

Case Report

Tuberculosis tenosynovitis of the wrist: a rare case report

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ABSTRACT

Tuberculosis (TB) is a common disease of the Asian continent and has a varied presentation. Involvement of the musculoskeletal system is uncommon and presents in 10% of extrapulmonary tuberculosis. The atypical sites of tuberculous infection are the spine (51%) pelvis (12%), hip and femur (10%), knee and tibia (10%), and ribs (7%), but involvement of the wrist is rare. Tuberculosis tenosynovitis is a rare site of extra-articular TB. Delayed diagnosis and hence treatment is because it mimics many other disease processes and as a result, complications are common. Median nerve compression leading to carpal tunnel syndrome may also occur in these patients. Here, we present a case of tuberculous tenosynovitis involving the wrist flexors and the radial and ulnar bursae treated with surgery.

Keywords: Tuberculosis, Tenosynovitis, Carpal tunnel, Wrist, Surgery

INTRODUCTION

The incidence of tuberculosis of the skeletal system is 1% to 3% of all the patients with tuberculosis and 50% are those that involve the spine and extraspinal articulating joints.^{1,2} The wrist joint is among the rare sites of extrapulmonary TB. Tuberculosis of the joints has an insidious onset and is usually diagnosed at the stage of complications.³ TB rheumatism or Poncet's disease is to be differentiated from TB arthritis as TB rheumatism is a non-destructive variant of joint inflammation which is seen during the acute phase of TB. TB arthritis is a destructive arthritis commonly affecting a single joint and is where the organism can be obtained.⁴ TB arthritis begins with synovitis, leads to periarticular demineralization, marginal erosions and finally damages the joint.⁵ Rapid progression resulting from synovial inflammation and damage is seen of the weight-bearing joints. In the presence of a superinfection like Staphylococcus aureus, there is acceleration of joint destruction along with a systemic inflammatory response.² The delay in diagnosis

is due to non-specific symptoms like malaise and constitutional symptoms.² These delays in diagnosis and treatment could result in the destruction of more parts of the involved bone, adjacent bones or joints.⁵

CASE REPORT

22 years old male presented to us with a swelling of the volar side of right wrist since 1.5 years. The patient was apparently normal 2.5 years back when he noticed a swelling of the right wrist for which he was treated at a private hospital with surgery. The swelling recurrent 4 months after the surgery and has gradually increased in size to the present size. There was history of pain and difficulty in using the right wrist with no history of fever, loss of weight, loss of appetite, trauma, ulceration or discharge. There was no history of any co-morbid illnesses. On examination, a vertical surgical scar was seen along the volar aspect of right wrist with a diffuse swelling of size 4×3×2 cm over the flexor aspect of proximal wrist with a smooth surface and normal overlying skin. (Figure 1) There was no warmth or tenderness present. Wrist joint

movements were present but painful at the extremes with normal finger and thumb flexion and extension.



Figure 1: Swelling right wrist.

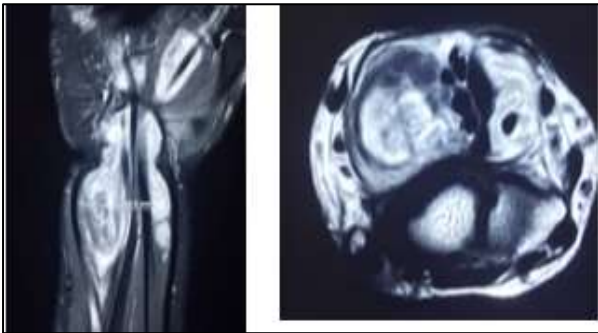


Figure 2: Mixed intense lesion along the flexor tendons of right wrist with involvement of the radial and ulnar bursae in a horse-shoe manner.

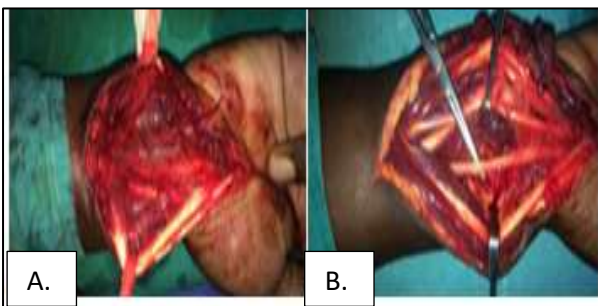


Figure 3: (A) Lesion. (B) The intact median nerve.



Figure 4: Photograph after excision.



Figure 5: Early post-operative picture.

