

Atypical Presentation of Tuberculosis of Elbow Joint in Operated Case of Distal Humerus Fracture

Yogesh Gaikwad¹, Madhav Khadilkar¹, Ashish S. Ranade¹, Devendra N. Vartak¹

What to Learn from this Article?

TB should be considered as a differential diagnosis in every case of atypical infection.

Abstract

Introduction: A typical presentations of tuberculosis are not uncommon. Periprosthetic infection with tuberculosis after total joint replacement has well published. Tuberculosis of the elbow following open reduction internal fixation of a distal humerus fracture is extremely rare.

Case Report: We report case of a healthy, immunocompetent 49-year-old male who underwent open reduction and internal fixation with bicolunar plating for distal humerus fracture and presented after 18 month with cystic swelling over medial aspect of operated site. There was no wound dehiscence and the underlying fracture was healed well without any signs of implant loosening or bony involvement. Cystic swelling was excised and histopathology provided the diagnosis of tuberculosis. Patient was treated with anti tubercular chemotherapy and patient made uneventful recovery.

Conclusion: Although synovial tuberculosis after fracture fixation is a rare entity, tuberculosis should be kept as a differential diagnosis. Surgeons should have high index of suspicion to diagnose atypical presentations of tuberculosis.

Keywords: distal humerus fracture, elbow, open reduction internal fixation, tuberculosis, osteoarticular.

Introduction

A typical presentations of tuberculosis are not uncommon. Periprosthetic infections with tuberculosis have been reported in the past[1]. However it is very rare to find tuberculous synovitis presenting as a late complication following open reduction internal fixation of a fracture. There are only two case reports describing tuberculosis with involvement of bone after fracture fixation[2,3]. Of those that have been published on the matter, none describe tuberculosis presenting without bony involvement. We present a rare case report of 49 year old male with cystic

swelling over medial side of left elbow joint which was previously operated for fracture supracondylar humerus with bicolunar plating one and half years ago. The cystic swelling was excised and it turned out to be tuberculous synovitis.

Case report

A 49 year old male presented with Left supracondylar humerus fracture with intercondylar extension (Fig 1). Patient had sustained this fracture following fall from steps. There was no history of clinical signs or symptoms of tuberculosis and there was no

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Dr. Yogesh Gaikwad



Dr. Madhav Khadilkar



Dr. Ashish S. Ranade



Dr. Devendra N. Vartak

¹Dept. of Orthopaedics, SKN Medical College, Pune 411041. Maharashtra. India.

Address of Correspondence

Dr Yogesh Gaikwad

Associate Professor, Dept. of orthopaedics, SKN Medical College, Opposite Pune Banglore High Way, Pune - 41. Maharashtra. India. Email:- yogeshrg68@gmail.com

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Figure 1: Anteroposterior and Lateral radiographs showing a supracondylar humerus fracture in intercondylar extension.

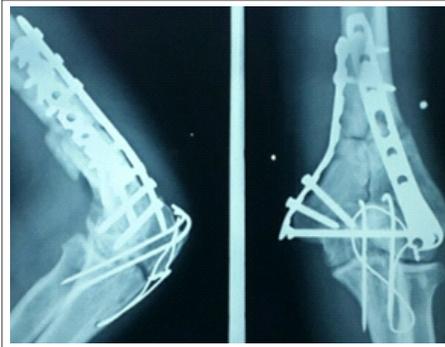


Figure 2: Postoperative radiograph showing bicolumnar fixation and fixation of olecranon osteotomy.



Figure 3: Anteroposterior and lateral radiographs showing healed fracture without any osteolysis, loosening or changes suggestive of tuberculosis

primary focus in the lungs at the time of presentation. The fracture was treated with olecranon osteotomy and medial and lateral column plating (Fig 2). The procedure was uneventful and patient was discharged and followed up routinely. Stitches were removed on 14th post-operative day and the incision healed well. Patient resumed back his activities and remained asymptomatic. Fracture healed well without any problems. After one and half years after the index surgery, patient presented with a swelling over the medial side of operated left elbow joint. He has had swelling since one month duration. There was no history of trauma, fever, any other joint pain or any systemic symptoms. There was no tuberculous contact history in family. Physical examination showed a cystic mass measuring 5x5 cm over medial aspect of operated left elbow with mild tenderness without any erythema. There was no induration over incision site. There was no open wound or discharge. There was no neurological deficit. Movements of elbow were normal with limitation of terminal 5 degrees flexion. Plain radiograph of left elbow showed united distal humerus fracture (Fig 3) without any lysis, erosions or reduction in joint space. There were no signs of implant loosening. The white cell count was 5800/mm³, ESR was 20 mm at end of 1 hour, CRP was negative and, all other serum biochemical investigations were within normal limits. Chest X ray was normal. Serology was negative for HIV 1 and HIV 2. Diagnosis of infective bursa made. Patient underwent excision of bursa from medial incision (Fig 4). Aspiration of fluid from cyst just prior to surgery revealed yellowish turbid content. Bursa excision was done which

was found to be a cyst arising from synovium of elbow joint and material with cyst wall and synovium was sent for culture and histopathology. Medial plate was removed and fracture was found to be healed. There was no loosening of screws. Articular surface was not involved and there was no bony involvement. Pathological examination of excised material showed granulomatous tissue and extensive areas of fibrinoid necrosis. The granuloma consisted of epithelioid cells and Langhans giant cells suggestive of tuberculosis. The patient was started on standard protocol of anti-tuberculosis drugs for extra pulmonary tuberculosis. Patient responded well to antitubercular chemotherapy. (Figs 5, 6) The patient was informed about the use of pertaining data for case report publication.

