

# Poncet disease, tb reactive arthritis, a case report in upper egypt and review of the literature

## Abstract

Reactive arthritis in tuberculosis (TB) is known as Poncet's disease (PD), a rare aseptic form of arthritis characterized by polyarticular impairment observed in patients with active TB, with no evidence of direct bacillary invasion of the joints. The literature related to that syndrome is scarce and restricted to case reports, which contributes to its under diagnosis. This study aimed at reporting a case of Poncet's arthritis diagnosed at our hospital, and at reviewing the diagnostic and therapeutic aspects involved, so, we describe a case of Poncet's disease in a 13-year old girl whose reactive arthritis overshadowed other clinical symptoms of TB resulting in delayed diagnosis and treatment. Anti TB treatment was initiated. Clinical remission occurred after two weeks and the diagnosis of Poncet's arthritis was established concluding that taking a thorough medical history as well as performing relevant examinations and investigations for possible TB especially in endemic areas will help expedite the diagnostic process even in absence of TB symptoms.

**Keywords:** Reactive arthritis, Tuberculosis, Poncet's disease, Tuberculosis

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## Introduction

The incidence of tuberculosis (TB) has increased exponentially, according to the World Health Organization, in 2007, the incidence of new tuberculosis cases was 9.27million<sup>1</sup> thus TB remains a major source of morbidity and mortality worldwide.<sup>2</sup>

Approximately 10-19 % of extra pulmonary TB involves joints and bones.<sup>3</sup> Almost half of these cases are spinal TB, followed by TB arthritis, TB osteomyelitis and reactive arthritis the latter reactive arthritis is known as Poncet's disease (PD).<sup>4</sup>

PD is a rare syndrome first introduced in 1897 by the Frenchman Antonin Poncet when he described a polyarthritis in an acute stage of TB, which resolved without joint damage. Continuous reports<sup>5</sup> on patients with similar characteristics led authors to improve the definition and, in 1978, Bloxham and Addy defined PD as a parainfective arthritis,<sup>1</sup> but its existence has been questioned; however, more cases have been reported over the years.

PD is characterized by articular impairment in patients diagnosed with tuberculosis, not related to direct invasion by the micro-organism, but to an immune reaction to the tuberculo-protein, constituting a reactive arthritis. This case is reported because of its rarity and in a tuberculosis endemic area of a country like Upper Egypt; one should keep this possibility in mind in patients with polyarthritis, as early recognition of this complication is of major importance to avoid delayed initiation of appropriate treatment.<sup>6,7</sup>

## Case report

A case of PD was identified together with the Rheumatology, Chest and Neurology departments at the Aswan University Hospital, Egypt. A 13 year female, Ms. Arwa presented to Aswan University Hospital Rheumatology & Physical medicine Department, Referred by Chest Physician complaining of pain and swelling of joints of lower limbs for the last 15 days without relevant medical history except for admission with a 10-day history of chills, fever, and widespread myalgia 3 months before presenting, she denied any respiratory symptoms.

On elaborating; pain and swelling involved both knees & left ankle, (started with pain, followed by swelling 2 days later), the

involvement of joints was simultaneous, there was difficulty in using the above joints, and other joints were not involved.

Physical examination revealed tachycardia, low grade fever of (Pulse 92/m, B.P.120/80, Temp. 38°C) and she had a BCG scar < 4mm, her height and weight were appropriate for her age. Initial laboratory testing showed increased C-reactive protein (40 mg/dL), increased erythrocyte sedimentation rate (80 mm/h), and leucocytes of 13.5/mm<sup>3</sup> and anti-streptolysin O (619 IU/mL) levels, complement 4, antinuclear antibody, anti-double-stranded DNA, cytoplasmic anti-neutrophil cytoplasmic antibodies, and perinuclear anti-neutrophil cytoplasmic antibodies were negative.

The patient was hospitalized, and additional laboratory testing was performed, which resulted negative for mononucleosis, toxoplasmosis, cytomegalovirus, salmonellosis, brucellosis and HIV, acute rheumatic fever was excluded because of non-completion of modified Jones criteria.

