

Cutaneous Metastasis as the First Manifestation of Infiltrating Ductal Carcinoma: A Case Report

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ABSTRACT

Cutaneous metastasis as an initial presentation of invasive ductal carcinoma (IDC) is an exceedingly rare clinical scenario, often leading to significant diagnostic challenges. This case study elucidates the clinical presentation, diagnostic process, histopathological findings, and therapeutic strategies employed in a patient presenting with cutaneous metastasis as the first sign of IDC. By emphasizing the dermatological manifestations of IDC and their implications for early detection and management, this article aims to contribute to the existing literature on atypical presentations of breast cancer. Our findings underscore the importance of a multidisciplinary approach in the evaluation of unusual cutaneous lesions, particularly in patients with no prior oncological history, to ensure timely and accurate diagnosis and treatment.

KEYWORDS: Metastasis, ductal, carcinoma, skin.

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INTRODUCTION

Invasive ductal carcinoma (IDC), the most common type of breast cancer, typically presents with a palpable breast mass, nipple discharge, or mammographic abnormalities. However, cutaneous metastasis as the initial manifestation of IDC is a rare but clinically significant phenomenon. Cutaneous metastasis accounts for approximately 0.7% to 9% of all metastatic cancer cases and is most frequently associated with primary malignancies of the breast, lung, and gastrointestinal tract. The occurrence of cutaneous metastasis as the first sign of IDC poses unique diagnostic challenges, often delaying definitive diagnosis and treatment. This case study aims to provide a detailed account of a patient presenting with cutaneous metastasis as the initial manifestation of IDC, highlighting the clinical presentation, diagnostic workup, histopathological characteristics, and therapeutic interventions. Understanding the dermatological

manifestations of CDI can facilitate early recognition and prompt management, thereby potentially improving patient outcomes.

CLINICAL CASE

62-year-old female with a history of systemic arterial hypertension diagnosed in 2017 on treatment with valsartan 80 mg every 24 hours. She has no gynecobstetric history (0 gestations, 0 deliveries, 0 abortions) and no previous screening with mastography or pap smear. In June 2023, she presents with asthenia, adynamia, nonselective hyporexia, night sweats and unintentional weight loss of 10 kg in 3 months. In addition, multiple well-demarcated, hyperemic, non-suppurative umbilicated lesions of different diameters between 1x1 cm and 1x2 cm were observed, the latter being the largest.(Figure 1).



Figure 1. Multiple well-demarcated, hyperemic, non-suppurative umbilicated lesions.

In November 2023, after detection of the lesions and multiple treatments by a private practitioner for herpes zoster with acyclovir at unspecified doses, without clinical improvement, a biopsy of a skin lesion was performed. The histopathological report showed a 3x2 cm skin spindle covering the entire thickness of the dermis, with large cells with abundant eosinophilic granular cytoplasm, xanthomatous appearance, clear open nuclei with nucleoli present and eosinophils affecting the base of the dermis and infiltrating the subcutaneous cellular tissue, with no subsequent follow-up of such pathology.

In her first interaction with the internal medicine service in December 2023, admitted secondary to non-variceal upper gastrointestinal bleeding, the physical examination identified right breast with increased volume, nipple retraction without nipple discharge, glandular induration on palpation, as well as skin lesions in predominantly anterior chest, neck and hairy skin, with nodular/umbilicated characteristics with erythematous appearance in the periphery with central violaceous region. Figure 2



Figure 2. Right breast.

During her hospitalization, a biopsy of the right breast was performed: piece of 1.5x0.90x2 cm, smooth brown smoked surface, reporting infiltrating ductal carcinoma without specific pattern, histological grade 2, Nottingham 7 (2+3+2), with moderate desmoplastic reaction and isolated peritumoral

lymphocytes. No lymphovascular or perineural invasion was identified. Breast panel (ER, PR, HER2) shows estrogen receptor negative, progesterone receptor positive (10%) and HER2/neu negative. Figure 3

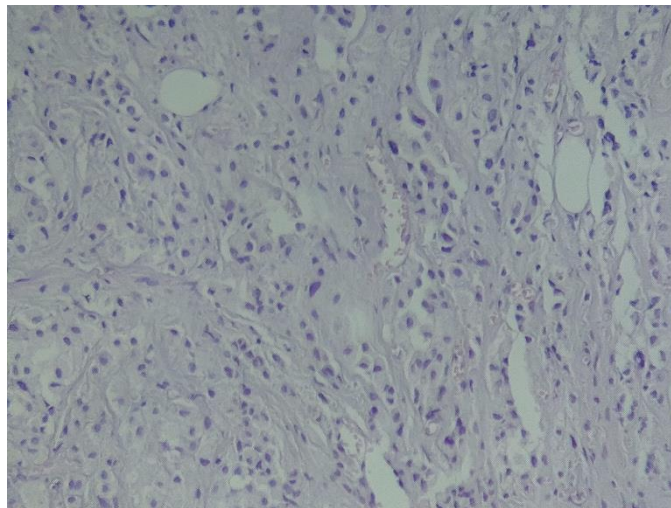


Figure 3. Breast biopsy.

