

CLINICAL VIGNETTE

Nontuberculous Mycobacterium Infection of the Breast

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Case Report

A 54-year-old woman with a history of breast cancer presented with one week of throbbing right breast pain. She noted tenderness on palpation of the breast and denied any trauma, redness or swelling. She had been gardening but denied any insect bites or thorn pricks. She denied any fevers, chills or sweats. Her stage I (T1N0M0) breast cancer was diagnosed ten years earlier. She underwent a left simple mastectomy with negative axillary sampling followed by adjuvant chemotherapy but no radiation. She also underwent contralateral prophylactic mastectomy with placement of tissue expanders and subsequent bilateral saline implants and nipple reconstruction. She was without recurrence of breast cancer or problems with the reconstruction until the time of presentation.

On initial evaluation a breast contracture or rupture was considered. Within one week the patient presented with redness and increasing pain to the right breast. She denied any drainage, fevers, chills or sweats. Physical exam demonstrated an erythematous right breast with thickening around the implant.

Subsequent ultrasound evaluation revealed a five cm by one cm fluid collection deep to the reconstructed nipple with associated prominent skin thickening and peri-implant fluid. Aspiration of the fluid revealed organisms staining for acid fast bacilli by Ziehl-Neelson stain. Subsequent speciation of the acid fast bacilli revealed a slow growing nontuberculous mycobacterium (NTM), *Mycobacterium xenopi*.

Discussion

Infection associated with breast implant surgery occurs in approximately 1% to 2% of cases¹. Breast implant infections are more common after breast cancer reconstruction, ranging from 1-30%. Risk factors for breast implant infections, include diabetes, smoking and prior breast

operations. Specifically, in reconstruction cases lymph node resection, chest wall radiation and preoperative chemotherapy are associated with increased risk of infection^{2,3}.

Most breast implant infections occur shortly after placement with saline implant infections generally occurring in the first six weeks after placement. Silicone implant infections often occur 6 months after placement⁴. Up to two thirds of the infections occur within the first month after implant surgery⁵. Typical symptoms of infections occurring shortly after surgery include redness, pain, drainage and wound dehiscence. Late infections occurring months to years after surgery are uncommon. Some late infections are felt to be due to bacteremia. Additionally, poor infection control of the implants at the time of placement has also been implicated².

The typical pathogens are coagulase-negative staphylococci and staphylococcal aureus⁶. Other pathogens include skin flora such as diptheroids, lactobacilli, bacillus species, beta hemolytic streptococci and propionibacterium acnes which are postulated to originate in the nipple area and breast ducts.

Nontuberculous mycobacterium (NTM) organisms have been identified as an increasing cause of breast infections⁷. These infections have been implicated in acute, subacute or late onset infections. When standard bacterial cultures are negative, NTM infection should be considered. Interestingly, NTM infections are often bilateral. The most common causes of NTM are *Mycobacterium fortuitum* and *M. avium*, *M. abscessus*, and less commonly, *M. chelonae*. Most cases of NTM infections are related to infection at the time of the implant placement. Interestingly, in one case *M. jacuzzi* was identified in a series of patients who were infected by a surgeon who was found to have the bacterium on his body and in his jacuzzi⁸.

In our case, the patient had *Mycobacterium xenopi* which is a slow growing NTM.

M. xenopi is associated with opportunistic and nosocomial infections, usually of the lung and less commonly of the bone and joints⁴. It survives in water systems and is resistant to common disinfectants, enabling *M. xenopi* to contaminate laboratory samples and medical devices such as bronchoscopes, causing health-care-acquired infections and laboratory contamination. To date, *M. xenopi* has not been identified in breast infections.

Management of the NTM breast implant infections primarily consists of removal of the infected implant and appropriate antimicrobial therapy depending on the species of the NTM. Reimplantation after any infection should be delayed at least 3-6 months after completion of treatment to ensure complete resolution of infection². Salvage treatment with isolated antibiotics is not recommended and is associated with a high risk of failure in NTM infections⁹.

This case demonstrates many unusual findings which include the delayed presentation of infection nearly ten years after her reconstruction. The infection occurred in the breast unaffected by the lymph node dissection. Notably, the pathogen *M. xenopi* is unusual despite recent increases in NTM breast infections and suggests potential contamination at the time of initial placement.

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