Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Trauma and Orthopedic Surgery

Tuberculosis of the Shoulder: An Unusual Cause of Pain in a Woman in Her Fifties

T. Cherrad[1*], H. Zejjari[1], M. Guenbdar[1], M. Bennani[1], J. Louaste[1], L. Amhajji[1]

[1]Department of Trauma and Orthopedic Surgery of the Moulay Ismail Military Hospital of Meknes (MIMHM) Faculty of Medicine and Pharmacy of Fez, University of Sidi Mohammed Ben Abdellah, Morocco

DOI: 10.36347/sjmcr.2022.v10i04.033 | **Received:** 12.03.2022 | **Accepted:** 25.04.2022 | **Published:** 30.04.2022

***Corresponding author:** T. Cherrad
Department of Trauma and Orthopedic Surgery of the Moulay Ismail Military Hospital of Meknes (MIMHM) Faculty of Medicine and Pharmacy of Fez, University of Sidi Mohammed Ben Abdellah, Morocco

Abstract **Case Report**

Shoulder pain in people in their fifties is often associated with rotator cuff pathologies and subacromial conflicts, but one has always to keep in mind that other differential diagnoses must be eliminated. Tuberculosis of the shoulder can be difficult to diagnose in its early stages because of atypical clinical symptoms. Thus, delays and misdiagnoses can lead to joint disability and reduced quality of life. We describe in our case report the clinical features, radiological findings, treatment, and outcome of a patient with isolated tuberculosis of the right shoulder joint.

Keywords: Shoulder, Tuberculosis, Pain.

Copyright © 2022 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution **4.0 International License (CC BY-NC 4.0)** which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Tuberculosis (TB) is a chronic, granulomatous, and necrotizing disease caused by infection with Mycobacterium Tuberculosis (MTB) [1]. It is a public health problem, especially in developing countries. According to statistics from the World Health Organization, there were approximately 10 million new tuberculosis cases worldwide in 2021 and approximately 1.5 million people died from TB in 2020 [2]. Osteoarticular involvement in TB accounts for 2- 5 % of all tuberculosis cases [3, 4]. In addition, the incidence of TB of shoulder joint is very rare and represents only 1–2.8 % of cases of skeletal TB [3, 4]. We report the clinical features, radiological findings, treatment, and outcome of a patient with isolated tuberculosis of the right shoulder joint.

CASE REPORT

A 57 year old woman consulted our department with a 5 month record of right shoulder inflammatory pain. The pain had been worsening (Nocturnal shoulder pain+++, 9/10 NRS) in the previous month despite physiotherapy sessions, anti-inflammatory drugs, and rest prescribed by her general practitioner. She had a swelling increasing progressively with global restriction of movements at the right shoulder. In addition, the patient reported notion of asthenia, night sweats without weight loss or respiratory symptoms. The patient's past medical history had no systemic symptoms, trauma, intravenous drug abuse, infection, and immune disorders.

Physical examination showed pain upon the movements of the right shoulder and limitation of its mobility. It also highlighted swelling, redness and elevated temperature in the front and back of her right shoulder. Other examinations were normal.

Biological signs of inflammation were present with CRP 29.0 mg/L (<5 mg/L) and ESR 70 mm/h. Blood cells count was normal and even the other laboratory tests, relating to urea and electrolytes, liver function tests, hepatitis A, B and C serology, autoantibody screening, and enzyme-linked immune adsorbent assay for HIV, were in the normal range.

X-ray right shoulder anteroposterior view showed located osseous erosions of greater tubercle and acromion, however the acromioclavicular and glenohumeral joints were intact (figure 1).

The MRI was therefore performed, demonstrating synovial hypertrophy, intra-articular effusion and erosions of articular margins. Enhancement of hypertrophic synovium and that of fluid reservoirs were observed after intravenous contrast

administration. We also noted the presence of multiple axillary and supra-clavicular lymph nodes (figure 2).

Operative drainage and debridement were undertaken (figure 3). The direct examination with Ziehl-Neelsen and culture of thick purulent joint fluid yielded MTB. The anatomopathological examination of the synovium biopsy showed a specific inflammation containing necrotizing granulomas which confirmed the tubercular origin.

Antituberculosis therapy was therefore initiated with Rifampin, Isoniazid, Pyrazinamide, and Ethambutol (RIPE). She was treated with RIPE for 2 months followed by Rifampin and Isoniazid for a period of 10 months.

Within 3 year follow-up, the symptoms were notably recovered and the patient had full active range of movement of the right shoulder and was painless (figure 4).

