



Case Report

Compound Palmar Ganglion

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ABSTRACT

A 22-year-old man presented with mild swelling, pain and tingling and numbness on the volar aspect of the wrist, ring and little finger. Radiography was non significant.

Ultra sonography suggested diffuse thickening of tendon sheath in flexor digitorum superficialis and flexor digitorum profundus from wrist base to whole palm region. Thickness measured was 6-9 mm. At wrist, 27x15x18 mm sheath thickening was found. Magnetic resonance imaging showed Ganglion cyst of the flexor tendons and well defined hour glass intensity area inside the ulnar aspect of carpal tunnel. Laboratory test results were normal, except for an elevated erythrocyte sedimentation rate (40 mm/h). EMG and NCV study of left upper limb was suggestive of median nerve compression at carpal tunnel. Surgical exploration of the lesion revealed rice bodies in the common flexor tendon synovial sheath, mainly in the third and fourth finger tendon sheaths, Removal of the rice bodies and thorough excision of the sheath was performed. No significant compression was found around median nerve. Patient was immobilized for 1 month with below elbow slab, started on Anti-Tuberculous Treatment and regularly followed up.

Key words: ganglion cyst, wrist, carpal tunnel

INTRODUCTION

Although frequently reported by rheumatologists, rice bodies are an uncommon finding for most hand surgeons. We present a case of 22-year-old man with rice bodies found within compound palmar ganglion.

CASE REPORT

In August 2013, a 22-year-old man presented to the Civil hospital at Ahmedabad with a 3 months history of mild

swelling, pain and tingling and numbness on the volar aspect of the left wrist, ring and little finger. Radiography was non significant. Ultrasonography suggested diffuse thickening of tendon sheath in flexor digitorum superficialis and flexor digitorum profundus from wrist base to whole palm region. Thickness measured was 6-9 mm. At wrist, 27x15x18 mm sheath thickening was found and magnetic resonance imaging showed Ganglion cyst of the flexor tendons and well defined hour glass intensity area

inside the ulnar aspect of carpal tunnel along the third and fourth tendons of flexor digitorum profundus. The differential

diagnosis included palmar ganglion, synovial chondromatosis and giant cell tumour of tendon sheath.



Figure 1. Plain x ray; Lateral view

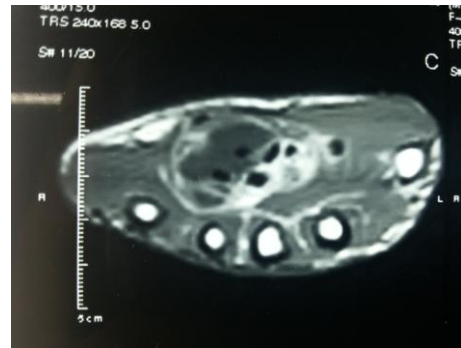


Figure 2. MRI

Laboratory test results were normal, except for an elevated erythrocyte sedimentation rate (40 mm/h). EMG and NCV study of left upper limb was suggestive of median nerve compression at carpal tunnel.

Surgical exploration of the lesion was performed. Numerous shiny soft corpuscles consistent with rice bodies were found in the common flexor tendon synovial sheath, mainly in the third and fourth finger tendon sheaths. The sheath was notably thickened. Removal of the rice bodies and thorough excision of the sheath down to the wrist joint with respect to the neighbouring neurovascular structures was performed. No significant compression was found around median nerve.

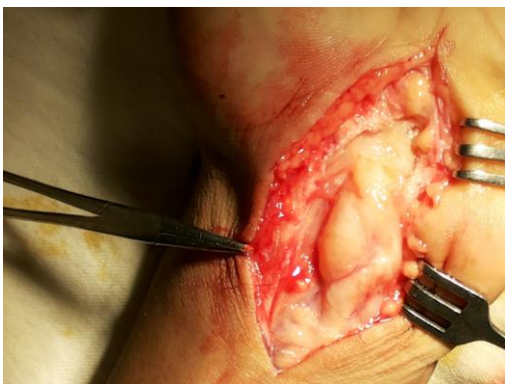


Fig. 3 Thickened Tendon sheath of FDP.

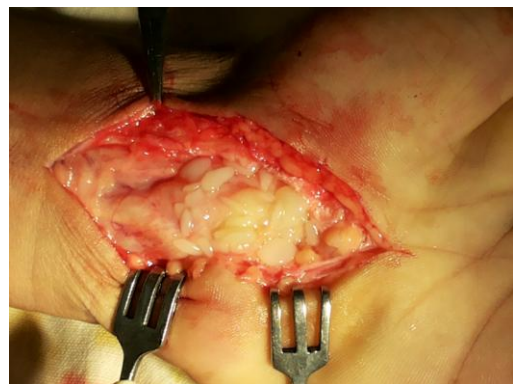


Fig. 4 Rice bodies found while opening sheath.

