

Unusual Presentation Of Shoulder Joint Tuberculosis: A Case Report.

DL LAKHKAR, M YADAV, A SONI, M KUMAR

Ind J Radiol Imag 2006 16:1:23-26

Key words : - shoulder tuberculosis, fulminant variety.

INTRODUCTION

Tuberculosis of shoulder joint is uncommon. The incidence is 1-2.8% (8) of skeletal tuberculosis. In adults the classical dry type of shoulder tuberculosis (*caries sicca*) has been described, while the fulminating variety has not been reported. The latter type of shoulder tuberculosis is more common in children. We report a fulminant variety of shoulder joint tuberculosis in a middle aged patient who presented with destruction of the shoulder joint.

CASE HISTORY :

A middle aged male came with history of pain and restricted movement in right shoulder for 8 months. Patient was apparently well 8 months back when he developed boggy swelling of the shoulder for which he went to a government medical college hospital. He was admitted for a short period and incision and drainage was done. Three months later his shoulder dislocated while sleeping. After eight days there was pus and discharge from the incision site. He was admitted again. He has no history of diabetes mellitus or hypertension. There is no history of cough or breathlessness. Family history is not significant. He is a chronic bidi smoker for past 50 years and chronic alcoholic, since past 4 years.

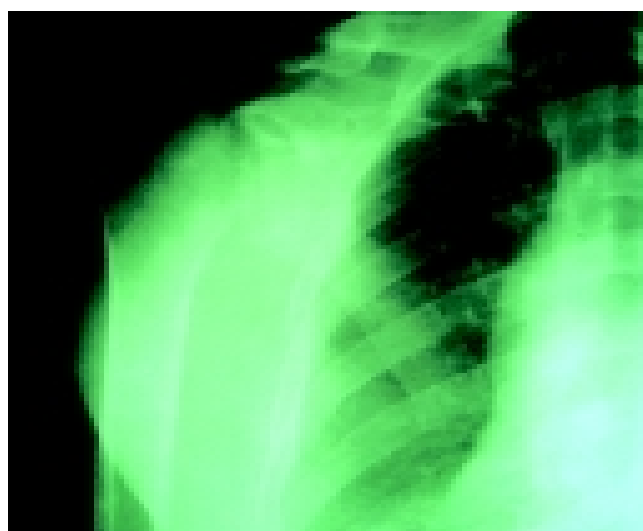
On systemic examination adventitious sound was heard on respiration. Other systems were normal.

Local examination reveals drooping of right shoulder on anterior aspect with prominence of right sterno-clavicular joint. Local temperature was normal. Tenderness was present on palpation of anterior and posterior capsule region, deep axilla and lateral aspect of scapula.

Movement was restricted to 30o external rotation. Flexion, abduction and adduction were not affected. No neurological

deficit was found. Power of muscles was normal.

Synovial membrane biopsy and fluid aspiration showed findings of tuberculosis.



Legend 1: X-Ray shoulder AP view shows erosion of articular surface of the glenoid cavity and the humeral head. Joint space, and adjacent fat planes are reduced

FINDINGS:

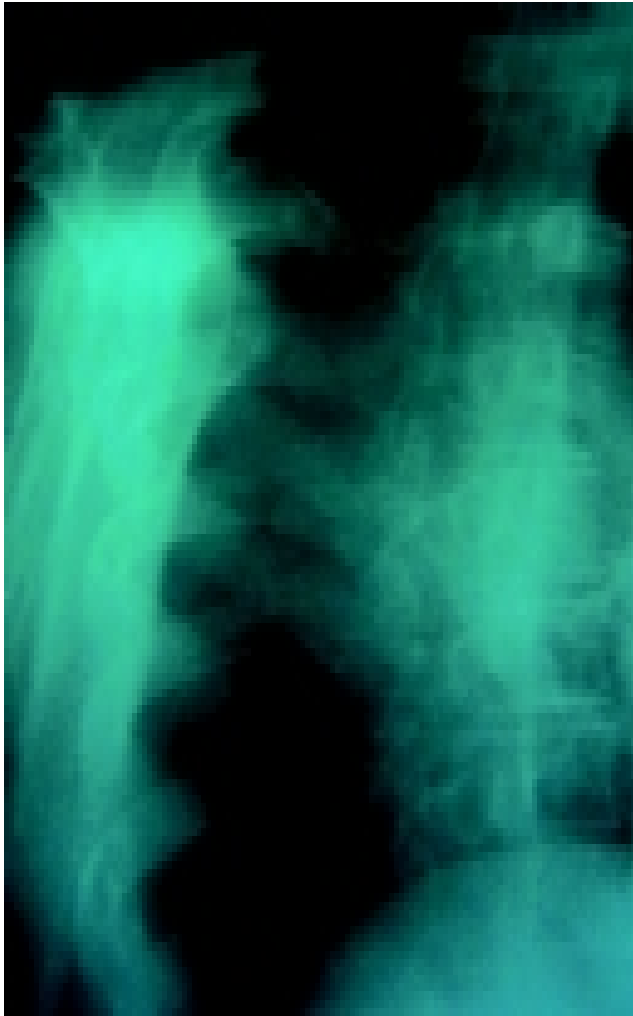
X-RAY RIGHT SHOULDER:

