A Rare Clinicopathological Presentation of the Breast Carcinoma; Implications and Outcome

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ABSTRACT

In females, the most common cancer is breast carcinoma in which squamous cell carcinoma (SCC) is a rare type of malignancy. Histologically, infiltrating ductal carcinoma is the most common type and lobular, mucinous, and medullary types have lower incidence. Pure SCC of the breast can originate from the skin, nipple, or epithelium of a deep-seated dermoid cyst or squamous metaplasia on chronic inflammation background. We are reporting a rare case of primary SCC of the breast in a 45-year-old female. In follow-up of 8 months, patient is doing well. We discussed our approach for treatment with review of the literature. We have treated this patient successfully with surgical and adjuvant chemotherapy.

Keywords: Breast, chemotherapy, surgery, squamous carcinoma

Case Report

INTRODUCTION

Primary squamous cell carcinomas (SCC) of the breast are exceedingly uncommon lesions, since they occur in less than 0.074% of all primary invasive breast carcinomas.[1] We should exclude an epidermal origin, especially from the nipple region and the possibility of metastatic infiltration of the breast by an SCC from a different location and to classify the breast tumor as a primary SCC. Also, differential diagnosis must include other primary carcinomas in which squamous metaplasia are found.[2] Prognosis and treatment of this disease is controversial.

CASE REPORT

A 45-year-old woman was admitted with complaint of lump in the left breast for 3 months. Blood discharge was present from the lump from 3 months. Physical examination revealed a hard, tender lump of size 8 × 7 cm in upper and outer quadrant in the left breast. Axillary lymph nodes were present of left side. Right side of the breast region was normal.

Routine blood tests were within normal limits. To rule out another primary site, chest radiograph, ultrasonography of the abdomen, computed tomography of the thorax, and gynecological

examination were performed. No other primary site was detected. On fine needle aspiration cytology carcinoma of the breast was diagnosed. According to all these findings, the patient underwent modified radical mastectomy with axillary lymph node clearance was performed [Figure 1]. Primary closure of the skin was done.

On microscopic examination, tumoral structure composed of large hyperchromatic nuclei with abundant cytoplasm, along with multiple foci of keratin pearl in different sizes and marked increase in mitotic activity [Figures 2 and 3] was observed. There was no origin from the surface epithelium and no different tumoral components were seen. No axillary lymph node deposits were seen. With these entire findings, the lesion was accepted as keratinizing (large cell) SCC. The patient was started with adjuvant 6 cycles of CAP (cyclophosphamide, adriamycin, and cisplatinum) chemotherapy. The patient is alive and disease-free, 8 months follow-up after the diagnosis.

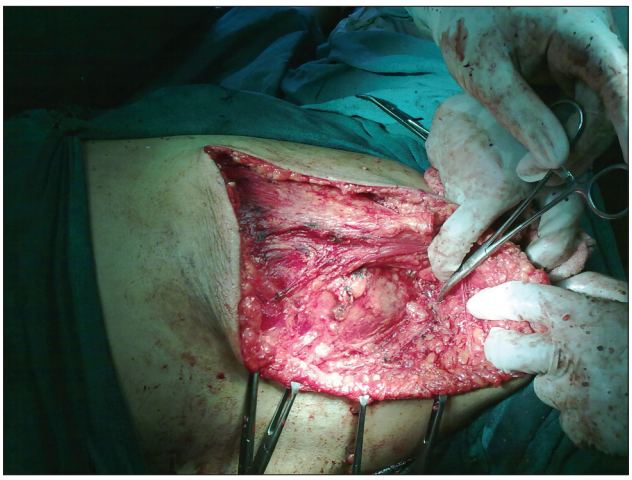

Figure 1: Gross operative picture of the left breast showing axillary lymph nodes

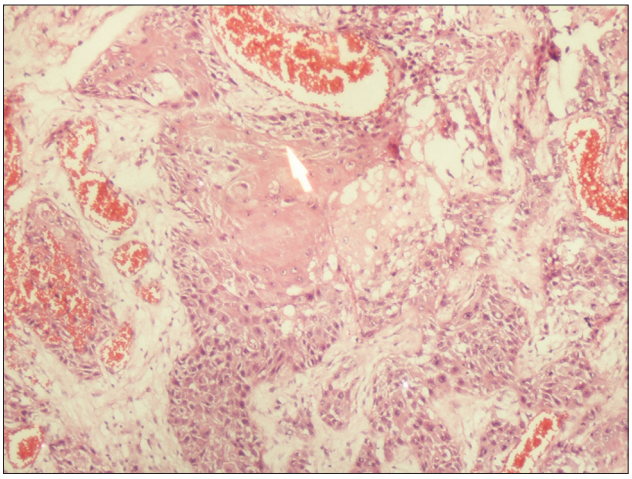

Figure 2: Malignant squamous cells in trabeculae arrangement forming keratin pearls in the center (100, H and E, ×200)

