

Rare Case of Tubercular Tenosynovitis of Wrist Extensor Digitorum Tendons: Case Report

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Abstract: Background: Tuberculosis of musculoskeletal system is rare. Even rare is the involvement of tendon sheaths. Here is the extensor digitorum tendons of wrist joint. Case presentation: 14 yr old female came with swelling at dorsum of wrist and distal forearm since six months. In history there was loss of appetite, loss of weight and evening rise of temperature present. On examination there is soft cystic horizontally mobile flactuant swelling with no transillumination. On ultrasonogram, there were multiloculated cystic collections surrounding the extensor digitorum tendons. On MRI also synovial collection noted along the EDC tendon upto elbow level. Lab parameters showed increased ESR and mantoux test was positive. With the provisional diagnosis of tenosynovitis, aspiration by z technique was done and sent for analysis. ADA level is abnormally high confirmed the diagnosis and acid fast bacilli stain was negative for aspirated fluid. Child was started anti-tubercular drugs along with intralesional streptomycin injection. Responded well in 2months with decreased lab parameters and resolving of swelling and there was no recurrence of swelling at 1year follow up. Conclusion: Typical constitutional symptoms of tuberculosis with non invasive tests like aspirated fluid analysis and MRI findings diagnose Tubercular Tenosynovitis. Antitubercular drugs along with intralesional therapy by streptomycin injection will cure the disease and prevents recurrence. Not every case of disease requires surgical debridement or synovectomys in these days there by preventing ugly scars in young girls.

Keywords: Tubercular Tenosynovitis, Ultrasonogram, Mantoux test, MRI, Acid Fast Bacilli

1. Introduction

Musculoskeletal Tuberculosis is a rare disease, accounting for 10% of the extrapulmonary tuberculosis¹. In wrist and hand, the flexor tendons and the radio ulnar bursa are commonly affected sometimes compressing the median nerve. However involvement of dorsal wrist compartments and tendon sheaths are rare.² The diagnosis is usually delayed due to multiple similar conditions as well as difficulty in diagnosis.

2. Case Report

A 14 years old female child presented to us with 6 months history of progressive painless swelling at wrist and distal forearm dorsum.

No history of pain. There was no history of trauma. No history of night crys or any other joint involvement. However she had loss of appetite and progressive loss of weight and evening rise of temperature.

The patient had no past history of any Tuberculosis, Diabetes Mellitus, Hypertension, any surgery in the past. The physical examination revealed average built young girl with right wrist swelling 8 x 5 cm extending to distal forearm dorsum specially at the mid dorsal aspect. No local

rise of temperature. It was non tender, flactuant, non transilluminating, non-compressible, but multiloculated mobile only in plane perpendicular to wrist. Lab findings showed normal blood count, increased ESR, and CRP. Mantoux test was positive. There was visible soft tissue swelling on X ray of wrist with no bone involvement and X ray of chest showed normal study.

Sputum for AFB was negative. Ultrasonography of wrist showed multiloculated cystic swelling surrounding the extensor digitorum tendons at wrist and distal forearm. Aspiration of swelling was done by z technique and there was 15ml of thick cloudy yellowish fluid came. Fluid was sent for analysis and cultures. There was abnormally high ADA levels (450mg/dl) which is specific fortuberculosis. MRI was done to exclude all other possibilities. The findings came as tenosynovitis of EDC tendon sheath upto the elbow joint. AFB staining and culture was negative.

Child was given intralesional streptomycin injection according to body weight and put on oral ATT¹⁴. Responded well in 2months with decreased ESR and swelling resolved. Continued ATT for 9months and follow up was done for 1yr for any recurrence but there was not such thing. There was no compressive effects. No loss of movements of wrist and fingers. No ulceration or sinus formation.

