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Tuberculosis of Ankle Joint – rare case reports

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ABSTRACT

Few cases of ankle tuberculosis have been reported in the literature. We describe two cases of tuberculosis of ankle presented to Orthopaedics OPD at Rajindra Hospital, Patiala. Case one was a 34 year male with complain of swelling of the left ankle since 3 years and a discharging sinus at the tip of the old healed scar on the left ankle for 6 months. The patient was an old case of Pulmonary Tuberculosis treated with anti-tubercular therapy 6 years back. On laboratory evaluation, CBC, ESR and CRP were normal. Ankle X-Ray showed a lytic lesion in both malleoli. The patient was admitted and debridement of the left ankle was done, and the tissue specimen CB-NAAT was positive. The patient was subsequently put on anti-tubercular therapy for 11 months. His follow-up visits were uneventful. Case two was a 31 old year female presented to us with complaint of pain at right ankle since 5 months. Pain was followed by swelling which progressed over a period of time of one month. MRI was done which showed bone defect with erosions Tissue sample were sent for histopathological examination and CBNAAT.CBNAAT result came to be positive. Patient was put on ATT.Patient improved after ATT. Ankle TB is a rare entity ,must be considered in the differential diagnosis of a swelling of the foot and ankle., requiring a high index of suspicion. As the disease is progressive and promotes degenerative changes of the articular cartilage, early identification is critical for successful treatment and to avoid permanent functional disability.

Keywords:CBNAAT (catrige based nucleic amplification test)

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Introduction

Despite the increasing availability of effective treatment, tuberculosis remains one of the leading causes of human illness and premature death in the world.[1] TB is one of the top three infectious killing diseases in the world. [2]

It can affect any part of body. Bone involvement ranges from 1 to 3% of all patients with TB. It commonly affects the axial skeleton followed by the major weight-bearing joints such as the hip and knee joints. Osteoarticular TB occurs primarily by hematogenous spread from a primary focus such as lung, kidney, and lymph node. OA TB is often a reactivation of an OA lesion that has been implanted at the time of initial bacteremia. [3]

Tuberculosis of the ankle is an extremely rare presentation of skeletal tuberculosis. Multi drug anti-tubercular chemotherapy cure most of the cases in early stage. Surgery in the foot is only indicated for non-responsive cases, uncertain diagnosis, for preventing joint involvement when a juxta-articular focus threatens to invade a joint, or for a painful joint with an unacceptable deformity after resolution of the disease. In many occasions the disease is noted in two adjacent bones [kissing lesions] with the intervening joint spared. [8]

Case Reports

Case one.

A 34 year-old male from Patiala, Punjab presented to the Orthopaedics OPD at the Rajindra Hospital Patiala with swelling of the left ankle since 3 years and a discharging sinus at the tip of the old healed scar on the left ankle for 6 months. 3 years back, the patient developed swelling at right ankle accompanied by pain. The swelling used to decrease on rest and increase on walking, and there was no relief to pain by analgesia. The swelling was progressive. The patient underwent MRI at some private hospital, which showed synovial thickening with moderate joint effusion and marrow oedema in both malleoli and subarticular tibia. After 6 months biopsy was taken from both malleoli which was negative for TB or Malignancy. After 3 more months the patient visited another private hospital, where blood investigations and Chest X-ray was done which was found to be normal, and CEMRI was done, which showed multiple loculated collections all around the ankle joint, tibiofibular joint space, anterior and posterior tibiotalar recesses and there was intra osseous collection in the lateral and medial malleoli, with joint effusion and thickened synovium. There was extensive marrow oedema along the lower head of tibia and fibula and whole of the talus with tenosynovitis of the surrounding muscles, and tear of tibiotalar and anterior talo-fibular ligament. The patient underwent debridement and wound closure and the patient was put on antibiotics for 2 months. Sutures gave away and the discharge was present at the wound site. After 1 week of stoppage of antibiotics, tissue from the wound site was sent for culture, and cytology and malignancy was ruled out. After 4 months, the patient went to PGI Chandigarh and Ultrasound of Left Ankle was done which showed ankle-joint effusion with extensive synovitis, and patient was further advised ultrasound guided aspiration for culture, but the patient did not undergo the same and presented to Rajindra Hospital Patiala after 3 months. The patient was an old case of Pulmonary Tuberculosis, completely treated with anti-tubercular therapy 6 years back. The patient's maternal grandfather was also a known case of Pulmonary TB. The patient had no history of diabetes, hypertension or other chronic illness. The patient was a non-alcoholic and a non-smoker.

On examination, the patient was well nourished, and afebrile with stable vitals. On local examination of the left ankle the skin was erythematous and there was a healed scar 4 cm long with a discharging sinus at the lower tip of the scar, over the lateral malleolus. The joint was tender, and the range of motion was fully preserved. Lab findings showed a normal CBC, ESR, and CRP. AP and lateral Ankle X-rays showed lytic lesions in both malleoli(Figure 1).

