

Case Report

Tuberculous Synovitis of Knee Joint

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Abstract

Tuberculosis of the appendicular skeleton is an uncommon infection by tubercle bacilli. Thirty percent of the skeletal tuberculosis involves joints, the knee being the third most common joint affected. We report a case of tuberculous synovitis of the knee joint in a 69 years old male. The diagnosis was done by Ziehl – Neelsen stain and culture on Lowenstein – Jensen medium of the synovial fluid along with X-ray finding of the knee joint. Though the sputum sample was negative for AFB, X-ray of the chest showed finding suggestive of old pulmonary tuberculosis. The patient was treated with the anti tubercular regimen and responded well .

Keywords

tuberculosis, knee synovitis

Introduction

Tuberculosis remains a major public health problem worldwide. HIV infection, malignancy, other immuno suppressive conditions and aging lead to an increase of patients with tuberculosis¹⁻². In the past decade there has been a significant increase in extrapulmonary and

osteoarticular manifestation worldwide¹⁻³. Tuberculosis of an appendicular skeleton is an uncommon infection and constitutes 1- 3% of all forms of tuberculosis and 7 – 15% of extrapulmonary cases⁴. Joint involvement may be secondary to direct invasion from an adjacent focus of tubercular osteomyelitis or may result from hematogenous dissemination⁴. The disease involvement is typically monoarticular (90%) and primarily involves the large weight bearing joints such as hip and knee⁵. Bacteriological diagnosis is essential to establish early detection and helps to differentiate tuberculous synovitis from other nonspecific chronic synovitis⁶. Tuberculous synovitis is a repeatedly missed diagnosis particularly when there is no involvement of lungs, which may happen in 50% of cases⁵. Here, we report a case of tuberculous synovitis of knee joint in a 69 years old patient with signs of old Pulmonary tuberculosis.

Case Report

A 69 years old male patient presented with gradual swelling of the left knee joint with restriction of movement and pain in the joint since ten days. There was a previous history of trauma to the joint for which he had undergone drainage and debridement. He was apparently alright for one year. Then he developed a low grade pain in the joint

associated with low grade intermittent fever. The pain was aggravated for the last ten days with swelling and restriction of movement for which he was admitted to male orthopaedic ward, S.C.B. Medical College, Cuttack.

Physical examination revealed, a swollen and erythematous knee joint with reduced flexion movement. There was no sinus tract. Palpable synovial thickening and tenderness was present in the joint line. Other joints were normal. Laboratory examination revealed, haemoglobin – 10 gm%, total leukocyte count 4,500/cmm., Neutrophil – 60%, Lymphocyte – 36% and ESR – 30mm in the first hour. The liver and renal functions were within normal limits. The patient was non-diabetic, non-hypertensive, with no long term administration of steroids. Radiograph of the left knee showed a large joint effusion with soft tissue swelling and changes of degenerating osteomyelitis. The chest radiograph revealed opacities in both apical regions without cavity changes. Patient's sputum sample was negative for AFB. The synovial fluid was aspirated and sent for microbiological examination. Ziehl – Neelsen staining of the synovial fluid showed pus cells and typically beaded Acid Fast Bacilli (AFB) (**Fig. 1**). The synovial fluid was cultured on Lowenstein Jensen's medium, which showed rough and buff coloured colony of mycobacterium tuberculosis (**Fig. 2**) after three weeks of incubation. Smear from the colony showed AFB. The isolate was identified as mycobacterium tuberculosis by standard biochemical tests.

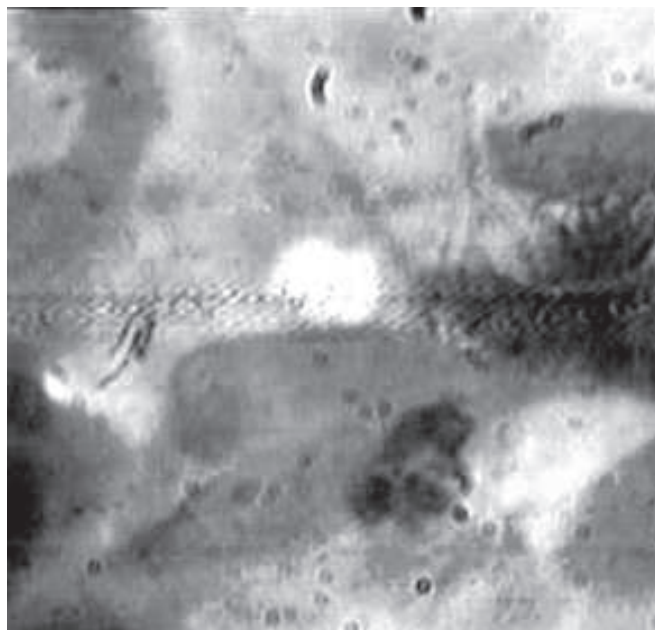


Fig. 1



Fig. 2

Following the AFB smear report first line oral anti tubercular drugs were started (INH – 600mg, R – 450mg, Z – 150mg, Ethambutol – 120mg) for two months to which the patients responded with gradual subsidence of swelling. Joint pain was also relieved, but there was still some restriction of movement. The patient was discharged after two weeks and was advised for follow up in the OPD after two months.

The patient showed marked improvement of the symptoms with almost complete recovery of the joint movement when the follow up was taken after two months and was advised for continuation of Rifampicin and INH for period of four months.

Discussion

The incidence of skeletal tuberculosis is increasing due to emergence of multidrug resistant strains of mycobacteria, increase in the number of immunocompromised patients and the AIDS pandemic. Incidence of extrapulmonary tuberculosis constitutes about 20% of the tuberculosis cases and incidence of osteoarticular tuberculosis continues to be approximately 10% of extra pulmonary tuberculosis⁷. Spondylitis, Osteomyelitis and Synovitis are the usual manifestations of skeletal tuberculosis and most common site of involvement is the spine (50 – 60%)⁵⁻⁷. Peripheral arthritis occur in 30% of osteoarticular cases⁴. No pulmonary radiographic changes can be identified in 50% of cases⁷. *M. bovis* is the causative agent of osteoarticular tuberculosis in 80% of cases in western countries but almost all cases in India are due to mycobacterium tuberculosis⁸.

In the present case we could demonstrate AFB on primary smear of the synovial fluid, which is observed in approximately 16% of cases only⁴. Culture positivity varies from 30.4% - 87% of cases⁸. In the present case, human tubercle bacillus was isolated on LJ Medium which is a significant finding. As the AFB were initially detected in the primary smear of synovial fluid no histopathological examination was done, but the diagnosis was confirmed by culture on LJ Medium.

Tuberculous arthritis is usually monoarticular, sparing no joint. Lower extremity tends to be involved more commonly. It may present as chronic pain, swelling, local tenderness, warmth and progressive loss of function. Cold abscess, sinuses and constitutional symptoms are also seen in many cases¹⁻⁷. In the present case, though cold abscess and sinuses were absent but a history of low grade fever was present. Musculoskeletal involvement is through haematogenous spread from a primary focus, frequently in the lungs rarely in the kidney or in the lymphodes⁶. In our case, though the sputum was negative for AFB, the radiographic changes in the lungs was indicative of tuberculous focus suggesting the primary site.

As the possibility of tuberculous synovitis is often overlooked during clinical examination, it is necessary to increase clinical awareness to ensure early diagnosis and treatment. Microbiological investigations help in correct diagnosis. Culture and identification of mycobacteria is required to start anti-tubercular treatment (ATT). Mycobacteria resistant to first line ATT may require second line ATT and for longer duration.

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