



Squamous cell carcinoma, a rare variant of primary breast carcinoma: a case report

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Abstract

Introduction: Breast cancer is the most common malignancy occurring worldwide in females but primary squamous cell carcinoma represents a very rare variant of breast carcinoma, accounting for less than 0.1%. Mostly it is grayish-white in colour with an ill-defined cut surface and has cystic areas of foci of necrosis macroscopically. Squamous elements in these neoplasms can range from well to poorly differentiated. The majority was moderately differentiated and showed cystic degeneration correlating with the macroscopic appearance.

Case presentation: A 45-year-old female presented to us with a painless progressive lump involving all quadrants of left breast that at presentation had involved the whole breast and was associated with foul-smelling discharge. The patient had toxic features and was taken up for toilet mastectomy. The wound was left open for a delayed closure. The histopathological report suggested triple negative squamous cell carcinoma involving the breast.

Discussion: Squamous cell carcinoma is commonly seen in the skin and lung, it rarely originates in breast tissue. There are reports that it may develop within a previous benign lesion such as an epidermal cyst or chronic inflammatory lesions. It may also mimic benign breast disease resulting in inappropriate or delayed management. Clinically and radiologically it is indistinguishable from adenocarcinoma, the most common presentation being cystic lesion. Because of limited data and few case reports worldwide, management strategies have been controversial. Total mastectomy with axillary clearance is usually done. As it is locally advanced, conservative surgery is not feasible most of the time. Radiotherapy has been used in locally advanced cases, though not much useful.

Conclusion: This case report highlights the rare occurrence of synchronous primary malignancies in the lung and breast, underreported in the medical literature. This case adds to the existing knowledge of MPMT and may stimulate further research on this topic. Clinicians should be aware of the possibility of MPMT in cancer patients and perform thorough investigations to rule out secondary or metastatic tumors.

Keywords: Small cell carcinoma, Breast cancer, Synchronous, Metachronous, Histopathology, Immunohistochemistry,

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Introduction

Breast cancer is the most common malignancy occurring worldwide in females but primary squamous cell carcinoma represents a very rare variant of breast carcinoma, accounting for less than 0.1% (1). It is a highly aggressive tumor with a greater tendency to metastasize as compared to adenocarcinoma breast, thus having a poor prognosis. The lesions are usually larger, hormone receptor-negative with lesser nodal spread. Apart from adenocarcinoma breast, it needs to be differentiated from primary squamous cell carcinoma of skin overlying breast and metastatic squamous cell carcinoma from some distant site. As clinical and radiological findings are not specific, the biopsy is a must to diagnose this variant. For diagnosis of squamous cell carcinoma, more than 90% of cells should be squamous (2). Murcia and colleague defined pure squamous cell carcinoma as:

- 1) No other neoplastic component such as ductal or mesenchymal element is present in tumour.
- 2) Tumor origin must be independent from the overlying skin and nipple.
- 3) Absence of an associated primary squamous cell carcinoma in a second site (3).

Pathogenesis

Gross Findings

Mostly it is grayish white with an ill-defined cut surface and has cystic areas of foci of necrosis macroscopically. A wide range of sizes was reported, often larger than other special types (4).

Microscopic Findings

Squamous elements in these neoplasms can range from well to poorly differentiated. The majority was moderately differentiated and showed cystic degeneration (resembling cutaneous inclusion cyst) correlating with the macroscopic appearance. A small (<25%) spindle cell component may be present. Spindled components may range from low to high grade. In some cases associated DCIS confirms the primary nature of the lesion (4,5).

Immunohistochemistry

Estrogen receptor (ER) assays have been variable and no reliable conclusion can be drawn and mostly regarded as ER negative. Focally tumor express cytokeratins; shows immunostaining for S100 and smooth muscle actin (4).

We report a case of this rare variant of breast carcinoma along with the management done.

Case presentation

45 year old female presented to us with a painless progressive lump involving all quadrants of the left breast that at presentation had involved the whole breast and was associated with foul-smelling discharge (Figure 1).



Figure 1. Gross image of breast mass.

The patient had toxic features and was taken up for toilet mastectomy. The wound was left open for a delayed closure. The histopathological report suggested triple negative squamous cell carcinoma involving the breast. (Figure 2).

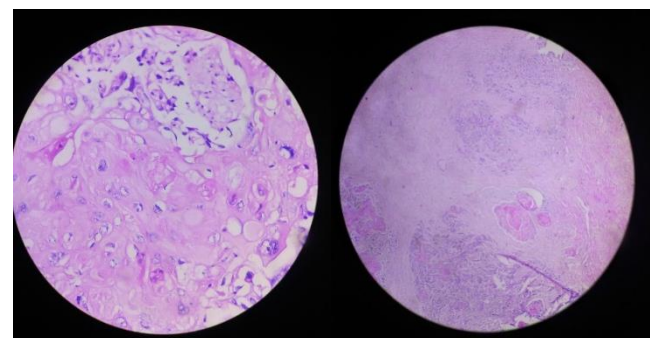


Figure 2. HP image of SCC.

Discussion

Squamous cell carcinoma is commonly seen in the skin and lungs, it rarely originates in breast tissue. Although its origin is unclear, multiple hypotheses have been proposed. Murialdo R et al(6). state that it originates from the epithelium of the mammary ducts or squamous metaplasia of adenocarcinoma. There are reports that it may develop within a previous benign lesion such as an epidermal cyst or chronic inflammatory lesions (7). It may also mimic benign breast disease resulting in inappropriate or delayed management (7).

