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CASE REPORT

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Primary breast squamous cell carcinoma: A case report at a tertiary hospital in Northern Tanzania

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Key Clinical Message

- Primary SCC of the breast is a very rare disease.
- Metastasis from elsewhere should be excluded first.
- The tumor is a very aggressive with poor prognosis.
- No standard treatment approaches are available.
- Managed by surgical excision followed by chemotherapy and radiotherapy.

Abstract

Primary squamous cell carcinoma of the breast is an exceedingly rare disease, and its management is still unclear. A-65-year-old lady presented with a progressive swelling of her right breast that started spontaneously. Other potential primary sites were ruled out. She was kept on a neo-adjuvant chemotherapy (AC-T protocol) of doxorubicin, adriamycin, and paclitaxel. Later, she was underwent modified radical mastectomy with axillary lymph node dissection. Her post-operative recovery was uneventful. Currently, she is followed up at oncology outpatient clinic.

KEYWORDS

aggressive, breast, carcinoma, neoplasms, pathology, squamous cell

1 | INTRODUCTION

Primary breast squamous cell carcinoma (PBSCC) is a rare cancer accounting for about 0.1% of all breast cancers cases. These tumors do not arise from the overlying skin, neither do they represent metastases from other organs. Morphologically, the tumors are entirely composed of metaplastic squamous cells that could be keratinizing, non-keratinizing or spindled.[1] TPBSCC differs from other usual breast carcinoma subtypes including infiltrating ductal carcinoma in that it has an atypical clinical course with regard to tumor size, lymph node involvement, and metastatic spread.[1] Larger research are required to develop appropriate guidelines because to its rarity, imprecise management, and debatable prognosis.[2] In this paper, we examine some literature and emphasize this unusual primary breast disease.

2 | CASE PRESENTATION

A-65-year-old female patient presented to our facility with a 9-month history of a progressive swelling of her right breast that started spontaneously. This progressed into an ulcer formation distorting her breast that was then

discharging clear foul-smelling liquid. During the course of her illness, she initially attended local herbalists as well as over-the-counter medications with no relief. She is a peasant, non-smoker and does not consume alcohol. There is no familial history of cancers. She denied history of diabetes and hypertension. She had four children whom she breastfed exclusively and had never used any form of contraception in her life. Her menses were reported normal and attained menopause at 48 years of age.

Upon initial examination, she was not pale, not jaundiced with no peripheral lymphadenopathy and no lower limb edema. Her vital signs were within normal range. On local examination, right breast had a circumscribed palpable mass which was ulcerated destroying her nipple-areolar complex, measuring 10 × 8 cm, everted edges with necrotic base, Figure 1. It was also discharging clear foul-smelling fluid. The breast was mobile and free from the chest wall. There were no clavicular nodes. However, ipsilateral axillary nodes were palpable. The other breast was grossly normal, and both upper limbs were not edematous. All other systems were essentially normal.

Her initial blood works included CBC, liver enzymes, BUN, creatinine, lipid profile, and INR were all within normal limits. Histopathology of the trucut biopsy from the breast mass was suggestive of an invasive carcinoma with triple negative hormonal receptors status. Her plain chest X-ray and abdominal-pelvic ultrasonography were normal. A thorough metastatic work up searching for other potential primary SCC carcinomas was uneventful. An ECHO showed an ejection fraction of 65% with normal parameters. Her clinical staging was cT4bN1M0. She was kept on neo-adjuvant chemotherapy (AC-T protocol) of doxorubicin, adriamycin and paclitaxel, of which she received four cycles with no adverse effects. She was then scheduled for an elective right modified radical mastectomy with axillary lymph node dissection. The breast and axillary tissue were sent for histopathology analysis. Histopathology report revealed an infiltrative tumor composed of purely atypical large keratinizing squamous cells, pT4bN0M0; Figures 2A–C. The tumor cells were positive for CK5/6, Figure 2D. All surgical margins and harvested 12 axillary lymph nodes were negative for the tumor. Her post-operative recovery was uneventful in the general surgical wards except for a minimal surgical site wound infection. She was discharged on Day 7 after surgery and currently is followed up at the breast and oncology outpatient clinics. After chemotherapy, the patient will be due to receive radiotherapy.

