

Case Report

Tuberculosis shoulder: a diagnostic dilemma

Avinash Naik, Meenakshi Pandey*, Sundar Narayan Mohanty

Department of Orthopaedic, KIMS, Bhubaneswar, Odisha, India

Received: 07 December 2019

Revised: 08 January 2020

Accepted: 14 January 2020

***Correspondence:**

Dr. Meenakshi Pandey,

E-mail: minuismeenakshi@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Tuberculosis of the shoulder can be difficult to diagnose in the early stages. If not diagnosed early, bony tuberculosis may reduce quality of life. Therefore, tuberculosis should be suspected in cases of long standing pain in the shoulder. We report a case of a female patient presenting to us after 18 months of initiations of symptoms suggestive of periarthritis of shoulder. Failure of conservative therapy and worsening of symptoms she needed further investigation and surgical management. With Biopsy she was diagnosed tuberculosis shoulder, TB shoulder to be a case of tuberculosis shoulder. The patient had a good recovery functionally following debridement and ATT. Thus, TB shoulder can also present as a case of periarthritis shoulder making its diagnosis at early stages difficult.

Keywords: Tuberculosis shoulder, Biopsy, Periarthritis

INTRODUCTION

In skeletal tuberculosis, the hip and spine are predominant. But the tuberculous infection of the shoulder joint is uncommon and its incidence has been variously reported to be 0.9 to 1.7% of skeletal tuberculosis.¹

Tuberculosis arthritis of the peripheral joints, typically localized in the synovium and metaphyseal bones. The affected joint may be painful and swollen, but not infrequently the signs and symptoms are subtle, and no effusion is evident (caries sicca). Because of paucity of findings, a delay in diagnosis of tuberculosis arthritis is common.²

Tuberculosis of the shoulder can be difficult to diagnose in the early stages. If not diagnosed early, it can reduce quality of life. Therefore, it is necessary to keep

tuberculosis in the differential diagnosis of long-standing pain in the shoulder, especially in endemic areas.³

The variants of extra pulmonary or skeletal tuberculosis are the classical dry type/atrophic type (Caries Sicca) 2 or the fulminating or caseating type of shoulder tuberculosis associated with cold abscesses or sinus formation. The atrophic type is further observed into 4 various types depending on the affections, i.e., Type I, the Caries sicca the atrophic form, Type II the Caries exudate with swelling and cold abscess formation and Type III the Caries mobile with good range of passive movements⁴.

CASE REPORT

Our patient a 45 years old female came with complain of pain and gradual progressive stiffness of rt shoulder for last 1 year and 8 months. Patients had been given various treatment including intra-articular injection, suspecting it to be a case of adhesion capsulitis but to no relief though slight improvement of flexion and internal rotation.



Figure 1: Patient 1st X-ray pre debridement.

There was a history of trivial trauma that lead to initiation of the pain and restriction of movement. But there was no history of fever, weight loss, no history of persistent cough nor any family history or contact history of tuberculosis. Right shoulder revealed a tense glossy swelling with tenderness present over anterior aspect of shoulder with decreased range of movement. There was muscle wasting present over right shoulder and proximal aspect of arm without any neurological deficit. An X-ray done earlier revealed no bony changes but subsequent X-ray done 5 months afterward showed not much changes except some arthritic changes. Clinically suspecting adhesive capsulitis an attempt for passive mobilisation of shoulder joint was done under anaesthesia and the range of motion was full.

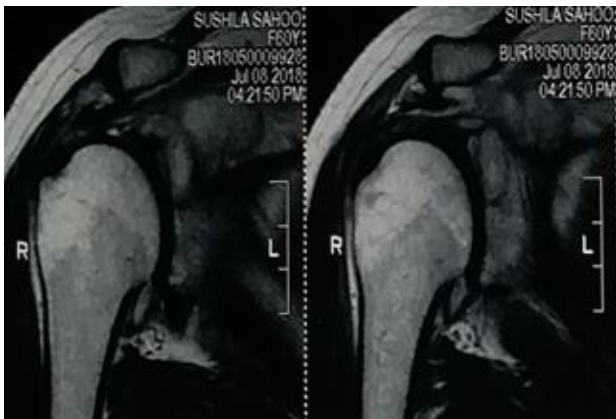


Figure 2: Pre debridement CT scan.

