Squamous Cell Carcinoma of The Skin Mimicking Breast Cancer: A Case Report

Meme Kanserini Taklit Eden Cilt Skuamöz Hücreli Karsinomu: Vaka Raporu

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Öz

Skuamöz hücreli karsinomu (SHK), 2. en sık cilt kanseridir ve sıklıkla baş- boyun gibi güneş gören bölgelerde ortaya çıkar. Meme cildinden kaynaklanan invazif SHK nadir bir tablodur ve klinik olarak meme kanserini taklit edebilir. 39 yaşındaki hastada; sağ memede non-erode, vejetatif, büyüyen lezyondan biyopsi alınmıştır ve klinik ve histopatolojik olarak meme kanserini taklit eden bu vaka sunulmuştur. Cerrahi sınırları temiz bir şekilde opere edilen hasta, rekürrens için risk faktörleri değerlendirilerek, adjuvant radyoterapi ile tedavi edilmiştir. 14 ay sonrasında, hastada halen nüks saptanmamış ve düzenli takiplerdedir. İnvazif meme cilt SHK'u nadir bir tablodur ve güneşe maruz kalan bölgede gelişen SHK'a göre farklı etiyoloji/ davranışa sahip olabilir. Meme cildinde kitle ile başvuran hastanın doğru tanı ve tedavisi için tıbbi hikaye ve fizik muayene ile birlikte histopatolojik değerlendirme kritiktir.

Anahtar Kelimeler: Cerrahi, Cilt Kanseri, Meme kanseri, Radyoterapi, Skuamöz hücreli kanser

Abstract

Squamous cell carcinoma (SCC) is the second most common skin cancer and it often occurs in sun-exposed areas such as head and neck skin. Invasive SCC located on breast skin is a rare entity and may clinically mimic breast cancer. We report a case of a 39 years old female with a non-eroded, vegetative, growing lesion on the right breast skin, initially mimicking breast cancer both clinically and histopathologically. After surgery with clear margins, adjuvant radiotherapy was administered, by considering the pathological risk factors for recurrence. At 14 months, the patient is disease-free and under regular follow-up. Invasive SCC of the breast skin is a rare entity and may have different etiology/behavior or directly develop de novo when compared to SCCs located on sun-exposed skin. Medical history and physical examination in conjunction with histopathological examination of the biopsy specimen are critical for the accuracy of the diagnosis and the correct treatment decision in patients presenting with a mass invading breast skin.

Keywords: Surgery, Skin Cancer, Breast Cancer, Radiotherapy, Squamous Cell Carcinoma

Introduction

Non-melanoma skin cancer is the most common cancer in the world and its incidence is increasing worldwide. Squamous cell carcinoma (SCC) of the skin represents 20% to 50% of the non-melanoma skin cancers (1). While SCC of the skin mainly occurs on sun-exposed areas, it may rarely involve the breast skin and can mimic breast cancer (2). Since the treatment approach will be different based on tumor origin, medical history and physical examination in conjunction with histopathological examination of the biopsy is critical for the accuracy of the diagnosis and for the correct treatment decision.

Although many of these tumors can be successfully treated by surgical excision alone, a subset of the cases may possess features associated with a higher likelihood of recurrence and metastasis (1). Some pathological factors (histologic subtype, tumor depth, differentiation degree, the presence of perineural and lymphovascular involvement) and tumor- or patient-related characteristics (tumor location, tumor size >2 cm, immunosuppression) have been reported as risk factors for recurrence or metastasis of the skin SCC (3).

Here we report a case with a vegetative, growing mass located on the breast skin, initially mimicking breast cancer both clinically and histopathologically, and treated with surgery followed by adjuvant radiotherapy. We aimed to emphasize the

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characteristic features and the treatment management of this rare entity.

Case

A 39-year-old female presented with a complaint of a non-eroded, vegetative, growing lesion located on the inner-upper quadrant of her right breast (Figure 1). She declared that It took 3-4 weeks since the emergence of the lesion. She had no history of chemical exposure or skin burn in the involved area, comorbidity, immunosuppression, smoking, alcohol consumption, drug use, or family history of cancer. She had been working as a shepherd for many years and she had never used sun protectors. A mass located on the breast skin which is approximately 4x4 cm in diameter was seen on physical examination, while no lymph node was palpated. There were no laboratory findings of infection.

