

Cutaneous Invasive Ductal Carcinoma Masquerading as Pseudoxanthoma Elasticum



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Background & Objective

In the United States, 214,880 women are diagnosed with breast carcinoma each year, with an overall 5-year survival of 90%. When cutaneous metastases are present, the 5-year survival is 24%. Invasive ductal carcinoma (IDC) comprises 80% of all breast cancers, with 30% of women having metastatic disease upon initial diagnosis. Cutaneous metastases of breast carcinoma occurs at a rate of 24% per primary breast malignancy with 70% of breast carcinoma cutaneous metastases being IDC subtype. Our patient presented as clinically exhibiting features of pseudoxanthoma elasticum (PXE), a genetic disease affecting connective tissue in intertriginous areas, but upon pathologic examination revealed metastatic IDC. Review of the literature has not elicited other reports of PXE-appearing cutaneous breast carcinoma. Recognizing unusual presentations of cutaneous IDC metastases is vital to early detection and treatment.

Case Presentation

A 55-year-old Caucasian female with a past medical history of primary hyperparathyroidism was admitted for obstructive uropathy. Idiopathic cirrhosis, splenomegaly, hypercalcemia with elevated CEA and CA-125 tumor markers, and diffuse osteolytic bone lesions were found on further imaging and laboratory work-up (Figure 1). Computed tomography (CT) of the chest and abdomen were unrevealing for any masses. Laboratory work-up was unrevealing for hematologic evidence of malignancy. Dermatology was consulted for asymptomatic progressively spreading subcutaneous nodules of one to two years on the neck, chest, and bilateral axilla (Figures 2-3). The lesions were clinically diagnosed as calcinosis cutis due to the patient's hypercalcemia but had a clinical appearance of PXE. The patient was discharged upon clinical stability with suspected multiple myeloma.

Two weeks subsequently the patient was re-admitted for poor oral intake. A biopsy of the cutaneous lesion revealed metastatic invasive ductal carcinoma (Figure 4). Iliac crest bone biopsy confirmed the diagnosis. No primary tumor was discovered. The patient was soon discharged to home hospice.

This case illustrates the significant diagnostic difficulty cutaneous breast carcinoma, notably invasive ductal carcinoma, poses due to its ability to mimic benign skin conditions. The initial differential diagnosis included calcinosis cutis, PXE, xanthomas, and less likely a cutaneous malignancy. The early diagnosis and decision to biopsy these seemingly benign skin lesions are crucial to improve prognosis and expedite treatment. It is therefore highly important to have a clinical suspicion for cutaneous metastases, especially if other indicators of malignancy are present. This case report highlights the clinical similarities between cutaneous invasive ductal carcinoma and PXE. PXE, a genetic disorder characterized by mineralization of connective tissue, presents with small, white-yellow papulonodular lesions that form predominantly on the dorsal neck and intertriginous sites.

Figures



Figure 1. CT Chest sagittal view. Osteolytic lesions on axial skeleton.



Figure 2. Firm, white-yellow, subcutaneous nodules on anterior neck.



Figure 3. Firm, white-yellow, subcutaneous nodules in right axilla.

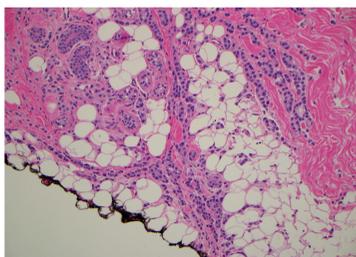


Figure 4. Right axilla punch biopsy showing subcutaneous proliferation of atypical cells extending to the margins (black asterisk). H&E x20.

Results

A 10-year review of 4020 patients with all types of metastatic breast carcinoma showed 30% of all patients had cutaneous metastases, with 24% having cutaneous involvement as the first sign of disease. Widespread subcutaneous nodules on the flanks and trunk were the most common clinical presentation of cutaneous involvement, but cicatricial and bullous lesions have also been described.

Invasive ductal carcinoma is unique from other types of breast malignancy in that it induces a fibrous reaction as the cells invade the surrounding parenchyma leading to its clinically palpable mass, and solitary findings on radiography. The skin manifestations of IDC are unique when compared to other organs manifesting with malignant invasion, as the dermal lesions can be recognized visibly upon physical exam. Cutaneous metastases of IDC often present as 1-3 cm flesh-colored nodules along the thoracic wall and the abdomen, localized to the dermis and subcutaneous tissue layers. Other presentations include alopecic, eczematous, and erysipeloid plaques. When cutaneous metastases of all breast carcinoma types are present, initial diagnosis of the primary breast malignancy is typically within 3 years, and in female patients 50-70 years old. Due to delayed diagnosis other organs are often affected with the skin being a rare location of carcinoma invasion. Thus, cutaneous involvement is a sign of poor prognosis and signals advanced metastatic disease.

Conclusion

The relative survival rate for IDC is dependent upon the stage at initial diagnosis. Our patient presented with the cutaneous findings that led to her biopsy. The subtle, skin-colored, and asymptomatic cutaneous lesions in our case contributed to delay in diagnosis. Age and risk appropriate mammography screening has also improved detection at earlier stages of disease, especially IDC. Our patient reportedly never had a mammogram. The prognostic factors for such patients can be supplemented with measurements of steroid hormone receptors, growth factors, and oncogenes. Due to the possibility of an underlying advanced breast carcinoma, early biopsy of clinical benign conditions with other signs of malignancy, such as weight loss or hypercalcemia, has the potential to significantly improve prognosis and outcomes for such patients.

References

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