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## Talus osteomyelitis - tubercular or not?

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## **Abstract**

Tuberculosis is a communicable infective disease caused by *Mycobacterium tuberculosis* (MTB). The most commonly involved organ is the lung (Pulmonary tuberculosis), however, MTB can affect any organ other than lungs; in this cases, it is known as Extrapulmonary Tuberculosis (EPTB), which can lead to significant morbidity and mortality. Patients with EPTB can rarely develop ankle or foot arthritis, which usually is either misdiagnosed or diagnosed very late, leading to complications. Early diagnosis and timely treatment are very important to prevent permanent functional disability, thus a high suspicion, even in the absence of specific symptoms, is a must. We report a rare case of osteoarthritis of talus which was tubercular, and in which the patient responded well to treatment.

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## Introduction

Tuberculosis (TB) is a communicable air borne disease, and it was the world's leading cause of death from a single infectious agent before the Covid-19 pandemic. As per The Global TB report 2022,<sup>1</sup> 10.6 million people fell ill with TB worldwide in 2021, and there were 1.4 million TB deaths among HIV-negative people, and an additional 1,87,000 among HIV-positive people. India contributed to 28% of TB cases globally. The most commonly involved organ in TB is lungs. Organs other than lungs are also commonly involved; in this case, it is known as Extra Pulmonary tuberculosis (EPTB).

EPTB is difficult to diagnose due to a wide spectrum of symptoms which mimic other diseases, a large number of cases remain undiagnosed or the diagnosis is delayed. The third most common form of EPTB is skeletal TB (lymph node > pleural > skeletal). Skeletal TB accounts for 1-2% cases of TB, and around 10% cases of EPTB.<sup>2</sup> Appendicular skeletal joints such as hip, knee, ankle, feet, shoulder, elbow, wrist and hand can also be affected by TB. Out of skeletal TB, only 1-4% cases are of ankle TB<sup>3</sup> thus making its incidence very rare.

We report a rare case of osteomyelitis of talus, which was later found to be tubercular.

## Case Report

A 68-year-old housewife with no comorbidities presented to us with complain of pain and swelling in right ankle since last 1 year, gradually increasing in size and thus causing difficulty in movement. The patient had a history of low-grade fever for the last 3-4 months. She also complained of loss of appetite and 8 kgs weight loss in the last 3 months. She had taken multiple

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antibiotics from a local practitioner, and was taking a massage therapy from some nearby practitioner.

On examination, the ankle was swollen and tender, but there were no signs of inflammation or redness. Routine investigations revealed ESR of 45mm/1<sup>st</sup> hour and C-Reactive Protein to be 11 mg/dL. All other routine investigations were within normal limit.

A foot X-Ray was done that showed lytic lesion over medial malleolus, with pathological fracture with swelling (Figure 1). The Magnetic Resonance Imaging (MRI) of the right ankle showed osteomyelitis of distal tibia, fibula and talus, with adjacent abscess formation (Figure 2). The pus was aspirated under USG guidance and was sent for ZN staining, gene Xpert and culture sensitivity. ZN staining came to be positive for AFB and gene Xpert showed MTB detected; rifampicin resistance was not detected. To assess the dissemination of tuberculosis, chest X-Ray and ultrasound whole abdomen were done which came within normal limits.

The patient was started on antitubercular treatment (fixed dose combination of isoniazid, rifampicin, ethambutol, pyrazinamide) according to weight, which she was tolerating well, and was under regular follow up.

At the last follow up, the patient's swelling had decreased, and she was able to move the joint easily.

## **Discussion**

The incidence of Extrapulmonary TB (EPTB) is low at 3%, and 10% of these EPTB cases are of skeletal TB.<sup>4</sup>

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Skeletal TB can present as arthritis, osteomyelitis or spondylodiscitis. Skeletal TB is a common chronic infection of bones and marrow. Fifty percent of cases of skeletal TB involve the spinal column,<sup>5</sup> followed by the involvement of hip and knee joint. The involvement of foot and ankle has been found to be very rare. Similar to other EPTB, osteoarticular TB is also a paucibacillary disease, and its spread is usually hematogenous. The damage to these structures is mediated via granuloma formation, caseous necrosis, hyperemia induced osteopenia, and eventually leading to pathological fracture.<sup>6</sup>

The presentation of tubercular arthritis is unusual, as there are no signs of inflammation. It usually presents as a cold abscess with no constitutional symptoms pertaining to tuberculosis, such as cough, evening rise of temperature, loss of appetite or weight. The symptoms are more localized, such as swelling, impaired movement, muscle spasms and bone tenderness. However, in some cases of dissemination, the constitutional symptoms might also be present. Later it may lead to complete joint degeneration and ankylosis.<sup>3</sup>

The first step in diagnosis is high suspicion due to atypical presentation. Acute phase reactants such as raised ESR, CRP, and mild lymphocytosis have been reported. On radiological imaging, the first sign seen is peripheral marginal erosion of the joint. MRI of the foot reveals marginal erosion, periarticular osteoporosis, and joint space narrowing (Phemister triad).<sup>7</sup> However, radiology is just suggestive, and it can resemble other causes, such as neuropathic joints, sarcoidosis or rheumatoid arthritis, thus investigations should be done to exclude these causes. Once radiology is suggestive, efforts should be made for microbiological confirmation, to confirm the diagnosis and to ascertain the drug sensitivity.

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## **Conclusions**

TB arthritis of ankle is a rare entity, but should be kept as a differential in cases of cold joint, for early diagnosis and management to prevent further complications and reduce morbidity, as a delay in treatment can lead to a progression of the disease with permanent functional disability. Thus, high suspicion and early treatment are the key.



## References

1. Global tuberculosis report 2022 - World | ReliefWeb. Available from: [https://reliefweb.int/report/world/global-tuberculosis-report-2022?gclid=CjwKCAjwhJukBhBPEiwAniIcNUACZ26ExPQMdFtE1g0yZgxcb6200mqdhzA15Xs4xcWwBeXOOKy9xxoCqdIQA\\_vD\\_BwE](https://reliefweb.int/report/world/global-tuberculosis-report-2022?gclid=CjwKCAjwhJukBhBPEiwAniIcNUACZ26ExPQMdFtE1g0yZgxcb6200mqdhzA15Xs4xcWwBeXOOKy9xxoCqdIQA_vD_BwE)
2. Sharma SK, Mohan A, Kohli M. Extrapulmonary tuberculosis. *Expert Rev Respir Med.* 2021;15:931-48.
3. Rando MM, De Matteis G, Gessi M, et al. Tuberculous Arthritis of the Ankle. *Eur J Case Reports Intern Med.* 2018;5:1.
4. Luk KDK. Tuberculosis of the spine in the new millennium. *Eur Spine J.* 1999;8:338-45.
5. Rajasekaran S, Soundararajan DCR, Shetty AP, Kanna RM. Spinal Tuberculosis: Current Concepts. *Glob Spine J.* 2018;8:96S.
6. Fitzgerald DW, Sterling TR, Haas DW. Mycobacterium tuberculosis. *Mand Douglas, Bennett's Princ Pract Infect Dis.* 2015;2:2787-818.e5.
7. Alabdulkareem O, Weerakkody Y. Phemister triad (tuberculosis). Available from: <https://radiopaedia.org/articles/phemister-triad-tuberculosis>

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**Figure 1.** Foot X-Ray showing lytic lesion over medial malleolus with pathological fracture and swelling.



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**Figure 2.** Magnetic Resonance Imaging (MRI) of ankle showing osteomyelitis with abscess formation.



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