

Case Report

Concurrent Bowen's Disease of the Nipple and Breast Cancer

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Keywords

Bowen's disease · Breast cancer · Squamous cell carcinoma

Abstract

Bowen's disease is a squamous cell carcinoma in situ that commonly develops on the trunk, arms, or legs and has not spread beyond the top layer of skin. It seldom develops on the nipple. We report a patient who presented with Bowen's disease of the nipple and had a concurrent breast cancer identified in the ipsilateral breast after careful examination. Histopathological examination of the surgical specimen after mastectomy confirmed the diagnoses.

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Introduction

Bowen's disease is a form of intraepidermal squamous cell carcinoma (SCC) that usually presents as a well-demarcated slow-growing erythematous patch or plaque with a scaly or crusted surface. The risk of progression to invasive carcinoma is 3–5% in extragenital lesions and approximately 10% in genital lesions. Lesions are usually solitary but are multiple in 10–20% of patients. Although any site may be affected, flexural, perianal, subungual, and genital sites are common; involvement of the palms or soles is uncommon [1]. In a study of 1,001 patients with Bowen's disease, Kossard and Rosen [2] found a female preponderance; commonly affected sites were the lower limbs in women and the scalp and ears in men. As Bowen's disease is confined to the epidermis, there is no risk of metastasis; however, it may progress to invasive SCC if not properly treated, which does carry a risk of metastasis [3].

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Bowen's disease has only rarely been described on the nipple, and concurrence of Bowen's disease of the nipple with ipsilateral breast cancer is even rarer. Herein, we report a patient with concurrent Bowen's disease of the nipple and breast cancer.

Case Report

A 72-year-old woman presented with a red nodule on her right nipple. Physical examination revealed a small nodule on the lateral side of her right nipple with no axillary lymphadenopathy. Diagnostic mammography was normal, but breast ultrasonography showed a slightly hypoechoic, solid, 8-mm inner right breast mass (Fig. 1a). Contrast-enhanced MRI (magnetic resonance imaging) of the right breast showed an enhancing 15-mm mass on the lateral side of the nipple with areolar enhancement (Fig. 1b) and a 7-mm enhancing inner breast mass (Fig. 1c). Histopathological examination of a punch biopsy specimen of the right nipple lesion showed SCC in situ. Needle biopsy of the inner breast mass was consistent with invasive ductal carcinoma, scirrhous type.

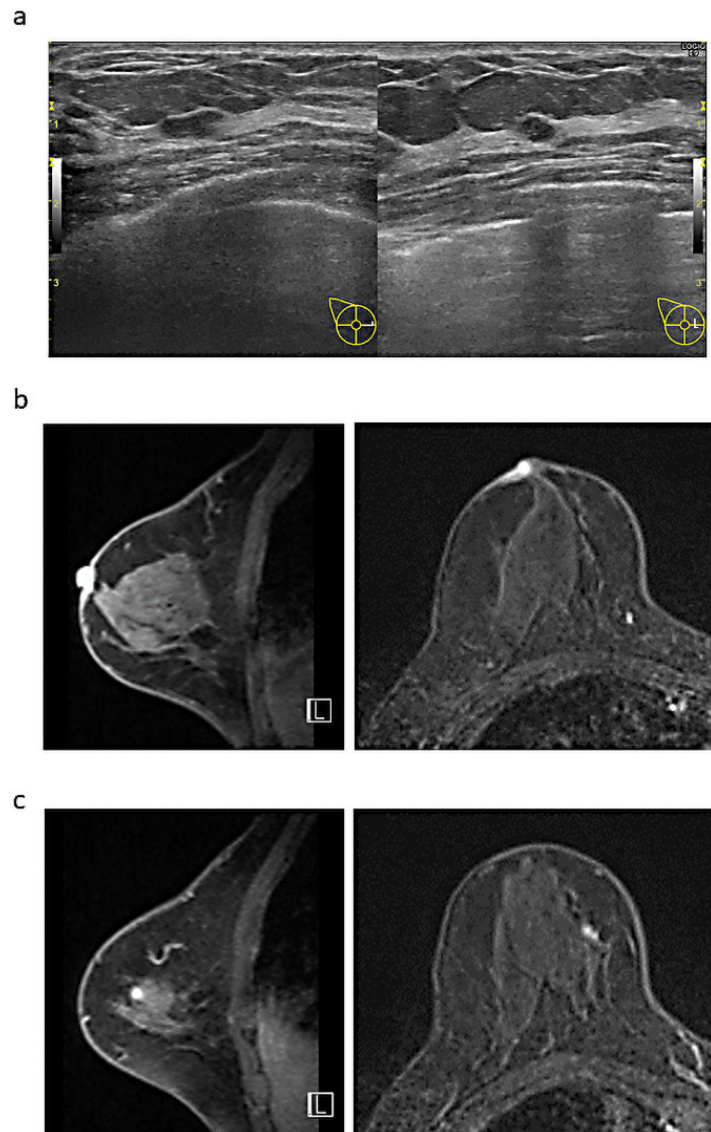


Fig. 1. **a** Ultrasonography showed a hypoechoic solid mass in the inner right breast. **b** Magnetic resonance imaging showed relatively strong enhancement on the surface of the nipple and areola. **c** MRI showed an enhancing nodule within the inner breast.

