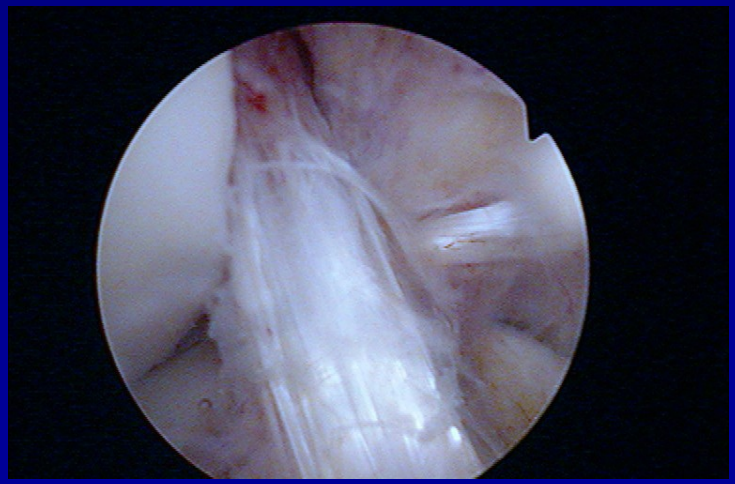

Tibial canal





Tightening of the graft

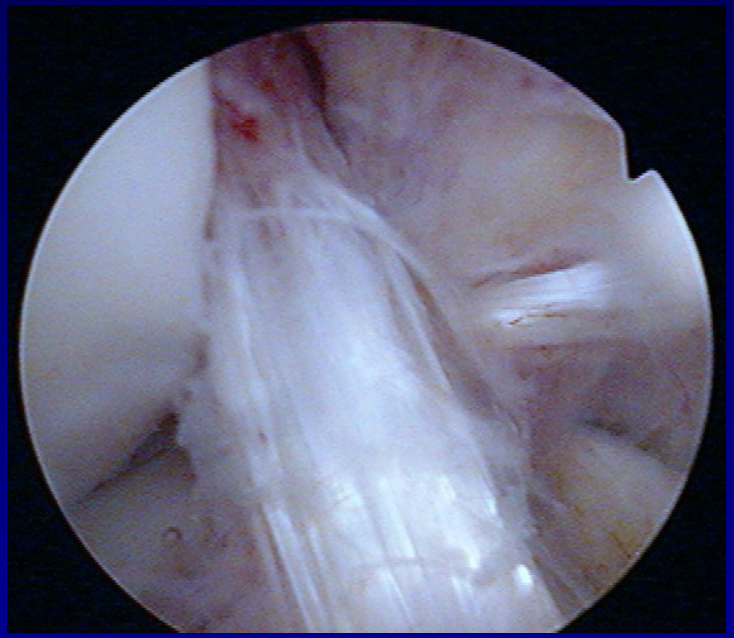




Graft in situ

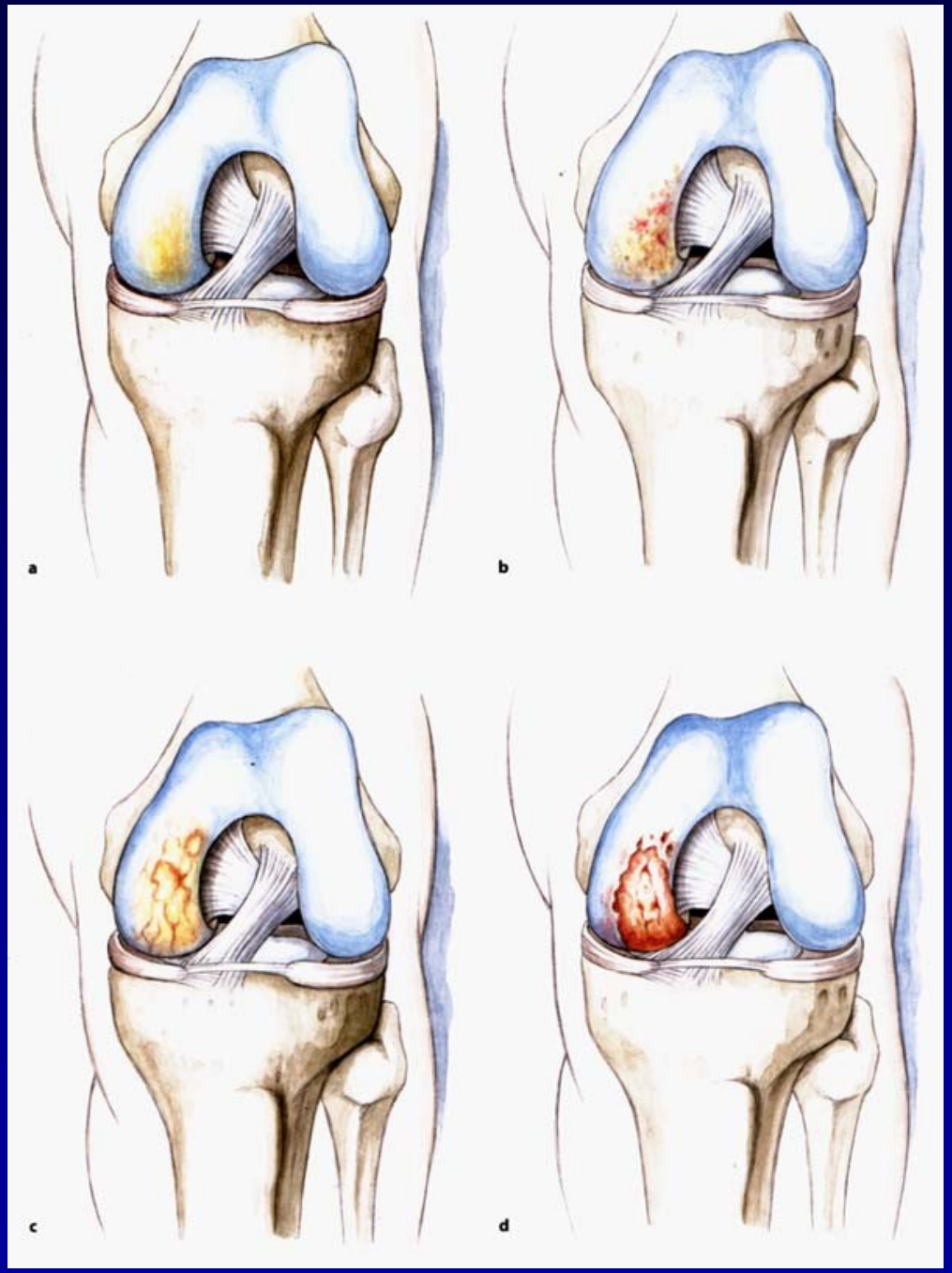
Aftertreatment

- 6 weeks orthesis
- Weight bearing after 6 weeks
- Sports activity after 9 months

