

**Foreign body induced calcaneal osteomyelitis – A rare complication of  
barefoot walking**

K Arun Kumar<sup>1</sup>, C Karthikeyan<sup>1</sup>, RM Kannan<sup>1</sup>, Vijayaraj Kannan<sup>2</sup>,

CS Krishnamurthy<sup>3</sup>

**Abstract**

Trivial injuries due to barefoot walking are common in developing countries. Sometimes, patients do not seek medical attention for such incidents. If left untreated, certain complications may follow. We report a 45 year old male farmer who was walking barefoot all his life. He sustained multiple trivial injuries to his heel leading to subsequent development of chronic calcaneal osteomyelitis. Radiographs revealed extensive lysis of the calcaneum. Surgical debridement showed various soil particles measured around 5mm to be present inside an eroded osseous dome of calcaneum. Extensive surgical debridement and appropriate antibiotics was the key to his recovery.

**Key words** – Bare foot walking, calcaneal Osteomyelitis, foreign body

<sup>1</sup> Assistant Professor, <sup>2</sup> Associate Professor, <sup>3</sup> Professor, Department of Orthopaedics, Melmaruvathur Aliparasakthi Institute of Medical Sciences and Research, India.

Corresponding author mail: [dr.arunkumar.orth@gmail.com](mailto:dr.arunkumar.orth@gmail.com)

**Introduction**

Most of the farmers in India walk bare foot in doing their day to day activities. Under such circumstances, trivial injuries like thorn

pricks, skin breaches, cuts and bruises are unavoidable <sup>1,2</sup>. People in rural areas are negligent about these injuries and do not seek any medical attention. They are often self treated with mere removal of the thorn

following which they continue to work the same way<sup>1</sup>. Sometimes this can lead to chronic infection of any involved site. Later, they turn up for medical intervention only when restrictions of movements affect their work.

Foreign bodies finding their way into the sole of a bare foot walker usually gets embedded superficially causing mild discomfort on weight bearing. Sometimes they migrate even deeper into the osseous region causing chronic infection. Deep seated foreign bodies are difficult to identify clinically or by routine imaging. Radiolucent foreign bodies should always be considered in such patients and surgical debridement is mandatory. We report a case of foreign body induced chronic osteomyelitis of calcaneum with multiple discharging sinus. Surgical debridement revealed various soil particles of more than 5mm found to be

embedded in an osseous dome of the calcaneum.

### Case Presentation

A 45 year old male farmer presented to our outpatient clinic with complaints of pain and swelling of the right heel associated with multiple discharging sinuses. He was more concerned that he was not able to go and work in the fields like before as his condition was worsening which he thought would subside gradually. He realized to seek medical attention only after his illness progressed to such an extent that his daily activities were affected. Patient was a known diabetic and was irregular on treatment. Apart from these, he did not have any other chronic illness.

Figure 1 – Sinuses over the heel



On inspection, the ankle and heel were edematous with seven actively discharging sinuses. Four sinuses were on the heel, two more over the lateral aspect and one over the medial aspect just below the malleolus (Fig. 1). Discharge was predominantly from the four sinuses situated in the heel. Mere handling of the heel caused the pus to squirt out through the sinuses. Pus was taken for culture and sensitivity prior to start of antibiotics and surgery. All movements around the ankle were restricted. Anteroposterior and lateral view radiographs

of the ankle were taken showing the calcaneum with extensive bony erosion in its base surrounded by sclerotic bone (Fig. 2).