Patient was started on Brufen Tablets 400mg BID & a week later, the patient was still complaining of pain and swelling of left knee and ankle with painful symmetrical skin rash on medial side of both knees, that mother applied a topical cream without physician advice that was seen by dermatologist and diagnosed as Erythema Nodosum. A synovial fluid analysis was made of the Left knee revealing no crystals. Standard cultures and cultures for TB of synovial fluid, blood, and sputum were negative. X-rays of the knee, ankles showed no abnormalities apart of soft tissues swelling. Autoimmune laboratory tests including anti-cyclic citrullinated peptide and antinuclear antibodies were negative. Routinely ordered chest X-ray showed bilateral hilar lymphadenomegaly. A chest CT scan was performed showing multiple mediastinal and hilar lymph nodes with no focal lesion on lung parenchyma, these findings on CT were interpreted as a possible TB infection. The tuberculin skin test was measured as 30 mm. A PCR for TB was carried out that was found to be positive and a diagnosis of pulmonary TB and PD was made and isoniazid, rifampicin, pyrazinamide, and ethambutol were started, patient became afebrile and her joint pains improved within the following 15 days with complete resolution of all symptoms after 6 weeks of treatment including joint pain and swelling.

## Discussion & Review of the article

Tuberculosis is a very prevalent disease in developing countries including Egypt. Approximately 10% to 19% of the extrapulmonary tuberculosis cases affect bones and joints, corresponding to 1% to 3% of all cases of tuberculosis.<sup>3</sup> That possibility becomes increasingly important as the careless use of corticosteroids, immune suppressants or biologicals as treatment of miss-diagnosed arthritis can trigger the reactivation or dissemination of the disease.<sup>1</sup>

It is widely known that tubercular septic monoarthritis, in which Mycobacterium tuberculosis may be isolated from the joint, may complicate TB infection; but active TB may be complicated by a sterile reactive arthritis that is less known and therefore often missed.<sup>8</sup> Poncet's disease is used to indicate an aseptic polyarthritis, presumably a reactive arthritis, developing in the presence of active TB elsewhere. Although Poncet's disease is considered a reactive arthritis, the clinical presentation of Poncet's disease differs from the classical pattern of reactive arthritis.<sup>9</sup> In contrast to reactive arthritis, the onset of symptoms in Poncet's disease before the start of arthritis is much longer than just a few weeks, whereas resolution of arthritis upon starting of adequate anti-tuberculous therapy is mostly within a few weeks & chronic arthritis has never been reported in Poncet's disease.<sup>8</sup> In Poncet's disease, the oligo or polyarticular impairment is more frequent than the monoarticular impairment, similarly to other reactive arthritis, involving mainly the large joints, such as knees, ankles, and hips, often accompanied by articular effusion. There is no microbiological evidence of the mycobacterium invasion in the affected joint.<sup>10</sup> In our patient, the serological tests for autoimmunity are negative, and the tuberculin test, as well as acute phase proteins, is altered.

The differential diagnosis of the case was either.<sup>11</sup>

### Viral arthritis

Rubella involves mainly small joints

Parvo virus B19 causing adult's arthralgia

Hepatitis B where symptoms resolve with jaundice & there are abnormal LFTs

### Arthropod borne

Fever with itchy rash

Symmetric arthritis

Small joints of hands & feet most commonly involved

Large joints may be involved

Resolves in 7--- 10 days

### Bacterial arthritis

#### Gonococcal arthritis:

Colonization of throat, cervix, urethra

Gonococcal bacteremia

Fever, chills, papules, pustules

Migratory arthritis

#### Non-gonococcal Arthritis:

S.aureus, S.pyogenes, H.influenzae

Monoarthritis usually

Polyarticular in Rheumatoid Arthritis patients

#### Reactive polyarthritis:

Occurs 1—4 weeks after non-gonococcal urethritis/enteric infections & caused by yersinia, shigella, campylobacter or salmonella

asymmetric oligo arthritis associated with uveitis, nonconjunctivitis, rashes

#### Gout

Occurs in elderly men/post menopausal women

Premenopausal gout rare

Initially mono articular polyarticular

Metatarsophalangeal of 1<sup>st</sup> toe involved

Attacks subside in 3-10 days

#### Acute rheumatic fever: Criteria not fulfilled

Arthritis associated with Bacterial endocarditis: Criteria not fulfilled

#### Chronic Arthritis initial presentation

SLE & RA: Criteria not fulfilled

## Conclusion

The differential diagnosis of patients at risk for TB presenting with arthritis should definitely include Poncet's disease. The diagnosis of Poncet's disease remains clinical, and is established on excluding other potential causes of arthritis in a patient with active tuberculosis. The complete resolution of arthritis of Poncet's disease on anti-tubercular therapy also provides further proof of the diagnosis.

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## Conflicts of interest

None.

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