Patient with tuberculous flexor tenosynovitis of the hand

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DESCRIPTION
Chronic flexor tenosynovitis of the hand is a rare condition in the present time.1 Tuberculous tenosynovitis of the wrist is generally called compound palmar ganglion though ganglion is a misnomer.1 It constitutes 5% of the total bone and joint tuberculosis infection.4 It presents with swelling of long duration with dull aching pain and few other symptoms at a very later stage. The most commonly affected sites are the ulnar or radial bursae of the hand.1,2 In 80% of the population, these bursae are interconnected, giving rise to horseshoe-shaped tenosynovitis.3 These are difficult to diagnose and excise at very late presentation.4 Here we present a similar case report which was diagnosed and treated successfully at our centre.

Case: A 50-year-old man presented to us with swelling over his left wrist and palm. The patient is a butcher by profession and works in a fish market. Initially, the swelling was small and painless, not associated with fever, night sweats, cough, weight loss and trauma, and the patient had no contact with anyone with tuberculosis. But in due course of time over the last 4 years, it increased in size involving the wrist, hypothenar eminence and little finger base. The patient had intermittent mild pain and discomfort with restriction in the little finger’s terminal flexion (distal interphalangeal joint). He had tingling sensation and paraesthesia over the distribution region of the median nerve. It was more in the night. On examination of the swelling, it was an hourglass swelling, soft and doughy, cross-shaped swelling initially, which involves the adjacent areas over few months to years. Most of the patients present with fluid filled, painless swelling of long duration.7 Initially, the symptoms are very minor,8 and have three stages.7 Stage 1 (hygromatous): increased synovial fluid accumulation, painless swelling.8 Stage 2 (serofibrinous): caseous debris and exudates inside the sheath is found.8 Stage 3 (fungoid): extensive caseating and sinus formation with bone and joint involvement.7

As the disease progresses, there is an inflammatory reaction, fibrous tissue replace the exudates (rice and melon seed)8 and the swelling was continuing until the fifth finger’s base. Carpal tunnel was cut and released in view of median nerve decompression. After careful dissection and taking care of the neurovascular structures, radical excision of the synovial sheath of tendons was done. Caseating fibrinous materials, amber-coloured fluids with melon seed bodies and rice bodies were found in abundance. The flexor superficialis tendon of the little finger was found adherent to the inflamed synovium, so it was sacrificed. The tissue was sent for biopsy (figure 2C). Intraoperative findings were corroborative of compound palmar ganglion. The wound was closed in layers after thorough washing. A volar cock-up splint was applied for 2 weeks. Finger movements were encouraged from day 2. Histopathology examination confirmed tuberculosis, and anti-tubercular therapy was started. At 6 months of follow-up, the patient did not have a recurrence in swelling, and the wrist and finger movements were normal.

Extrapulmonary tuberculosis involves mainly lymph nodes, bones, joints, gastrointestinal tracts, tendon sheaths, etc.5 Tuberculosis of the synovial sheath of flexor tendons of hands involving the radial or ulnar bursa is rare but not uncommon.6 Dominant upper limb is most commonly involved.7 Men are affected more and those who are generally farmers, labourers or involved in animal husbandry.1 Tuberculous tenosynovitis is caused due to haematogenous spread from a primary focus of infection or by direct inoculation from adjacent infected tissue.9 The progression of disease is slow and insidious. Initially, the symptoms are minimal. There is mild swelling around the wrist initially, which involves the adjacent areas over few months to years. Most of the patients present with a dumbbell-shaped swelling across both sides of the flexor retinaculum with a positive cross fluctuation test.1 They come very late for medical advice after the development of pain, discomfort, median nerve compression symptoms,10 and restrictions of movement of fingers or wrists. Local signs of inflammation are very minor,8 and have three stages.

Stage 1 (hygromatous): increased synovial exudates inside the sheath is found.

Stage 2 (serofibrinous): caseous debris and fibrous tissue replace the exudates (rice and melon seed bodies).

Stage 3 (fungoid): extensive caseation and sinus formation with bone and joint involvement.

These types of swelling have a large category of differential diagnoses like pyogenic tenosynovitis, fungal infection, rheumatoid arthritis, gouty...
arthritides, infected ganglion, foreign body reaction granuloma, pigmented villonodular synovitis, sarcoidosis, brucellosis, systemic lupus erythematosus, etc. Radiograph of local region is usually normal, unless in a later stage when the chronic mass effect causes bone erosion. Ultrasonography is a cost-effective, easy and non-invasive diagnostic modality. It shows an increased volume of synovial tendon sheath with a fluid collection. MRI is the gold standard of investigation because of its excellent soft tissue delineation. T2-weighted images give a nice depiction of fluid content inside synovium with a mixed solid cystic constituency. Gadolinium-enhanced imaging can also be done. MRI shows the extended abscess formation and spread of inflammation. Histopathology of synovial tissue reveals granulomatos lesions with central caseation surrounded by multiple giant cells and epithelioid cells. Characteristic ‘rice bodies’ or ‘melon seed bodies’ are found inside the synovial sheaths of tendons. They are soft, elastic and spongy in a constituency that floats in synovium after the inflammatory stage. These are believed to be synovial fringes or villous subendothelial vascular connective tissue processes covered by endothelium, which detaches from the sheath by gradual movements of tendons and remains inside tenosynovium. There is the precipitation of fibrin over these bodies. Four chemotherapy drugs (rifampicin, isoniazid, pyrazinamide, ethambutol) are recommended for 12 months following diagnosis and radical tenosynovectomy. Still, recurrence is common.

**Learning points**

- Tubercular tenosynovitis (compound palmar ganglion) is rare in present times.
- Rice bodies or melon seeds are commonly formed and abundantly found.
- It is easy to diagnose but often neglected leading to carpal tunnel syndrome.

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**REFERENCES**


**Images in…**

**Figure 1** (A) Clinical images showing ganglion on either side of wrist (arrow marked). The same can also be seen in the coronal (B) and sagittal (C) cut MRI as T2 hypointense foci surrounding the flexor tendon sheath in the palmar region and distal forearm (arrow marked).

**Figure 2** (A) Intraoperative findings showing the two ends of dumbbell ganglion (arrow marked); the rice bodies are seen in situ (B) and after excision (C) with cyst wall.