

“It’s me knee doc”



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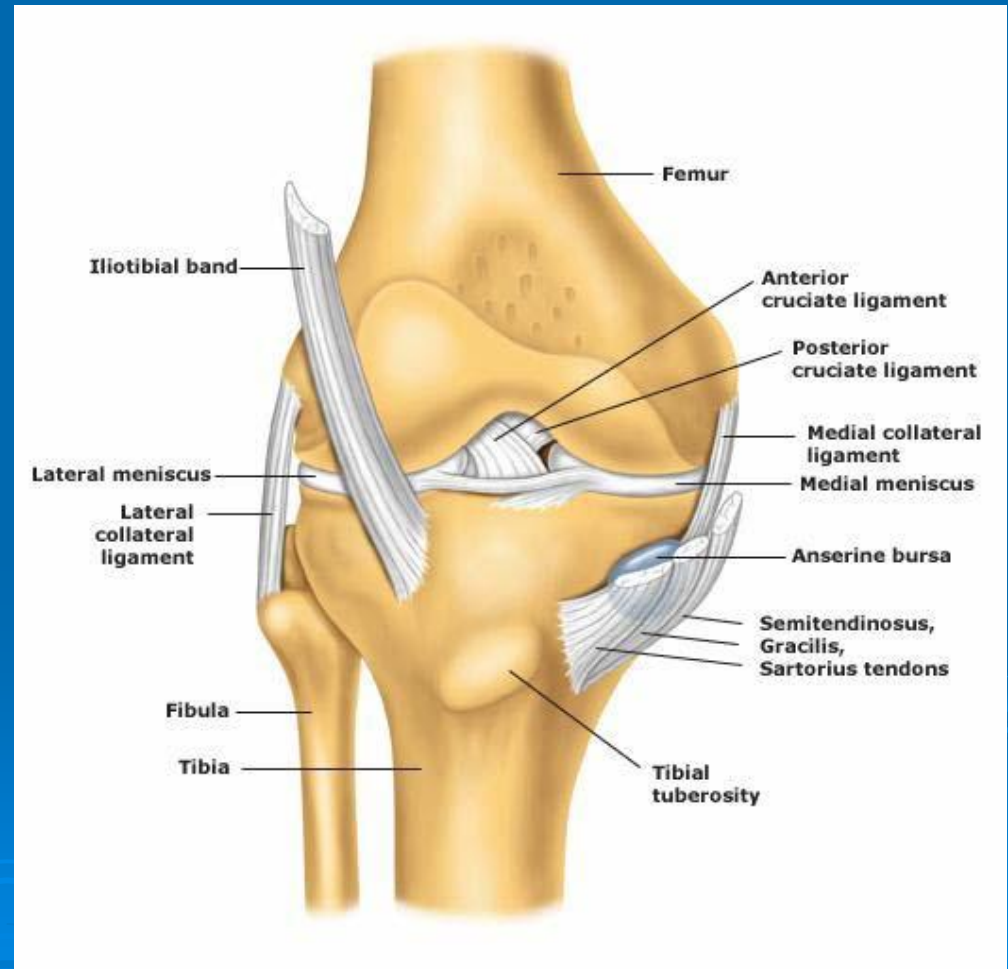
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Knee pain

- Basics
- History and Examination
- Investigation
- Common pitfalls
- OA, menisci, sports injuries

Causes of Knee Pain

- An *intraarticular* process such as a meniscal or ligamentous injury (internal derangement) or fracture
- *Patellar malalignment* or dysfunction
- *Cartilage loss* due to osteoarthritis or synovitis
- Periarticular *bursitis* or *tendonitis*
- *Referred pain* from the hip, femur, or spine
- Inflammatory arthritides (*synovitis*)



History

- Pain: location, stair pain, night pain
- Associated symptoms: locking, giving way, swelling, lump, fevers, wt loss
- Disability: mobility/occupational/sports
- Trauma
- Childhood: infection/deformity
- Rheumatology/metabolic bone disease
- Treatment: physio/injections/surgery

Location of pain	Age	9-15yr	15-30	30-60	>60
Anterior/stair pain		Chondromalacia/Os good Schlatters	Chondromalacia/patellar maltracking (dislocation)/ jumper's knee/fat pad inflammation/saphenous nerve irritation/bursitis	left column plus Osteochondral defect patella/	PFJ OA
Medial		MM tear/osteochondritis dissecans/MCL injury	left plus osteochondral defect/ injury/pes anserinus bursitis	left plus Medial OA/ SONK	Medial OA/SONK
Lateral		Discoid lateral meniscus/OCD	Plus LM tear/ popliteus syndrome/ LCL injury/ITB syndrome	Plus Lateral OA/Lateral PFJ OA	Lateral OA/PFJ/referred pain
Posterior		MM/LM tear/?tumour/ popliteus pathology/ sciatic/tibial nerve irritation		Bakers cyst/popliteal aneurysm/sciatic referred pain	
vague		Exclude referred pain from hip/spine/tumour/infection/inflammation			

- Locking: loose body/meniscal tear/PFJ/neurological/hysterical
- Giving way: as above
- Swelling: joint irritation/fracture/infection/synovitis

Examination

Look>>>Feel>>Move>>>Special tests

Look standing:
alignment, Gait, Politeal fossa, Scars, swelling, deformity

Look supine:
Muscle wasting, lumps

Feel:
muscles vmo, Warmth, Joint line

Move:
straight leg raise, FFD, Flexion: active/passive

20 degrees: Lachmanns (ACL)
Varus (LCL)/Valgus (MCL)

90 degrees:
posterior sag, anterior drawer/posterior drawer

Mc Murrays test (MM/LM)
(Dial test for posterolateral corner)

