

A RARE CASE OF TUBERCULAR MONOARTHRITIS WITH ANTI-CCP POSITIVITY

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Abstract

Monoarthritis, as the name implies, is the inflammation of single joint which is either acute or chronic. Anti-cyclic citrullinated peptide (Anti-CCP) is highly sensitive and specific for rheumatoid arthritis (RA). Tuberculosis is one of the major causes of inflammatory monoarthritis, and the presentation of positive anti-CCP and RF makes the diagnosis of TB arthritis more complicated. The present case study highlights the fact that other clinical conditions including tuberculosis (TB) may cause anti-CCP and RF positivity.

Introduction

The anti-CCP enzyme linked immunosorbent assay (ELISA) is a sensitive test in the diagnosis of RA and as sensitive as that for rheumatoid factor (RF).¹ Anti-CCP is able to better predict an aggressive disease course and more severe radiological damage than the RF. As such, it has been included in the new ACR classification criteria for RA.⁷ In a recent study, anti-CCP antibody positivity has been reported in 32% of patients with active pulmonary TB.² In this report, a rare case of tubercular monoarthritis of ankle with high titer of anti-CCP and RF has been presented.

Case Report

A 39-year-old male patient presented to the clinic with complaints of pain and swelling in the right ankle joint for one year. He did not have pain in any other joints. There was no history of fever, low back pain, skin rash, oral ulcer, heel pains, loose stools, loss of appetite, or any family history of TB. His blood investigation indicated normal hemogram, except for the raised ESR of 100 mm/hour and CRP of 58 mg/dL. His RF was 178 IU/mL and anti-CCP was 332 RU/mL. Chest X-ray was normal and Montuax test was negative. Radiography of his ankle joint showed destruction of lower end of tibia and fibula with loss of joint space. Joint CT showed erosion in tibia, fibula with loss of joint space suggestive of TB (Fig. 1A). Biopsy of the joint showed central epithelioid granuloma, histiocytes and lymphocytes, indicating the presence of tubercular monoarthritis (Fig. 1B), . The patient was treated with anti-tubercular treatment for 9 months. His pain and swelling had reduced but with minimal mobility in the ankle joint. His anti-CCP was positive even after the treatment.

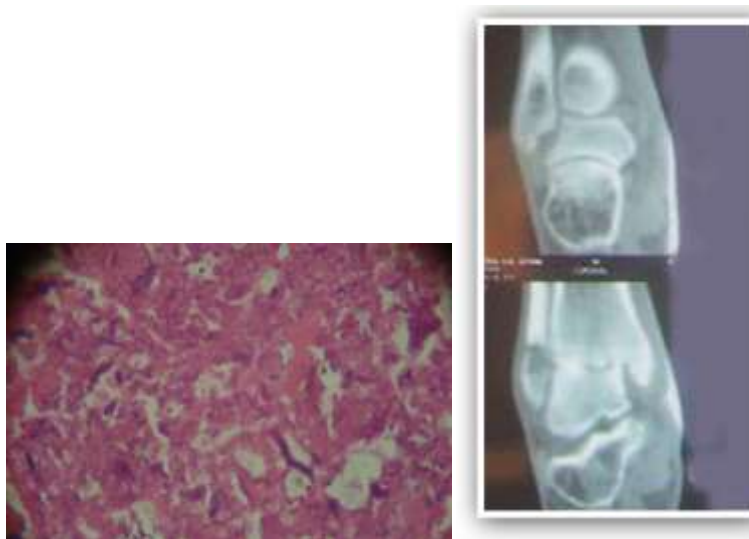


Fig 1: (A) Central epithelioid granuloma, histiocytes and lymphocytes. Lower part shows fragment of dead bones (sequestrum), and (B) CT scan of the right ankle shows erosions in the malleoli with reduced joint space and dislocation

Discussion

The present study discusses a very rare occurrence of tubercular arthritis of the ankle joint with anti-CCP and RF positivity. Skeletal system involvement is rare in TB; vertebrae are the major sites of involvement in the skeletal system, but peripheral joint involvement can also occur.⁴ Most commonly involved peripheral joints are the hip and knee joints. TB of the ankle is a rare condition seen in < 5% of osteoarticular TB patients.³ Pain, limp and swelling are the earliest features of the disease. In long-standing cases, such as the present one, gross destruction of the joint with dislocation is seen. Radiologically, during the active stage, gross osteoporosis with erosions may be seen in the distal end of tibia, malleoli or talus. In some cases which do not respond to anti tubercular drugs, spontaneous bony fusion may occur with treatment, and may require surgical intervention.

The present case highlights the fact that RA-specific anti-CCP and RF positivity can also be seen in osteoarticular TB. Another case with similar presentation has been reported by Karkucak *et al.*⁴ Anti-CCP belongs to the IgG class of antibody against filligrin amino acid 306-324, where arginine is replaced with citrulline at the position 321. The same protein with arginine at the position 321 is unmodified arginine peptide (CAP).⁵ Post-translational modification of arginine to citrulline is called citrullination, carried out by the enzyme peptidyl arginine deiminase. This process occurs naturally during inflammation, apoptosis, and keratinization. Hence, it can be hypothesized that anti-CCP antibody may be present in other inflammatory disorders.⁹

Presence of anti-CCP has been reported in active pulmonary TB, but in such cases anti-CCP was present in low titers and patients' sera also reacted to anti-CAP. It has been observed that very few patients with RA react to CAP.⁵ xHepatitis-C which produces high RF can present as a rheumatic disease, and RA mimickers like psoriatic arthritis, SLE, sarcoidosis are either anti-CCP negative or have it in low titers.⁶ The fact that anti-CCP is positive and present in high titers, especially in osteoarticular tuberculosis, should hint to reconsider the diagnosis of RA, more so, when the presentation is monoarticular or oligoarticular. Tubercular reactive arthritis (Poncet's disease) can also present with arthritis, and if anti-CCP is positive, it can be confused with RA.⁵ In a study conducted by Tabah *et al.*, it was concluded that TB should be considered during the differential diagnosis of monoarthritis, and the synovial biopsy should be performed to conclude the diagnosis.⁸ The present case study also highlights the significance of considering chronic infectious etiologies during the work-up of patients suspected with monoarthritis based on laboratory assessment and inflammatory markers.

References

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