The anteroposterior (Fig. 1) and the lateral (Fig.2) views show erosion of the glenoid cavity and the head of the humerus with reduction in joint space. Obliteration of adjacent fat planes is seen. Lateral view also shows erosion of lateral end of clavicle. There is no dislocation of glenohumeral joint.

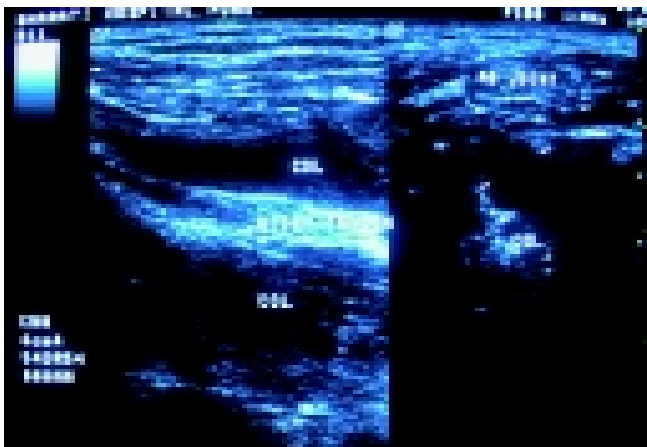
From the Department of Radiodiagnosis, Bharati Vidyapeeth Medical College & Hospital deemed university. Dhankawadi. PUNE-43.

Request for Reprints: Dr. MAHESH YADAV, MBBS, MD, Department of Radiodiagnosis, Bharati Vidyapeeth Medical College & Hospital , Dhankawadi, Pune-411043

Received 9 June 2005; Accepted 10 March 2006



Legend 2: X-Ray lateral view shows erosion of lateral end of clavicle. Glenohumeral alignment is preserved.

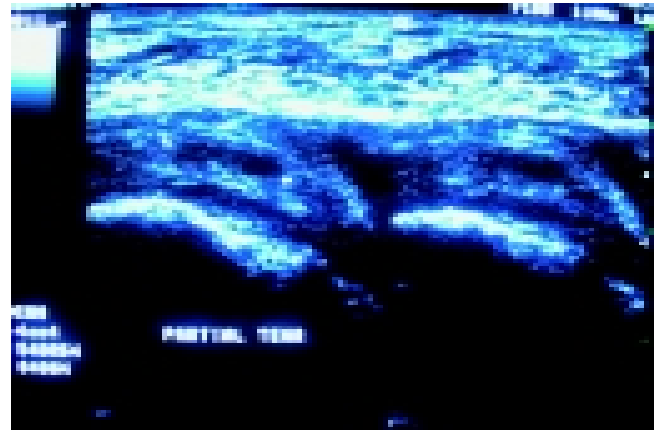


Legend 3: USG shoulder, longitudinal view of biceps tendon show collection in the bicipital groove extending into the acromioclavicular joint & bony irregularity of joint surface

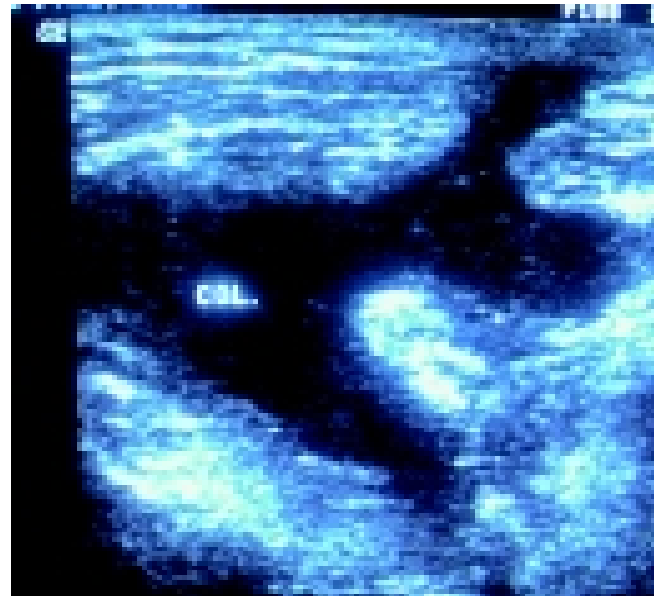
ULTRASONOGRAPHY OF RIGHT SHOULDER:

There is collection along the biceps tendon with extension into the acromioclavicular joint space (Fig.3 & 4) Bony

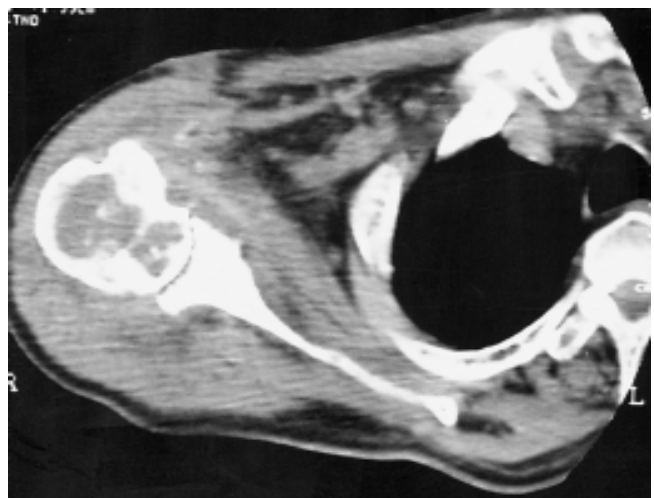
irregularity of acromioclavicular joint is seen. Partial tear of rotator cuff tendon is also noted. (Fig. 5)



Legend 4: USG shoulder, partial tear of supraspinatus tendon is seen.



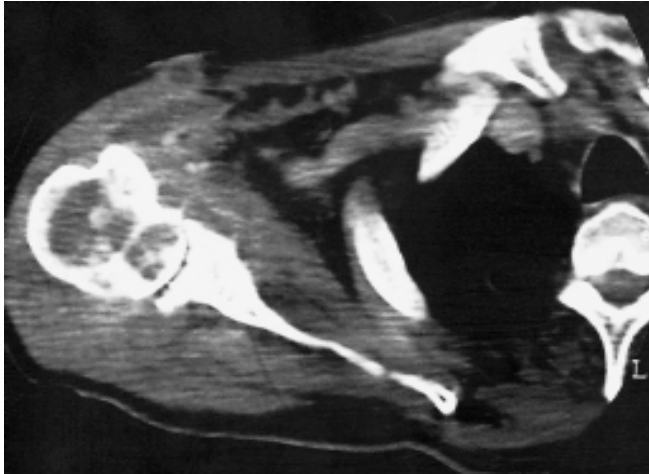
Legend 5: USG shoulder, large collection is seen between the deltoid and subscapularis.



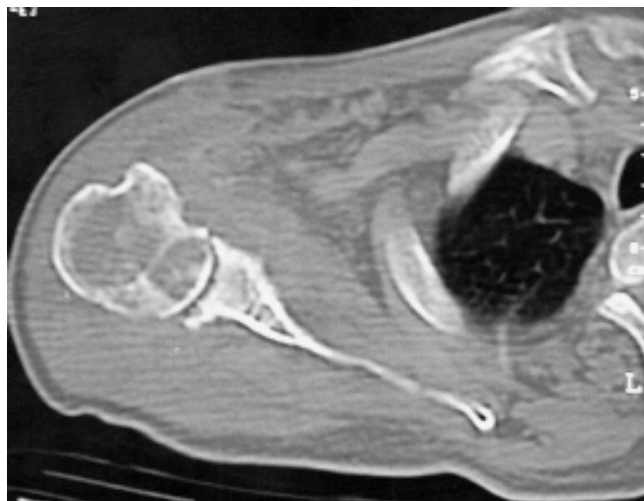
Legend 6: Axial CT plain, bony erosion and soft tissue collection between deltoid and subscapularis with sinus to skin surface.

CT SCAN OF RIGHT SHOULDER

Shows multiple well defined hypodense lytic areas in the humeral head. Narrowing of glenohumeral joint is noted. There is erosion of glenoid surface of scapula (Fig. 6 & 8). Soft tissue fluid collection is seen anterior to humeral tuberosity between the deltoid and subscapularis muscle. This shows peripheral postcontrast enhancement. Small calcific foci are seen in the soft tissue anterior to the shoulder joint (Fig.7)



Legend 7: Axial CT contrast, Peripheral enhancing hypodense collection adjacent to the joint space.



Legend 8: Axial CT plain bone window, nicely depicts bony erosion in the head of the humerus.

DISCUSSION:

Tuberculosis arthritis most typically affects large joints such as the knee and the hip. Rarely other joints like glenohumeral joint can be involved (4). There is a long delay between infection and appearance of clinical symptom, in a majority of cases, due to a slow and insidious pathologic process.