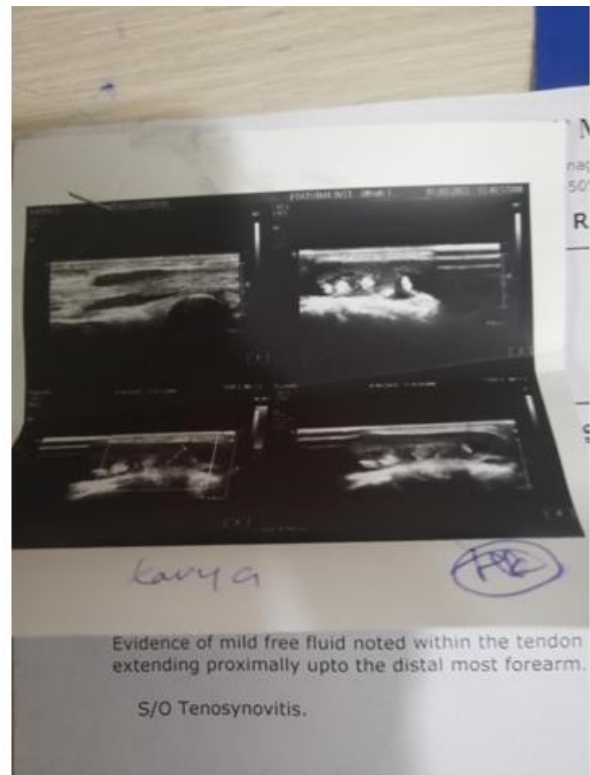
Initial presentation images



Xray wrist ap and oblique



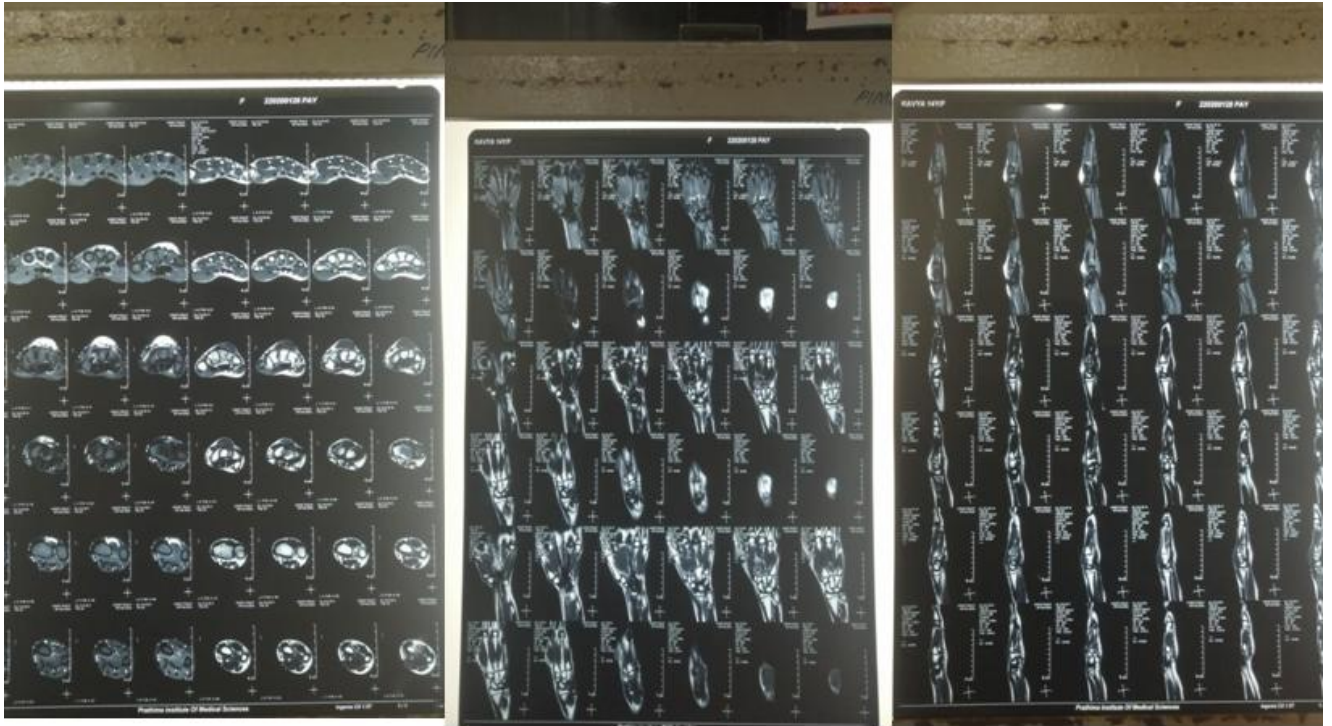
Chest X- ray and ultrasound



Aspiration by z technique



MRI films (tenosynovitis involving dorsal aspect of proximal forearm to wrist around extensor digitorum tendons with few T2 hyperintensities with extension noted beyond wrist joint) Intra lesional therapy