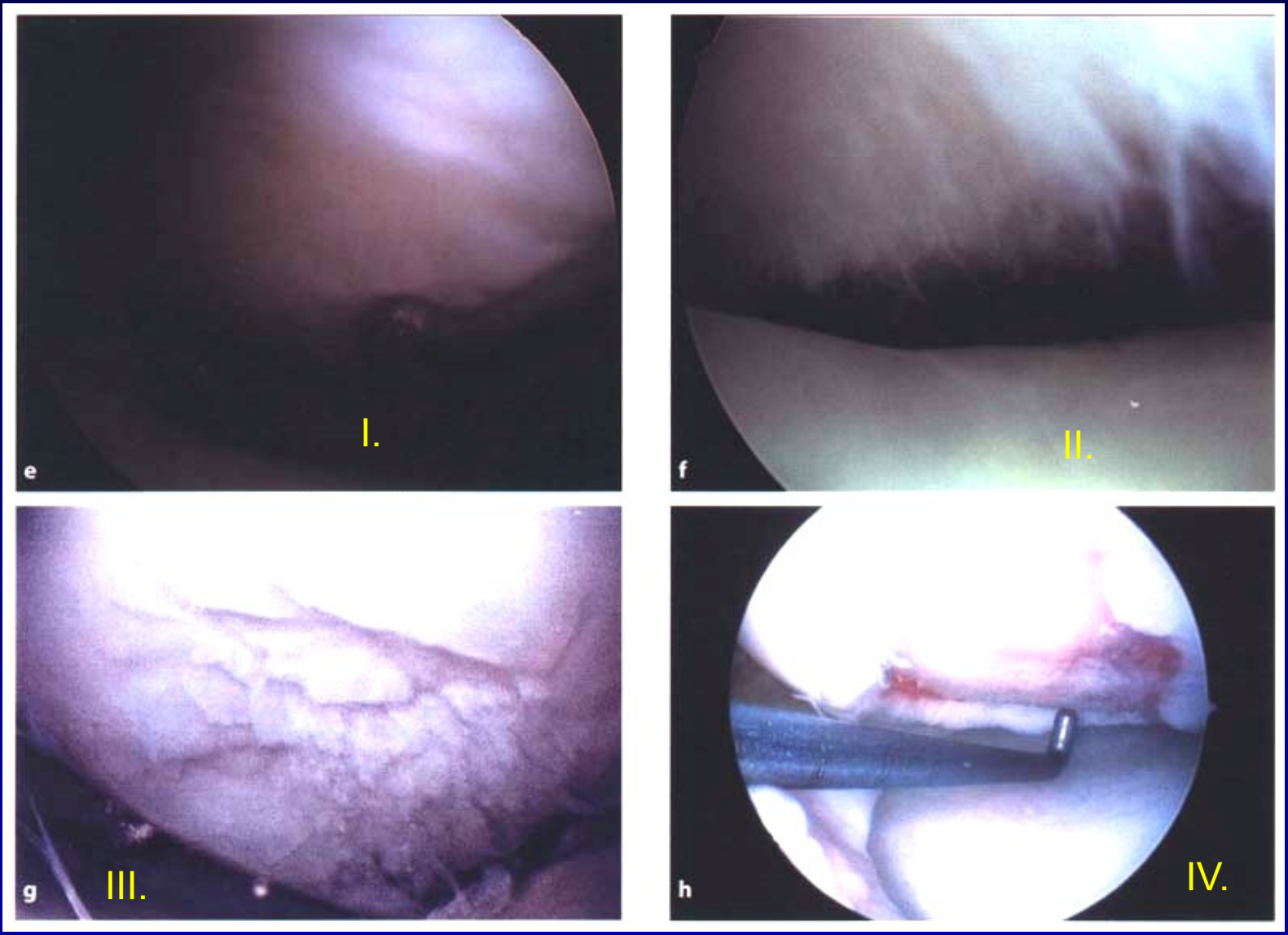


Chondropathy

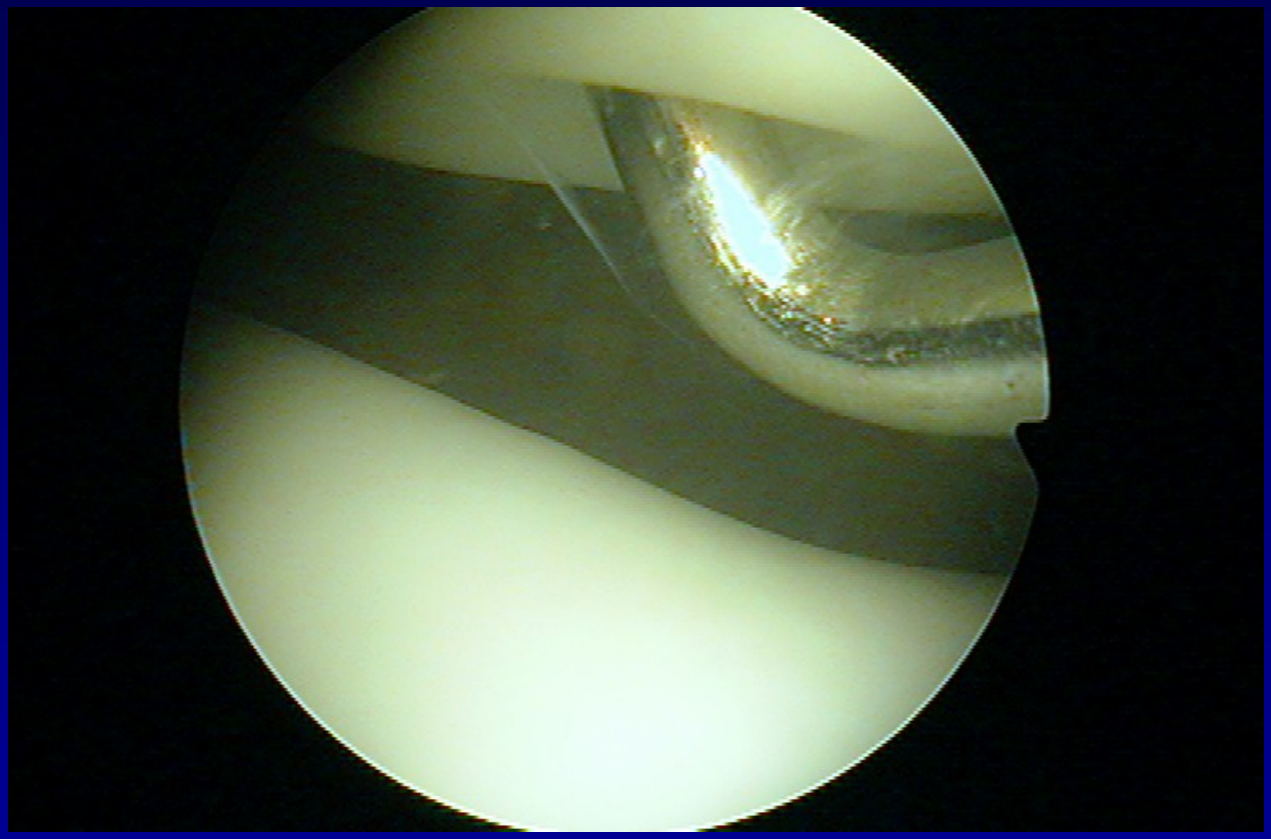
Outerbridge. H.K.

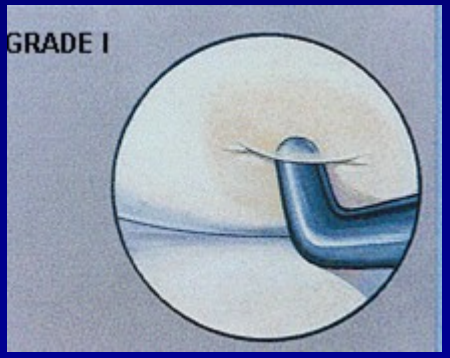


Chondropathy



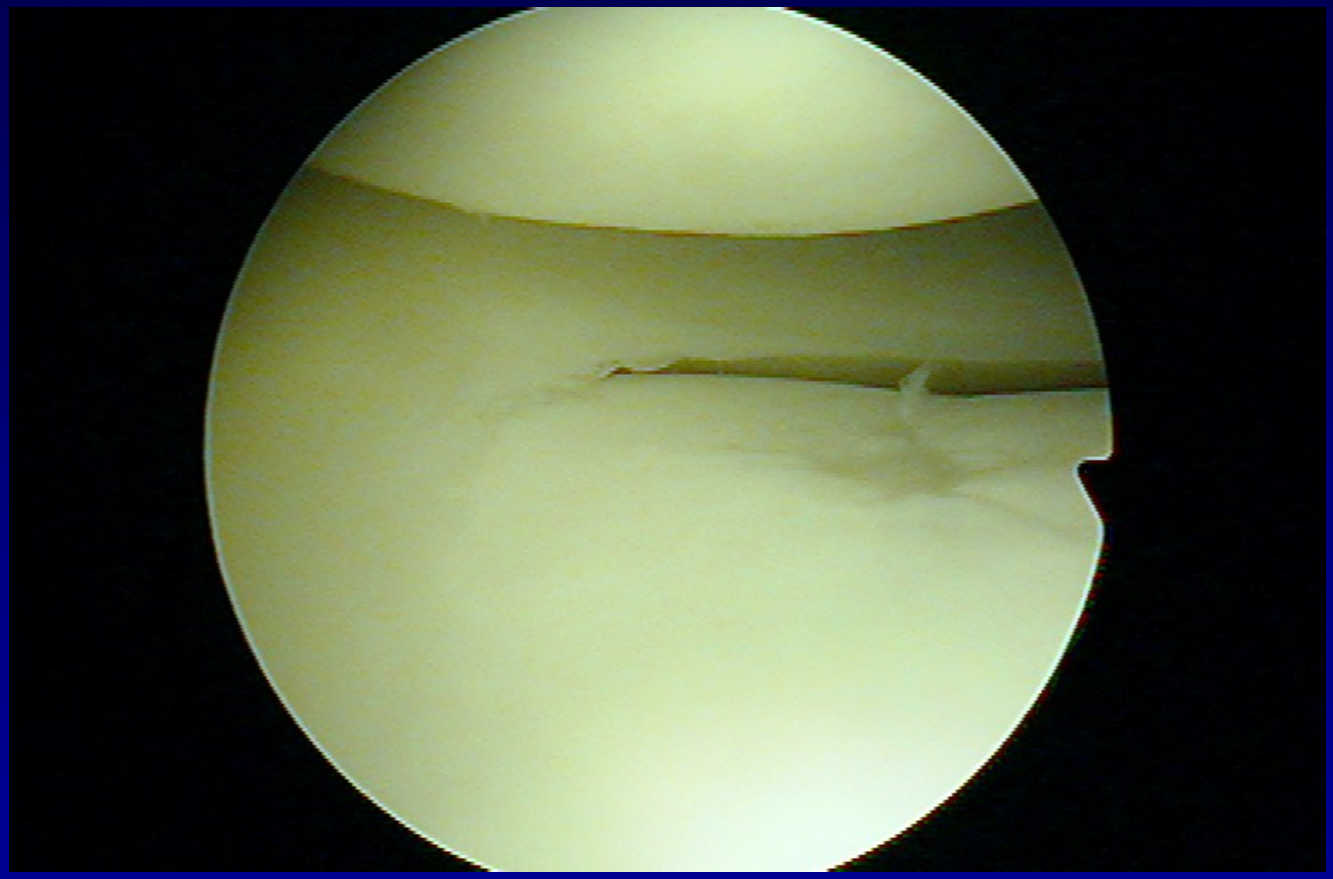
Chondropathy I. st.

