Medial and Lateral Collateral Ligament Injuries

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Medial Collateral Ligament

Anatomy

- **Superficial MCL**: a deltoid shaped ligament that extends from the medial femoral epicondyle to 3-4 cm below the medial joint line beneath the pes anserinus tendons.
- **Deep MCL**: a thickening of the medial capsule, is divided in the menisco-femoral and menisco-tibial ligaments, this portion is firmly attached to the medial meniscus.
- **Posterior oblique ligament**: the superficial and deep portions of the MCL blend together in the posteromedial portion of the knee.
- Highest strain levels at the femoral origin.

- **Mechanism of Injury**
  - Valgus Stress +/- external rotation
  - Contact or non contact
  - Complete tears may be less painful than incomplete
Medial Collateral Ligament

Physical Exam
- Assess valgus stress at 0 and 30 degrees of flexion in addition to complete knee exam
- If valgus opening in extension consider ACL injury (78%) or posterior capsular injury
- ? Effusion
- ? Medial meniscus tear
- AMA classification
  I. 0-5mm
  II. 5-10mm
  III. >10mm
Medial Collateral Ligament

- Treatment
  - Early motion
  - Hemorrhage, inflammation,
  - Repair, remodeling
  - Hinged bracing
  - Early weight bearing

- Operative Treatment
  - Controversial for Grade III
  - Concomitant ligament injury
  - ? Bony Avulsion
  - ? Avulsion of tibial attachment (Stener Lesion)

Chronic MCL laxity

- Pellegrini Stieda Lesion

MCL Reconstruction
Medial Collateral Ligament

- Prophylactic Bracing?
- Most NCAA programs brace offensive linemen
- Cadaveric studies: small benefit at slowly induced loads
- Surrogate models: bracing most effective for low velocity, high mass loads
- Functional impairment (probably minimal)
- Epidemiologic studies: small level of protection for the MCL

Lateral Collateral Ligament

- Anatomy
  - Origin: lateral epicondyle
  - Insertion: head of fibula
  - Major varus stabilizer in extension

- Mechanism of Injury
  - Varus stress (usually contact)
Lateral Collateral Ligament

- Physical Exam
- Varus stress at 0 and 30 degrees of flexion
- Always compare to contralateral knee!
- AMA classification
  - Grade I: 0-5mm
  - Grade II: 5-10mm
  - Grade III: >10mm (often posterolateral corner involved)
- Stress x-rays

Stress Radiographs

Lateral Collateral Ligament

- Treatment
  - Generally non-operative for Grade I and II injuries (similar to MCL treatment)
  - Likely surgical for Grade III injuries
  - Consider surgical intervention with bony avulsion injuries
Lateral Collateral Ligament

- Posterolateral Corner
  - Popliteus tendon
  - Lateral Collateral ligament
  - Popliteofibular ligament
  - Arcuate complex
  - Posterior lateral capsule
  - Biceps femoris
  - Iliotibial tract

Lateral Collateral Ligament

- Posterolateral Corner Injury
  - Highly unstable injury pattern
  - Key to recognition: asymmetric external rotation (30 and 90 degrees of flexion)
  - Increased external rotation at 90 suggestive of combined PLC, PCL tear
  - Acute repair (within 2-3 weeks of injury)
  - Reconstruction
External Rotation Recurvatum

Special Considerations

- Skeletally Immature
- Always consider physeal fracture
- Must obtain stress x-rays!
- MRI often helpful
Summary

- Most collateral ligament injuries are successfully treated WITHOUT surgery
- Physical exam is critical to rule out associated ligament injuries (ALWAYS compare to the other side)
- Prophylactic Bracing remains controversial
- Don’t forget about the growth plates!