

Case Report

# Sesamoid Bone Blocking Fracture Reduction in Traumatic Injury of First Metatarsal

David J. Spence, Owen J. Diamond, Brian J. Mockford

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## ABSTRACT:

We describe a patient who sustained an extra-articular, oblique and angulated first metatarsal fracture. The medial hallux sesamoid bone was subsequently found to have entered the fracture gap preventing reduction. We describe treatment of this rare injury with a successful outcome.

**Keywords:** Sesamoid, fracture, metatarsal, reduction

## INTRODUCTION:

Metatarsal neck and shaft fractures are common injuries while fractures of the head are relatively uncommon. These injuries usually occur as a result of direct trauma and the majority heal with conservative management.<sup>6</sup> Indications for surgical intervention include those fractures angulated greater than 10 degrees in any plane, displacement greater than 3-4mm, or a significant intra-articular component to the fracture.<sup>5</sup> We describe a fracture of the shaft to the first metatarsal which required removal of the medial hallux sesamoid bone from the fracture gap to allow reduction. We believe this has not been previously reported.

## CASE REPORT:

A 26 year old male fitter presented to our department having dropped a heavy weight onto his left foot. He complained of pain over the antero-medial aspect of the foot. He was unable to weight-bear and on examination was tender in the region of the head of the first metatarsal. He was unable to fully flex the first interphalangeal and metatarsophalangeal joint. X-rays of his foot showed an oblique fracture of the distal first metatarsal in the sagittal plane with 20 degrees of dorsal angulation (Figure 1A to 1C). There was an associated undisplaced fracture of the second metatarsal. A manipulation under anaesthetic +/- open reduction and internal fixation was planned.

Under general anaesthetic and image intensifier control a closed reduction of the first metatarsal was attempted but the fracture could not be reduced.

The fracture was then opened and explored. This revealed that the medial hallux sesamoid bone had entered into the fracture gap preventing reduction. On removal from the fracture gap, immediate and accurate reduction was achieved and held with a single interfragmentary screw (Figure 2A and 2B). The foot was immobilised in a cast and he had restricted weight-bearing for six weeks.



Fig 1A. Lateral x-ray of the left foot on presentation.



Fig 1B. AP x-ray of the left foot on presentation.



Fig 1C. Oblique x-ray of the left foot on presentation.

## DISCUSSION:

This unusual problem caused by the sesamoid bone blocking the reduction of the fracture has not been reported in the literature. Medial and lateral hallux sesamoids form part

Trauma and Orthopaedic Unit, Craigavon Area Hospital, 68 Lurgan Road, Portadown, BT63 5QQ.

Correspondence to Mr Spence

Email: djspence@doctors.org.uk



Fig 2A. Lateral x-ray of the left foot post-operative showing the fracture reduced and held with an interfragmentary screw.



Fig 2B. AP view of the left foot post-operative.

of the sesamoid capsuloligamentous complex. This complex includes attachments from the flexor hallucis longus (FHL), flexor hallucis brevis (FHB), and metatarsosesamoid and intersesamoid ligaments.<sup>8</sup> They provide two of six contact points for the forefoot.<sup>2</sup> There are a number of injuries reported affecting the sesamoids including

fracture,<sup>7</sup> dislocation, inflammation,<sup>1</sup> chondromalacia<sup>4</sup> and osteochondritis.<sup>3</sup> No mention of the problem caused by the sesamoids blocking fracture reduction of a metatarsal fracture has been reported to our knowledge. We believe left untreated this would potentially have led to non-union, chronic pain and loss of flexor function of the first ray.

The authors have no conflict of interest

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