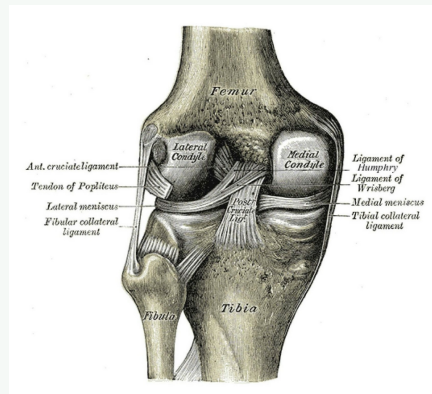


### Ligaments of the Knee



### Ligaments of the Knee 2

- Medial collateral Ligament (MCL): Medial femoral condyle to posterior medial tibial crest - shares interconnections with joint capsule, muscle/tendon units and medial meniscus

Provides resistance against lateral to medial valgus stress

#### Most commonly injured

- Lateral Collateral ligament (LCL) - Lateral epicondyle of the femur to distal fibular head

resists medial to lateral varus movements during first 30 degree of knee flexion + limits ext rot when the knee is flexed

### Classification

- Grade I: Stretch with no macroscopic fibre disruption

- Grade II: Partial fibre disruption

- Grade III: Rupture

Grade III can involve the ACL as well

- MCL, ACL, meniscus - unhappy triad

### Presentation

- Pain on medial/lateral aspect of the knee after trauma

- May hear pop with pain

- Loss of ROM from pain and swelling

- Aggravated by activity

- Weakness/instable knee

- Clicking can be present if meniscus is affected

- Tenderness/swelling over affected ligament

- Baker's cyst could indicate intra-articular damage

- PROM flex and ext usually preserved unless pain/swelling/isolated

- +ve Valgus/varus stress test

- +ve bulge sign



### Presentation (cont)

- +ve Anterior draw, +ve Lachman's +ve Pivot shift +ve lever test, +ve Posterior drawer, +ve Thessaly, +ve McMurray (for involvement of ACL, PCL and meniscus)

### Imaging

- Only if Ottawa knee rules present
- MRI only if pre-op planning/investigating other areas affected

### DDx

- Meniscus injury
- F#
- Osteochondral lesion
- Dislocation
- Contusion
- Patella subluxation
- Tendinitis
- Bursitis

### Management

- Grade II and Grade III need support (double upright hinged knee for II and immobiliser for III for 1-6 weeks)
- Crutches can be used
- RICE
- ROM (flexion and ext to non-painful arc)

Completed Phase I rehab when full weight bearing and normal gait

Phase II: Quads, hamstrings, gastrosoleus, hip abductors strengthening

Closed chain kinetic - heel slides, short arc extensions, hamstring curls, toe raises, hip abduction, squats, wall slides, stationary bicycle, water aerobics)

Progress when full ROM with no swelling

Phase III: Straight line running - jogging and progressing to sprinting, then narrow S- shaped patterns, then sports specific drills

- Continue with myofascial release and stretching : Hip flexors, Quads, Hamstrings, Gastrocnemius/soleus

Pt return Grade I-II return to play within 1-3 weeks

Grade III needs >6 weeks to heal

- Surgery only if functionally unstable or patients with persistent pain and/disability, failed conservative management



### Meniscus Injury



- Affixed to superior articular surface of tibia
- Peripheral 1/3 is vascularised and innervated - pain and proprioception
- Remainder is avascular and lacks nerve supply
- Transmits most of the compressive loads (mostly lateral, but medial = more stability), shock absorption, prevention of synovial impingement, synovial fluid distribution and lubrication

### Demographics/Risk factors

- Males affected more than females
- Can occur at any age, in elderly, degenerative tears can occur
- Medial affected more than lateral (due to the mobility of lateral)

### Classification

- Traumatic or Degenerative
- Vertical (commonest) - flap, parrot beak, bucket handle
- Oblique
- Radial/Transverse - disrupt fibres - more common in lateral meniscus
- Longitudinal
- Horizontal
- Complex

### Presentation

- Young patients = traumatic (sudden twist on a loaded knee)
- Older patients = insidious
- Patient may have difficulty weight bearing - altered gait
- Intermittent movement-related pain - deep knee bends
- Clicking, catching and locking - 20-45 degrees of extension is common
- Patient reports a sense of giving way/buckling
- Joint line tenderness
- Palpation of the joint = increased synovial fluid production (cysts)
- Palpation of mensci
- Lateral:** flexion and external rot
- Medial:** Knee flexion and internal rot of tibia
- ROM limited in flex and ext (rubbery movement block if bucket handle)
- +ve Thessaly test, +ve McMurrays



### Imaging

- May be needed to rule out F#
- Ottawa knee rules
- Age >55
- Tenderness at the head of the fibula
- Isolated tenderness of the patella
- Inability to flex the knee >90 degrees
- Inability to weight bear both immediately and in ER for 4 steps
- MRI but false positives are common (only if surgery is indicated)

### Management

- Peripheral radial tears <5mm and longitudinal tears along posterior horn of the lateral meniscus are shown to improve with con care
- RICE
- Avoid twisting on the knee
- Bracing
- Temp stop the sports
- Stretching and release of hamstrings, adductors, quads, gastrosoleus, popliteus
- EMT/SMT of ankle , fibular head, hip, SI , spine
- Stationary bicycling, water walking,
- Isometric strength - as swelling decreases
- Then dynamic exercises - single leg calf raises, knee flex, ext, lunges >80 degrees of knee flex
- Hip/knee stability - gluteal weakness and patellofemoral tracking
- Arch supports if hyperpronation
- Rehab after surgery usually advised (hamstrings and quads, ROM exercises)