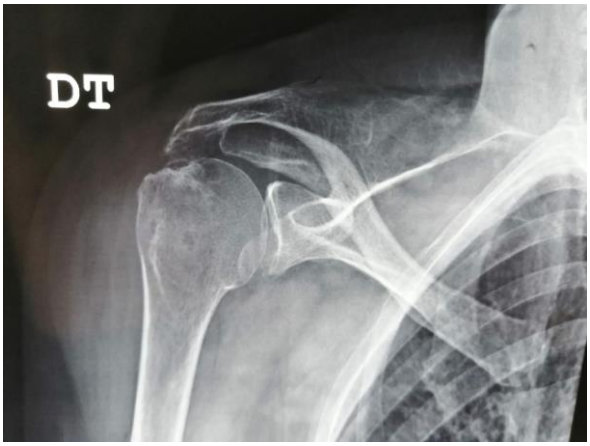

Fig-1: Anteroposterior radiograph of the right shoulder showing located osseous erosions of greater tubercle and acromion, the acromioclavicular and glenohumeral joints are intact.

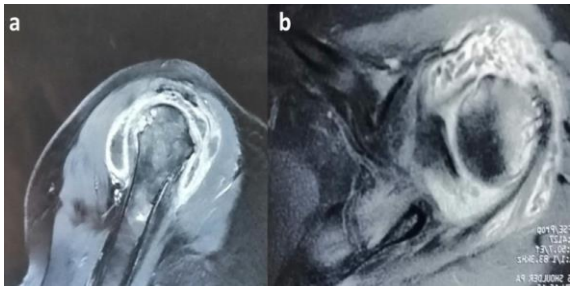

Fig-2: MRI of the right shoulder showing large intra articular fluid collection with the so-called rice bodies; a: sagittal section, b: axial section

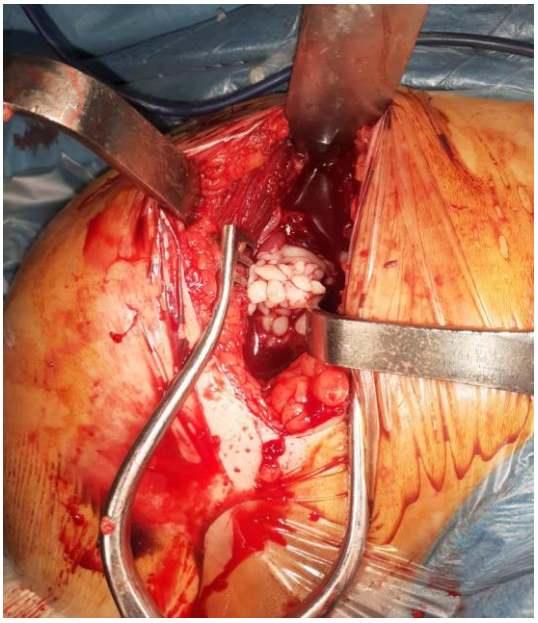

Fig-3: Intraoperative photograph showing, after deltopectoral approach, the rice bodies in the gleno humeral joint

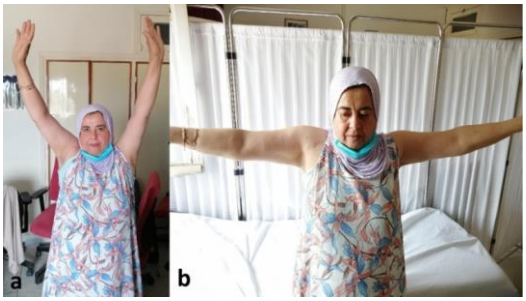

Fig-4: Range of motion at 3 year follow-up: a: antepulsion, b: abduction

DISCUSSION

Mycobacteria have evolved alongside humans for millennia. Despite significant advances in modern medicine, these infections remain challenging to manage. Poverty, malnutrition, HIV infection, smoking and diabetes are the main risk factors that explain the current resurgence of this disease [2, 5].

Osteoarticular TB is far less common than the pulmonary form. It constitutes around 1–3% of patients with extra pulmonary TB, with 50% of cases occurring in the spine, while shoulder. Tuberculosis is rarely reported [6, 7].

The invasion of the joint by Mycobacterium tuberculosis may occur via direct hematogenous invasion of the synovial membrane or via indirect spread from a focus in an adjacent bone [3]. TB in the shoulder could be of three types [3, 7]:

- Type I: The classic “Caries Sicca,” the dry form wherein the patient presents marked wasting of the shoulder and painful restriction of all movements;

- Type II: The "Caries Exudata," the florid type, similar to our case: the patient has a swelling of the joint, cold abscess, and occasionally a sinus (Our patient had the *caries exudata* type);
- Type III: The "Caries Mobile." This is characterized by restriction of active movements of the shoulder, but passive movements of varying degrees exist, patients having nearly full passive abduction.

The clinical symptoms of shoulder tuberculosis are atypical. Most patients do not have the characteristic symptoms of tuberculosis such as hot flashes, night sweats, and cough. Moreover, the majority failed to find a history of tuberculosis [6]. Thus, the insidious evolution and the non-specific clinical signs are at the origin of the delay of diagnosis that can last in average 5 months.

