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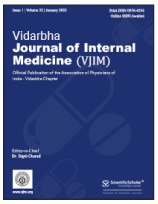

Case Report

Disseminated Tuberculosis with Poncet's Disease Masquerading as Systemic Lupus Erythematosus – A Case Report

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ABSTRACT

Tuberculosis (TB) rheumatism (Poncet's disease) is defined as a polyarthritis associated with extrapulmonary TB in which there is no evidence of bacteriological involvement of the joints. We report a case of 21-year-old female whose initial clinical and laboratory investigations were suggestive of inflammatory arthropathy. The case was complicated by weak anti-nuclear antibody positivity of anti-proliferating cell nuclear antigen (+) antibodies, suggestive of systemic lupus erythematosus. However, after clinical examination and investigations, the patient was diagnosed as a case of disseminated TB with Poncet's disease. The patient was started on anti-tubercular treatment and showed improvement at the end of 1st month of treatment. The case highlights that Poncet's disease should be considered as one of the differentials while dealing with cases of unexplained or prolonged arthralgia.

Keywords: Tuberculosis, Poncet's disease, Systemic lupus erythematosus, Pcna, Anti-Tb treatment

INTRODUCTION

Tuberculosis (TB), a chronic infectious disorder remains the leading cause of adult deaths despite the availability of effective diagnostic, preventive and curative strategies. TB commonly affects the lungs and is referred to as pulmonary TB. However, it can affect any other organ or system, in which case we call it extrapulmonary TB. The sites commonly involved in extrapulmonary TB include lymph nodes, gastrointestinal tract, vertebral body, joints and meninges. Disseminated TB is defined as a TB disease process involving more than 2 non-contiguous sites. Tuberculosis (TB) rheumatism (Poncet's disease) is defined as a polyarthritis associated with extrapulmonary TB in which there is no evidence of bacteriological involvement of the joints.[1] Poncet's disease is mainly considered a 'diagnosis of exclusion' in a patient having polyarthritis associated with active TB. Investigations for autoimmune serology are usually negative. The most frequently affected joints are the ankles (63.3%), knees (58.8%), wrists (29.1%) and elbows (23.1%). Further, it has also been noted that 40% of patients presented with oligoarthritis, 27.6% with polyarthritis and 24.6% with monoarthritis.[2]

CASE REPORT

A 21-year-old female student came with complaints of fever on and off for the past 2 years, which improved with symptomatic treatment. She also had multiple joint pain for 2 years with symmetrical involvement of wrist, knee and ankle joints associated with mild tenderness and swelling. She reported a loss of weight and appetite for the past 1 year and had a dry cough for the past 15 days. She consulted nearby local hospitals regularly for fever and joint pain and was on medications for the same for the past 2 years. Clinical examination revealed pyrexia, pallor and diminished breath sounds in the right mammary, infra-axillary and infra-scapular areas of the chest.

No significant lymphadenopathy was noted. Laboratory investigation revealed total leukocyte count of 6500 cells/cumm, haemoglobin of 10.8 g/dL and platelet count of 2.6 lakhs/cumm. Peripheral smear was negative for lupus erythematosus and showed normocytic to microcytic hypochromic anaemia. Liver function tests and renal function tests were within normal limits. Rheumatoid arthritis (RA) factor and anti-cyclic citrullinated peptide antibodies were negative. Anti-nuclear antibodies (ANAs) were weakly positive with a speckled pattern at 1:100 titre. ANA profile was positive for anti-proliferating cell nuclear antigen (anti-PCNA) antibody (1+). This raised the suspicion of systemic lupus erythematosus (SLE), as anti-PCNA though having a low (2–5%) sensitivity, is highly specific for SLE.[3]

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The patient's erythrocyte sedimentation rate was 55 mm/h. Tests for human immunodeficiency virus, sputum acid-fast bacilli and sputum cartridge based nucleic acid amplification test for TB were negative. The Mantoux test was positive with an induration of 20 mm. The direct and indirect Coombs tests were negative.

Ultrasonography scan of the abdomen and thorax showed mild splenomegaly and right-sided minimal non-tappable effusion.

Chest radiograph revealed blunting of the right costophrenic angle with an elevated right dome of the diaphragm [Figure 1]. Radiographs of the knee [Figure 2] and ankle [Figure 3] were normal without any evidence of erosion.

