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Anterior cruciate ligament (ACL) tear

The ACL consists of anteromedial and posterolateral bundles which run from the medial tibial spine to the inner surface of the lateral femoral condyle. They resist anterior translation and internal rotation of the tibia. Usually torn by a non-contact pivoting injury and often have associated meniscal tear. More common in females. Ultimately leads to development of arthritis, even with reconstruction.

What to ask in the history

Acute

- Injury mechanism – non-contact; patients often report feeling of dislocation and audible "pop"; unable to continue playing sport
- Pain – global
- Swelling – immediate and significant (haemarthrosis)
- Stiffness/locking – inability to fully extend the knee due to ruptured ACL incarcerating in joint

Chronic

- Previous injury (as above)
- Pain – usually settles unless knee gives way or associated meniscal tear
- Recurrent episodes of giving way
- Swelling – associated with giving way and meniscal tear
- Treatment – NSAIDs, Physiotherapy, other modalities

What to look for on Examination

- Lower-limb alignment – malalignment may suggest development of arthritis
- Gait – antalgic (reduced stance-time on involved leg)
- Squat – pain or inability to squat is a sensitive test for detecting associated meniscal tears
- Effusion – patella ballotment if moderate or suprapatella sweep test if mild
- ROM – fixed flexion deformity if locked (incarcerated meniscus/ACL remnant) or arthritic
- Pain – localized to joint-line if associated meniscal tear
- Stability – anterior drawer/Lachmans. Grade I ≤5mm translation, II 5-10mm III >10mm
- Pivot shift – difficult to assess acutely, foot is internally rotated and flexed from an extended position while providing a valgus force, clunk is positive

What investigations to order

- Standing AP/lateral knee

How to treat

- NSAIDs/RICE
- Physiotherapy – important to achieve full range of movement and normal quadriceps function prior to surgery
- Hinged Brace – does not prevent pivot, used if associated MCL injury

When to refer

- - Refer if ongoing instability, young, high demand, elite athlete

What the surgeon may do

- MRI scan
- ACL reconstruction – 4 strand hamstring, anatomical with a femoral endo-button and tibial interference screw ± meniscal repair/debridement