

Tuberculosis of the shoulder joint with impingement syndrome as initial presentation

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Received: June 27, 2007 Revised: October 4, 2007 Accepted: January 25, 2008

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. It is necessary to keep tuberculosis in the differential diagnosis of impingement syndrome of the shoulder. We report a young patient presenting with features suggestive of impingement syndrome. After failure to improve with adequate therapy, the patient was further investigated and diagnosed as having early tuberculosis of the shoulder joint. The patient had good clinical recovery with conservative management. The importance of considering early tuberculosis as a differential diagnosis in impingement syndrome is highlighted.

Key words: Diagnosis, differential; Range of motion, articular; Shoulder impingement syndrome; Shoulder joint; Tuberculosis, osteoarticular

Introduction

Tuberculosis remains one of the most pressing health problems of third world countries. With the advent of human immunodeficiency virus, tuberculosis is posing a serious health hazard even in regions of the world where tuberculosis is not endemic. There were 9 million new tuberculosis cases and approximately 2 million tuberculosis deaths in 2004. More than 80% of all tuberculosis patients live in sub-Saharan Africa and Asia [1]. Skeletal tuberculosis, although less common than the pulmonary form, accounts for significant morbidity and mortality. The shoulder joint accounts for nearly 1 to 2% of all skeletal involvement [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.

Case Report

A 25-year-old male athlete presented to our outpatient department with symptoms of pain in his right shoulder for the past one year. His right upper limb was the dominant hand. Pain was insidious in onset and gradually progressive. Pain had increased in severity for the past 3 months. Pain increased on overhead activities initially and was now severe enough to restrict all overhead activities. There was no history of fever, constitutional symptoms or contact with tuberculosis. The patient had been diagnosed as 'impingement syndrome' elsewhere, and put on conservative treatment with heat therapy, analgesics and shoulder exercises.

After almost six months on conservative management, the patient had no improvement and still had persistent pain. On examination, there was no local rise in temperature. However, tenderness was present over the greater tuberosity of the humerus. The shoulder movements were restricted in the abduction and internal rotation planes. Impingement sign and test were positive.

Plain radiograph of the shoulder joint revealed well-defined lytic lesion just medial to the greater tuberosity, involving the head of the humerus. There

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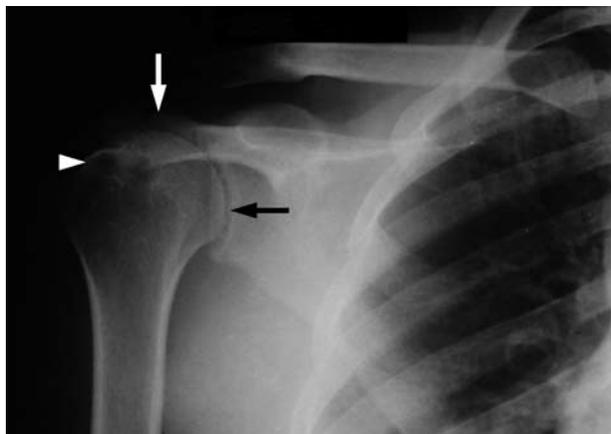


Fig. 1. Radiograph at presentation shows relatively well-defined lytic area medial to greater tuberosity and extending into head of humerus (arrowhead), joint space maintained (black arrow) and mild superior subluxation of humeral head (white arrow).

was mild superior subluxation of the shoulder joint (Fig. 1). The joint space was maintained and no soft tissue abnormality was seen.

Magnetic resonance imaging of the right shoulder was done, which revealed area of altered signal intensity in the superior part of the head of the humerus. There was synovial effusion extending inferiorly in the region of the axilla. There was a reduction in the acromiohumeral space, which explained the clinical presentation of impingement syndrome (Fig. 2). However, the joint surface was maintained. With these findings, a diagnosis of tuberculosis of the shoulder was made. The laboratory investigations of the patient

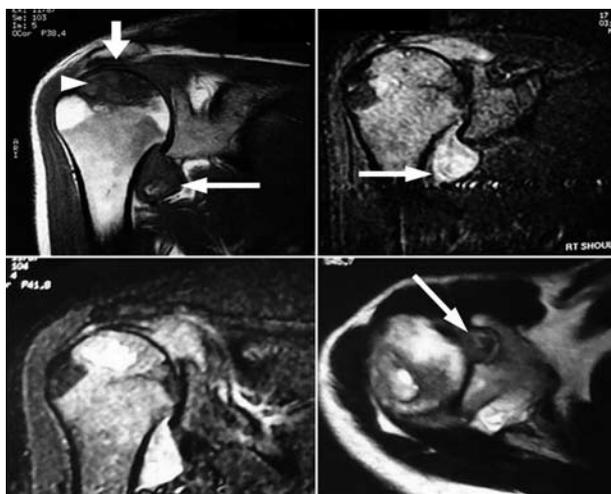


Fig. 2. Magnetic resonance imaging showing area of altered signal intensity involving superior part of head of humerus (arrowhead), synovial effusion of shoulder joint (thin arrows) and reduction of acromiohumeral distance (thick arrow).

