Tuberculous infection superimposed on tophyceous flexor tenosynovitis in the wrist—a report on 2 cases

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Case 1

A 64-year-old man with a 10-year history of tophyceous gout regularly treated with a low purine diet, indomethacin, allopurinol and a uricosuric agent presented a 6-month history of insidious swelling in his right wrist. Thenar muscle wasting was noted and all digits were hypesthetic. Mobility of the wrist and all 5 digits was severely limited. Laboratory data were normal, except for hyperuricemia (9.6 mg/dL), mild leukocytosis (14×10^9/L) and an elevated ESR (58 mm/hr). A radiograph of the chest was normal and that of the wrist showed a volar soft tissue swelling and diffuse osteoporosis, without bony destruction.

Surgical exploration revealed a distended "horseshoe" flexor tendon sheath. The sheath was opened and numerous rice bodies were removed. There were tophyceous deposits in the flexor tendon and tenosynovium. The tophi were removed as much as possible, without endangering the flexor tendons.

Smear of the tenosynovial fluid revealed negatively birefringent crystals in a polarizing microscope. Histological examination of the tenosynovium showed infiltration of epithelioid cells, Langhan's giant cells and tubercle formation. Acid-fast bacilli were found and Mycobacterium tuberculosis was isolated.

He was treated with anti-tuberculosis drugs for 1 year. At the 5-year follow-up, the hand was painless, tenosynovitis had resolved completely and the range of motion of the wrist and digits had returned to almost normal.

Case 2

A 65-year-old woman had had a history of tophyceous gout for 20 years, right carpal tunnel syndrome for 3 years and painless swelling at the volar aspect of the right wrist for 6 months. She was regularly treated with a low purine diet, indomethacin and allopurinol. She was admitted because of an acute exacerbation of the right hand pain and numbness during the preceding 2 days.

She had tophi in both feet, both elbows, both wrists and both hands. Swelling at the volar side of the right wrist was noted. Active motion of the wrist and all digits was severely restricted. The thenar muscles were atrophic and all digits were hypesthetic.

She had hyperuricemia (9.5 mg/dL), leukocytosis (13×10^9/L) and an increased ESR (38 mm/hr).

The radiograph of the chest was normal and that of the wrist showed diffuse osteoporosis. Computed tomography of the wrist demonstrated flexor tenosynovitis with effusion extending both proximal and distal to the carpal tunnel.

Surgical exploration revealed a distended "horseshoe" tendon sheath. After the tendon sheath was incised, a yellowish turbid fluid with numerous rice bodies gushed out. There were heavy deposits of tophi, varying in size, in the flexor tendons, tenosynovium and, to a lesser degree, the median nerve (Figure 1). Tenosynovectomy was performed. The tophi were removed as much as possible, without endangering the flexor tendons and the median nerve.

Negatively birefringent crystals were present in the tenosynovial fluid. Acid-fast bacilli were found on the histological examination and Mycobacterium tuberculosis was isolated.

She was treated with anti-tuberculosis drugs for 1.5 years. At the 3-year follow-up, her right wrist was

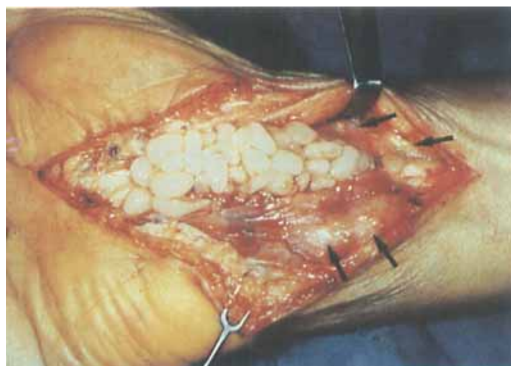

Figure 1. Case 2. The distended "horseshoe" flexor tendon sheath, which communicated with the radial and ulnar bursae, was filled with yellowish turbid fluid and numerous rice bodies. The hypertrophic tenosynovium was heavily infiltrated by many tophi of varying size (arrows).

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painfree. However, the range of motion of the wrist and fingers was severely restricted and the thenar muscle wasting was marked.

Discussion

The flexor tendon sheath at the wrist provides a barrier against spread of infection or tophyceous infiltration (Primm and Allen 1983). Tophyceous gout in the hand and wrist, though rare, can present as arthritis, nerve entrapment, tendinitis, tendon rupture, skin ulceration and tophyceous draining sinus or flexor tenosynovitis (O'Hara and Levin 1967, Primm and Allen 1983, Moore and Weiland 1985, Abrahamsson 1987). All these conditions may result in restriction of movement, neuropathy and transient or permanent disability. The median neuropathy may be aggravated by other diseases such as tuberculous tenosynovitis, that lead to tenosynovial proliferation or exuberant effusion.

Tuberculous tenosynovitis is a rare manifestation of extrapulmonary tuberculosis (Kanavel 1923, Mason 1930, Robins 1967, Chen and Eng 1994); it may present with or without pulmonary lesions. Preoperative diagnosis of its concomitant occurrence in wrists with tophyceous tenosynovitis is difficult. Unusual local effusion and swelling, leukocytosis and an elevated sedimentation rate are preoperative clues of tuberculous infection. However, they are nonspecific and are insufficient to differentiate tuberculous tenosynovitis from the pseudopurulent condition (Abrahamsson 1987) that may occur in patients with gout. Tenosynovial biopsy, histological examination, the presence of acid-fast baccilli and isolation of Mycobacterium tuberculosis permit a definite diagnosis.

Tuberculous tenosynovitis in the wrist and hand may be disabling and recurrent, if the diagnosis and treatment are delayed; early radical tenosynovectomy combined with anti-tuberculosis drugs is recommended (Kanavel 1923, Mason 1930, Robins 1967) to prevent hand stiffness, permanent median neuropathy and prolonged disability. Tuberculous infection superimposed on tophyceous flexor tenosynovitis in the wrist may be more detrimental than isolated tuberculous or tophyceous tenosynovitis. In our two cases, although there was no recurrence of tuberculous infection, permanent median neuropathy was noted in both patients and severe restriction of hand and wrist movements in one.

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Idiopathic avascular necrosis of the scaphoid—a case of early diagnosis by MRI

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A 22-year-old female bank clerk presented with a 6-month history of spontaneous onset of painful wrist in her right dominant hand. There was no history of trauma, rheumatological disorders, steroid administration or thrombotic episodes. However, she had been taking oral contraceptives for the past 6 years. Pain was noted at the extremes of wrist movement, with tenderness over the scaphoid. The radiographs of the wrist and the scaphoid were normal (Figure). As we were unable to explain her symptoms, she was fur-