Magnetic resonance imaging (MRI) of the wrist revealed a large mixed intense, diffusion restricted lobulated lesion along the flexor tendons of right wrist extending along the radial and ulnar bursae in a horse-shoe manner with significant distension of the carpal tunnel suggestive of a complex bursitis or a synovial tumour. (Figure 2) We planned for surgical exploration of the wrist. Under general anaesthesia, tourniquet control and loupe magnification, a lazy ‘S’ incision was made over the swelling extending onto the carpal tunnel region and deepened in layers. A 15×8×2 cm lesion engulfing the flexor tendon mass involving the FCU and FPL was found with the median and ulnar nerves appearing normal. (Figure 3) The lesion was dissected and excised safeguarding the tendons and the neurovascular structures. (Figure 4) The specimen sent for histopathological examination. Haemostasis was secured after tourniquet release and the incision was closed in layers with 3-0 polyglactin and 3-0 nylon sutures. (Figure 5) Dressing was done POP slab was applied for 1 week after which a compression bandage was used. Post-operative period was uneventful. Microscopy revealed synovial tissue showing multiple granulomas composed of epithelioid cells and Langhan’s giant cells surrounded by lymphocytes and lymphoplasmal cell infiltrates suggestive of granulomatous synovitis of tuberculous etiology.

DISCUSSION

Tuberculosis is still one of the most prevalent infections and osseous involvement accounts for 1%–3% of cases. The other commonly affected extrapulmonary sites are lymph nodes genitourinary tract, bone marrow, Central nervous system (CNS) and musculoskeletal and is generally due to direct inoculation or haematogenous spread from a primary focus.^{6,7} Tuberculous arthritis is usually monoarticular and is located in the well vascularised load-bearing joints of the body. TB involving the hand presents as osteomyelitis associated with pain, swelling and limitation of functional with or without constitutional symptoms. Tenosynovitis although rare is the most common presentation with the flexor apparatus being affected mostly on the ulnar side especially of the dominant limb.⁷⁻¹¹ Clinical presentation is like a slow-

growing tumour, associated with local pain that worsens with movement of the fingers. The swelling will progress through tendons mostly without any other systemic evidence of TB. The most common findings are compound palmar or dumbbell ganglion of the ulnar bursa, 'sausage digit' and carpal tunnel syndrome.⁷ The growth within the carpal tunnel produces median nerve compression. Two types of skeletal TB have been described clinically and histologically.¹² The caseous exudative type causes a more aggressive destructive lesions with local swelling, abscess, or sinus formation whereas the granular type has a more insidious involvement of the affected area.¹³ In monoarthritis of the wrist and hand, infection caused by other mycobacteria are also identified. *Mycobacterium bovis* causing wrist and carpal osteomyelitis, extensor tenosynovitis by *Mycobacterium marinum*, and synovial tissue infection by mycobacteria other than *Mycobacterium tuberculosis* are few examples.¹⁴⁻¹⁶ There are three histopathological stages of disease depending on duration of disease, resistance of patient and virulence of infecting agent; in early stage, there is vascular granulation tissue formation followed by obliteration of tendon sheath by fibrous tissue fluid accumulation and formation of rice bodies or sago seeds, which are fibrinous masses or tubercle caused by caseation.¹⁷ In the final stage, there is rupture of tendon sheath, extensive caseation and granulation take place.¹⁸ Phemister's triad is a classic radiologic finding which includes the presence of juxta-articular osteoporosis, peripheral bony erosions, and gradual joint space narrowing suggests the presence of tubercular arthritis. Polymerase chain reaction (PCR) tests are highly sensitive by detecting amplified TB DNA but unable to distinguish live bacilli from dead bacilli and are 50-60% positive in culture-negative groups of cases.² The PCR test is specific and faster for obtaining an analysis of synovial fluid, bone, and soft tissue of joints.⁴ Synovial biopsy is important for diagnosis and confirmation by specific Ziehl-Neelsen staining and culture for alcohol acid resistant bacilli. Management was removal of the hypertrophied synovial tissue and debridement of the affected area, combined with post-operative anti-tuberculosis chemotherapy for 1 year. To make a provisional diagnosis of tuberculosis and to start antituberculosis treatment, it is always better to rule out other common causes and conclude clinical, radiological, histopathological and PCR findings suggestive of tubercular tenosynovitis.

CONCLUSION

Tuberculosis of the tendon sheath of the wrist is an uncommon occurrence because of its insidious progression and delayed diagnosis resulting in complications. A meticulous history and thorough clinical examination can pick up the disease early so that we can proceed with radical excision combined with anti-tuberculous multidrug therapy providing good functional results and preventing recurrence.

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