



Isolated tuberculous tenosynovitis of the flexor carpi ulnaris : A case report and review of literature

Ish K. DHAMMI, Sandeep SINGH, Anil K. JAIN, Sudhir KUMAR

From the University College of Medical Sciences and Guru Teg Bahadur Hospital and the Malviya Nagar Hospital, Delhi, India

Musculoskeletal involvement is seen in only about 1.3% of all patients with tuberculosis. Very few cases of isolated tuberculous synovitis have been reported. The rarity of this condition often leads to the failure to consider tuberculosis in the differential diagnosis, resulting in delayed therapy. We present one such case of isolated tuberculous tenosynovitis of the flexor carpi ulnaris in an otherwise healthy, 17-year-old female, which healed completely on conservative treatment.

Keywords : tuberculous tenosynovitis ; flexor carpi ulnaris ; musculoskeletal tuberculosis ; extra-pulmonary tuberculosis.

INTRODUCTION

Tuberculosis was first described in 1756 by Acrel in a case report (*in 6*). Musculoskeletal involvement which includes infection of the bones, joints, bursae and tendons is found in about 1.3% of all patients with tuberculosis (*13*). Involvement of tendon sheaths is rare and the exact prevalence of tuberculous synovitis is not known (*7*). Tendons at the wrist are involved most often, though cases of tuberculous synovitis of other tendons such as the peroneal and the Achilles tendon have been reported in the literature (*1*). Most cases of tuberculous synovitis have an associated lesion elsewhere in the body and very few cases of isolated tuberculous synovitis have been reported. We present one such case of isolated tuberculous synovitis of the

flexor carpi ulnaris in an otherwise healthy, 17 year-old female, along with review of literature. To the best of our knowledge, no such case has been reported in the English language literature.

CASE REPORT

A 17-year-old otherwise healthy female presented with the complaint of a painless swelling over the ulnar border of the distal third of her left forearm for the last 3 months. There was no history of trauma, fever or any other constitutional symptom. On examination there was a 6 × 3 cm, fluctuant, non-tender swelling over the ulnar border of the distal third of the forearm. The local temperature was normal with no redness in the region. The hand, wrist and elbow movements were full and free. The epitrochlear lymph node was not enlarged. Fine needle aspiration of the swelling

n Ish K. Dhammi, MD, Orthopaedic Specialist.

n Anil K. Jain, MD, Professor.

n Sudhir Kumar, MD, Professor.

University College of Medical Sciences and Guru Teg Bahadur Hospital, Delhi, India.

n Sandeep Singh, MD, Junior Specialist.

Malviya Nagar Hospital, Delhi, India.

Correspondence : Dr Sandeep Singh, A-175, Chattarpur Enclave, Phase 2, New Delhi -110074, India.

E-mail : dr_san_singh@yahoo.com.

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Fig. 1. — Radiograph of the left wrist with forearm (AP and lateral views) of a 17-year-old female, showing a soft tissue mass over the ulnar border of the distal third of the forearm.

yielded a straw colour fluid, which on staining, turned out to be positive for acid-fast bacilli (AFB). Radiographs of the region showed a soft tissue mass without any bony involvement (fig 1). The chest radiograph was within normal limits. The erythrocyte sedimentation rate (ESR) was raised (20 mm/1st hour) and the total leukocyte count (TLC) was within normal limits. Ultrasound of the left forearm revealed thickening of the synovial sheath with fluid along the flexor carpi ulnaris, suggestive of tenosynovitis. CT scan of the wrist and distal third of the forearm did not show any bony changes.

The patient was put on 4-drug anti-tubercular therapy (ATT) and within 3 months she could

appreciate a decrease in the size of the swelling. By the sixth month, the swelling had completely disappeared. Anti-tubercular therapy (ATT) was continued for 12 months. After three years of follow-up, the patient has no complaints.

