Lateral Ankle Instability

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Anatomy

- ATFL is usually torn in inversion, plantar flexion, and internal rotation
  - Burks and Morgan found that the ATFL originates 1 cm proximal to the tip of the lateral malleolus. The ligament averages 7.2 mm in width and inserts into the talus just distal to the articular surface 18 mm proximal to the distal to the articular surface, 18 mm proximal to the subtalar joint.
  - The CFL originates adjacent to the ATFL, approximately 8 mm proximal to the tip of the fibula, and courses posterior and distal to the calcaneus. The CFL inserts onto the calcaneus 13 mm distal to the subtalar joint.
  - The CFL ligament is an extracapsular ligament and makes up the floor of the peroneal sheath.

Ankle sprains

- 25,000/day
- Grade 1-3
- Usually treated nonop with PT
- If instability persists, consider surgery
  - Functional instability
  - Objective instability
    - PE
    - Fluoro

Mechanism of Injury

Injury most often with PF & IR
Progressive PF & IR causes injury of:
- Anterolateral capsule
- ATFL
- CFL
- PTFL (rarely)

Swing and a miss...

- OCD
- peroneal tendonitis, dislocation, tear
- painful peroneal os
- subtalar dislocation, with arthritis, fragments
- lateral talar process fx
- anterior process calc fx
- 5th metatarsal fx
- navicular fx
- talar neck fx
- lis franc fx/midfoot fx/sprain
- tib ant rupture
- achilles rupture
- subtalar sprain
- posterior process fx
- coalition
- syndesomatic injury

Preop

- Order an H&P!!
- Instability frequency?
- PE
  - Alignment
  - Strength
  - Generalized laxity
  - This may alter surgical procedure
Anterior Draw

- >3mm (Anderson Clin Orthop 1962)
- 4mm (Colville Am J Sports Med 1995)
- 3.5mm to 6.3mm (Liu and Baker Am J Sports Med 1994)
  - 60 to 150N
  - 13.7mm to 18.9mm

LAR surgical options

- Anatomic Repair — vs — Nonanatomic Repair
- Broström
- Broström-Gould
- Broström-Evans
- Chrisman-Snook
- Allograft tendon

Goals of surgery

- Reduce pain
- Increase stability
- Preserve ankle and subtalar motion
- Sometimes, motion is sacrificed to achieve stability

History

- In 1966, Broström reported on direct late repair of the lateral ankle ligaments in 60 patients with chronic ankle instability. The torn ends of the ATFL were shortened and repaired directly by midsubstance suturing; in 30% of patients, the CFL was also repaired. He reported a success rate of 80% with this technique.
Outcomes

- Average 90% success
- Both the Evans and Chrisman-Snook procedures result in weakness in the surgical limb compared with the contralateral control limb


- No difference in strength

Clinical evaluation of the modified Brostrom-Evans procedure to restore ankle stability.
Girdal F, Anderson RB, Davis WH, Issar JA, Kielbasak GM.

Outcomes

- Karlsson et al found that the tenodeses did not restore normal anatomy of the lateral ankle ligaments, unlike the anatomic repairs in their 2- to 10-year follow-up in a multicenter trial.


- The absence of normal anatomy resulted in restricted range of motion, reduced long-term stability, and an increased risk of medial degenerative joint disease of the ankle. They found a larger number of reoperations and less satisfactory overall results.
Outcomes

• Hennrikus et al demonstrated that both the Chrisman-Snook and modified Broström procedures provided good or excellent stability in more than 80% of patients; however, the modified Broström procedure resulted in higher patient satisfaction.

• More complications occurred with the Chrisman-Snook procedure.


Outcomes

• Biomechanically, the modified Broström procedure was associated with less anterior talar displacement and a decreased talar-tilt angle compared with the Chrisman-Snook procedure.

• The modified Broström procedure produced a greater mechanical restraint than either the Evans or Chrisman-Snook procedures.


Outcomes

• Purpose: The purpose of this study was to compare the modified Broström and Evans procedures for simulated lateral ankle instability in cadaveric lower extremities.

• Conclusions: Both operations improved ankle-hindfoot stability, but neither was successful in restoring it to normal as determined with the ankle stability testing device. The Evans procedure improved stability at the expense of creating abnormal subtalar function. The Broström operation improved stability without excessively restricting subtalar movement, but was not effective in addressing the internal rotation laxity.

Comparison of modified Broström and Evans procedures in simulated lateral ankle injury. Fuji T. et al.

How do you do it?....
Conclusions

- Broström-Gould has become the preferred method 85% to 95% success rate.
- Provides increased stability through the reinforcement of local host tissue; preserves subtalar and ankle motion; has fewer associated nerve injuries and less morbidity associated with the harvest of tendon grafts; and provides a quicker functional recovery.
- Ankle-reconstruction procedures that sacrifice tendons to be used as donor tissues are thought to provide a theoretically stronger construct and, hence, more stability. This increased stability can result in loss of ankle and subtalar range of motion and lead to prolonged recovery and decreased sports performance.
- An ankle-reconstruction procedure using tendon augmentation should be reserved for patients with generalized ligamentous laxity or long-standing ligamentous insufficiency or as a salvage procedure.

Rehab

- Strength
- Proprioception
- Balance
- Dynamic stability
- Orthotics

Thank you