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Musculoskeletal

Progressive retraction of a fractured os peroneum suggesting repetitive injury to the peroneus longus tendon

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ABSTRACT

The os peroneum is an accessory ossicle within the peroneus longus tendon. Prior reports have discussed fracture of the os peroneum with associated tears of the peroneus longus tendon. When the ossicle fractures, there can be varying degrees of retraction of the tendon, which can be diagnosed by malposition of the ossicle or the ossicle fragments. We report a case of a man with recurrent eversion ankle injuries with progressive retraction of a fractured os peroneum, implying injuries to the superior and inferior peroneal retinacula and the peroneus longus tendon.

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Introduction

The os peroneum is an accessory ossicle located within the peroneus longus tendon along the lateral aspect of the cuboid [1–4]. The peroneus longus tendon contributes to eversion and plantar flexion of the foot. The tendon is held in place by 3 different structures as it courses from the lateral lower leg to its attachment on the plantar aspect of the medial cuneiform and the first metatarsal base; these include the superior and inferior peroneal retinacula and the long plantar ligament. The os peroneum is found in about 25% of the population, can be bipartite or multipartite, and can be a source of lateral foot and ankle pain. The painful os peroneum syndrome has been described as a spectrum of conditions resulting in chronic lateral plantar foot pain, including fracture, stress response, or diastasis of a multipartite os peroneum or injury to the peroneus longus tendon [2,5]. Several papers have described fracture of

the os peroneum that can be diagnosed by radiography, and these fractures can be associated with tears of the peroneus longus tendon [3,6,7]. Identifying malposition of an intact os peroneum can also suggest injury to the peroneus longus tendon [8] and its supporting structures.

Case report

We report the case of a 74-year-old man with a history of type 2 diabetes mellitus, peripheral neuropathy, alcohol abuse, and frequent falls. He reported multiple recurrent eversion injuries of the ankle with associated acute-on-chronic lateral ankle pain. Because of his complex psychosocial history, he was seen irregularly by his primary care provider and did not obtain routine follow-up care.

The patient initially presented in June 2015 with pain along his lateral ankle distal to the lateral malleolus. He reported that

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Fig. 1 – (A) Oblique radiograph of the right foot from June 2015 demonstrates an os peroneum at the expected level of the calcaneocuboid joint (arrow). The ossicle appears intact without evidence of fracture. **(B)** Oblique radiograph of the right foot from October 2012 demonstrates the os peroneum in a similar position (arrow).



Fig. 2 – Oblique radiograph of the right foot from May 2016 after an acute ankle injury demonstrates a fractured os peroneum. The predominant fracture fragment has migrated proximally along the lateral calcaneus (arrow). A tiny fragment of the original ossicle remains adjacent to the cuboid.



Fig. 3 – Frontal **(A)** and mortise **(B)** radiographs of the right ankle obtained 1 week following the images obtained in [Figure 2](#), after a subsequent ankle injury. The previously seen predominant os peroneum fragment has now migrated more proximally to the level of the lateral talar process (arrows in **A** and **B**). This suggests injury to the inferior peroneal retinaculum but an intact superior peroneal retinaculum.

he went for a long walk wearing flip-flop sandals, and his foot had been hurting ever since. Radiographs were obtained at the time demonstrating an intact os peroneum in the expected position adjacent to the cuboid ([Fig. 1A](#)). Notably, the patient had prior radiographs of his foot in 2012, where the os peroneum can be seen in a similar position ([Fig. 1B](#)). There was no acute fracture or dislocation. Moderate osteoarthritis at the first metatarsophalangeal joint was noted. The patient returned in May 2016, with pain in the same location after he reported twisting his ankle and falling. Radiographs obtained at that time ([Fig. 2](#)) demonstrated a fractured os peroneum. The larger proximal fracture fragment had migrated proximally along the lateral aspect of the calcaneus. He declined further treatment at that time, including referral to podiatry. One week later, he returned again after another fall. This time he reported tripping in a hole while walking across the street and again rolling his ankle. Radiographs were obtained ([Fig. 3](#)), which

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