The patient was taken up for wound debridement, and the tissue specimen was sent to Chest & TB Hospital, Patiala, for CB-NAAT. The CB-NAAT report was positive for TB, and was subsequently treated with ATT for 11 months. The patient is on isoniazid for the past two months. The patient's wound has healed and the follow-up has been unremarkable.

Case two

31 year female presented to us with complaint of pain at right ankle since 5 months. Pain was insidious in onset and progressive.It was dull initially and its severity increased in a period of month making patient feel difficult to walk. Patient took oral medication but did not got any relief.

Pain was followed by swelling which progressed over a period of time of one month. Swelling developed after one week of pain.Patient took conservative treatment in form of antibiotics and analgesics but got no relief.

Patient went through radiological examination which showed lytic lesion at distal end of right fibula(Figure2)

Incision and drainage was done at swelling site.Samples were sent for histopathological examination and CBNAAT .Which were inconclusive.

Figure 1.

Figure 2

MRI was done which showed bone defect with erosions along with posterior aspect of distal end of fibula with diffuse marrow odema with infective collection and moderate ankle joint effusion with synovial thickening.

After 4 months of conservative treatment and rest.Patient was sampled for the first time in our department from his right ankle.Tissue sample were sent for histopathological examination and CBNAAT.

CBNAAT result came to be positive. Patient was put on ATT.Patient improved after ATT.

Discussion

Skeletal TB often develops insidiously without early classic alarming signs or typical constitutional symptoms. Given the previous history of antibiotic treatment for long durations and the lack of response in these patients, our index of suspicion for tubercular pathology was high. Detailed history was taken and a thorough clinical examination was done, and past treatment records were obtained. The patient were taken for debridement and once specimen CB-NAAT was positive, ATT was promptly started.

TB involving the foot and ankle has been reported in 8%–10% of patients with skeletal TB (approximately 0.1%–0.3% of all patients with EPTB) [5] Of 74 cases reviewed by Dhillon et al, the calcaneus was involved most commonly, followed by infection of the midtarsal, Lisfranc joints, and ankle. [9]

A history of trauma, presentation with sinus discharge, duration of symptoms of more than 3 months, a leukocyte count of <10,000/μL, and C-reactive protein of <5 mg/dL and the evidence of TB on chest radiographs were identified as independent predictors for ankle TB, by Chen et al. [10] The tubercle bacilli are obligate aerobes in the lungs but become facultative anaerobes in situations when there is reduced oxygen tension. Thus, bacilli are rather less active in the osteoarticular lesions than the pulmonary ones (paucibacillary) [5] In the appendicular skeleton, the bacteria reach the joint space directly through the sub-synovial vessels or indirectly by eroding the epiphyseal bone. In the appendicular skeleton, the hip and the knee are the most common sites affected. [6] Rare sites of OA TB include ankle, calcaneum, talocalcaneal joint, ischium, proximal tibia, distal tibia, distal humerus, elbow, thumb, humeral head, C_1 and C_2 vertebrae. [7]

Tuberculosis of the foot maybe classified as synovial (rare), osseous (frequent), or articular (indicative of late stage). [8] It should be noted that tuberculous arthritis should be considered in the differential diagnosis of arthritis in a ‘cold’ joint. The disease may spread across the whole hindfoot. Isolated bony involvement is uncommon, and the presentation in children and adults may be quite different.

All diagnostic modalities like CT and MRI should supplement routine X-rays when there is clinical suspicion and elevated ESR, in patients with unusual foot pain. By the time foot radiographs demonstrate destructive bony changes, the TB disease process is already advanced and established, and capable of contiguous and/or haematological spread to distant sites. [11] For definitive diagnosis of TB, the bacteria should ideally be either demonstrated with special staining techniques or isolated in cultures from the biopsy specimens. The paucibacillary character of the disease means that the bacteria may not always be present in a biopsy sample and hence may not be isolated in cultures or identified on Gram staining, producing false negative results. A postive histologic examination usually reveals a characteristic granuloma, caseous necrosis, epithelioid tubercles, lymphocytes and Langhan’s giant cells. A newer test relies on polymerase chain reaction (PMR) assay of nucleic acid amplification (NAA) from sputum smears, known as CB-NAAT, which was the confirmatory test in our case.

Anti-tubercular therapy successfully cures most of the cases in early stage, with near complete resolution of disease. The role of surgery in ankle and foot TB is limited to biopsy and

debridement, with appropriate anti TB medication that heals most cases if initiated early.

Conclusion

Ankle TB is a rare entity with high morbidity, yet it must be considered in the differential diagnosis of a swelling of the foot and ankle. The diagnosis is often overlooked because of insidious onset and aspecific clinical symptoms, and requires a high index of suspicion, the importance of which cannot be overemphasized. As the disease is progressive and promotes degenerative changes of the articular cartilage, early identification is critical for successful treatment and to avoid permanent functional disability.

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