Figure 1. A non-eroded, vegetative, growing lesion was 4x4 cm in diameter and located on the inner-upper quadrant of the right breast

Breast ultrasonography (USG) showed a 43x19x36 mm solid lesion located on the right breast with suspicion of pectoral invasion, without any pathological lymph nodes. Breast magnetic resonance imaging confirmed the same lesion which is 41x29 mm in diameter, in the absence of any other pathologic findings. While a 35x23 mm lesion invading the right breast skin, the appearance of a loss of pectoral cleavage and multiple non-specific bilateral axillary lymph nodes were present, no distant metastases were detected. An USG guided tru-cut biopsy revealed a malignant epithelial tumor. Estrogen receptor, progesterone receptor, and human epidermal growth factor receptor-2 were negative, E-cadherin and p53 were positive, and the expression of Ki-67 was 40% (Figure 2), suggesting a metaplastic carcinoma of the breast or invasive SCC of the skin. Since the diagnosis of breast cancer or skin cancer was suggested on tru-cut biopsy, primary surgery instead of neoadjuvant chemotherapy was decided as an initial treatment.

Due to the presence of primary breast cancer suspicion and the low breast volume that will remain after wide surgical excision, a right mastectomy and axillary sentinel lymph node biopsy was performed. The sentinel lymph node biopsy was negative and the pathological diagnosis was a well-differentiated SCC originated from the breast skin (figure-3). While estrogen receptor was negative, p53, epidermal growth factor receptor, gross cystic disease fluid protein 15, lymphovascular invasion, and perineural invasion were positive. The tumor was 55x50x23 mm in diameter, the depth of invasion was 16 mm, the closest surgical margin was 6 mm, and the invasion to the surrounding breast tissue was focal positive.

The case was re-discussed on a multidisciplinary tumor board and adjuvant radiotherapy was determined in the presence of high-risk factors (tumor size >20 mm, tumor depth >6 mm, perineural invasion positivity, lymphovascular invasion positivity) that may lead to recurrence. Therefore, a total dose of 60 Gray in 30 fractions was administered to the right chest wall (including scar area) as adjuvant radiotherapy. Adjuvant chemotherapy was not added due to absence of guideline recommendations for SCC of skin. Currently, the patient is under remission and follow-ups every 3 months without any signs of recurrence for 14 months.

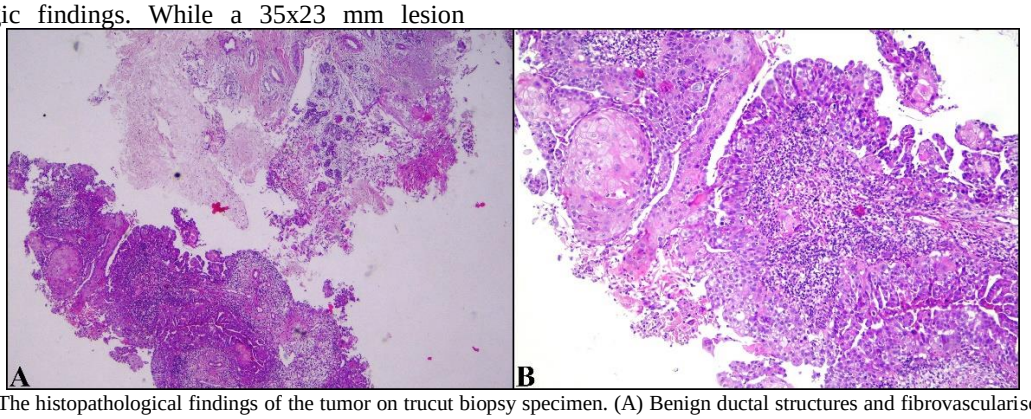

Figure 2. The histopathological findings of the tumor on trucut biopsy specimen. (A) Benign ductal structures and fibrovascularised stroma; tumor cells with squamoid differentiation in another trucut fragment (H&E x40). (B) Atypical epithelial tumor proliferation with distinct squamoid morphology (H&E x100).

