Medial and Lateral Collateral Ligament Injuries Isolated and Combined

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Medial Collateral Ligament

Anatomy

Superficial MCL
a deltoid shaped ligament that extends from the proximal 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
Medial Collateral Ligament

- Mechanism of Injury
  - Valgus Stress
  - Contact or non contact
  - Complete tears often 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. 6-10mm
  - III. >10mm

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**Medial Collateral Ligament**

- Treatment
  - Early motion
  - Hinged bracing
  - Early weight bearing
- Operative Treatment
  - Controversial
  - ? Valgus knees
  - ? Bony Avulsion
  - ? Avulsion of tibial attachment

**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

**Lateral Collateral Ligament**

- 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)

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
  - Posterolateral 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)
  - Acute repair (within 2-3 weeks of injury)
  - Reconstruction

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Special Considerations

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

Growth Plate Injuries

The Salter-Harris Classification of Growth Plate Injuries

Summary

+ Most isolated 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 will remain a controversy
+ Don’t forget about the growth plates!