



A RARE CASE OF TUBERCULOSIS ELBOW ARTHRITIS

Orthopaedics

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ABSTRACT

Elbow joint tuberculosis arthritis is the rare presentation of extra-pulmonary tuberculosis. The elbow joint is the most frequently involved joint in tubercular infections of the upper limb. The reported incidence of elbow TB varies from 2 to 5% of all skeletal locations. This is a case report of rare presentation of extra-pulmonary tuberculosis in a previously fit and healthy 75-year-old female. At the end of treatment patient was improved symptomatically and regained full range of movement.

KEYWORDS

Elbow joint tuberculosis, synovial biopsy, anti-tuberculosis treatment

3. INTRODUCTION:

The lack of specific signs and symptoms of extrapulmonary involvement may be contributory factors to a delay in diagnosis of atypical presentations. The elbow joint is the most frequently involved joint in tubercular infections of the upper limb. The reported incidence of elbow TB varies from 2 to 5% of all skeletal locations.^{1,2} There are few published major reports focusing on TB of the elbow joint.³

4. CASE REPORT:

4.1 A 75 year old female came with complaints of left elbow pain and swelling for past 5 months. Physical examination revealed tenderness over the lateral epicondyle and olecranon process. Range of motion in left elbow was affected globally. In systemic review there were no respiratory symptoms like cough, sputum and dyspnoea or systemic symptoms like fever, chills and weight loss.

4.2 In our patient, oligo-arthritis was presumed and was treated with analgesics and anti-inflammatory drugs. But the patient symptoms persisted. To make differential diagnosis, plain radiography of the left elbow joint and haematological examination was performed.

4.3 On the plain radiograph, there was intra-articular effusion, multiple bone erosions around the joint and an overall decrease in the joint space (Fig 1). On haematological testing, the erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) were elevated to 52mm and 4.8 mg/dl respectively. The WBC count, rheumatoid factor were all normal. Montoux test was done and found to be negative. Relevant serological tests confirmed that the patient was not immunocompromised. An MRI scan of the left elbow revealed joint effusion with marked marrow oedema and loss of cortex of the lateral epicondyle with features suggestive of tuberculosis. (Fig 2).



Fig 1: X-ray of left elbow joint showing intra-articular effusion with multiple bone erosions around the joint and an overall decrease in the joint space.

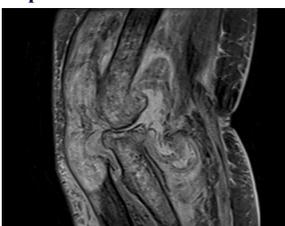


Fig 2: MRI of left elbow showing joint effusion with marked marrow oedema and loss of cortex of the lateral epicondyle.

4.4 As a result, she underwent a right elbow synovial biopsy with debridement and washout of the joint. The synovial biopsy results confirmed eroded bone and caseating granulomata, consistent with tuberculosis, with polymerase chain reaction (PCR) testing showing evidence of *Mycobacterium Tuberculosis*.

4.5 As a result of the culture and biopsy findings, the patient was commenced on anti-tuberculous therapy and was treated for a total period of 14–18 months with anti-tubercular chemotherapy with four drugs comprising isoniazid (INH), Rifampicin, Ethambutol and Pyrazinamide. The elbow joint was immobilized initially in an above elbow plaster slab for a period of 4–8 weeks at 90° of elbow flexion and neutral forearm rotation, till the inflammation, swelling and spasm subsided. This was followed by mobilization of elbow and strengthening protocols for 2–6 months. The back slab was continued during night time and rest periods for periods ranging from 3 to 6 months. By the end of the treatment period, she regained full range of movement of her right elbow. In the due course of the treatment, ESR, C-reactive protein and LFT was monitored for each month.

5. DISCUSSION:

5.1 Tuberculosis is classified as either pulmonary or extra-pulmonary, with bone and joint tuberculosis accounting for up to 35% of extra-pulmonary tuberculosis. **4** The spine is involved in half of all musculoskeletal cases (Pott's disease). **5** In the remainder, osteo-articular tuberculosis usually affects weight-bearing joints, with 15% being poly-articular but non-weight bearing joints affected by tuberculosis, such as the elbow, are not frequently reported in the medical literature. **5** Clinically, the diagnosis of osteoarticular tuberculosis can be difficult. The most consistent symptoms include a gradual onset of joint pain associated with swelling and a decreased range of motion. **6** A recent case report has highlighted a progression to septic arthritis as a result of misdiagnosis. **7** Systemic symptoms are usually absent in extrapulmonary tuberculosis **6** and pulmonary disease is only seen on chest radiographs of 50% of patients presenting with musculoskeletal tuberculosis. **7**