Discussion

Atypical presentations of osteoarticular tuberculosis are known. There are reports of tuberculosis infection following total joint arthroplasty [1, 4]. However tuberculosis following internal fixation of a fracture has been very rare [2, 3]. This case report describes a case of tuberculous synovitis after distal humerus fracture fixation. Osteoarticular tuberculosis is characteristically a monoarticular disease and usually affects weight-bearing joints, with 10-15% being polyarticular. Non-weight bearing joints affected by tuberculosis, such as the elbow, are rarely reported in the medical literature. Tuberculous infection of the upper extremities and synovitis of the elbow joint are relatively rare and difficult to



Figure 4: Intra-operative picture showing medial cystic swelling that was arising from synovium of the elbow joint.

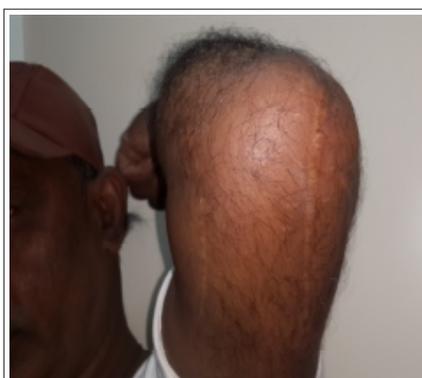


Figure 5: Clinical picture showing healed incision after cyst excision and good painfree range of motion of the elbow joint.



Figure 6: Anteroposterior and lateral radiographs after cyst excision and removal of medial plate with out any bony change of tuberculosis.

diagnose accurately at an early stage. [5,6, 7] The common diagnostic dilemma in elbow TB is due to the similarity of disease with the more common pathologies like rheumatoid arthritis, low virulence pyogenic arthritis, gout, pigmented villonodular synovitis and even sometimes neoplasms.

Tubercle bacilli tend to remain dormant following initial spread from the primary complex. The bacteria can reach implant by hematogenous spread or by local reactivation of dormant bacteria. Reduced immune response following trauma has been thought to cause reactivation of dormant bacteria at a distant focus [8,9].

Kumar et al have reported a series of five patients having skeletal tuberculosis after fracture fixation [2]. The authors found that all patients were exposed to severe trauma; all fractures were in the metaphyseal region. The range of time frame between initial surgery and diagnosis of tuberculosis was four to nine months. Our patient is different in several aspects to the patients in the series by Kumar et al. our patient was not exposed to severe trauma, there was no bony involvement and there was no loosening of implant. The longest duration between surgery and manifestation of infection was of 9 months in the series by Kumar et al. Our patient presented after 18 months from the index procedure.

In another report by Habib et al, olecranon fracture fixation was complicated by tuberculous infection in early post-operative period. There was involvement of the bone and the implants were loose needing implant removal [3].

In our case the insidious onset of non-tender cystic swelling over medial elbow joint arising from synovium appears to be primary focus of tuberculosis because there was no evidence of TB foci elsewhere in the body. Radiological findings in osteoarticular tuberculosis are nonspecific and

require aspiration or synovial biopsy for culture and histopathological examination for confirmation of diagnosis. A high degree of clinical suspicion is necessary for early diagnosis and prompt treatment so as to avoid later complication. As this case illustrates, patients with extrapulmonary tuberculosis do not always have the classic systemic symptoms associated with pulmonary tuberculosis. Also every post-operative patient with swelling at operative site may not be pyogenic infection but should be investigated thoroughly keeping in mind the differentials like tuberculosis. In addition, the blood investigations and radiographs of the joint may be normal. However, it is important to realize that these 'normal' findings do not rule out disease. A history of exposure to, and risk factors for, tuberculosis especially in the presence of atypical osteoarticular disease should always be considered in endemic countries.

Although tuberculosis as a late complication following open reduction internal fixation of a fracture is very rare, tuberculosis should be kept as one of the differential diagnosis.

Conclusion

Although synovial tuberculosis after fracture fixation is a rare complication, tuberculosis should be kept as a differential diagnosis. Surgeons should have high index of suspicion to diagnose atypical presentations of tuberculosis. While dealing with such cases, it is prudent to send the debrided material for histopathological examination.

Clinical Message

Tuberculosis should be kept as a differential diagnosis of late complication following open reduction and internal fixation of a fracture. Surgeons should have high index of suspicion while diagnosing atypical presentations of tuberculosis.

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