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Metaplastic Squamous Cell Carcinoma - A Very Rare Entity of Breast Carcinoma in an Elderly Female Patient

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ABSTRACT

Metaplastic squamous cell carcinoma of breast is a rare malignancy and accounts to < 1% of all breast cancers and it is most commonly seen in elderly women. As the tumor cells exhibit heterogeneous behavior, a standard therapeutic approach is difficult to establish. Age, size of the tumor, lymph node metastasis and receptor status are the important prognostic factors. Metaplastic squamous cell carcinoma has very unfavorable prognosis compared to other triple negative breast malignancies. Surgery combined with neoadjuvant radiotherapy can ameliorate the disease outcome. Early diagnosis and treatment play a crucial role in the management. Here we report a case of metaplastic squamous cell carcinoma of breast in a 67 years female who came with breast lump in the left breast for 6 months with palpable axillary lymph nodes. She underwent modified radical mastectomy with the diagnosis of Ductal cell carcinoma reported on fine needle aspiration cytology. Lymph node clearance done at all levels and the specimen was sent for histopathological examination. Gross examination revealed unifocal gray white irregular tumor measuring 9 x 4 x 3.6 cms located in the inner central quadrant and container labelled as level 1 revealed 7x 4 x 3 cms firm mass. Microscopic examination revealed infiltrating tumor tissue in nesting pattern, syncytial pattern and solid pattern. The tumor cells were having pleomorphic nuclei, increased N:C ratio and moderate to scant eosinophilic cytoplasm. Within the nesting pattern of tumor tissue keratin pearls were seen. Interstitium showed lymphocytic infiltration. One lymph node from level 1 showed metastatic deposits. The tumor was diagnosed as metaplastic Squamous cell carcinoma of left breast with TNM staging of PT3 N1 Mx.

Keywords: Squamous, metaplastic, breast, poor prognosis.

INTRODUCTION

Metaplastic squamous cell carcinoma (SqCC) of breast is a rare malignancy and with a worldwide incidence of 0.1 – 2 % (1). Metastasis of squamous cell carcinoma from other areas of the body to the breast needs to be excluded before concluding the diagnosis (2). Because of the tumor cells exhibiting heterogeneous behavior, a standard therapeutic approach is difficult to establish. According to literature, Squamous cell carcinoma most commonly affects the elderly women (3). Usually, the average size of breast lump is more than 4 cms at the time of diagnosis and they are very rapidly growing breast malignancies (4). They have very unfavorable prognosis compared to other triple negative breast malignancies (5).

CASE REPORT

A 67-year female came with breast lump in the left breast since 6 months, without any family history of breast cancer. She has no

previous history of any breast disease. On examination revealed a large breast lump measuring 10 x 5 cms in size, located in the central quadrant, firm with puckering of skin. Axillary lymph nodes were palpable. Right side breast was normal. It was reported as BIRADS-5 in ultrasonography with lymphnode metastasis and fine needle aspiration cytology showed malignant clusters of ductal epithelial cells having large pleomorphic nuclei, increased N:C ratio with eosinophilic cytoplasm and was reported as Ductal cell carcinoma. Modified radical mastectomy was done along with axillary lymph node clearance at all levels and the specimen was sent in separate labelled containers.

Gross examination: Showed unifocal tumor measuring 9 x 4 x 3.6 cms located in the inner central quadrant, 1 cm from the medial resected margin, 4 cms from the lateral resected margin, 12 and 3.2 cms from the superior and inferior margins respectively and 1 cm from the deep resected margin. Cut section showed a gray white irregular mass with areas of necrosis and cystic changes (figure 1). In container labelled as level I, a firm gray white mass was seen measuring 7 x 4 x 3 cms. 7 lymph nodes were identified from all the containers. Representative bits were taken from the tumor proper along with margins.

Microscopy: Sections studied showed infiltrating tumor tissue in nesting pattern, syncytial pattern and solid pattern. The tumor cells were having pleomorphic nuclei, increased N:C ratio and moderate to scant eosinophilic cytoplasm (figure 2 & 3). Within the nesting pattern of tumor tissue keratin pearls were seen (figure 4). Interstitium showed lymphocytic infiltration. One lymph node from level 1 showed metastatic deposits (figure 5). All other lymph nodes from level 1, 2 and 3 showed reactive hyperplasia. All the margins were negative for tumor tissue. No vascular invasion noted. Immunohistochemical stain showed positivity for cytokeratin 5/6 confirming the squamous origin of the tumor cells. The tumor was diagnosed as metaplastic Squamous cell carcinoma of left breast with TNM staging of PT3 N1 Mx.