CT scan revealed erosion in non-articular surface of glenoid superiorly with tiny calcification suspecting it to be a case of chronic osteomyelitis. MRI revealed partial tear of supraspinatus and inferior glenohumeral ligament with effusion in joint and multilobulated unruptured spinoglenoid ganglion cyst and subcortical bursa noted. 6 months later ultrasonography showed subacromial subdeltoid bursa extending along the bicep tendon so FNAC was done but it came out to be inconclusive. Serological investigation revealed significantly raised ESR with slight raise of CRP, rest all other blood parameter were within normal limits.

Debridement and drainage had done, where thick purulent fluid was taken out and sent for Tb PCR, Biopsy and AFB stain which all came out to be positive. But TB HAIN which came out to be MTB positive with sensitive to Rifampicin and isoniazid was not accepted by Chest and Tb physicians as recent RNTCP guidelines denied any relevance of MTB- DNA test.

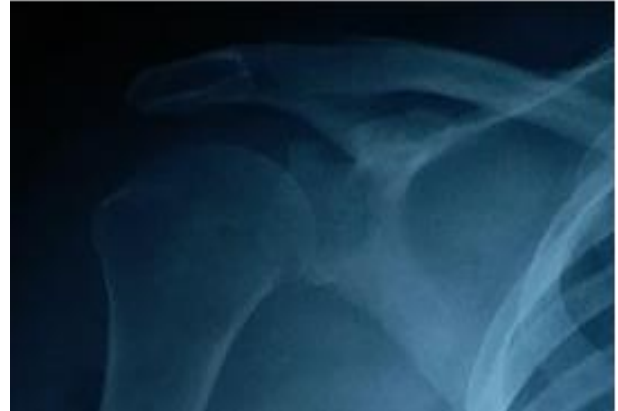


Figure 3: Post-op visit after 5 month X-ray.

Patient was started with antitubercular drug and shoulder range of motion exercises were advised. After 6 months follow up the patient range of motion of shoulder has significantly approved and pain has decreased.

DISCUSSION

Tb in the shoulder could be of three types: (a) dry type, or caries sicca; (b) fulminating type, or caries exudate, associated with cold abscess or sinus formation; or (c) mobile type, where a passive range of motion is preserved, while variable restriction on active movement is noted due to distraction of the joint (Table 1). Our patient had the caries exudate type. The destructive pattern on the radiological images was used to build up the differential diagnosis for this case, which included: pyogenic osteoarthritis; salt-related arthritis, and proliferative disorders such as synovium and sarcoma. Radiological diagnostic images (X-ray, CT scans, and MRI scans) have poor specificity for diagnosing osteoarticular TB.

However, they can be used to monitor the already-diagnosed osteoarticular lesions with a good level of precision. Due to the rarity of Tb in the shoulder, accidental oversight of this rare diagnosis is expected. Treatment strategies for this condition are primarily antimicrobial; however, surgical therapy could be used (Table 1). The optimal duration of therapy for treatment of osteoarticular Tb remains controversial (Table 2). 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 (Table 3). All surgical options, including partial synovectomy, decompression, abscess

drainage, and debridement of infected material, must be restricted to joints with severe cartilage destruction, large abscesses, joint deformity, multiple drug resistance, or atypical mycobacteria.⁵ Our patient received a medical treatment, with the intention for this to continue for 12 months. She also underwent debridement and drainage for the effusion.

Table 1: Three Types of TB shoulder.

Types	Description
Type I	“Caries sicca”- Marked wasting of the shoulder. Painful restriction of all movements.
Type II	“Caries exudata”- Swelling of the joint, cold abscess. Sometimes a sinus.
Type III	“Caries mobile”- Restriction of active movements of the shoulder. Nearly full passive abduction.

Table 2: Duration of treatment for osteoarticular TB.

Organization	Total duration	Medical treatment recommended
World Health Organization	6 months	“RIPE” for two months followed by four months of therapy with isoniazid and rifampicin
American thoracic Society	9 months	“RIPE” for the first two months followed by seven months of therapy with isoniazid and rifampicin
Canadian thoracic Society	6 to 12 months	“RIPE”

Ripe: Rifampicin, Isoniazid, Pyrazinamide, and Ethambutol.

Table 3: Relapsing rate varies with the duration of treatment for osteoarticular TB.

Treatment duration	Relapse rate (%)
6 months	1.35
6–12 months	0.86
>12 months	0.5

Adopted from Canadian Thoracic Society.

