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Extra Pulmonary Tuberculosis Presenting as an Acute Osteoarthritis of the Ankle: A Case Report

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Abstract **Case Report**

Tuberculosis is a global health problem that affects millions of people each year. Although pulmonary tuberculosis is the most common form of the disease, extrapulmonary tuberculosis, including joint tuberculosis, is also a significant clinical problem. Joint tuberculosis is a challenging condition to manage, and surgical intervention is often necessary to prevent joint destruction and disability. This brief case report presents a particularly rare form of joint tuberculosis and its therapeutical management.

Keywords: Tuberculosis, acute osteoarthritis, surgery.

INTRODUCTION

Joint tuberculosis is a form of extrapulmonary tuberculosis that affects the synovial lining of the joint. This condition is caused by the bacterium Mycobacterium tuberculosis (1) and is characterized by chronic inflammation and destruction of the joint. TB involving the foot and ankle has been reported in 8% to 10% of patients with skeletal TB (approximately 0.1%–0.3% of all patients with EPTB) (2) (3). Joint tuberculosis is a rare but debilitating condition that can cause permanent joint destruction and disability if left untreated (4). The goal of surgical management of joint tuberculosis is to preserve joint function and prevent further joint destruction. In this paper we are going to describe a case of ankle tuberculosis presented as an acute arthritis.

CLINICAL PRESENTATION

A 70-Year-old patient with no medical history. Presented to the emergency department with a suppurative swelling of his left ankle evolving over a week. The were no respiratory symptoms. Patient did not have a history of previous trauma or surgery. The patient experienced sudden and severe pain of the ankle joint that have worsen with weight-bearing activities, such as standing or walking.

On physical examination of the affected ankle joint, it appeared swollen and inflamed, and felt warm to the touch. The patient has difficulty moving the ankle through its full range of motion, which affected his ability to walk or perform daily activities. Fever (39 degrees Celsius), night sweats and weight loss of approximately five kilos were reported by the patient.

Laboratory parameters of inflammation were elevated: C reactive protein (CRP) at 156mg per liter, white cells were at 16400 elements per liter. Of the talo-tibial joint (white arrow), the clarity on X ray is evidence of the development of air in the subcutaneous layer probably because of an anaerobic co-infection, which could explain the acute presentation of the osteoarthritis (yellow arrows). A CT scan and MR imaging were performed for more detailed cartography, of the articular lesions Figure n° 2 and 3.

Our surgical approach of the joint was externally, as we exceeded the subcutaneous plane, we found a purulent liquid that we removed, moreover we performed a debridement of all the necrotic tissues with abundant washing of the joint.

The PCR for Mycobacterium tuberculosis DNA was positive, and the histological examination of the

necrotic tissue removed upon surgery was compatible with an active tuberculosis of the joint (figure n°4).

Patient was treated for 4 months with isoniazid 300 mg, rifampicin 600 mg, pyrazinamide 1500 mg, and ethambutol 800 mg once daily (intensive phase), followed by 8 more months with isoniazid 300 mg and rifampicin 600 mg once daily (continuation phase).

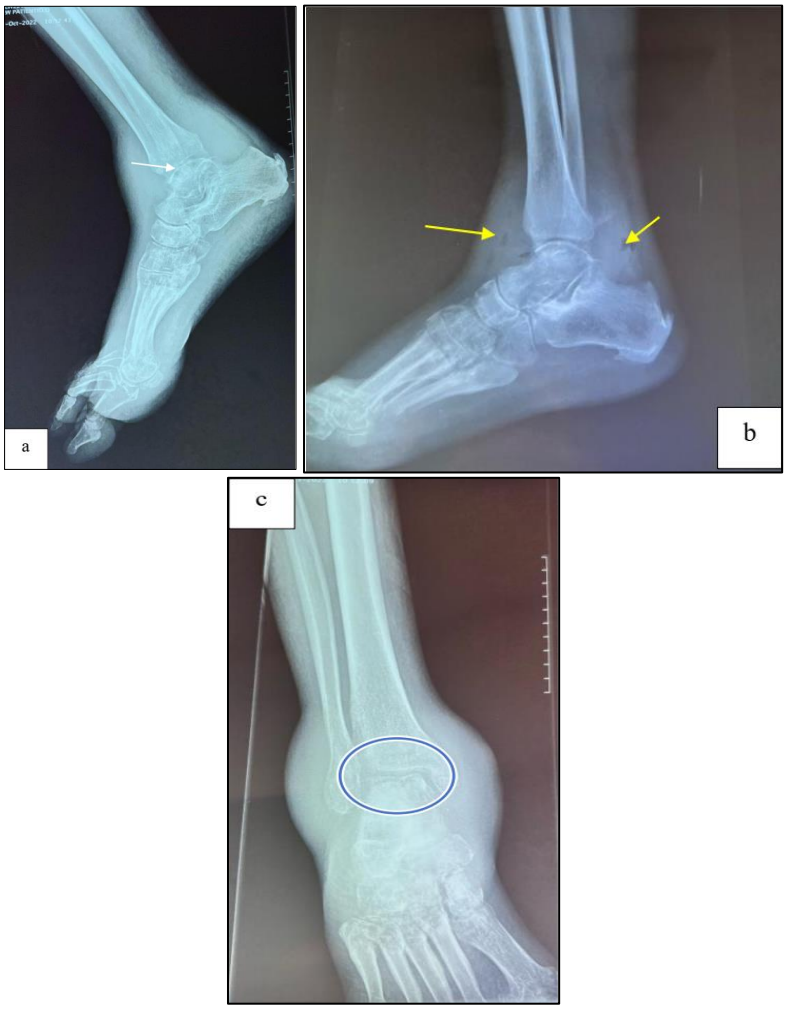

Figure n°1: LAT (a, b) and AP (c) weight bearing radiographs of the ankle joint demonstrating irregular joint erosion, narrowing of joint space (white arrow) and juxtarticular osteoporosis (blue cercle).