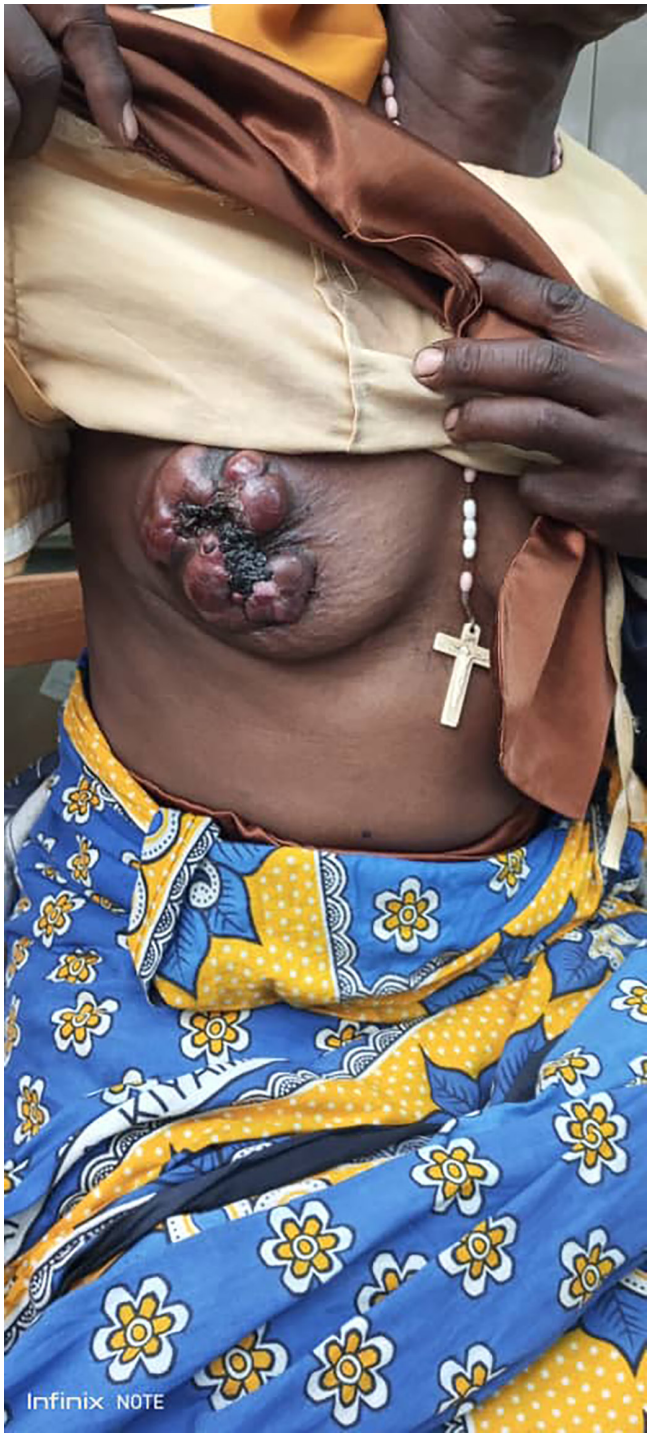

FIGURE 1 Photograph of a patient with ulcerated right breast tumor.