Referral to specialist

- Acute knee injury: suspected ligament/meniscal tear/bony injury
- Red flag: infection/tumour: night pain/wt loss/fevers/hx of ca
- Recurrent unexplained pain
- Multiple pathology: spine/hip/knee (rheumatology)
- Previous knee operation (especially TKR/ACL/meniscal repair)

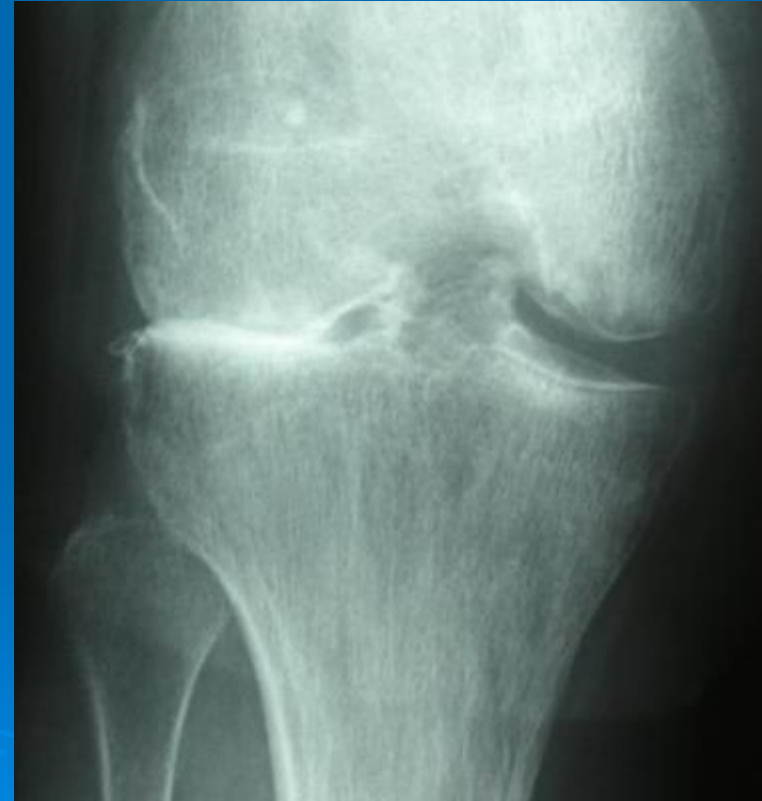
Referral

- Hx and examination
- Radiographs: weight bearing AP/lateral and skyline views
- MRI: indications see below
- has physio/wt loss/exercise been tried?
- has appropriate physio been given?
- Has rheumatological/metabolic bone disease been excluded?

Investigation

- Plain X Rays: WEIGHT BEARING
AP/lateral/skyline
- MRI: <60 yrs suspected meniscal/ligament injury/lump/recurrent anterior knee pain
>60 yrs meniscal injury no evidence OA
- Bone scan: multiple joint pains/?neoplasm
- Bloods: Vit D, ALP, Ca, RhF, anti CCP

