

# Dry Type Of Tuberculosis Of Humerus: A Case Report

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## Abstract

Tuberculous involvement of humerus is an uncommon presentation of extrapulmonary Tuberculosis. Here is such type of case in a twelve year old male presented with pain and restricted right shoulder movement for three months, who responded well to antitubercular treatment.

## INTRODUCTION

Tuberculosis of shoulder joint is uncommon. The classical dry type of shoulder tuberculosis (caries sicca) is more common among adults while the fulminating variety with cold abscess or sinus formation is form of commonly in children<sub>1</sub>. We hereby report a case of dry type of shoulder tuberculosis in a 12 year old patient who presented with multiple cavitory shadow over proximal part of right humerus bone; proven by culture of Mycobacterium tuberculosis through bactec method.

## CASE REPORT

A 12 year old male, patient was referred from department of orthopaedics to our department with complaints of pain, fever, loss of appetite and restricted shoulder movement of right side for three months. He took antibiotics and other supportive treatment for three month without any clinical improvement. There was no past history of trauma, antitubercular treatment and family history of tuberculosis.

Right shoulder examination revealed restricted movement. Local temperature was not raised. Tenderness was present on palpation of anterior and posterior aspect of the right shoulder. External rotation and abduction movements were restricted, while adduction and flexion were not affected (fig: 1).

## Figure 1

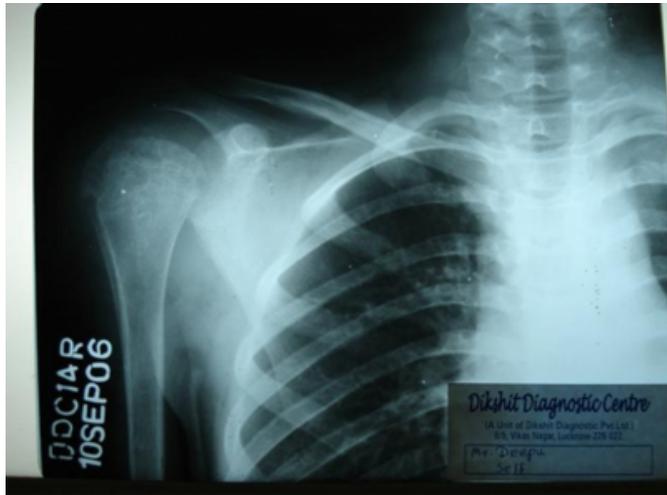
Figure 1: Showed restriction of external rotation and abduction movements of right shoulder joint of the patient.



Power of muscles was normal. No neurological deficit was found. His X-ray shoulder AP and lateral view revealed fuzzy articular margins, tuberculus cavities in the proximal humerus and pathological subluxation of the humerus (fig: 2).

**Figure 2**

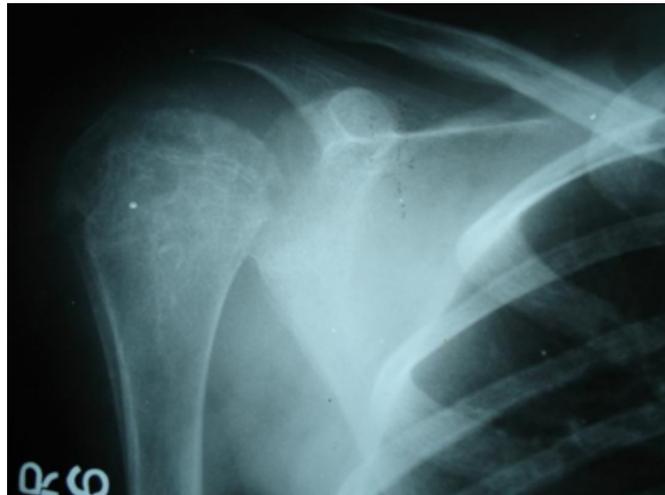
Figure 2: X-ray AP shoulder revealed fuzzy articular margins and tubercular cavities in proximal part of humerus bone (right) with pathological subluxation of head of humerus.



Ultra sonography of right shoulder joint revealed no collection. His Haemoglobin was 14 gm%; Total Leucocyte count was 8,900/cmm; Differential Leucocyte count was Neutrophils 17%, Lymphocytes 72% and Monocytes 1% and Erythrocyte sedimentation rate was 58 mm/hour. He was HIV seronegative. His respiratory system examination was within normal limit. His chest x-ray was normal. His PPD showed 30 mm indurations at 72 hours. With USG guided aspiration, approximately 10 ml of fluid with debris was aspirated from upper end of right humerus bone. Cytological examination of the aspirate showed caseation and a granulomatous lesion strongly suggestive of tuberculosis. His cytological examination was positive for Mycobacterium tuberculosis through Bactec culture method. Culture examination for pyogenic bacteria did not grow any organisms. His Ultrasonography abdomen was within normal limit. Examination of others system was unremarkable. Thus the diagnosis of dry form tuberculosis of humerus was made and his treatment was started with four drugs (Rifampicin, Isoniazid, Ethambutol and Pyrazinamide) for 2 months, followed by 2 drugs (Rifampicin, Isoniazid) for 4 months. The shoulder was immobilized in a shoulder immobilizer sling. He showed considerable clinico-radiological improvement within two month (Fig: 3)