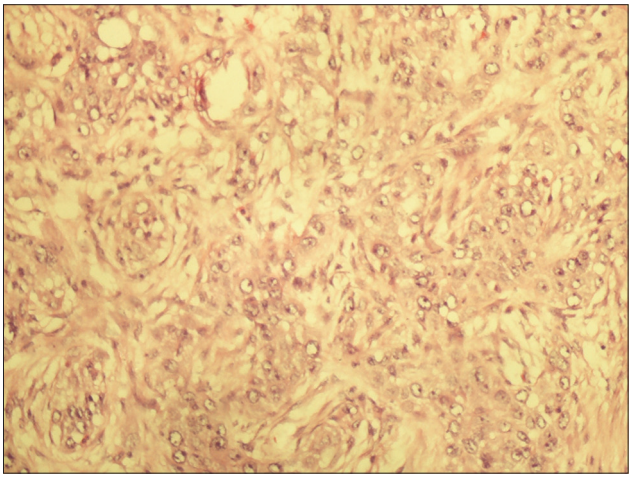

Figure 3: Histopathology showing squamous cells arranged in whorls with centrally keratin pearl formation (100, H and E, ×200)

DISCUSSION

SCC is a well-known malignancy of the skin and other organs surrounded with squamous cells such as the esophagus and the anus. Primary SCC is an extremely rare malignancy and is believed to originate from the epithelium of the mammary ducts but tumor may also arise from foci of squamous metaplasia within a pre-existing adenocarcinoma of the breast. There are few reported cases of primary SCC with origin from the capsules surrounding the silicone breast prostheses.[3] According to our search in the world literature, only some series are reported.[4] The incidence of the primary SCC among all the breast carcinomas is approximately between of 0.1% to less than 0.04%.[5,6]

Primary SCC of the breast is defined when more than 90% of the malignant cells are of the squamous cell type without any relation with the skin and there is no primary location elsewhere in the body.[6] Classically metaplastic tumors are mainly divided into two types : firstly tumors with squamous metaplasia, and secondly tumors with heterologus components. Morphologically these tumors are of five subtypes: (a) Matrix-producing carcinoma, (b) Spindle cell carcinoma, (c) carcinosarcoma, (d) Squamous cell carcinoma of ductal origin, and (e) Metaplastic carcinoma with

osteoclastic giant cells. [7,8] Breast carcinoma arises from the mammary glandular epithelium, the phenotypic expression of squamous differentiation in breast cancer is considered a form of metaplastic carcinoma.[6] SCC can occur from 29 years to 90 years of age in adult women, with a median of 52 years of age. These tumors are unusually rapidly growing as compare with most of the breast cancers. Primary tumors tend to be relatively large ranging from 2 to 5 cm and enlarged over a period of 2 to 3 weeks or in some cases for as long as 18 months.[4,6] About two-thirds of these tumors are cystic or have a cystic component with central necrosis.[1] Axillary lymph node metastasis occurs rarely which is usually associated with metaplastic SCC arising in an invasive ductal carcinoma. The prognosis of this type of breast carcinoma is still the subject of controversy. Some authors recommend an indolent clinical course with relatively good prognosis. But some thought that SCC of the breast can be presented with aggressive course along with outcome comparable to poorly differentiated breast adenocarcinoma.[9]

However, treatment for pure SCC is still unclear. Patient should get cisplatinum-based chemotherapy regimen with diagnosis of SCC, as documented by Dejager *et al.*[10] Most of the SCC are radiosensitive and primary SCC of the breast of small in size could be treated with lumpectomy with axillary clearance followed by radiotherapy.[11] Treatment should be based on the pathological features of the tumor rather than the age of the patient, but very young women have excessive risk of local recurrence and dying, as compared to their middle-aged counterparts, even if diagnosed early and receiving an intense treatment. After correction for stage, tumor characteristics, and treatment, age is an independent risk factor for death in women less than 34 years of age, in breast carcinoma.[12]

Menes *et al.*[13] recommended a selective approach like sentinel node biopsy, because lymph node involvement plays a lesser prognostic and therapeutic role in this disease. The diagnosis of primary SCC of the breast can only be made in the absence of an associated primary SCC in a second site and in the absence of skin involvement. The prognosis of the pure SCC of the breast and proper approach for the treatment is still in doubt. New case reports would help to determine the right approach to this disease. Surgical and medical treatment of SCC of the breast should be started to fit its distinct biologic characteristics. SCC is reported to result in less lymphatic spread than adenocarcinomas. In 10 to 30% of cases, lymph node infiltration can be seen at the time of surgery.[5] On other side, distant metastasis may be seen in about 30% of the patients. SCCs are generally hormone receptor negative.[5] It is recommended to give patients similar adjuvant therapy but the radiosensitivity of SCCs is uncertain. Current breast cancer chemotherapy regimens clearly have limited activity in breast SCC. This has been reported previously.[9]

CONCLUSIONS

It may be prudent to initiate adjuvant radiation therapy earlier than usual for breast cancer because of the tendency for locoregional relapse. Breast SCC is an extremely aggressive disease associated with frequent locoregional and distant relapses and resultant deaths. Better systemic therapy is therefore needed to improve patient outcomes.

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