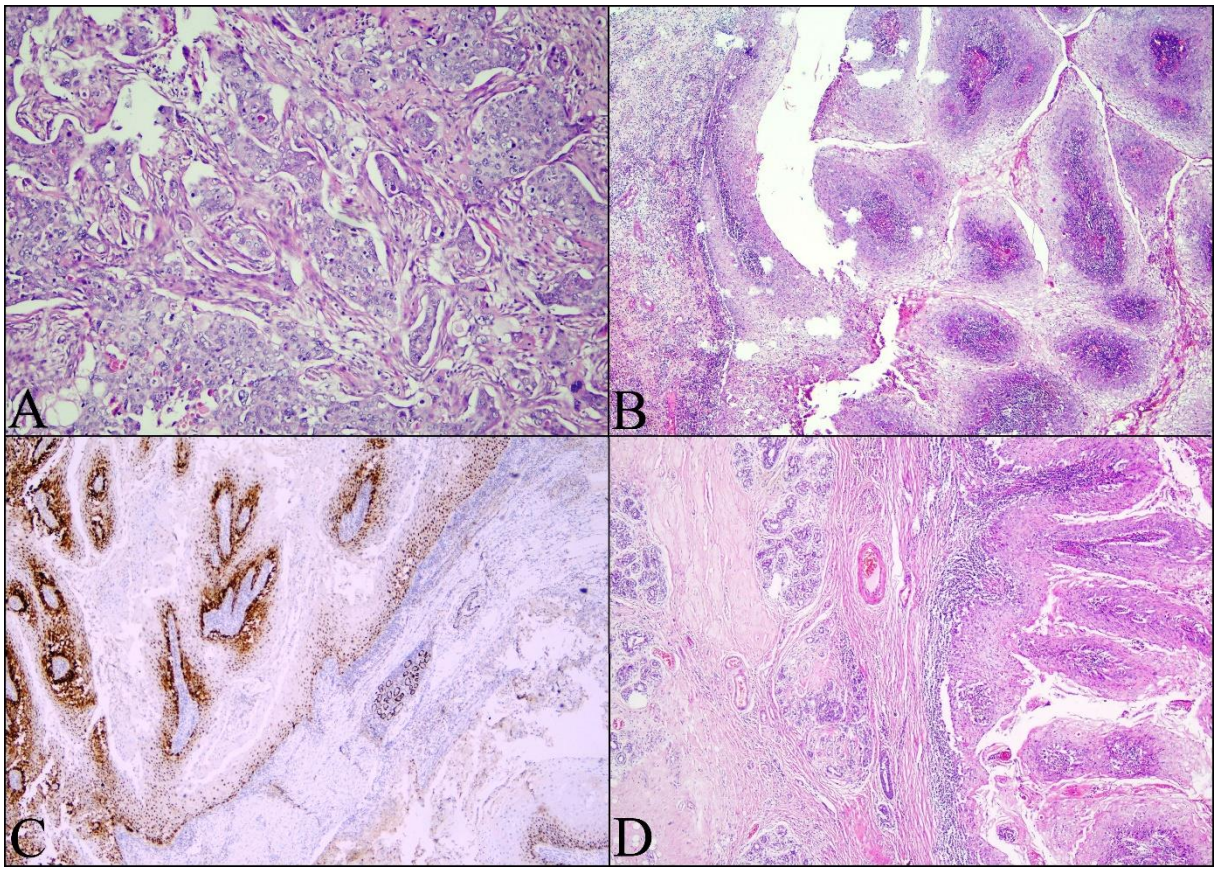

Figure 3. The histopathological findings of the tumor on mastectomy specimen. (A) High-grade squamous cell carcinoma with stromal reaction and rare apoptotic keratinocytes (H&E x200). (B) Well, differentiated squamous cell carcinoma with papillary projections and lymphocytic reaction with multinuclear giant cells to tumor (H&E x100). (C) Nuclear p63 staining in tumor cells with internal control at myoepithelial cells (Immunoperoxidase staining x100). (D) Papillary protrusions of the tumor and normal terminal ductal lobular units (H&E x100).

Discussion

The localization of primary invasive skin SCC on breast skin is very rare. To the best of our knowledge, the English language medical literature includes 10 well-reported cases and in seven of these cases, primary tumors were located on the nipple-areola complex (Table 1).

Our case is a 39-year-old woman without any significant risk factors, except UV radiation exposure. She had been working as a shepherd for many years, without using a sun protector. Accumulated UV radiation exposure may put her at increased risk of developing SCC of the skin.

Older individuals and male individuals were reported to be at higher risk for the development of SCC of the skin (4). In contrast, when Table 1 is examined in detail, it can be seen that patients with invasive SCC originating from the breast skin were usually female and their ages on diagnosis were variable (range: 29-87 years of age). These data could be interpreted as that the invasive SCCs originated from the breast skin may have different etiology/behavior or directly develop de novo when compared to sun-exposed skin SCCs. In addition, it can be also seen in Table 1 that patients with invasive SCC on nipple-areola complex had smaller primary tumors on presentation than those with invasive SCC located on breast skin out of the nipple-areola complex region. The slower growth of invasive skin SCCs located on the nipple-areola complex compared to invasive SCCs located on the breast skin out of the nipple-areola complex region may explain this situation. Although there is no clear data about the nature of SCC on breast, 3-4 weeks of history in our case could be associated with the aggressive nature of the disease.