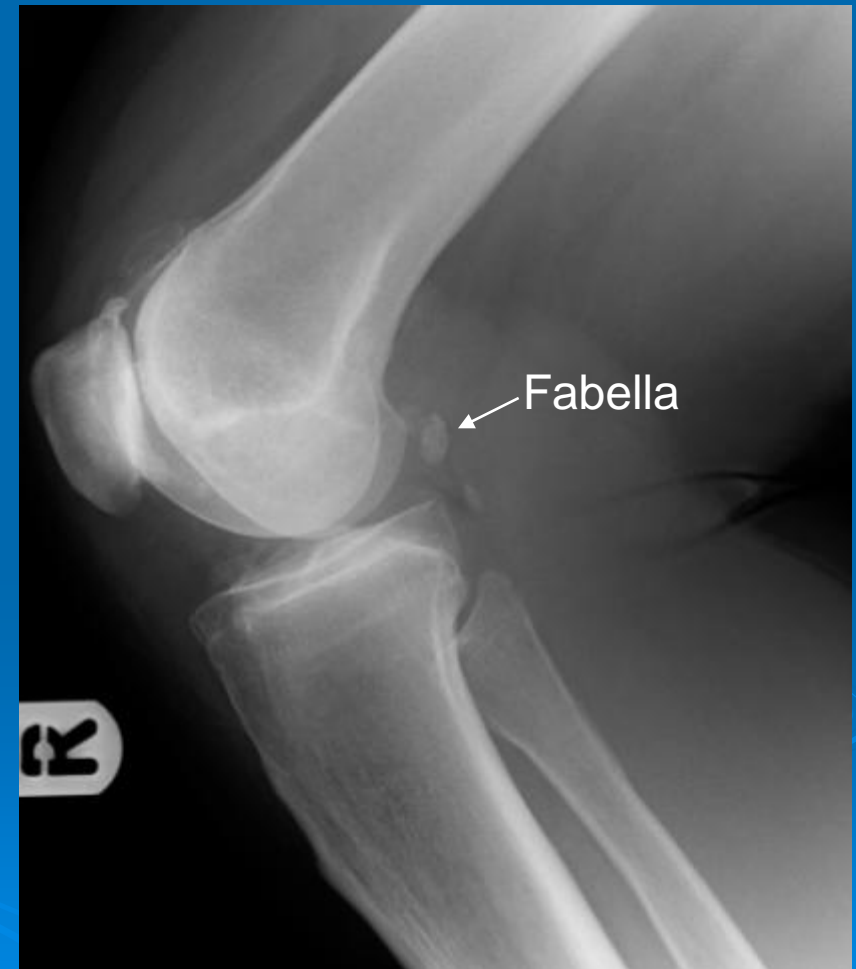
Wt Bearing



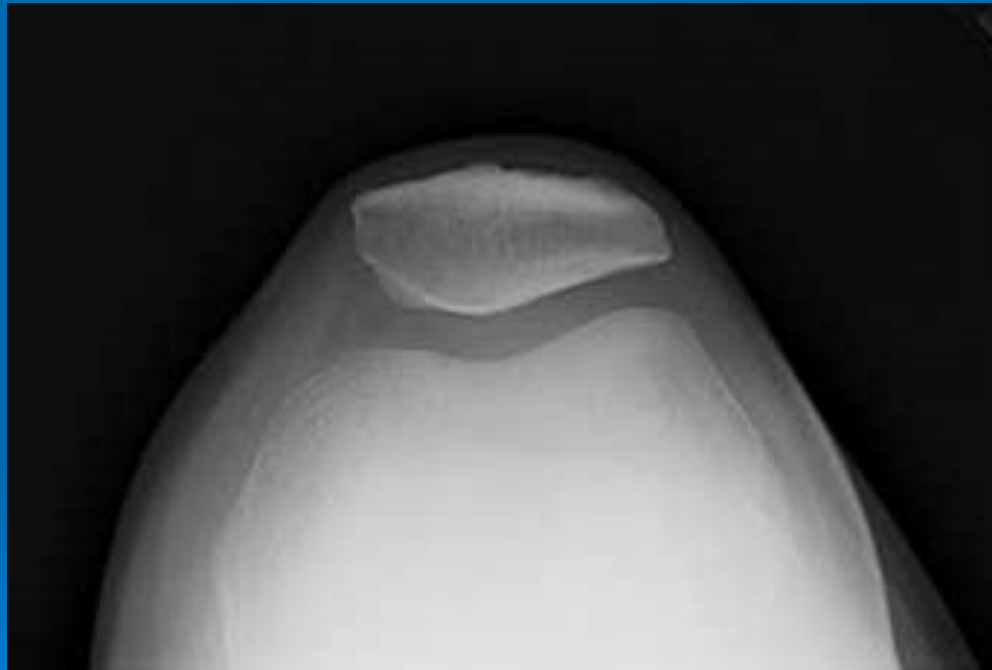
AP view:
tibiofemoral spaces



Lateral: PFJ
wear/patellar height



Skyline view



MRI

(PLEASE SEND SCANS)

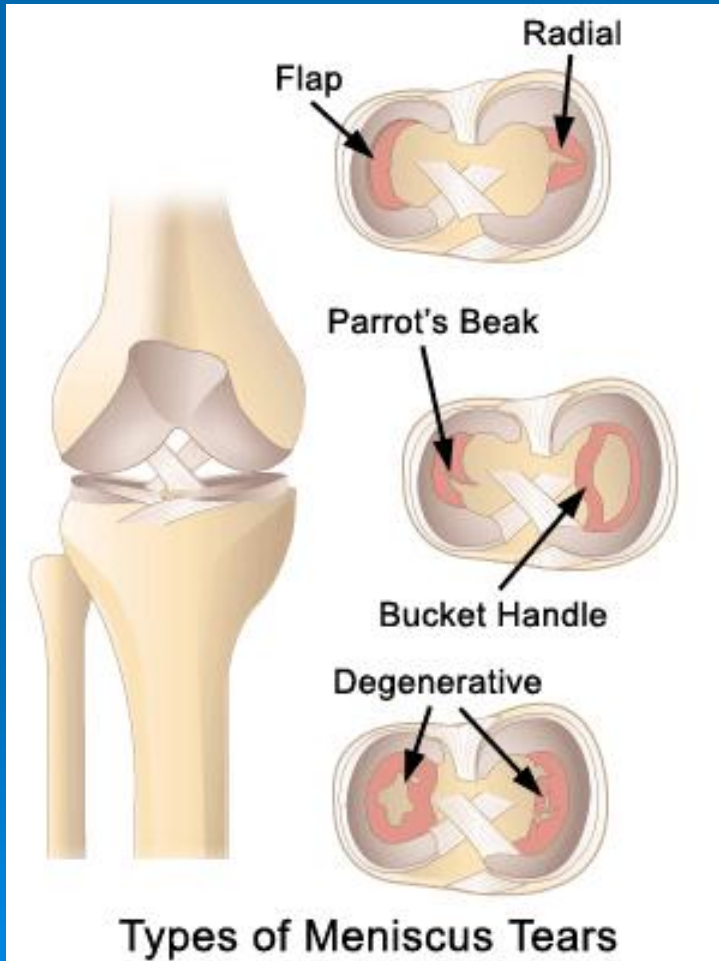
- MRI: <60 yrs suspected meniscal/ligament injury/lump/recurrent anterior knee pain
>60 yrs ?meniscal injury no evidence OA

Suspected Spontaneous osteonecrosis

(SONK): sudden (medial) pain/alcoholic/middle aged female

- Bone scan: multiple joint pains/?neoplasm
- Bloods: CRP,ESR,Vit D, ALP, Ca, RhF

MRI MM tear



MRI: ACL tear



Isolated MRI reports beware



Isolated MRI reports

- Not 100% sensitive or specific
- ??Operator dependant (like surgery!)
- There may be multiple pathologies

MRI reports beware



Summary: MRI

- Quality of report depends on the quality of the request form: details please
- Also depends on radiology/clinician interaction
- Please, please, please send the report