**Figure 3**

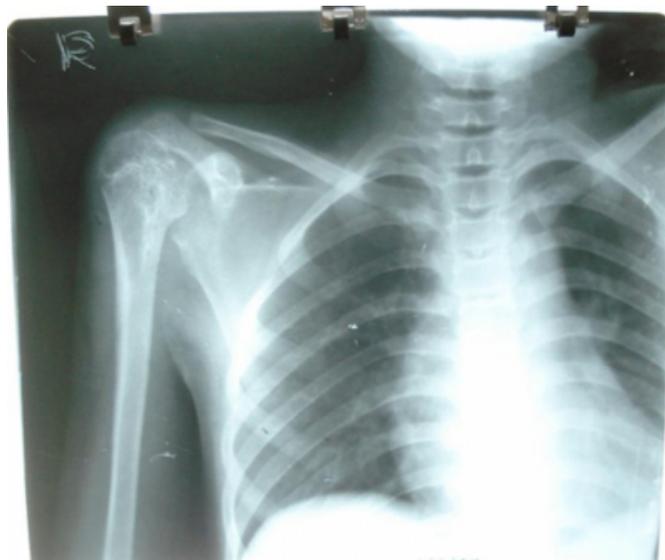
Figure 3: X-ray AP shoulder after two months of antitubercular treatment



After six months of treatment completion, he had gained weight and had no pain or swelling. After nine months of treatment completion, his anteroposterior roentgenogram of shoulder joint was done that showed healing with sclerosis of the upper end of the humerus and glenoid cavity along with calcification (Fig:4).

**Figure 4**

Figure 4 : X-ray AP shoulder after nine months revealed healing with sclerosis of the upper end of the humerus and glenoid cavity along with calcification



## DISCUSSION

Osteoarticular involvement occurs in 1 to 3% of patients with Extrapulmonary tuberculosis and spine represents 50% of these lesions<sup>2,3</sup>. The incidence of tuberculosis of the shoulder joint is 1–2.8% of the skeletal tuberculosis<sup>4,5,6</sup>. The

exact incidence of isolated humerus bone tuberculosis is not known. Mycobacterium Tuberculosis is responsible for almost all the cases of osteo-articular tuberculosis in India. Atypical mycobacteria, other than *M. tuberculosis fumanis* or *bovis* have also been reported in bony lesions. The transmission of atypical mycobacteria can occur with certain precipitating factors like trauma, local steroidal injection, surgical trauma, diabetic status, use of chemical immuno-suppressive drugs like cyclosporin in organ transplantation, acquired immuno-deficiency syndrome (no such types of factors observed in present case). Osteoarticular tubercular lesions are the result of haematogenous dissemination from primarily infected focus. The primary focus may be active or quiescent, apparent or latent, either in lungs or in other viscera. The infection reaches the skeletal system through vascular channel, generally arteries as a result of bacilleemia or rarely in axial skeleton through Batson's plexus of veins. Bone and joint tuberculosis is said to be developed generally 2 to 3 years after the primary focus.

There are two types of humerus bone tuberculosis, (a) Dry type or *caries sicca* (as in present case), (b) Fulminating type associated with cold abscess or sinuses formation.

The clinical presentation in shoulder joint tuberculosis is associated with severe painful restriction of the shoulder movements, particularly abduction and external rotation (as in present case) and gross wasting of shoulder muscles<sup>7,8</sup>. This patient was also having almost similar clinical presentation. Advance cases lead to inferior subluxation of humeral head and fibrous ankylosis<sup>9</sup>. Only 1/3rd of patients with tuberculosis of the bone are diagnosed with concomitant active pulmonary disease<sup>10</sup> and rest 2/3<sup>rd</sup> patients have no concomitant pulmonary tuberculosis of lung (in present case also there was no concomitant pulmonary tuberculosis in lung).

Radiological features of humerus bone tuberculosis are generalized rarefaction of bones with varying degree of erosions of articular margin or actual destruction of upper end of humerus by cavitory lesions (as in present case) or the glenoid<sup>6</sup>. In advance cases inferior subluxation of head of humerus bone may occur.

The gold standard for the diagnosis of osseous tuberculosis is culture of *Mycobacterium tuberculosis* from bone tissue (as in present case) and positive Ziehl-Neelsen staining<sup>11</sup>.

Differential Diagnosis of shoulder joint tuberculosis

comprises of pyogenic osteomyelitis, fungal infection, rheumatoid arthritis, gout, pigmented villonodular synovitis, idiopathic synovial osteochondromatosis. The diagnosis of tubercular lesions is usually not difficult when typical radiographic features are present as described earlier. In Rheumatoid arthritis osteoporosis and marginal erosions are accompanied by early and significant loss of articular space. In gout osteoporosis is mild or absent. Although it may be difficult to define the nature of infective agent in pyogenic and fungal infection due to slow progression of disease, significant osteoporosis and mild sclerosis are more in tuberculosis and fungal than pyogenic osteomyelitis. In pigmented villonodular synovitis a nodular mass, preservation of joint space and absence of osteoporosis is typical whereas in idiopathic synovial osteochondromatosis calcified and ossified intraarticular bodies are evident. Accurate diagnosis mandates synovial fluid aspiration or synovial membrane biopsy.

The patient responds well to anti-tuberculosis regimens. Treatment includes standard antituberculosis drugs for six months or category-I under RNTCP as per WHO Guideline for management of tuberculosis<sup>12</sup>. But in other study treatment of osseous tuberculosis includes a 2-month initial phase of isoniazid, rifampin, pyrazinamide, and ethambutol followed by a 6- to 12-month regimen of isoniazid and rifampin<sup>13</sup>. There are few studies which argue that the paucibacillary nature of the lesion makes a 6-month treatment course appropriate<sup>14</sup>. A shoulder spica in the position of function is necessary in the younger age groups (as in present case).

Tuberculosis of humerus can be difficult to diagnose during the early stages. Tuberculosis should be suspected in cases of long-standing pain and restriction of movements of shoulder joint. So it is necessary to keep TB in mind when making the differential diagnosis of several osseous pathologies.

### CORRESPONDENCE TO

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