

# Fracture of an os peroneum

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*Os peroneum is an accessory ossicle located within the peroneus longus tendon, present in 26% of the population. Fractures of the os peroneum present as pain localized on the lateral aspect of the foot resulting from direct trauma, muscle contraction, inversion injuries or chronic overuse injuries. We document a case of a fractured os peroneum that resulted in the insidious onset of ongoing pain that was managed conservatively.*

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KEY WORDS: chiropractic, os peroneum, fracture

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### Case Presentation

A 59-year-old female factory worker presented with insidious onset of left lateral foot pain, swelling and tenderness of four months duration. The pain was aggravated by weight bearing, walking and tight footwear and was relieved significantly by rest. Her occupation typically involved standing on her feet all day for an eight-hour shift.

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*L'os péronier est un os sésamoïde du tendon du muscle long péronier latéral observé chez 26% de la population. La fracture de l'os péronier se manifeste par une douleur localisée à la face latérale du pied à la suite d'un traumatisme direct, d'une contraction musculaire, d'une blessure d'inversion ou d'une blessure de surutilisation. Nous documentons un cas de fracture de l'os péronier ayant causé l'apparition insidieuse d'une douleur continue soignée par un traitement conservateur.*

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MOTS CLÉS : chiropratique, os péronier, fracture

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She was also taking bio-identical hormone replacement therapy (progesterone and estradiol) and reported no bone mineral density issues. Previous foot trauma resulted in a fracture of the distal 5<sup>th</sup> metatarsal many years ago.

Visual inspection revealed significant swelling involving the left lateral foot between the cuboid and lateral malleolus. On examination, swelling and point tenderness

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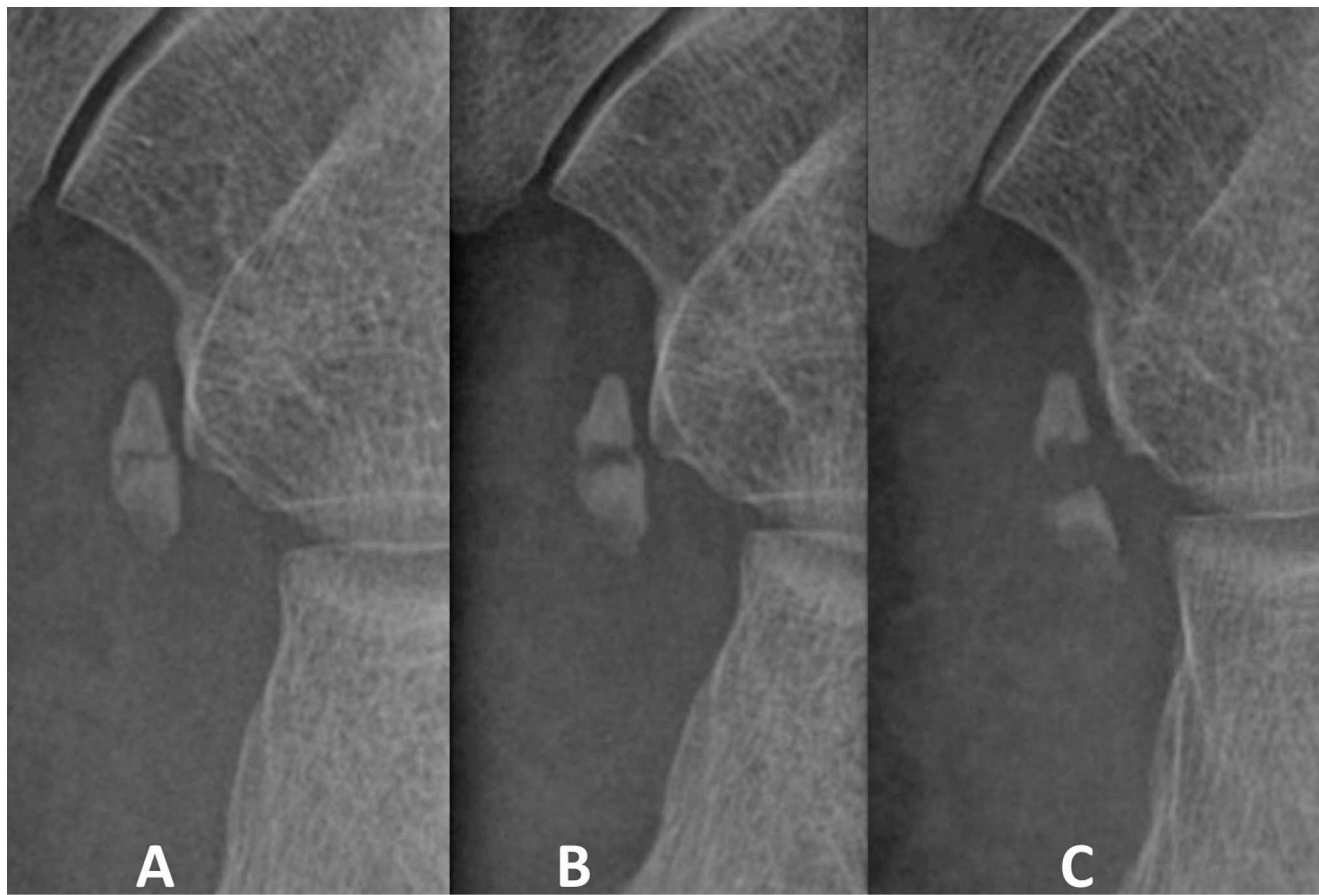


Figure 1.