AND THE SCANS



Some common knee pathologies



Case 1

- 39 yr old
- Twisting injury
- Medial pain/locking
- Differential

MM tear

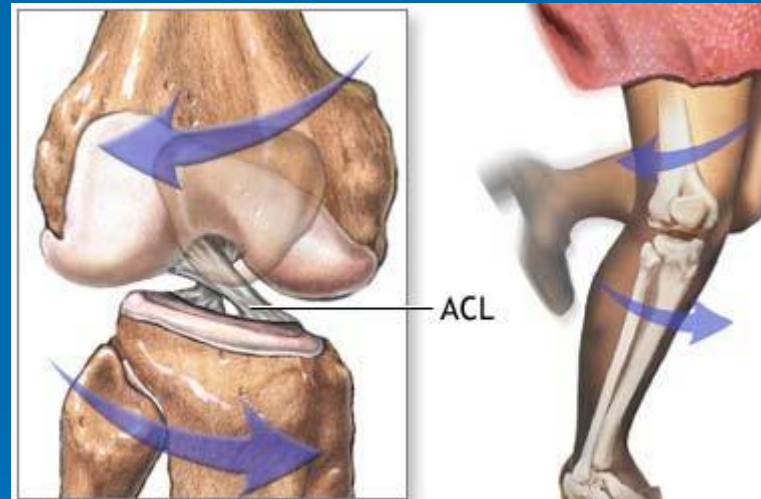


Meniscal tear

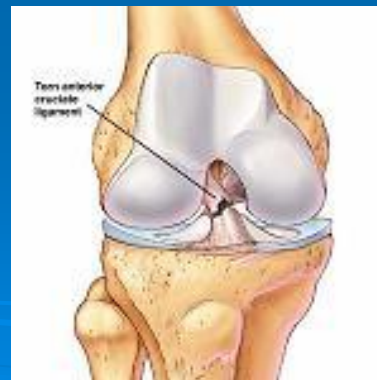
- Symptoms: Location/mechanical/disability
- Can try conservative mx in 1st 6 weeks
- Is there associated anterior knee pain or PFJ OA?
- Is there an extension deficit/FFD?
- Are any other structures involved?
- Physio= range of movement/muscle strengthening
- Arthroscopy Indications

Case 2

- 25 yr old football injury
- Can't trust
- Giving way
- Differential?
- Examination?



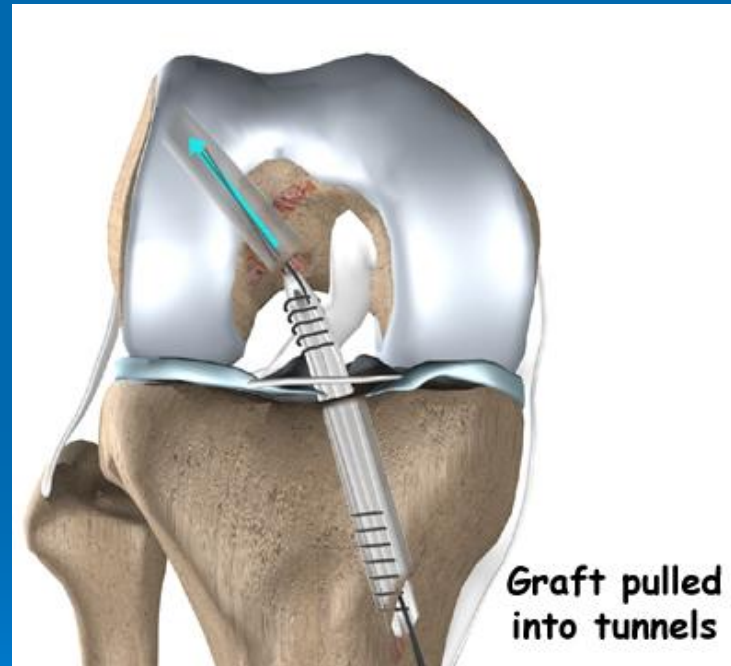
ACL rupture



ACL injury

- How old?
- Symptoms: pain or giving way?
- Activity level
- Has physio been tried?
- Other structures involved?
- Indications for ACL reconstruction

