

# Subhallucal Interphalangeal Sesamoiditis: A Rare Cause of Chronic Great Toe Pain

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## ABSTRACT

Subhallucal interphalangeal sesamoiditis presenting as chronic great toe pain is a rarely reported clinical entity, being often overlooked and misdiagnosed for other pathologies. By altering the biomechanics of the movements at great toe, the interphalangeal sesamoid is prone to various painful pathologies like trauma, infection, degeneration, osteonecrosis and inflammation. Imaging plays an important role in narrowing down the differentials and guiding for appropriate therapy. Herein, we present a neglected case of hallucal interphalangeal sesamoiditis presenting as a case of chronic great toe pain and discuss the role of Magnetic resonance imaging (MRI) and Computed tomography (CT) scan in its diagnosis.

**Keywords:** CT scan, MRI, Sesamoid

## CASE REPORT

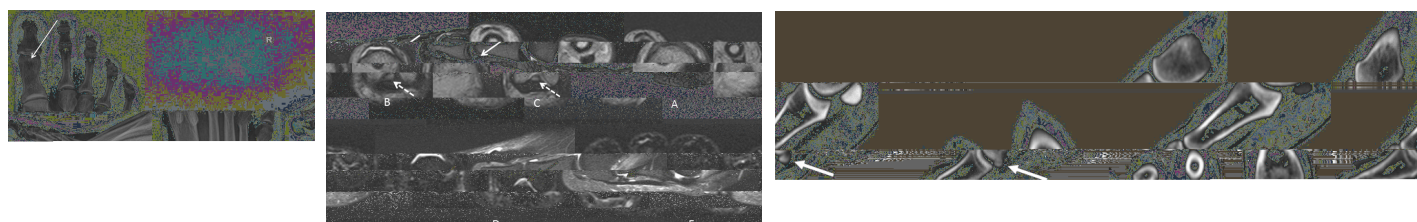
A 49-year-old man, bus driver by occupation presented to our hospital's outpatient department with complaints of right forefoot pain, since 5 years. The pain was localized over the plantar aspect of great toe, predominantly in the region of interphalangeal joint and was aggravated during application of brakes while driving. He had been previously investigated for the same and a Magnetic Resonance Imaging (MRI) scan performed 3 years back was reported to be essentially normal. Physical examination of the patient revealed mild antalgic gait. On clinical examination, severe tenderness and discomfort was found on palpation over the first interphalangeal joint at the plantar aspect of the proximal phalanx with no obvious swelling or redness. Forced flexion of the great toe against resistance revealed pain. No obvious restriction of active and passive movements could be appreciated. Plain radiograph of foot (Antero-posterior and lateral view) revealed a small bone fragment of approximate size 4x3 mm at the plantar aspect of the head of proximal phalanx [Table/Fig-1a,b]. MRI revealed a smooth edged and well corticated triangular ossicle embedded superficially within the tendon of flexor hallucis longus on the plantar aspect of interphalangeal joint of great toe with bone remodelling in the form of exaggerated concavity of the adjacent head of proximal phalanx of great toe [Table/Fig-2a-c]. Fat suppressed short tau inversion sequences (STIR) revealed marrow oedema within the sesamoid bone [Table/Fig-2d,e]. No abnormal associated soft tissue lesion was seen. Physiological fluid was seen in interphalangeal and metatarsophalangeal joints of great toe. No bony fracture, destruction or erosion was seen. Joint space appeared to be maintained.

Correlated Computed Tomography (CT) confirmed the location and smooth margins of the subhallucal sesamoid bone [Table/Fig-3a-c]. No fracture or sclerosis was seen.

Based on the clinical and imaging findings a diagnosis of hallucal interphalangeal sesamoiditis was made. The patient was treated by local injection of 1 ml of 0.125% levo-bupivacaine mixed with 10 mg of triamcinolone acetonide between the sesamoid bone and flexor hallucis longus tendon under ultrasound guidance. The patient was pain free within 10 min. Furthermore, the patient was advised with placement of a soft pad within the shoe underneath the symptomatic area and prescribed oral analgesics for two months. However the patient was lost on follow up.

## DISCUSSION

Sesamoid by definition refers to a bone, partially or completely embedded in a tendon or joint capsule. Their function is to protect the tendon from injury by reducing friction [1]. Sesamoids in the foot and ankle vary widely in their prevalence and appearance. Usually the sesamoids are asymptomatic, but they too can become painful by getting afflicted by any of the common osseous pathologies namely inflammation, infection, osteonecrosis, traumatic events, degeneration and likewise [2]. Sesamoiditis refers to inflammation of the sesamoid bone and/or its supporting apparatus, with resultant pain in its anatomical region [3]. Symptomatic interphalangeal sesamoids are rare, being often overlooked and misdiagnosed for unrelated conditions [4]. Subhallucal interphalangeal sesamoid is one of the rare conditions known to cause severe great toe pain. Lack of awareness of this particular entity leads to misdiagnosis, delayed treatment and contributes to significant morbidity. To complicate matters further, the hallucal interphalangeal sesamoid may be completely ossified in some, whilst in others; it may be purely fibrocartilagenous, making it almost indistinguishable from the surrounding soft tissues [5]. Thus, identification of this entity on radiographs is not always possible.



**[Table/Fig-1]:** Plain radiograph of right Foot AP (A) and lateral (B) views reveal a small well defined bone fragment at the plantar aspect of proximal phalanx of great toe (arrow)  
**[Table/Fig-2]:** Magnetic Resonance Imaging, T2- weighted sagittal (A) and coronal (B) and T1- weighted coronal (C) images reveal a sesamoid bone embedded superficially within the flexor hallucis longus tendon (white arrow). STIR weighted sagittal (D) and coronal (E) images reveal hyperintense marrow signals within the subhallucal sesamoid (black arrow)  
**[Table/Fig-3]:** CT scan coronal (A) and sagittal (B,C) images accurately localises the well defined smooth edged bone ossicle at the plantar aspect of the proximal phalanx of great toe

associated soft tissue swelling and collections. On MRI they show typical marrow changes of STIR and T2W hyperintensity with T1W hypointensity and robust post contrast enhancement. CT and MRI by demonstrating lack of cortical erosion or destruction with lack of any associated soft tissue can effectively rule out osteomyelitis as a differential for sesamoiditis.

The treatment of hallucal interphalangeal sesamoiditis is primarily conservative, mainly directed towards relieving pain and discomfort. Local injection with long acting anaesthetic agent mixed with steroids provides effective symptomatic relief and should be tried before surgical excision. Alternatively a custom-moulded orthosis or a soft pad placed just proximal to the lesion often alleviates symptoms. An extra-depth shoe (increased vertical volume) with a prefabricated or custom insole can also be used. Keratotic callus if present may be debrided or shaved [4,7]. Rarely in athletes, when there is significant associated occupational hindrance may radical