*The initial medial oblique radiograph (A) shows a transverse fracture through the os peroneum. A second radiograph (B) obtained three months later shows sclerosis of the fragments and resorption at the fracture site. A third radiograph (C) obtained at five months, demonstrates retraction of the fracture fragments that raises the suspicion of avulsion or partial or complete rupture of the peroneus longus tendon.*

were elicited near the base of the 4<sup>th</sup> and 5<sup>th</sup> metatarsals, cuboid, anterior talofibular ligament and peroneus tendons. Palpation of these structures provoked severe, local pain, and a tuning fork applied to the site of the os peroneum elicited a “jump sign”.

Routine radiographs of the foot ordered by the chiropractor revealed an irregular transverse fracture in an os peroneum with no displacement (Figure 1A). Follow-up radiographs obtained three months later revealed sclerosis of both bone fragments and minimal resorption at the fracture site (Figure 1B).

The patient was referred by the chiropractor to an orthopaedic surgeon who placed her on short-term dis-

ability for five weeks and immobilized the foot in a soft sleeve-style brace for one week. The patient experienced relief with rest and application of ice for a five-week duration. Upon return to work her symptoms worsened again and she was prescribed a walking boot by the orthopaedic surgeon, which was discontinued after four days as the air splint exacerbated the pain. Five months after initial onset, the orthopaedic surgeon prescribed a soft compression sleeve for her foot and recommended a return to work with modification to limit weight bearing. After a further two months of work modification, her symptoms worsened. Another set of radiographs (Figure 1C) ordered by the orthopaedic surgeon revealed further distraction of

the fracture fragments, a finding suggestive of rupture of the peroneus longus tendon as well as non-union of the fracture. Magnetic resonance (MR) imaging was performed but the images were inconclusive regarding rupture of the peroneus longus tendon.

Finally, after 12 months the pain subsided, and the patient resumed normal everyday activities. However, since then, she has experienced ongoing, recurrent, intermittent pain at the same site which she self-manages by modifying activity and footwear.

## Discussion

The normal variant, os peroneum is a painless accessory ossicle located within the peroneus longus tendon, present in 26% of the population, 40% of which are unilateral and 30% of which are bipartite.<sup>1</sup> Fractures of the os peroneum present as pain localized on the lateral aspect of the foot overlying the cuboid region.<sup>2</sup> Palpation of the ossicle may increase the pain.<sup>1</sup> Direct trauma, strong muscle contraction, inversion injuries<sup>3,4</sup> or chronic overuse injuries<sup>5</sup> are the typical mechanisms of injury. Such fractures may be associated with tearing of the peroneus longus tendon.<sup>2</sup>

The os peroneum is usually detected on routine radio-

graphs and the internal oblique projection of the foot shows the os peroneum to best advantage.<sup>2</sup> Other diagnostic imaging techniques (Table 1) including computed tomography (CT), ultrasonography (US) and magnetic resonance (MR) imaging are also useful in the evaluation of normal os peronea as well as bipartite and fractured os peronea.<sup>1</sup>

In this patient, the initial os peroneum fracture may have resulted from chronic repetitive trauma. The course of recovery may have been delayed because of partial rupture of the peroneus longus tendons, uncertain owing to the inconclusive MR images.

## Key Messages

- Os peroneum is present in 26% of the population
- May be unilateral (40%) or bilateral
- May be bipartite (30%)
- Fracture may be associated with rupture of the peroneus longus tendon
- Fracture is underdiagnosed

Table 1.

*Imaging modalities used in the evaluation of os peroneum fracture and key imaging features.<sup>1</sup>*

Imaging modality	Key Imaging Findings
Radiography	Presence of the accessory ossicle adjacent to the cuboid bone just proximal to the fifth metatarsal styloid seen best on internal oblique foot images. Major differential diagnoses are bipartite os peroneum and fractures of the cuboid or fifth metatarsal bone
Computed tomography	Used to examine the os peroneum for irregular margins and cortical discontinuity suggestive of fracture and displacement.
Ultrasonography	Used to evaluate soft tissues and tendinopathy as well as to compare the anatomy bilaterally.
MR imaging	Used to perform soft tissue evaluation including edema, and tendon rupture.

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