revealed a markedly raised erythrocyte sedimentation rate of 41 mm/h. Radiographs of the chest were normal and there was no evidence of tuberculosis elsewhere in the body. The diagnosis was further confirmed by a core biopsy and histopathologic examination which showed tuberculous granulomas with Langhans giant cells typical of tuberculosis (Fig. 3).

The patient was then started on standard oral four-drug antitubercular therapy, initially with isoniazid, rifampicin, ethambutol and pyrazinamide in adequate doses. Once the patient was relieved of pain after one month, gradual shoulder mobilization exercises were started, later progressing to shoulder strengthening exercises. After 6 months of antitubercular treatment, the patient was clinically normal with no pain and minimal restriction of overhead abduction. The patient continued on a full course of antitubercular therapy for 18 months and remains symptom-free with full range of movements one year after completing the treatment.

Discussion

The shoulder joint, the most mobile joint in the body, is exposed to a considerable load during many sporting activities. Anterior shoulder problems are extremely common in throwing athletes [3]. The shoulder can be injured and limited in its function not only by direct and indirect trauma but also by repetitive load. Any repetitive microtrauma, particularly those involving sporting activities requiring repetitive overhead use of the arm, may develop into lesions of tendons, glenohumeral instabilities or impingement of the deep surface of the supraspinatus tendon on the postero-superior glenoid rim, and may be frequently the cause of shoulder pain in athletes [4]. Coracoid impingement syndrome, lesions of the long head of the biceps tendon, and rotator interval lesions are also included in the extensive differential diagnosis which exists for anterior shoulder pain [3]. Impingement syndrome is a common diagnosis made in athletes presenting with shoulder pain. Conservative management is effective in most chronic overuse injuries and includes an initial period of relative rest (avoidance of throwing), oral non-steroidal anti-inflammatory medication, a physical therapy program structured to provide local modalities to reduce inflammation, and a strengthening program for the rotator cuff and scapular rotators. For those athletes with continued symptoms, surgical intervention may become necessary [5]. Though most of

