

An Unusual Case of Swelling of Tuberculosis of Elbow and Forearm: A Case Report

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Learning Point of the Article:

Any soft tissue swelling adjacent to a joint, a thorough evaluation to rule out osteoarticular tuberculosis is highly recommended.

Abstract

Introduction: Mycobacterial infection of the upper extremities is rare with elbow joint being most frequently affected accounting for 2– to 5% of all skeletal localizations. Diagnosis is of paramount importance in tuberculosis of elbow because delay in analysis could prime to serious difficulties.

Case Presentation: We describe a rare presentation of a 38-year-old male with tuberculosis of elbow joint. Massive swelling of forearm with subcutaneous collection without any significant involvement of forearm muscles has rarely been reported. This case will be a significant addition to literature with respect to clinical presentation of elbow tuberculosis.

Conclusion: Tuberculosis of elbow along with that of a forearm is rare and surgical intervention can lead to better outcomes in these patients.

Keywords: Tuberculosis, elbow, forearm.

Introduction

Musculoskeletal tuberculosis has been showing a resurgence in the past few years due to the increased number of immunocompromised individual and emergence of drug-resistant bacteria [1]. Musculoskeletal system is involved in 1–3% of patients with tuberculosis and accounts for 10% of all extra-pulmonary tuberculosis with the common sites being the spine (51%), pelvis (12%), hip and femur (10%), knee and tibia (10%), and ribs (7%). Mycobacterial disease of the upper extremities is rare with elbow joint most frequently acted on, accounting for 2–5% of all skeletal location [1, 2, 3]. Diagnosing is of most importance in osteoarticular T.B. as a result of delay in diagnosing will cause serious complications. In spite of wide organized row of investigations accessible for tuberculosis, the importance of history and clinical examination of the patient cannot be interfered with, however, clinical presentation is not

very common sometimes like this in a 38-year-old male with huge forearm swelling. We are reporting this case to highlight the clinical presentation of tuberculosis of elbow and forearm with an aim of adding something new in the literature.

Case presentation

A male of a 38-year-old presented to us with pain complaints and swelling in his right elbow and forearm for the past 1 year. Pain was insidious in onset, moderate in intensity, non-radiating, gradually progressive in nature, aggravated by movement, partially relieved with rest. Initially, the swelling was localized to elbow joint extending to forearm on the past few months. No history of weight loss was there and any history of trauma but was associated with episodes of fever. On examination, the patient appeared malnourished, locally

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Author's Photo Gallery



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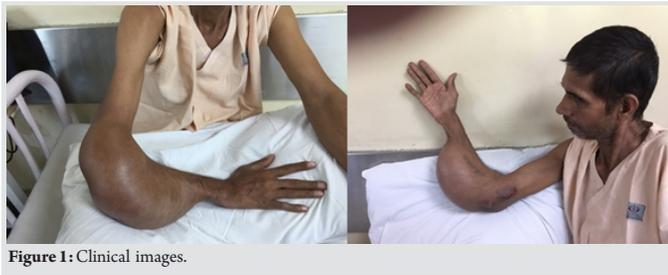


Figure 1: Clinical images.

massive swelling extending from elbow to distal forearm was seen. Swelling was circumferential around the elbow joint, distally it was localized to anterolateral aspect of forearm. It was tense, with prominent veins, and was tender around the elbow but non-tender around forearm. It was soft and cystic in consistency, compressible, with positive fluctuation. Movements around elbow joints were limited (Fig. 1). Distal neurovascular status was intact. Blood picture revealed raised lymphocyte count with raised erythrocyte sedimentation rate. Radiologically, X-ray of elbow joint showed arthritic changes along with multiple ill-defined non sclerotic lytic lesion involving humeral condyles, olecranon process of ulna, and radial head along with large soft-tissue shadow (Fig. 2). MRI was suggestive of large collection along the anterolateral aspect of the right forearm which was mainly restricted to subcutaneous plane (Fig. 3). Incision and drainage of the swelling was done under GA. Intraoperatively, the swelling was filled with purulent exudates of around 1 L in volume (Fig. 4). The microbiological and histopathological examination of the synovial and necrotic tissue showed caseating granulomas with cells is as Langhans giant consistent with tuberculosis. Postoperatively, the patient was put on antitubercular drugs which included four agent drug treatment using isoniazid, rifampicin, pyrazinamide, and ethambutol (AKT-4). On follow-up at 4 weeks and 3 months, thereafter the swelling did not recur (Fig. 5). At present, he is improving with no recurrence of swelling.

