Cystic tuberculosis of talus in a child: A case report

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ABSTRACT

Tuberculosis of the talus is an unusual presentation of musculoskeletal tuberculosis**.** It is a rare manifestation of extra-pulmonary tuberculosis (EPTB) and accounts for around 0.1 to 0.3% of total EPTB. Its indolent nature often leads to missed or delayed diagnosis. Thus, prompt diagnosis is of utmost importance as diagnostic and therapeutic delay can worsen the prognosis. We are reporting a case of an 8-year-old boy with tuberculosis of the isolated right Talus with discharging sinus. The X-ray showed a cystic form of tuberculosis. He was treated with first-line antitubercular drugs. The child responded to the chemotherapy and by the end of the 12-month course, he was asymptomatic. Thus, early diagnosis and therapy are crucial for good results.

Keywords: *Chemotherapy, Isolated talus, Musculoskeletal tuberculosis.*

Tuberculosis (TB) has been a major cause of morbidity and mortality since times immemorial. Skeletal TB is not a common form of TB, it accounts for around 3% of all extrapulmonary tuberculosis (EPTB) [1,2]. Among these 3% EPTB cases, foot and ankle tuberculosis is seen in 10% cases only [3]. Though TB of foot and ankle is a rare manifestation of skeletal TB, it can cause significant morbidity to the affected population not only because of the disease alone but also because of the considerable delay in the diagnosis.

Isolated TB of the talus bone is very rare and only a few cases have been reported in the literature so far. We present the case of an8-year-old child suffering from isolated TB of the right talus and managed conservatively through anti-tubercular chemotherapy with good functional outcome.

CASE REPORT

An 8-year-old boy presented with chief complaints of pain and swelling over the right ankle for 2 months and discharging sinus over the anterior aspect of the ankle for 15 days with unknown etiology. The patient was unable to bear weight on the affected foot. There was no history of trauma, fever, loss of appetite, prolonged cough or any other constitutional symptoms.

On systemic examination,the bodyweight of the patient was around 25 kg and all systems were in normal limits. Upon local examination, his right ankle was tender with mild swelling and a limited painful range of motion. Discharging sinus was present over the anterior aspect of the foot just above the talus bone.

Preliminary laboratory investigations showed an elevated erythrocyte sedimentation rate (ESR) of 44 mm (Westergren method), while other parameters were within normal limits. The Mantoux skin test was negative. A chest X-ray was done to look for any primary focus but no such lesion could be visualized on X-ray (Fig. 1a). Anteroposterior (AP) and lateral radiographs of the left ankle showed an osteolytic lesion of the talus bone (Fig. 1b).

The magnetic resonance imaging (MRI) of the right ankle and foot showed areas of low and high signal intensity in talus on T1 and T2 weighted images, respectively (Fig. 2). MRI imaging features were suggestive of tuberculous osteomyelitis involving the head and body of the talus with well-demarcated intraosseous sinus tract opening in sinus tarsi and large lobulated phlegmonous soft tissue cum abscess at the anteromedial aspect of talonavicular joint involving flexor hallucis brevis and adductor hallucis muscle with encasement of extensor digitorum

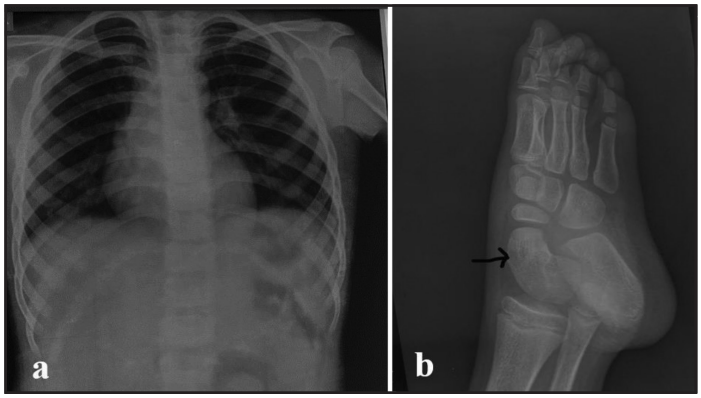

Figure 1: (a) X-ray chest of a child to rule out the pulmonary tuberculosis. No abnormal lesion visualised; (b) X-ray lateral view of the right ankle showing cystic TB lesion of Talus (black arrow).

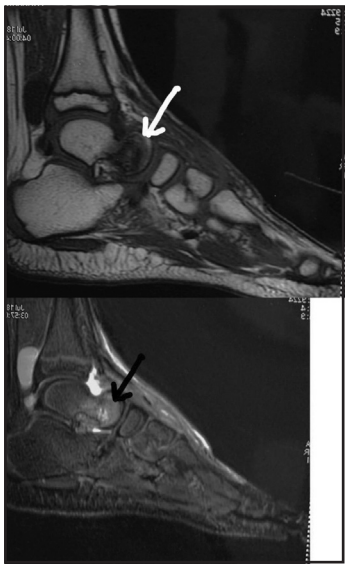

Figure 2: T1 and T2 weight images of right ankle showing low (white arrow) and high (black arrow) signal intensity respectively. MRI finding suggestive of tuberculous lesion involving head and body of talus with well demarcated intraosseous sinus tract opening in sinus tarsi and large lobulated phlegmonous soft tissue cum abscess.

longus tendon. Tenosynovitis of flexor hallucis longus was noted along with mild effusion of ankle joint. Fine needle aspiration cytology sample showed granulomatous inflammation suggestive of tuberculous pathology.