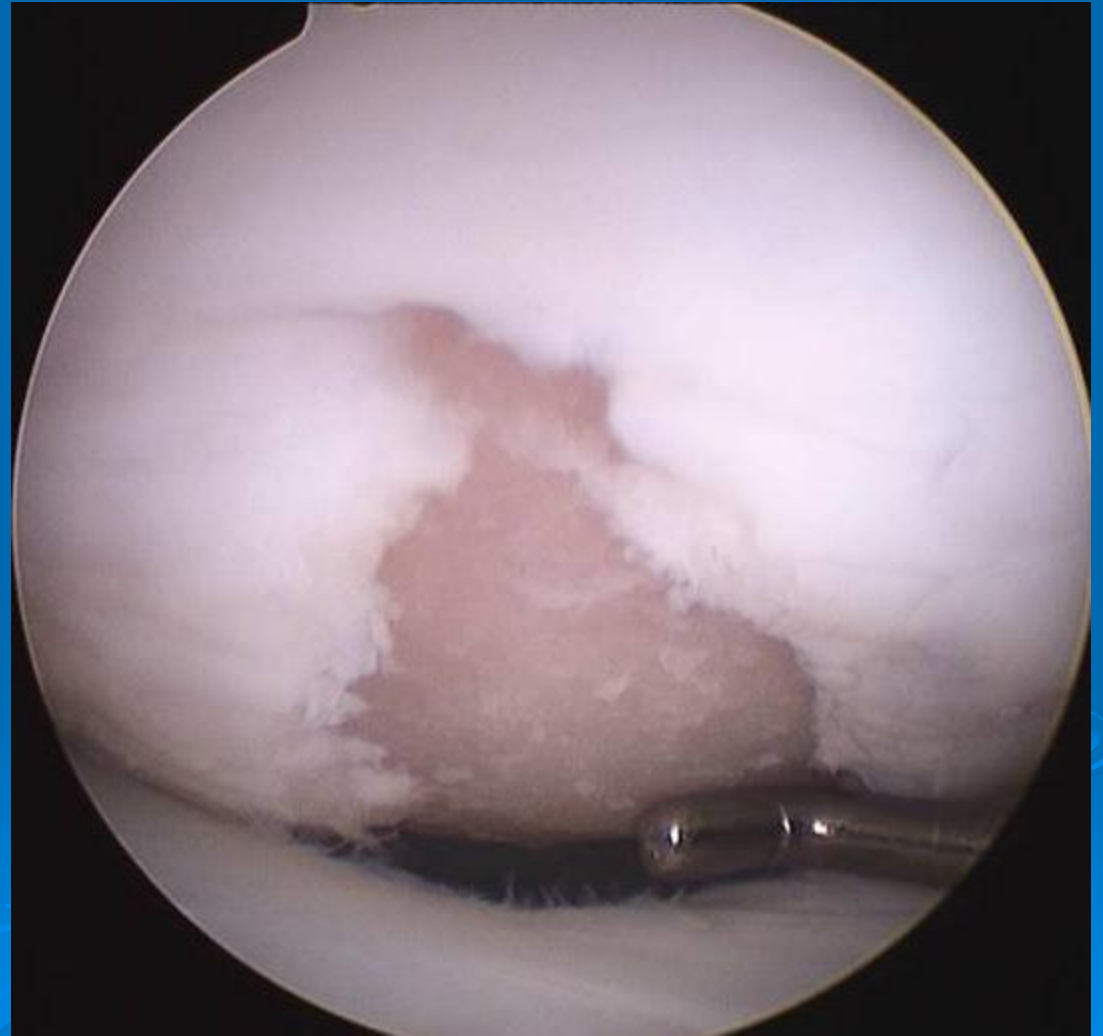
ACL reconstruction



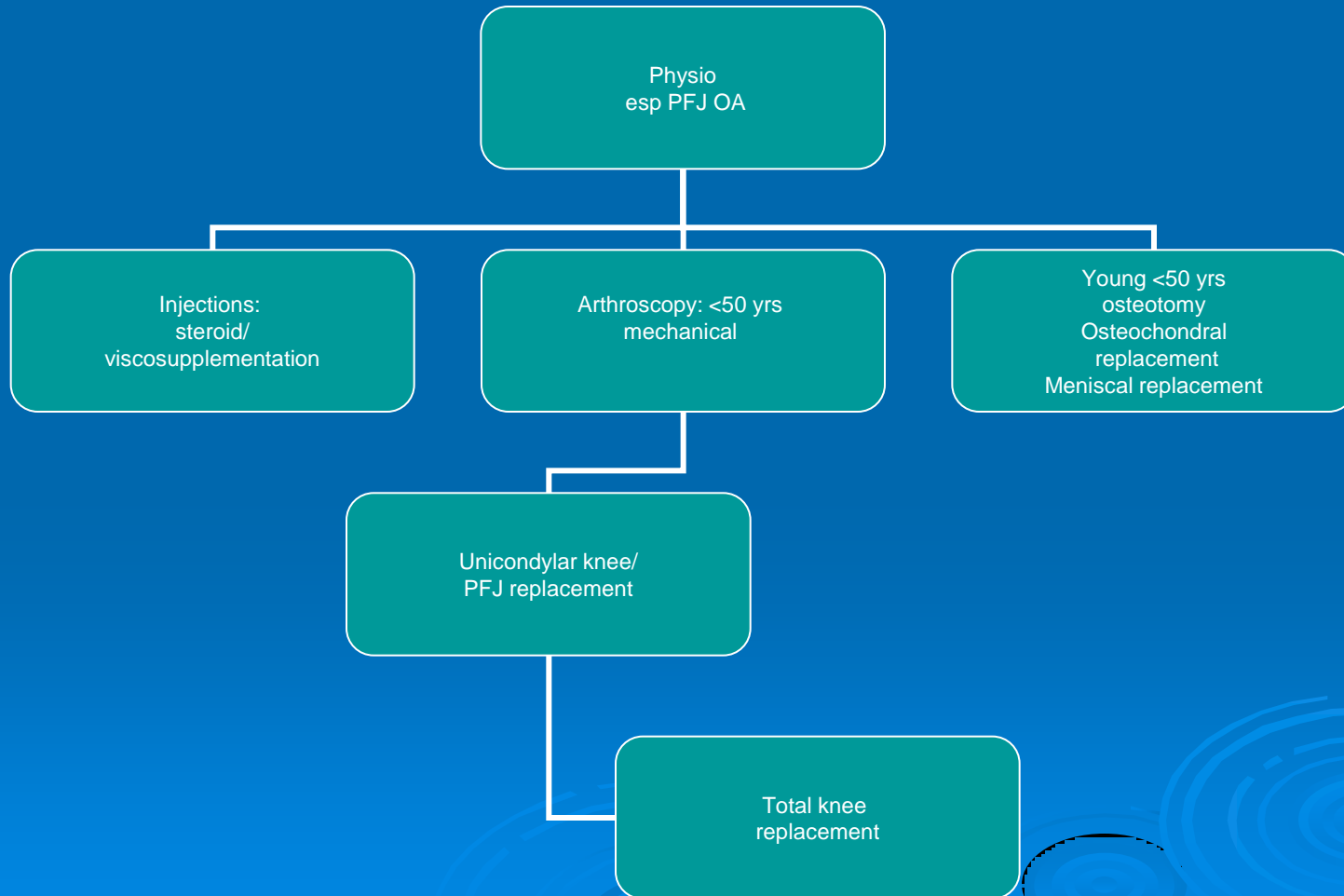
Case 3

- 55 yr old BMI 47
- Medial pain, stair pain, night pain
- Walking 50 yds
- Differential?
- MRI?

