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Case Report

Multifocal Tubercular Osteomyelitis: A Case Report in an Immunocompetent Patient

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Abstract: Skeletal tuberculosis (TB) accounts for about 1–2% of all TB cases and 10% of extrapulmonary TB cases. Multifocal skeletal tuberculosis is defined as osteoarticular lesions that occur simultaneously at two or more locations. Multifocal skeletal tuberculosis lesions are very rare, and radiological appearance may simulate primary or metastatic disease. Isolated bone involvement by tuberculosis without a joint or pulmonary involvement is extremely rare in immunocompetent patients. We present a case of 30 year old male patient who presented with healed sinus over right foot and left ankle but without pulmonary involvement.
Keywords: Skeletal terculosis, Multifocal skeletal tuberculosis, immunocompetent.

INTRODUCTION

Tubercular osteomyelitis, an uncommon form of extrapulmonary tuberculosis (TB), accounts for 1% to 2% of all cases of TB and 10% of all cases of extrapulmonary TB [1]. Multifocal tubercular osteomyelitis rarely occurs, especially in non immunocompromised patients. Multifocal skeletal tuberculosis is defined as osteoarticular lesions that occur simultaneously at two or more locations. Multifocal skeletal tuberculosis lesions are very rare, and radiological appearance may simulate primary or metastatic disease [2].CT scans and MRI imaging can help to determine extent of bone involvement, which aids management and follow-up decisions [3]. Diagnosis is confirmed by biopsy result [4]. Among the various forms of extra pulmonary tuberculosis, tuberculous dactylitis and polyarticular tuberculosis are recognized presentations in patients who live in countries with a high prevalence rate of tuberculosis. It is frequently associated with disseminated disease [5]. Typical sinus formation of dactylitic bone may not always be present. Concurrent pulmonary tuberculosis and systemic features such as fever, weight loss and night sweats may or may not be present in bone and joint tuberculosis. Osteoarticular tuberculosis is an aggressive disease and any significant delay in diagnosis may lead to spread of the infection from bone into adjacent joints and surrounding soft tissue. This leads to significant functional disability [6,7].

We present a case of 30 year old non immunocompromised male patient who presented with healed sinus over right foot and left ankle with constitutional symptoms but without pulmonary involvement.

CASE REPORT

A 30 year old male patient attended our orthopaedic out patient department with history of pain and discharging sinus over right foot since 6 months and pain, swelling and discharging sinus over left ankle since 3 months. No history of any trauma elicited. Constitutional symptoms in the form of anorexia, weight loss, evening rise of temperature and night cries elicited. On physical examination of right foot, a healed sinus at the base of fourth metatarsal was seen along with skin discolouration of the surrounding skin (Figure 1A). The sinus was fixed to the underlying bone. On examination of the left ankle, gross swelling was seen with multiple healed sinuses over posterior and anterior aspect of left ankle (Figure 1B,C). Skin discolouration was present around the healed sinus.

The blood results showed a mild anaemia with a haemoglobin of 10.4gm%, white cell count of 9,400/cm mm(N-42, L-55,E-3) and high inflammatory markers with a C-reactive protein (CRP) of 114. The erythrocyte sedimentation rate (ESR) was 87. The chest radiograph and urinalysis was within normal limits. The rheumatoid factor and anti-cyclic citrullinated protein antibody (anti-CCP) were negative. The viral markers came out to be negative. Montoux test was done which also gave negative results. Radiograph of his right foot showed a lytic lesion at the base of fourth metatarsal

(Figure 2B) while radiograph of his left ankle showed juxta articular osteopenia with soft tissue swelling (Figure 2A).

Fig-1: Healed sinuses at base of fourth metatarsal right foot (1A), Posterior aspect of left ankle (1B) and anterior aspect of left ankle (1C)

Fig-2A: X-Ray of left ankle showing soft tissue swelling with juxta articular osteopenia. 2B: X-Ray of right foot showing osteolytic lesion at base of fourth metatarsal.

MRI of the left ankle was done which showed gross synovial hypertrophy of the ankle joint with T1 hypointensity at lower end of tibia and hyperintensity on T2 weighted images (Figure 3A,B).

Fig-3(A,B): MRI of left ankle showing synovial hypertrophy with involvement of lower fourth of tibia.

After getting anaesthetic clearance for operation, the patient was posted for surgical debridement of right foot and left ankle. A yellowish white granulation tissue obtained from the lytic lesion over base of fourth metatarsal (Figure 4A). Left ankle was reached from both anterior and posterior approach Figure 4B,C). Near total excision of the hypertrophid synovium from left ankle was done. Multiple drill holes were made in lower fourth of left tibia to evacuate caseous material from the medullary canal. All the material was send for gram staining, acid fast bacillus staining and histopathology. Both the wounds closed after instilling one ampule of streptomycin in each and a bilateral below knee slab was given.