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 (4). In addition there is subchondral erosions, reactive sclerosis and periosteal reactions (5). The fulminant variety seen in our patient is rare in adults but common in children (8). Pathologic abnormalities in tuberculosis arthritis includes changes in synovial membrane and cartilaginous and osseous abnormalities. Inflammatory changes in the synovial membrane is usually more marked if infection follows the penetration of a caseous bone focus into the joint space than if it starts de novo in the membrane itself. An enlarging joint effusion, inflammatory thickening of the periarticular connective tissue and fat contribute to soft tissue swelling. The synovial membrane thickens and is covered by heavy layer of fibrin (4). The rapidity of joint space loss in tuberculosis is highly variable. In some patient diminution of this space is a late finding, occurring after marginal and central erosions of large size have appeared. In others, loss of interosseous space can be appreciated at a time when only small marginal osseous defects are apparent (5). In our case, there was reduction in joint space.

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. The appearance of periarticular osteoporosis, marginal erosions and absent or mild joint space narrowing is most indicative of this disease. In rheumatoid arthritis, osteoporosis and marginal erosions are accompanied by early and significant loss of articular space (4)

In gout, osteoporosis is mild or absent although marginal erosions and preserved interosseous space can be observed in regional osteoporosis, marginal osseous defects are not evident and the joint space is maintained. In idiopathic chondrolysis, osteoporosis and early joint space loss are evident, especially in a hip, although occasionally they occur in other locations as well.

A monoarticular disease process must be regarded as infection until proven otherwise (4). Although it may be difficult to define the nature of the infective agent (e.g. pyogenic, tuberculous or fungal) slow progression of disease, significant osteoporosis and mild sclerosis are more prominent in tuberculosis and fungal than in pyogenic arthritis (5).

Accurate diagnosis mandates synovial fluid aspiration or synovial membrane biopsy. However, other monoarticular processes such as pigmented villonodular synovitis and idiopathic synovial osteochondromatosis may also simulate tuberculosis. In pigmented villonodular synovitis a nodular soft tissue mass, preservation of joint

space and absence of osteoporosis is typical whereas in idiopathic synovial osteochondromatosis calcified and ossified intraarticular bodies are evident.

Abdel Waheb et al reported two cases of tuberculosis, which mimicked neoplasm, but retrospective analysis of the radiographic features offered some clues to the more benign nature of the disease (1).

X-ray of the shoulder joint during the early phase can be unremarkable. However, they are useful for follow up of cases.

High frequency sonography is the only real time cross sectional imaging technique for tendon imaging. Sonograms can be quickly obtained along virtually any orientation and very high frequency transducers now provide exquisite spatial and contrast resolution (3). Associated rotator cuff tears, as in our case, can be very well imaged by ultrasound. Inflammatory arthropathy is indeed one of the predisposing factors for tendon ruptures (9).

Plain and enhanced computed tomography scan demonstrates bone destruction and soft tissue abscess more clearly. Calcification around the joint is readily seen with CT scan. It displays bone details better than any other modality. MRI for example cannot match CT in depiction of cortical and trabecular bone destruction. In cases, in which bone detail is important, CT is often preferable over MRI (6). Although not a study of choice to identify rotator cuff lesions, it is useful for evaluation of glenoid labrum, glenohumeral ligament, and joint capsule (2).

CONCLUSION

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.

REFERENCES

1. Abdel Wahab I F, Kenan S, Klein M J and Robinowitz J G. Atypical skeletal tuberculosis mimicking neoplasm. *British J. Radiology* 1991, 64:551-5.
2. Albert A Moss, David W. Stoller, Harry K. Genant. *Computed Tomography of the body* 2nd Ed. 1992, Vol. 2., W. B. Saunders publication: 464
3. Carol M Rumak, Bruno D. Poruage, *Diagnostic ultrasound*, vol 1, 3rd Ed. Elsevier and Mosby, 2005: 939.
4. Donald Resnick, Gen Niwayama, *Diagnosis of bone and joint Disorder* 2nd ed. Vol.4, W.B. Saunders Publication: 2678-2685
5. Greenfield G B: *Radiology of bone diseases, Diseases of Joints*, 5th Ed, 1990, J.B. Lippincot Company Publication: 953-956
6. Joseph K. T. Lee, Stuart S. Sagel, *Computed tomography with MRI Co-relation*, Vol. 2, 3rd ed. 1998, Lippincot Williams and Wilkins Publication:1391
7. Shih Chang Wang et al. *Joint Sonography Radial Chin North Am. Musculoskeletal ultrasound* Marnix T, Van Holsbeeck 37: 4, July 99, W. B. Saunders Publication: P-660-661
8. Tuli S. M. *Tuberculosis of the skeletal system*. 1st ed. New Delhi, Jaypee Brothers Medical Publisher (P) Ltd. 1993.
9. Van Holsbeek T. M. Joseph H. *Introcaso, Musculoskeletal ultrasound, Pathophysiology and patterns of disease*, 2nd Ed. 2001:198.