

RICE BODIES IN MR IMAGING OF TUBERCULAR TENOSYNOVITIS OF WRIST JOINT: A RARE MANIFESTATION

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ABSTRACT

Muskuloskeletal system is involved in 1-3% of patients with Tuberculosis and involvement of wrist joint at presentation is extremely rare, diagnosis is often missed. Radiological assessment of joint is usually the first step in diagnostic workup. Demonstration of rice bodies on MRI plays a significant role in early diagnosis and prompt treatment to prevent serious joint destruction. Here we describe a patient diagnosed radiologically as tubercular tenosynovitis of wrist with rice bodies demonstrated on MRI.

Key words: Rice body; MRI; Tuberculosis

Introduction

Rice body was first described by Riese in 1895.¹ Rice body formation is most frequently associated with Rheumatoid arthritis, however any chronically inflamed joint with proliferation and hypertrophy of synovium can lead to formation of rice bodies. Primary tubercular tenosynovitis is rare and plain radiograph has limited role in the diagnosis. Ultrasonography and MRI play vital role in early diagnosis and management. Here we describe a patient with painless swelling over wrist joint, diagnosed radiologically as a case of Tubercular tenosynovitis with rice bodies demonstrated on MRI.

Case Report

A 28 year old man presented with a painless swelling over left wrist for 2 years. There was neither any history of fever, night sweats, cough nor past or family history of tuberculosis. On physical examination, the swelling was non-tender, immobile soft

tissue swelling with no signs of redness or increase in warmth of skin and without limiting the movement at wrist joint. Laboratory tests were within normal limits except raised ESR (56 mm in 1st hour) and Rheumatoid arthritis (RA) factor negative.

Plain X-ray AP and lateral views of wrist joint showed a soft tissue shadow. Ultrasound of the wrist joint disclosed multiple echogenic materials with mild fluid collection around the flexor tendon sheath without bony erosion. On MRI at 3T, axial T1FS + C shows synovial Enhancement (Fig. 1a) and on axial T2 (Fig. 1b) and axial T2 FS (Fig. 1c) revealed multiple hypointense nodular structures along the middle tendon of flexor digitorum superficialis with synovial thickening and mild fluid within it suggestive of rice bodies with features of tenosynovitis. Coronal T1 FS +C (Fig. 2a) shows synovial thickening with rim enhancement along the thickened synovium on contrast images. Coronal T2 FS (Fig. 2b) shows same hypointense nodules along the flexor tendons suggestive of rice bodies formation.

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Figure 1a: Axial T1 FS +C (TR 1200, TE 16) showing synovial enhancement.

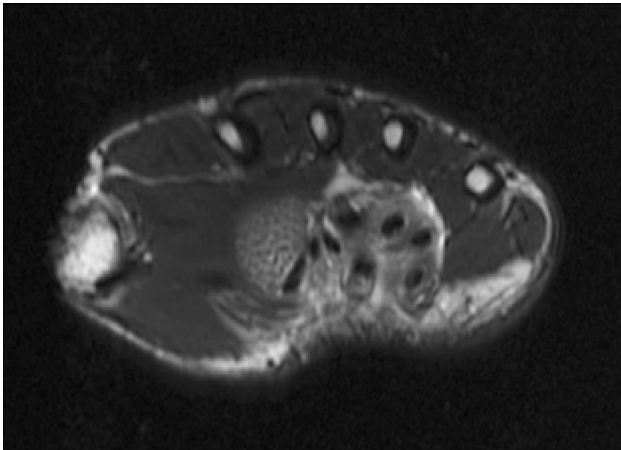


Figure 1b: Axial T2 image showing rice bodies formation.

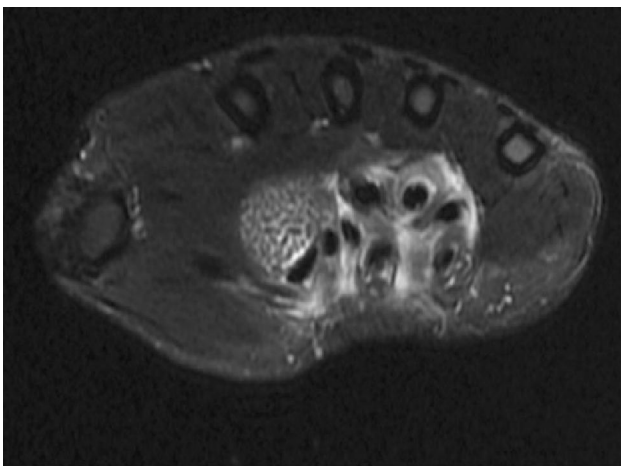


Figure 1c: Axial T2 FS (TR 3990, TE 91.9) showing rice body formation with features of tenosynovitis.