5.2 Changes in plain film radiography of the affected joint may include non-specific changes including joint effusion (as in this case), soft tissue swelling, joint space narrowing (as in this case), subchondral erosions and osteopenia. **3** However, the changes may be absent and further imaging modalities will be required to aid diagnosis. **9** The role of MRI is well-documented to provide further aid to the diagnosis. Features include bone marrow changes indicating either osteomyelitis or bone marrow oedema, chondral and sub-chondral bone erosions, synovial thickening, joint effusions and loss of joint space. **10** T1- and T2-weighted MRI images demonstrate marrow changes as areas of low and high signal intensity, respectively, which are enhanced with administration of intravenous gadolinium contrast. **10**

5.3 A recent study shows synovial thickening associated with osteoarticular tuberculosis is hypointense on T2-weighted MRI images, distinguishing this from other proliferating synovial

arthropathies.¹¹ However, radiological findings in osteoarticular tuberculosis are non-specific and require aspiration or synovial biopsy for definitive diagnosis. Microscopy and cultures of synovial fluid yield positive results in up to 80% of patients with osteoarticular tuberculosis.⁹ The remainder are diagnosed through synovial, or bone biopsies, with positive mycobacterial culture and caseating granulomata on histology.¹¹

6. CONCLUSION:

Diagnosing osteoarticular tuberculosis clinically can be difficult and the clinician should always have a high index of suspicion. Not considering tuberculosis as a possibility in the differential diagnosis can delay definitive treatment by up to 10 years (with the mean being 16–19 months) leading to an increase in complications and loss of joint function.⁴ As this case illustrates, patients with extrapulmonary tuberculosis do not always have the classic systemic symptoms associated with pulmonary tuberculosis. In addition, radiographs of the joint may look essentially 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 be considered always

7. REFERENCES:

1. Review Osteoarticular tuberculosis of the foot and ankle. Dhillon MS, Tuli SM *Foot Ankle Int.* 2001 Aug; 22(8):679-86. [PubMed] [Ref list]
2. Tuli SM. In *Tuberculosis of the skeletal system*. 2nd ed. N Delhi: Jaypee Brothers; 1997. Tuberculosis of elbow joint; pp. 132–40. [Ref list]
3. Tuberculosis of the upper extremity. Skoll PJ, Hudson DA *Ann Plast Surg.* 1999 Oct; 43(4):374-8. [PubMed] [Ref list]
4. Review Bone and joint tuberculosis--a 10-year review. Grosskopf I, Ben David A, Charach G, Hochman I, Pitlik S *Isr J Med Sci.* 1994 Apr; 30(4):278-83. [PubMed] [Ref list]
5. Review Rheumatologic manifestations of tuberculosis. Kramer N, Rosenstein ED *Bull Rheum Dis.* 1997 May; 46(3):5-8. [PubMed] [Ref list]
6. Review Extrapulmonary tuberculosis: an overview. Golden MP, Vikram HR *Am Fam Physician.* 2005 Nov 1; 72(9):1761-8. [PubMed] [Ref list]
7. Elbow pain proven to be tuberculous arthritis - A case report. Jung SS, Lee MK, Lim SH, Kwon YM, Choi SS *Korean J Anesthesiol.* 2010 Feb; 58(2):211-4. [PubMed] [Ref list]
8. Review Imaging of extraspinal musculoskeletal tuberculosis. De Backer AI, Mortelé KJ, Vanhoenacker FM, Parizel PM *Eur J Radiol.* 2006 Jan; 57(1):119-30. [PubMed] [Ref list]
9. Review Tuberculosis of bones and joints. Watts HG, Lifeso RM *J Bone Joint Surg Am.* 1996 Feb; 78(2):288-98. [PubMed] [Ref list]
10. Tuberculous versus pyogenic arthritis: MR imaging evaluation. Hong SH, Kim SM, Ahn JM, Chung HW, Shin MJ, Kang HS *Radiology.* 2001 Mar; 218(3):848-53. [PubMed] [Ref list]
11. MRI features of tuberculosis of the knee. Sanghvi DA, Iyer VR, Deshmukh T, Hoskote SS *Skeletal Radiol.* 2009 Mar; 38(3):267-73. [PubMed] [Ref list]