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Photo Vignette

Unilateral indurated plaque in the axilla: a case of metastatic breast carcinoma

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Abstract

Breast cancer is the most commonly diagnosed cancer among American women and is also the most common internal malignancy to metastasize to the skin. Rarely, cutaneous metastases represent the first indication of breast carcinoma, putting dermatologists in an instrumental position to make the diagnosis of breast carcinoma. We report the case of a 71-year-old woman with a 10-year history of a slowly-enlarging, indurated plaque in the right axilla. Review of symptoms was significant only for occasional numbness and tingling that extended from the right axilla to the right hand. Biopsy revealed cells infiltrating in a single–file between the collagen bundles in the dermis and subcutis and immunohistochemical staining consistent with a diagnosis of invasive lobular carcinoma. Subsequent work up revealed a primary breast lesion and extensive bony metastases.

Background

Breast cancer is the most commonly diagnosed cancer among American women with an annual incidence rate of 122.8 per 100,000 [1]. Breast carcinoma is also the most common internal malignancy to metastasize to the skin, with a reported incidence as high as 23.9% [2]. Rarely, cutaneous metastases represent the first indication of breast carcinoma, putting dermatologists in an instrumental position to make the diagnosis of breast carcinoma. Herein we report a case of cutaneous metastasis of invasive lobular breast carcinoma to the axilla as the initial presentation of breast carcinoma.

Case synopsis

A 71-year-old woman, recently emigrated from St. Vincent, West Indies, presented to the dermatology clinic with a 10-year history of a slowly enlarging indurated plaque in the right axilla. The area was mildly tender and non-pruritic. It did not respond to fusidic acid antibiotic ointment. She was otherwise asymptomatic and denied fever, chills, or recent weight loss. Review of systems was significant for occasional numbness and tingling that extended from the right axilla to the right hand. Her past medical history was significant for hypertension, dyslipidemia, and atrial flutter. She had not undergone a screening mammography in many years. Personal and family histories were negative for breast or other malignancies.

Physical exam revealed a 4cm by 4cm pink-to-brown, rubbery, indurated plaque with an extensive, firm dermal component in the right axilla (Figure 1). Underlying lymphadenopathy could not be palpated.

Figure 1. Clinical image of 4cm x 4cm pink to brown, rubbery indurated plaque in right axilla

A 4mm punch biopsy was performed and histopathology examination revealed cells infiltrating in a single–file between the collagen bundles in the dermis and subcutis (Figure 2).

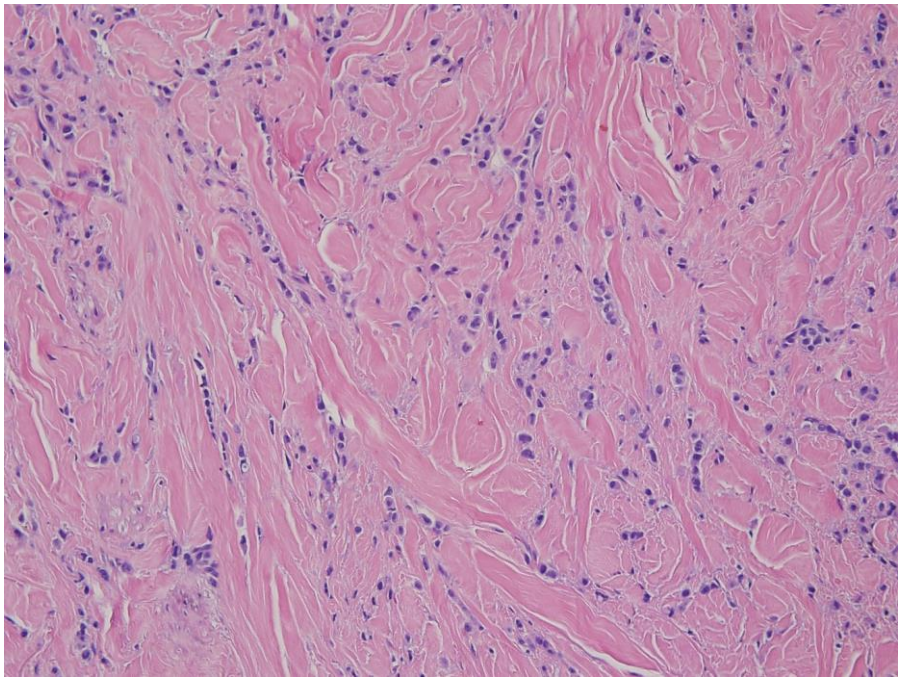

Figure 2. Histopathology image demonstrating cells infiltrating in a single–file between the collagen bundles in the dermis and subcutis (hematoxylin and eosin stain, 40x)

Immunohistochemical staining was strongly positive for mammoglobin (Figure 3), AE1/AE3, GATA binding protein 3, estrogen receptor, and progesterone receptor, and intracytoplasmic mucicarmine stain. Her2/Neu stained 1+; E-cadherin stain was negative. The diagnosis of invasive lobular carcinoma was made.