Contrast enhanced computed tomography (CECT) scan of thorax showed right minimal pleural effusion with fissural extension, diffuse pleural and pericardial thickening and few fibrotic strands in posterior basal and medial basal segments of bilateral lower lobes. These features were suggestive of an infective pulmonary aetiology like TB. 2D echocardiography study was normal.

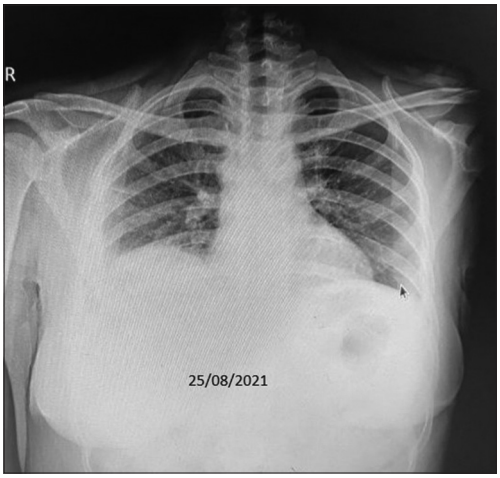

Figure 1: Chest radiograph PA view (August 25, 2021).

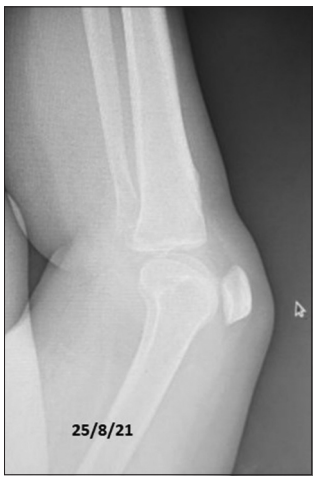

Figure 2: Radiograph of the right knee – lateral view (August 25, 2021).

Synovial tissue cultures and joint aspirates from symptomatic joints were considered to rule out osteoarticular TB. However, the patient refused consent for any invasive procedure.

The patient was diagnosed with a case of disseminated TB (Pulmonary, pleural and pericardial involvement) with Poncet's disease. The patient was started on anti TB treatment comprising of initial 2 months of intensive phase with isoniazid (INH), rifampicin, ethambutol and pyrazinamide followed by a continuation phase of 4 months with INH, rifampicin and ethambutol. Non-steroidal anti-inflammatory drugs (NSAIDs) were briefly used for symptomatic relief of joint pain. The patient showed a good therapeutic response at 1 month of anti-TB treatment initiation. The patient was advised to continue the complete course of anti-TB treatment.

DISCUSSION

TB reactive arthritis was first described by Poncet in 1897 and named after him as Poncet's disease.[4] Poncet's disease is considered 'reactive arthritis' due to the hypersensitivity reaction against the tubercular protein. It is due to molecular mimicry between the mycobacterial antigen and the host cartilage tissue resulting in immunological cross-reactivity. The cross-reactivity occurs between mycobacterial heat shock protein (HSP) and the human HSP. Apart from that T-cell-mediated immunological response, genetic predisposition has been suggested in the pathogenesis, with links to the human leucocyte antigen (HLA) DR3 and HLA DR4

Table 1: Diagnostic criteria for Poncet's disease (sharma and pintu).

Diagnostic criteria	
Essential criteria	Inflammatory , non-erosive non-deforming arthritis, Exclusion of other causes of inflammatory arthritis
Major criteria	Concurrent diagnosis of extra-articular tuberculosis , Complete response to anti-tubercular therapy
Minor criteria	1.Mantaux positivity 2.Associated hypersensitivity phenomena such as erythema nodosum, tuberculids and phlyctenular keratoconjuctivitis 3.Absence of sacroiliac and axial involvement
For diagnosis	
Definite	Essential + 2major
probable	Essential + 1 major + 3 minor
possible	Essential + 1 major + 2 minor or essential + 3 minor

Table 2: Various points favouring or against the diagnosis of Poncet's disease in our patient.

