Case Report

Tenosynovitis Due to Mycobacterium avium intracellulare and Mycobacterium chelonei: Report of Two Cases with Review of the Literature

E. Toussirot, A. Chevrolet and D. Wendling
Department of Rheumatology, University Hospital Jean Minjoz, Besançon, France

Abstract: Atypical mycobacteria can induce soft tissue infections such as tenosynovitis. We observed one case of finger flexor tendon tenosynovitis infected with Mycobacterium avium intracellulare and one case of knee and ankle arthritis with lateral peroneal tendon tenosynovitis due to M. chelonei. In the first patient, a tenosynovectomy only was performed leading to resolution of the infection. The second patient was immunocompromised as a result of corticosteroid therapy and the mycobacterial infection was treated with tenosynovectomy and multidrug chemotherapy. This patient died from infectious pneumonitis. Previously reported cases of infectious tenosynovitis due to these atypical mycobacteria are reviewed.

Keywords: Atypical mycobacteria; Tenosynovitis

Introduction

Non-tuberculous or atypical mycobacteria (AM) can cause musculoskeletal infections that involve joints, bone and soft tissue [1,2]. Bursitis and tenosynovitis have also been described [1]. Different strains of mycobacterium can induce such infectious: Mycobacterium marinum, M. kansasii, M. terrae, M. avium intracellulare and M. chelonei [1]. We report two cases of tenosynovitis due to M. avium intracellulare (MAI) in the first and M. chelonei (MC) in the second.

Case reports

Case 1

An 80-year-old white female was referred to our department for swelling and pain of the palmar side of the right wrist. She had no medical history and denied trauma or puncture of the fingers or wrist of the right hand. She presented symptoms of carpal tunnel syndrome and swelling of the flexor tendon sheaths of the third, fourth and fifth fingers of the right hand. She had not received a corticosteroid injection into the carpal tunnel. There was no lymphangitis or adenopathy and she was afebrile. The white cell count was normal and the erythrocyte sedimentation rate was 38 mm/h. Wrist X-rays showed a soft tissue swelling and geodes in the lower end of the radius. A chest X-ray was normal. A palmar flexor tenosynovectomy was performed. A thickened and hyperaemic synovium was observed. Synovial cultures for aerobic and anaerobic bacteria were negative. No acid-fast bacilli were seen. However, the pathological diagnosis was a synovitis with a mononuclear infiltrate, granuloma formation with multinuclear giant cells and tissue debris, but no caseation (Fig. 1). One month later, atypical mycobacteria grew on synovial culture (with Löwenstein–Jensen medium). No antituberculous drugs were given. Finally, 4 months after the synovectomy, the mycobacterium was identified as M. avium intracellulare with resistance to isoniazid, rifampicin, ethambutol, ethionamide, pyrazinamide,
streptomycin, ciprofloxacin and ofloxacin; only sensitivity to clofazimine was observed. All signs of active infection disappeared after the surgery and 1 year later there was no recurrence of the infection.

Case 2

An 82-year-old white male was hospitalised for pain and swelling of the left knee. His medical history indicated corticosteroid treatment for backache for 6 months. A clinical examination revealed a prepatellar bursitis. Uric acid was elevated and a gouty bursitis was diagnosed. Colchicin was initially effective but the patient presented 2 months later with right knee arthritis and swelling of his right ankle. The patient was febrile (38°C). Examination revealed a swelling of the lateral peroneal tendon sheaths (Fig. 2). Liquid was obtained from tendon sheath and knee aspiration and acid-fast bacilli were observed in both samples. The erythrocyte sedimentation rate was elevated to 94 mm/h and the white cell count was normal. No tuberculous lesions were observed on chest X-ray and the tuberculin skin test was negative. Corticosteroids were stopped and antituberculous drugs consisting of rifampicin, isoniazid and ethambutol were given. Two months later, the knee arthritis had failed to resolve and a right ankle arthritis with swelling involving both joint and tendon sheath was observed. A tenosynovectomy was decided upon. The synovium was thickened and hyperaemic and bone involvement was observed with cystic lesions in the astragalus. A non-caseating granulomatous synovitis was found on pathological examination. The treatment was modified and amikacin, ciprofloxacin, clarithromycin and clofazimine were added. Despite this treatment, the ankle arthritis did not resolve and an effusion drained spontaneously. The patient also developed bilateral knee arthritis with effusion from the left prepatellar bursae. Ankle X-rays showed geodes in the astragalus and a narrowed ankle joint space. The mycobacterium was identified as *M. chelonei* with resistance to isoniazid, rifampicin, ethambutol, pyrazinamide, streptomycin, clofazimine, ciprofloxacin and ofloxacin but sensitivity to ethionamide. The temperature remained at 38°C but blood cultures were sterile. Sputum cultures showed common flora but no acid-fast bacilli. The patient died 6 months after initial symptoms from acute respiratory insufficiency due to infectious pneumonitis. During this 6-month period, resolution or amelioration of the tenosynovitis and arthritis was not obtained. No autopsy was performed.

Discussion

AM are ubiquitous in nature and can be pathogenic in humans. These pathogens can involve soft tissue structures. Thus, tenosynovitis and bursitis are complications of AM infections [1]. These infections result from percutaneous inoculation or haematogenous seeding. AM infections of tendon sheaths of the hand and wrist represent the majority of the cases described and different strains of AM can induce such a tenosynovitis [3]. The clinical features of AM tenosynovitis are pain and tendon sheath swelling but the disease is initially indolent and insidiously destructive [1,3]. A history of trauma and skin puncture and the activities of the patient (gardening, farming, fish handling or aquarium hobby)