CASE REPORT

Mycobacterium szulgai infection in the flexor sheath of the right index finger in an immunocompetent patientAngela Bartolf,¹ Catherine A Cosgrove²¹St George's University of London, London, UK²Department of Infectious Diseases, St George's Healthcare NHS Trust, London, UK**Correspondence to**
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SUMMARY

A 53-year-old woman was identified with *Mycobacterium szulgai* infection in the flexor sheath of the right index finger. Tissue was debrided at operation, and the patient was successfully treated with appropriate antimicrobials. *M. szulgai* is a rare cause of non-tubercular mycobacterium infection worldwide, and there are currently no clear guidelines on diagnosis and management. This is the first case reporting *M. szulgai* infection in the flexor sheath of the right index finger of a non-immunocompromised patient in the UK.

BACKGROUND

Mycobacterium szulgai is a slow growing scotochromogenic non-tubercular mycobacterium (NTM) species, named after T. Szulgai and first reported in 1972. The numbers of human cases of NTM infections have increased recently and although *M. szulgai* is still considered to be an uncommon human pathogen, sporadic cases have been reported regularly. Cases have been presented with wide variety of clinical appearance including tuberculosis-like pulmonary disease as well as extrapulmonary infection. Disseminated disease has also been reported, in most cases in immunocompromised patients.^{1–6} Here we report a case of chronic tendon sheath infection caused by *M. szulgai* in an immunocompetent woman.

CASE PRESENTATION

A 53-year-old woman was referred to our teaching hospital in London for further advice on antimicrobial management after *M. szulgai* was identified from tissue debrided during operation of chronic tendonitis.

The patient had a history of a rose thorn in her right index finger some 2 years earlier which was removed with a sterilised needle and cleaned with antiseptic by herself but some of the thorn was left behind. Five days later pus started draining and discharging from the wound which was cleaned by her GP's nurse and then healed eventually. Six months later, tender lumps developed in her right palm and the right index finger became swollen. Extension of the affected finger become difficult, and flexion was reduced to 50%. The condition worsened over the next couple of months despite active physiotherapy. She received corticosteroid injections into the right index finger on two occasions after which she felt very ill with an influenza-like syndrome lasting 2–3 weeks.

An operation was performed at the referring hospital in January 2013 when tissue was taken from the flexor tendon sheath, and *M. szulgai* was identified at the TB Reference Centre.

On review at our hospital, she had no fever and was feeling well beside the pain in her right index finger which was red and swollen with minimal tenderness, well-healed surgical scars showed on her finger and palm. She was in good nutritional status weighing 99.8 kg with no signs of weight loss.

INVESTIGATIONS

The tissue was sent to the TB reference centre from the flexor tendon sheath twice, for standard culture and also for prolonged and mycobacterial culture. In January 2013, the presence of *M. szulgai* was confirmed and 9 months later it tested AFB negative and there was no growth of any further mycobacteria.

Her blood tests during her treatment period, including liver function and CRP remained in the normal range, and chest X-ray was reported as normal.

DIFFERENTIAL DIAGNOSIS

Differential diagnoses of a swollen finger should consider the following: rheumatoid arthritis, inflammatory (non-suppurative) tenosynovitis, pyogenic infection, Gouty arthritis, giant cell tumour of the tendon sheath, fungal tenosynovitis, phalanx fracture, sesamoiditis and angioliipoma. In infection, the isolation of the organism from synovial fluid or synovial biopsy may be indicative of articular involvement. Prompt diagnosis is critical to preserve function and anatomy.

TREATMENT

Standard antitubercular treatment (rifampicin, isoniazid, pyrazinamide and ethambutol) was started in May 2013 while investigation of full sensitivities was awaited. In view of the results, in July 2013, treatment was changed to rifampicin 600 mg once daily, ethambutol 1500 mg once daily and clarithromycin 500 mg two times per day. Her blood tests remained in the normal range, and chest X-ray appeared normal. She tolerated her medications well.

OUTCOME AND FOLLOW-UP

Although there was recurrence of the swelling and pain in her finger and hand within the first few months of treatment, the proposed combined antimycobacterial therapy appeared fully effective.

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Further debridement of her tendon sheath occurred in September 2013 and the tissue from the operation tested negative for mycobacteria.

Antimycobacterial therapy was stopped on completion of a 9-month course with excellent compliance and no sign of side effects.

DISCUSSION

M. szulgai is an unusual cause of human infection. It is known to be present in certain environments such as fresh water, tropical fish and plants. These are suggested as potential sources of human infection. In most cases, the source of infection cannot be clearly identified, and there has been no evidence of human-to-human transmission to date.^{4 6 7}

A wide spectrum of disease has been reported in association with *M. szulgai* in the English literature. After the initial reports of bursitis, cervical adenitis and pulmonary infection,¹ other cases followed, such as osteomyelitis, tenosynovitis, cutaneous and urinary infection and disseminated disease. This pathogen recently was suspected to cause meningitis in a 6-year-old girl.^{8 9}

In the majority of cases, infection presents in patients with comorbidities such as HIV, hepatitis C, hepatitis B infections or other underlying immune diseases.^{9 10} The literature suggests that deficiency in interferon γ -IL/R pathway puts patients at risk of infections caused by NTM.¹¹ This may explain the occasional occurrence of the infection within otherwise seemingly fully immunocompetent people.^{12 13}

To the best of our knowledge, this is the first case in the UK reporting flexor sheath infection in an immunocompetent patient caused by an uncommon NTM. This report highlights that continued clinical awareness is required to identify rare cases caused by *M. szulgai*.

Patient's perspective

- ▶ I was referred to Leatherhead Hospital by my doctor where a specialist told me that I had carpal tunnel in my right hand and I have to have a course of cortisone injection which I had two treatments at Leatherhead. I then went to Epsom Hospital as the specialist at Leatherhead was off sick.
- ▶ I saw Mr E, when he looked at my hand he told me that it was not carpal tunnel and I had a TB infection that needed to be operated on. Within a week, I was being operated on by Mr E.
- ▶ He then referred me to St George's Clinical Infectious Unit where I was told that I had a TB infection called *Mycobacterium szulgai*. I started treatment for 9 months. I was checked every 2 weeks by the team at St George's.
- ▶ I had a second operation on my hand as Mr E said there was another small lump which had developed and had to be removed.
- ▶ Everything is fine now and I am very grateful to Mr E and the team of specialist at St George's who all looked after me with great care. Thank you.

Learning points

- ▶ Specimen analysis and pathogen identification (culture) is essential to treat *M. szulgai* infection and although no clear treatment guidelines are present to date, empiric antitubercular regime followed by treatment modification after sensitivity testing appears to be the most effective and successful method of elimination.
- ▶ Repeated surgical debridement may be required in soft tissue infection caused by *M. szulgai*; however, appropriate antimicrobial treatment is important to avoid recurrence, complications and support full recovery.
- ▶ In *M. szulgai* infection, treatment course is suggested for a minimum of 6–12 months, based on the literature.

Contributors CAC cared for the patient and initiated publishing the unique case. AB reviewed the clinical case in details and completed the literature search. CAC and AB contributed to refinement of the article and approved the final manuscript.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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