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Case Report

Metaplastic carcinoma breast in male – A case report and review of literature

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ABSTRACT

Male breast cancers are rare and account for 1% of all breast cancer cases reported annually. Incidence of metaplastic breast cancer in females is less than 1% thus metaplastic breast cancers in males are even rarer. Larger tumour size and higher grade differentiate them from invasive carcinoma. They are also more aggressive than invasive carcinoma. On IHC these are typically oestrogen- and progesterone-receptor, Her 2 neu negative. Here we report a rare case of a 35-year-old male patient who presented with left chest wall swelling for six months, histopathological examination showed it to be metaplastic carcinoma breast. The patient underwent left MRM and adjuvant chemotherapy.

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1. Introduction

Male breast cancer (MBC) are about 1% of all breast cancer cases reported annually.¹ Incidence of male breast cancer has increased in the last twenty years. Metaplastic breast carcinoma (MPBC) is a rare histological variety which constitutes around 0.25 - 1% of all female breast cancer cases.² MPBC in a male patient is rarely reported. These are aggressive tumours which histologically consist of two or more cell types. The clinical behaviour of metaplastic carcinomas is poorly documented. They often manifest as a rapidly growing, palpable mass with a high density on mammography and which may be micro lobulated on sonography. Complex echogenicity with solid and cystic components may be observed sonographically and is related to necrosis and cystic degeneration found histopathologically.

Here we report a case of metaplastic carcinoma in a 35-year-old male, presented with left chest wall swelling and on further evaluation histopathologically reported as

metaplastic carcinoma. The rare occurrence rate of this cancer has been attributed to lack of standardised treatment protocol.

2. Case Report

A 35-year-old male presented with a complaint of painless swelling in the left chest wall for a duration of six months. The swelling was progressively increasing in size with no local skin changes or nipple discharge. On local examination there was a 4×4 cm hard mobile swelling in the left chest wall. Skin dimpling and nipple retraction was present. No palpable axillary or supraclavicular lymph nodes were noted. Opposite chest wall examination did not reveal any abnormality, no gynecomastia and testicular examination was normal further systemic examination did not reveal any dysmorphic features.

Fine needle aspiration from lump was suggestive of invasive carcinoma with a negative metastatic workup, the patient underwent left modified radical mastectomy (MRM). Histopathological examination of MRM specimen was suggestive of Metaplastic carcinoma

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with chondromyxoid differentiation (Figure 1), grade 2 Nottingham histological score (3+2+1= 6). DCIS (ductal carcinoma in situ) component was present and all margins were free of tumour. Fourteen lymph nodes isolated were free of tumour. Pathological stage pT2N0. Immunohistochemistry on the invasive components was positive for estrogen and progesterone receptors, but negative for HER2neu (Figure 2). As a part of the workup for infertility, ultrasound of the scrotum and semen analysis were done which were normal. His BRCA1 and BRCA2 gene testing was also done which do not reveal any mutation. Patient received adjuvant chemotherapy 5-FU, Epirubicin, and Cyclophosphamide three cycles followed by Docetaxel three cycles and is currently on hormonal therapy with regular follow up.

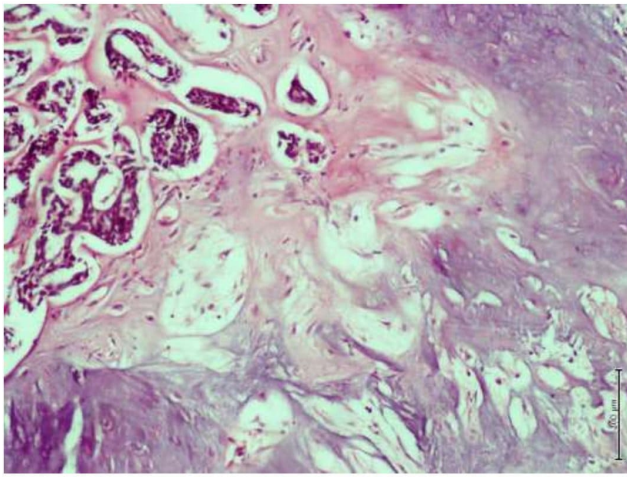


Fig. 1: H & E X 100, shows metaplastic carcinoma with chondromyxoid differentiation and infiltrating neoplastic glands

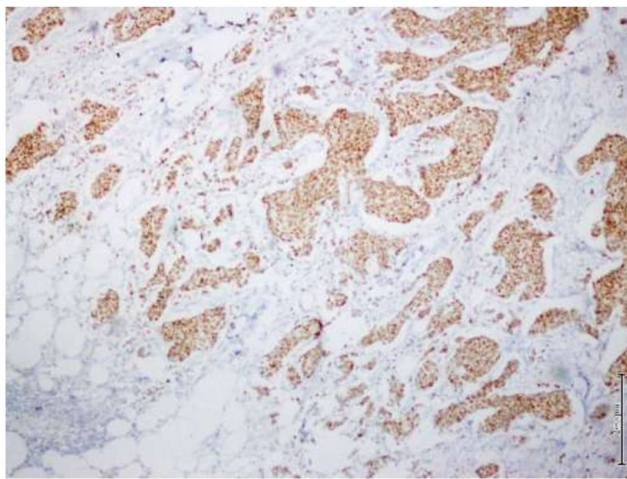


Fig. 2: IHC- Estrogen receptor (ER) shows strong nuclear positivity (100x)

