Lateral Transfer of the Flexor Hallucis Longus Tendon for Treatment of Concomitant Peroneal Tendon Tears

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Statement of Purpose

Peroneal tendon tears can be a significant cause of lateral ankle and rearfoot pain and functional disability. Isolated peroneus longus (PL) or peroneus brevis (PB) tendon tears may be treated effectively with direct repair or tenodesis to the adjacent, uninjured tendon. Concomitant tears of both peroneal tendons is a difficult problem which may lead to unopposed, progressive inversion and lateral ankle instability. General principles in literature support donor tendons that are equivalent in strength and also in-phase for optimal function. Deep toe flexors have been described in literature and demonstrated favorable results in a limited patient series and case reports. For this reason, we present a case study utilizing the lateral transfer of the flexor hallucis longus (FHL) tendon to restore evasion strength in a patient with insufficient peroneal tendons.

Methodology

Limited options are available to restore a plantigrade foot in this scenario. Literature describes surgical management for concomitant tears of both peroneal tendons as a transfer of the FHL or flexor digitorum longus (FDL) tendon which can restore function and decrease pain. The FHL tendon transfer was favored over the FDL by Jockel and Brodsky due to is improved evasion strength, higher mean American Orthopaedic Foot and Ankle Society (AOFAS) postoperative score, and better subjective assessment of functional status. The FDL tendon transfer may create an entrapment on the tibial neurovascular bundle as it is moved laterally, whereas the FHL tendon transfer greatly reduces this possibility. The FHL has similar strength to PB and is the most lateral deep flexor, thus making it the ideal choice for transfer.

Case Presentation/Procedures

A 52-year-old female patient presented with a prior history of left lateral ankle instability and peroneal tendon disease. Prior surgery included PB tendon tubulization and lateral ankle ligament repair. At six months post-op she reported a repeat inversion sprain and noticed progressive weakness of the ankle with a “turned-in” appearance of the foot. Magnetic resonance imaging (MRI) showed discontinuity of both peroneal tendons. Surgical intervention consisted of a gastrocnemius recession to address the acquired equinus deformity. In addition, lateral transfer of the FHL tendon to the 5th metatarsal base was performed to re-establish evasion strength. Upon dissection, both peroneal tendons were found to be discontinuous. A long harvest of the FHL tendon was performed through a medial midfoot incision. The tendon was then retrieved using a right angle retractor, with care taken to avoid the neurovascular bundle. A whipstitch was placed in the harvested FHL tendon. With the hindfoot held in maximum plantar flexion and evasion, the FHL tendon was passed through a drill-hole in the 5th metatarsal base. It was tensioned, then fixated with an interference screw. The diseased PB tendon was excised distally near the base of the fifth metatarsal and up to the myotenonous junction. Anatomical layered closure was performed using non-absorbable and absorbable suture. A well-padded posterior splint was applied maintaining the foot slightly plantarflexed and maximum evasion.

Results

The patient was kept non-weight bearing and immobilized for 3 weeks. Physical therapy and protected weight bearing in a CAM boot was initiated at the fourth week. She was transitioned to a compression stocking and ankle gauntlet brace at week 8. At 12 months post-procedure, she was walking without an assistive device and only complains of mild paresthesia to the halluc.

Conclusion

This case study details the lateral transfer of the FHL tendon for concomitant peroneal tendon tears and discusses the technique and potential complications. In prior studies, compression of the tibial neurovascular bundle resulting in tibial neuritis and tarsal tunnel syndrome was described as a complication when the FDL tendon was transferred laterally. The FHL tendon can be harvested with adequate length and provides similar strength to the PB tendon. The FHL tendon’s ability to restore evasion strength and ankle stability while minimizing the chance of neuritic complications make it the ideal solution for this complex problem.

References