

Multicentric Metaplastic Breast Carcinoma with Squamous Differentiation

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ABSTRACT

Metaplastic breast carcinoma is a rare primary breast malignancy. A 45-year-old female patient presented with multicentric lumps in left breast of 6 months duration and history of axillary lymphadenopathy of 2 months duration. Mammography revealed two high density masses with ill defined margins. Fine needle aspiration cytology was positive for duct carcinoma cells. Histo pathologic examination, reported as "Multicentric infiltrating duct carcinoma with squamous differentiation left breast", grade 2. Immunohistochemistry revealed negativity for ER, PR and positivity for HER-2/neu. We are presenting this rare case for clinical, radiological, histopathological and immunohistochemical study.

Keywords: Histological subtype, Uncommon breast malignancies

CASE REPORT

A 45-year-old female, menopausal, presented to Oncosurgery Department at Krishna Hospital and Medical Research Centre, Karad, with six months history of left breast lump and another lump of four month duration. On palpation revealed two, non tender, mobile, firm lumps in upper and lower inner quadrants of left breast. No significant axillary lymphadenopathy was noted. There was no history of nipple discharge. Nipple retraction was noted. She is married since 27 years and having 3 children. There was no family history of breast malignancy. There was no hormonal or history of radiation. She had history of tuberculosis 30 years back. Radiology studies revealed normal chest X-ray and ultrasonography abdomen-pelvis showed normal study. Mammography of left breast showed two high density masses with ill defined margins. Fine needle aspiration cytology was positive for duct carcinoma cells.

After proper counselling and consent from the patient, the operative procedure opted was modified radical mastectomy of left breast. The specimen was sent for further detailed histopathological evaluation.

Gross findings: We received specimen of left modified radical mastectomy totally measuring 23 x 22 x 5 cm and totally weighing 700 gm. Skin flap with nipple areola measuring 17.5 x 5 cm. On external examination, two nodular masses were seen. Skin and areola appear normal [Table/Fig-1]. Nipple appeared retracted. On cut open showed two, grey-white, firm, irregular nodular masses measuring 9 x 7 x 3 cm in upper inner quadrant and another measuring 3 x 2 x 1.5 cm in lower inner quadrant. Two masses were 2.2 cm from each other. Cut section showed grey-white firm masses with focal whitish areas. Areas of haemorrhage and necrosis were noted. Skin and deeper surgical margins were free from tumour.

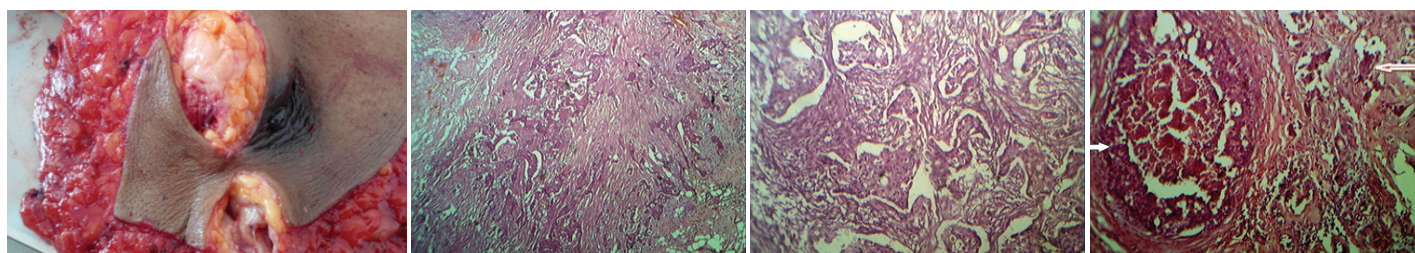
Microscopy findings: Multiple sections from tumour showed

malignant glandular component (IDC) with well differentiated squamous cell carcinoma [Table/Fig-2] showing characteristic polygonal neoplastic cells with moderate amount of eosinophilic cytoplasm with intracellular bridges. In areas, keratin pearls formation was noted in both the masses. This mixed pattern of epithelial tumour was noted in both the masses.

On histopathology, diagnosis of metaplastic breast carcinoma - Infiltrating duct carcinoma - grade II (2+2+2=6 Bloom Richardson grading system) with squamous differentiation was made [Table/Fig-3]. Associated ductal carcinoma in situ - comedo and solid pattern [Table/Fig-4], fibrocystic disease, necrosis, chronic inflammation, elastosis, desmoplasia, calcification, tumour emboli and myxoid change were noted. Left axillary lymph nodes (all 15 lymph nodes) were free from metastasis. Immuno-histochemistry results were ER negative, PR negative and HER2/neu positive.

