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IMAGING VIGNETTE

BEGINNER

CLINICAL VIGNETTE

# Infection of a Cardiac Implantable Electronic Device Caused by *Mycolicibacterium litorale*

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## ABSTRACT

We report the first case of *Mycolicibacterium litorale* infection identified as a pacemaker infection. The patient was successfully treated by device extraction and combined antibiotic therapy. This case indicates the importance of the pathogenicity of rapidly growing mycobacteria in patients with cardiac implantable electronic device infections. (**Level of Difficulty: Beginner.**) (J Am Coll Cardiol Case Rep 2020;2:277–8) © 2020 The Authors. Published by Elsevier on behalf of the American College of Cardiology Foundation. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

## CASE

A 79-year-old female patient who had undergone implantation with a dual-chamber pacemaker for sick sinus syndrome 18 years previously was referred to the authors' hospital with complaints of skin erosion and generator exposure. Seven months before admission, she underwent a generator exchange for the second time. Five months after replacement, she observed redness and blistering of her skin above the generator. During the course of 2 months, this progressed to the exposure of the generator (**Figure 1**). She had no conditions causing immunodeficiency. The bacterial culture showed no evidence of blood or wound infection.

On admission, she was afebrile, and transthoracic and transesophageal echocardiography showed no vegetation on cardiac valves or pacemaker leads; however, purulent discharge was found around the generator. Thus, it was decided to extract the device system. Percutaneous extraction of the generator and leads were conducted successfully by use of laser sheath, and the temporary pacemaker was inserted through the right internal jugular vein. Five days after device extraction, rapidly growing mycobacteria (RGM) were detected from the general cultivation of the leads and pus inside the pocket. Empirical cefazolin was switched to parenteral imipenem (IPM/CS), amikacin (AMK), oral clarithromycin (CAM), and sitafloxacin (STFX). Additional blood cultures (acid-fast bacteria culture) during the treatment period showed negative results. The therapeutic course was uneventful, and after a 4-week regimen of IPM/CS, AMK, CAM, and STFX, subsequent oral dosing of CAM, sulfamethoxazole/trimethoprim (SMX/TMP), STFX, and doxycycline (DOXY) was initiated, based on the report of antimicrobial activity against RGM species (1). A new pacemaker was implanted opposite to the affected side, and the patient was discharged 3 days after reimplantation.

The RGM detected in the extracted leads and pus was identified as *Mycolicibacterium litorale* from the sequence analysis of heat-shock protein 65 and the RNA polymerase beta-subunit genes, showing the highest

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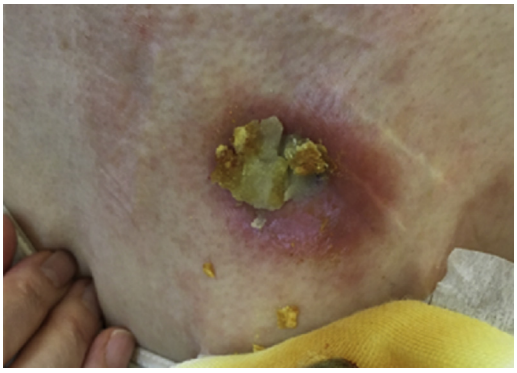
**ABBREVIATIONS AND ACRONYMS**

**RGM** = rapidly growing mycobacteria

homology among the other mycobacterial species. *M. litorale* is a Gram-positive, acid-fast, rapidly growing rod-shaped bacterium, which has never been isolated from a human specimen (2). RGM species most commonly manifest as soft tissue or device infections, although it rarely causes cardiac implantable electronic device infections (3). There are no established antimicrobial regimens for RGM infection. The current regimen was based on antimicrobial activity against *Mycobacterium fortuitum* and *Mycobacterium chelonae* (1). After confirming the susceptibility test (Supplemental Table 1), SMX/TMP was discontinued and multidrug regimen (CAM, STFX, and DOXY) was continued for 3 months. Ten months after treatment, the patient remains free from relapse.

**FIGURE 1 The Ulcer Above the Generator**



The generator was exposed through the ulcer and surrounded by a purulent discharge.

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**KEY WORDS** awareness, cardiac pacemaker, *Mycolicibacterium litorale*, treatment

**APPENDIX** For a supplemental table, please see the online version of this paper.