SKIN

SHORT COMMUNICATION

Zosteriform Cutaneous Manifestation of Ovarian Adenocarcinoma Metastasis to the Breast

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CASE REPORT

A 78-year-old Asian female presented via telemedicine during the COVID-19 pandemic for evaluation of a rash on her left breast, present for two weeks. Past medical history includes recurrent ovarian papillary serous adenocarcinoma and abdominal carcinomatosis status post multiple surgical interventions and rounds of chemotherapy. The patient noted the rash started suddenly and was asymptomatic. Physical exam demonstrated scattered erythematous papules coalescing into plaques on the left breast in a dermatomal distribution and a single erythematous blister on the superior left areolae. The patient was started empirically on valacyclovir for suspected herpes zoster infection.

After no significant improvement after 14 days of treatment, she presented to the office. Physical exam demonstrated an indurated reticular erythematous-to-brown plaque in a dermatomal distribution on the left breast and a shiny, erythematous papule on the superior left areola (**Figure 1**). A punch biopsy of the plaque and a tangential biopsy of the papule were performed. Viral swab was not collected at this time due to valacyclovir treatment and time from onset of symptoms.

Both biopsies demonstrated multiple mitotic figures, sheets of tumor cells with compact micro-papillae, slit-like spaces, and prominent nucleoli (**Figure 2**). Immunohistochemical staining of the papule biopsy revealed the tumor to stain positive with AE1/3, CK7, and Pax-8 and negative for CK20, GATA-3, and S-100. These findings, together with the patient's history, supported the diagnosis of metastatic ovarian adenocarcinoma. The patient was notified of this result and treatment was discussed with her oncologist.

After a doxorubicin infusion, the rash became tender, irritated, erythematous, and blisters formed. Ten days after this rash exacerbation, the patient presented for follow-up, and samples were taken for HSV 1, HSV 2, and VZV PCR. The PCR results were negative; however, this was expected due to the time since rash exacerbation. The patient was continued on valacyclovir 1g TID and scheduled for follow-up evaluation. At her next office visit, healed, scarred macules were present on the left breast in the same dermatomal distribution, with improved erythema.

DISCUSSION

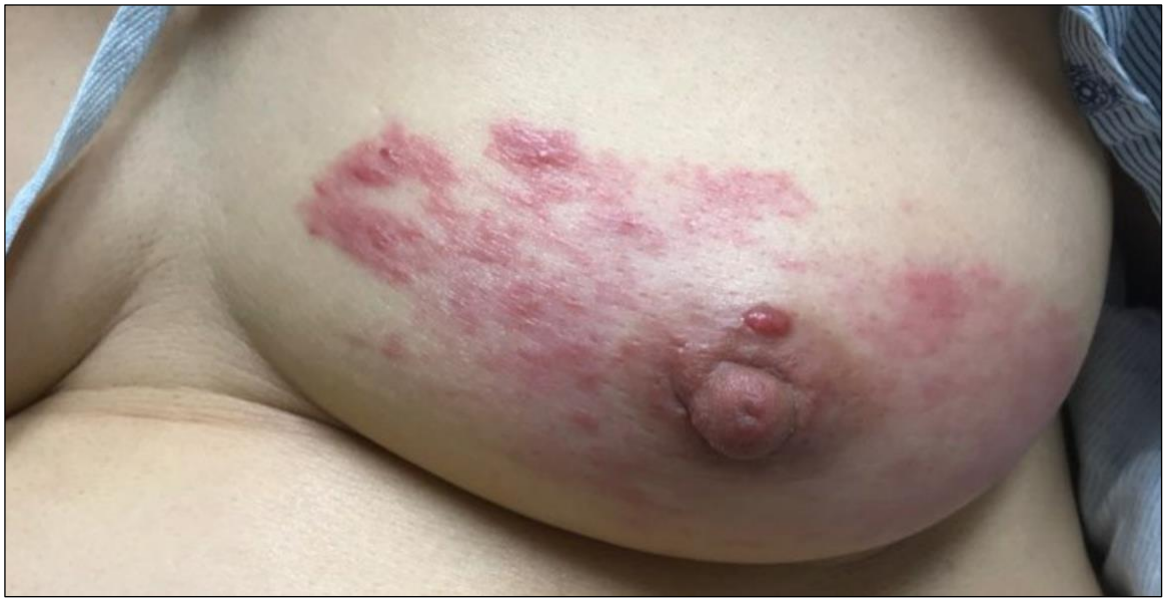

Figure 1. Clinical image of an indurated reticular erythematous to brown plaque with no overlying epidermal changes in a dermatomal distribution on the left breast with a shiny, erythematous papule on the superior left areola.

