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# Carcinoma hemorrhagiectoides: case report of an uncommon presentation of cutaneous metastatic breast carcinoma.

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## Abstract

In most cases, cutaneous metastases develop after the diagnosis of the primary internal malignancy has been established, but sometimes they can be discovered earlier or simultaneously. We describe a case of a 90-year-old woman who presented to the emergency room in poor general condition, with cutaneous lesions characterized by hot, infiltrated, violaceous and erythematous plaques involving the left chest wall. The clinical and histopathological findings were consistent with the recently described variant of inflammatory cutaneous metastatic carcinoma named carcinoma hemorrhagiectoides. Microscopic examination demonstrated extensive infiltration of the dermis by tumor cells as well as intralymphatic involvement by neoplastic cells. This is a very rare presentation of cutaneous metastasis from breast cancer.

*Keywords: breast carcinoma, cutaneous metastases, carcinoma hemorrhagiectoides, inflammatory cutaneous metastatic carcinoma*

## Introduction

Cutaneous metastases (CM) occur in 0.7%–9.0% [1] of patients with cancer and up to 10.4% [2] of all patients with metastatic cancer. Frequencies vary in different series depending on the types of primary cancer included [3]. CM represent only 2% of skin tumors [4] and generally develop after the diagnosis of the primary tumor has been established, yet up to a third of them are detected earlier or simultaneously [5]. In a series of patients with cutaneous metastatic

disease, CM was the first manifestation of visceral cancer in 37% of men and 6% of women [3]. Relative frequencies of CM tend to correlate with those of different types of primary cancer in each sex. Thus in women, the most frequent origin (70%) for CM is breast cancer [2, 3]. Cutaneous metastases of breast cancer (CMBC) mostly occur in the chest wall and abdomen [4]. Clinical presentations include nodular carcinoma (46.8%), alopecia neoplastica (12%), telangiectatic carcinoma (8%), malignant melanoma-like metastases (6.3%), carcinoma erysipelatoides (6.3%), subungual metastases (4.6%), carcinoma en cuirasse (4%), zosteriform metastases (3.6%), eyelid metastases (2.3%), Paget-like metastases (1.3%), and others (4.8%), [6-8].

Cutaneous metastases may clinically resemble an inflammatory condition. In 1938 Taylor and Meltze [9] described 38 cases of this inflammatory type of metastasis, all arising from breast cancer and involving the anterior chest skin. Later, in 1941, Reuter and Nomland [10] published a report of a similar case compromising the face and neck, but with the primary tumor located in the rectum. Three clinical presentations of inflammatory cutaneous metastatic carcinoma have been described with distinctive histopathological features: carcinoma erysipelatoides, carcinoma telangiectoides, and carcinoma hemorrhagiectoides [11]. Carcinoma erysipelatoides had been described as erythematous, warm, tender patches or plaques with raised, well-defined margins, resembling erysipelas; over weeks these may acquire a yellowish color and a fibrotic texture [3], which histopathologically demonstrates tumor aggregates in the dermal lymphatic vessels with absence

of or minimal interstitial tumor [11]. Carcinoma telangiectoides corresponds to erythematous patches with prominent telangiectasias; the patches correlate histopathologically with tumor emboli in blood vessels of the upper dermis. Lastly, the recently described carcinoma hemorrhagiectoides appears clinically as purpuric violaceous indurated plaques, showing microscopic hemorrhage of red blood cells into the lymphatics of the upper dermis. Tumor-containing vessels with moderate-to-extensive infiltration of the tumor are found in the dermis [11]. It might be troublesome at times to differentiate carcinoma hemorrhagiectoides from the other two "inflammatory" metastatic carcinomas, yet the moderate (10-25%)-to-extensive (>25%) tumor infiltration in the dermis is characteristic [11].

### Case Synopsis

A 90-year-old woman, without significant medical history, consulted at the emergency room in poor general condition with cutaneous lesions on the left thoracic wall of unknown evolution.

Physical examination revealed an erythematous, hot, raised, indurated and infiltrated plaque involving the left breast, extending to the ipsilateral chest wall, shoulder, arm, and scapular region (**Figures 1, 2**).