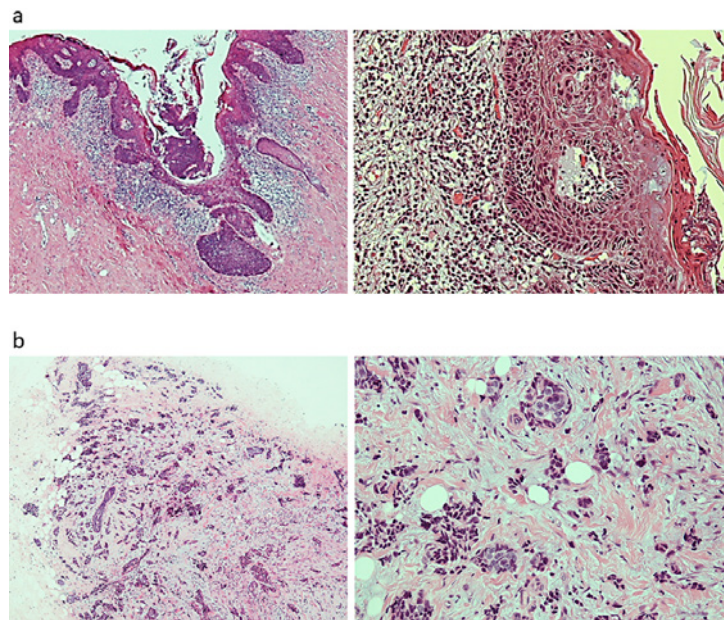


Fig. 2. **a** Histological findings in Bowen's disease of the nipple (hematoxylin and eosin stain). Tumor cells resembling squamous cells with severe atypia were proliferating without invasion, with a sheet-like growth pattern. **b** Invasive ductal carcinoma, scirrhous type.

The patient was diagnosed with concurrent Bowen's disease of the nipple and breast cancer and underwent a right mastectomy with sentinel lymph node biopsy. Pathological analysis confirmed a 6-mm SCC in situ in the nipple (Fig. 2a) and a 5-mm invasive ductal carcinoma, scirrhous type (Fig. 2b). Immunohistochemical analysis of the breast cancer was positive for expression of ER and PR, and negative for expression of HER2. Breast cancer metastases were not found in the lymph node biopsy specimens (stage I [T1bN0M0]). After mastectomy, the patient received adjuvant systemic therapy with tamoxifen.

Discussion

Bowen's disease is a form of intraepithelial SCC first described in 1912 [4]. Historically, progression to SCC was thought to occur in 3–5% of cases [5]; however, a 2017 study reported that 16.3% of Bowen's disease cases found by biopsy were upgraded to SCC after histopathological examination of surgical specimens [6]. Risk factors for Bowen's disease include sun exposure, arsenic, human papillomavirus infection, ionizing radiation, and trauma. Prolonged exposure to arsenic is considered an etiological factor in lesions of areas unexposed to sunlight [7].

Conventional treatment options for Bowen's disease (cryotherapy, curettage with cautery, excision, 5-fluorouracil, radiotherapy, and laser) appear to have similar efficacy and recurrence rates. No single therapy has shown superiority in all clinical scenarios. Topical imiquimod is an effective alternative treatment option for patients and body sites that are unsuitable for other treatments such as surgery [5, 8]. In addition, topical photodynamic therapy exhibits similar efficacy and fewer adverse events compared with cryotherapy, is more effective with fewer adverse events compared with 5-fluorouracil, and results in superior cosmetic outcome compared to standard therapies [9]. The choice of treatment should be guided by location, size, and number of lesions, therapy efficacy and availability, clinician expertise, patient factors (age, immune status, concomitant medication, comorbidities, and compliance), cosmetic outcome, and patient preference.

To the best of our knowledge, only 8 cases of Bowen's disease of the nipple have previously been reported [10–16]. Concurrence with ipsilateral breast cancer is even rarer. In our case, breast cancer was found incidentally after careful examination, mammography, ultrasonography, and MRI. Although the differential diagnosis included breast cancer with pagetoid spread, pathological analysis after mastectomy confirmed breast cancer and Bowen's disease of the nipple occurring independently in the right breast. The optimal treatment in this case was mastectomy to simultaneously remove the breast cancer and Bowen's disease of the nipple.

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Statement of Ethics

The patient provided written informed consent for publication of this case, including images.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

R. Matsunuma and K. Yamaguchi wrote the main manuscript. All authors critically reviewed the manuscript for content.

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