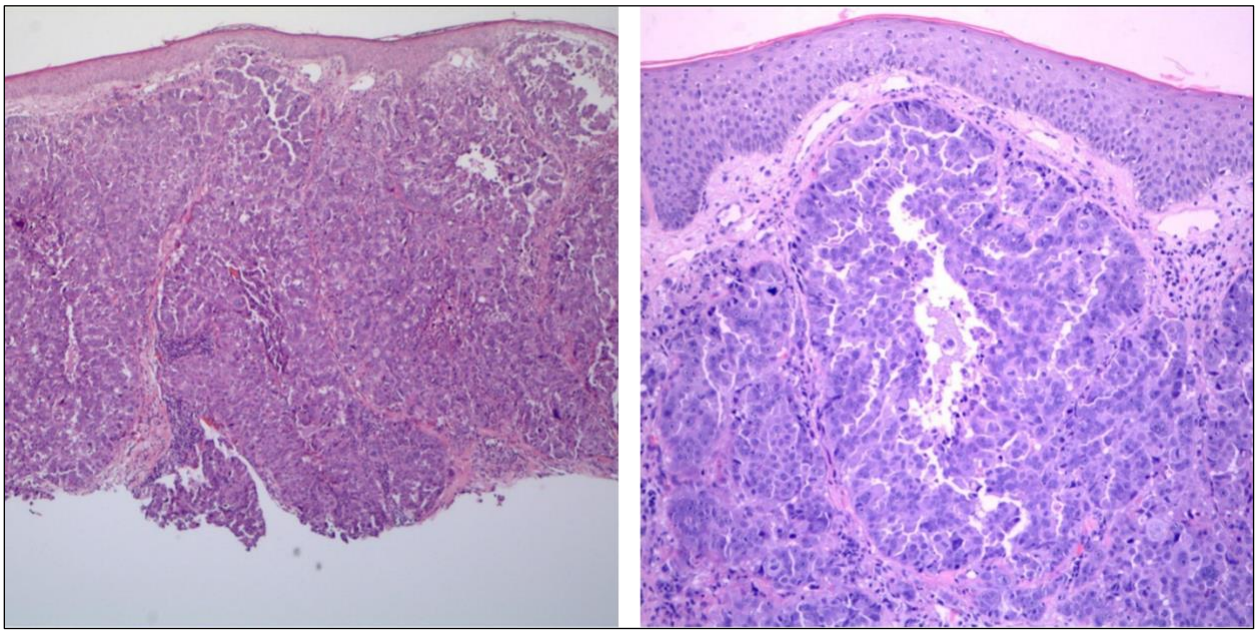

Figure 2. Histologic findings of adenocarcinoma, demonstrating multiple mitotic figures, sheets of tumor cells with compact micro-papillae, slit-like spaces, and prominent nucleoli.

While cutaneous manifestations of gynecologic malignancies are rare, zosteriform cutaneous metastases are extremely rare. Of the published reports on gynecologic malignancy zosteriform metastases, all are to the abdomen, pelvis, or thighs.[1,2] Literature on the origin of gynecologic zosteriform metastases includes adenocarcinomas, carcinomas, and B-cell lymphomas.[1,2] To our knowledge, there are

no previously published reports of zosteriform ovarian adenocarcinoma metastasis to the breast as a primary presentation of cutaneous metastasis.

There may be a connection to isomorphic reaction, also known as Koebner phenomenon, where secondary lesions arise within current or previous herpes zoster infection sites.[3,4] Other proposed methods of zosteriform metastasis include neural spread, vascular spread, or accidental implantation of malignant cells from surgical exploration.[5]

When present, zosteriform metastases may present as papulonodular lesions, as opposed to grouped vesicles or bullae in a dermatomal distribution typical of zosteriform lesions.[4,5] Physicians should consider cutaneous metastases when suspected zoster does not respond to antiviral treatment, especially when there is an atypical presentation of the rash or in patients with histories of malignancy.

Conflict of Interest Disclosures: None

Funding: None

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