Mycobacterium goodii Associated with Breast Tissue Expanders

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Introduction: *Mycobacterium goodii*, a non-tuberculous mycobacterium (NTM), is associated with implanted medical devices. Due to the rise of nosocomial infections, *M. goodii* presents a challenge due to unique resistance patterns. We present a case of bilateral breast tissue expanders infected with *Mycobacterium goodii*.

Case Description: A 52-year-old woman with a history of hypertension, type 2 diabetes mellitus, infiltrating ductal carcinoma of the left breast, and a history of previous Group B Strep (GBS) infection associated with breast tissue expanders. The patient underwent a delayed bilateral breast reconstruction due to the breast expanders needing removal. There was also a placement of tissue expanders and bilateral biosynthetic mesh along with a left periprosthetic capsulectomy and excision of right chest subcutaneous cyst in December 2021. She was noted to have increased drain output post-operatively, which prompted aspiration from her bilateral breast expander ports and initiation of empiric doxycycline. Due to doxycycline being a broad-spectrum antibiotic and typically being used in skin, mucosa, and similar infections, it was chosen as initial treatment.

Three days after initiating doxycycline, the patient was in a high-speed motor vehicle collision and presented at our hospital. The patient had severe injuries such as a right orbital blow out fracture, dental avulsion, cervical fracture, rib fracture, and left wrist fracture which required surgical intervention with orthopedics. Following surgery, the patient remained afebrile without leukocytosis but continued to have 10-15mL of drain output bilaterally. Infectious diseases were consulted to specifically investigate and understand which bacteria was inflicting the patient. Cultures drawn from her bilateral breast expander ports became positive for a beaded, gram-positive rod that was modified acid-fast positive which signified a nosocomial, opportunistic infection. Meropenem and trimethoprim-sulfamethoxazole (TMP-SMX) were initiated due to concern for rapidly growing mycobacterial infection. She was discharged after about two weeks after the MVC with a PICC line and a follow-up with ID. The organism was found to be positive for M. *goodii*. The organism was found to be sensitive to TMP-SMX, and meropenem was discontinued. She tolerated therapy with TMP-SMX well and had no allergic reactions or other adverse side effects. About two weeks after being discharged, her breast expanders were removed, and cultures at this juncture were negative. On follow-up, she had completed 3 months of

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TMP-SMX post-removal of implants and had a delayed bilateral deep inferior epigastric perforator (DIEP) free flap procedure without any signs of recurrence of infection.

Discussion: Mycobacterium goodii is a rapidly growing non-tuberculous mycobacterium (NTM) that was originally associated with traumatic wound infections, particularly osteomyelitis following open fractures1. Since its original description, M. goodii has emerged as a challenging infectious pathogen of implantable medical devices. M. goodii is naturally resistant to rifampin and macrolides, which are often the empiric treatment of choice in NTM infections. If the infection involves a medical implant, removal of the device is usually pursued, though there have been cases of successful cure with retention of the implant3. As with other mycobacterial infections, duration of antibiotics is prolonged, ranging from 1-12 months2. We found in our review that there has been one other documented case of M. goodii infection due to a breast implant, in which the patient required reoperation and a prolonged course of antibiotics4. Therapy should ultimately be targeted based on culture sensitivities and patient tolerance with likely explantation of the infected hardware and prolonged duration of antimicrobials.

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