

# *Mycobacterium fortuitum* breast abscess after nipple piercing

Khurram Abbass MD   Muhammad K. Adnan MD   Ronald J. Markert PhD   Mimi Emig MD   Nasir A. Khan MD

**T**wo previous reports of breast infection with *Mycobacterium fortuitum* involved breast prostheses.<sup>1,2</sup> Infectious complications of nipple piercing are rarely reported. But evidence that *M fortuitum* causes mastitis after nipple piercing is emerging.<sup>3,4</sup> We discuss the clinical manifestations and treatment of an *M fortuitum* abscess.

## Case

A 21-year-old HIV-negative woman underwent nipple piercing in April 2008. During the summer of 2008, she swam in what she described as “nasty algae water.” She developed a painless lump in her left breast 1 month later. She denied experiencing any fever, chills, night sweats, or weight loss.

On examination, she had a 2×3-cm painless mass at the 3-o’clock position of her left breast, which was mobile with irregular margins, but without any redness, drainage, or increased temperature.

The patient removed her piercing. She began taking cephalexin, but the mass did not show any signs of improvement. She noticed redness of the overlying skin and reported pain. A mammogram and breast ultrasound showed a hypoechoic lesion in the left breast near the nipple, mobile on compression ultrasound and consistent with a breast abscess. The patient underwent diagnostic aspiration, which did not reveal any malignancy. She began taking trimethoprim-sulfamethoxazole (TMP-SMX), but had no clinical improvement.

A repeat aspiration yielded a large amount of pus; culture grew some *Nocardia* species and *M fortuitum*. Her antibiotic therapy was changed to levofloxacin and TMP-SMX, but her abscess continued to progress. She required debridement of the abscess, with closure by secondary intent. Cultures from samples taken during surgery grew only *M fortuitum*. Fungal and anaerobic cultures had negative results. While being treated, the patient became pregnant, and her antibiotic treatment was changed to TMP-SMX and azithromycin. She was treated for a total of 6 months. She required a second surgical debridement for relapse of the abscess while taking these antibiotics. She was well at her quarterly follow-up visits at the infectious disease clinic and at 1 year had no residual infection.

## Discussion

Many nontuberculous mycobacterial organisms are omnipresent. The incidence of *M fortuitum* infection has been estimated to be between 4 and 6 cases per 1 million people.<sup>5</sup> *Mycobacterium fortuitum* is classified as a Runyon group IV organism; as a rapidly growing mycobacteria, it can be grown in culture within 7 days.<sup>1</sup> Granulomatous formation is noted on histology; however, caseation and inflammatory response might be muted or absent.

## EDITOR'S KEY POINTS

- There are only 2 reported cases of breast infection due to *Mycobacterium fortuitum*; this case is the third. The unique aspect of this case is that the patient became pregnant while taking antibiotics and her regimen had to be changed.
- When infectious complications of nipple piercing do not improve despite seemingly appropriate management, it is important to have a high index of suspicion for unusual pathogens such as *M fortuitum*.
- Combination therapy with 2 antibiotics is usually recommended. Ultimately, the only cure for *M fortuitum* infection might be surgical debridement, especially if the infected area is extensive.

## POINTS DE REPÈRE DU RÉDACTEUR

- Il n'y a que 2 cas signalés d'infection du sein due à la *Mycobacterium fortuitum*; le cas présent est le troisième. L'aspect unique de ce cas réside dans le fait que la patiente est devenue enceinte alors qu'elle prenait des antibiotiques et que son schéma posologique a dû être modifié.
- Lorsque des complications infectieuses d'un perçage du mamelon ne s'améliorent pas en dépit d'une prise en charge apparemment appropriée, il importe de soupçonner fortement des pathogènes inhabituels comme les *M fortuitum*.
- On recommande normalement une thérapie combinant 2 antibiotiques. En définitive, le seul traitement pour guérir une infection à la *M fortuitum* pourrait être un débridement chirurgical, surtout si la superficie infectée est considérable.