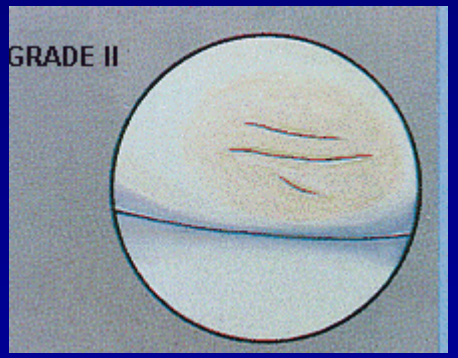




Soft cartilage

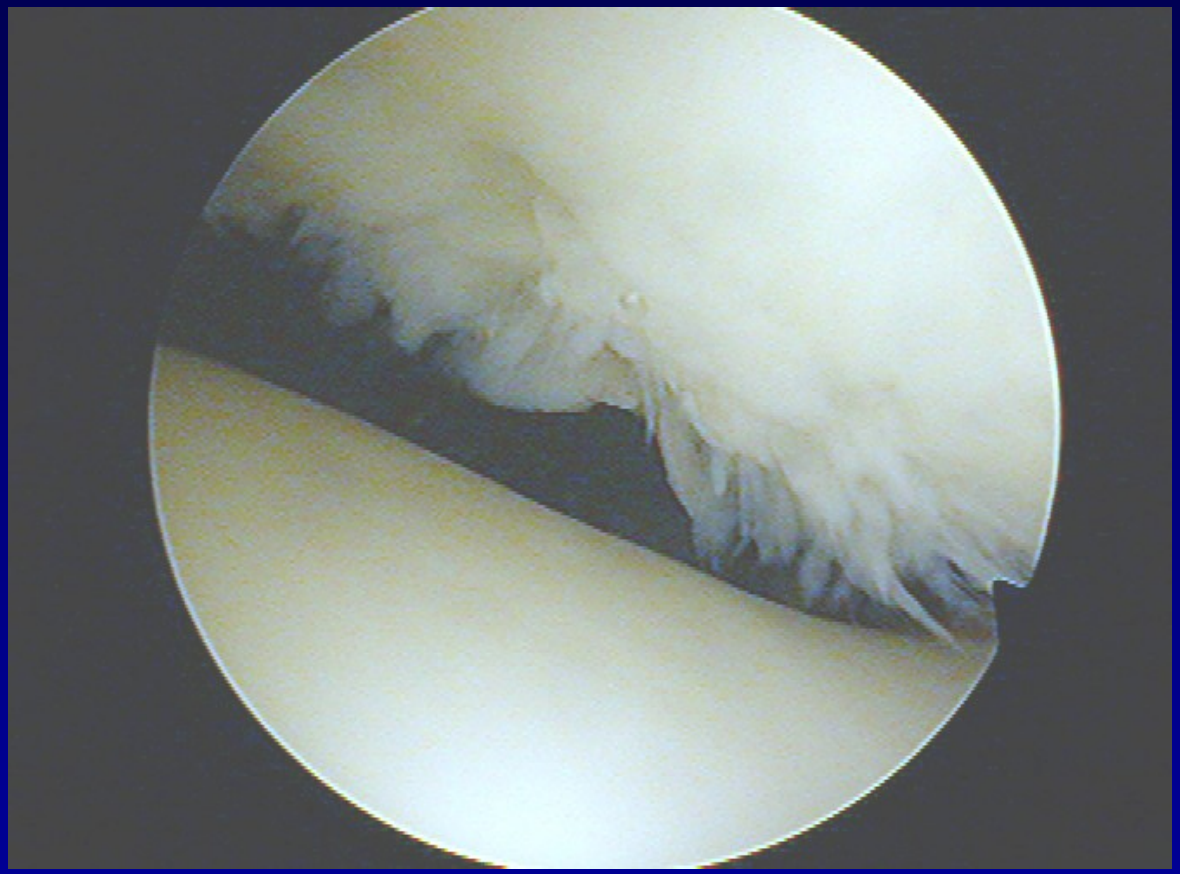
Chondropathy II. st.

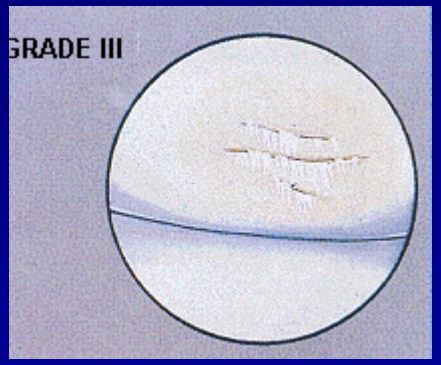




Fissures in the cartilage

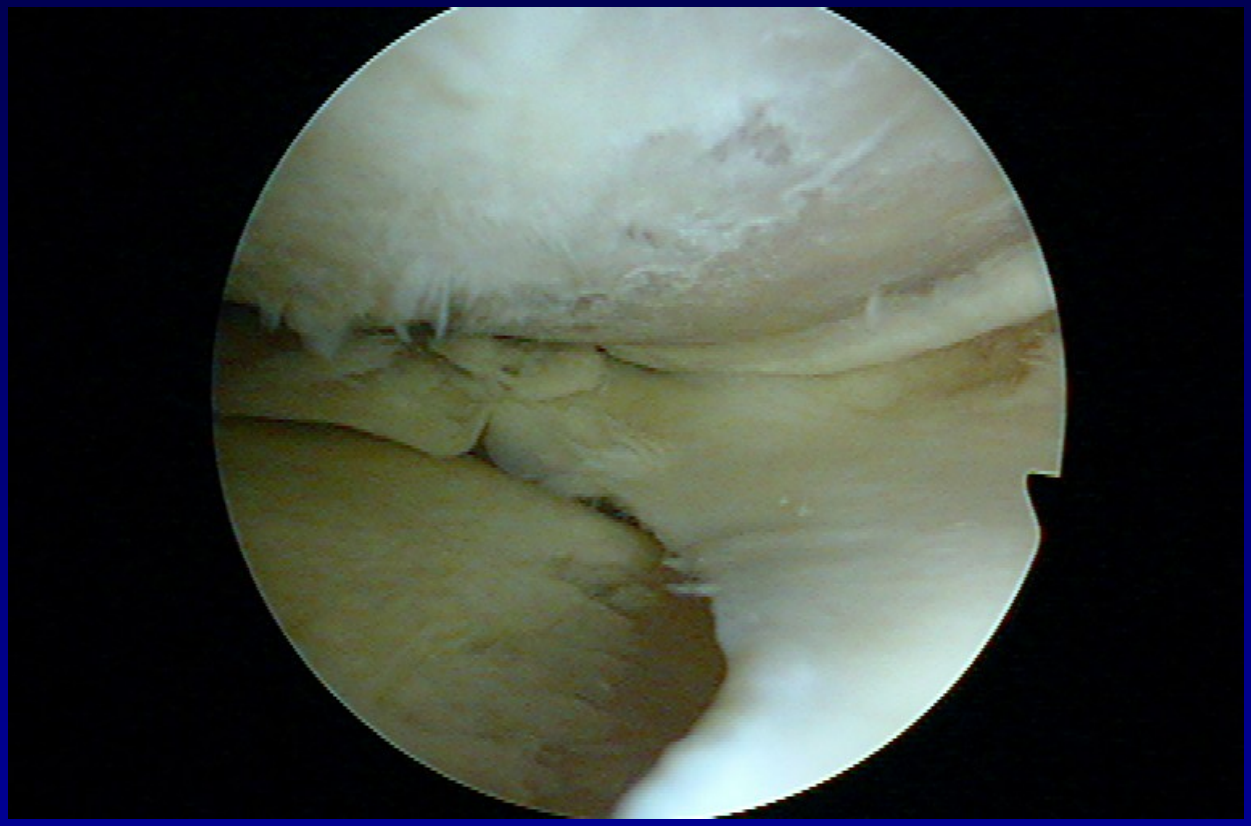
Chondropathy III. st.

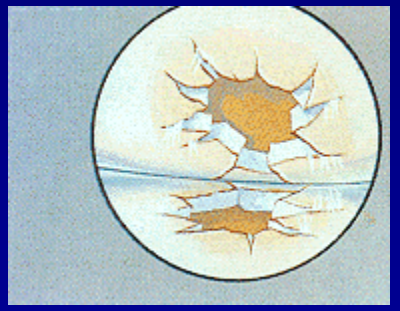




Fibrilation- „ crab meet“

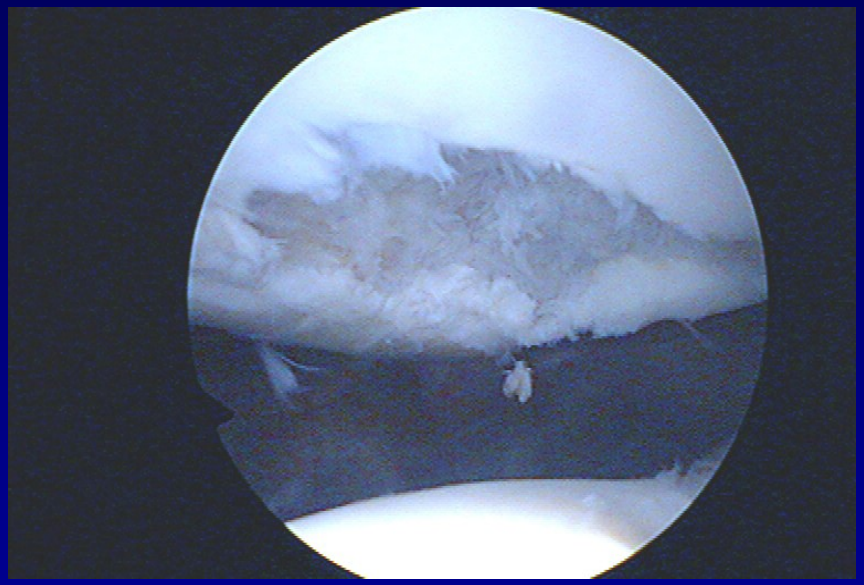
Chondropathy IV. st.