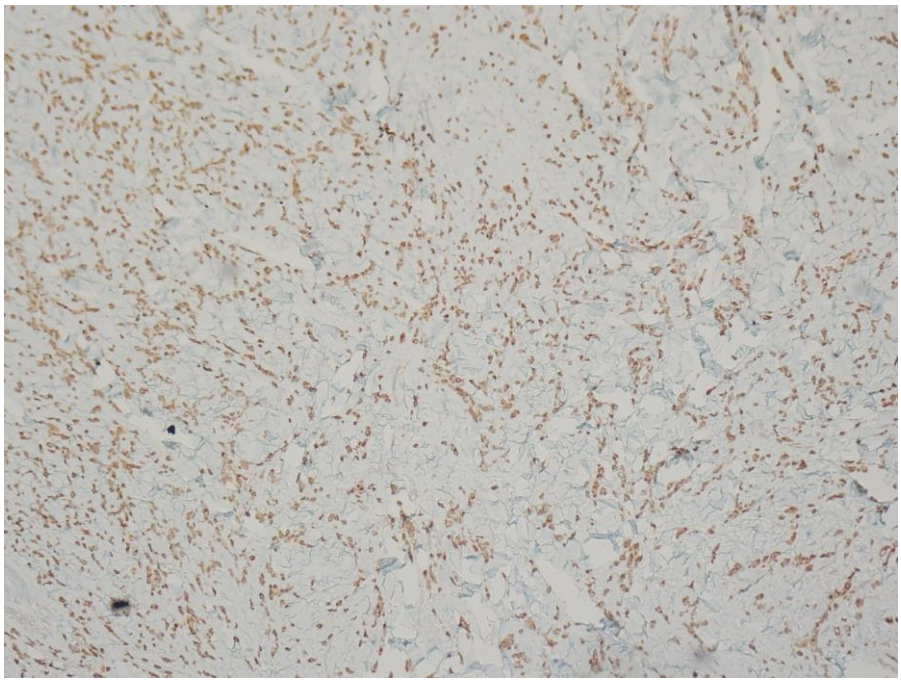

Figure 3. Histopathology image showing positive immunostain with mammoglobin, confirming the presence of breast tissue (mammoglobin stain, 40x).

Subsequent mammogram revealed a 1.2cm oval mass in the right breast, which was confirmed by ultrasound. Bone scan and MRI of the spine showed multiple metastases in the cervical, thoracic, and lumbar vertebrae with no evidence of epidural spread. Ultrasound also revealed endometrial thickening. She was referred to the oncology department and started on anastrozole with denosumab added for bony metastases. She was not deemed to be a surgical candidate.

Discussion

A crucial prognostic factor in an initial malignancy workup is the presence or absence of metastasis. The overall incidence of cutaneous metastasis from visceral malignancies is estimated to range from 0.7% to 10.4% [2, 3] and in some reports, greater than 20% [4]. Rates as high as 23.9% have been reported for cutaneous metastases of breast cancer [5]. However, limited literature exists describing cases of breast carcinoma first detected in sites other than the bilateral primary mammary tissue. This case provides an example of a patient presenting with cutaneous metastasis of invasive lobular breast carcinoma (ILC) in the axilla as a first manifestation of her disease.

Cutaneous breast metastases most commonly present on the chest wall, with the abdomen, back, head, neck, scalp, and upper extremities as other common sites [6]. The clinical presentation of cutaneous metastasis includes nodular metastatic breast carcinoma, telangiectatic carcinoma, erysipeloid carcinoma, carcinoma en cuirasse, and alopecia neoplastica [7]. Nodular carcinoma is the most common presentation with 46.8% of total clinical manifestations of cutaneous metastases of breast carcinoma described in literature [5]. Alopecia neoplastica is the second most common with 12% of total cases [5]. Median survival after a diagnosis of cutaneous metastasis from breast carcinoma is 13.8 months [8] and a mean survival was documented at 57.4 months for breast cancer with only cutaneous metastases [6].

In our case, a punch biopsy revealed cells infiltrating in a single–file between the collagen bundles with positive staining consistent with ILC. However, it was uncertain initially whether this represented cutaneous metastasis of a primary breast cancer or a primary breast cancer arising from ectopic breast tissue (EBT). EBT, which results from incomplete regression of the mammary streaks during embryogenesis, occurs in 2-6% of the general population anywhere along the milk line from the axilla to the groin with 60% to 70% of cases in the axilla [9]. The development of carcinoma in EBT is a rare occurrence, accounting for only 0.3% of all breast cancers [9]. On initial presentation, our patient had no known primary breast carcinoma and no palpable breast nodules on examination. In addition, review of systems was negative for weight loss, change in appetite or other systemic symptoms. Therefore, we were initially hopeful that this represented a case of primary ectopic breast cancer rather than metastasis. Further work-up, however, revealed a primary breast cancer and extensive bony metastases.

Dermatologists are in the unique position to potentially be the first to make the diagnosis of breast carcinoma. Therefore, it is of paramount importance to keep this entity in mind and to biopsy lesions of uncertainty. When making a diagnosis on skin, we must determine if it is a primary ectopic breast cancer or if it is a metastasis from the primary source, as in our case. By maintaining this vigilance, we have the opportunity to make a diagnosis earlier, provide treatment sooner, and potentially make a difference in the patient's prognosis.

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