Despite the paucity of radiological signs (X-ray, CT scans, and MRI scans), Phemister described a characteristic triad of tubercular arthritis: severe periarticular osteoporosis, peripherally located osseous erosions, and gradual narrowing of the joint space [8]. Pathologic abnormalities in tuberculous arthritis include changes in synovial membrane, cartilaginous, and osseous abnormalities. An enlarging joint effusion, inflammatory thickening of the periarticular connective tissue, and fat contribute to soft-tissue swelling [7]. Since Shoulder TB often has no specific manifestations on imaging and laboratory indicators, so these paraclinical examinations are used often to eliminate joint purulent infection, shoulder joint malignant tumors, rheumatoid arthritis, gouty arthritis, and pigmented villonodular synovitis [6].

Positive Ziehl-Neelsen staining and/or a positive culture of MTB from the affected bone or joint is the outstanding standard for diagnosing osteoarticular TB. The Xpert MTB/RIF test is highly accurate for TB detection and offers early identification of rifampin resistance [7, 9].

The initial management of osteoarticular TB consists of early and effective antitubercular therapy, assessment of complications that may require additional intervention, and repeated assessments of clinical response over time leading to the determination of the ultimate length of therapy [5]. The improvement of medical treatments has considerably reduced the indications for surgery in osteoarticular TB. Currently, the rate healing for osteoarticular TB correctly treated is over 90%. Initial medical therapy for drug-susceptible tuberculosis consists of a combination of drugs including rifampin (RIF), isoniazid (isonicotinylhydrazine [INH]), pyrazinamide (PZA), and ethambutol (EMB) administered over a period of 02 months. The optimal duration of therapy for treatment of osteoarticular Tb remains controversial. This uncertainty about the duration could be attributed to the rarity of the disease, or it could be that the spectrum of osteoarticular damage can vary; hence, the relapse rate could vary as well [5]. Large abscesses and significant devitalized bone should be considered for surgery. In cases of septic arthritis failing medical therapy, debridement may improve functional outcomes [5, 10]. Patients with substantial joint destruction characterized by significant loss of joint space and those with fibrous ankylosis with significant loss of function or chronic pain may also benefit from operative management (excisional arthroplasty, arthrodesis to improve mobility or deferred total joint arthroplasty).

Our patient received a medical treatment for 12 months and also underwent debridement and drainage for the effusion.

Competing Interests

"Authors have declared that no competing interests exist."

REFERENCES

1. Rando, M. M., De Matteis, G., Gessi, M., Bartoli, M., Galli, M., & Gambassi, G. (2018). Tuberculous arthritis of the ankle. *European Journal of Case Reports in Internal Medicine*, *5*(6).
2. World Health Organization. (2021). Global Tuberculosis Report, 2021.
3. Kapukaya, A., Subasi, M., Bukte, Y., Gur, A., Tuzuner, T., & Kilnc, N. (2006). Tuberculosis of the shoulder joint. *Joint Bone Spine*, *73*(2), 177-181.
4. Pigrau-Serrallach, C., & Rodríguez-Pardo, D. (2013). Bone and joint tuberculosis. *European Spine Journal*, *22*(4), 556-566.
5. Hogan, J. I., Hurtado, R. M., & Nelson, S. B. (2017). Mycobacterial musculoskeletal infections. *Infectious Disease Clinics*, *31*(2), 369-382.
6. He, Y., Liu, J., Wang, Z., Zhou, P., Deng, X., Yang, L., ... & Li, Z. (2020). Analysis of the early clinical outcomes of arthroscopic debridement in the treatment of shoulder tuberculosis. *Journal of Orthopaedic Surgery and Research*, *15*(1), 1-6.
7. Kumar, M. K., Panchal, S., Sabarinathan, N., & Prabhakar, A. (2021). Rare Presentation of Caries Exudata with Dumbbell-Shaped Abscess in an Adult–A Case Report. *Journal of Orthopaedic Case Reports*, *11*(1), 23.
8. Vuyst, D. D., Vanhoenacker, F., Gielen, J., Bernaerts, A., & Schepper, A. M. D. (2003). Imaging features of musculoskeletal tuberculosis. *European radiology*, *13*(8), 1809-1819.
9. Steingart, K. R., Sohn, H., Schiller, I., Kloda, L. A., Boehme, C. C., Pai, M., & Dendukuri, N. (2013). Xpert® MTB/RIF assay for pulmonary tuberculosis and rifampicin resistance in adults. *Cochrane database of systematic reviews*, (1).
10. Darraj, M. (2018). Delayed presentation of shoulder tuberculosis. *Case Reports in Infectious Diseases*, *2018*.