

# Neglected Thorn Injury Mimicking Soft Tissue Mass in a Child: A Case Report

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## ABSTRACT

Thorn injuries are common especially in rural areas. The diagnosis of such in children is always missed. An untreated retained thorn may cause late soft tissue and osseous complications. Herein, we report a case of neglected thorn injury mimicking soft tissue mass in an 11-year-old male child. The presence of the thorn was confirmed with ultrasound scan and computerized tomography. The child was successfully managed with removal of thorn with excision of foreign body granuloma.

**Keywords:** Foreign body, Granuloma, Traumatic

## CASE REPORT

An 11-year-old boy presented to us with swelling in the right foot and pain off and on for the past two and half years. He had difficulty in walking and wearing shoes due to pain. He was being managed with local measures like heat and pain killers. There was no history of fever and the child and the parents could not recall any significant traumatic event. On examination there was an ill-defined soft tissue swelling over plantar aspect of midfoot on the lateral aspect which was tender on deep palpation [Table/Fig-1]. There was no local rise of temperature over the swelling. The skin overlying the swelling was normal. A radiograph of the foot showed only soft tissue swelling and no bony abnormality [Table/Fig-2]. Fine needle aspiration cytology of the swelling revealed an inflammatory infiltrate consisting of neutrophils and histiocytes. Haematological investigations were within normal limits except a raised C- reactive protein level of 9 mg/dl. Other radiological investigations were carried out to reach a conclusive diagnosis. Magnetic resonance imaging of the foot was done but it did not reveal any significant finding except some hyperintense ill-defined signal suggesting fluid deep to the plantar fascia surrounded by an area of hyperintense thick soft tissue in the midfoot region reaching up to the distal metatarsal shafts [Table/Fig-3]. Computed tomography scan of the foot showed thick hypodense soft tissue lesion in the same region [Table/Fig-4]. On ultrasonography of the foot an elongated linear hyperechoic structure approximately 1.5-1.6 cm long lying in the soft tissue [Table/Fig-5]. Based on this report a diagnosis of a retained foreign body in the foot was made and its removal was planned. A thorn of size 1.4 cm was recovered from the foot intraoperatively [Table/Fig-6,7]. The microbiological investigations

were negative from the material around the thorn. First-generation cephalosporin and amikacin antibiotics were given intravenously for 12 days. His postoperative period was uneventful and the child was asymptomatic and able to bear weight on follow-up after a 10 months period.

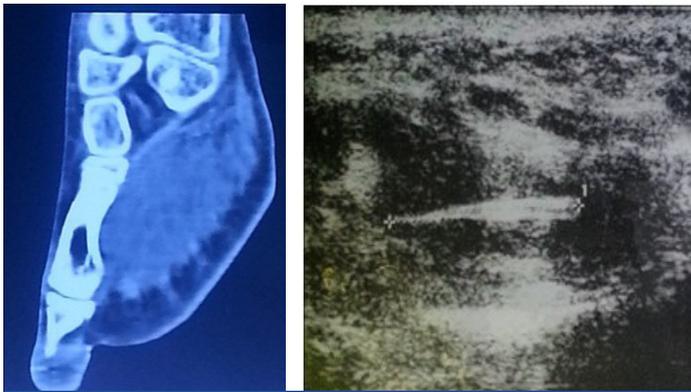
## DISCUSSION

Retained foreign bodies commonly seen in pediatric age group may present as various bone, joint and soft tissue disorders [1]. The aim of this report is to stress upon the possibility of a neglected foreign body like a retained thorn in the differential diagnosis of other soft tissue or bony lesions presenting with similar clinical findings and a nonspecific radiological picture especially in pediatric age group. Foot is the common site for penetrating trauma. Other common sites are hand, wrist and elbow [2]. Foreign bodies such as glass, metallic objects and organic material may get inoculated into the foot following penetrating injury [2]. Thorn injuries are common in children who walk barefoot in fields or while outdoor play. The diagnosis of thorn injury can be difficult especially when the patient has forgotten the traumatic incident. This is true more so for a paediatric case. The presentation may take several months or even years [2,3]. In such scenarios the patient usually presents with delayed manifestations of the initially forgotten thorn injury such as a low grade chronic inflammatory reaction due to intense local inflammatory response, mimicking a tumour of the soft tissue or of bone depending upon the location of the thorn. The foreign body is encapsulated in fibrous tissue and forms a foreign body granuloma [2].

Such foreign body granulomas may mimic a variety of tumoural and pseudotumoural lesions [3]. Differential diagnosis of such swellings



**[Table/Fig-1]:** Patient foot showing ill-defined diffuse swelling **[Table/Fig-2]:** AP, lateral and oblique radiograph of foot showing soft tissue swelling **[Table/Fig-3]:** MRI shows hyperintense ill-defined signal deep to the plantar fascia surrounded by an area of hyperintense thick soft tissue in the midfoot region



**[Table/Fig-4]:** CT scan shows hypodense soft tissue areas **[Table/Fig-5]:** Sonogram shows an echogenic foreignbody deep to the skin surface



**[Table/Fig-6]:** Intraoperative photograph showing foreign body in the surgical wound **[Table/Fig-7]:** Wooden thorn after removal

can be bony lesions like osteoid osteoma, nonossifying fibroma or pseudotumoral lesions like solitary and aneurysmal bone cysts and fibrous cortical defect and infective lesions like tubercular granuloma [3]. Soft tissue lesions like synovitis, soft tissue granulomas have been noted following thorn pricks. Jain et al., reported a case of thorn injury mimicking a muscle tumour [4]. In our case also there was a delayed presentation with chronic soft tissue lesion mimicking a soft tissue mass.

Organic foreign bodies are difficult to identify on plain radiographs in contrast to glass and metallic objects [5]. The radiographs are usually normal unless bony lesions develop in the form of osteolysis or periosteal reaction. Only 15% or less of organic foreign bodies can be detected on plain radiographs [6]. Ultrasound has been shown to be a highly sensitive and specific modality for the diagnosis of such retained foreign bodies [1]. Ultrasound is more effective than CT scan for the detection of superficial, non-radiopaque foreign bodies as shown in our case [1,5,7]. MRI can also detect foreign body and guide the surgical approach for its

retrieval [7]. But MR imaging does not differentiate foreign bodies from scar tissue, tendons, and calcifications due to their low signal intensities [7]. Therefore either Ultrasound or MRI may be the best initial imaging modality for detection of a suspected wooden foreign body, depending on their availability, duration of symptoms, and proximity to the bone we suggest that radiograph should be the first choice of investigation as it can display radiopaque foreign bodies. In the presence of clear history of retained foreign bodies with negative radiograph; ultrasound can serve better than MRI and or CT scan as it is cost effective and readily available. Once the foreign body is detected, treatment should be done depends on its location. Thorns and wood pieces located subcutaneously and in the muscle can simply be excised and the site should be cultured for aerobic and anaerobic organisms. We have also removed the foreign body and excised the foreign body granuloma and sent tissue for histopathology and culture. The culture in our case was negative for any microorganism.

## CONCLUSION

Retained foreign bodies like a thorn may mimic a variety of bone, joint and soft tissue lesions leading to delay in diagnosis. A neglected foreign body should be kept in the differential diagnosis when the radiological investigations are nonspecific especially in a child despite the absence of a definite history of trauma. Detection of thorn is essential because retained foreign bodies may lead to serious osseous and soft tissue infectious and inflammatory complications. A detailed history should be obtained from the parents to rule out other causes. Ultrasound is an extremely valuable tool in the diagnosis of such cases.

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