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CASE REPORT

Poncet arthritis, a rare manifestation of tuberculosis: Case report in an adolescent

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Abstract

Tuberculosis (TB) has been affecting humanity for years and remains a public health issue. In some cases, it poses a diagnostic challenge. The main etiological agent is Mycobacterium tuberculosis (Mtb), which can cause latent infection (LTBI), pulmonary disease, extrapulmonary disease, and clinical manifestations related to hypersensitivity, such as Poncets arthritis (PA). This report describes the case of a 14-year-old adolescent with arthritis in the hip, knee, ankle, and metatarsophalangeal joint (MTFJ) of the hallux, accompanied by fever, night sweats, weight loss, TB contact, and a positive tuberculin test (PT), with a final diagnosis of PA. PA was diagnosed based on Sharma and Pintos criteria. The importance of considering clinical history and TB as a differential diagnosis in articular manifestations in endemic regions is highlighted.

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INTRODUCTION

In 2022, approximately 10.6 million people worldwide contracted TB, continuing an upward trend since 2020. Individuals aged 0 to 14 years accounted for 8% of new cases. [1]. In Brazil, 81,604 new cases were reported in 2023, with the 0 to 15 age group showing an increasing incidence trend[2]. After infection, the individual may shed the bacillus, progress to the latent form, develop pulmonary or extrapulmonary TB, and present hypersensitivity reactions such as Poncet arthritis, erythema nodosum, tuberculides, and phlyctenular keratoconjunctivitis[3-5]. We describe the case of an adolescent with a history of fever and oligoarthritis, whose final diagnosis was AP.

CASE REPORT

A 14-year-old male adolescent developed pain and morning stiffness in his right hip and knee two months before admission, which improved with nonsteroidal anti-inflammatory drugs (NSAIDs). Approximately 40 days later, he developed edema, worsening pain, functional impairment, and involvement of the ankle joints and right hallux AMTF, which improved slightly with NSAIDs. He also developed low back pain that worsened with movement and improved with rest, as well as afternoon fever (average temperature of 38.5°C) and sweating. At this point, hospitalization was recommended. He reported unquantified weight loss and recent contact with a jiu-jitsu teammate undergoing treatment for pulmonary TB. He denied other symptoms, comorbidities, or recent infections. His family history was negative. He had a BCG scar. He was in fair general condition, pale, eupneic, and anicteric. He weighed 60 kg (BMI = Z score > 0 and < 1). The patient presented with claudication, pain on mobilization of the right hip with decreased range of motion, edema, heat, and pain in the knee, ankle, and right hallux AMTF. The remainder of the examination was unremarkable. He developed fever and daily night sweats, worsening pain requiring regular NSAID use, and weight loss of an additional 2 kg. The results of laboratory tests are presented in Table 1. Fundus biomicroscopy, chest X-ray, echocardiogram, and abdominal ultrasound were all normal. Serology for toxoplasmosis, cytomegalovirus, hepatitis B and C, VDRL, HIV, and blood culture were negative. Magnetic resonance imaging (MRI) of the hip and knee showed mild joint effusion with preserved structures, no local erosion, and no synovitis. The lumbosacral spine was normal. It was not possible to measure HLA-B27 antigen. Sixty days after onset of the condition, after ruling out other causes of oligoarthritis and with a history of contact with TB, a positive PT test, and sweating and fever, a regimen of rifampin (R), isoniazid (I), pyrazinamide (P), and ethambutol (E) was initiated, although the site of TB disease was not identified. He remained hospitalized for another 10 days and after two months of outpatient follow-up, he showed clinical improvement, no

Table 1. Results of laboratory tests performed during hospitalization.

Exam	Admission	Hospital discharge	Reference value
Hemoglobin	**9.9 g/dL**	**10.2 g/dL**	11.5 - 15.5 g/dL
Hematocrit	29.7%	31.7%	34% to 45%
VCM	88 fL	86 fL	80 - 100 fL
CHCM	32 g/dL	31 g/dL	31 - 36 g/dL
Platelets	441,000 µL	566,000 µL	150,000 - 450,000 µL
Leukocytes	10050 µL (0/1/0/0/2/75/15/16/6)	10200 µL (0/2/1/0/0/71/19/7)	4500 - 13500 µL
VHS	**64 mm/H**	**74 mm/H**	10 mm/H
PCR	**16 mg/dL**	6.64 mg/dL	<0.6 mg/dL
TGO	14 U/L	19 U/L	< 34 U/L
TGP	10 U/L	19 U/L	< 55 U/L
FAN	110 U/L	88 U/L	30-120 U/L
GGT	27 U/L	37 U/L	32 U/L
LDH	198 U/L	190 U/L	120 - 300 U/L
CK		42 U/L	< 200 U/L
FAN	Negative	-	Negative
FR	Negative	-	Negative
PT	**5mm**	-	< 5mm

MCV: mean corpuscular volume; MCHC: mean corpuscular hemoglobin concentration; ESR: erythrocyte sedimentation rate; CRP: C-reactive protein; AST: oxaloacetic transaminase; ALT: pyruvic transaminase; AP: alkaline phosphatase; GGT: gamma glutamyl transferase; LDH: lactate dehydrogenase; CK: creatine kinase; ANA: antinuclear factor; RF: rheumatoid factor; PT: tuberculin skin test.

longer requiring NSAIDs, which were discontinued two weeks after starting the RIPE regimen. He completed six months of treatment and was discharged asymptomatic.