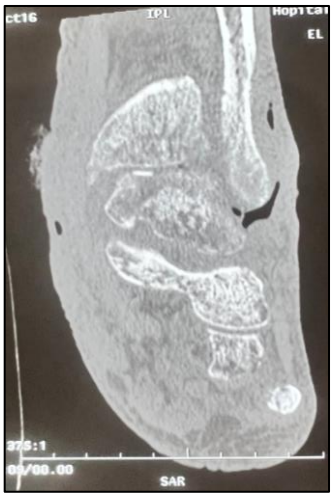

Figure n°2: CT scan image of the ankle showing the same findings of X ray images with more precision on the extension of the joint erosion.

Figure n°3: MR image of the ankle joint showing marked loss of articular cartilage with associated bone marrow oedema in the subarticular region of the distal tibia (white arrow).

DISCUSSION

Ankle tuberculosis is a rare form of extrapulmonary tuberculosis that affects the ankle joint. It is caused by the bacterium Mycobacterium tuberculosis, which can spread from the lungs to other parts of the body. The ankle joint is one of the less commonly affected sites of extrapulmonary tuberculosis, with an incidence rate of 0.1%–0.3% of all musculoskeletal tuberculosis cases (2) (5). This condition can cause significant morbidity if not diagnosed and treated promptly.

The management of joint tuberculosis involves a combination of medical therapy and surgery. The medical treatment of joint tuberculosis is based on the use of multiple anti-tuberculosis drugs for a prolonged period (6). However, in some cases where medical therapy is not effective, surgical intervention is often necessary.

Surgical management of joint tuberculosis includes various techniques such as synovectomy, debridement, arthrodesis, and joint replacement (7). The choice of surgical technique depends on the location and extent of joint destruction, the patient's age and functional status, and the presence of complications (8).

Synovectomy is the surgical removal of the inflamed synovial lining of the joint. This procedure is commonly performed in the early stages of joint tuberculosis when there is minimal joint destruction. Debridement is the removal of necrotic tissue and debris from the joint, which helps to decrease inflammation and promote healing (9). This technique is commonly used in cases of advanced joint tuberculosis with significant joint destruction.

Arthrodesis is a surgical technique that involves the fusion of the joint. This procedure is indicated in cases of severe joint destruction where joint replacement is not feasible.

The success of surgical management of joint tuberculosis depends on several factors, including the extent of joint destruction, the timing of surgery, and the patient's response to medical therapy. The outcomes of surgical management of joint tuberculosis have been reported in various studies. Most studies have reported significant improvement in pain, joint function, and radiographic findings following surgery. However, complications such as infection, wound healing problems, nerve injury, and implant-related complications are not uncommon.

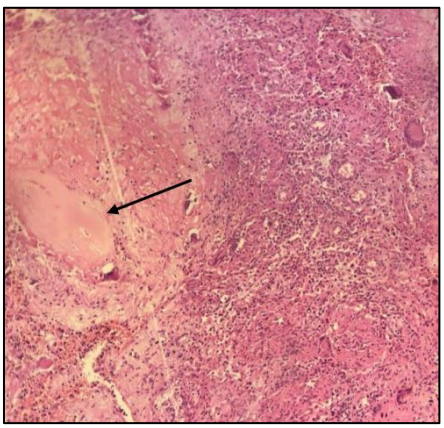

Figure n° 4: the histological aspect of the biopsy showing the caseous necrosis (black arrow) highly specific of tuberculosis.

CONCLUSION

Ankle tuberculous osteoarthritis is a rare but debilitating form of tuberculosis that requires prompt diagnosis and appropriate management to prevent joint destruction and disability. Surgical intervention is often necessary to achieve these goals. The choice of surgical technique depends on various factors, including the extent of joint destruction, the patient's age and functional status, and the presence of complications. Although surgical management of joint tuberculosis has been associated with significant improvement in pain and joint function the risk of disease recurrence remains a concern especially with the emergence of multidrug-resistant TB (MDR TB). Further research is needed to determine the optimal surgical approach for joint tuberculosis and to minimize the risk of complications.

Highlights

- A delay in diagnosis and treatment when a patient presents with ankle arthritis caused by Mycobacterium tuberculosis should make one aware of the possibility of primary joint tuberculosis.
- If the diagnosis of joint tuberculosis is in doubt, early biopsy should be mandatory.
- Early diagnosis and treatment with antituberculosis drugs and surgical intervention can lead to a good prognosis.

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