The computed axial tomography with contrast of the chest, abdomen and pelvis, revealed a spiculated lesion of the left breast and perilymphatic micronodules with interlobular septal thickening, compatible with carcinomatous lymphangitis. The scan also exhibited extensive nodal disease, including bilateral cervical, axillary, and hilar lymph nodes. Furthermore, there was an enlargement of the soft tissue throughout the left anterolateral thoracic and abdominal wall involving the cutaneous and subcutaneous tissues, with multiple scattered subcutaneous nodules, consistent with skin metastasis (**Figures 3**).

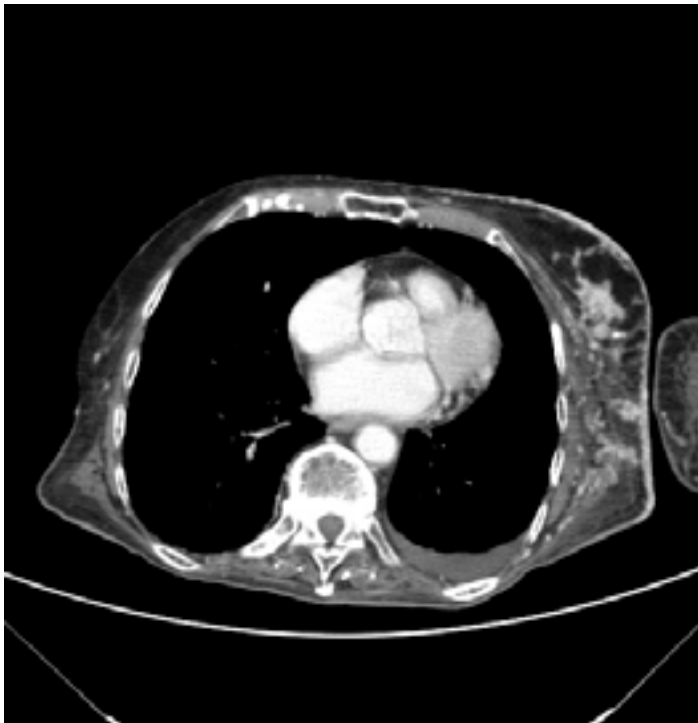
All laboratory tests were normal, except for a striking rise of lactate dehydrogenase up to 1178 UI/L (normal range 230-460 UI/L). A cutaneous biopsy was performed. Histopathologic examination revealed nests and cords of cells infiltrating the dermis and subcutis. Tumor cells were not connected to the epidermis. The neoplastic epithelial cells were arranged in interconnecting cords, with an



**Figure 1.** A large plaque involving the left breast, thoracic wall, shoulder and arm and spreading beyond the midline towards the right breast. The plaque was well circumscribed, some areas were yellowish and scarring and other more violaceous. Erythematous papules and nodules were found on the surface.



**Figure 2.** Ecchymotic and infiltrated plaques on the back and edematous arm.



**Figure 3.** Computed axial tomography showed a significant enlargement of the soft tissue throughout the left anterolateral chest wall, involving cutaneous and subcutaneous tissues.

occasional glandular pattern. Minimal inflammatory infiltrate and fibrosis were observed in the reticular

