Flexor Hallucis Longus Tendinosis

OVERVIEW

Tendinosis or tenosynovitis of the flexor hallucis longus is an uncommon condition generating pain in the posteromedial ankle in the general population. Its prevalence can be common in populations that require repetitive forefoot push-off and extreme plantar flexion. It is commonly referred to as “dancer’s tendonitis” for it higher incidence in the classically trained ballet dancer.

ANATOMY

The flexor hallucis longus is innervated by the tibial nerve. It originates from the posterior inferior two thirds of the fibula and interosseous membrane and inserts on the plantar surface of the distal phalanx of the great toe. Vascular supply comes from a peroneal muscle branch and the posterior tibial artery. There are three potential areas or constriction throughout its course. First and most common is the fibro-osseus tunnel at the posterior aspect of the talus extending to the sustentaculum tali. Second is at the knot of Henry, which lies below the first metatarsal base. At this location the FHL is dorsal to the plantar fascia and traverses plantar to the flexor digitorum longus. The final potential area of constriction is at the level of the inter-sesamoid ligament.

BIOMECHANICS

The FHL functions to plantar flex the great toe at the interphalangeal joint and metatarsophalangeal joint. It also acts at the ankle and subtalar joint to aid in plantar flexion and supination.

PATHOGENESIS

The exact origin of original injury can be debated as with all areas of tendinosis. Many authors believe constriction through the fibro-osseus induces the injury. When strained and

injured, irritation of the tendon occurs causing swelling and scaring which leads is increased binding. A cycle of irritation, damage and further constriction occurs with continued activity. This can eventually lead to “Hallux Sultans” or triggering of the big toe, or “Pseudohallux rigidus” if the tendon becomes completely restricted within its sheath.

CLINCIAL PRESENTATION

Patients classically present with an insidious onset of symptoms without any specific event, most commonly at the posterior ankle or posterior-medial ankle. Symptoms worsen with activity especially related to great toe push off. For example when ballet dancers go “en pointe.” Symptoms correlate to the region of constriction. In each region, other more common etiologies must also be considered. Posteromedial ankle pain could also be tarsal tunnel syndrome, posterior tibialis tendinosis, Achilles tendinosis, or posterior impingement with or without os trigonum. Knot of Henry constriction could be plantar fasciitis or first tarsometatarsal joint arthritis. Finally, intersesamoid constriction could be sesamoiditis, hallux rigidus, or turf toe.

EXAM

Pain and swelling along the course of the FHL and with active function support the diagnosis. FHL excursion is tested with the ankle plantarflexion and at neutral ankle dorsiflexion. The FHL is evaluated at each potential area of constriction, ankle, knot of Henry, and sesamoids. When constriction at the sesamoids is suspected, the first metatarsal head must be stabilized during first MTP motion evaluation. In addition, a complete neurovascular examination is completed.

IMAGING

Initial weight bearing radiographs of the foot and ankle are obtained to evaluate for arthritis, fracture, os trigonum and to help assess alignment. MRI of the foot ankle ankle can be beneficial to evaluate the severity of the tendinosis and look for ankle split tears that can occur.

TREATMENT

Non-operative treatment

Rest and activity modification are the cornerstone of non-operative treatment. NSAIDs can be utilized for pain but should not be used in isolation. If symptoms persist, boot brace immobilization for 4-6 weeks can also be helpful. After symptoms subside, instituting FHL stretching exercises should be implemented as the patient slowly resumes activity.

Surgical intervention

Surgical intervention should not be considered until symptoms fail to improve despite 6 months of non-operative treatment. Surgical interventions via medial or posterolateral approaches have been described to release the fibro-osseous sheath, repair FHL tears and/or excise symptom-inducing os trigonum. Arthroscopic release has also been described, with caution due to the close proximity of the neurovascular bundle and potential for incomplete release of the tunnel.

CONCLUSION

Though rare, this condition should be considered, especially in high prevalence populations. A frank discussion about realistic expectations should be undertaken prior to any surgical intervention. Hamilton and colleagues noted a disproportionate number of worse outcomes in the amateur dancers. Patients can return to activity successfully with and without surgical intervention.

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