Discussion

“Non-weight-bearing joints affected by tuberculosis, elbow joint being the most frequently involved joint in the upper extremity followed by shoulder joint” [1, 2]. “Mycobacterium



Figure 2: X-ray showing arthritic and bony changes along with huge soft-tissue shadow.

tuberculosis is the main causative organism with only few cases attributable to *Mycobacterium bovis* and atypical *Mycobacterium*” [4]. “Osteoarticular tuberculosis is the result of blood, lymphatic, or local contamination from adjacent or other areas of primary infection with rare cases from direct inoculation of bacteria” [5].

Pathogenesis of elbow joint tuberculosis involves reactive hyperemia resulting in marked juxta-articular bone demineralization, local bone destruction, periosteal new bone formation, and forearm involvement ranging from involvement of subcutaneous plane or forearm muscles. Infection starts as synovitis causing joint effusion erosions and destruction of bone and cartilage. When untreated para-articular soft tissue are also involved. This involvement may confine to muscles or rarely to subcutaneous tissue.

Clinically, the diagnosis of osteoarticular tuberculosis is difficult with gradual onset of joint pain, swelling, decreased range of motion progressive loss of function, and deformity. During the early phase, tuberculous osteoarthritis might be quickly mistaken for trauma, septic, or rheumatoid osteoarthritis.

“Osteoarticular TB should be suspected in patients of South Asian and African origin presenting with bony and soft-tissue infective lesions” [6]. Even though in most instances, biopsy or

maybe culture specimen is forced to create the conclusive analysis, it is critical that “Radiologists and clinicians understand the typical distribution, patterns, and imaging manifestations of musculoskeletal tuberculosis” [7]. In the Indian subcontinent, the presentation of elbow tuberculosis is usually exudative with abscess formation

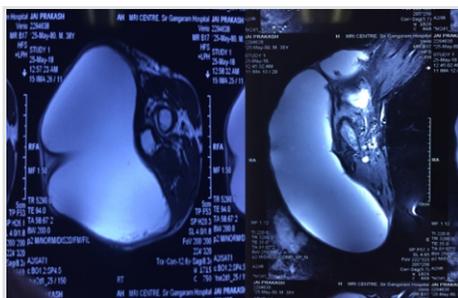


Figure 3: Magnetic resonance imaging showing large collection along the antero-lateral aspect of the right forearm. which was mainly subcutaneous.



Figure 4: Intra operative pictures of incision and drainage along with approximately 1 LITRE pus drained.



Figure 5: Follow-up after 4 weeks.

and the disease is fairly advanced at the time of diagnosis as in our case. Delay in diagnosis can lead result in problems of irreversible osteodestruction and septic osteoarthritis.

In our case, the elbow swelling was mastered by the forearm swelling and was mistaken as some tumor. Changes in plain film radiography of the affected joint included periarticular osteoporosis, peripherally located osseous erosions and gradual narrowing of the cartilage space known as Pheemister triad. Round or oval lesions with poorly defined margins in bone adjacent to the affected joint with joint effusion and soft-tissue swelling are a common finding in extremity tuberculosis, as in our patient. MRI features include bone marrow changes indicating osteomyelitis or bone marrow edema, bone erosions, synovial thickening, and joint effusion. Synovial thickening associated with osteoarticular tuberculosis is hypointense on T2-weighted MRI images, distinguishing this from other proliferating synovial arthropathies.

Radiological findings in osteoarticular tuberculosis are non-specific and require aspiration or synovial biopsy for definitive diagnosis. Cultures and synovial microscopy yield positive results in up to 80% of individuals with osteoarticular tuberculosis while residual is identified through complete synovial or even biopsies of bone. Histology displays caseating granulomas though a Ziehl-Nielsen stain is negative.

The surgical intervention could appreciably alter the outcome, especially in patients with extra-articular involvement close to the joint. Massive swelling of forearm with subcutaneous collection without any significant involvement of forearm muscles has rarely been reported. This case will be a significant addition to literature with respect to clinical presentation of elbow tuberculosis as similar studies by Protzman et al., [8] Yazici et al. [9] prescribed a fairly conservative approach with just the conservative management we recommend if the swelling is massive or unusual extending to arm or forearm, surgical intervention is a better option.

Conclusion

Although extra-articular involvement in elbow tuberculosis is rare, in unusual presentation of forearm swelling, this has to be kept in mind and that surgical intervention can lead to better outcomes in these patients.

Clinical Message

Extra-articular tuberculosis is a rare entity still any soft-tissue swelling adjacent to a joint, a thorough clinical and radiological evaluation to rule out osteoarticular tuberculosis should be done.

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