

# Carcinoma erysipeloides: an unusual cutaneous metastasis in breast cancer

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Carcinoma erysipeloides (CE) is a rare type of cutaneous metastasis. It can be observed during any stage of active carcinoma or after completion of radical treatment or may represent as the first clinical sign of an unknown primary. The diagnosis of CE is usually delayed as it mimics many benign skin conditions such as erysipelas. It is mostly associated with advanced breast cancer but can be seen in other malignancies like colon, pancreas, esophagus, and uterus. We report a case of CE in a patient with locally advanced breast cancer.

## Keywords:

breast cancer, carcinoma erysipeloides, cutaneous metastasis, erythematous macules, erythematous patches

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## Introduction

Carcinoma erysipeloides (CE) is an uncommon but distinctive form of cutaneous metastasis associated with infiltration of superficial dermal lymphatic by malignant cells [1]. CE is characterized into two types: (a) primary type – malignancy and dermal inflammatory changes occur at the same time and (b) secondary – erysipeloides occur later in a known case of malignancy according to time of occurrence. Primary CE is very rare and if at all seen is usually in breast malignancy (25%) [2]. It is also seen in malignancies of the larynx, lung, stomach cervix, and prostate [1]. Clinical appearance often mimics benign skin etiology like erysipelas or cellulitis. In breast cancer, it can mimic satellite nodules, therefore may pose a diagnostic dilemma. Treatment modality includes surgical excision beyond margins when diagnosed early, whereas extensive dermal involvement is treated with palliative chemo-radiotherapy [2].

## Case report

A 35-year-old married, premenopausal woman presented with a history of a lump in her right breast for last one year. Clinically she had a 10×12 cm lump in the right breast involving all of the quadrants with multiple nodules, which was fixed to the skin and chest wall. There were multiple palpable nodes in the right axilla, supraclavicular, and left axilla. A core needle biopsy was done from the breast lump, and on histopathology, she was diagnosed as having invasive carcinoma, Nottingham Grade 3,

PR-negative, ER-negative, and Her2neu positive. The FNAC from the left axilla showed malignancy.

Contrast-enhanced computed tomography scans of the thorax and abdomen were negative for metastasis-staged as cT4cN3M1. She was planned for adriamycin and cyclophosphamide-based chemotherapy followed by response assessment. However, after three cycles of chemotherapy, she reported multiple erythematous lesions above the right breast lump. On examination, erythematous papules and macules were seen over a diffuse erythematous background, coalescing at places to form plaques over the right chest region above the breast lump extending toward the sternum area as well as toward the back (Fig. 1). Skin biopsy was taken from the lesions, and the patient was continued with chemotherapy. Histopathology report revealed lymphatic emboli of malignant epithelial cells seen in the dermis, which were consistent with CE. Immunohistochemistry demonstrated that the tumor cells were immunopositive for CK-7 (Fig. 2a–c). In view of disease progression, the patient was started on docetaxel and trastuzumab-based chemotherapy. However, after three cycles, the patient clinically showed progression of the disease. On examination, ulceration was present over the breast lump, and there was an increase in the number and size of papules that

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had coalesced together over the breast lump (Fig. 3). The patient was further considered for third-line palliative chemotherapy.

## Discussion

CE is a rare form of cutaneous metastasis, usually associated with underlying adenocarcinoma, most commonly carcinoma of the breast [3]. Its overall incidence is 0.7–10% [2] and constitutes about 1% of metastasis from breast cancer [1]. It has also been reported with melanoma and tumors of the parotid gland, thyroid, larynx, lung, pancreas, stomach

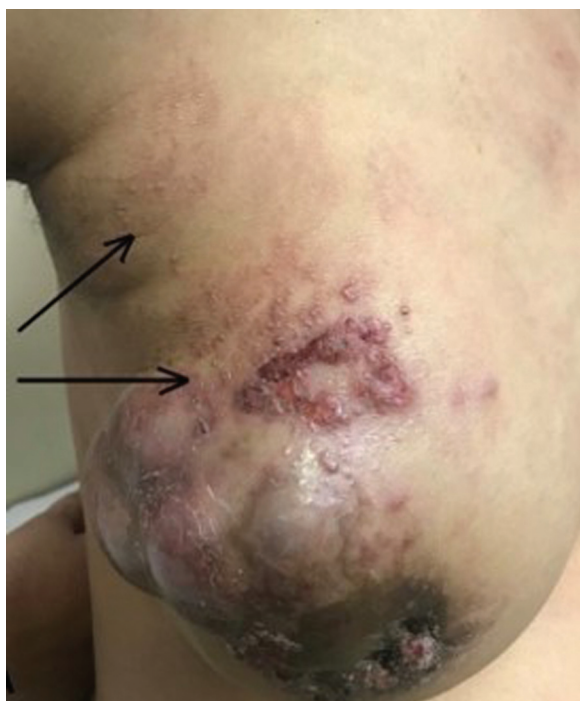
fallopian tube, cervix, ovary, and prostate [3]. CE can present as a marker of tumor recurrence or first manifestation of breast cancer (2–5%). CE may rarely be the first sign of 'silent' tumor of the breast [1]. Cutaneous metastases from breast cancer have been enumerated into the following subtypes: alopecia neoplastica (12%), telangiectatic carcinoma (8%), CE (6.3%), carcinoma en cuirasse (4%), and zosteriform (3.6%) [4].