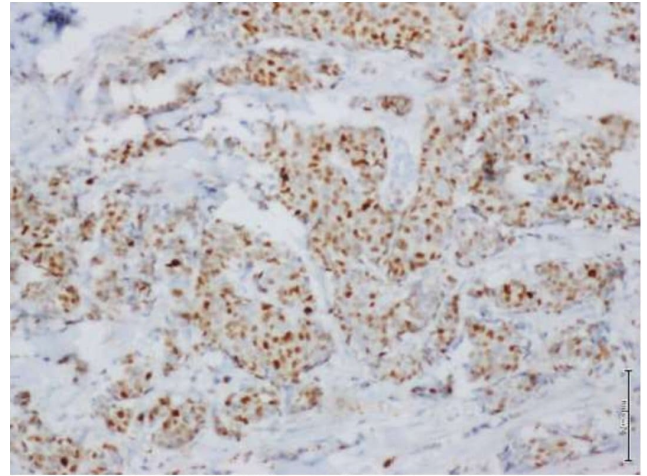


Fig. 3: IHC-Progesterone receptor (PR) shows nuclear positivity (100x)

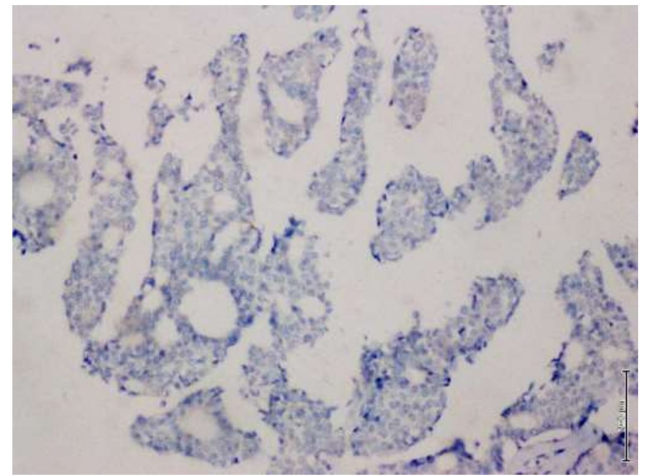


Fig. 4: IHC-HER2 (ERBB2) is negative (100x)

3. Discussion

MPBC is a rare histopathological variety of breast cancer. MPBC is composed of a mixture of epithelial and nonepithelial components. The diagnosis of metaplastic breast carcinoma often requires immunohistochemistry with a cytokeratin panel to distinguish such cases from phyllodes tumours, primary sarcomas, and fibromatoses. The World Health Organization (WHO) classifies MBC into epithelial type and mixed type. Epithelial-type MBC is classified into (1) squamous cell carcinoma, (2) adenocarcinoma with spindle cell differentiation, and (3) adenosquamous carcinoma. Mixed type MBC is classified into (1) carcinoma with chondroid metaplasia, (2) carcinoma with osseous metaplasia, and (3) carcinosarcoma.³

Metaplastic carcinomas of the breast are usually having large tumour size showing rapid growth, and are usually estrogen receptor, progesterone receptor, and HER2/neu

negative.⁴ More than 50% of these tumours are associated either with local or distant metastases (or both) within 5 years, with recurrence indicating very poor prognosis. Surgery is the first treatment to be done for non-metastatic MPBC. Although experience with systemic therapy for metastatic disease is not particularly extensive, it appears that metaplastic breast carcinomas are less responsive to therapy with the conventional regimens used for typical adenocarcinoma of the breast. Only a few studies are there to show the effect of chemotherapy on in this disease. Rehman⁵ described a case of a 75-year-old man with poorly differentiated metaplastic, breast carcinoma (carcinosarcoma) with malignant deposits in lymph nodes. He completed adjuvant chemotherapy and radiation but died within 6 months of surgery. Kuo et al⁶ in a case series of eight patients with metaplastic carcinoma of the breast had one male patient. This 73-year-old male had adenosquamous carcinoma which was oestrogen and progesterone receptor-positive. He was treated with adjuvant tamoxifen and died of distant metastasis 4 months after surgery. Barr and Jane Clayton⁷ reported a case of a 59-year-old man with invasive metaplastic carcinoma right breast, who underwent MRM. It was oestrogen and progesterone receptor-negative, patient received six cycles of 5-fluorouracil, Epirubicin and cyclophosphamide and subsequently radiotherapy to the chest wall and supraclavicular fossa.

The risk of breast cancer in males is attributed to exposure to estrogen or reduced androgen during lifetime. Patients with Klinefelter syndrome are at 14- to 50-time increased risk of having male breast cancer.⁸ When compared to female breast cancer male breast cancer has an earlier median age of onset (53 years vs 60 years). Men harbouring BRCA mutation, especially BRCA2 mutation are at increased risk. Patients usually present with a larger tumour size and higher grade as compared to Inflammatory Ductal Carcinoma (IDC).⁹ MPBC in male patients are rare and description is limited to case reports only.¹⁰

Staging and workup are similar to invasive ductal carcinoma. Histologically MPBCs are characterized by two or more cell types. The ductal carcinomatous epithelium transforms to squamous or spindle cell components or mesenchymal elements.¹¹ They are oestrogen- and progesterone-receptor negative. HER/2 neu is also not expressed in this histological subtype of cancer. They have a poor response to chemotherapy and only a few patients are eligible for hormonal treatment due to the low percentage of ER/PR positivity.^{9,12}

4. Conclusion

Metaplastic breast cancer is a rare and aggressive histological malignancy that accounts for less than one percent of all breast cancers in females and is rarely reported in male patients. MPBC carries a poor prognosis

in comparison to other breast cancer subtypes. MPBC also shows increased locoregional and distant tumour recurrence and is far more aggressive than invasive ductal carcinoma, even when matched for age, stage, and tumour grade. They are usually negative for the presence of estrogen receptor, progesterone receptor, and HER2/neu. MPBC are less responsive to therapy with the conventional regimens used for typical invasive carcinoma of the breast.

5. Source of Funding

None.

6. Conflict of Interest

The authors declare no conflict of interest.

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