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# CASE OF DISSEMINATED TB – PULMONARY TUBERCULOSIS WITH ANKLE JOINT INVOLVEMENT

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**Abstract**
Tuberculosis (TB) continues to pose a global health burden, with extrapulmonary forms accounting for a significant minority of cases. Skeletal involvement is relatively uncommon, representing only 2-4% of extrapulmonary TB, and disease of the ankle joint is particularly rare, occurring in about 1-4% of skeletal cases. We present the case of a 63 year old man with progressive pain and swelling of the right ankle for six months, with a remote history of similar joint involvement. Clinical assessment showed joint tenderness and restricted mobility. Chest radiography revealed pulmonary lesions, and sputum CBNAAT confirmed Mycobacterium tuberculosis sensitive to rifampicin. Fine-needle aspiration cytology of the ankle joint demonstrated granulomatous inflammation with histiocytes and Langerhans giant cells, supporting the diagnosis of tubercular arthritis. The patient was treated with standard antitubercular therapy and showed complete recovery. This case emphasizes the need to consider tuberculosis in patients with chronic monoarthritis, particularly in TB-endemic regions, and highlights the role of combined clinical, radiological, and pathological assessment in achieving timely diagnosis and preventing disability.

**Keywords:** Tuberculosis, Ankle joint, Skeletal TB, Extrapulmonary TB, Disseminated TB

## INTRODUCTION

Tuberculosis (TB) continues to be a major global health concern, affecting millions each year despite advancements in diagnostic tools and therapeutic strategies. Pulmonary TB remains the predominant form; however, extrapulmonary tuberculosis (EPTB) contributes to approximately 10–15% of all cases, often creating unique diagnostic and management difficulties (1). Among EPTB, skeletal involvement is uncommon, occurring in only 2-4% of cases, with the vertebral column being the most frequent site of disease (2). Involvement of the ankle and foot is particularly rare, representing just 1-4% of skeletal TB, and is frequently misdiagnosed due to its subtle onset and similarity to other musculoskeletal or inflammatory disorders (3,4).

The rarity of this condition, combined with its insidious course, contributes to frequent misdiagnosis. Patients typically present with pain, swelling, and restricted joint mobility, symptoms that can easily mimic more common disorders such as osteoarthritis, rheumatoid arthritis, or traumatic arthritis. As a result, diagnosis is often delayed until the disease has progressed significantly, increasing the risk of joint destruction and long-term disability. This report describes a rare case of disseminated tuberculosis with concurrent pulmonary and ankle joint involvement. The case underscores the need for thorough clinical evaluation and heightened awareness, particularly in TB-endemic regions, to ensure timely diagnosis and appropriate management (1-4).

**Case Report**

A 63 year old male presented with a six-month history of progressive pain and swelling in the right ankle joint. The symptoms were insidious in onset and gradually limited his daily activities. He denied fever, night sweats, weight loss, or respiratory complaints. Past history revealed a similar episode of right ankle involvement two decades earlier, treated with aspiration of pus and symptomatic measures, leading to temporary recovery. He had no comorbid illnesses, but was a former smoker with a smoking index of 40, having quit two years earlier. The patient was a farmer by occupation.

On examination, the right ankle joint showed swelling, local warmth, tenderness, and restricted range of motion (figure 1). Respiratory evaluation revealed harsh vesicular breath sounds with increased vocal fremitus over the right upper chest. Chest radiography demonstrated left upper-zone infiltration with cavitation and right hilar adenopathy (figure 2).

**Figure 1: Right ankle joint before initiation of ATT**

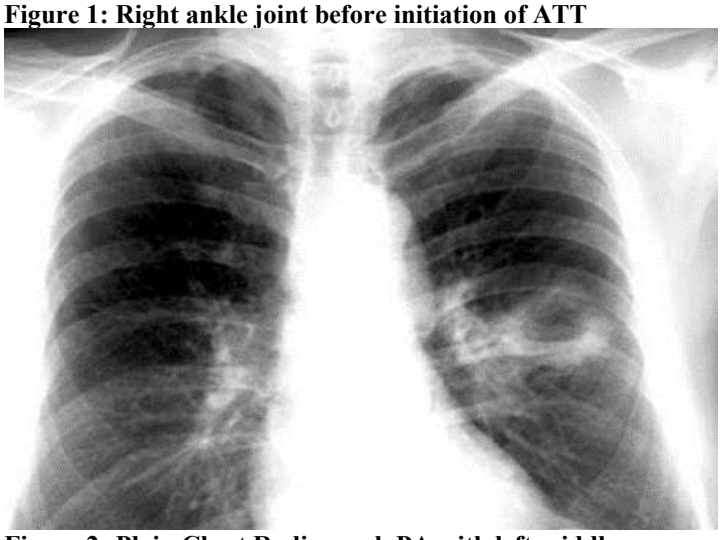

**Figure 2: Plain Chest Radiograph PA with left middle zone cavity and right hilar adenopathy**

Sputum CBNAAT was positive for Mycobacterium tuberculosis with rifampicin sensitivity. Laboratory evaluation showed elevated ESR. Ultrasound-guided aspiration of the ankle joint was performed (Figure 3). Cytology revealed chronic inflammatory changes with histiocytes and Langerhans giant cells, consistent with tubercular arthritis (Figure 4).


