

ISOLATED TUBERCULOUS TENOSYNOVITIS OF THE RIGHT TIBIALIS ANTERIOR TENDON

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ABSTRACT

Musculoskeletal system is responsible for 1-5% of extra pulmonary tuberculosis (TB) involvement. Foot tendon involvement is very rare, with only a few cases having been reported so far. We report a case of a 15-year old female farmer by occupation presented with a 6 month history of progressive painful swelling located anteromedial aspect of lower one third of right leg. Radiographic examinations of cruris and lungs were in normal limits. On ultrasonography (USG), thickening and decreased echogenicity of tibialis anterior tendons. Histopathology revealed multiple granulomas composed of lymphocytes epitheloid cells langerhans giant cell in a fibro collagenous background suggestive of TB synovial sheath. Surgical debridement followed by six months course of anti-tb treatment was given. Six months follow up showed complete absence of swelling.

INTRODUCTION:

Musculoskeletal system is responsible for 1-5% of extrapulmonary tuberculosis (TB) involvement^[1] Although tendon involvement is a rare complication of TB, it continues to be a major cause of chronic tendon sheath infection^[2] Although TB tenosynovitis is rare, it is mostly encountered as hand or wrist involvement. Foot tendon involvement is very rare, with only a few cases having been reported so far.

CASE PRESENTATION

A 15-year-old female farmer by occupation presented with a 6 month history of progressive painful swelling located anteromedial aspect of lower one third of right leg. Pain had intensified during walking and climbing stairs. She had no history of a recent illness, fever, or trauma. Physical examination did not reveal any abnormality but showed a swollen right ankle. The swelling was not tender; its size was 6 × 4 cm, stretching from the distal end of leg to the ankle which used to become prominent on dorsiflexion of ankle (Figure 1). She had no history of chronic illness, rheumatic disease, diabetes mellitus or any surgery.

Laboratory tests revealed an erythrocyte sedimentation rate (ESR) of 30 mm/h and a C-reactive protein (CRP) of 4.4 mg/dl. Complete blood count was normal.

Surgical excision of the mass was planned and intraoperatively, a glistening mass was found encircling the tibialis anterior tendon (FIGURE 2) which when opened showed numerous white glistening structures

(FIGURE 3-RICE BODIES OR MELON SEED BODIES) and was sent for histopathological studies.

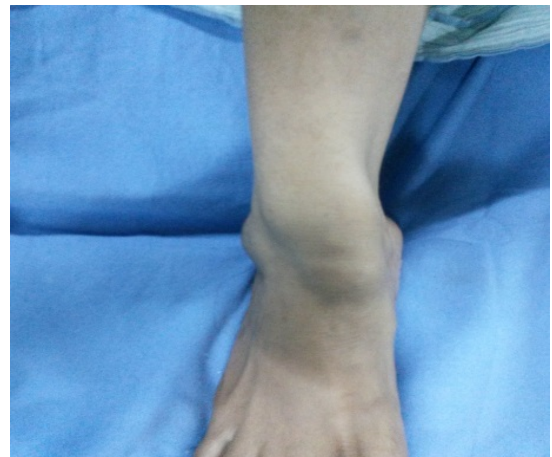


Figure 1 A: clinical picture of 15yr old female with swelling over right ankle

RADIOLOGIC FEATURES

Radiographic examinations of cruris and lungs were in normal limits. On ultrasonography (USG), thickening and decreased echogenicity of tibialis anterior tendons as well as minimal fluid collection around tendon sheath were observed. MR scan not done as patient was not affordable.

HISTOPATHOLOGY FEATURES

Histopathology (Fig-4) revealed multiple granulomas composed of lymphocytes epitheloid cells langerhans giant cell in a fibro collagenous background suggestive of TB synovial sheath.



Figure 2a: Intraoperative picture of glistening mass enrolled over the tibialis anterior tendon.

Figure 2b: The mass removed with glistening white bodies (RICE BODIES OR MELON SEED BODIES)

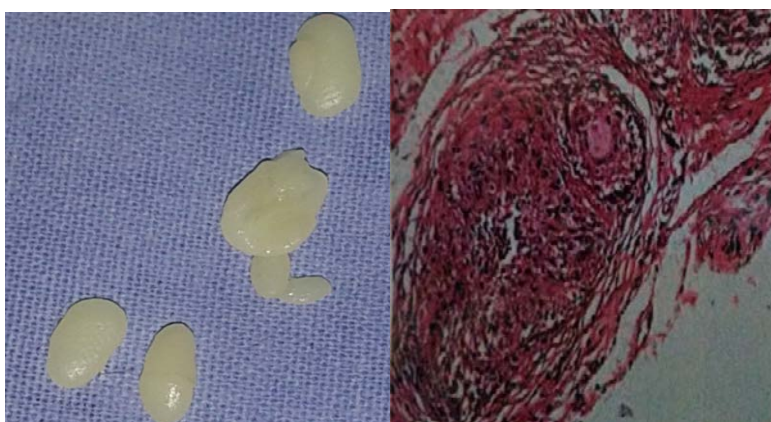


Figure 3: glistening white bodies (RICE BODIES OR MELON SEED BODIES)

Figure 4: Histopathology picture

DISCUSSION:

Extra pulmonary TB originates from hematogenous spread of active or inactive bacilli in lymphatics or other visceral organs. The disease can start with a slowly-growing swelling in the involved tendon. Erythema, pain, and limitation in joint movements may be seen. Laboratory examinations may be in normal limits except for increased ESR and CRP levels.