Fig-4A: Yellowish white granulation tissue curetted out from base of fourth metatarsal right foot. Thickened synovium from anterior (4B) and posterior (4C) aspect of left ankle.

Gram staining report was negative while acid fast bacillus(AFB) staining came to be positive. Histopathology report revealed presence of chronic inflammatory cells comprising chiefly of lymphocytes, plasma cells and epithelioid cells organized in granulomas along with Langhans type giant cells (Figure 5).

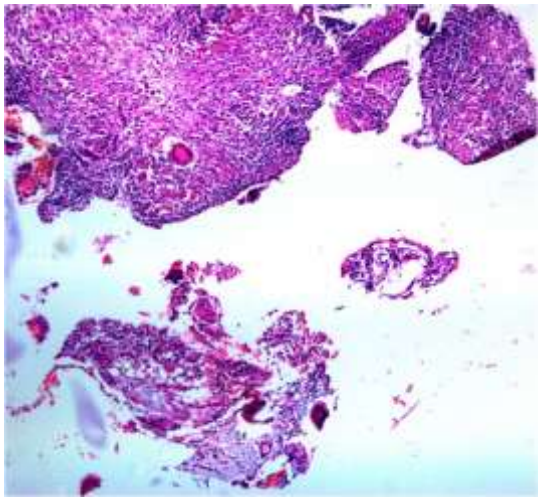

Fig-5: Histopathology section showing epithelioid cell granulomas with Langhans type of multinucleated giant cells surrounded by inflammatory cell infiltrate (hematoxylin and Eosin x 50)

Once the diagnosis of tuberculosis was confirmed, we started the four drug regimen of anti tubercular treatment comprising of isoniazid, rifampicin, pyrazinamide and ethambutol to the patient.

DISCUSSION

Skeletal tuberculosis is thought to occur secondary to lymphohematogenous dissemination to the skeleton at the time of initial pulmonary infection [2]. There may be no radiographic evidence of pulmonary involvement in about 50% of patients [1]. In our case also there was no evidence of pulmonary involvement on routine radiograph. To prevent a delay in diagnosis, multifocal tuberculous osteomyelitis should be considered in the differential diagnosis of multiple destructive skeletal lesions, especially in patients from endemic areas. Radiographically, tuberculous lesions are mostly osteolytic, but sclerosis may also be seen. In our case, the patient radiograph of right foot showed an osteolytic lesion involving base of fourth metatarsal. Lesions may not be detected radiographically, particularly early in the process of the disease [8,9] In recent years the role of radiology, in particular magnetic resonance imaging (MRI), has also been significant in early detection of suspicious cases and it is becoming increasingly popular. MRI is useful in showing the extent of the disease. MRI is superior to plain radiographs in showing the extent of extraskeletal involvement. In our case also, the routine radiograph of the left ankle did not revealed any significant abnormality other than soft tissue swelling and juxtaarticular osteopenia. It was only after the MRI of left ankle was done, the true nature and extend of the disease was revealed. Tuberculosis in the foot occurs in one of the four basic forms [10,11].The most common presentation is as a periarticular granuloma, which if not treated, eventually spreads to the adjacent joint [10,11].This can significantly worsen the prognosis. In our case also the left ankle tuberculosis started as periarticular granuloma in the synovium but at the time of diagnosis had spread to involve the lower end of tibia also. The second type of presentation is that of a central granuloma, more commonly encountered in the phalanges or the metatarsals and seen relatively infrequently [10,11]. In our case the lesion present at base of fourth metatarsal of right foot was of this type. The two other types of tubercular infection in the foot are primary hematogenous synovitis in isolation, and tenosynovitis or bursal tuberculosis.

CONCLUSION

Multifocal tubercular osteomyelitis must be considered in the differential diagnosis of patients who present with multiple destructive bone lesions. Clinical and radiological findings may be indistinguishable from malignant disease. A high index of suspicion may prevent delay in diagnosis, and early treatment may prevent subsequent complications. A negative tuberculin skin test (Montoux test) does not rule out the possibility of tuberculous bone involvement. Also a lack of radiographic and clinical evidence of pulmonary involvement does not rule out skeletal tuberculosis.

Our case shows that even in this day and age, extra pulmonary tuberculosis can be difficult to diagnose. It is therefore important to maintain a high index of suspicion in every person and not only in those who are immunocompromised.

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