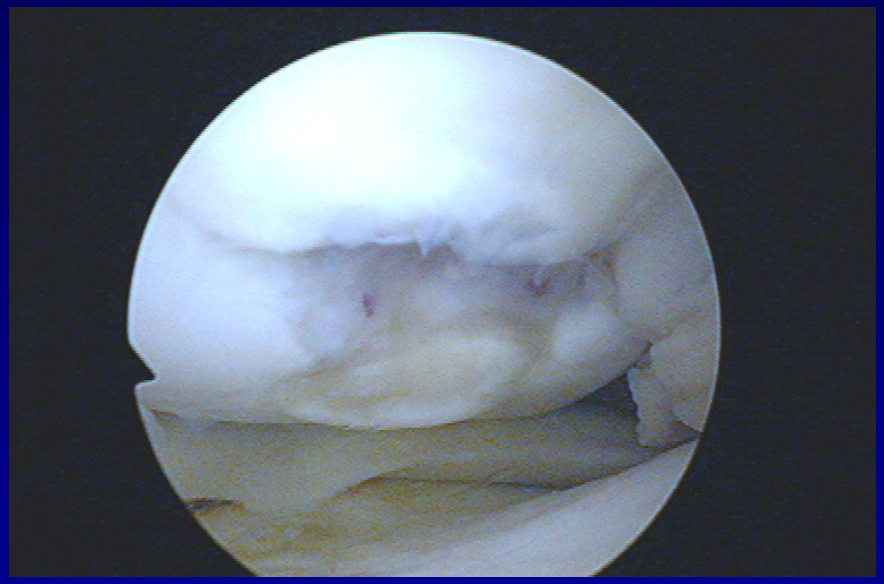


Defects to subchondral bone

Defects of cartilage

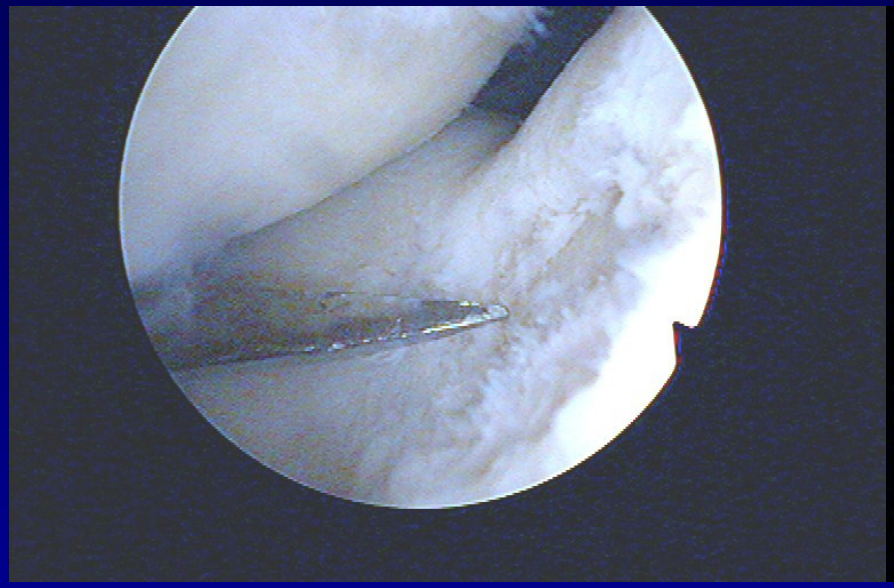


Patella



Medial condyle

Shaving and drilling



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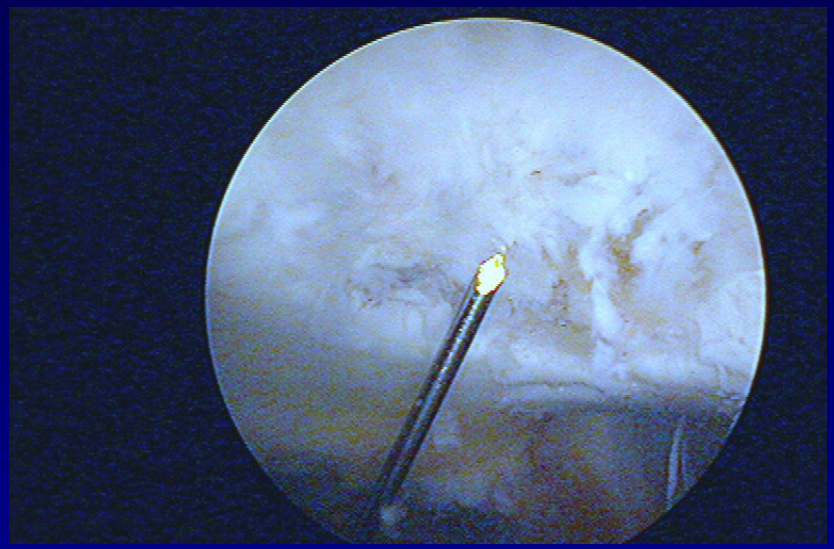
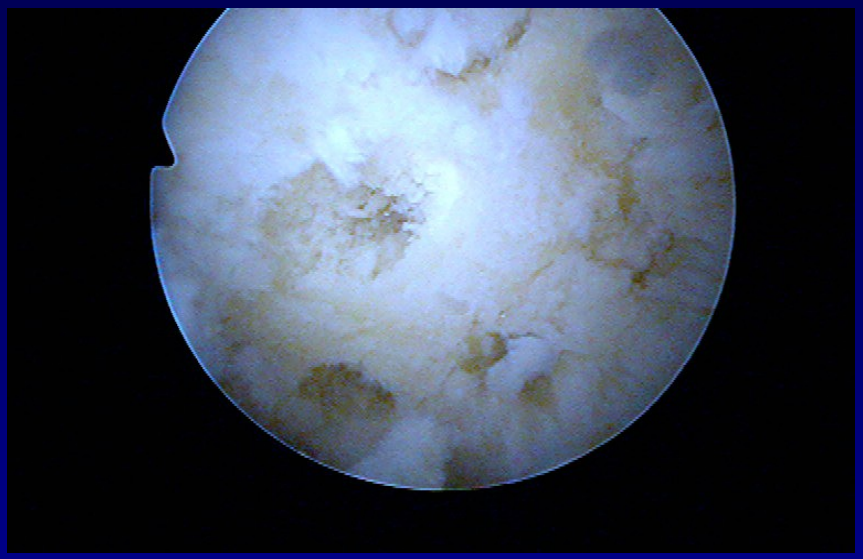
Drilling





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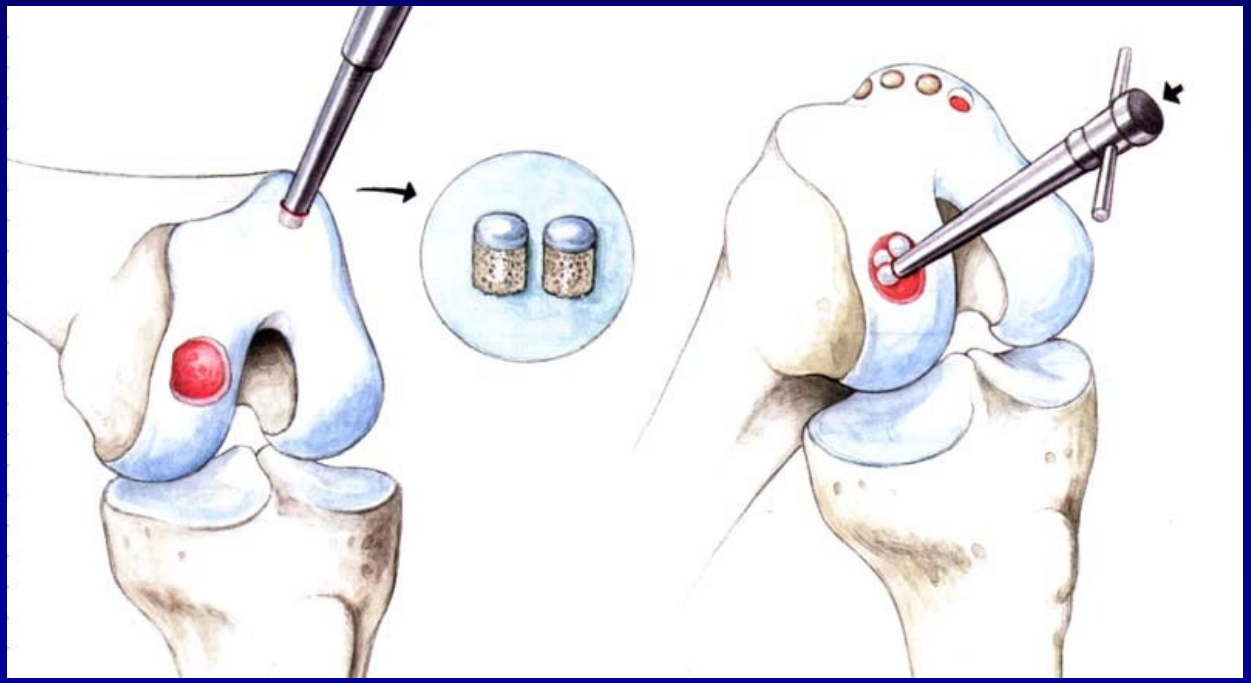
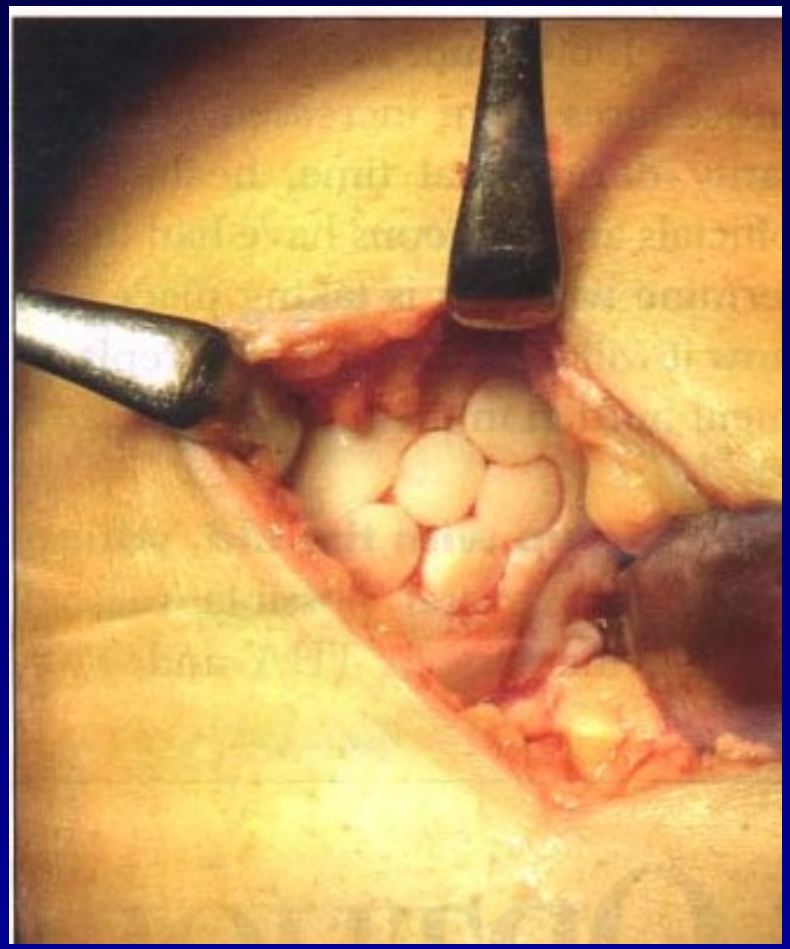
Osteochondral autograft transfer- OAT Mosaicplasty