3 | DISCUSSION

Troell published the first description of PBSCC in 1908, and it is regarded as an uncommon breast tumor.[1–3] Due to the disease's rarity and the few recorded instances that have been made public to date, its prevalence is largely unknown. Between 0.1% and 0.4% of all breast carcinomas are thought to be PBSCC.[4] The condition typically impacts postmenopausal females, as it did in our patient. Although it has been documented in females as old as 90 years, it mostly affects people between the ages of 50 and 54.[5] Due to their rapid growth, they are typically large at the time of

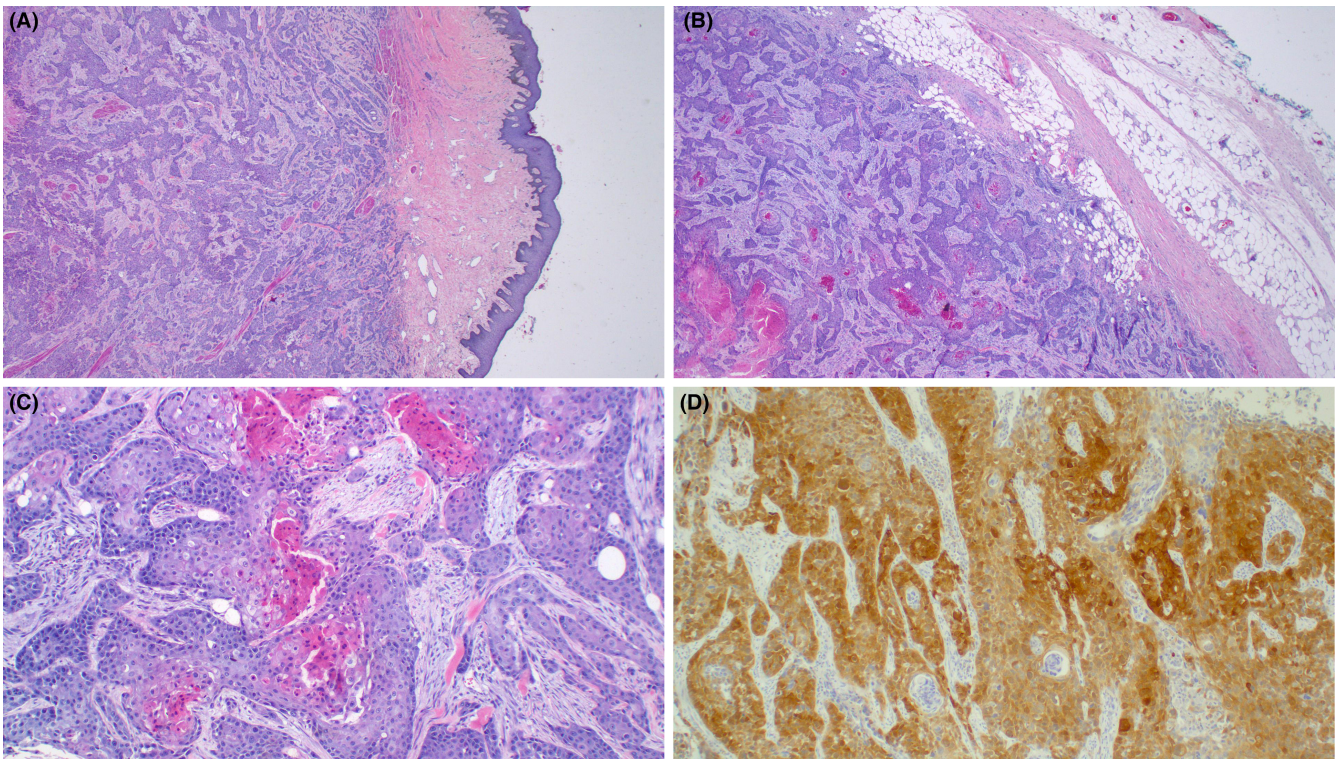

FIGURE 2 (A) Photomicroscopy demonstrating dermal based invasive breast tumor composed of sheets or cords of squamous cells, H&E 20× original magnification. (B) Tumor is dissecting subcutis and fat tissue but with negative free margins, H&E 20× original magnification. (C) Sheets and trabeculi of tumor cells with the tendency to form keratin pearls, H&E 40× original magnification. (D) Immuno-expression of the tumor cells with CK5/6, IHC 40× original magnification.

