

Case in Point

An Unusual Infection of Breast Tissue

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A female patient initially diagnosed with right breast mastitis subsequently developed *Mycobacterium abscessus* infection.

A 50-year-old white woman who worked in a nail salon and had a history of Crohn disease (asymptomatic, off treatment for several years) presented to her primary care physician with right breast erythema and pain for the previous 3 days. The symptoms started as a red streak in the upper half of the breast with no reported history of a recent trauma to the breast and no history of prior surgeries. The patient reported having no nipple discharge or any associated constitutional symptoms.

On initial examination, the patient was found to have intact skin with 3 cm of localized redness. She was diagnosed with right breast mastitis and given oral erythromycin due to a history of allergy to penicillin. Four days later, while she was still taking oral antibiotics, her symptoms worsened. She was referred to the breast clinic and reevaluated by the breast surgeon, who reported findings of right breast tenderness and induration localized to the upper inner quadrant with no signs of fluctuation to suggest an abscess. A breast

ultrasound showed inflammatory changes of the right breast around the perinipple-areola complex area. Fine-needle aspiration (FNA) was performed in the surgery clinic. Additional laboratory tests revealed no leukocytosis on routine blood work. She was hospitalized and received IV vancomycin and clindamycin. Clindamycin was given to cover anaerobes along with vancomycin, which is more reliable to cover staphylococcus, including methicillin-resistant *Staphylococcus aureus* empirically. The bacterial culture showed no growth, and the reported findings of the FNA were consistent with inflammatory process without evidence of malignancy. The erythema improved in a few days, and the patient was discharged home on oral linezolid, as she declined further IV antibiotics.

At the follow-up surgical clinic visit, the induration was the same, and the erythema had progressed to involve a larger area of the breast. Repeat ultrasound showed an edematous area within the retro-areolar region. Repeat FNA was performed in the clinic, and

3 mL of bloody fluid was obtained. The bacterial culture again showed no growth, and the cytologic findings revealed an inflammatory process with more exudates but no evidence of malignancy. Due to lack of expected clinical improvement with the treatment for presumptive acute bacterial infection, the decision was made to proceed with excisional biopsy to rule out malignancies and other potential etiologies of an infectious/inflammatory process.

Excision of the involved area, consisting of inner upper quadrantectomy and terminal duct excision, was performed due to the operative findings of inflamed, necrotic tissue and the presence of multiple abscesses. The pathology report confirmed the presence of microabscesses and mastitis with periductal inflammation. Microbiology data revealed a negative bacterial culture and negative acid-fast bacilli (AFB) smear. However, the AFB culture from MB/BacT (a liquid media by BioMérieux, Marcy-l'Étoile, France) grew an atypical mycobacterium.

An infectious disease consultation was requested for further guidance. The AFB isolate was sent to the University of Texas Health Science Center, where the atypical mycobacterium was later identified as *Mycobacterium*

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chelonae-abscessus complex. This was determined to be the *Mycobacterium abscessus* species. The susceptibility test report revealed the organism was sensitive to amikacin, cefoxitin, clarithromycin, and linezolid and demonstrated intermediate sensitivity to quinolones. The organism was resistant to doxycycline and sulfamethoxazole.

During evaluation in the infectious disease clinic, the patient reported night sweats. The examination of her right breast revealed a well-healed surgical scar with surrounding erythema and induration. Blood cultures for AFB taken later were negative. The patient was married with no risk factors for HIV but consented to a test, which also was negative. The patient was started on

clarithromycin was renewed for another 3 months. The decision to treat with antibiotics after surgical removal of necrotic tissue was based on previous cases and the need to ensure complete eradication of the infection prior to breast reconstruction.

The patient remained asymptomatic at her 6-month follow-up visit after completion of the antibiotics course. No recurrence of the atypical mycobacterium infection was detected. A year later, she underwent reconstruction of her right breast.

DISCUSSION

Mycobacterium abscessus is a human pathogen commonly found in the soil, water, or sewerage. The organism is a nontuberculous mycobacterium characterized by rapid growth

Two previous reports have referred to *M abscessus* infection in the breast tissue; however, this current case is unique. The authors believe this case study to be noteworthy in its description of an acute presentation in a woman with neither trauma nor history of breast disease, such as fibrocystic breasts. This unusual presentation makes the diagnosis of *M abscessus* infection more difficult to diagnose and treat in a timely manner.

Reports of *M abscessus* infection have been documented in skin and soft tissues. These cases involved prior trauma to the skin, such as acupuncture, filler injections, surgical procedures, or other traumatic events. Painful nodules and plaque formation also were reported with a culture showing polymorphonuclear microabscesses and granulomatous inflammation in the dermis and subcutaneous fat tissue, identified as *M abscessus*.^{2,3}

Another study reported a case of *M abscessus* infection after a patient had a tattoo.⁴ Possible of infections from tattoos may be localized or systemic. Because more people are being tattooed and developing skin infections resistant to standard antibiotic treatment, *M abscessus* infection must be considered in the differential diagnosis of these infections.

CONCLUSION

Mycobacterium abscessus infection is usually seen in immunocompromised hosts or those with trauma. However, as more cases of *M abscessus* are seen in skin and soft-tissue infections because of more cosmetic injections, body art, or minor surgical procedures, clinicians must have a high degree of suspicion for this pathogen, especially if the patient does not respond to standard

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oral clarithromycin and ciprofloxacin, pending the sensitivity of the mycobacterium.

Due to the slow clinical improvement on oral antibiotics after surgery, intolerance to ciprofloxacin (severe nausea), and the sensitivity pattern, the decision was made to add IV cefoxitin (minimum inhibitory concentration [MIC] < 64) and continue with oral clarithromycin (MIC < 0.1).

During her 2-week follow-up visit, the patient reported significant improvement in pain, swelling, and induration of her breast, confirmed by physical examination. At the 12-week follow-up visit, the patient's erythema and induration had resolved completely. The IV cefoxitin was discontinued, and her oral

and a lack of pigmentation on the gram-positive rods. A review of the literature revealed multiple cases of *M abscessus* infection of the skin, but only one reference was made concerning breast tissues in which rapidly growing *M abscessus* initially was misdiagnosed as fibrocystic disease. Yasar and colleagues reported a woman with a history of fibrocystic breast disease who presented with a breast abscess later identified as *M abscessus*.¹ She was treated with amikacin, linezolid, and clarithromycin. The authors concluded that antimycobacterial therapy for *M abscessus* infection remains poorly established, and surgical therapy is often required in treating this atypical mycobacterium infection.

antibacterial therapy. Although amikacin and clarithromycin are 2 antimicrobial agents that have shown effectiveness against this pathogen, obtaining a skin biopsy along with mycobacterial culture and sensitivity testing is determining the proper agents for successful treatment. The importance of early recognition and proper antibiotic therapy is crucial to avoid delay in diagnosis and to decrease potential tissue loss. ●

Author disclosures

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