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Visual Diagnosis in Emergency Medicine

POP IN THE FOOT CAUSING POPS: THE PAINFUL OS PERONEUM SYNDROME

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CASE REPORT

A 47-year-old otherwise healthy man played golf the day prior to presenting to the Emergency Department (ED). Late in the round, while swinging his driver, he felt a pop and the onset of pain in the lateral aspect of his right foot. He was clear that the pain was not in his ankle and he said it hurt to bear weight. He was able to hobble into the ED using a cane. There was no numbness, weakness, or paresthesia, and he denied any other injury at the time of presentation. Past medical and surgical history was significant for several orthopedic procedures, but no prior foot injuries or surgery. He had no known allergies, was not a smoker, and family and social history were unremarkable.

On physical examination he was well appearing, in no acute distress, and his mental status was normal. On extremity examination there were no gross deformities visible; color and perfusion were within normal limits. His right hip, knee, tibia, and fibula were without deformity or effusion, nontender, and had full range of motion. He did have tenderness below and distal to the lateral malleolus along the course of the peroneus longus and brevis tendons, and exacerbation of his symptoms was produced by attempts at active eversion and dorsiflexion of his foot. There was no swelling, ecchymosis, or instability of the ankle or foot. Distally, sensation and motor function were normal, though he was unwilling to bear weight on his foot secondary to pain.

His work-up in the ED included plain x-ray studies (Figures 1 and 2), which showed an os peroneum that appeared distracted 20 mm. There was an ossicle seen at the tip of the anterior process of the calcaneus, reflecting a remote avulsion fracture. Similarly, there was a small amount of bone proliferation at the dorsal aspect of the talar neck, likely reflecting a remote capsular avulsion injury. The proximally displaced os peroneum on his x-ray studies was representative of the painful os peroneum syndrome (POPS), which can be associated with ruptures of the peroneus longus tendon.

The patient was treated conservatively with crutches, ace wrap, elevation, and ice as necessary, and referred to Orthopedics for an appointment the following week. A magnetic resonance imaging scan (MRI) obtained as an outpatient (Figures 3 and 4) showed a longitudinal tear of the peroneus longus tendon centered at the cuboid, with the defect in the tendon measuring approximately 2.5 cm, seen on a background of severe tendinosis along with tenosynovitis. An os peroneum was identified, probably bipartite, with the dominant component retracted proximally. There was also a moderate-grade longitudinal tear involving the peroneus brevis tendon, beginning at the level of the fibular tip and reconstituting at the calcaneocuboid joint. The superior peroneal retinaculum was within normal limits, without evidence of peroneal tendon subluxation, and the Achilles tendon was normal. There was no evidence of a stress or traumatic fracture, nor was there evidence of

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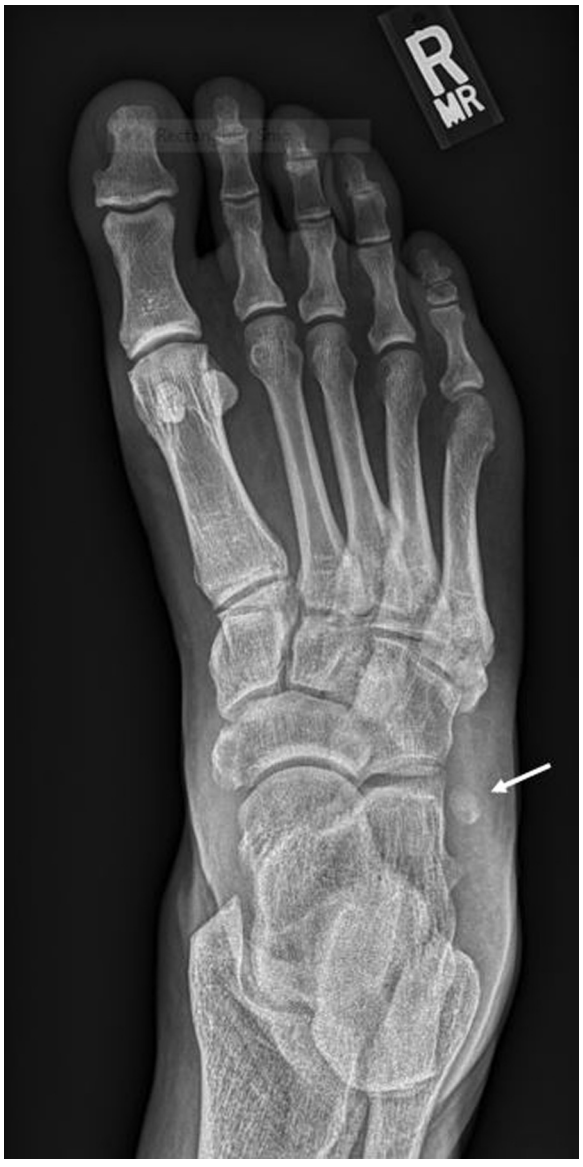

Figure 1. Fragmented os peroneum, which appears distracted 20 mm (white arrow).

avascular necrosis. Ultimately, the patient underwent surgical repair of these lesions.