DISCUSSION

Tuberculous tenosynovitis most commonly involves the tendons around the wrist (3). In rare cases the infection may start in the tendons of the finger and progress through the palm into the tendon sheaths at the wrist (12). Since the sheath of the little finger is in communication with the ulnar bursa in at least 50% of the subjects, this finger is excluded (11). Bunnel states that the right hand is involved about twice as often as the left hand and the volar tendons about twice as frequently as the dorsal ones (6). In our case, the flexor carpi ulnaris alone was involved without any extension to the synovial sheaths of the hand.

There are two theories regarding the aetiopathogenesis of tubercular synovitis: direct inoculation and the haematogenous dissemination from a primary focus, usually the lungs. The prevalence of active pulmonary tuberculosis co existing with the rarer manifestation of the disease has been less than 30% (10). Perugia *et al* observed that both of these theories are valid and indicated that each case should be examined individually (12). Sporadic reports in the literature have indicated that primary tuberculosis of soft tissues may be transmitted by the syringes (2). In our case no primary focus could be identified, neither was there evidence of a direct inoculation.

The onset of the disease is characteristically gradual and insidious, with a slowly progressive swelling in the involved part, followed by pain and limitation of the movements. A visible inflammatory condition of the skin and the overlying structures is unusual and the tenderness is usually not marked. Paraesthesia and numbness are not uncommon. Carpal tunnel syndrome as a result of tuberculous synovitis has been reported (12). Interestingly our patient had no signs and symptoms other than a swelling over the ulnar border of the distal third of his left forearm.

Tuberculous synovitis is difficult to diagnose. Laboratory studies are not of great importance. Routine blood investigations may show anaemia, leucopenia, monocytosis and eosinophilia. ESR may or may not be raised. The tuberculin test when positive, strongly suggests a tubercular process (9). Radiographs in isolated cases of tuberculous synovitis may not show any abnormality except a soft tissue swelling. Direct smear examination of the pathological material, in cases with the disease of shorter duration and who were not previously on ATT may reveal AFB in the synovial fluid aspirate in 10%, in the synovial tissue in 20% and in the regional lymph node in 30% of the cases (14). CT scans are helpful in demonstrating small destroyed areas in the bone and marginal erosions much before these can be detected on radiographs. It is an excellent investigation to rule out any bony involvement and in our opinion no case should be diagnosed as isolated soft tissue infection without performing a CT scan. Ultrasonography has been used by some authors to estimate the presence of soft tissue abscesses and their behaviour under treatment.

A diagnosis is usually confirmed both histologically and bacteriologically from the tissue obtained during the surgical intervention. During surgery one may find that the walls of the tendon sheath are thin and translucent or thick and fibrotic. The lining membrane is replaced by tuberculous granulation tissue. The swelling may contain serous fluid, masses of fibrinous material, melon seed bodies or caseous material (10). Recent advances in molecular biology have provided new techniques to diagnose infections, such as the southern blot analysis and the polymerase chain reaction (PCR). PCR is so sensitive that a single DNA molecule can be identified as a distinct band (4).

The differential diagnosis of tuberculous synovitis includes infected ganglion, tumours originating from the synovium such as synovial chondromatosis, and other non-specific tenosynovitis (13). The rarity of this condition often leads to the failure to consider tuberculosis in the differential diagnosis, resulting in delayed therapy.

Chemotherapy should form the basis of the treatment for tuberculous tenosynovitis. During the

early stage of the disease, the exudative phase, surgical drainage often brings relief of symptoms but never arrests the disease process (9). Surgery should be undertaken in advanced cases or those not responding favourably (14). Recurrences have been reported in the literature (7, 9). The rate of recurrence was higher in instances where surgical debridement alone was undertaken (7). It was significantly reduced in cases where streptomycin was included in the drug therapy (5). Contrary to our observation, Bickel and Kimbrough (5) found that the conservative treatment alone was usually not successful.

Tuberculous synovitis should be considered in patients residing in endemic areas, who present with swelling along the wrist tendons. A normal chest radiograph, absence of systemic symptoms or the absence of other foci of active tuberculosis should not dissuade one from making the diagnosis. Thus a rare case of tuberculous tenosynovitis, involving the flexor carpi ulnaris alone, which healed completely on conservative treatment, is presented along with a complete review of literature.

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