According to the patient and tumor characteristics, curettage and electrodesiccation, surgical excision with appropriate margins, radiotherapy +/- chemotherapy, and cryotherapy can be used as primary treatment for local invasive SCC of the skin (4). The aim of the treatment is to be able to perform complete tumor removal while preserving maximal functioning and cosmesis. When surgical excision is used, obtaining at least 4 mm of surgical margin is recommended, depending on the primary tumor size (5).

Table 1. The list of the reported cases of invasive squamous cell carcinoma originating from the breast skin, including nipple-areola complex.

No	Case Report	Patient	Presentation	Breast side, Localization	Primary tumor size	"Possible" Risk Factors	Therapy	Outcome
1	Watanabe K et al.	62, F	Elevated verrucous growing lesion	R, breast skin	9x8 cm	N/S	Mastectomy, ChT (Peplomycin, Esquinon) for lung metastases	Died 8 months after the operation
2	Tazawa K et al.	45, F	An ulcerated and elevated lesion	L, breast skin	15x10 cm	N/S	MRM	Died 1 month after the operation, due to multiple lung metastases
3	Loveland-Jones et al.	66, F	Non healing ulcer	R, NAC	1.5x1.4x0.9 cm	Breast cancer, Tamoxifen, RT	WLE, Extended re-excision	N/S
4	Hosaka et al.	73, F	Exophytic mass	L, nipple	2.5x2.3x1.4 cm	N/S	Mastectomy, Axillary LND	Disease free for 5 years
5	King et al.	62, M	Erythematous, circumscribed tender mass	L, nipple	1.2x1.1 cm	Sun exposure, but not to breasts	WLE	N/S
6	Melo Neto et al.	55, F	Exophytic, ulcerated lesion	R, breast skin	15x10 cm	N/S	WLE	Disease free for 5 years
7	Sofos et al.	34, F	Erythematous, scaly lesion	R, NAC	Not specified	N/S	WLE	Disease free for 12 months
8	Upasham et al.	87, F	Ulcerating and fungating lesion	L, NAC	2.8x1.3x0.2 cm	N/S	MRM	N/S
9	Pendse et al.	29, F	Exophytic, soft mass	R, nipple	2.4x1.6x1.1 cm	Pregnancy	Excisional biopsy, WLE and regional LND	Disease free for 15 months
10	Zaesim et al.	49, F	Erythematous fleshy bump	R, nipple	2.2 cm	Verruca vulgaris, HPV positivity	WLE	N/S
11	Present case	39, F	Non-eroded, vegetative, growing lesion	R, breast skin	5.5x5x2.3 cm	Sun exposure	Mastectomy, SLNB, Adjuvant RT	Disease free for 14 months

ChT: Chemotherapy, HPV: human papilloma virus, MRM: modified radical mastectomy, NAC: nipple-areola complex, N/S: not specified, RT: radiotherapy, SLNB: sentinel lymph node biopsy, WLE: wide local excision, LND: lymph node dissection.

Adjuvant radiotherapy could be suggested when safe surgical margin cannot be obtained or in the presence of other risk factors for recurrence (tumor size ≥2 cm >6 mm tumor depth, aggressive subtypes such as adenoid adenosquamous or carcinosarcomatous SCC, poorly differentiated tumor, lymphovascular invasion, perineural invasion, neurologic symptoms, recurrent disease), depending also on tumor location (5). Because of the breast cancer suspicion and the low breast volume that will remain after wide surgical excision, a right mastectomy and axillary sentinel lymph node biopsy were performed in this case.

In conclusion, invasive SCC of the breast skin is a rare entity that may mimic breast cancer and, medical history and physical examination in conjunction with histopathological examination of the biopsy specimen is critical for the accuracy of the diagnosis and thus, for the correct treatment decision. Surgery is the first choice for local disease and adjuvant radiotherapy can be safely applied in the presence of high-risk factors for recurrence. Additionally, these tumors may have different etiology/behavior or directly develop de novo, when compared to SCCs located on sun-exposed skin. Studies with a high level of evidence may provide more accurate information and help clinicians to better understand the clinical behavior and prognosis of this rare entity.

Written consent: Written consents of the patients were obtained on 11.10.2020.

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