OA knee



OA knee



OA knee



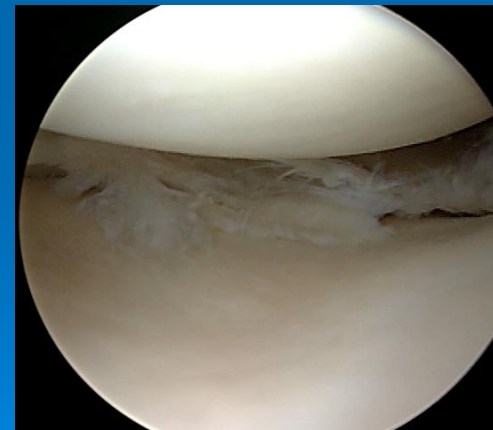
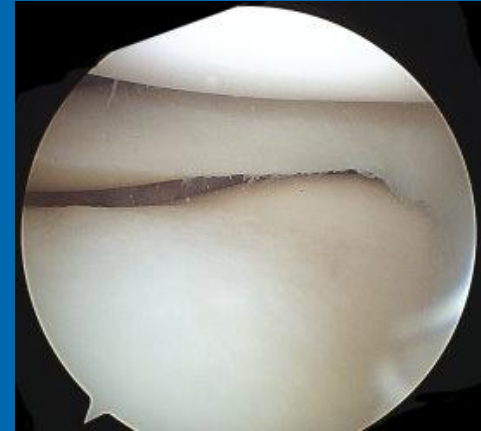
OA knee: Physio

- Early OA on Xray
- No rest pain/night pain or previous physio
- Anterior knee pain/patellar maltracking/PFJ OA
- Younger active patient
- Poor quads bulk or function
- Reluctance for operation



OA knee arthroscopy

- Younger patient <60 yrs
- Recent new mechanical symptoms
- Focal medial pain tenderness (ie meniscal tear)
- Diagnosis: for location of OA (uni- or multicompartmental)



OA knee unicompartmental replacement

- OA in 1 or 2 compartments
- $<15^\circ$ fixed flexion
- $<15^\circ$ varus
- ACL intact
- ?BMI <35
- Advantages: smaller incision, quicker rehab, less bleeding, better flexion, ligaments stay intact.



Total knee replacement

- Severe OA and symptoms
- ?older patient
- Tricompartmental disease
- Good long term results



Case 4

- 55 yr old
- Stair pain, weakness getting up from chair
- Walks 2 miles
- Differential?
- MRI?



PFJ OA



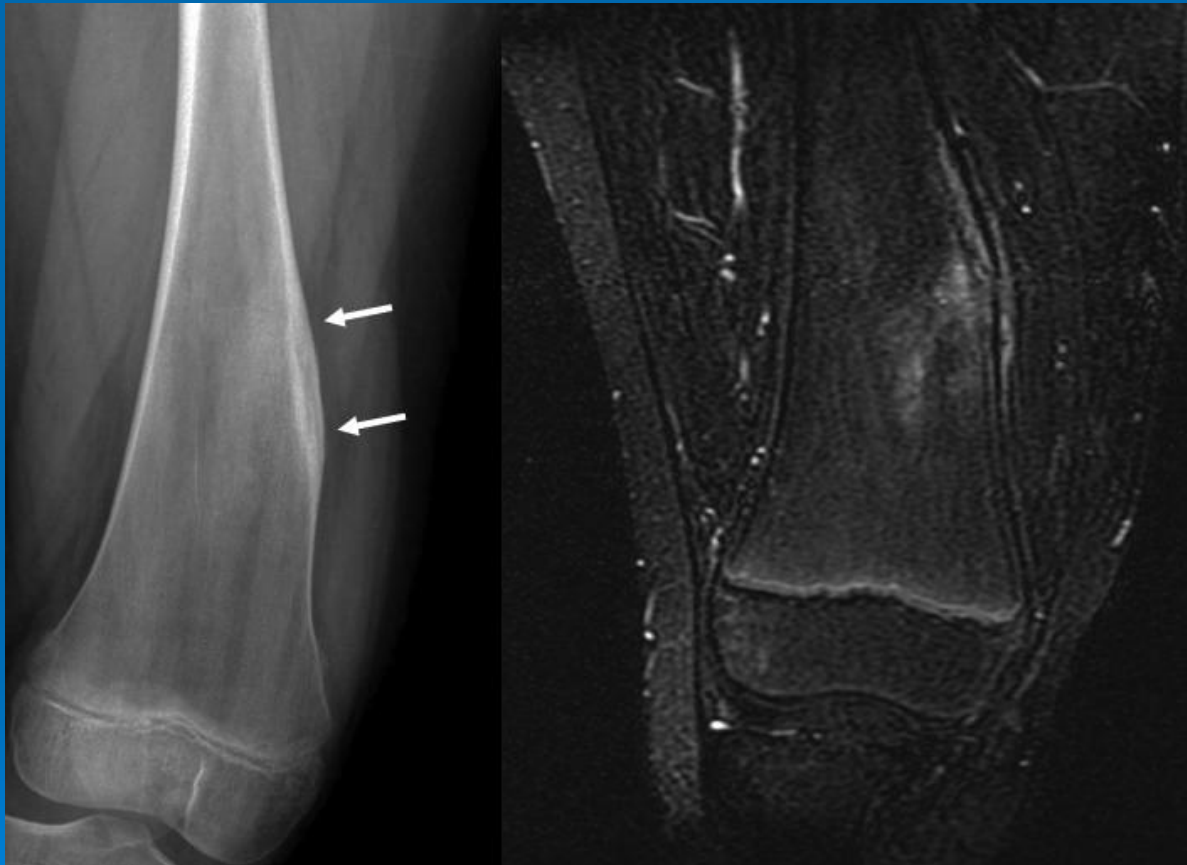
PFJ OA

- Decreased lever arm for quads>>weakness
- Stair pain
- Try physio and wt loss
- Arthroscopy defunctions quads
- ?PFJ replacement
- ?TKR

