

Rice bodies in tuberculous tenosynovitis of the wrist: An unusual presentation in a HIV patient

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Abstract

Tuberculous infection is common in patients with immunocompromised states like HIV. Extrapulmonary presentation of tuberculous infection, especially in flexor tendon sheath is extremely rare in such patients. Tenosynovitis with rice bodies formation is common in knee and usually it is secondary to many inflammatory disorders including tuberculosis. In this article, the authors like to highlight an unusual presentation in an immunocompromised patient with swelling of the wrist for 8 years which was diagnosed as tuberculous tenosynovitis with rice bodies formation.

Keywords: HIV, Rice bodies, Tuberculous tenosynovitis, Wrist swelling, Immunocompromised.

Introduction

Rice body formation is an uncommon presentation of chronic inflammation of the tendon sheath (tenosynovitis) which was first described in a case of tuberculosis in 1895.¹ Knee and shoulder joints are the common sites for rice body formation.² Wrist and hand are the uncommon sites for tenosynovitis and the causes are TB, inflammatory conditions and chronic over use of hand.³ Tenosynovitis of tuberculous aetiology constitutes only 1% of the extra pulmonary manifestation of tuberculosis.⁴

HIV patient presenting as tuberculous tenosynovitis with rice bodies is uncommon and only single case has been reported in the literature, where the rice bodies were found in hand due to atypical mycobacterial infection.⁵

We report a second case of multiple rice bodies formation in a patient of HIV diagnosed as tuberculous tenosynovitis of wrist on histopathology.

Case History

A 56 years old woman presented with a swelling over the wrist of right hand 8 years duration which was gradually progressive in size. Clinically a provisional diagnosis of ganglion was made. There was no history of trauma or fever. The swelling measured 10x4 cms, extending into forearm as shown in (Fig. 1a). The swelling was firm with signs of fluctuation. There were restriction of flexor movements. On evaluation, the patient was sero negative for rheumatoid factor and C- reactive protein. All the haematological parameters including ESR were within the normal limits. However, the patient came up with history of sero positivity for retrovirus and was undergoing antiretroviral therapy for 14 years.

USG (Ultrasonography) of the right wrist showed an increased anechoic well-defined collection of fluid with debris in the flexor tendon sheaths (Fig. 1b). A possibility of tuberculous tenosynovitis was suggested.

The patient underwent surgery for the removal of the mass. On incision of the tendon sheath, flexor tendons were found to be thickened and inflamed with multiple white coloured beaded structures within the synovial cavity. As per the intraoperative observation, a provisional differential diagnosis of ganglion, tuberculous tenosynovitis was made. The resected tendon sheath with beaded structures were sent for the histopathological examination.

On gross examination, two membranous tissue flaps measuring 1.5 and 2.5x1.5x0.2 cm along with multiple soft white beaded tissue structures were seen. These white round to oval beaded structures which appear as melon seeds were identified as rice bodies on gross examination (Fig. 2b). On histopathological examination, the fragments of synovial tissue showed focal synovial hyperplasia and many congested blood vessels, few chronic inflammatory infiltrates in the sub epithelium with dense fibro collagenous stroma. Sections from the rice bodies showed inner collagenous core surrounded by thin fibrinous layer (Fig. 2c). No granulomas or giant cells were seen on Haematoxylin and Eosin (H&E) sections to suggest of tuberculosis. A Ziehl-Neelsen (ZN) stain was done on the tissue sections showed a single acid-fast bacillus (Fig. 2d). Hence, the histopathological report was concluded as chronic flexor tenosynovitis of tuberculous aetiology with multiple rice bodies formation. Other specialised investigations such as PCR, serology for diagnosis of tuberculosis could not be done. Post-operative follow up was uneventful.

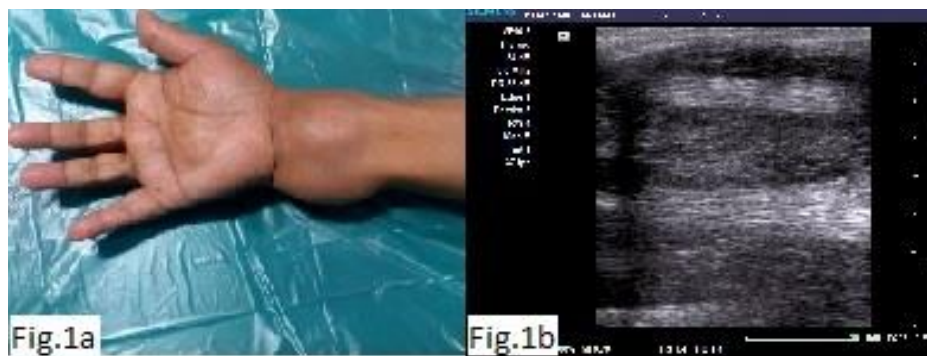


Fig. 1:(a) Oblong swelling over the wrist of right hand; (b): USG showing well-defined collection of fluid with debris in the flexor tendon sheaths