Follow up images at 2months (complete resolvement of swelling)



3. Discussion

Tuberculosis is one of the silent killer of society worldwide. About one third of the world's population is infected by *Mycobacterium tuberculosis* and 10% of infected persons will develop TB disease at some time in their lives. The commonly affected extra-pulmonary sites of TB are Lymph nodes, Genitourinary Tracts, Bone Marrow, CNS and Musculoskeletal system which includes bones, joints, tendons.³

Tuberculous tenosynovitis of the wrist or Compound Palmer Ganglion is an uncommon lesion that requires early recognition and treatment for the best possible prognosis. There are two theories regarding the pathogenesis of the tuberculosis of wrist, direct inoculation and hematogenous dissemination from the primary focus.⁴ Tubercular tenosynovitis is more common in upper limb.

Tubercular Tenosynovitis selectively targets wrist and volar aspect of hand. However the digital flexor sheath and the dorsal wrist compartment are affected less often.⁵ Because of its rarity, insidious onset and slow progression of swelling, the diagnosis and confirmation of the clinical entity is delayed. The precipitating factors include trauma, overuse of the joint, old age, low socioeconomic status, malnutrition, alcoholism, immunosuppression and steroid injections.⁶ Tendon rupture is a rare presentation, but it may occur when treatment is delayed.⁷

The routine laboratory investigations are nonspecific and often noncontributory.⁸ The radiograph of chest and wrist

are usually normal. MRI shows non-specific synovitis in Hygromatous stage, thickened synovium with low signal intensity material within the synovial fluid in the serofibrinous stage on T2 images and tendon involvement manifested by tendon thinning, tethering, or disruption may be seen during later stage.

Extension beyond the tendon sheath with enhancing soft tissue mass formation is characteristic of the Fungoid stage. In contrast to acute suppurative tenosynovitis, where synovial sheath fluid is the predominant feature, relatively little synovial sheath fluid is characteristic of tuberculous pathology.⁹

There are three stages of disease depending on the duration of the disease, resistance and the virulence of the organism. In the earliest stage, the tendon is replaced by vascular granulation tissue.

Later on, the sheath is obliterated by fibrous tissue. Fluid is confined within the sheath and rice bodies may appear due to caseation and tendon may rupture spontaneously. If healing by fibrous tissue formation fails to curtail the pathologic process, extensive caseation and granulation occur. This may lead to sinus formation and superimposed secondary infection.¹⁰ Rice bodies or Melon seeds are seen in 50% of tubercular synovitis cases and are highly suggestive. The rice body formation may be due to microinfarction after intraarticular synovial inflammation or de novo formation and progressive enlargement by fibrin.¹¹ Differential diagnoses of tubercular tenosynovitis include other mycobacterial infections, pyogenic infection, brucellosis, nonspecific tenosynovitis, foreign body

tenosynovitis, sarcoidosis, rheumatoid arthritis, gouty arthritis, pigmented villonodular synovitis of the tendon sheath, and fungus infection.⁷

Antitubercular drugs along with tenosynovectomy gives excellent result and prevent recurrence of disease is a age old treatment employed by old surgeons. Some prefer complete excision of the tendon sheath while others advocate decompression only.

In our case, complete debridement of involved tendon is not needed. Instead we used intra lesional streptomycine injection according to body weight¹⁴. There was complete resolvment of swelling in 2months and ESR also decreased significantly. ATT was continued for 9months. Close follow up is done upto 1yr and there was no recurrence of swelling. Tubercular Synovitis has more than 50% local recurrence after treatment within a year hence requires close followups.¹³

4. Conclusion

Though uncommon, any soft tissue swelling around wrist should raise suspicion of Tubercular Tenosynovitis. Insidious onset, slow growing swelling at wrist with increased ESR and positive Mantoux test in tropical countries like India, positive ADA levels and MRI findings confirms the diagnosis. Early diagnosis and non invasive treatments like intra lesional therapy along with antitubercular drugs give good functional outcome and prevents recurrence of disease. Since definite diagnosis is difficult and histological examination may not always show definite cause of the swelling, Emperical ATT will give retrospective diagnosis and avoiding invasive procedures like synovectomys and debridments and also avoiding ugly scars in young girls. Regular follow up of the case is mandatory as there is high chance of recurrence.

Conflict of interest: None

Consent: Written informed consent obtained from the patient.

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