

# Recurrent breast cellulitis from a nipple fissure



Matthew Alexander Pimentel, BS, and Anna K. Haemel, MD  
San Francisco, California

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## INTRODUCTION

Bacterial superinfections are a common complication in atopic dermatitis (AD) because of increased *Staphylococcus aureus* colonization.<sup>1,2</sup> However, a nipple fissure as a source for cellulitis has not been described in this population. We describe a case of a nonlactating patient with chronic atopic dermatitis with recurrent breast cellulitis and fever caused by an inconspicuous nipple fissure.

## CASE REPORT

A 25-year old nulliparous woman with a history of chronic atopic dermatitis involving face, trunk, and extremities presented with fevers, mild tachycardia, and an erythematous, warm, and tender left breast. She was treated 1 month prior for left breast cellulitis, which resolved after a 14-day course of cephalexin and doxycycline. During the first episode, the patient also had a concurrent flare of AD involving the trunk. The patient denied any recent episodes of furunculosis, arthropod bites, or other identifiable sources of infection.

Medical history was significant for AD complicated by recurrent superinfection with *S aureus* that responded to *Staphylococcus* decolonization with doxycycline, rifampin, mupirocin treatment to nares, and chlorhexidine wash.

Examination found a warm, tender, erythematous, edematous plaque with some lymphangitic streaking circumferentially on the left breast (Fig 1). Careful examination found an inconspicuous fissure at the base of the left nipple, visible only when the nipple was sufficiently everted (Fig 2). The

### Abbreviation used:

AD: atopic dermatitis

nipple and areola were otherwise normal, without other signs of dermatitis or inflammation. Breast ultrasound scan showed no drainable fluid collection or abscess.

The patient responded well to repeat treatment with doxycycline and cephalexin. The left nipple fissure resolved with 1 month of gentian violet 0.5% and mupirocin, without further episodes of cellulitis.

## DISCUSSION

Breast cellulitis is a clinical diagnosis classically characterized by swelling, erythema, warmth, and tenderness often from *S aureus* infection. Mastitis is defined as inflammation of the breast tissue parenchyma and presents similar to that of breast cellulitis with tenderness and swelling. However, mastitis can occur in the absence of skin changes (eg, erythema) or infection (eg, periductal mastitis).<sup>3</sup> Indeed, breast cellulitis has been classified by some investigators as superficial mastitis occurring in the dermis.<sup>4</sup>

Although superinfection of cutaneous fissures is a frequent complication of atopic dermatitis, fissures of most areas (eg, the earlobes) tend to lead to impetigo rather than cellulitis.<sup>5</sup> It is plausible that the rich lymphatic supply of the breast allowed propagation of infection in this case, eventuating in cellulitis.<sup>6</sup>

From the Department of Dermatology, University of California, San Francisco.

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Correspondence to: Anna K. Haemel, MD, 1701 Divisadero Street, 3<sup>rd</sup> floor, San Francisco, CA 94115.1701. E-mail: [anna.haemel@ucsf.edu](mailto:anna.haemel@ucsf.edu).

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**Fig 1.** Left breast and chest wall cellulitis.



**Fig 2.** Nipple fissure with resolving cellulitis. Arrow indicates nipple fissure.

Previous reported risk factors for isolated breast cellulitis include pregnancy, lactation, postmenopause, trauma (eg, piercings, tattoos), lesions in breast skin (eg, eczema), and previous breast-conserving surgeries.<sup>6,7</sup> No reports exist of recurrent breast cellulitis from a nipple fissure in a nonpregnant, premenopausal patient with AD. It is important to recognize this condition because careful

inspection was required to reveal a culprit source, and specific treatment was necessary to establish a durable response to antibiotics.

Although the management of cellulitis is well established, management of nipple fissures is not well described. Both mupirocin and gentian violet are effective in temporarily reducing staphylococcal colonization of the skin and for treating atopic dermatitis.<sup>8-10</sup> In the case of our patient, oral and topical antibiotic and topical antiseptics were successful in healing the nipple fissure and preventing subsequent infections over a 1-year follow-up period. Thus, clinicians should consider the use of mupirocin and gentian violet 0.5% to support nipple fissure healing. This case report conveys the importance of performing a careful breast examination, including the nipples, as a source of chest wall infections in patients with atopic dermatitis.

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