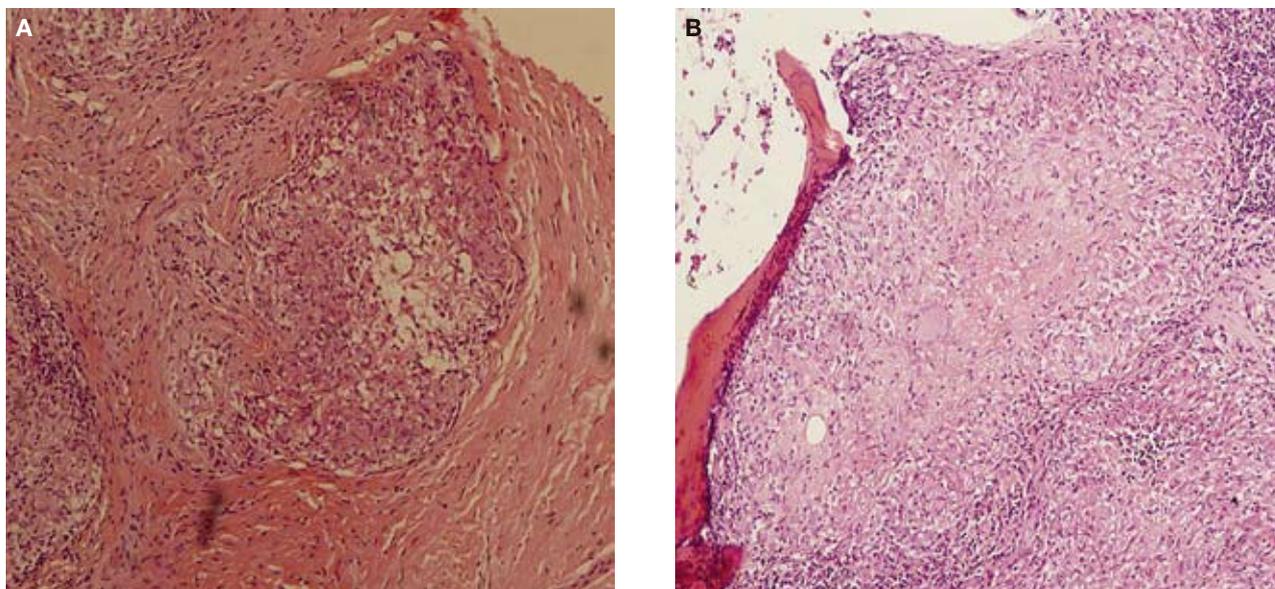


Fig. 3. Histopathologic examination of biopsy specimen showing (A) tuberculous granuloma and (B) Langhans giant cells.

these patients are benefited with conservative measures for impingement syndrome, there might be an occasional patient without improvement. Such patients after a fair trial of conservative therapy need to be investigated in detail with an open mind towards tuberculosis as a diagnosis.

Tuberculosis of the shoulder joint is uncommon [6]. It can be difficult to diagnose in the early stages. Also tuberculosis can run a chronic and extremely insidious course [7]. 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 [8]. It is necessary to keep tuberculosis in the differential diagnosis of several osseous pathologies.

Tuberculosis of shoulder presented in the index case in a subacute form with out any systemic features. This led to the mistaken diagnosis of impingement syndrome in the young patient causing a delay in the actual treatment. The radiograph of the shoulder with no remarkable feature contributed little to the diagnosis. It was only the failure of treatment for impingement syndrome and the magnetic resonance imaging scan of the shoulder joint which led to the suspicion and subsequent confirmation of tuberculosis. Management of this disease is usually conservative providing good results if detected early. Hence it is imperative to consider tuberculosis also in case of any long standing pain of shoulder joint even in a young athlete where the primary concern remains rotator cuff pathologies.

Magnetic resonance imaging scan is a sensitive investigative tool to detect the various pathologies of shoulder joint as enumerated in this case. The mainstay of management involves antitubercular medical therapy, adequate initial immobilization, supportive treatment and rehabilitation. Arthrodesis should be reserved only for lesions that fail to heal and are painfully stiff in spite of adequate chemotherapy and rehabilitation. Conservative management usually gives better results than arthrodesis or excision of the joint [9].

Tuberculosis can present in any form or organ of the human body. In spite of the great strides made in its management, tuberculosis continues to baffle the clinicians with its varied presentations. Though rare in shoulder joint, early presentations of tuberculosis should be kept in mind while managing a case of painful shoulder especially in a young adult, more so in regions endemic for the disease.

References

1. World Health Organization. Global tuberculosis control — surveillance, planning, financing. WHO report 2006. Geneva, Switzerland: World Health Organization; 2006;362:1-4. Available from: http://www.who.int/tb/publications/global_report/2006/pdf/full_report.pdf
2. Tuli SM. Tuberculosis of the shoulder. In: Tuli SM, ed. Tuberculosis of the skeletal system. 3rd ed. New Delhi, India: Jaypee Brothers Medical Publishers (P) Ltd.; 2004:135-43.
3. Paulson MM, Watnik NF, Dines DM. Coracoid impingement syndrome, rotator interval reconstruction, and biceps tenodesis in the overhead athlete. *Orthop Clin North Am.*

2001;32:485-93.

4. Biasca N, Gerber C. Assessment of shoulder pain in athletes. *Schweiz Rundsch Med Prax.* 1996;85:1123-35. [In German, English abstract].
5. Kvitne RS, Jobe FW. The diagnosis and treatment of anterior instability in the throwing athlete. *Clin Orthop Relat Res.* 1993;291:107-23.
6. Mangwani J, Gupta AK, Yadav CS, Rao KS. Unusual presentation of shoulder joint tuberculosis: a case report. *J Orthop Surg (Hong Kong).* 2001;9:57-60.
7. Salliot C, Allanore Y, Lebrun A, Guerini H, Champion K, Anract P, et al. Disseminated extrapulmonary tuberculosis revealed by humeral osteomyelitis with chronic unremarkable pain. *Joint Bone Spine.* 2005;72:263-6.
8. Kapukaya A, Subasi M, Bukte Y, Gur A, Tuzuner T, Kilinc N. Tuberculosis of the shoulder joint. *Joint Bone Spine.* 2006;73:177-81.
9. Martini M, Benkeddache Y, Medjani Y, Gottesman H. Tuberculosis of the upper limb joints. *Int Orthop.* 1986;10:17-23.