

The Role of the Calcaneofibular Ligament in Chronic Ankle Pain Following Severe Ankle Sprains

Richard Alvarez, MD, Randall Marx, MD, Mark Mizel, MD, Loren Latta, DPhil, Paul Clifford, MD

Category: Sports

Keywords: lateral ankle instability, chronic ankle pain, calcaneofibular ligament, severe ankle sprain, peroneal tendon

Introduction/Purpose: Lateral ankle pain persists in 10%-20% of patients following severe ankle sprains treated non-operatively. The authors hypothesize that the peroneal tendons may become interposed between the ruptured ends of the calcaneofibular ligament (CFL). Though previously visualized and noted in the literature, no studies have evaluated this lesion biomechanically and anatomically. The purpose of this study is to demonstrate that following a severe lateral ankle sprain that the interposition of the peroneal tendons between the ruptured ends of the CFL can occur.

Methods: Eight fresh-frozen cadaveric lower extremity specimens (defrosted) were secured by the foot to a wooden board in the method of Lauge-Hansen. A manual inversion force was then applied to the ankle, both with the ankle in plantar flexion and also in a neutral position to approximate a severe ankle sprain. Magnetic resonance imaging (MRI) was then performed on each ankle. Each specimen was then dissected to observe the integrity and relationship of the lateral ankle structures.

Results: Four of the eight specimens sustained CFL tears as viewed by MRI and confirmed through anatomic dissection. One of the four specimens with a CFL tear had a mid substance ligament rupture with the proximal half of the ligament positioned superficial to the peroneal tendon complex. This relationship was observed using the MRI.

Conclusion: Creating severe lateral ankle sprain produced ruptures of the CFL with interposition of the peroneal tendon complex between the torn ends of the ligament was seen and identified. This phenomenon may prevent primary ligament healing of the CFL and may be a contributing factor in the chronic ankle pain of non-surgically treated lateral ankle sprains. Perhaps surgical intervention should be considered if clinical suspicion exists, such as with a Stener lesion of the hand.

Foot & Ankle Orthopaedics, 3(3)
DOI: 10.1177/2473011418S00143
©The Author(s) 2018