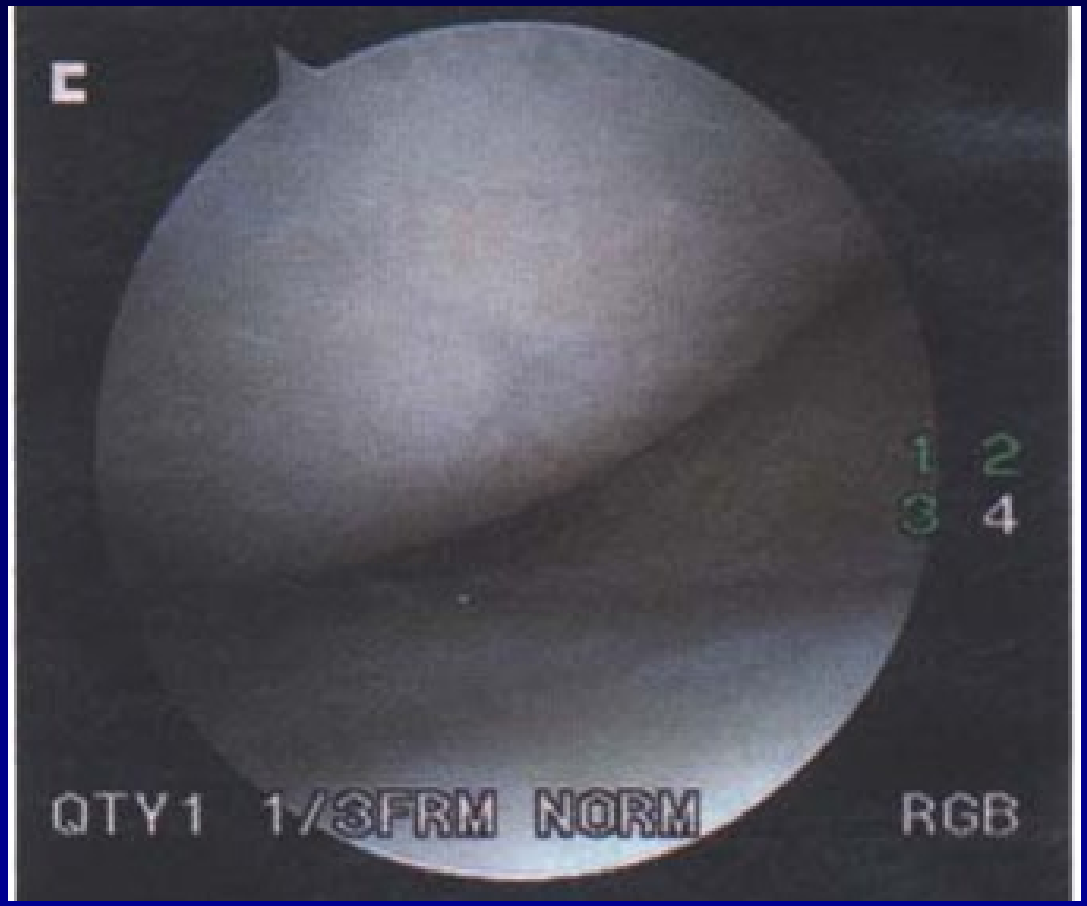
Hangody, L., 1992
Defects up to 2 - 4 cm^2



Osteochondral autograft transfer- OAT

OAT

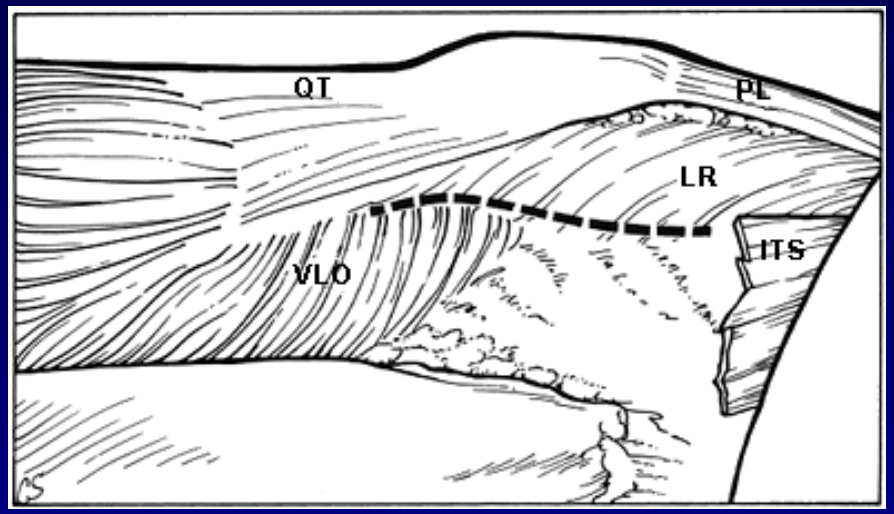




4 years after surgery

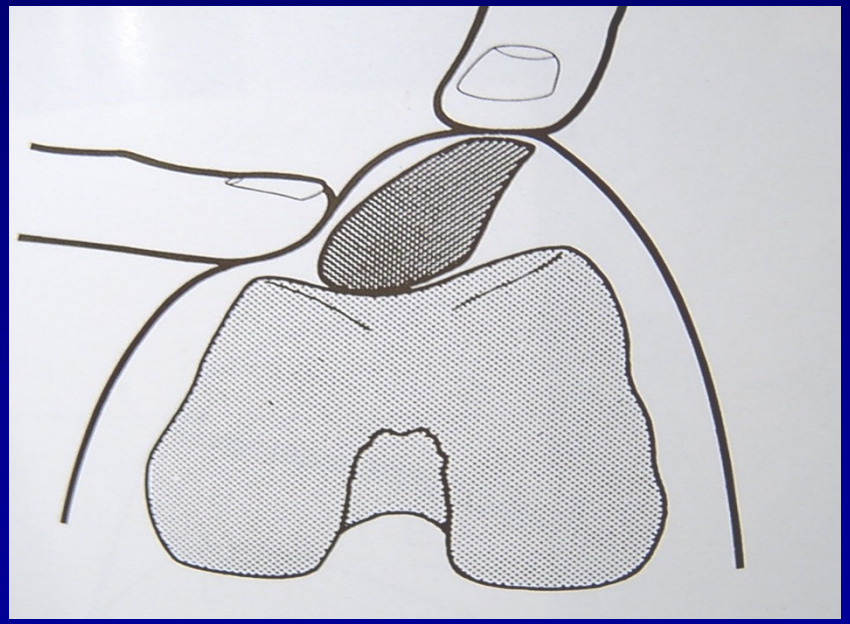
Patella

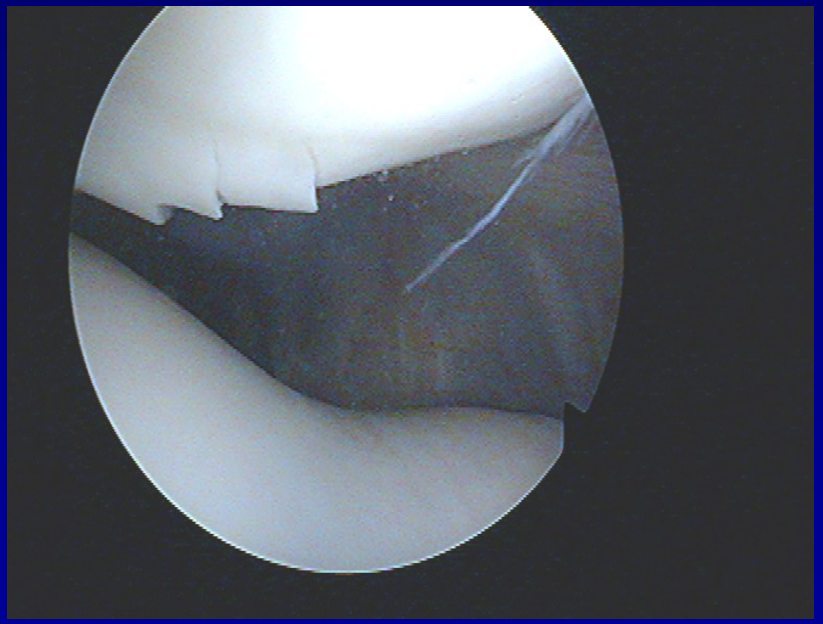
- Chondropathy
- Subluxation
- Dislocation