Figure 2 – Preoperative radiograph showing the eroded calcaneum



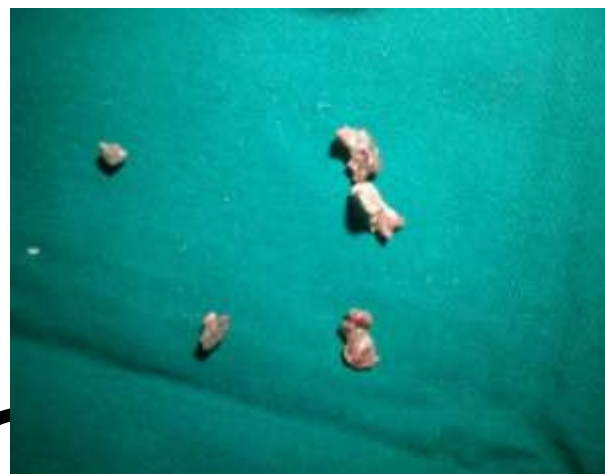
No foreign body was able to be made out in the radiographs. Routine blood investigations revealed an elevated ESR and blood sugar levels. Diabetes was controlled with insulin and a surgical debridement was planned. Patient was placed in a semi prone position which allowed comfortable access to all the sinuses. Skin incision was made as

in Gaenslen's split heel approach to expose the eroded area of the calcaneum<sup>3,4</sup> (Fig.3).

**Figure 3 – Intra operative picture**



**Figure 4 – Foreign bodies that were removed from the calcaneal dome**



Various soil particles of different sizes were found to be present inside an osseous cavity of the eroded calcaneum (Fig.4). All foreign material was removed and a thorough wash was given. Sinus tracts in the heel were excised. Remaining sinuses were curetted. Size 8' infant feeding tube was used for dependent drainage of the wound and stay suturing was done.

Pus Culture revealed growth of staphylococcus aureus sensitive to Cefazolin. Parental administration of cefazolin 1.5 mg twice daily was started. Post operative period was satisfactory with betterment of his condition as there was no active discharge from the wound. Post operative radiograph clearly showed the extent of the cavity following debridement (Fig.5). Parental antibiotic was continued for 6 weeks and patient was advised specifically not to walk bare foot again. Two months follow up was satisfactory with

closed sinuses, no signs of infection and a normal ESR. Physiotherapy was continued to regain range of motion and the patient was recovering.

**Figure 5 – Post operative radiograph**



Three months later, patient came back with mild discharge from the lateral sinus site. He continued to walk bare foot despite advice. Oral antibiotics were given and he was treated as an outpatient. He came back time and again complaining of discharging sinus yet continued to walk bare foot and later lost follow up.

### **Discussion**

Walking barefoot is a common practice in India. Many barefoot walkers are exposed to minor injury most commonly by a thorn. Sometimes these injuries can lead to devastating complications if timely intervention is overlooked. Deep seated infections can occur when a foreign body gets lodged in the soft tissues of the heel<sup>1,2</sup>. Rarely, the underlying bone can also be involved in the disease process as happened in our patient. He had repeated history of minor injuries which he describes as thorn pricks for which no treatment was sought.

Negligence of such injuries had resulted in established osteomyelitis as reported a few times in the literature. To the best of our knowledge, presence of multiple soil particles inside an eroded dome of the calcaneum as in our patient was never reported before. Surgical debridement and removal of the foreign body was the

mainstay of treatment<sup>5</sup>. Culture revealed the presence of staphylococcus aureus which is the most common organism to cause osteomyelitis<sup>6,7</sup>. We followed the ideal recommendation of antibiotic for 6 weeks and the wounds healed satisfactorily after extensive surgical removal of all foreign material<sup>8,10</sup>.

Removal of the foreign body was the key to successful treatment<sup>5</sup>. Despite counseling and strict instructions, patient still continued to walk bare foot. Within three months of treatment, he came back with recurrent abscess demanding no surgical intervention. Though counseling regarding further management was given, considering his economic burden, he chooses to opt out of surgical intervention. Lack of long term follow up leaves a question whether the eroded calcaneal dome would heal but it totally cannot be addressed in this case report.

### Conclusion

Multiple foreign bodies from soil finding their way into the sole of the foot through skin breaches and getting embedded in an eroded dome of the calcaneum is reported for the first time in the literature. Extensive surgical debridement and appropriate antibiotics are the mainstay of treatment. Though a long term follow up is not available, the condition itself is worth reporting.

*Informed consent was obtained from the patient for the case report to be published”*

*“The authors declare that they have no competing interests”.*

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