

Fracture of the lateral process of the talus

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Abstract

An inversion injury to the ankle is one of the most common presentations to an Emergency Department. Clinicians should be aware of potential rare injuries from this mechanism which can be overlooked by following standard protocols. A fracture to the lateral process of the talus should be considered in all patients following an ankle injury with difficulty in weight bearing. Management can be operative or conservative depending on the degree of fracture displacement and the individual patient's level of functionality.

Keywords: Ankle sprain; lateral process of talus.

Case Report

An 18 year old woman presented to the Emergency Department with an inversion injury to the right ankle following a fall walking downstairs at home. She was unable to weight bear. On examination, swelling and tenderness was present on the medial and lateral aspects of the ankle. An x-ray demonstrated a fracture of the lateral process of the talus (**Figures 1 and 2**). She was placed in a below knee boot with crutches. Following review at the fracture clinic at CT of the right ankle was performed. This demonstrated fracture displacement of 17mm in width (**Figure 3** - 3D CT ankle video reconstruction). Further management remained conservative in a below knee boot for six weeks, with return to function by approximately ten weeks.



Figure 1: X-ray right ankle (AP view).



Figure 2: X-ray right ankle (Lateral view).

Talus fractures are the second most common tarsal bone fracture after the calcaneus. The introduction of aviation led to the term “aviator’s astragalus” with pilots sustaining talus fractures due to the position of the feet on the rudder pedals during a crash [1]. However, they remain uncommon; accounting for only 3.4% of all foot and ankle fractures [2]. Fractures of the talus occur at the neck, body, lateral process, or head. The lateral process of the talus is a large, wedge-shaped prominence that composes most of the lateral aspect of the body of the talus. The process articulates with the fibula dorso-laterally, the posterior facet of the calcaneus inferiorly, and serves as an attachment for the lateral talocalcaneal ligament, contributing to maintaining the integrity of the ankle mortice.

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It accounts for 33-41% of all talar fractures [3]. Fractures of the lateral process of the talus are commonly associated with snowboarding injuries following sudden dorsiflexion of the ankle with inversion of the foot [3].

A fracture of the lateral process of the talus can present with a history suggestive of an ankle sprain. Up to 50% of these fractures are missed on first presentation – misdiagnosed as “ankle sprains”. The use of the Ottawa Ankle Rules for radiography decision making may result in “ruling out” a fracture as patients presenting with a lateral process of the talus fracture may lack palpable malleolar tenderness and can often weight bear with difficulty [4]. These patients can present with persisting ankle pain weeks after the original injury [2, 5]. A low threshold for plain radiography of the ankle should be considered in patients presenting with a history suggestive of an ankle sprain with examination findings including a painful range of movement and/or tenderness over the lateral talus, a high energy mechanism of injury (associated with road traffic accidents or snowboarding), or injury involving forced hyperextension at the ankle. There remains a lack of consensus on whether operative intervention produces a better functional outcome than conservative management [2, 6].

The prompt and accurate diagnosis of a fracture of the lateral process of the talus is important in preventing clinical and functional long-term complications due to delayed healing, non-union, degenerative change, and impingement. A high clinical index of suspicion, increased clinician awareness of this injury, and a lower threshold to performing plain film imaging can improve the detection of a fracture of the lateral process of talus improving patient outcomes.

Learning Points

- Fractures of the lateral process of the talus can present clinically as a potential ankle sprain.
- In a patient with an inversion injury to the ankle always exclude bony injury to the tarsal bones when reviewing the x-ray.
- Strict use of the Ottawa Ankle Rules could prevent radiological imaging resulting in delayed diagnosis of a fracture to the lateral process of the talus.

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