Figure 1: Metaplastic SqCC, Gross picture

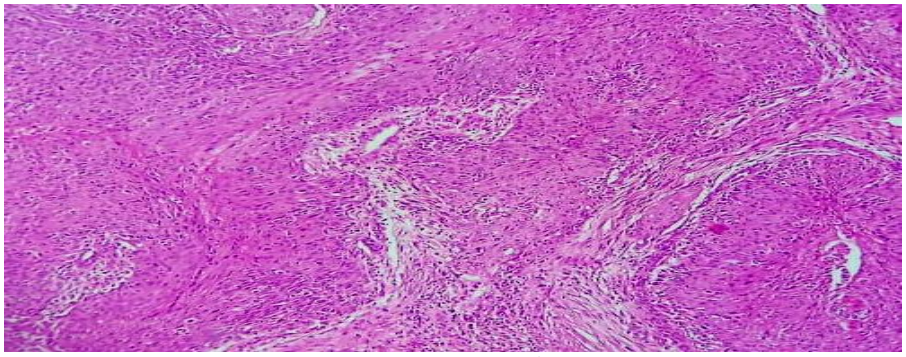

Figure 2: H & E, X100, Microscopy of Metaplastic SqCC

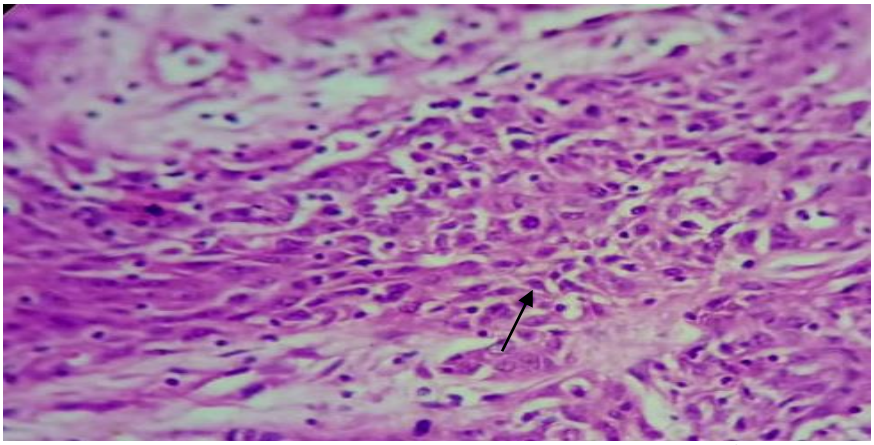

Figure 3: H & E, X400, Malignant squamous cells with atypical mitotic figures

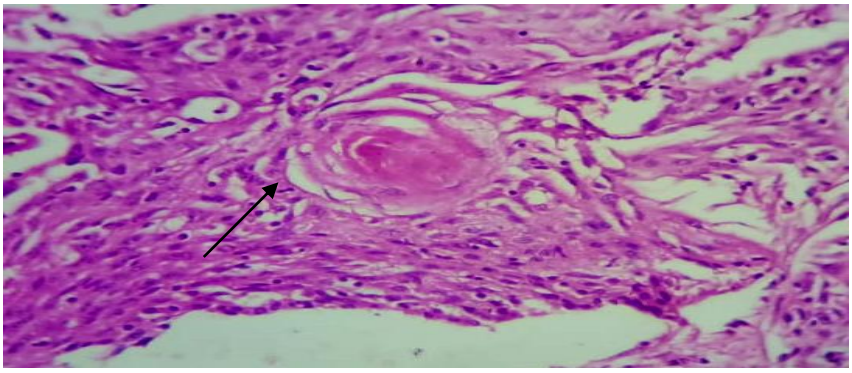

Figure 4: H & E, X100, Tumor tissue showing keratin pearls

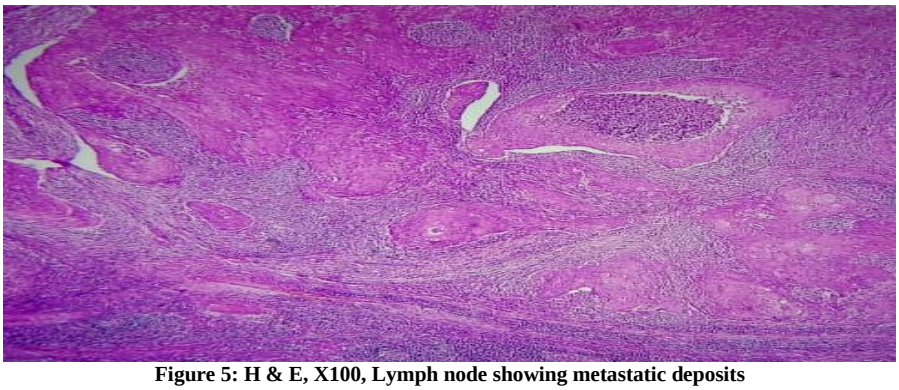

Figure 5: H & E, X100, Lymph node showing metastatic deposits

DISCUSSION

Among breast malignancies metaplastic squamous cell carcinoma is a very rare form and accounts for < 1% of all breast cancers (1,5). It presents as a large tumor with a higher histological grade (1). In more than 50% of cases, cystic lesions are characteristic (1). These tumors mostly present with a cystic component and central necrosis. Present case also presented as a solid mass with areas of cystic changes and necrosis (2) . The etiology and pathogenesis of squamous cell carcinoma of the breast is unclear. It may be an extreme form of metaplasia of squamous cells, developing into adenocarcinoma. This hypothesis could also explain the mixed forms of the tumor (3). It has both epithelial and mesenchymal components (1). Metaplastic breast cancers are of three categories – 1) Metaplastic carcinomas, no specific type which includes squamous cell carcinoma, adenosqamous carcinoma low grade, spindle cell carcinoma, fibromatous like metaplastic carcinoma, 2) Metaplastic carcinoma with mesenchymal differentiation like chondroid, osseous and others, 3) Mixed type (1). Diagnosis should be made on strict

histological criteria and ductal carcinoma with areas of metaplastic changes should not be diagnosed under primary squamous cell carcinoma of breast (2). To determine the diagnosis of pure squamous cell carcinoma 90% of malignant cells must be of squamous type (6). The other criteria include, the tumor should not arise from skin, nipple or adnexal structures and ductal and mesenchymal invasive elements must not be