Case illustrated

**Mycobacterium marinum** following a knife injury

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A 61-year-old woman from Texas presented with a progressive nodular left upper extremity rash following a knife injury to her left thumb while cutting fish (Fig. 1). She subsequently developed a pustule at that site which she self-drained using a “flame-sterilized” needle. Additional lesions ascended up her arm to the level of her elbow with associated erythema and serous drainage despite several weeks of treatment with trimethoprim-sulfamethoxazole. Pertinent medical history is significant for breast cancer treated with bilateral mastectomy, lymphadenectomy, and chemotherapy with resultant chronic left upper extremity edema and Sjogren’s syndrome not on immunosuppressive therapy.

Laboratory studies included a mild anemia with hemoglobin 11.4 g/dL, leukocyte count of 5200/\mu L with a normal differential, and baseline renal function. MRI of the left hand and forearm showed soft tissue infection and tenosynovitis with no involvement of joints or bones. Pathology from incisional biopsy revealed neutrophilic micro-abscesses throughout the dermis and multiple short acid-fast bacilli (Fig. 2).

Acid-fast bacilli were recovered in the mycobacterial culture after 13 days and colonies produced yellow pigment after exposure to light consistent with a photochromogen. Matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS; Bruker Biotyper) identified the isolate as *Mycobacterium marinum*.

*Mycobacterium marinum* or “fish tank granuloma” is a slow-growing nontuberculous mycobacterium that can infect both humans and fresh and marine water fish [1]. It is almost uniformly associated with exposure to water including saltwater aquariums, boating, fishing, or crustacean puncture during seafood preparation [2]. The lesions appear as papules or nodules on an extremity, ascend in a sporotrichoid manner, and often take weeks to diagnose from symptom onset. Complicated infection most commonly presents as tenosynovitis [3].

![Fig. 1. Multiple ascending nodular skin lesions progressing up the left arm with areas of central necrosis.](image-url)
Primary cultivation in clinical microbiology takes several weeks and requires low temperatures for growth, often resulting in false negatives [4]. *M. marinum* is generally susceptible to macrolides, and combination therapy with sulfonamides, tetracyclines, ethambutol, or rifampin is often utilized for complicated infections [2,3]. Susceptibility testing is generally not recommended except in cases of treatment failure or relapse, and fluoroquinolones are generally avoided due to resistance potential [5]. Median duration of treatment is 4.5–5 months. Longer courses of antimicrobial therapy and surgical debridement are warranted for complicated infection [2,3].

Our patient was started on a prolonged course of oral clarithromycin 500 mg twice daily, ethambutol 1200 mg daily, and rifampin 600 mg daily at bedtime. She had slow improvement of her skin lesions at follow-up and was planned for surgical debridement.

Author statement

Archna Patel: conceptualization, investigation, data curation, writing – original draft, visualization.

Chineze Akusoba: resources, data curation, writing – review & editing.

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Omar Abu Saleh: conceptualization, methodology, investigation, resources, writing – review & editing, visualization, supervision, funding acquisition.

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Ethical approval

Patient consent was obtained for the preparation of this manuscript. All identifying information has been omitted and IRB review was not necessary for this case report.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Declaration of Competing Interest

The authors report no declarations of interest.

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