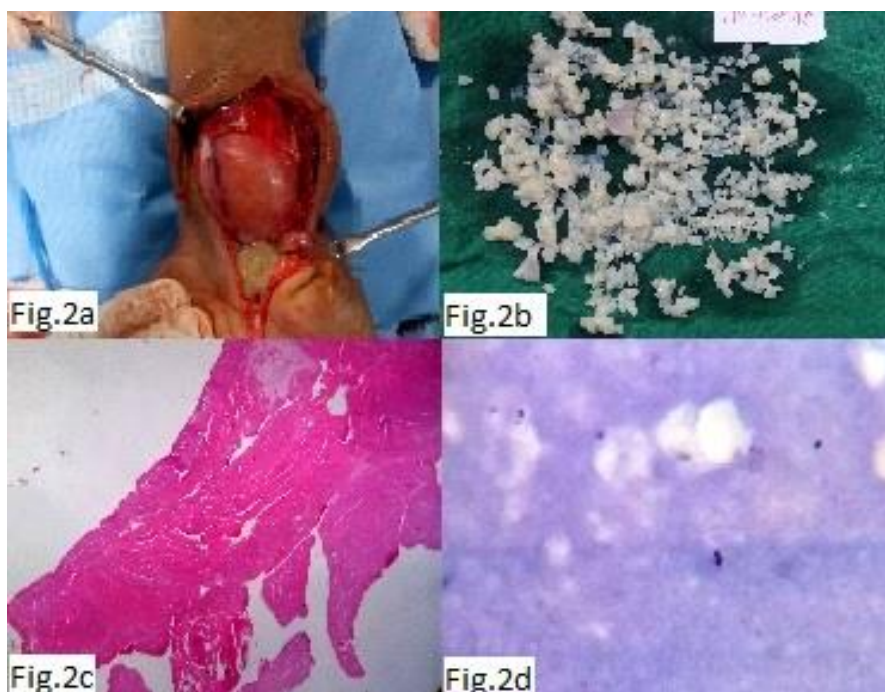


Fig. 2: (a) Intraoperative photograph showing the mass; (b): Gross picture of multiple rice bodies; (c): Histopathological section (H&E) showing rice bodies with collagenous core surrounded by thin fibrinous layer (40x); (d): ZN stain showing Acid fast bacillus (100x)

Discussion

Rice body formation in joints was first described by Reise in a patient with tuberculosis in the year 1895.⁶ They are usually found in rheumatoid arthritis, seronegative inflammatory arthritis, osteoarthritis and in infections like mycobacteria.⁷ They were named so, as they resemble polished white rice grains. Rice body formation is likely due to the deposition of fibrin over the inflamed or infarcted synovial tissue which forms as nidus.²

The cause for rice body formation in the flexor tendons of our patient was due to mycobacterial infection reflecting the immunocompromised state of the patient. There are three stages in the tuberculous infection involving the tendon sheath. First stage is the tendon sheath thickening, secondly, rice bodies formation and thirdly, the development of necrosis.⁸ Involvement of musculoskeletal system constitutes about 10% of extra pulmonary TB, out of which only 1% is

contributed by tenosynovitis, bursitis of the joints.⁴ The diagnosis of a tuberculous tenosynovitis becomes difficult as the onset of the disease is insidious and sometimes without specific clinical symptoms and signs. In the present case, the patient had a very long history of slow growing swelling of the wrist without any clinical presentation suggestive of either tuberculosis or rheumatoid arthritis.

Under ultrasonography a suspicion of tuberculous tenosynovitis was given. But intraoperatively, the rice bodies were not identified as the cause for the tenosynovitis. The resected specimen sent for histopathology were identified as rice bodies. The Haematoxylin and Eosin (H&E) stained sections showed fragments of synovial tissue without any granulomas or any evidence of tuberculous aetiology. The sections showed only few congested and mild chronic inflammatory infiltrate which was not sufficient to favour a diagnosis of tuberculosis. So, a tenosynovitis of nonspecific aetiology was first reported. After eliciting a history of anti-

retroviral therapy from the patient, a Ziehl-Neelsen stain on the sections was performed which showed a single bacillus with a beaded appearance favouring a mycobacterial infection. The type of mycobacterial species was not identified as culture or PCR could not be done.

Tuberculous tenosynovitis can be caused either due to direct inoculation from the environment such as soil and water or due to hematogenous spread or reactivation of the latent tuberculous bacilli in immunocompromised individuals.^{9,10} Our patient did not have any healed lesion of tuberculosis and so a possibility of a hematogenous spread into synovium was ruled out. But a HIV seropositivity in our patient could be a responsible factor for immunosuppression resulting in tuberculous tenosynovitis, where the source of mycobacteria may be due to direct inoculation from the environment.

Based on the demonstration of mycobacteria in the histopathological sections and the history of immunocompromised state of the patient, the most likely diagnosis of tuberculous tenosynovitis was considered for which anti tuberculous therapy was started.

For the diagnosis of tuberculosis in bone or joint, a demonstration of mycobacteria or the presence of granulomas in the histopathology is required. In this case, since there were no granulomas on histopathology, the only way towards confirmation was to identify mycobacteria on the tissue section. Diagnosis of tuberculous tenosynovitis is essential to prevent complications like tendon rupture.²

Conclusion

HIV patient presenting in their immunocompromised state with rice body formation in wrist is extremely rare. As per the literature, this is the second case report as an uncommon presentation of tuberculous tenosynovitis of the wrist in a HIV patient where it posed a diagnostic challenge for us.

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Conflict of Interest: None.

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