present to diagnose it as pure Squamous cell carcinoma. Metastasis from other sites of body must be ruled out (7). Chemotherapy, radiations and breast implants can induce the development of metaplastic squamous cell carcinoma as reported by Graziano et al. (8). Metaplastic Squamous cell carcinoma most commonly affects the post menopausal age group women. Axillary lymph node metastasis is seen in 10 – 30 % of the cases, absence of which is considered as a positive prognostic factor (9). Age, size of the tumor, lymph node metastasis and receptor status are the important prognostic factors (10). These tumors are usually positive for squamous cell markers like CK14/CK5-6/p53/ EGFR (4) and negative for hormone receptors like ER, PR and also HER2/neu (triple negative) (8).

Outcome and follow up: There is no specific treatment guideline due to rarity of this tumor. Along with surgery, adjuvant radiation and chemotherapy are advised for recurrent squamous cell carcinoma of breast (8). Prolonged response to chemotherapy was failed due to tumor heterogenecity. Compared to invasive ductal carcinoma, the 3 year disease free survival rate is very poor in metaplastic squamous cell carcinoma. Disease free survival is dependent on the extent of squamous differentiation. Malignant cells showing more than 90% of squamous differentiation are associated with poor prognosis and those with less than 40% have good prognosis (4). Complex genetic alterations can result in resistance to chemotherapy (1). As efficient adjuvant therapy is unavailable, future treatment modalities should be focused on molecular biology like epidermal growth factor receptors (2). On fallow up our patient responded to neoadjuvant radiation therapy.

CONCLUSION

Metaplastic Squamous cell carcinoma is a very rare tumor having unfavorable prognosis. Early diagnosis and treatment play a crucial role in the management of metaplastic squamous cell carcinoma.

Declaration by Authors

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