Atypical mycobacterial tenosynovitis and bursitis of the wrist

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ABSTRACT

Atypical mycobacterial tenosynovitis of the wrist can easily be misdiagnosed as synovial chondromatosis. Both sonography and magnetic resonance imaging plays an important role in depicting “rice bodies” within the distended tendon sheaths and bursae of atypical mycobacterial infection. An endemic place for Mycobacterium species and the occupation of the patient should raise the suspicion for the disease. Polymerase chain reaction of the distended tendon fluid is a sensitive, specific and rapid method in identification of the mycobacteria.

Key words: • atypical mycobacterium infections • tenosynovitis • wrist • magnetic resonance imaging • polymerase chain reaction

A typical mycobacteria are omnipresent in the environment and rarely may cause tenosynovitis of the distal upper extremities (1, 2). Because of low clinical suspicion, their diagnosis is usually delayed, with consequent increased morbidity. Increased awareness of the disease, familiarity with the imaging features, and identification of different Mycobacterium species by using polymerase chain reaction (PCR) lead rapid detection of the causative agent and proper treatment of the disease.

We report a case of atypical mycobacterial tenosynovitis and bursitis of the wrist, with emphasis on the imaging, which was about to be misdiagnosed as synovial chondromatosis.

Case report

A 22-year-old farmer presented with a painless, volar soft tissue mass over his left wrist, which had been slowly growing for 2–3 years. He had no history of penetrating injury nor any medical history of systemic arthritis or tuberculosis. He was afebrile. Physical examination revealed a 13-cm, soft, immobile, non-pulsatile mass over the volar aspect of the left wrist, extending into the palm and 4 cm above the wrist. No other joints were affected. Erythrocyte sedimentation rate, C-reactive protein, rheumatoid factor, and antinuclear antibodies were all within normal limits.

Conventional radiographs of the hand were unremarkable, except for increased soft tissue opacity over the left wrist with no calcification or osseous abnormality. Hemangioma was first suspected on inspection of the bluish swelling over the skin. An ultrasound examination was done, showing multiple, well-defined, slightly echogenic bodies in a large effusion (Fig. a). Magnetic resonance imaging (MRI) examination was then performed; MR images demonstrated massive distension of the flexor retinaculum, flexor tendon sheaths, and radial and ulnar bursae affecting the palm and distal forearm. Following intravenous administration of gadolinium, there was enhancement in the moderately and smoothly thickened bursal wall and synovial membrane surrounding the flexor tendons, indicating bursitis and synovitis, respectively (Fig. b, c). There were innumerable small millimetric nodules within the distended sheaths and bursae, hypointense on T2-weighted images, slightly hyperintense on T1-weighted images, and hypointense on gradient echo sequences (Fig. d, e). The patient’s living place was known to be endemic for tuberculosis species; this fact and his occupation led us to request microbiologic examination of the aspirated material from the lesion. PCR identifying Mycobacterium marinum was found in the aspirated fluid. A radical flexor tenosynovectomy with extraction of rice bodies was performed. The patient was also treated with a course of oral tetracycline.
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M. marinum is mainly found in contaminated water; thus fishermen and aquarium cleaners are at greater risk (2). The hand and wrist are the most frequent sites of atypical mycobacterial infection, thought to reflect the relative abundance of synovium in this region and likely occurrence of pathogen inoculation through penetrating injuries (3). After inoculation of the organism through a wound or a cut, a slowly growing mass (tenosynovitis) becomes apparent in 1–2 months. Because physical signs and blood tests are nonspecific, diagnosis is often delayed a year or more. Delayed treatment may lead to complications, including tendon rupture,

Discussion

While other mycobacteria grow in culture medium at 37°C, Mycobacterium marinum, an atypical Mycobacterium species, needs cooler temperatures, so theoretically rarely can cause infections involving deeper tissues of the body, such as tendon sheaths, joints, and bones. There have been reports in recent years of deep tissue infections by M. marinum, particularly tenosynovitis of the wrist (1).

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metaplasia of the synovium. Rarely, with inflammation, proliferation, and monoarticular arthropathy presenting by using PCR (5).

Patients usually respond to synovectomy and antimycobacterial treatment. Surgery alone without use of antimycobacterial agents carries the likelihood of recurrence.

In conclusion, this case highlights the following: (i) rice bodies may be found in atypical mycobacterial tenosynovitis; (ii) in evaluating tenosynovitis of the wrist with nodules, one must investigate also atypical Mycobacterium, particularly if suggested by endemic geography and occupation of patient; (iii) contrast-enhanced MR imaging is useful in depicting the extension of the synovitis; (iv) T1- or T2-weighted MR images are not helpful in distinguishing between the exact cause of nodules; and (v) PCR is a sensitive and specific method in identification of different mycobacterial species, allowing early diagnosis of the infection and treatment with surgery and antibiotics.

References