Chondropathy of the patella

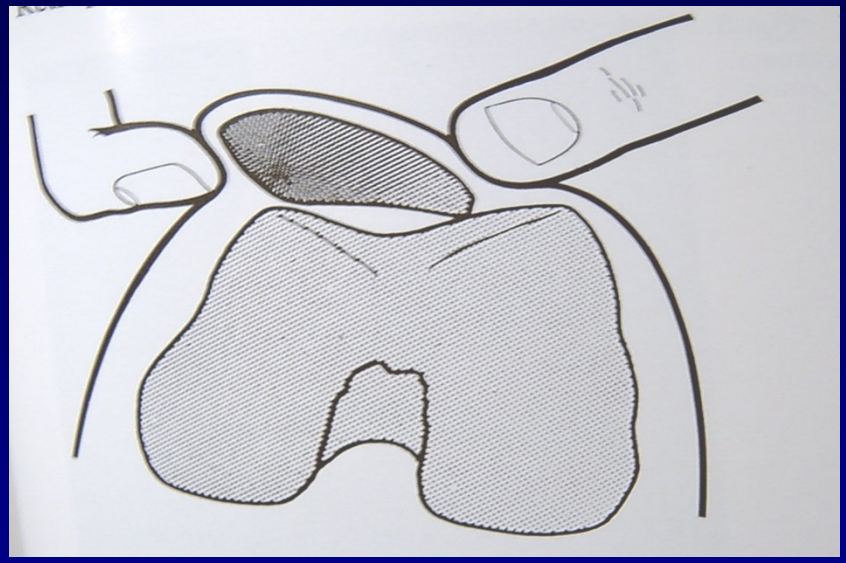
Clinical symptoms

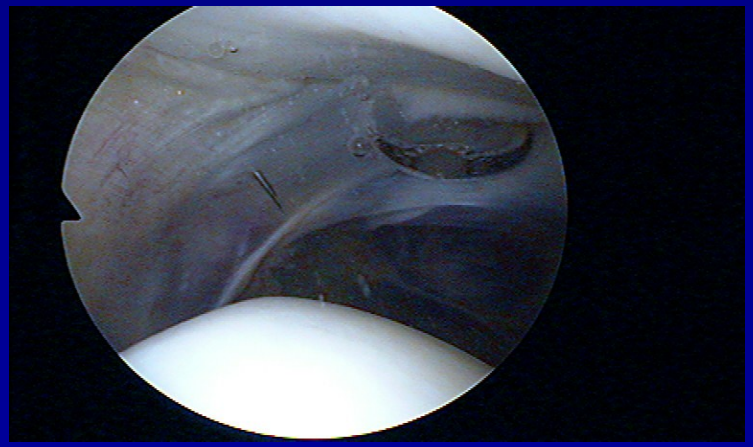


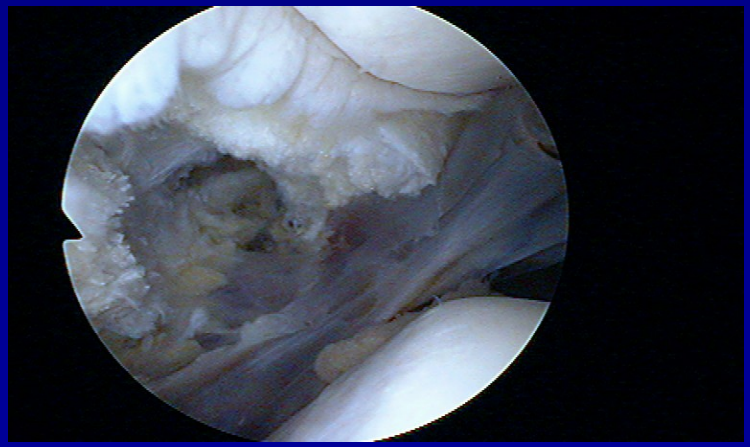


Chondropathy of the patella

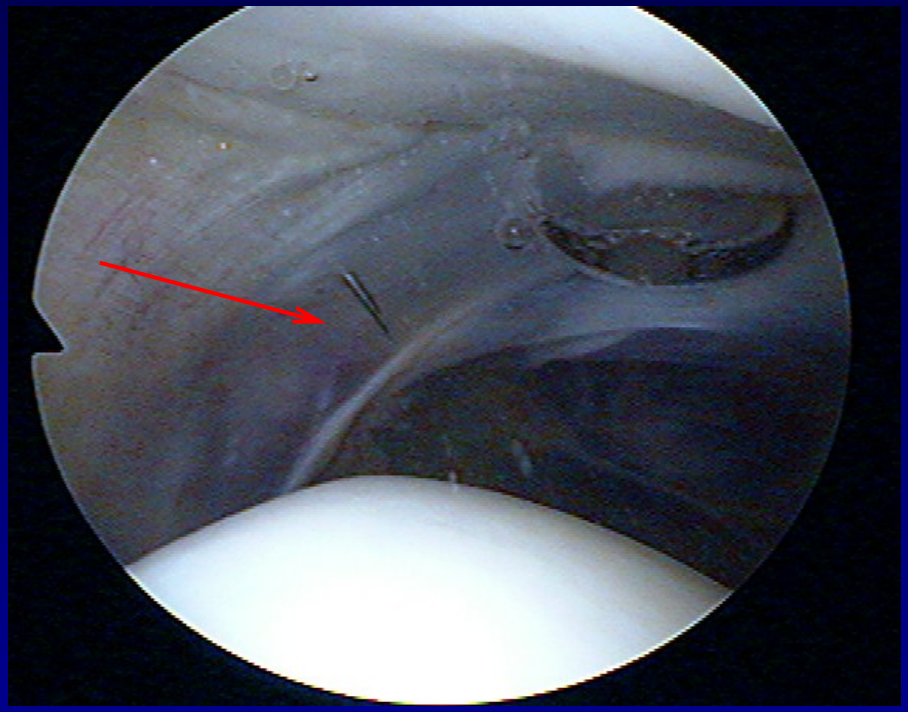
- Lateral hyperpression
- Lateral release