In a review article, Bengualid et al reported that the most common pathogen in nonlactating breast abscesses was *Staphylococcus aureus* (32%) and that 39% of abscesses were polymicrobial while 7% were anaerobic.<sup>4</sup> Including our patient, 13 cases of nipple piercing infections have been reported. Four cases were secondary to coagulase-negative staphylococcus, 4 cases were secondary to mycobacteria, and 4 individual cases were due to anaerobes, group A streptococcus, group B streptococcus, and *Gordonia terrae*, respectively. One case had no pathogen listed.


Five of the 12 previous cases described the presence of a foreign body. No patients had implants. All cases were in women, with an average age of 22 years. The time from piercing to abscess formation varied from 3 to 9 months.<sup>4</sup> There are only 2 reported cases of infection due to *M fortuitum*<sup>3,4</sup>; thus, our case is the third.

*Mycobacterium fortuitum* infection should be suspected after nipple piercing if the infection fails to resolve with removal of the piercing and antibiotics directed against *S aureus*. To aid in antibiotic selection, a tissue sample, rather than a simple swab, should be submitted for culture.

Infection with *M fortuitum* from nipple piercing appears to be uncommon; there are no standard recommendations to guide treatment. Analogous to the treatment of *M fortuitum* implant infection, we recommend removal of the piercing as an initial measure. No standard duration of therapy has been reported, and treatment might last 6 months or more. Authors have recommended amikacin, imipenem, fluoroquinolones, cefoxitin, sulfonamides, linezolid, doxycycline, and clarithromycin as first-line antibiotic therapy for *M fortuitum* infection.<sup>2-5</sup> Combination therapy with 2 antibiotics is usually recommended.<sup>2</sup> Ultimately, the only cure for *M fortuitum* infection might be surgical debridement, especially if the infected area is extensive.<sup>4</sup> It is important to

recognize that the first-line agents for *Mycobacterium tuberculosis* are ineffective against *M fortuitum*.<sup>2</sup>

## Conclusion

It is unclear whether the initial infection in our patient occurred at the time of piercing or from exposure to pond water. As more people undergo nipple piercing, documenting the spectrum of bacteria assumes a greater importance. The unique aspect of our case is that our patient became pregnant while taking antibiotics and we had to change her regimen. When infectious complications of nipple piercing do not improve despite seemingly appropriate management, it is important to have a high index of suspicion for unusual pathogens such as *M fortuitum*. 

**Dr Abbass** is a fellow of rheumatology at the University of Minnesota Medical School in Minneapolis. **Dr Adnan** is a resident with the Grand Rapids Medical Education Partners, which are affiliated with the College of Human Medicine at Michigan State University. **Dr Markert** is Professor of Internal Medicine at the Boonshoft School of Medicine at Wright State University in Dayton, Ohio. **Dr Emig** is an infectious disease specialist with the Grand Rapids Medical Education Partners, and Professor of Medicine in the College of Human Medicine at Michigan State University. **Dr Khan** is Assistant Program Director of Internal Medicine with the Grand Rapids Medical Education Partners, and Professor of Medicine in the College of Human Medicine at Michigan State University.

## Competing interests

None declared

## Correspondence

**Dr Khurram Abbass**, Department of Rheumatology, University of Minnesota, MMC 108, 420 Delaware St SE, Minneapolis, MN 55455, USA; fax 612 624-0600; e-mail [drkhuramabbass@gmail.com](mailto:drkhuramabbass@gmail.com)

## References

1. Ferringer T, Pride H, Tyler W. Body piercing complicated by atypical mycobacterial infections. *Pediatr Dermatol* 2008;25(2):219-22.
2. Vinh DC, Rendina A, Turner R, Embil JM. Breast implant infection with *Mycobacterium fortuitum* group: report of case and review. *J Infect* 2006;52(3):e63-7. Epub 2005 Sep 19.
3. Lewis CG, Wells MK, Jennings WC. *Mycobacterium fortuitum* breast infection following nipple-piercing, mimicking carcinoma. *Breast J* 2004;10(4):363-5.
4. Bengualid V, Singh V, Singh H, Berger J. *Mycobacterium fortuitum* and anaerobic breast abscess following nipple piercing: case presentation and review of the literature. *J Adolesc Health* 2008;42(5):530-2. Epub 2008 Feb 13.
5. Betal D, MacNeill FA. Chronic breast abscess due to *Mycobacterium fortuitum*: a case report. *J Med Case Rep* 2011;5:188.