Mycobacterium chimaera-induced tenosynovitis in a patient with rheumatoid arthritis

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Accepted 5 January 2020

DESCRIPTION

A 61-year-old man with a 4-year history of seronegative rheumatoid arthritis presented to our clinic with swelling of the right hand that deteriorated over 6 months (figure 1A). The treatment included methotrexate (12 mg/week), tacrolimus (1 mg/day) and prednisolone (4 mg/day). Physical examination revealed redness and soft tissue swelling in the right middle finger, right thumb and right wrist as well as serous fluid discharge (figure 1A, yellow arrows). Laboratory testing revealed elevated C reactive protein levels (CRP, 22.5 mg/L). The Disease Activity Score 28-CRP was 4.39. Ultrasound imaging in the swollen joints revealed irregularly expanded synovium with power Doppler signal (figure 1B). Short tau inversion recovery imaging showed tenosynovitis in the right middle finger (figure 1C, red arrows). An extensive incision was made for debridement. Histopathological study of the tissue demonstrated inflammatory cell infiltration and multinucleated giant cells suggestive of mycobacterial infection (figure 1D, white arrows). Two months later, *Mycobacterium chimaera* was

Learning points

- ▶ Non-tuberculosis mycobacterium (NTM)-induced tenosynovitis has been increasing in rheumatoid arthritis.
- ▶ *Mycobacterium chimaera*, a novel variant of NTM, accounts for one-third of *Mycobacterium avium* complex.
- ▶ *Mycobacterium chimaera* can cause tenosynovitis.

cultured from two tissue samples and identified in mass spectrometry. Antimycobacterial combination therapy with rifampicin, ethambutol and clarithromycin was initiated. Four months later, the patient is still on the therapy.

M. chimaera is a slow-growing non-tuberculosis mycobacterium (NTM) abundant in soil, dust and water.¹ This species was newly isolated as a novel variant of NTM in 2012.² Traditionally, *mycobacterium avium* complex (MAC) was thought to comprise *M. avium* and *Mycobacterium intracellulare*; however, recent genetic sequencing has revealed that *M. chimaera* is a major component of MAC, accounting for one-third of all MAC infections.³ After the introduction of biological disease-modifying antirheumatic drugs, NTM-induced tenosynovitis has been increasingly reported in patients with rheumatoid arthritis. However, this case illustrates for the first time that *M. chimaera* can cause tenosynovitis.

Acknowledgements We thank Enago (<https://www.enago.jp/>) for the language editing.

Contributors RW, HS and RI provided medical care for the patient. ST provided pathological assessment. RW wrote the manuscript. All authors have reviewed and approved the manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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Figure 1 *Mycobacterium chimaera*-induced tenosynovitis in the right hand. (A) Gross appearance of the right hand. Serous fluid discharge was observed (yellow arrows). (B) Ultrasound image of the flexor tendon in the right wrist. (C) Short tau inversion recovery image of the right hand. Extensive tenosynovitis was observed in the middle finger (red arrows). (D) Histological study of the tissue revealed inflammatory cell infiltration and multinucleated giant cells (white arrows) in synovial tissue (H&E stain; magnification ×200).

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To cite: Watanabe R, Seino H, Taniuchi S, et al. *BMJ Case Rep* 2020;**13**:e233868. doi:10.1136/bcr-2019-233868

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