

# Two Cases of Breast Cancer Presenting Primarily with Skin Metastasis

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## ABSTRACT

Cutaneous metastases represent 2% of all metastases. Although rare in clinical practice, cutaneous metastases are important in that they indicate a poor prognosis for the disease. Cutaneous metastases are usually symptoms of advanced internal malignancies, and rarely, they may be the first clinical manifestation of an unknown internal neoplasm. Here we report 2 previously undiagnosed patients who presented at a dermatology outpatient clinic with firm, ulcerated lesions on the skin as the first sign of breast carcinoma. Skin metastases of internal malignancies should be considered in the differential diagnosis in cases with atypical nodules on the skin.

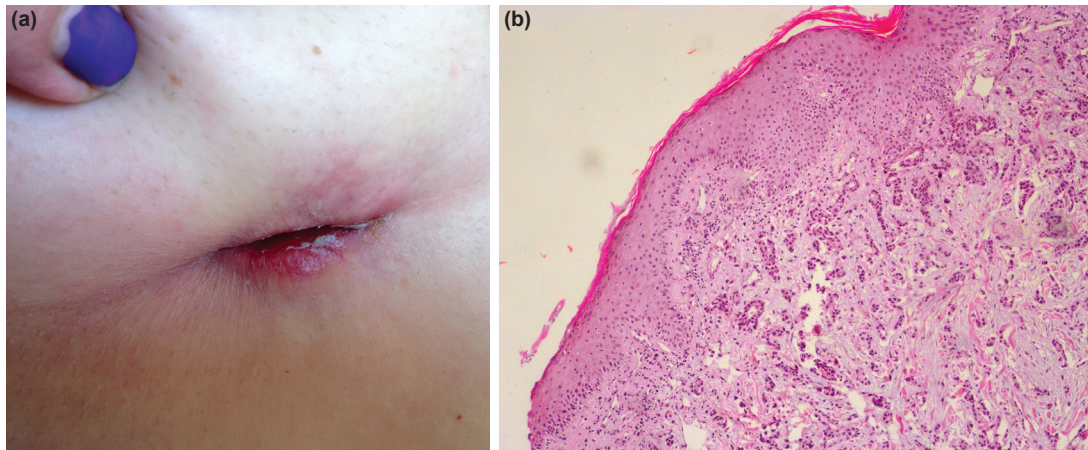
## INTRODUCTION

Although cutaneous metastases of the internal organs are rarely seen, these cutaneous metastases are important in that they demonstrate a poor prognosis, and in some cases they are the first sign of malignancies. Breast cancer is the second most frequently seen type of cancer in women and often metastasizes to the skin.<sup>[1]</sup> Cutaneous involvement in breast cancer can be observed in various clinical forms and in different regions of the body. The most frequently encountered type of metastasis manifests itself as a direct invasion of the anterior wall of the abdomen and/or nodular lesions spreading directly by local infiltration.<sup>[2]</sup> Herein, the characteristics of 2 patients who presented with complications of induration of breast skin and a wound and who were diagnosed with breast cancer are described.

## CASE REPORT

**Case I-** A 55-year-old female patient presented at the

outpatient clinic with nodules on her right breast persisting for nearly 1 year. The patient had no complaint excluding mild pain. Nothing abnormal was encountered in her personal or family history or in systemic examination. Her dermatological examination revealed a firm, nodular, and fissurized skin lesion on the fold line of the lower quadrant of the right breast (Figure 1a). Histopathological examination of the punch biopsy material excised from the lesion demonstrated neoplastic infiltration with superficial hyperorthokeratosis, a mild degree of epidermal acanthosis, widespread dermal lymphovascular invasion, and patchy areas of ductal formations (Figure 1b). These cells demonstrated estrogen receptor and progesterone receptor positivity, strong c-erbB2 membranous staining intensity (+/+++), and Ki-67 proliferation index of 30%. These findings were consistent with invasive ductal carcinoma infiltration. The patient was referred to the outpatient clinic of breast surgery. Written, informed consent for the publication of this report was obtained from the patient.