Mycobacterium tuberculosis is responsible for almost all the cases of osteo-articular tuberculosis in India. Atypical mycobacteria, other than *M. tuberculosis* *fiumanis* or *bovis* have also been reported in bony lesions. Certain precipitating factors responsible for transmission of atypical mycobacteria are trauma, local steroidal injection, iatrogenic, diabetes mellitus, poor nutrition, poor hygienic conditions, use of immuno- suppressive drugs, acquired immuno-deficiency syndrome. The gold standards for the diagnosis of osseous tuberculosis are

culture of *M. tuberculosis* from bone tissue, positive ziehl-neelsen staining 6 and positive DNA PCR (as in this case). The patient responds well to anti tuberculosis regimens. Treatment includes standard antituberculosis drugs for six months or category-I under Revised National Tuberculosis Control Programme as per as World Health Organisation Guideline for management of tuberculosis.⁷

A triad of radiographic finding (Phemister’s triad) is characteristic of tubercular arthritis- severe periarticular osteoporosis, peripherally located osseous erosions and gradual narrowing of the inter-osseous space. In additions there is subchondral erosions, reactive sclerosis and periosteal reactions. The diagnosis of tuberculous arthritis is generally not difficult when classic radiographic features appear in typical locations. With unusual features or in atypical locations the diagnosis can be more troublesome. In rheumatoid arthritis, osteoporosis and marginal erosions are accompanied by early and significant loss of articular space.⁸

CONCLUSION

Non-spinal osteoarticular TB is a rare disease and any patient coming with the complaints of long standings painful restriction of the movements of the shoulder associated with or without complaints swelling, shall be evaluated to rule out skeletal tuberculosis along with other differential diagnosis of periarthritits of shoulder and adhesive capsulitis. Most of the patients with skeletal tuberculosis may not necessarily present with the constitutional symptoms of fever, weight loss, etc. and also because of the widespread prevalence of the organism in India. Though swelling associated with restriction of range of movements and pain is a rare clinical presentation of form of tuberculosis of the shoulder but cannot be ruled out completely without proper further evaluation of the condition with the help of serological as well as radiological means available.

Tuberculosis of shoulder joint may differ clinically, pathologically and radiologically from the other joint lesions and can be difficult to diagnose in the early stages. The acute fulminating type of tuberculosis is reported to be rare in adults, but common in children. A slow, insidious, dry type of lesion commonly known as caries sicca is more common in adults.

This case brings out a rare manifestation of the tuberculosis of shoulder joint with emphasis that imaging techniques are useful in such situations where diagnosis may be difficult.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Patel PR, Patel DA, Thakker T, Shah K, Shah VB. Tuberculosis of shoulder joint. *Indian J Orthop.* 2003;37:7.
2. Miller K.D. & Moore, M.E. *Clin Rheumatol* (1983) 2: 61. <https://doi.org/10.1007/BF02032070>
3. Chethan Nagaraj, Saurabh Singh, Baldeep Singh, Vivek Trikha, Shishir Rastogi. Tuberculosis of the shoulder joint with impingement syndrome as initial presentation. Department of Orthopaedics, All India Institute of Medical Sciences, New Delhi, India *J Microbiol Immunol Infect.*2008;41:275-278
4. Deshmukh A, Deo S, Salgia AK, Agarwal T. A rare unusual case presentation of the tuberculosis of the shoulder joint. *J Orthop Case Rep.* 2013;3(4):23-5.
5. Darraj M. "Delayed Presentation of Shoulder Tuberculosis," *Case Reports in Infectious Diseases.* 2018;2018: Article ID 8591075.
6. Rooney J.J, Crocco J.A, Kramer S, Lyons H.A: Further observations on tuberculin reactions in active tuberculosis. *Am J Med.* 1976;60:517-522.
7. Tuli SM. Tuberculosis of the skeletal system. 2nd edition. New Delhi, Jaypee Brothers Medical Publisher (P) Ltd; 1993.
8. Lakhkar DL, Yadav M, Soni A, Kumar M. Unusual presentation of shoulder joint tuberculosis: A case report. *Indian J Radiol Imaging.* 2006;16:23-6.

Cite this article as: Naik A, Pandey M, Mohanty SN. Tuberculosis shoulder: a diagnostic dilemma. *Int J Res Orthop* 2020;6:419-22.