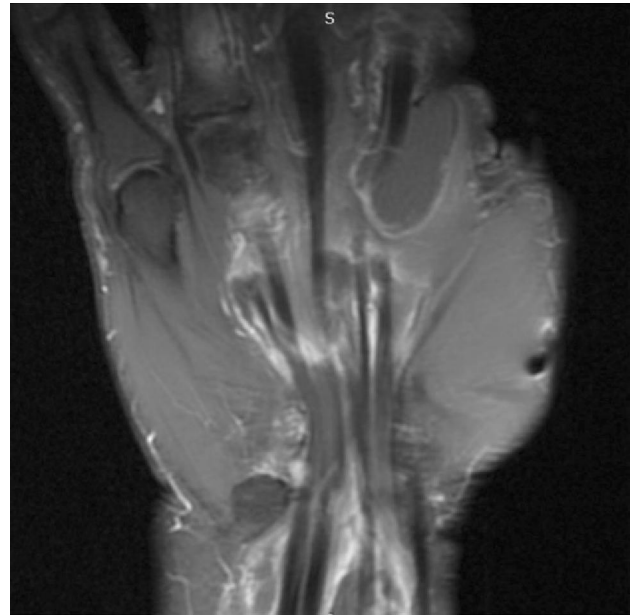


Figure 2a: Coronal T1 FS+C (TR 520 TE 26) Showing ring enhancement of the thickened synovium.

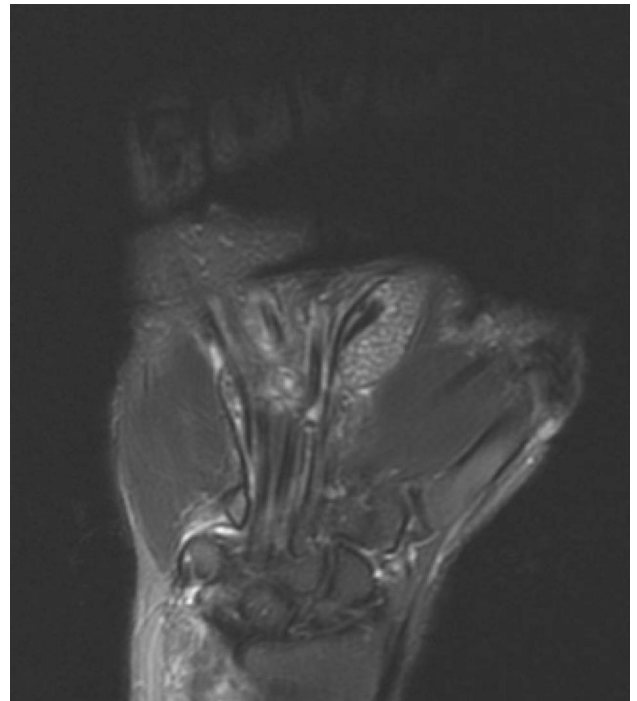


Figure 2b: Coronal T2 FS (TR 2300, TE 83) showing rice body formation in flexor digitorum superficialis tendon (middle).

Ultrasound guided fine needle aspiration cytology (FNAC) was done from the swelling which revealed synovial necrosis and fibrin deposition surrounded by inflammatory cells like lymphocytes, macrophages, plasma cells and few giant cells suggestive of granulomatous disease.

The case was diagnosed as rice body formation secondary to tubercular tenosynovitis of flexor tendon of right wrist based on ultrasound and MRI findings and pathological correlation.

Anti-tubercular treatment started based on the diagnosis and after 1 year of follow up, patient had no complaints.

Discussion

Tubercular tenosynovitis is a rare extra-pulmonary manifestation of tuberculosis in which rice body formation is sometimes demonstrated on MRI. Rice bodies are uncommon phenomenon that occur most frequently with patients of Rheumatoid arthritis, but also known to occur in chronic inflammatory arthropathies like SLE, tubercular arthritis, synovial chondromatosis, bursitis and synovitis.

Rice bodies are fibrinous bodies that resemble rice grains.

Many theories have been proposed for the formation of rice bodies, still its pathogenesis is unclear. Synovial ischemia and necrosis caused by hypoxia due to disruption of microcirculation believed to be triggering factors. Rice bodies are formed of necrosed materials from proliferating and hypertrophic synovium, which get adhered to fibrin in joint, tendon sheath and bursa. Early identification of rice bodies on MR images with features of synovial proliferations help in early diagnosis of the disease, so that anti-tubercular treatment could be started earlier to prevent serious joint destruction.

Conclusion

Tuberculosis of the soft tissue of wrist joint is rare. Diagnosis is often delayed due to indolent course of the disease. Rice body formation is uncommon but typical feature noted in MRI T2 weighted images suggestive of tuberculous etiology. Imaging like Ultrasound and MRI play significant role in early diagnosis and management to prevent serious deformities and recurrences.

Competing interests

The authors claim that they have no personal or financial interest that may have inappropriately influenced them in writing this article.

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