DISCUSSION

Metaplastic breast carcinoma (MBC) is a rare subtype of invasive breast cancer, which accounts for less than 1% of all breast cancers [1]. This is recognised as a distinct histologic subtype of breast carcinoma having variety of the tumour types of specific elements. Although a rare breast cancer subtype, metaplastic breast carcinoma is of considerable interest due to its clinical behaviour and different pathological heterogeneity as compared to typical breast carcinomas. MBC is a histologically diverse group of malignancies in which adenocarcinoma is found to Co-exist with an admixture of spindle cell, squamous, chondroid or bone forming neoplastic cells [2]. According to WHO classification for breast malignancies, MBC is classified into (a) epithelial type and (b) mixed type. Epithelial type of MBC is further Subclassified into (1) squamous cell carcinoma; (2) adenocarcinoma with spindle cell differentiation and; (3) adenosquamous carcinoma while



[Table/Fig-1]: Gross photograph of left breast showing two masses **[Table/Fig-2]:** Photomicrograph showing breast tumour tissue with glandular and squamous tumour. (H & E, 100x). **[Table/Fig-3]:** Photomicrograph showing infiltrating duct carcinoma with squamous differentiation. (H & E, 100x) **[Table/Fig-4]:** Photomicrograph showing ductal carcinoma in situ with squamous element (H & E, 100x) (thick arrow- DCIS-comedocarcinoma, thin arrow- squamous element)

mixed type MBC is further sub classified into (1) carcinoma with chondroid metaplasia; (2) carcinoma with osseous metaplasia and; (3) carcinosarcoma [3]. Our case is classified in epithelial type of metaplastic breast carcinoma with squamous differentiation.

Clinically metaplastic breast carcinomas more commonly presents as a rapidly growing breast lumps and usually larger than typical breast cancers, generally more than 2 cm [4]. Most previous series have found that MBC are typically large at the time of diagnosis [5]. In our case, it presented with multicentric nodular masses in upper and lower inner quadrants which rapidly enlarged within 6 month.

The three standard techniques of clinical examination of breast lump, radiological evaluation and cytological study (FNAC) were done in our case. On cytology, showed positive for duct carcinoma cells however squamous element was not seen. On histopathology, showed metaplastic breast carcinoma having infiltrating duct carcinoma - grade II with squamous differentiation in both the masses. Associated finding of DCIS - comedo type, tumour necrosis, myxoid change, few keratin pearls, moderate lymphocytic infiltration in stroma and fibrosis were noted. Tumour was not invading skin or deeper surgical margins. There was no evidence of microscopic involvement of the tumour in axillary nodes (Total 15 lymph nodes were examined and were free from metastasis). MBC are usually associated with lower incidence of axillary nodal involvement with documented incidence being 6-26% [2]. The squamous differentiation can range from well to poorly differentiated. Cases of excessive squamous differentiation often contained central cystic degeneration but no pure squamous cell carcinoma were seen. In our case, squamous differentiation was seen in 30% areas. There were no cystic degenerative changes. Tumours with predominantly squamous differentiation most likely represent metaplasia of malignant ductal epithelial cells [6].

Most of series showed MBC infrequently express hormone receptors with ER and PR positivity (0-17%) [2]. In our case, it was immunonegative for ER and PR, but showed immunopositivity for HER-2/neu. Patients with MBC tend to have poor outcomes with

a high risk of recurrence following primary surgery and reported disease free survival rate of 35-62% at median follow-up intervals of 2.5 to 5.4 years [2,7]. In recent study by Rakha et al., [8], it is stated that different subtypes of MBC are associated with distinct outcome, in which spindle, mixed spindle cells and squamous carcinoma were associated with worst outcome. For management of MBC, recent studies demonstrate that this type of malignancy requires targeted treatment to improve its clinical outcome [9].

CONCLUSION

Metaplastic breast carcinoma is a rare histological subtype of invasive breast carcinoma. As in our case, MBC with squamous differentiation which usually presents with large size, shows rapid progression however, has lower rate of axillary node metastasis. Also finding of multicentric metaplastic breast carcinoma is extremely uncommon.

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