Clinically and radiologically it is indistinguishable from adenocarcinoma, the most common presentation being a cystic lesion. The typical presentation is a hard breast lump, which may have inflammatory signs in an elderly woman. Although it is larger, the tendency for nodal spread is lesser than adenocarcinoma as stated by Vekariya M et al (1). and Carbone S et al (8). 70% of squamous cell carcinoma of the breast don't have axillary lymphadenopathy at presentation but lymph node dissection could always be performed for staging due to unpredictable lymph node dissemination. Distant metastasis is comparatively higher. Hormone receptor (ER/PR) and HER2/*neu*- are usually negative with overexpression of EGFR.

Because of limited data and few case reports worldwide, management strategies have been controversial. Total mastectomy with axillary clearance is usually done. As it is locally advanced, conservative surgery is not feasible most of the time. Radiotherapy has been used in locally advanced cases, though not very useful. They are reported to be resistant to standard chemotherapy used for adenocarcinoma, as well as hormonal therapy. Several chemotherapeutic agents have been tried to date but efficacy and response have not been estimated yet. Hennessy et al (9) reported no benefit in using anthracycline/taxane-based neoadjuvant chemotherapy. In contrast, few have also reported a good response with neoadjuvant therapy using cisplatin and 5-fluoro-uracil (10). A high incidence of recurrence had been reported in those who received adjuvant chemotherapy (11). Due to the high rates of locoregional recurrence in this disease, early adjuvant radiation therapy is thought to be prudent despite reports of frequent recurrence in irradiated

fields. Adjuvant chemotherapy is used regularly given the aggressive nature, but the risk of distant metastasis remains high in SCC (12,13). Historically, anthracycline-containing regimens have been the standard; however, the use of carboplatin and taxanes has biological plausibility and have been employed.

Conclusion

Very rare incidence along with nonspecific presentation poses a major challenge in the diagnosis of primary SCC. Subsequent challenges being variable responses or resistance to standard chemotherapy regimens as well as hormonal agents. EGFR positivity had been a scope for targeting specific chemotherapeutic agents.

Author contribution

PS supervised and corresponding author, **KR**, **HK**, and **MS** contributed to some parts of the study and **RK** contributed as an anesthetist.

Conflict of interest

The authors declare no conflict of interest.

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References

1. Vekariya M, Gupta V, Pednekar A, Nagur B, Mahna A et al. Primary squamous cell carcinoma of the breast: A rare case report. *Int J Sci Stud* 2014;2(8):226-228.
2. Kamra H, Gadgil P, Chaware S, Kanade U. Acantholytic variant of squamous cell carcinoma of breast: a rare case report. *Ecancermedicalscience*. 2011;5:214.
3. Macia M, Ces JA, Becerra E, Novo A. Pure squamous carcinoma of the breast. Report of a case diagnosed by aspiration cytology. *Acta Cytol*. 1989 Mar-Apr;33(2):201-4.
4. O'Malley FP, Pinder SE, Mulligan AN. In: *Breast pathology: a volume in the series: foundation in diagnostic pathology*. 2nd ed. Elsevier: United states 2011.p.216.
5. Gobbi H, Simpson JF, Borowsky A, Jensen RA, Page DL. Metaplastic breast tumors with a dominant

fibromatosis-like phenotype have a high risk of local recurrence. *Cancer*. 1999 May 15;85(10):2170-82.

6. Murialdo R, Boy D, Musizzano Y, Tixi L, Murelli F et al. Squamous cell carcinoma of the breast: a case report. *Cases J*. 2009 Jul 10;2:7336.

7. Flikweert, E.R., Hofstee, M. & Liem, M.S. Squamous cell carcinoma of the breast: a case report. *World J Surg Onc* 6, 135 (2008).

8. Carbone S, Lobo Alvarez R, Lamacchia A, Almenar Gil A, Martin Hernandez R et al. Primary squamous cell carcinoma of the breast: A rare case report. *Rep Pract Oncol Radiother*. 2012 Aug 9;17(6):363-6.

9. Hennessy BT, Krishnamurthy S, Giordano S, Buchholz TA, Kau SW et al. Squamous cell carcinoma of the breast. *J Clin Oncol*. 2005 Nov 1;23(31):7827-35.

10. Seddik Y, Brahmi SA, Afqir S. Primary squamous cell carcinoma of the breast: a case report and review of literature. *Pan Afr Med J*. 2015 Feb 18;20:152.

11. Pandey A, Joshi K, Moussouris H, Joseph G. Case Reports on Metaplastic Squamous Cell Carcinoma of the Breast and Treatment Dilemma. *Case Rep Oncol Med*. 2019 Sep 18;2019:4307281.

12. Hennessy BT, Krishnamurthy S, Giordano S, Buchholz TA, Kau SW, Duan Z. Squamous cell carcinoma of the breast. *J Clin Oncol*. 2005 Nov 1;23(31):7827-7835.

13. Behranwala KA, Nasiri N, Abdullah N, et al. Squamous cell carcinoma of the breast: Clinico-pathologic implications and outcome. *Eur J Surg Oncol*. 29:386,2003-389