Favours Poncet's disease	Against Poncet's disease
Young female	Negative sputum AFB smear and CBNAAT tests rule out microbiological confirmation of pulmonary TB
History of fever, multiple joint pains	No other extrapulmonary manifestations of TB like TB lymphadenitis
Mantoux 20 mm positive ESR: 55 mm/h	
Knee, ankle and wrist radiographs: Normal	
CECT scan of the thorax showed findings of a possible tubercular etiology	
Absence of serological evidence for other inflammatory arthropathies	

CECT: Contrast-enhanced computed tomography, ESR: Erythrocyte sedimentation rate, TB: Tuberculosis, CBNAAT: catridge based nucleic acid amplification test, AFB: Acid-Fast Bacilli

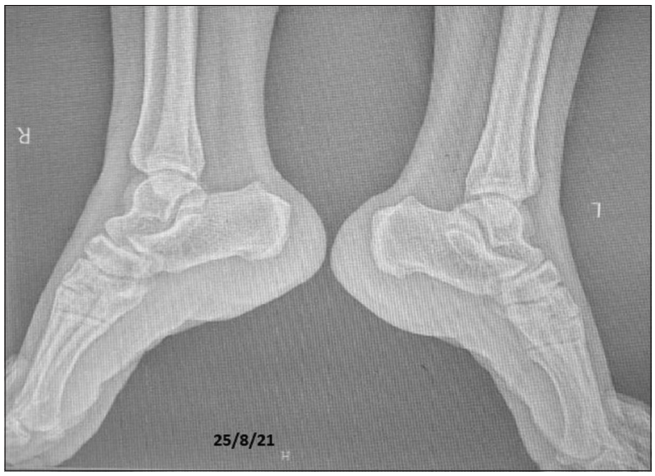

Figure 3: Radiograph of both ankles – AP view (August 25, 2021).

haplotypes.[5] Poncet's disease is mainly seen in juveniles or young adults with a female preponderance. Patients present with fever, weight loss and other constitutional symptoms associated with symmetrical peripheral inflammatory polyarthritis. Unlike rheumatoid arthritis (RA), the onset of symptoms in Poncet's disease before the start of arthritis is much longer than only a few weeks, whereas arthritis resolution on starting anti-tubercular therapy is generally within a few weeks.[6]

Poncet's disease is a rare manifestation of TB. It is a diagnosis of exclusion from other causes of inflammatory arthropathies. According to the diagnostic criteria put forward by Sharma and Pintu for Poncet's Disease, our patient has definite Poncet's Disease (essential criteria + 2 major criteria) [Table 1].

Our patient had symptoms such as multiple joint pain and fever for the past 2 years. Radiographs of painful joints showed non-erosive arthritis ruling out inflammatory arthropathies. Mantoux test positivity indicated TB infection in our patient. Contrast enhanced computed tomography (CECT) scan thorax findings were also consistent with tuberculous aetiology, even though similar findings may be seen in systemic lupus erythematosus (SLE) also. [Table 2] summarises the various points favouring or against the diagnosis of Poncet's diseases in our patient.

The 2019 European league against rheumatism (EULAR)/ American college of rheumatology (ACR) classification criteria for SLE include positive antinuclear antibodies (ANA) at least once as an obligatory entry criterion; followed by additive weighted criteria grouped into seven clinical (constitutional, hematologic, neuropsychiatric, mucocutaneous, serosal, musculoskeletal and renal), three immunological (antiphospholipid antibodies, complement proteins and SLE-specific antibodies) domains and weighed from 2 to 10. Patients accumulating ≥10 points are classified as SLE.[7] In our patient, the score was nil hence SLE was ruled out.

Tuberculous infections are well known to induce autoantibodies. TB patients should therefore ideally be screened for the presence of various autoantibodies, particularly for a detailed study on ANA specificities.[8] In our case, also anti-PCNA positivity could have been due to mycobacterial auto-inducibility.

CONCLUSION

Poncet's disease is a rare and challenging manifestation of TB, which if not considered at times, can be missed by the treating physician. In countries like India where TB is ubiquitous, in any case of fever and polyarthritis of unknown cause, Poncet's disease should be considered in the differential diagnosis. It is a disease in which a dramatic improvement in the symptoms of the patient may be seen early in the course of anti-TB treatment. The treatment consists of a complete course of anti-tuberculosis therapy (ATT) for 6 months and non-weight-bearing exercises. Although it is a diagnosis of exclusion, early diagnosis can avoid unwanted and prolonged use of disease-modifying anti-rheumatic drugs and NSAIDs. Early institution of treatment is very crucial to prevent long-term morbidities associated with it.

Declaration of patient consent

Patient's consent not required as patients identity is not disclosed or compromised.

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Conflicts of interest

There are no conflicts of interest.

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