‘Flexor Hallucis Longus Loose Bodies- An Unusual Cause of Plantar Midfoot Pain’

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Abstract

Midfoot pain is a common complaint but occurs less frequently in the plantar aspect. A myriad of causes have been reported including trauma, plantar fasciitis, Flexor hallucis longus (FHL) or posterior tibial tenosynovitis, midfoot osteoarthritis and stress fractures especially during weight-bearing. The FHL tendon sheath has been shown to communicate with the ankle joint. Osseous bodies can be seen within tendon sheaths especially in synovial chondromatosis. We report a rare case of loose bodies, not secondary to an underlying inflammatory or synovial condition but from the ankle traversing into the FHL tendon sheath, causing pain during weight bearing. We believe this to be the first reported case in English literature.

Keywords: Flexor hallucis longus; Joint loose bodies; Mid foot pain

Abbreviations: FHL: Flexor Hallucis Longus; FDAL: Flexor Digitorum Accessorius Longus

Introduction

Plantar midfoot pain is a frequently encountered complaint. It is most commonly seen in athletes and secondary to overuse trauma. The aetiology for plantar midfoot pain includes trauma-related conditions, infection (commonly secondary to diabetes), joint disorders, benign or neoplastic soft-tissue/bone masses and tendon disorders. The Flexor Hallucis Longus (FHL) tendon is the second strongest tendon in the body and among the least commonly injured tendons, which when injured usually occurs at the level of the medial malleolus [1]. We present a seventy-eight year-old male with midfoot pain on weight-bearing due to loose bodies within the FHL tendon sheath in the midfoot and discuss the common aetiologies of plantar midfoot pain.

Case Report

Seventy-eight year old male, presented with a ten month history of insidious onset plantar midfoot pain which was exacerbated on weight bearing. There was no history of trauma, diabetes or rheumatological disease. He was not on any regular medications. There was no improvement with analgesia prescribed by his General Practitioner. Hence, was referred to a foot and ankle specialist. Clinical examination revealed tenderness at the plantar aspect of the midfoot with point tenderness in the region of the base of the second metatarsal and were assumed to demonstrate mild osteoarthritis at the ankle joint with osteophytosis only. No osteochondral lesion involving the talar dome was noted. No other significant abnormality was noted to account for the symptoms of plantar midfoot pain. A MRI was performed to evaluate the ankle and midfoot. This demonstrated two calcific loose bodies within the FHL tendon sheath. A retrospective review of the radiographs revealed two 5 mm ossific loose bodies in relation to the plantar aspect of the foot (Figure 1). One was noted plantar and distal to the navicular, in the region of the Master Knot of Henry and the other was just proximal to the base of the second metatarsal (Figure 2). FHL tenosynovitis with fluid along the tendon sheath distal to the talocural joint was noted on MRI. The site of the loose bodies correlated clinically with the patient’s point tenderness and was inferred to be the cause of his symptoms. During his follow-up consultation the patient had reported an improvement in his symptoms with conservative orthotic management.

Discussion

Flexor hallucis longus is one of three muscles that make up the deep posterior compartment of the leg. It arises from the inferior two-thirds of the posterior surface of the fibula, interosseous membrane and adjacent intermuscular septum. The tendon arises just above the level of the medial malleolus, courses obliquely through a fibro-osseous tunnel and along a groove passing under the inferior aspect of the sustentaculum tali. As the tendon passes forward in the sole of the foot it crosses the tendon of the flexor digitorum longus, to which it is connected by a fibrous slip at the knot of Henry. At the midfoot it runs forward between the two heads of the flexor hallucis brevis and the sesamoid bones of the greater hallux to insert into the base of the

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Common causes of FHL dysfunction include stenosing tenosynovitis, pseudocyst or a tendon tear. Stenosing tenosynovitis of the FHL tendon sheath causes a mechanical type of stenosing tenosynovitis during weight-bearing. In the toe-off phase of the gait cycle, increased pressure within the talocrural joint due to plantar flexion may predispose intra-articular loose bodies to escape through the lax posterior capsular communication into the FHL tendon sheath. The osseous bodies, if smooth and of a small enough calibre may track down the tendon sheath to points of narrowing like the Knot of Henry and can cause physical impingement, narrowing and waning phenomenon of pain. MRI can decipher these loose bodies, tracking up or down the tendon sheath dependant on the varying pressures generated during the gait cycle can result in a waxing and waning phenomenon of pain. MRI can decipher these loose bodies (Figure 2).

**Conclusion**

Our case highlights an unusual cause for plantar midfoot pain due to loose bodies within the FHL tendon sheath. One should consider this rare entity during the evaluation of the FHL in patients with plantar midfoot pain. A clinical and radiological assessment is essential to clinch this diagnosis.
References