A biopsy of a skin lesion is also performed: dermis and subcutaneous cellular tissue with abundant cells with eosinophilic foamy cytoplasm, nuclear membrane with slight

groove, round to oval with prominent eosinophilic nucleolus and presence of mitotic figures.(Figure4)

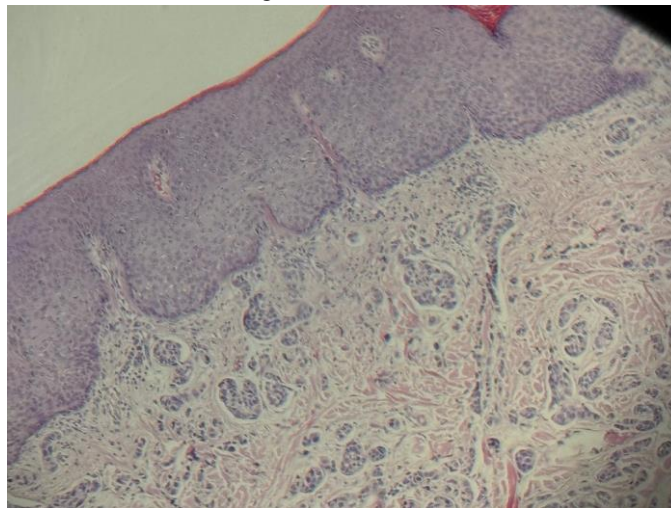


Figure 4. Skin biopsy performed.

Cells do not destroy adnexa, only destroy collagen fibers. Immunoreactions: Cytoplasmic and diffuse membranous CKC positive in neoplastic cells; weak cytoplasmic mammaglobin positive in neoplastic cells; CD1a, CD68 and HMB45 negative. Presumptive diagnosis: skin biopsy with immunophenotype suggestive of metastasis of invasive breast carcinoma.

DISCUSSION AND COMMENTARY

Cutaneous metastases occur in 0.6 to 10.4%, often exhibiting histologic patterns characteristic of the underlying causative primary tumor. However, it is of great importance to have a high clinical suspicion in patients with a primary tumor, or even in those who have not been identified, presenting as an initial lesion. These have been identified microscopically as dermal deposits of pleomorphic cells. Mitotic figures are evident and neoplastic cells can be identified within the vascular lumen, and comparison with the histologic

appearance of previous malignancies is often one of the first steps to help identify the source.

One of the criteria for initiating oncological treatment is based on the general condition of the patient, knowing that overall responses to treatment do not exceed 30% of cases. Confirming that the presence of these metastases presents a 70% mortality rate after the first year of diagnosis, with an average survival time of three to six months.

CONCLUSION

The breast is the most frequent source of cutaneous metastases. The forms of presentation are varied, and physicians must maintain a high index of suspicion to make an accurate and early diagnosis in order to improve survival associated with the primary cancer.

The presentation of cutaneous metastasis as the initial manifestation of invasive ductal carcinoma (IDC) underscores the complexity and heterogeneity of breast cancer. This atypical presentation necessitates a high index of

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suspicion among clinicians, especially when confronted with unexplained dermatological lesions. Our case study illustrates the critical importance of a multidisciplinary approach, involving dermatologists, oncologists, pathologists, and radiologists, to accurately diagnose and manage such unusual presentations.

Histopathological examination remains the cornerstone for definitive diagnosis, revealing the characteristic features of IDC within cutaneous tissues. Immunohistochemical staining plays a pivotal role in differentiating cutaneous metastasis from primary skin malignancies and other metastatic lesions. The presence of hormone receptors, HER2 status, and other molecular markers in the cutaneous lesions can provide invaluable information for guiding targeted therapies.

Early identification and treatment of cutaneous metastasis are paramount, as it often signifies a more advanced stage of malignancy with potential systemic involvement. This case highlights the necessity for comprehensive clinical evaluation and the integration of advanced imaging techniques, such as PET-CT scans, to assess the extent of disease spread and to formulate an appropriate treatment strategy.

The management of IDC with cutaneous metastasis requires a tailored therapeutic approach, considering the overall disease burden, patient's performance status, and specific molecular characteristics of the tumor. Systemic therapies, including chemotherapy, hormonal therapy, and targeted agents, remain the mainstay of treatment. In certain cases, localized treatments such as surgical excision or radiotherapy may be considered to address symptomatic cutaneous lesions. In conclusion, cutaneous metastasis as the first indication of CDI is a rare yet critical diagnostic entity. Awareness and early recognition of this unusual presentation can lead to timely and appropriate therapeutic interventions, ultimately improving patient outcomes. This case emphasizes the importance of continuous vigilance and comprehensive

diagnostic evaluation in patients with atypical dermatological presentations, as these may be the harbinger of an underlying aggressive malignancy. Further research is warranted to elucidate the pathophysiological mechanisms driving cutaneous metastasis in IDC and to develop more effective management strategies for these patients.

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