Case 5

- 15yr M knee and thigh pain
- Night pain
- Relieved NSAIDS
- Arthroscopy medial plica/MRI continued pain

Osteoid osteoma

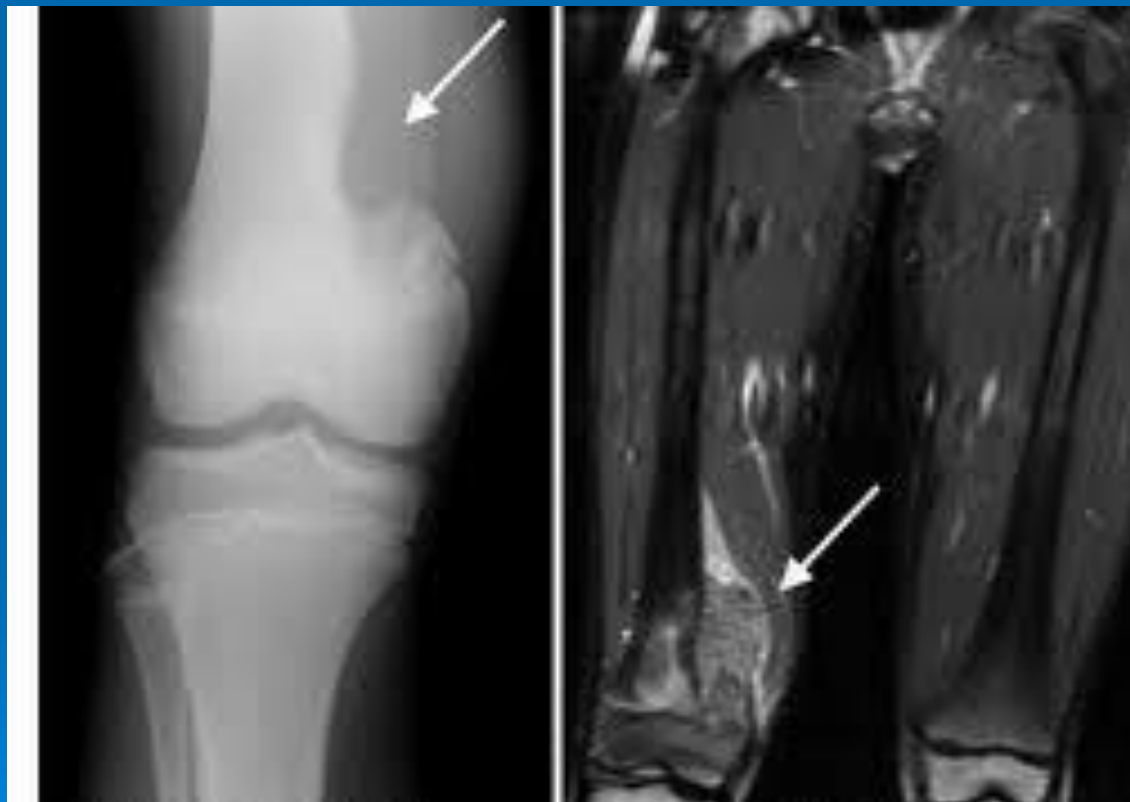


Radiofrequency ablation

Case 6

- 15 yr rugby injury
- Thigh pain and lump
- Differential?

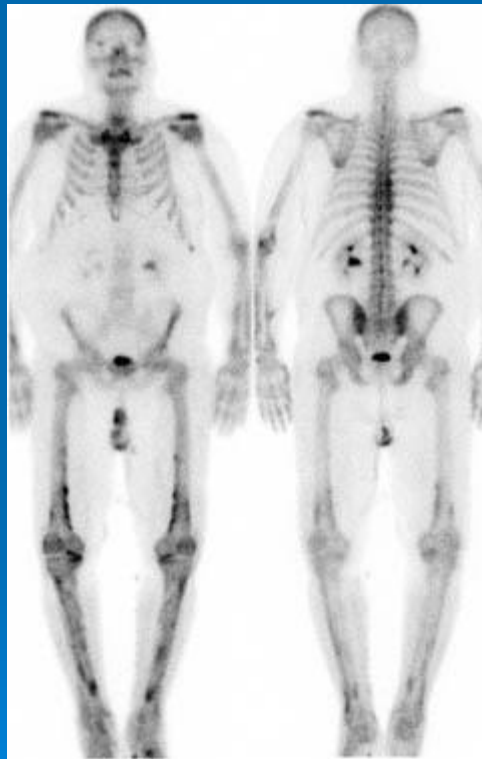
- Distal femoral osteosarcoma



Case7

- 55yr smoker
- Cough
- Wt loss
- Knee pain/night pain/thigh pain
- Normal Xray/meniscal tear on MRI
- ?investigations

- Bone scan multiple mets in femur/tibia

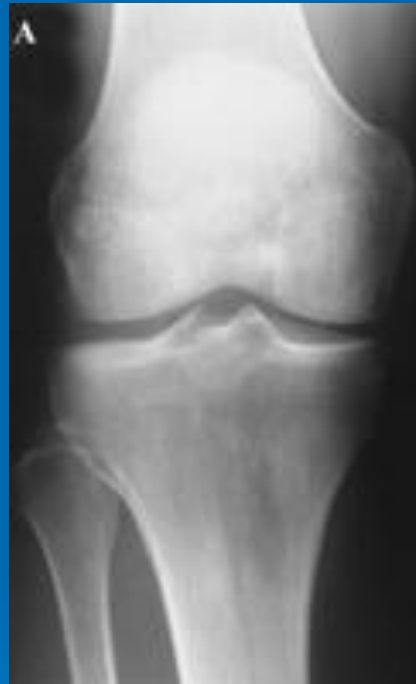


Case 8

- 67yr man
- Knee pain/rest pain/ night pain/limp/can't cut toenails
- Medial tenderness on examination/good ROM

Knee Xray

- Mild OA knee AP
- Is it weight bearing?
- Skyline/lateral?



