EMERGENCY CASEBOOK

Case report of non-healing wounds presenting to a DGH, South East London

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Mycobacterium marinum infections (fish tank granuloma) are infrequently encountered and when they do arise, they can pose a diagnostic challenge for clinicians. They can present as non-healing wounds along with several other presentations that may not be typical, as patients can have other comorbidities that cause immunosuppression and invasive symptoms of the disease. Treatment regimens vary in length, and are based on the patient's response to treatment couple with resolution of symptoms. Rifampicin and ethambutol are effective treatment options, together with use of macrolides. A thorough history from patients must be taken as to establish contact with aquatic animals.

Infections by *Mycobacterium marinum* (fish tank granuloma) are frequently misdiagnosed. The diagnosis should be considered in patients who handle fish or swim in fresh water. These two case reports attempt to highlight the increased awareness clinicians should have when assessing patients who present to the emergency department (ED) and the need for taking a thorough history when encountering wounds not healing despite being previously treated with antibiotics.

CASE REPORTS

Patient 1

A woman presented to the ED 4 weeks after sustaining a wound from a knife to the left thumb over the metacarpophalangeal joint. This had not healed and was persistently sore and erythematous. She had been prescribed two courses of antibiotics, but the wound was still inflamed, painful, and intermittently oozing a discharge. On examination, a 15 mm wound was observed. Two small painful subcutaneous nodules about 3 mm in diameter were observed in the antecubital fossa. On further questioning, the knife via which the wound was sustained was also used to clean a tropical fish tank. A small amount of pus was expressed and sent for microbiological investigations, specifically for mycobacterium cultures.

Initial cultures were positive for mycobacterium species, and the diagnosis of fish tank granuloma was made. The infectious organism was later confirmed as *M. marinum*, sensitive to rifampicin and ethambutol. The patient was commenced on clarithromycin and rifampicin, which was continued for 6 months with monthly monitoring of renal function tests. Within 4 weeks of treatment, the painful nodules in the antecubital fossa had decreased in size, resulting eventually in complete resolution, and the patient made an uneventful recovery.

Patient 2

An 80 year old man presented to the ED with a puncture wound to the left index finger sustained while gardening a few weeks earlier. He was known to be hypertensive and was taking an angiotensin converting enzyme inhibitor. The index

finger was red, swollen, and painful. Movements at the distal and proximal interphalangeal joints were restricted. He was treated with a course of antibiotics, which did not resolve his symptoms. A diagnosis of a possible foreign body was made and he was referred to the orthopaedic surgeons for exploration of the finger in the operating theatre. No foreign body was found except for some granulation tissue, which was sent for histology. The patient then developed swelling and pain of his left wrist, and flexion and extension were restricted to 40 degrees range of movement.

Histology revealed granulation tissue consistent with *M. marinum* infection. On further questioning, the patient revealed that after he had sustained the wound while gardening he had then proceeded to clean his tropical fish tank without the use of gloves. Like patient 1, this patient was started on rifampicin and clarithromycin. After 4 weeks of continued treatment, the pain and the symptoms of the tenosynovitis began to improve.

DISCUSSION

M. marinum has a worldwide distribution. The most common form of contraction of this disease by humans is through an open wound or abrasion while cleaning or working in a marine aquarium.^{1,2} It is important to note that not all infections occur from aquariums. Cases are also noted from activities related to swimming and other hobbies related to fresh and salt water.³

Two weeks after inoculation, a localised papulonodular lesion arises, which eventually ulcerates. Some cases may follow a sporotrichoid pattern with abscess formation and secondary nodules forming along the path of the lymphatics.⁴ In cases of delayed diagnosis and immunosuppression, invasive infection can manifest, most commonly as tenosynovitis, although septic arthritis and osteomyelitis are also described.⁵

Most cases are resistant to isoniazid and streptomycin but remain sensitive to rifampicin and ethambutol. Doxycycline, clotrimazole, and macrolides such as clarithromycin and

Figure 1 Wound over the metacarpophalangeal joint of the left thumb of patient 1. Written consent was obtained from the patient for publication of this image.

Abbreviation: ED, emergency department

azithromycin have also shown to be effective in treatment. Treatment can take 6–18 months, depending on the extent of the disease and clinical response, although spontaneous resolution without chemotherapy has been reported.⁴

This case highlights several points. There should be a high index of suspicion in making this diagnosis with the need for direct questioning about exposure to aquatic animals (salt-water/freshwater) when the cause of a non-healing wound is not immediately apparent. The awareness of the coexistence of invasive symptoms should be maintained, as patients presenting to the ED may be immunosuppressed, with other comorbidities.

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