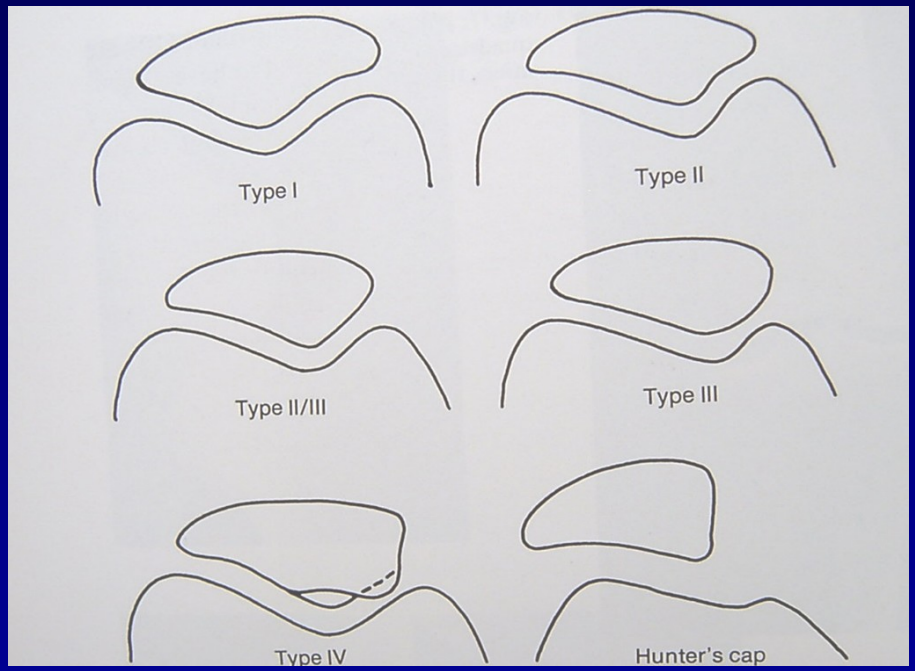
Lateral release



- Incision of lateral retinaculum

Traumatic dislocation of the patella

- Always laterally
- Conservative treatment
- Operative treatment



Types of patella

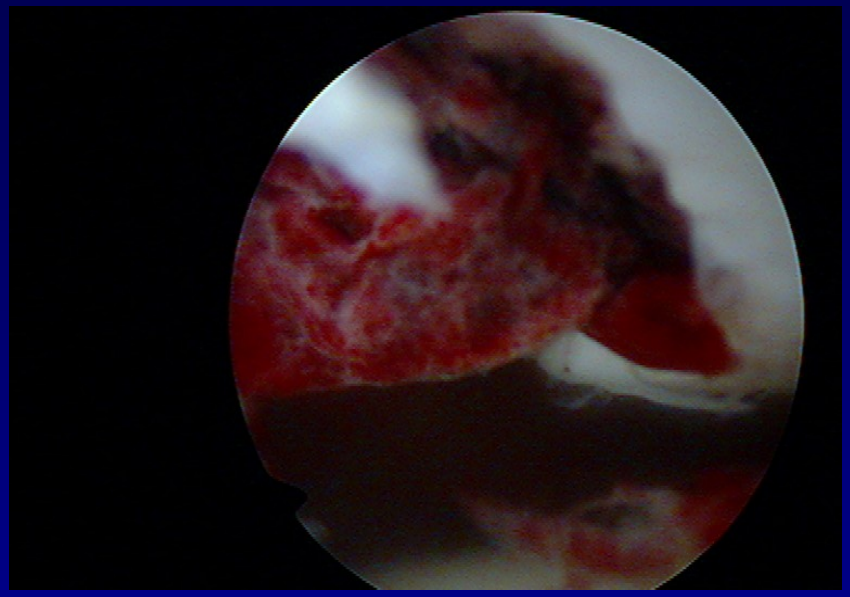
Recurrent dislocation of the patella

- posttraumatic
- congenital
- habitual

ASK – lateral release + medial capsuloraphy

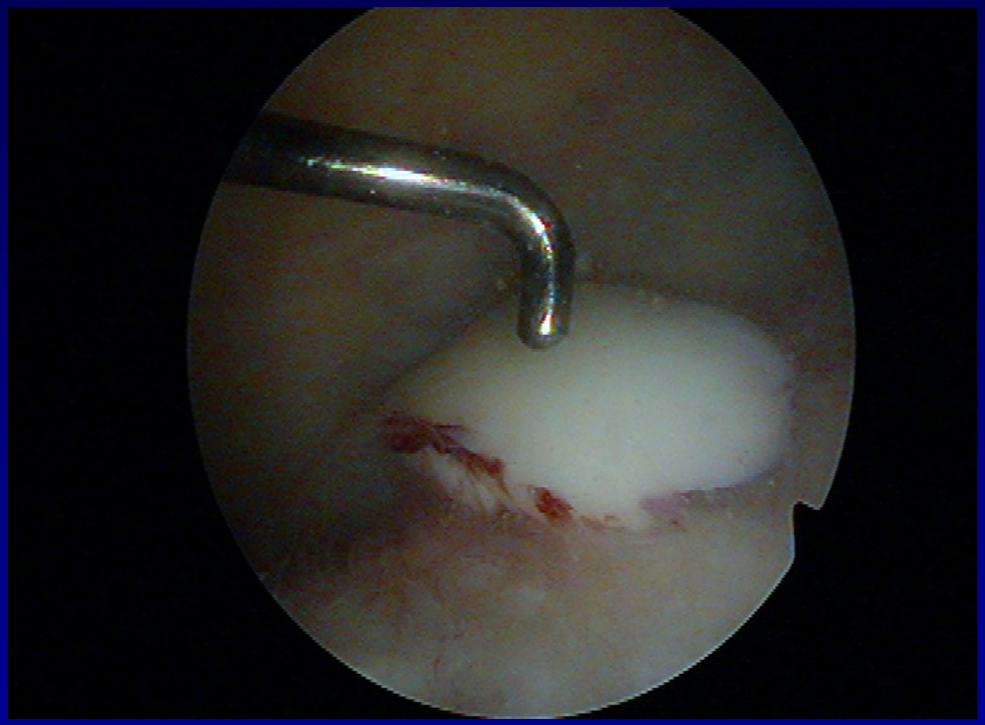
Open surgery

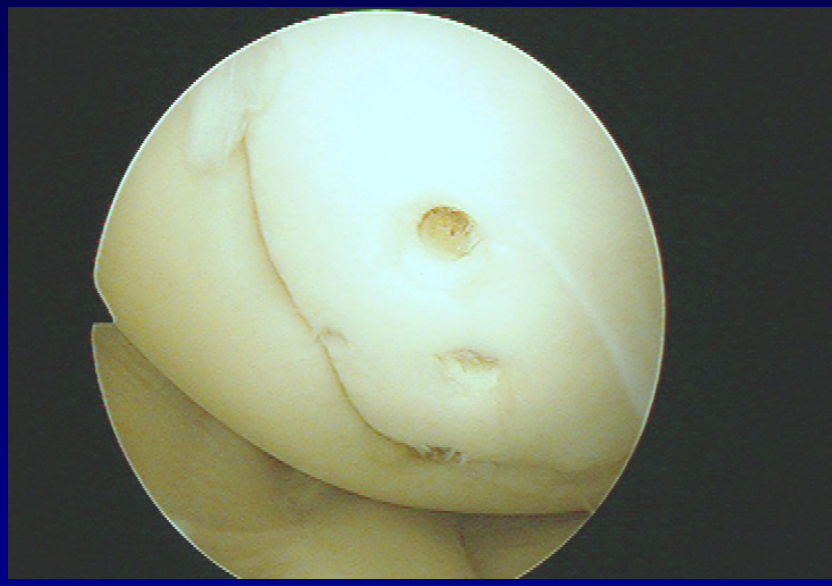
Transchondral fracture



Removal of destroyed cartilage

Osteochondral fractures





Fixation by pins

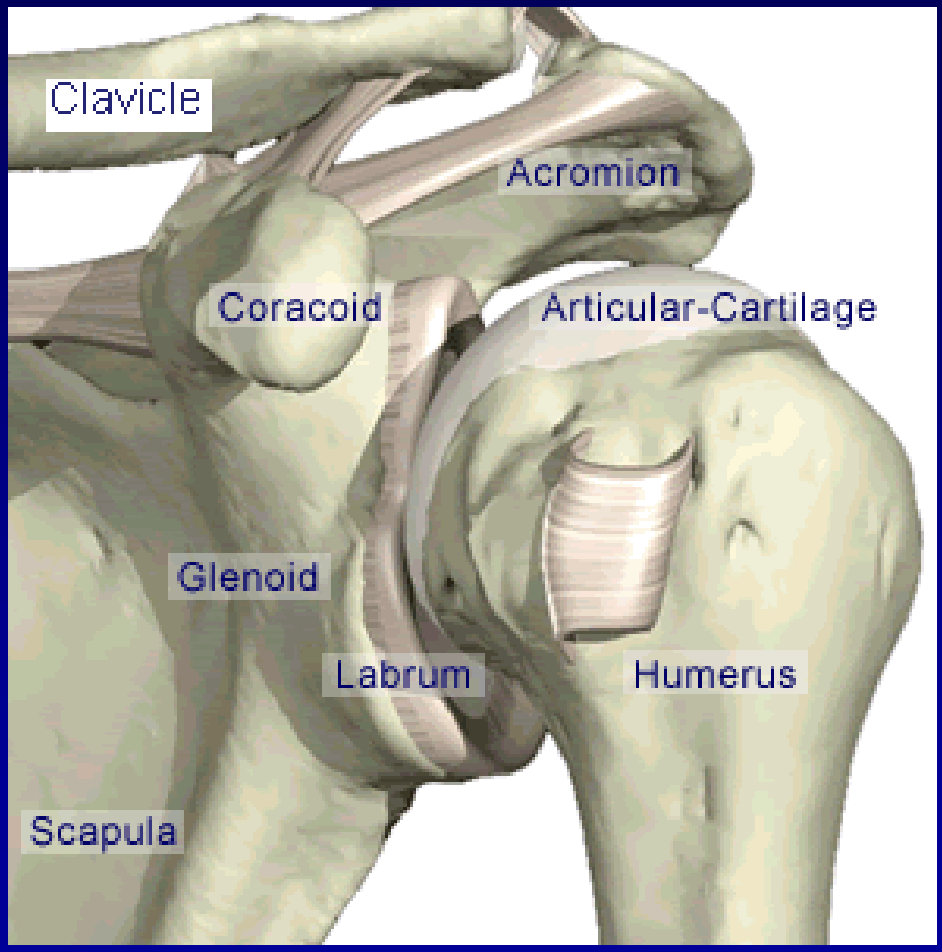
Arthroscopy of the shoulder

Subacromial decompression

Suture of rotator cuff

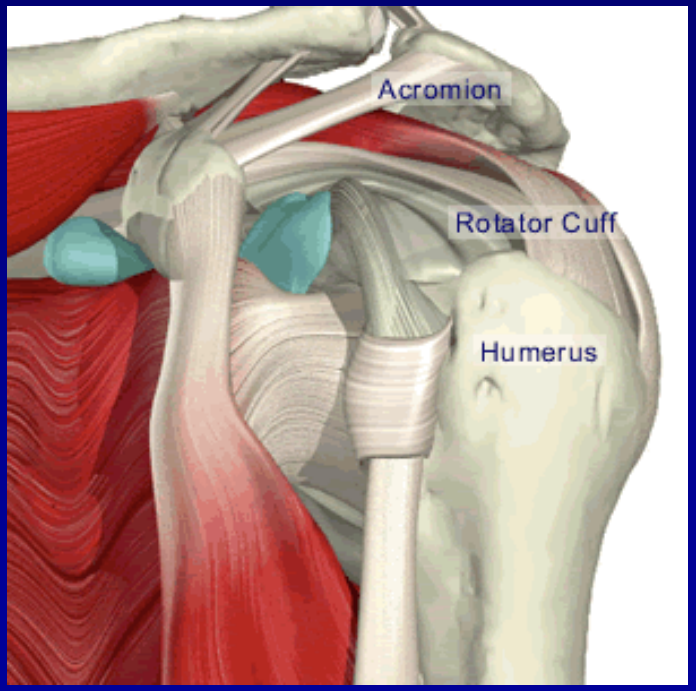
Chronic instability

SLAP lesion



ASAD – artroscopic subacromial decompression

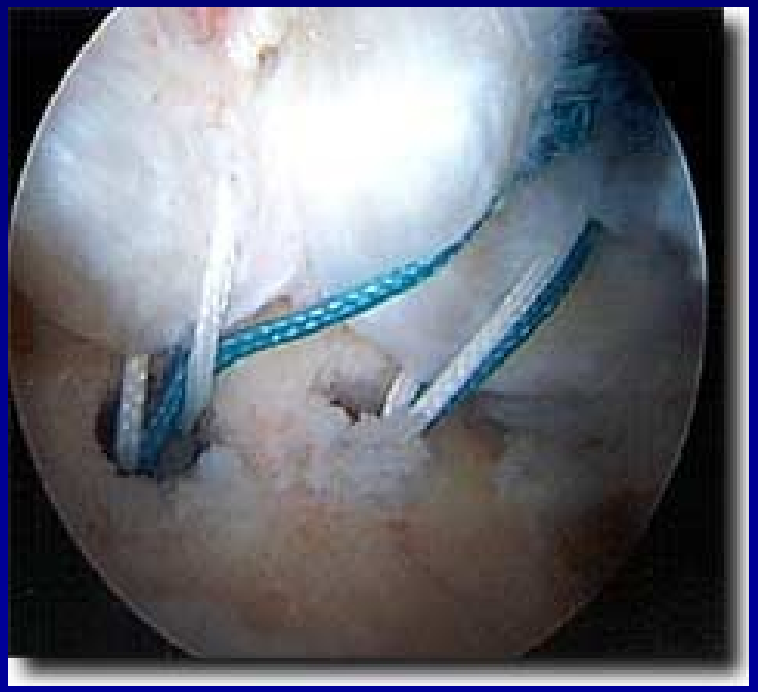
- Removal of bursa
- Acromioplasty - shaver



Rupture of rotator cuff

Suture:

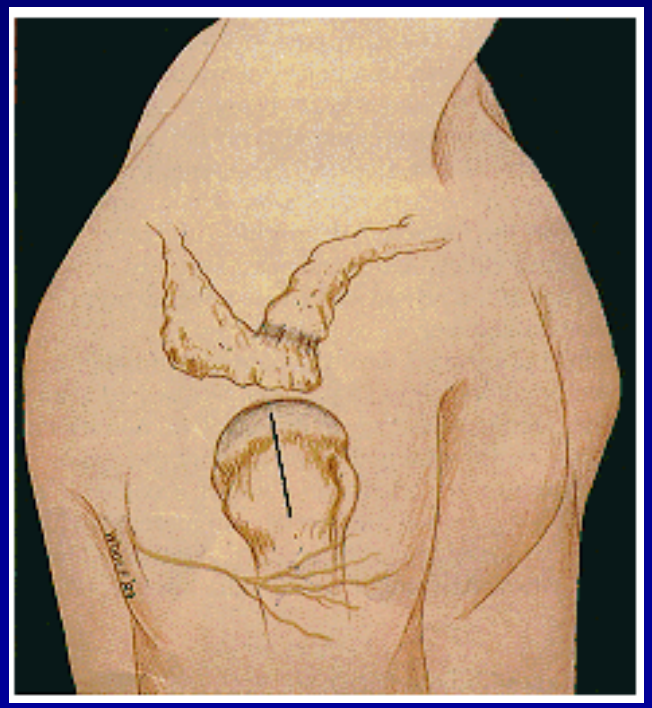
- arthroscopically

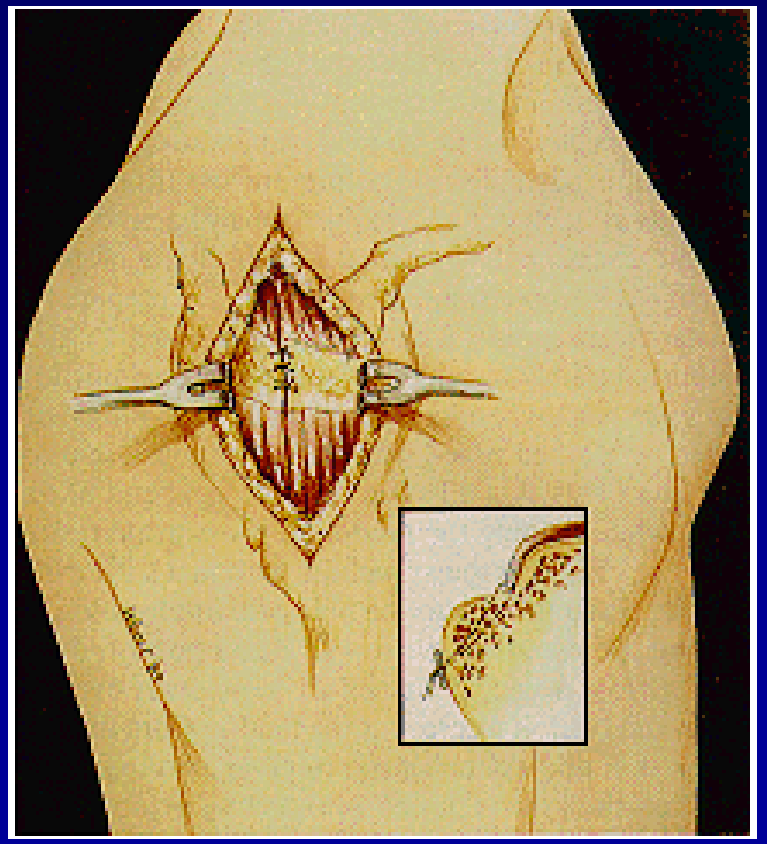


Rupture of rotator cuff

Suture:

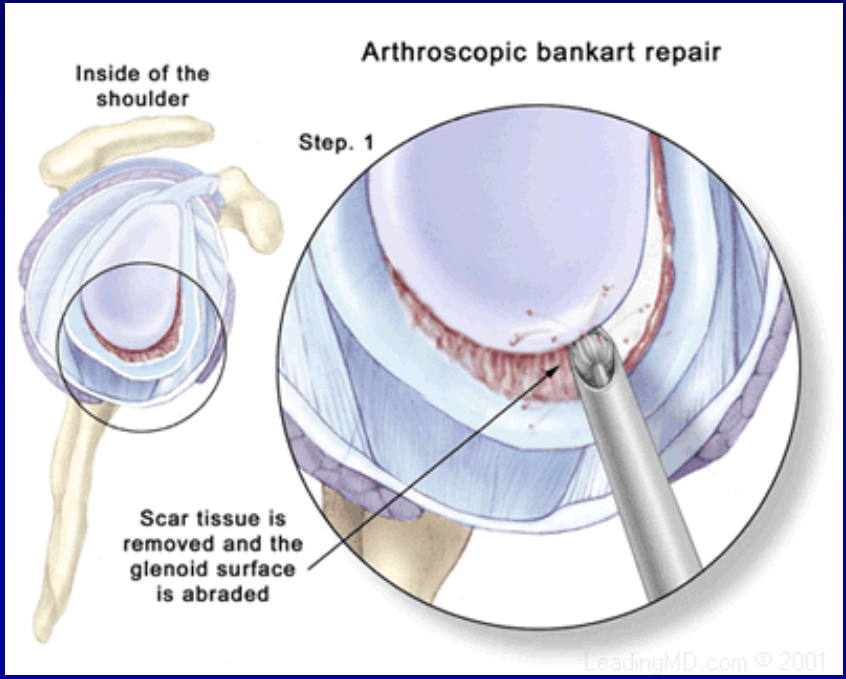
- from small incison

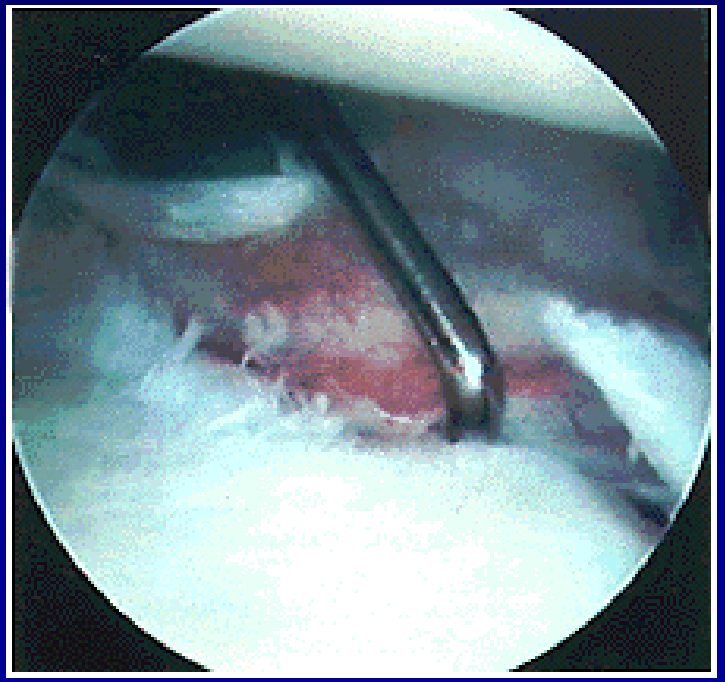




ASC- stabilisation

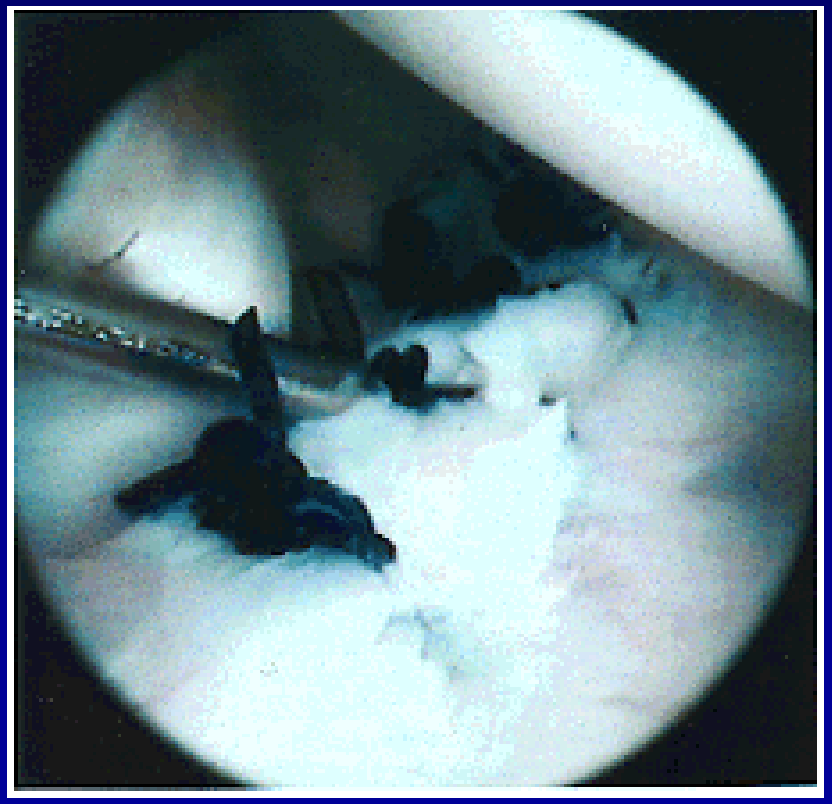
Fixation of the labrum to the bone – stitches and arrows

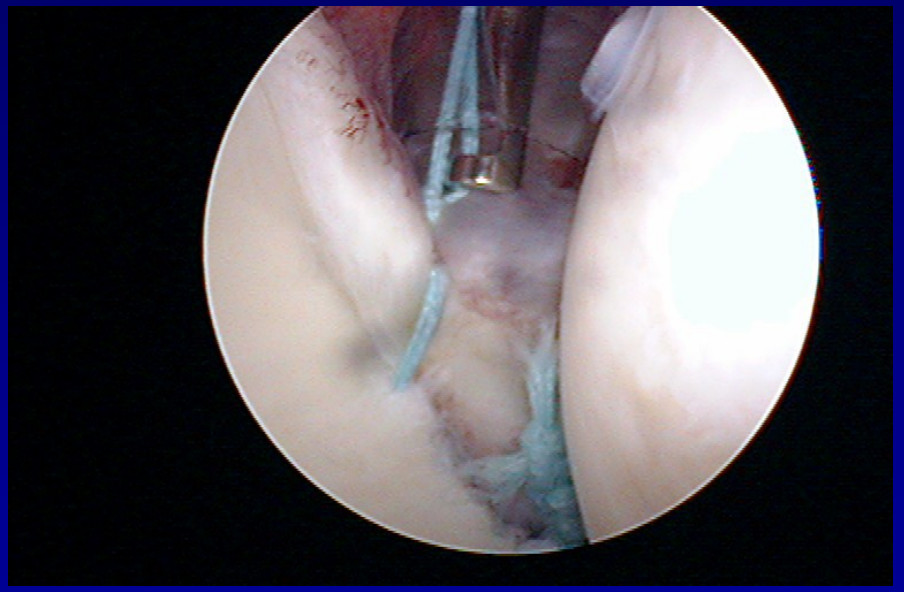




ASC- stabilisation

- Fixation of the labrum
  to the bone – stitches, arrows





SLAP lesion

Rupture of insertion of the tendon of long head of biceps