Antitubercular therapy (ATT)as per the World Health Organisation (WHO) indexed guidelines was started with 4 drug regimen which included four drugs (isoniazid (INH), Pyrazinamide, Ethambutol, and Rifampicin) for the first two months followed by three drugs (INH, Rifampicin, and ethambutol) for the subsequent ten months. The patient was kept non-weight bearing by fully immobilizing the ankle joint by putting below knee plaster of Paris (POP) cast for 8 weeks.

The patient responded satisfactorily with ATT. At the end of week 8, sinus had healed and pain and swelling had almost subsided. Partial-weight bearing mobilization was initiated after two months. The effectiveness of ATT drugs was quite evident as he had gained weight during course of treatment and his sinus also healed with secondary intention (Fig. 3). He gained weight of around 5kg in a period of 6 months. The patient obtained a painless ankle range of motion with full weight-bearing mobilization at around 6 months. After 12 months of completed ATT course, plain radiographs of the right ankle showed bone healing in the talus (Fig. 4). Written informed consent was obtained from the patient's legal guardian (mother) for the publication of this paper and any accompanying images.

DISCUSSION

Tuberculosis of the foot and ankle is a rare manifestation of EPTB, it accounts for around 0.1 to 0.3% of total EPTB [3,4]. An isolated TB of the talus is so rare that its presence in the literature is also scarce. In a retrospective analysis of the foot and ankle TB cases, Dhillon, et al [1]. found only 1 case of talus TB out of 92-foot cases over a period of 20 years.

The diagnostic enigmas arise in isolated bone TB cases due to a lack of presence of constitutional symptoms and normal blood parameters. The differential diagnosis includes pyogenic osteomyelitis, bone tumour, fungal osteomyelitis, and granulomatous diseases such as gout, sarcoidosis, and amyloidosis [5,6]. Since, this part of the world is the endemic region of TB, a high index of suspicion is to be borne in mind and sometimes ATT is started on clinical suspicion alone nevertheless [7]. Establishing a correct diagnosis before starting treatment should be the aim. The earlier we establish the diagnosis, the lesser is the morbidity, as this TB lesion can involve the interconnected articular areas surrounding the bone and thus leading to stiffness of the joint and later on residual painful deformities [8,9]. Since osteoarticular TB is a paucibacillary infection, early diagnosis should be made by using all the available diagnostic tools.

Sinuses are rare in the industrialized world but in the endemic region, it can be the most frequent symptom. In this case also, the presence of sinus arose suspicion of tuberculosis. Imaging of suspected foot and ankle TB should include plain radiographs, even though they may not show any typical bony lesion. Specifically, Phemister's triad of juxta-articular osteoporosis, peripheral osseous erosions and gradual joint space narrowingis generally not seen [10]. Five radiological

Figure 3: Clinical picture of the foot of the child showing healed sinus with scar (black arrow).

Figure 4: X-ray lateral view of the right ankle without any cystic lesion in the Talus after 12 month of ATT chemotherapy.

types namely cystic, subperiosteal, kissing, spina ventosa and rheumatoid features are described in the literature, of which cystic is the most common [2]. In this report also, cystic type lesion is present (Fig. 1b).Computed tomography scans and MRI are useful imaging tools for establishing an early diagnosis of the disease. Although MRI cannot completely diagnose the disease, it may aid in the early diagnosis, especially during the pre-destructive stage.

ATT is the mainstay of treatment in the foot and ankle TB. A prolonged course of ATT with a minimum of 12 months course is preferred due to a high rate of recurrences with shorter courses and also due to paucibacillary infection in skeletal TB cases [1]. In our country and as well in other developing countries, barefoot walking is quite common which may cause minor foot injuries secondary to trauma. Barefoot walking can also alter the immunity of foot and can cause recurrence of old dormant foci, so a longer duration of ATT has also been recommended [11,8]. Surgery is an adjunct to the drugs but was not required in our patient.

The process of clinico-radiological healing is quite evident during the course of treatment, as per the literature [1,2,3]. Clinical signs of healing like decrease in pain and swelling, disappearance of sinuses (Fig. 4), improvement in range of motion of joint and gait was seen in this case. The radiological evidence of healing like the resolution of the cavity and focal sclerosis was seen in our patient by the end of treatment. During the course of treatment, the patient also gained weight which reflects the effectiveness of ATT.

CONCLUSION

Early diagnosis and multidrug chemotherapy are essential for the long-term result as it prevents the progression from single bone to multiple joint involvements and subsequently associated morbidity. Surgical intervention is rarely needed. A high index of suspicion has to be borne in mind while treating the patients of developing nations. When the disease is in the early stage and limited to bone, medical treatment leads to excellent healing and limited residual disabilities.

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