DISCUSSION

Onomatopoeia is the use of language whose sound imitates that which it names. This could not be more descriptive of what happened to this patient. The os peroneum is an ossicle within the fibers of the peroneus longus tendon occurring in approximately 20% of people (1). What is clinically important for emergency physicians to know is that when an os peroneum is present, peroneus longus stenosing tenosynovitis may develop, as in this patient (2). This places a patient at higher risk for acute injury,

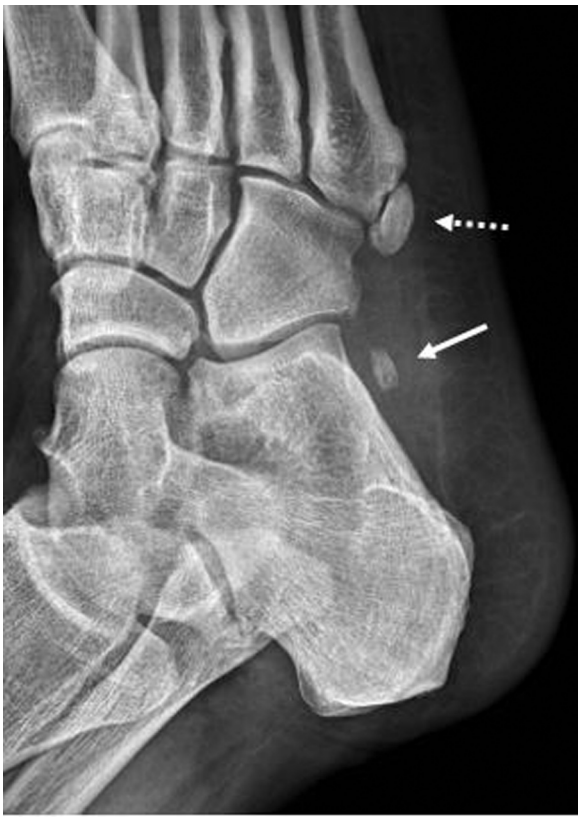

Figure 2. The distracted os peroneum is seen in the oblique view (solid white arrow). The dashed white arrow points to a well-corticated ossicle seen at the lateral base of the fifth metatarsal. This may reflect the sequela of a remote ununited fracture vs. accessory ossicle (os vesalianum).

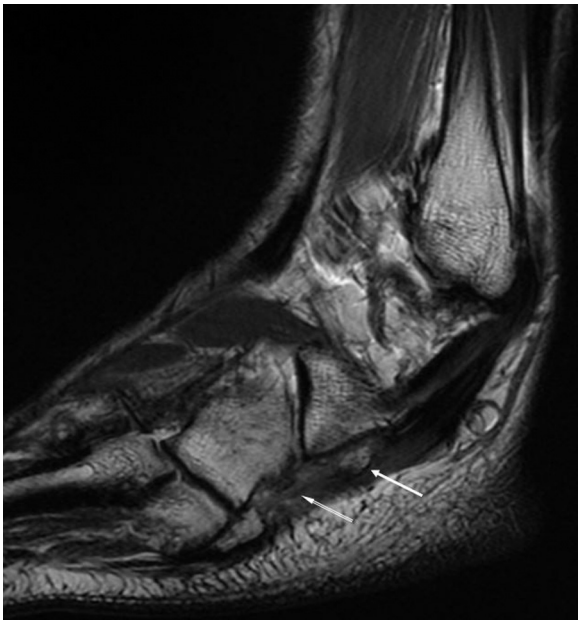

Figure 3. Magnetic resonance image showing the os peroneum (solid white arrow) and a tear in the substance of the peroneal longus tendon (double lined arrow).

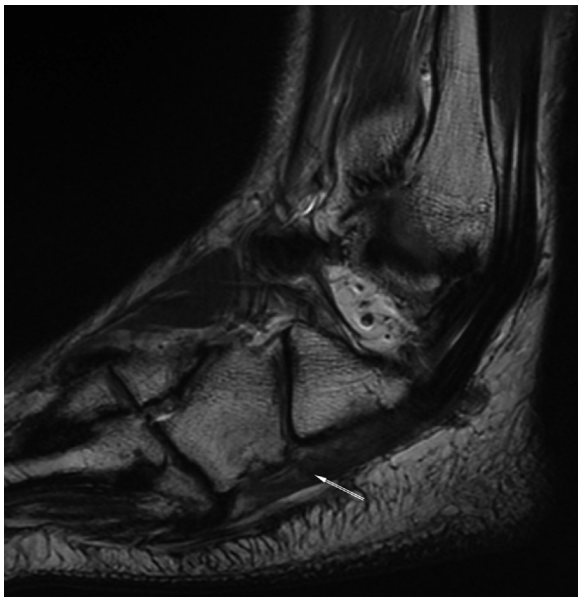

Figure 4. Another cut from the magnetic resonance image showing a tear in the peroneus longus tendon (double-lined arrow).

with less force applied to the lateral column of the ankle and foot, such as during a golf swing. Painful os peroneum syndrome, or POPS, occurs when the os peroneum fractures or when a bipartite ossicle develops diastasis due to acute trauma or overuse injury. In this context, proximal distraction of the os peroneum suggests peroneus longus tendon injury (1). The peroneal tendons are primary everters of the foot, and injury often causes pain on the lateral aspect below the lateral malleolus and into the cuboid tunnel. The pain is typically exacerbated by passive inversion with plantar flexion or active eversion and dorsiflexion of the foot.

Work-up includes plain radiography showing the typical appearance of a distracted os peroneum. MRI is considered the standard for imaging of peroneal tendon disorders, including POPS; however, diagnosis and management are largely based on clinical findings (3). Ultrasound has been reported useful in the diagnosis of POPS as well (4).

Acute management in the ED for pain in the region of the os peroneum includes rest, ice packs, and a brief course of nonsteroidal anti-inflammatory drugs for pain. Immobilization of the lower leg may be necessary for patients with severe symptoms. Operative intervention may be needed for peroneal tendon tears, depending on the percentage of tendon involved and the amount of remaining tendon attachment (3).

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