CE was first described in 1924 in a study of 28 breast cancers cases showing inflammatory skin changes. These lesions were red indurated plaques with white distinctly margined borders. In 1931, Rasch named them 'CE' for their resemblance to the infectious skin condition erysipelas [5].

The main pathophysiology of CE is undefined, but it is speculated that interventions such as radiation, surgery, or chemotherapy may cause a change in the microenvironment of tumor cells, resulting in the formation of tumor emboli that consequently spread and obstruct the lymphatic channels. The most common site of its occurrence is the anterior chest wall. The other possible regions are incision scar, contralateral breast, arms, and facial skin. It appears clinically as well-circumscribed, shiny, and erythematous papules and plaques mimicking cellulitis or erysipelas. The inflamed area may be edematous or show a distinctly raised margin secondary to lymphatic obstruction. The skin is tender but can also be asymptomatic in a few cases [4].

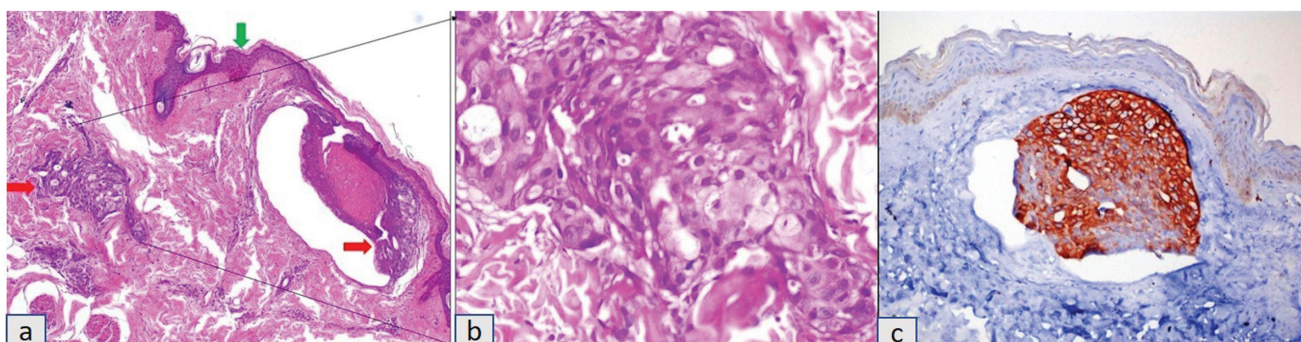
Cases of high suspicion of cutaneous metastasis warrant immediate punch skin biopsy. Dermal lymphatic embolization is considered to be the main hallmark of CE. Immunohistochemistry for gross cystic disease fluid protein-15 and estrogen receptor

**Figure 1**



Erythematous papules and macules over diffuse erythematous background seen coalescing at places to form plaques over the right chest region and above the breast lump.

**Figure 2**



(a–c) (skin biopsy) Hematoxylin and eosin section shows unremarkable epidermis (green arrow). The upper dermis shows nests of tumor cells emboli (red arrow), (a, H&E  $\times 100$ ; b, H&E  $\times 400$ ) (c) Immunohistochemistry (IHC) demonstrating the tumor cells immunopositive for CK-7 ( $\times 200$ ).

**Figure 3**

After three cycle of second-line chemotherapy, ulceration over the breast lump with increase in number and size of papules.

protein is a valuable marker for cutaneous metastatic breast carcinoma [1].

Differential diagnoses include erysipelas, cellulitis, radiation dermatitis, eczema, herpes zoster, and contact dermatitis [1,2]. Patients are often misdiagnosed as benign skin lesion and treated with a course of antibiotics, anti-inflammatory drugs, and topical steroids. Initially, owing to the anti-inflammatory response of such medication, the patient may show some falsely interpreted improvement [2]. EC diagnosis should be considered in any persistent and therapeutically nonresponsive rash. Treatment management includes systemic chemotherapy for the primary tumor with radiation, whereas for local therapy excision, electrochemotherapy, photodynamic therapy, and intralesional chemotherapy can be considered. However, CE is classically more resistant to local treatment [4]. CE is associated with a poor prognosis, and the average life expectancy is 2 years from the time of diagnosis in breast cancer [1]. Other associated factors resulting in poor outcomes are younger age, African-American ethnicity, axillary

nodal involvement, and negative hormone receptor status [1,2]. Cutaneous metastasis from lung cancer is considered to be associated with worse survival than any other malignancies, with a median survival of only 5 months [4].

In the present study also, the patient had poor risk factors except for ethnicity, leading to dismal outcomes. Despite treatment with multiple lines of chemotherapy, the patient showed progression of the disease.

## Conclusion

CE is associated with a poor prognosis and aggressive nature; therefore, each patient with breast carcinoma should be carefully examined for any skin lesion at every follow-up visit. Awareness about this entity can help in the early diagnosis of unknown primary malignancy or recurrence of disease, early treatment, and prognostication of the disease.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understood that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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