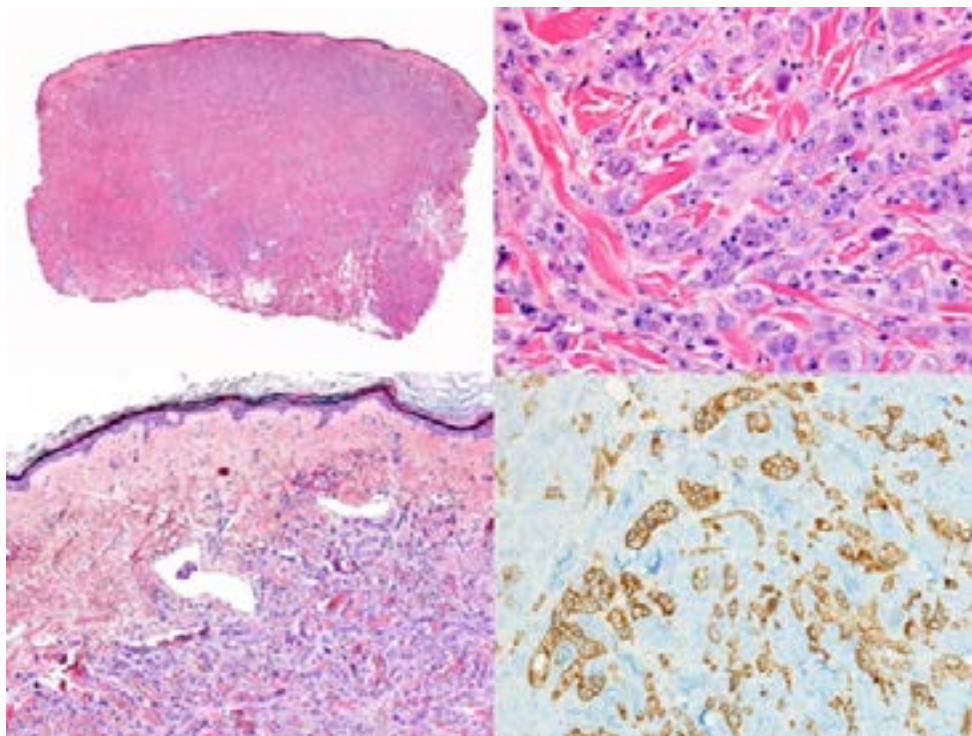
dermis. Some lymphatic vessels of the superficial dermis contained neoplastic cells within their lumina (**Figures 4**).

Immunohistochemical staining for cytokeratins AE1-E3 and CK7, mammaglobin, and E-cadherin were strongly positive in neoplastic cells, but they were negative for CK20. Estrogen and progesterone receptors were also negative. Immunohistochemistry (IHC) for the protein expression of HER2 was positive (2+) and fluorescence in situ hybridization (FISH) for amplification of HER2 gene demonstrated gene amplification. Immunostaining for D2-40 demonstrated that the vessels containing neoplastic emboli were lymphatic vessels. These findings were consistent with an invasive ductal breast carcinoma, and ruled out a lobular breast cancer.

Owing to advanced age of the patient and the poor prognosis, the patient and her family refused any treatment. She died a month and a half later at home.

### Case Discussion

A wide spectrum of cutaneous disorders must be considered when evaluating a patient with a large



**Figure 4.** Histopathologic findings. A) The dermis and subcutaneous tissue were involved with sheets of neoplastic cells arranged in single cords and nests, H&E, 2x. B). Individual cells had high nuclear-to-cytoplasmic ratios and eosinophilic cytoplasm, H&E, 20x. C) Carcinoma cell emboli appear in the lumina of dermal lymphatic vessels, H&E, 4x. D) Immunohistochemistry staining showing strong positivity to cytokeratin 7, 10x.



inflammatory plaque, including inflammatory, infectious, and primary cutaneous or metastatic neoplastic processes. The absence of fever and leukocytosis, in addition to the deep infiltration of the lesions, may help to suggest a diagnosis of a metastatic process [5].

Cutaneous metastases can be the first manifestation of visceral malignancies; at this point the median survival time of these patients is approximately 7.5 months [4]. A high index of clinical suspicion is required to detect this kind of metastases, but the final diagnosis relies on the histopathology [4].

It has been described that carcinoma en cuirasse may overlap with the clinical appearance of inflammatory cutaneous metastatic carcinoma [5, 6]. In our patient, the inner portion of the plaque clinically resembled carcinoma en cuirasse. However, histopathology was more compatible with carcinoma hemorrhagictoides. The extension of the interstitial infiltration in the dermis and the finding of carcinoma cell emboli in the lymphatic vessels supported the diagnosis of carcinoma hemorrhagictoides, although in this case hemorrhage of red blood cells into the lymphatics was not seen. Furthermore, the absence of tumor emboli in blood vessels rules out carcinoma telangiectoides and the extensive dermal infiltration by tumor cells with the scant fibrosis makes carcinoma erysipelatoides less likely.

To our knowledge, this is the first case report of a carcinoma hemorrhagictoides in a metastatic breast cancer patient. We present this case because of the striking clinical presentation and because clinicians should be aware of this rare variant to avoid the delay in the biopsy to confirm the diagnosis.

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