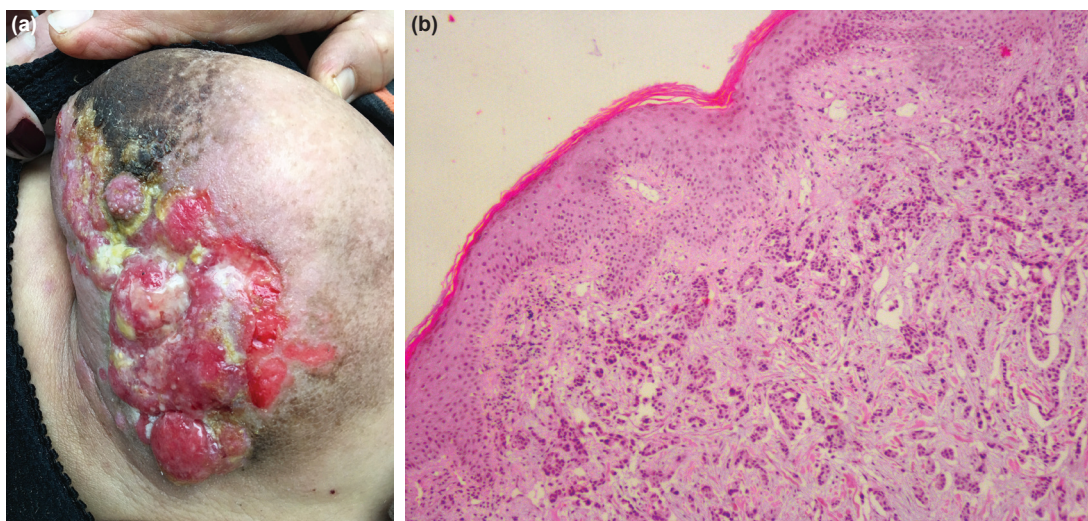
**Figure 1. (a)** Case 1: Fissurized nodule on the fold line of the right breast. **(b)** Case 1: Subdermal infiltration of neoplastic cells (H&E, x100).

**Case 2**— A 62-year-old female patient presented with the complaint of a wound on her right breast that had increased in size within previous 3 months. The patient had no other complaint. She had undergone surgery on her right breast nearly 4 years earlier with a diagnosis she did not know. On dermatological examination, multiple firm nodules localized in the lower inner quadrant of the right breast that joined to form a hemorrhagic plaque with an ulcerated vegetative surface and which measured nearly 7x5 cm was observed. Hyperpigmentation was detected lateral to the ulcerated lesion (Figure 2a). Histopathological examination of the punch biopsy material obtained from the lesion revealed neoplastic infiltration with patchy areas of ductal formations, superficial hyperorthokeratosis, a mild degree of epidermal acanthosis, and widespread lymphovascular invasion in the dermis (Figure 2b). These cells demonstrated estrogen receptor and progesterone receptor positivity and also stained strongly (+++/+++)

for c-erbB2 membrane. These findings were found to be consistent with infiltration of invasive ductal carcinoma. The patient was referred to the outpatient clinic of breast surgery. The patient provided written, informed consent form for the presentation of this case.

## DISCUSSION

Skin metastases are frequently associated with advanced stage internal malignancies, and rarely, they may be the first sign of an undiagnosed primary tumor.<sup>[1]</sup> Cutaneous metastases have been reported in 0.7% to 10% of diagnosed cancer patients.<sup>[3,4]</sup> Cutaneous metastases are most frequently caused by breast or colon cancer, melanoma, lung and ovarian cancers in women, and lung or colon cancer, melanoma, squamous cell cancer of the oral mucosa, renal, and gastric cancers in men, in order of decreasing frequency.<sup>[5]</sup>



**Figure 2. (a)** Case 2: Nodules joined to form ulcerated superficial plaques on the right breast. **(b)** Case 2: Subdermal infiltration of neoplastic cells (H&E, x100).

Skin metastases frequently develop near the region of the primary tumor. Cutaneous metastases may occur by direct invasion or through lymphogenous or hematogenous routes. Generally a firm, mobile, painless, round or oval nodule is the first sign of skin metastasis. Size of the lesion varies from a hardly discernable small nodule to a large tumor. Metastatic lesions may be skin-colored, or they may be red, purple, brown, black, or various other colors. Metastatic lesions may occur as solitary formations or as rapidly developing multiple nodules. Specific metastatic lesions include carcinoma erysipeloides, sclerodermoid carcinoma, and carcinoma telangiectoides.<sup>[1,6]</sup> Histopathological signs observed in cutaneous metastases are compatible with the type of malignancy and the tissue from which they originated.<sup>[7]</sup> In metastatic tumors, frequently, discrete, round tumoral lobules localized in the dermis are observed. They are not usually linked to the epidermis. Fibrosis and inflammation may be seen; vascular involvement is rarely observed.<sup>[8]</sup> In some tumors, metastasis to specific regions of the skin may aid in diagnosis. Most frequently, melanoma (45% of all cutaneous metastases), malignancies of the breast (30%), nasal sinuses (20%), larynx (16%), and the oral cavity (12%) demonstrate a predisposition to form cutaneous metastases. Since breast cancer has the highest incidence rate among these, it is the most frequent cause of cutaneous metastasis seen in clinical practice.<sup>[6]</sup>

