

Metatarsal Concrete Cement Osteomyelitis – A Rare Incidental Finding

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ABSTRACT

Bare foot walking in developing countries is a common tradition. We report a rare case of delayed infection in a building construction worker due to concrete material which may have lodged as a foreign body in the third metatarsal of the foot. Foreign body osteomyelitis was treated with curettage and at 1-year follow-up, no recurrence is noted. To our best knowledge, such a report has not been reported in English literature.

Key words: Bare foot, concrete particle, foreign body, metatarsal osteomyelitis

INTRODUCTION

Bare foot walking is more common in Indian population because 60% of them reside in rural areas. People feet are commonly exposed to injuries such as cuts, bruises, skin breaches, puncture, and penetrating injuries. Foreign body penetrating injuries are commonly missed. Missed foreign bodies such as thorn prick or nails produce deep seated infections such as granuloma, cellulitis, abscess, or osteomyelitis at a later date.^[1-3] Patients present late at a stage only when they are unable to bear weight or affected activities of daily living. We report such a rare case of concrete mortar particle osteomyelitis in a building construction worker.

CASE REPORT

A 50-year-old male construction site worker presented with pain, swelling, and on/off discharging sinus from the dorsum of the left foot for 2-month duration. Patient had a history of trauma with cement block about 2 years back. Pain and swelling were insidious and progressive on onset. Purulent discharge with fixed sinus on base of third metatarsal bone.

Bio-chemical investigations showed raised ESR-60 mm/h, CRP-10, TLC-12,800 with increased neutrophil count (N-82). Bone sequestrum with surrounding involucrum was found in X-ray [Figure 1].

Surgically, dorsal incision was made over the third metatarsal. Foreign material was curetted. Curetted material showed concrete material [Figure 2]. Sinus tract was also excised. Diamond Burr was used to curette the margins. Skin closed with 2-0 ethilon mattress stitch.

Postoperatively, culture came negative and was started on empirical ciprofloxacin 500 mg BD for 6 weeks, since most are Gram-negative infections. Treatment protocol as per management of similar cases in the literature. Material was not send for biopsy because clearly it showed concrete particle. At 1-year follow-up, X-ray showed no new lesion, infection, or sinus [Figure 3].

DISCUSSION

Barefoot walking is a common practice in India and incidence of neglected foreign bodies are more common in India which can be retained for many years until they are symptomatic like 15 years as reported in a case by Bergquist *et al.*^[1] In our case, concrete particle remained asymptomatic

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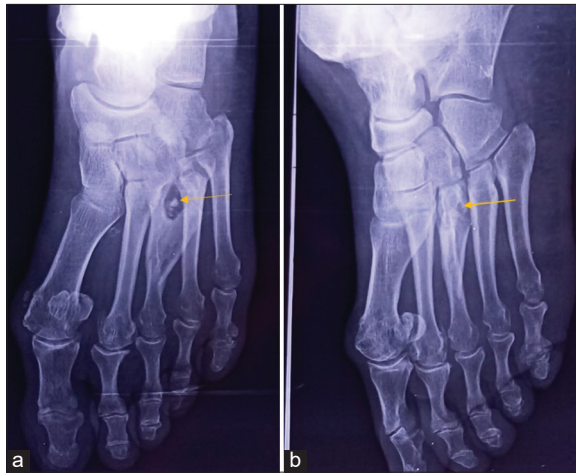


Figure 1: Plain radiograph of the left foot showing anteroposterior (a) and oblique (b) with lytic lesion at the base of third metatarsal with sequestrum and surrounding involucrum



Figure 2: Intraoperative picture showing the concrete cement bony sequestrum

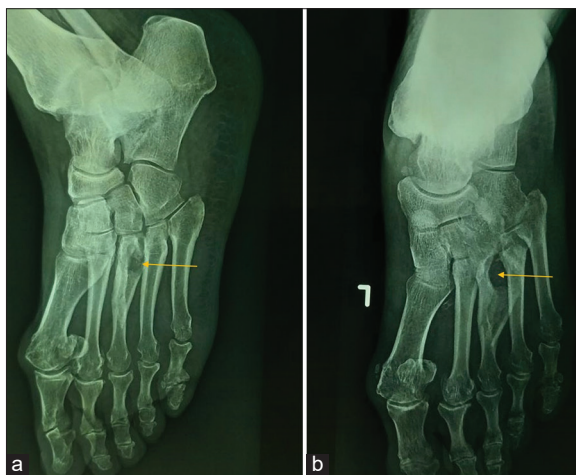


Figure 3: Follow-up plain radiograph at 1 year showing the anterior-posterior (a) and oblique view (b) with no evidence of recurrence

for 2 years which became a focus of chronic infection leading to metatarsal osteomyelitis. Metatarsal bone and calcaneum (haematogenous osteomyelitis) are common sites for osteomyelitis. Most of the case reports in the literature consist of osteomyelitis due to thorn prick,^[2,3] splinter,^[4,5] and other foreign bodies.^[6-8] To our best knowledge, this is the first case involving isolated osteomyelitis of third metatarsal caused due to concrete particle at a construction site.

Delayed infection and discharging sinus are a marker for deep seated infection. Low-grade inflammatory response generated by foreign body for a long duration can lead to infection and osteomyelitis. Clinical signs are minimal compared to acute pyogenic osteomyelitis because foreign bodies are generally deep seated to the deep fascia with minimal signs of cellulitis or rubour. Ultrasound is a cheap and important tool to identify foreign bodies.^[9-11] CT and MRI are specific investigations to identify the sinus tract and radio-opaque bodies. In our case, clinical examination and X-ray were sufficient to proceed with our procedure to avoid investigation costs.

Patient was put on 6 weeks of ciprofloxacin and at 1-year follow-up, patient was asymptomatic without recurrence. Key to successful treatment is complete removal of foreign body, debridement, and curettage.

TAKE HOME MESSAGE

1. Neglected foreign bodies are common in developing nations with bare foot walkers.
2. Appropriate diagnosis of foreign body osteomyelitis with adequate treatment is needed.
3. A rare case of concrete particle causing delayed osteomyelitis has been emphasized as one of differential diagnosis in foot infections.

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