diagnosis, and the majority of them have core necrosis, as was the case in our patient.[2]

Although certain schools of thought have been proposed, the etiopathogenesis of PBSCC is still unknown. It has not been possible to identify or describe a single distinct etiological factor.[1] Adenocarcinoma-specific squamous metaplasia or squamous cell metaplasia in cysts, chronic inflammations, abscesses, and adenofibromas are two commonly accepted theories.[1–3] Although chronic inflammation that results in squamous metaplasia is regarded to be a predisposing factor (such as implant associated squamous cell carcinoma), no relationship with familial cancer syndromes has also been documented.[4–6]

Most patients appear with a well-circumscribed palpable mass that tends to be slightly larger at presentation than other kinds of breast cancer, as was evidenced in the index case symptomatologically.[1] Unlike primary cutaneous neoplasm, PBSCC tumors typically are centered in the breast parenchyma, separate from the skin that covers them and the nipple of adnexal parts. Additionally, it is crucial to rule out common metastasis from primary extramammary carcinomas sites such as cervix, skin, lungs, head, and neck; urinary bladder, etc. Although enormous lesions have sometimes been described, the breast masses in 20%–40% of the reported cases had an average dimension of 5 cm.[2,7] Massive lesions can move the nipple and result in skin ulceration, as they did in our patient. A relationship with a lower rate of lymph node metastasis has been observed in most situations as evidenced in our patient, all 12 lymph nodes were unaffected by the tumor.[7] The rate of distant metastases without lymph node involvement has also been found to be significant.

Due to the rarity of this carcinoma's appearance, accurate metastatic work up is mandatory for the final diagnosis, which can be a challenging undertaking. Unfortunately, PBSCC has no specific mammography findings. Solid hypoechogenic masses with degenerating cysts have been described in previous case studies.[1] The removed lesion should undergo histological analysis in order to confirm the diagnosis of pure SCC. It is necessary to rule out primary cutaneous or metastatic squamous cell carcinomas from other locations. The prognostic and therapeutic measures are uncertain because of its rarity.

PBSCC tumors are frequently aggressive and resistant to standard therapy. Wide excision or a mastectomy surgery is advised. Generally, the tumors are relative resistance to conventional chemotherapy, and neo-adjuvant treatment has not been shown to play a significant influence.[8] Due to the triple negative nature of these tumors,

hormonal treatment is not recommended. An impressive response with some immunotherapy (anti-PDL1) has been document.[9] Although there is a lack of standard prognostic information, new reports indicate an aggressive clinical course with results similar to poorly differentiated ductal carcinoma of the breast with estimated 52%–63% 5-year survival rates.[10]

4 | CONCLUSION

PBSCC is a fairly uncommon condition and may make diagnosis difficult. There is no established method of treatment. The tumor has a bad prognosis and is exceedingly aggressive. Neo-adjuvant chemotherapy, mastectomy, and radiation therapy were all scheduled for our patient. When it comes to enhancing the prognosis of individuals with this condition, delays in diagnosis and treatment are a critical concern. Prior to identifying these tumors as PBSCC, it is necessary to first rule out other sites of primary SCC.

AUTHOR CONTRIBUTIONS

Alex Mremi: Conceptualization; data curation; funding acquisition; investigation; writing – original draft; writing – review and editing. **Theresia Mwakyembe:** Data curation; writing – review and editing. **Elizabeth Wampembe:** Data curation; writing – review and editing. **Furaha Serventi:** Data curation; writing – original draft. **Jay Lodhia:** Data curation; investigation; writing – review and editing.

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CONFLICT OF INTEREST STATEMENT

All authors have declared that no competing interests exist.

DATA AVAILABILITY STATEMENT

There is no data genererated from this study.

ETHICS CONSIDERATION

The patient provided written informed consent to allow for his de-identified medical information to be used in this publication. A waiver for ethical approval was obtained from the authors' institution review board committee.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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