The most striking feature of the disease is the long period between disease onset and diagnosis due to subtle clinical signs and symptoms. Although tuberculin test is positive in majority of the cases, X-ray is normal in 50% of cases^[2] The characteristic feature of the disease is minimal fluid accumulation in the synovial sheath together with synovial thickening. However, a marked increase in synovial sheath fluid is observed in acute suppurative tenosynovitis compared to TB synovitis.

Synovial thickening is due to the presence of granular tissue in the synovial sheath. "Rice bodies" or "Melon seeds" are fibrinous masses (tubercles) seen mostly in atypical TB synovitis and are present in 50% of tuberculosis cases. These nodules are macroscopically

similar to the polished white rice and they contain an inner morphous core of acidophilic material and a surrounding layer composed of collagen and fibrin. Rice bodies can be seen by USG during surgery. However, rice bodies may also be present in patients with rheumatoid arthritis, seronegative inflammatory arthritides, and synovial chondromatosis.^[3,4]

Clinical and imaging properties of TBC tenosynovitis depend on the disease duration, immunity of the host, and virulence of the organism. The typical histopathology of TBC synovitis include caseous granulomas surrounded by epithelioid histiocytes and multinucleated giant cells. The tissue infected by mycobacterium usually does not give a positive reaction with Ziehl-Nielsen stain. The anti-tuberculous therapy usually begins empirically, based on radiological, clinical, and histopathological findings, as in our case^[5,6] because it takes many months for the culture results to confirm the presence of tuberculosis bacilli.

Imaging modalities play an important role in the detection of TBC tenosynovitis. The USG is used as an initial step for diagnosis. It shows tendon thickening and

fluid within tendon sheath. The MRI is a useful modality to assess tendon and its sheath. This method can show thickening in synovial membrane with increased vascularization, fluid in the sheath, active inflammation around the tendon, and thickening in the tendon. Although synovial sheath fluid is markedly increased in acute suppurative tenosynovitis, a minimal amount of synovial fluid is encountered in TB tenosynovitis. Rice bodies are visible both on USG and MRI; however, very small Rice bodies may be missed with USG. Rice bodies of small size may be seen with MRI. Rice bodies are isointense on T1 weighted MR imaging and relatively hyperintense compared with muscle tissue on T2-weighted images.^[5,6] Computed tomography is not used for primary diagnosis of tuberculous tenosynovitis; however, it is useful in demonstrating tuberculous tenosynovitis-associated destructive bone changes.

Although there are few reports on this topic, cases of TB tenosynovitis originating from flexor digitorum longus, posterior tibial, and Achilles tendons have been reported.^[3-7] Pimm and Waugh examined a total of 44 cases; 52 lesions with tenosynovitis were detected and only 3 of these lesions had lower extremity involvement.^[8] Surgical debridement in the treatment of TB tenosynovitis is debated. Some authors have recommended debridement of the surrounding tissue and decompression of the tendon sheath without excision.^[4] Tuli recommended surgical debridement in cases unresponsive to treatment for 4-5 months.^[9] In our case, we performed surgical debridement of surrounding tissue and excision of tendon sheath before anti-TB treatment.

Prior to anti-TB therapy, most infections used to be treated by extensive surgical therapy including complete synovectomy and excision of surrounding tissue. To reduce the size of the lesion to an extent, anti-TB chemotherapy should begin after the diagnosis of TB is made before a more extensive surgical intervention is performed.^[10] Total or subtotal synovectomy may be necessary in the management of TB tenosynovitis unresponsive to treatment.^[9]

Our patient presented with painful swelling in the lower extremity. She had no history of TB or constitutional symptoms. A 6 month interval had elapsed between onset of symptoms and diagnosis of TB with ultrasonography, and histopathologic examination. She was treated with anti-tuberculosis therapy for 9 months. Although TB is a very rare cause of tenosynovitis in the foot, it should be considered in differential diagnosis of chronic or recurrent tenosynovitis. Differential diagnosis of TB tenosynovitis should include rheumatoid arthritis,

pyogenic infection, gout arthritis, giant cell tumor of tendon sheath, and fungal tenosynovitis.

CONCLUSION:

Tuberculosis lesions can have atypical localizations. TB should necessarily be considered in cases of slowly developing tenosynovitis. Histopathological findings of granulomatous inflammation and culture tests confirm the diagnosis. Although TB is not a common cause of tenosynovitis in the foot, it should be considered in the differential diagnosis of chronic tenosynovitis in countries where the prevalence of TB is high. Anti-tuberculosis therapy with surgical debridement can be employed or treatment of such cases.

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