Medial Meniscus Tear

Etiology

Acute injury
- Excessive valgus force applied to knee can tear or stretch the medial meniscus
  - Tibial rotation and knee flexion
- "Most common mechanism is weight bearing combined with rotary force while the knee is extended or flexed."
  - Ex) cutting motion while running
- Reported as knee "giving out" or "locking"

Etiology cont...
- Medial Meniscus has much higher risk of injury than Lateral Meniscus
  - Coronary Ligament attaches to the med. Meniscus peripherally which goes to the tibia and also the capsular ligament; provides less mobility in knee motion.
  - Attachment to Medial Collateral Ligament (MCL)
  - Valgus forces much more common than varus forces
Signs and Symptoms

- Popping, clicking, or "giving out" when running 1
- Slight effusion
  - Medial aspect
  - Popliteal fossa 2
- Joint line pain
- Pain with squatting
- Possible muscle atrophy
- Inability to change direction quickly without pain 1
- Change in gait
  - Limiting full extension of knee
  - Carrying in a flexed position
- ROM tests
  - Pain
  - Possible decrease in ROM
- (+) McMurray’s Test
  - Clicking, popping, or locking
- (+) Apley’s Compression and Distraction Test
  - Pain with compression and relief of pain with distraction
- (-) Lachman’s Test, Anterior and Posterior Drawer Test, and Godfrey’s test 2

2. Evaluation of Orthopedic and Athletic Injuries, Chad Starkey and Jeff Fuss.

Management

- Unlocked Knee
  - Still shows indications of tear → MRI to confirm tear
- Locked Knee
  - Physician visit to manual manipulate and “unlock” the meniscus from the knee.
  - If pain, discomfort, and locking still continue then arthroscopic surgery may be required to remove part of the meniscus. 1
    - Meniscectomy (more common)
    - Meniscus repair (less common)


Management cont…

- Site of meniscus injury will determine the rate of the healing process (the more the blood supply, the faster the rate of healing)
  1. Red-Red zone - outer perimeter of meniscus; have good vascular supply.
  2. Red-White zone - deep to the red-red zone and superficial to the white-white zone; has moderate supply of vascularity.
  3. White-White zone - most deep; no vascular supply (avascular). 1
Management cont…

• Therefore…
  – Poorly or non-vascularized areas of the meniscus will not heal well or at all on their own, even with surgery.
  – This explains why in meniscus surgery you want to extract as little as possible or otherwise you further the patient’s predisposition to joint degeneration. ¹


Management cont…

• No surgery
  – Treat symptomatically
    • RICE, NSAID’s, modalities, etc…
    – Alert of joint degeneration to athlete (patient education) as time goes on.
    – Player’s choice…
  • Surgery: Meniscectomy
    – Bracing not required
    – Crutches for about 2 weeks; patient recovery time is expedited with this surgery/
  • Surgery: Meniscus Repair
    – Immobilization with full leg brace for 5 to 6 weeks
    – Crutches required while progressing to full weight bearing walking
    – Full rehab program
      • ROM exercises
      • Strengthening exercises ¹


Chondromalacia
**Etiology**

- **Joint abnormality**
  - Joint degeneration in Tibiofemoral and/or Patellarfemoral joint  
  - Wearing away of the articular cartilage that lines condyles and facets

- **Predisposing factors**
  - Meniscus tears
  - Cruciate ligament tears
  - Increased tibial rotation
  - Genu valgum
  - Pronated feet

**Signs and Symptoms**

- **Acute**
  - Popping, clicking, grinding, or locking in knee joint

- **Chronic**
  - Increased pain and soreness along joint line
  - Joint stiffness
  - Joint fusion between femur and tibia (not good!)

**Treatment**

- **Surgery is necessary**
  - **ACL tear** → reconstruct ACL
  - **Meniscus tear** → Menisectomy or knee replacement
  - **Patellarfemoral** → correct functional abnormalities, strengthen lateral and medial forces of patellar tendons, and possible knee replacement.
  - Without surgical intervention joint wears down and leads to more negative outcomes. With surgery to replace the knee joint it allows for basic functionality of knee joint to continue.

"Either adjust your lifestyle to the knee injury, or adjust your knee to your lifestyle."
- Dr. Jason Bennett
Patellar Subluxation

Etiology

• Patella is forced laterally over the femoral condyle and temporarily dislocates
  – Excessive valgus force
  – Cutting outward with foot still planted
    • Femur internally rotates
    • Tibia/Fibula externally rotates

Etiology cont...

• Predisposing factors that allow for lateral deviation of the patella
  – Wide pelvis
  – Larger Q-angle
  – Genu Valgum
  – Pronated Feet
  – Abnormal tightness of lateral quadriceps
  – Abnormal laxity in medial quadriceps
  – Flattened posterior surface of patella

2. Evaluation of Orthopedic and Athletic Injuries, Chad Starkey and Jeff Ryan.
Signs and Symptoms

- Pain
- Swelling
- Echymosis
- Knee “gave out”
- Tenderness to touch
- Loss of knee function
  - No flexion or extension
- Sometimes patellar displacement
- (+) Apprehension test
  - Patella instability

Management

- ICE!
  - Immobilization
    - Leg splint applied
- Crutches
- NSAID’s
- 1st time subluxations
  - Refer to physician for X-ray to rule out chondral or osteochondral fracture
- Rehabilitation
  - All musculature of the knee, thigh, and hip
  - Confined to straight leg rises
  - Increase strength, balance, and proprioception
- Correct abnormalities
  - Ex) Pronation
  - Foot orthotics