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## RESEARCH ARTICLE

### ISOLATED CUNEIFORM TUBERCULOSIS A RARE CASE REPORT

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#### Abstract

**Background:** Skeletal tuberculosis accounts for 1 to 3% of extra pulmonary tuberculosis of which 10% involve foot and ankle, which is 0.1 to 0.3% of extra pulmonary tuberculosis. Spine is the most common site and involvement of foot is rare for tuberculosis. The bones involved are usually the calcaneum, talus, first metatarsal, navicular and lateral and intermediate cuneiforms. Because of rare occurrence, diagnosis of tuberculosis of foot remains a dilemma especially when confined to a single bone without articular involvement.

**Material & Method:** A 9 year old girl presented to us with swelling, gradual increasing pain in right foot more so on weight bearing from last six months. There was no history of constitutional symptoms or trauma. There was no family history of tuberculosis.

On examination there was a swelling on dorsal aspect of right mid foot with tenderness. There was no other positive finding.

The x-ray shows a lytic lesion of Lateral cuneiform with sequestrum with normal tarso-metatarsal and inter-tarsal joints of right foot.

Routine blood investigations were normal. The lesion was addressed by dorsal approach and curettage biopsy was done. After thorough curettage, the lesion was packed with cancellous bone grafts. The histopathology confirmed it to be tuberculosis. The Foot -ankle was immobilized by below knee plaster slab for 8 weeks and then patient was gradually mobilized.

**Result:** Patient was followed up for 1<sup>1/2</sup> year with no signs of recurrence.

**Conclusion:** Isolated tuberculosis of cuneiform bone is a rare occurrence. The curettage and bone grafting gave us excellent result, which is the treatment of choice.

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#### Introduction:-

Tuberculosis is a challenging infectious health problem for both developed and developing countries. Skeletal tuberculosis accounts for 1 to 3% of extra pulmonary tuberculosis. The spine is most commonly affected, and foot and ankle involvement is rare, accounting for about 10%<sup>1</sup> in which Calcaneum is the most common bone involved.<sup>2</sup> Diagnosis of tuberculosis of the foot remains a dilemma because of its rarity in lower limb, especially when confined to a single bone with or without articular involvement. Hence, the chance of misdiagnosis and delay in diagnosis may add to morbidity.<sup>3</sup>

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Some diseases like chronic pyogenic osteomyelitis, fungal osteomyelitis, Madura mycosis and some bone tumours may mimic tuberculosis of foot.<sup>4</sup> Presumptive diagnosis can be made on the basis of X-ray, MRI and histopathology of the pathological tissue.

Here we are reporting a case of 9 year old girl with swelling and pain over a right mid foot diagnosed as tuberculosis of cuneiform on subsequent X-ray, MRI and biopsy.

### Case Report:-

A 9 year old girl presented with complaints of pain and swelling over right foot for last 6 months. Swelling and pain was progressive in nature. It has increased over the last 2 months such that the patient had difficulty in walking due to pain. Associated history of dry cough since 25 days. There was no history of fever, weight loss, and loss of appetite, any infective foci or any contact of tuberculosis.

On examination, there was swelling of dorsal aspect of the foot. There was exfoliation of skin over the dorsum of foot. There was tenderness over mid foot. The temperature was mildly raised as compared to the other foot. There was inguinal lymphadenopathy.



**Figure 1:-** Pre op clinical photograph and x-rays

On blood investigation, ESR was 50 mm after one hour. Mantoux reaction was positive. Rest routine investigation was normal.

X-ray of right foot (ap and oblique view) showed a lytic lesion of the lateral cuneiform and ill-defined sclerotic margin. [Figure-1]. There was also sign of osteopenia and coarsened primary trabeculation. Chest radiograph appeared normal.

Surgical intervention was done by debridement and curettage of the lateral cuneiform with bone grafting. Intraoperatively soft tissue surrounding lateral cuneiform was unhealthy and the cavity inside it contained unhealthy granulation tissue. Tissue and pus was sent for Gram staining, Ziehl Nielsen staining, KOH mount, culture for fungi, pyogenic organisms, and mycobacterium tuberculosis and for histopathological examination.



**Figure 2:-** Post op. X-rays

Ziehl Nielsen staining revealed acid fast bacilli and culture on Lowenstein Jensen media grew mycobacterium colonies.

Histopathology revealed fibro connective tissue showing many epithelioid granuloma with central neutrophilic microabscesses surrounded by small area of caseous necrosis with multinucleated Langhan's type of giant cells.

Diagnosis of tuberculosis of lateral cuneiform was made and anti-tubercular therapy was advised for 9 months and below knee slab was applied. Nonweight bearing walk was started. At 6 weeks followup, the splint was removed and physiotherapy of ankle was started. Partial weight bearing was started when pain reduced and progressively increased as tolerated.

The patient was followed for one and a half year. Painless normal range of motion was present with normal skin condition [Figure-3]. Radiograph showed sclerosis and mineralization of surrounding bones.



**Figure 3:-** Followup x-rays

### **Discussion:-**

Musculoskeletal tuberculosis is difficult to diagnose. The classic presentation of localised pain, fever and weight loss is rarely seen. Radiological features of musculoskeletal

tuberculosis may include bone marrow oedema, osteoporosis, lytic lesions or may be nonspecific. The surrounding tissue may show synovitis, joint effusions, tenosynovitis or abscess.

Isolated tubercular involvement of foot bones with an osteolytic defect is a rare entity.<sup>5</sup>

Dhillon et al studied 92 cases of foot tuberculosis over 20 years, 23 were of osteolytic variety out of which 2 had lesions in the cuneiform.<sup>5</sup> Tuberculosis of cuneiform is rare and may mimic fungal osteomyelitis, Madura mycosis, chronic pyogenic osteomyelitis and bone tumours. ESR is almost always elevated in case of tuberculosis.<sup>6</sup> In our case there was a positive Montoux test, raised ESR, histopathology of the tissue specimen, Ziehl Nielsen staining and isolation of *Mycobacterium* on Lowenstein Jensen media, which finally lead to diagnosis. Treatment should not be delayed as delay in treatment may result in less than optimal outcome.<sup>7</sup> The aim of anti-tubercular treatment is to eradicate the organism and to obtain a supple, pain free weight bearing functional foot. With treatment radiological changes do take place and cavities may persist for years, which have no clinical significance.<sup>7</sup>

### Conclusion:-

It is concluded that isolated cystic tuberculosis of lateral cuneiform is rare. Open biopsy, curettage with bone grafting and histopathology, Ziehl Nielsen staining and culture for *Mycobacterium tuberculosis* confirms the diagnosis. Anti-tubercular therapy for a period of 9 months should be given for better prognosis and to prevent recurrence.

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