In women, the most frequent cause of cutaneous metastasis is breast cancer<sup>[3]</sup> with an incidence rate reported at 30.4% and 23.9% in different clinical settings.<sup>[9,10]</sup> Cutaneous metastases of breast cancer can have different clinical manifestations. Most often, cutaneous metastasis is a rapidly developing, painless, firm, nodular metastatic carcinoma caused by lymphogenous spread and is characterized by atypical papulonodules dispersed along the anterior chest wall.<sup>[5]</sup> These nodules may settle on the thorax, abdomen, extremities, or head and neck region. They may exist as solitary or multiple lesions. Frequently, they are skin-colored and asymptomatic. In cases with a metastatic lesion, erosion or ulceration may develop secondary to compression of the tumoral mass.<sup>[11]</sup> Infiltrated lesions resembling erysipelas, lymphangioma circumscriptum, and diffuse morphea, in addition to well-circumscribed alopecia areata of the scalp, eczematous plaques on the areola, exophytic nodules on the fold line of the breast, histiocytic plaques on the eyelids, or a papulonodular lesion displaying zosteriform distribution are other clinical forms of this condition.<sup>[5,12]</sup> In Case 1, a solitary, ulcerated, subcutaneous nodule localized on the fold line of the breast was found, and in Case 2, multiple ulcerated nodules that involved nearly the full thickness of the breast skin were observed.

The histopathological findings of cutaneous metastases in breast cancer have been classified under 5 headings: inflammatory carcinoma, where the dermal lymphatics are

swollen with tumor cells; telangiectatic carcinoma, where only the superficial lymphatics are filled with tumor cells; nodular carcinoma, which consists of large and small tumor islets surrounded by fibrosis on the dermis; and cancer en cuirasse, a form of hematogenous metastasis with histopathological manifestations that vary depending on the clinical picture, and with tumor cells aligned in a single row between thick collagen bands.<sup>[13]</sup> Lymphovascular invasion of neoplastic cells of invasive ductal carcinoma was found in both of the presented cases.

Though clinical features of the primary tumor and its response to treatment play important roles in the determination of the prognosis of cutaneous metastasis, unfortunately, it is generally seen in an advanced stage of the tumor.<sup>[6]</sup> In a study performed by Lookingbill et al.,<sup>[9]</sup> the average life span of cancer patients after the emergence of skin metastasis was reported as 31 months.<sup>[9]</sup>

Cutaneous metastases manifesting as the first sign of visceral organ malignancies are important in that their emergence facilitates the establishment of earlier diagnosis and decreases the rate of morbidity and mortality. In conclusion, skin metastases should be considered in the differential diagnosis of rapidly developing, atypical, nodular, cutaneous lesions, and since breast cancer frequently demonstrates skin metastases, the presence of this malignancy should absolutely be investigated.

#### Informed Consent

Approval was obtained from the patients.

#### Peer-review

Internally peer-reviewed.

#### Authorship Contributions

Surgical and Medical Practices: E.A.K.; Concept: Ö.Y., E.A.K.; Design: A.A.Ç., E.A.K.; Data collection &/or processing: A.A.Ç., E.A.K.; Analysis and/or interpretation: A.A.Ç., E.A.K.; Literature search: İ.K.A., E.A.K., E.A.K.; Writing: A.A.Ç., A.A.Ç.; Critical review: İ.K.A.

#### Conflict of Interest

None declared.

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### Deri Metastazları İle Bulgu Veren İki Meme Kanseri Olgusu

Kutanöz metastazlar tüm metastazların yaklaşık %2'sini oluştururlar. Klinikte oldukça nadir olarak görülseler de hastalıkta kötü prognoz göstergesi olmaları kutanöz metastazlara önem kazandırır. Kutanöz metastazlar genellikle ilerlemiş kanserlerin bulgusu olmakla beraber nadiren tanısı konmamış internal malignitenin ilk bulgusu olabilirler. Burada, daha önce tanı almamış, ilk bulgu olarak meme derisinde sertlik ve yara şikayetiyle dermatoloji polikliniğine başvuran ve meme kanseri tanısı konan iki olgu sunuldu. Deride atipik lezyonlarla başvuran hastalarda iç organ malignitelerinin metastazları da akılda tutulmalıdır.

**Anahtar Sözcükler:** Meme kanseri; metastaz; nodül.