

Delayed breast cellulitis post nipple-sparing mastectomy surgery

Vittoria Cioppa, Pietro Rubegni, Ernesto De Piano

Unit of Dermatology, Department of Medical, Surgical and Neurological Sciences, University of Siena, Italy

Dear Editor,

In March 2022 a 33-year-old woman showed up in the Emergency Department for a dermatological consultation due to an erythematous eruption in maculo-plaques of the left hemithorax with a clear midline delimitation, involving the upper region of the ipsilateral abdomen and back which appeared a few days ago, associated with painful symptoms and hyperpyrexia (Figure 1).

In such occasion the patient reported that she had been diagnosed with a multiple invasive breast cancer of the left upper external quadrant of the left breast (ypT2m, ypN1a, G2) about 18 months earlier for which adjuvant chemotherapy began. In addition she underwent a right mastectomy surgery with nipple sparing and contextual ipsilateral axillary dissection and placement of expander, after that treated with adjuvant radiotherapy completed in December 2022. At the time of the visit in the Emergency Department she was in therapy with Exemestane 25 mg daily and Enantone 3,75 mg every 28 days.

Blood chemistry tests detected an increase in inflammation

indices (PCR 21,34 mg/dL) in the absence of alteration of the leukocyte formula, an increase in LDH (239 UI/L) and reduction of platelets ($107 \cdot 10^3/\text{mmc}$), hepatic and renal function as the protein electrophoresis were normal. The chest radiographs made in two different projections have turned out to be normal. Bilateral breast ultrasound showed signs of subcutaneous inflammation without echo-detectable collections. Furthermore, on the advice of infectious disease colleagues, serology and viraemia for parovovirus (negative), HIV 1-2 test (negative), serology for HCV (negative) and HBV (vaccine immunised), serology for VZV (previous infection), blood culture (negative), ASO title (negative) were requested.

Waiting for the results of the above required tests and taking into account the initial suspicion of erysipelas, we have decided to treat the patient with antibiotic therapy with ceftriaxone 2 g iv daily for 5 days and paracetamol 1 g every 8 hours. The ceftriaxone has been used since it is a wide spectrum antibiotic not knowing at that moment the disease causative agent.

During the hospitalization, we have noticed a progressive and gradual improvement of clinical objectivity and of the symptoms with a contextual normalization of the previously altered blood chemistry values (Figure 2). After the discharge from the hospital, we have been monitoring the patient clinical situation every two months and we have reported a complete clinical remission without the need of additional therapy during such period to avoid exacerbations.

“Red breast” is considered a not so rare condition because occurs in 3-8% of the patients following breast-conserving treatment. Red breast is referred to a localized rash on the breast and represents a significant diagnostic and management dilemma.¹ The aetiology of such disease is varied as shown in Table 1.²

Simon has been one of the first to have emphasized the frequency of cellulitis, which is an underappreciated long-term complication of axillary lymphnode dissection.³ In particular, it is a complication related to the lymphoedema involving only the breast in patients after breast conservation surgery and radiation therapy for early stage breast cancer.⁴ The special thing of such condition is its appearance after long time from the treatment and its propensity for recurrence.⁵

Predisposing risk factors that could be considered as potential cellulitis correlates may include i) the history of the periductal mastitis, ii) the breast trauma prior to the onset of cellulitis, and iii) the treatment-related local effects such as postoperative ecchymosis, skin erythema, postradiotherapy breast oedema and clinical or subclinical breast lymphoedema.^{5,6} The lymphatic drainage system has the role to clear bacteria from the breast parenchyma, but by reason of altered lymphatic flow and stasis the bacterial overgrowth occurs more frequently.⁶

To date, a universal treatment guideline has not yet been codified. Although the role of microbial colonization or infection has not been completely elucidated, the therapy with broad-spectrum oral antibiotics has been reported as a first line treatment of the disease with clinical benefit.^{4,7} In case of persistence of the clinical features and of worsening of the systemic conditions it is neces-

Correspondence: Vittoria Cioppa, viale Bracci 14, 53100 Siena, Italy. Tel.: +39 3472827325
E-mail: v.cioppa@student.unisi.it

Key words: delayed; breast; cellulitis; mastectomy; nipple-sparing.