DISCUSSION

This is a patient with chronic oligoarthritis (involvement of four joints lasting more than 6 weeks) and systemic symptoms (fever, night sweats and weight loss), whose differential diagnosis includes juvenile idiopathic arthritis subtypes related to enthesitis (ERA) and systemic (SJIA), rheumatic fever (RHF), reactive arthritis and, rarely, lymphoproliferative diseases, when the patient presents suggestive manifestations, such as lymph node enlargement, hepatosplenomegaly and cytopenias.

SJIA peaks in incidence between one and five years of age, although diagnosis is possible at other ages. The most common manifestations are high fever, arthritis, rash, lymphadenopathy, hepatosplenomegaly, and serositis. [6] In the reported case, no hepatosplenomegaly, serositis, or rash were observed.

ARE requires the presence of arthritis and enthesitis. If one of these is absent, two of the following criteria are required: positive HLA B27; inflammatory lumbosacral pain or pain with digital pressure on the sacroiliac joints; acute anterior uveitis; and a first- degree relative with HLA-B27-associated disease · The patient had only arthritis, and the low back pain was mechanical. Even in the presence of a positive HLA-B27 antigen, the criteria for the diagnosis of ARE would be lacking.

For MRF, evidence of infection by group A *ß-hemolytic Streptococcus* and the presence of two of the major Jones criteria (carditis, polyarthritis, chorea, erythema marginatum, subcutaneous nodule) or one major and two minor criteria (arthralgia, fever, ESR > 60 or CRP > 3, prolonged PR interval) would be required[8]. The patient had no history of group A *ß-hemolytic Streptococcus* infections.

Reactive arthritis occurs with mono/oligoarthritis after an infection, but the causative agent cannot be isolated from the affected joint. The most common agents are bacteria that cause gastrointestinal and/or genitourinary infections. In some cases, it can be caused by atypical germs[9]. PsA is a type of reactive arthritis in the context of Mtb infection[10].

Arboviruses such as dengue and chikungunya can present with joint manifestations. Chikungunya manifests acutely with high fever, intense myalgia, and symmetrical arthralgia, mainly in the extremities such as the ankles, wrists, and phalanges. Despite the erratic pattern, it is usually worse in the morning and worsens with intense physical activity[11].

When a history of contact with TB emerged, a chest X-ray was performed (normal result) and a positive TST test was performed. After ruling out other causes of arthritis and because the patient did not present with classic manifestations of osteoarticular TB, such as monoarticular involvement and joint deformity[12], a case of Pseudoarthritis was considered. Although imaging tests did not identify the site of TB involvement, treatment for TB disease was decided due to the fever, night sweats, weight loss, positive TST test, and epidemiological history. Rueda et al demonstrated that in 3.5% of Pseudoarthritis cases, the site of Mtb infection was not found. [13]

AP is a reactive arthritis to Mtb oligo- or polyarticular involvement, in which there is no evidence of local mycobacterial involvement and no other cause can be found [9]. It is believed to occur due to the immune response mediated by Th1 cells, where epitopes of human cartilage proteoglycans are recognized as Mtb heat shock proteins. Th1 lymphocytes and antibodies reach the joint, generating the inflammatory reaction[13]. In these cases, polyarticular involvement and absence of local erosion are expected. Since PA is a rare disease with no specific serological markers, Sharma and Pinto proposed a diagnostic criterion for PA, as shown in Table 2.[14]

Table 2. Sharma and Pinto Criteria.

Essential criterion	Non-erosive, non-deforming inflammatory arthritis
	Exclusion of other cases of inflammatory arthritis
Major criterion	Diagnosis of extra-articular tuberculosis
	Complete response to antituberculous therapy
Minor criterion	Absence of axial or sacroiliac involvement
	Associated hypersensitivity phenomenon (erythema nodosum, tuberculoid, phlyctenular keratoconjunctivitis)
	Positive tuberculin skin test
Diagnosis	Definitive: Essential + two major
	Probable: Essential + one major + three minors
	Possible: Essential + one major + two minors

Source: Adapted from Sharma and Pinto *et al* (2016)[14]

The first symptom presented was joint pain. Sharma et al. [14] observed that joint pain preceded the diagnosis of PA in 87% of cases. This patient had non-erosive and non-deforming oligoarthritis (hip, knee, ankle, and right hallux AMTF). In their literature review of 198 cases of PA, Rueda et al. [13] found a prevalence of oligoarthritis in 40%, with the ankle being the most affected joint, followed by the knee, wrists, and elbow. Shobha and Desai[10] found similar results, as did Sharma et al.[14] PA was a diagnosis of exclusion and presumptive. The patient presented two essential criteria, one major criterion and two minor criteria, according to the Sharma and Pinto [14] diagnostic criteria , configuring a possible diagnosis of PA.

CONCLUSION

TB is endemic in Brazil, and the risk of developing the disease increases during adolescence. [15] Mtb infection causes a variety of clinical manifestations. In medical practice, reviewing the clinical history can provide relevant information, as was the case here. Poncet arthritis is rare, and the diagnosis is one of exclusion, requiring investigation of other causes of oligoarthritis. The Sharma and Pinto[14] criteria can help elucidate this.

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