**Figure 3: USG guided aspiration of right ankle joint space**

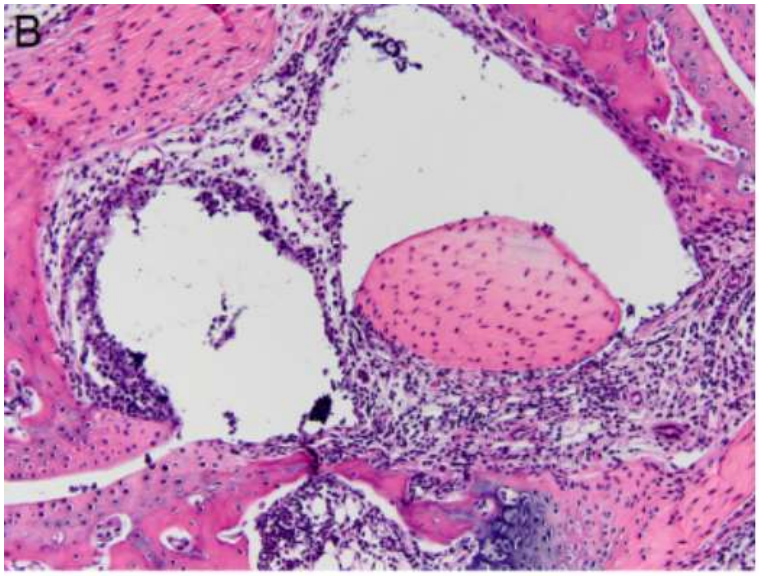


**Figure 4: Histological sections showed chronic inflammatory changes with histiocytes and Langerhans giant cells**

The patient was started on standard antitubercular therapy with HRZE for two months, followed by HRE for seven months according to weight band. He tolerated treatment well, adhered to therapy, and showed complete resolution of symptoms with restoration of ankle function (Figure 5)

**Figure 5: Right ankle joint after two months of ATT**

## DISCUSSION

Tuberculosis of the ankle joint is a rare manifestation of skeletal TB, accounting for only 1–4% of cases (1-4). Because of its unusual site, the condition is often overlooked in patients with chronic ankle arthritis. The disease usually begins insidiously, with progressive pain, swelling, and stiffness of the joint. These symptoms are nonspecific and may resemble other chronic disorders such as rheumatoid arthritis, osteoarthritis, or septic arthritis (2,3). Misdiagnosis or delayed recognition is therefore common. In the present case, the patient experienced ankle involvement two decades earlier that was treated only with aspiration and symptomatic measures, likely representing an undiagnosed tubercular process that later reactivated.

The presence of both pulmonary and ankle joint disease suggests disseminated tuberculosis. Extrapulmonary TB may occur through hematogenous spread from a pulmonary focus or by endogenous reactivation of latent bacilli (1,4). In elderly patients, age-related immune decline further increases the risk of reactivation. In this patient, the reappearance of ankle involvement with concurrent pulmonary disease supports the possibility of systemic dissemination. Radiological evaluation, including MRI, can detect early bone and soft-tissue changes but lacks specificity for tuberculosis (2,3). Hence, microbiological and histopathological confirmation remain essential. Fine-needle aspiration of the ankle joint in this case demonstrated histiocytes and multinucleated giant cells,

consistent with tubercular arthritis, while sputum CBNAAT confirmed pulmonary tuberculosis with drug sensitivity. Correlation of findings from both sites strengthened the diagnosis of disseminated TB.

The cornerstone of management remains prompt initiation of antitubercular therapy. Delay may result in progressive joint destruction, deformity, and long-term disability (1-4). Multidisciplinary evaluation is important, involving orthopedic, radiological, and microbiological expertise to achieve accurate diagnosis and effective care. Clinicians practicing in endemic regions should maintain a high index of suspicion in patients with chronic monoarticular arthritis, particularly when pulmonary findings coexist.

## CONCLUSION

Tuberculosis of the ankle joint is an uncommon and often under-recognized manifestation of skeletal TB. This case illustrates the potential for disseminated disease involving both pulmonary and skeletal systems. In endemic regions, physicians must maintain a high index of suspicion for TB in patients presenting with chronic joint swelling and pain. Prompt diagnostic workup and early initiation of therapy are critical to reducing morbidity and preventing long-term functional impairment.

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