Contributions: EDP, VC, writing and original draft preparation; PR, supervision. All authors have read and allow publication of this report.

Conflict of interest: The authors declare that they have no competing interests, and all authors confirm accuracy.

Availability of data and materials: The data supporting the findings of this paper are available from the corresponding author upon reasonable request.

Received: 4 July 2023.
Accepted: 10 July 2023.

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0).

©Copyright: the Author(s), 2024
Licensee PAGEPress, Italy
Dermatology Reports 2024; 16:9793
doi:10.4081/dr.2024.9793

Publisher's note: all claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article or claim that may be made by its manufacturer is not guaranteed or endorsed by the publisher.

sary to perform a biopsy in order to exclude other not apparent underlayed conditions.

The purpose of evaluating a patient with a red breast is to identify an accurate aetiology in a timely way, thereby avoiding a late diagnosis particularly as regards breast malignancy. For such reason, in order to identify the correct diagnosis and implement the appropriate therapeutic procedure it is essential to initially focus on the patient history and in case of presence of breast mass or axillary adenopathy, emerged during the following physical examination, better understand through targeted instrumental

investigations. Although the red breast is a condition mostly reported to be associated with conservative surgery, the illustrated case highlights how the diagnosis should never be excluded even in the case of a foreseen demolitive surgery. On the contrary, in case of red breast a differential diagnosis should always be performed in order to be able to reassure the patient about the benignity of the pathology and about a more targeted management, avoiding an aggressive therapeutic approach and limiting diagnostic-instrumental tests.



Figure 1. Frontal, lateral and back view of the left delayed breast cellulitis before antibiotic therapy.



Figure 2. Frontal, lateral and back view of the left delayed breast cellulitis after 5 days of antibiotic therapy.

Table 1. Differential diagnosis of “red breast” presentation.

Differential diagnosis infections	Mastitis, cellulitis, abscess, herpes zoster, yeast infections, tinea corporis, dermatophytosis, tuberculosis, necrotizing fasciitis
Malignancy	Paget’s disease of the breast, inflammatory breast cancer, locally advanced breast cancer, cutaneous metastasis to breast from non-breast primary, squamous cell carcinoma, melanoma, angiosarcoma
Tauma dermatologic conditions	Poison ivy, morphea, systemic lupus erythematosus, contact dermatitis, factitial, burns, insect bite, vasculitis, sarcoidosis, amyloidosis, nephrogenic systemic fibrosis
Venous hypertension/lymphatic obstruction Mondor syndrome idiopathic	

References

1. Exarchos G, Metaxa L, Constantinidou A, et al. Delayed breast cellulitis following surgery for breast cancer: a literature review. *Breast care (Basel)* 2019;14:48-52.
2. Froman J, Landercasper J, Ellis R, et al. Red breast as a presenting complaint at a breast center: an institutional review. *Surgery* 2011;149:813-9.
3. Simon MS, Cody RL. Cellulitis after axillary lymph node dissection for carcinoma of the breast. *Am J Med* 1992;93:543-8.
4. Staren ED, Klepac S, Smith AP, et al. The dilemma of delayed cellulitis after breast conservation therapy. *Arch Surg (Chicago, Ill : 1960)* 1996;131:651-4.
5. Rescigno J, McCormick B, Brown AE, et al. Breast cellulitis after conservative surgery and radiotherapy. *Int J Radiat Oncol Biol Phys* 1994;29:163-8.
6. Miller SR, Mondry T, Reed JS, et al. Delayed cellulitis associated with conservative therapy for breast cancer. *J Surg Oncol* 1998;67:242-5.
7. Indelicato DJ, Grobmyer SR, Newlin H, et al. Delayed breast cellulitis: an evolving complication of breast conservation. *Int J Radiat Oncol Biol Phys* 2006;66:1339-46.

Non-commercial use only