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Diagnostic challenge: Ankle joint tuberculosis misinterpreted as rheumatoid arthritis

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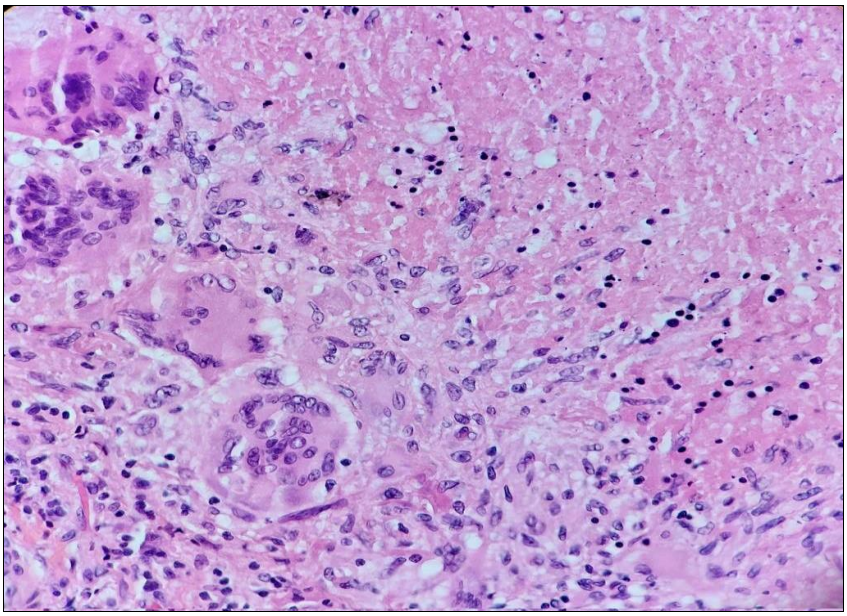
Abstract
Tuberculous arthritis, though typically monoarticular, can be misdiagnosed as rheumatoid arthritis (RA) due to overlapping clinical and radiological features. We present a case of a 67-year-old female who was initially diagnosed with RA based on serological markers and treated with methotrexate, only to later be diagnosed with tuberculous arthritis via biopsy and CBNAAT. This case highlights the critical need for thorough differential diagnosis to avoid the potential consequences of mismanagement.

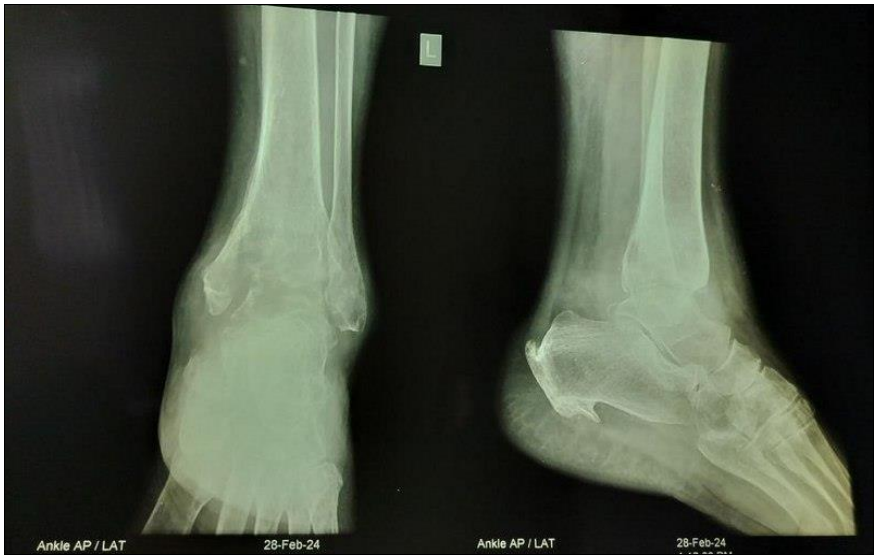
Keywords: Tuberculous arthritis, Rheumatoid arthritis, Diagnostic challenge, Joint tuberculosis.

Introduction
Tuberculosis of the osteoarticular system usually present as osteomyelitis and joint arthritis[1]. Tuberculous arthritis commonly affects large joints such as the hip and knee but can also involve the ankle[2]. The differentiation from rheumatoid arthritis is challenging due to overlapping features like periarticular osteoporosis, joint effusion, and bone erosion. Misdiagnosis can delay proper treatment and expose patients to unnecessary immunosuppressive therapy, which may exacerbate tuberculosis. We present a case of an elderly female initially diagnosed with Rheumatoid Arthritis who was later found to have ankle joint tuberculosis.

Case Report
Clinical Presentation
A 67-year-old female presented with a two-year history of progressive left ankle joint swelling and pain. There was no history of trauma, weight loss, night sweats, fever, morning stiffness, or TB contacts. Examination revealed a 5x4 cm firm swelling extending beyond the joint margins with tenderness and restricted movement but without erythema or warmth. Systemic examination was unremarkable.

Investigations
The patient's investigations reveal hematological findings of a TLC of 4,600 cells/cumm with lymphocytic predominance (48%), along with elevated inflammatory markers, including ESR (64 mm/hr), CRP (10 mg/L), and RA factor (40.9 IU/mL). The ANA profile is negative, and serum uric acid is 6 mg/dL, within the normal range. Radiological findings show mild joint space narrowing, lytic changes, and periosteal reaction on X-ray, while MRI reveals joint effusion, synovial thickening, periosteal reaction, and bony erosions. A Doppler study shows no vascular abnormalities, and the chest X-ray is normal. Special tests indicate a necrotizing granulomatous osteoarthritis on synovial biopsy with AFB-positive organisms, and CBNAAT confirms Mycobacterium tuberculosis (Rifampicin-sensitive).





Management and Outcome

The patient was initially started on methotrexate due to elevated RA factor but showed no improvement. Upon biopsy confirmation of tuberculous arthritis, she was started on anti-tubercular therapy (ATT). Significant clinical improvement was noted within one month.

Discussion

RA and tuberculous arthritis share overlapping clinical and imaging features, leading to potential misdiagnosis[3]. RA typically presents with symmetric polyarthritis, while tuberculosis is often monoarticular, affecting large joints. This case underscores the risk of mistaking tuberculous arthritis for RA based solely on serological markers. The administration of immunosuppressive therapy in undiagnosed TB can lead to disease progression and systemic spread.

Diagnostic confirmation should include joint aspiration, synovial biopsy, and CBNAAT for TB detection. The presence of necrotizing granulomas and AFB-positive organisms confirms tuberculous arthritis, guiding appropriate ATT initiation.

Conclusion

Tuberculous arthritis is an important differential diagnosis for chronic monoarticular arthritis, particularly in endemic regions. A positive RA factor should not be the sole criterion for diagnosing RA, as it may lead to erroneous immunosuppressive treatment in TB patients. Early biopsy and molecular testing are essential for accurate diagnosis, ensuring timely initiation of ATT and preventing complications[4].

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