Anything else to examine?

Hip Xray

- Severe OA hip
- Referred pain



Beware

- Hip OA referred pain
- Occult neoplasm in young patient with recurrent pain and hx trauma
- PFJ OA
- Metastatic disease in elderly with positive MRI scan

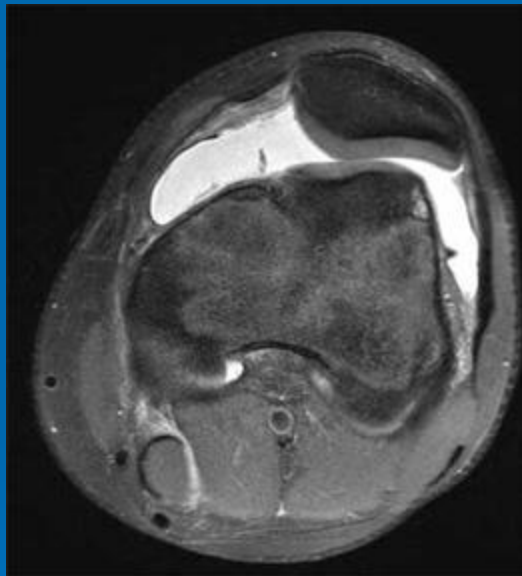
Case 11

- 15 yr girl
- Anterior knee pain
- Knock knee
- Stair pain
- Differential?
- Refer or treat?

Valgus knee



➤ MRI chondromalacia patellae/maltracking



Physio/wt loss

Lateral release

?realignment surgery

Case 12

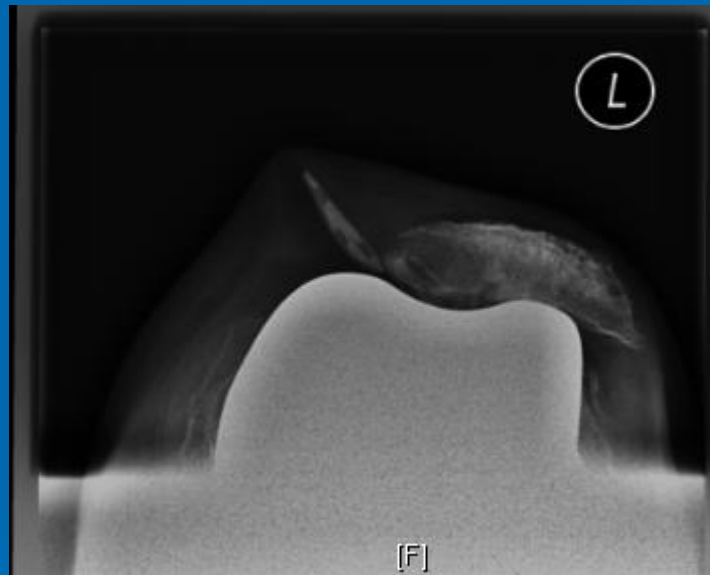
- Basket ball player
- Anterior pain
- Running
- ?differential

- MRI jumper's knee/insertional patellar tendinitis

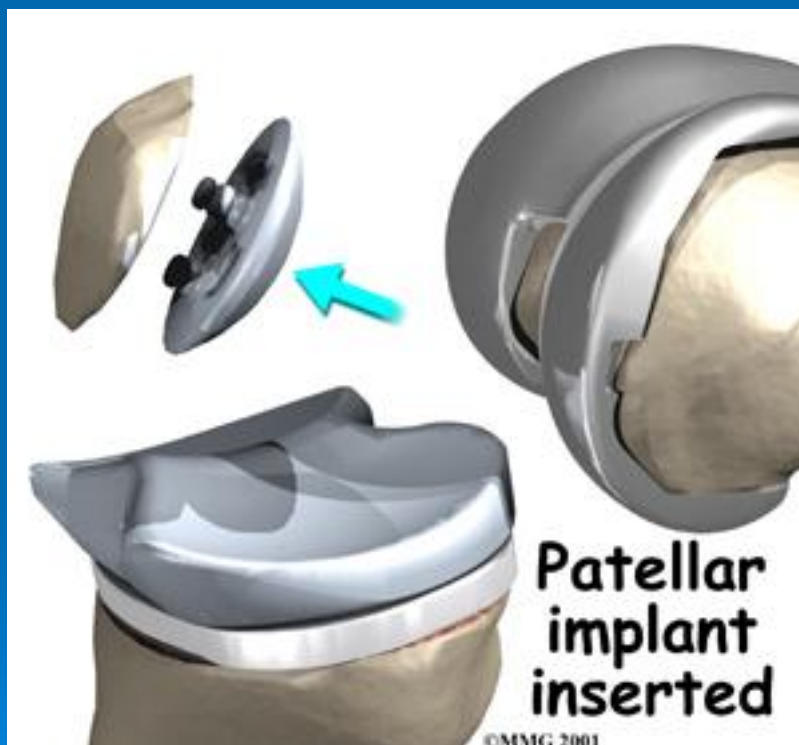


Pain and lump 18yrs post TKR





- Patellar button wear



Painful TKR

- Malaligned TKR



Painful TKR

- Early: infection, maltracking, malalignment, loosening
- Late: loosening, infection, poly wear

Painful: ACL reconstructed knee

- Meniscal tear
- Other structures injured: PLC/MM/LM
- Anterior pain: PFJ/fat pad/tendinitis
- Early OA

My interests

- Ligament and meniscal injuries (PhD)
- Meniscal replacement
- Sports injuries
- Early OA knee



Closing comments

- History and examination still important
- Think about the patient in front of you
- Consider physio
- Guidelines are just that
- Beware red flags