Histopathological examination of the thickened bursa revealed chronic nonspecific inflammatory changes and villous synovial hyperplasia. Focally, the synovium was denuded and replaced by fibrin deposits admixed with scattered lymphocytes and histiocytes; the underlying stroma showed mild to moderate chronic inflammatory infiltration and hyperplasia of

capillary blood vessels (Fig. 4). The rice bodies were composed of an inner core of amorphous acidophilic material or organised fibrin with or without interspersed chronic inflammatory cells, surrounded by a thin fibrinous layer. Tissue section staining for acid fast bacteria (Ziehl-Neelsen stain) and tissue cultures for mycobacteria were negative. The sample sent for TB Gene

Expert and found to be negative. The patient was started with Anti tuberculous treatment

and regularly followed up.

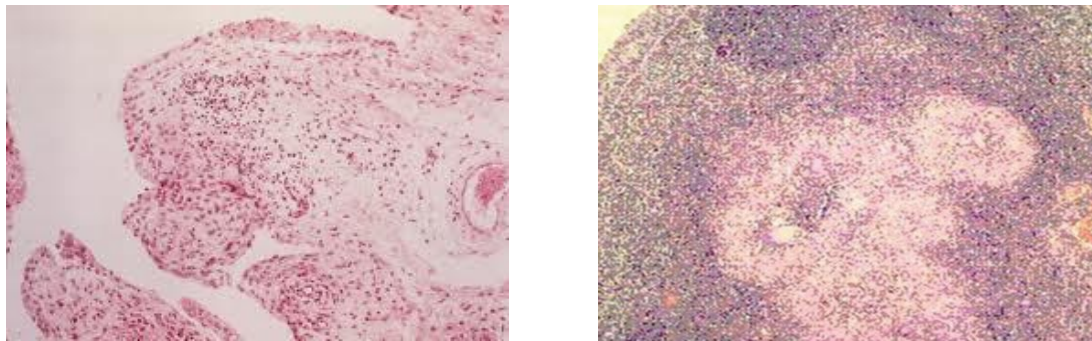


Figure 5(a) Chronic bursitis with synovial hyperplasia. The synovium is denuded and covered by a fibrinous layer with scattered chronic inflammatory cells (H&E, x200). (b) Free rice body (left) consists of a collagenous core with interspersed chronic inflammatory cells surrounded by a thin fibrin layer. The bursa (right) shows chronic inflammatory changes (H&E,x100).

DISCUSSION

Rice bodies occurring in joints affected by tuberculosis were first described in 1895.^[1] Rice bodies are a common finding in many rheumatic diseases such as rheumatoid arthritis,^[2,3] systemic lupus erythematosus, and seronegative arthritides, as well as infectious diseases such as nonspecific arthritis, tuberculosis,^[4,5] and atypical mycobacterial infections.^[6-8] They may also be found in osteoarthritic joints.^[9,10]

The cause of rice body formation remains obscure, but is most likely an unusual complication of chronic bursitis.^[11] Some investigators have suggested microinfarctions after intra-articular synovial inflammation and ischaemia, with subsequent synovial shedding and encasement by fibrin derived from synovial fluid as a possible cause.^[4,12] Nonetheless, de novo formation and progressive enlargement by fibrin is also a possible mechanism,^[3] and an alteration in fluid viscosity and fibrinogen content of the synovial fluid has been implicated.^[13]

Rice bodies have been reported as a cause of subacromial bursitis of the shoulder^[14] and have been identified during exploration of a large intrapelvic synovial cyst.^[15] Rice bodies have also been reported

as a cause of painless effusion and synovial hypertrophy in the knee joint of an 11-year-old boy.^[16] In none of these cases was any underlying pathology reported.

The sheath of the tendons of the wrist and hand has been reported as a site for rice body formation.^[6-8,17,18] Rice bodies have been detected in the flexor tendon sheath of a patient with carpal tunnel syndrome during open neurolysis. Cultures of synovial tissue revealed *Mycobacterium tuberculosis*.^[18] Atypical mycobacterial tenosynovitis of the hand and wrist and subsequent rice-body formation has been reported.^[6-7]

Synovial chondromatosis was a differential diagnosis in this case. This rarely involves a synovium-lined bursa^[19] and has an unmineralised metaplastic cartilage (20%).^[20] Rice bodies are evident in plain radiographs when mineralisation occurs; otherwise, magnetic resonance images and T2-weighted images should be obtained for an accurate diagnosis.^[11,21] The diagnosis of rice bodies was missed in this case. Pigmented villonodular synovitis or Giant cell tumour of tendon sheath has a similar clinical manifestation and was another differential diagnosis. Foci of signal voids reflecting haemosiderosis and the

difference in intra-operative findings should provide clear distinction between these diagnoses.^[21]

Retrospective interpretation of the magnetic resonance images of our patient strongly supported the diagnosis of rice bodies. Thorough excision of the affected tendon sheath was essential to prevent recurrence. As histological examination does not always reveal a definitive cause for this disorder,^[11,16,17] regular re-examination of the patient is recommended.

CONCLUSION

Although frequently reported by rheumatologists, rice bodies are an uncommon finding for most hand surgeons. Rice bodies are a common finding in many rheumatic diseases as well as infectious diseases such as nonspecific arthritis, tuberculosis and atypical mycobacterial infections. As histological examination does not always reveal a definitive cause for this disorder, regular re-examination of the patient is recommended.

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