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MATRIX PRODUCING MAMMARY CARCINOMA – A RARE BREAST TUMOUR

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ABSTRACT

Matrix producing carcinoma of breast (Metaplastic carcinoma, Carcinosarcoma) is a very rare condition having incidence rate of 0.08 to 0.2% of all malignant breast lesions. In this case, a 50 years old female, admitted in Civil Hospital, Ahmedabad was presented with swelling of right breast. Mammogram and fine needle aspiration cytology suggestive of malignant lesion. Modified radical mastectomy was done and histopathological examination suggestive of matrix producing carcinoma.

Keywords: Matrix producing carcinoma of breast, Metaplastic carcinoma, Carcinosarcoma.

INTRODUCTION

Matrix producing carcinoma (MPC) of breast was first described by Wargotz and Norris in 1989. Matrix producing carcinoma of breast encompass a histologically diverse spectrum, subtype of metaplastic carcinoma defined as an invasive breast carcinoma with a direct transition of carcinoma to cartilaginous or osseous matrix without an intervening spindle cell component. [1] The identification of this entity is important to pathologist and surgeons both considering prognosis differ from other carcinoma of breast. This report highlights one such case with cytomorphological and histopathological correlation and differential diagnosis.

Case History

A 50 years old woman presented with a lump in right breast since 1 year, with history of rapid increase in its size since 2-3 months. Swelling was present in upper outer quadrant. Fine needle aspiration cytology was done which was characterised by an abundant chondroid extracellular matrix with variably admixed carcinomatous and chondroid type cells. Ductal cell carcinoma component was also seen in the form of irregular cluster of highly pleomorphic cells with high N/C (nuclei cytoplasm) ratio, hyperchromatic nuclei with prominent nucleoli. Cytodiagnosis of metaplastic carcinoma was made followed by modified radical mastectomy.

On gross examination, a 4x4x4 cm^3 gray white growth was defined in upper outer quadrant of breast. Base was made up of facia and adipose tissue. Multiple sections were taken. Microscopic examination showed malignant change in both epithelial and stromal component having histology of poorly differentiated invasive ductal carcinoma (figure I) with areas of ductal carcinoma in situ (DCIS) – comedo type (modified Bloom Richardson grade 3). There were also areas of necrosis and numerous abnormal mitotic activities. Stroma showed dense lymphocytic infiltrate. There was a direct transformation of carcinoma

into malignant cartilaginous matrix (figure II). There was also pleomorphic undifferentiated malignant stromal component. All surgical margins, base and nipple areola were free from tumour tissue. Total 13 lymph nodes were dissected out of which 2 lymph nodes showed evidence of metastasis. With these features, a diagnosis of matrix producing carcinoma of breast was made. The tumour was ER-PR (estrogen receptor – progesterone receptor) negative. Final report was given as Matrix Producing Carcinoma, BR grade-3, TNM stage - p T2 N1 Mx.

DISCUSSION

Matrix producing carcinoma is a very rare breast neoplasm accounting for less than 0.2% of all breast malignancies. [2] It is a unique subtype of metaplastic carcinoma, characterised by the existence of ductal carcinomatous component with a direct transition to areas showing cartilaginous or osseous differentiation, lacking an interspersed spindle cell component. [1] Wargotz and Norris [1] first described this entity in their study of 26 cases of metaplastic carcinomas. They found that carcinomatous component was moderately to poorly differentiate with a frequent association of intraductal component. The nature of matrix was variable, ranging from bland cartilage to a typical chondroid to osteoid to overt bone formation. The matrix was made up of acid mucopolysaccharides that stained metachromatically with Alcian blue and Aldehyde fuschin and was resistant to hyaluronidase and diastase. It is generally hormone receptor negative and present with larger tumour size, less nodal involvement and higher tumour grade compared with invasive ductal carcinoma. So matrix producing carcinoma is generally treated more aggressively. [3]

Ultra-structural analysis of matrix producing carcinoma supports the evidence that the tumour cells are of epithelial & myoepithelial derivation. [1] Myoepithelial cells differentiate along mesenchymal lines and produce a gamut of matricial appearance. After the advent of immunohistochemistry (IHC), it is now accepted that metaplasia of epithelial elements of carcinoma gives these lesions pseudosarcomatous appearance. [4] Giemsa stained smears demonstrate the extracellular metachromatic stromal elements more clearly than papanicolau stained smears. [5] The spectrum of differential diagnosis to be considered which included number of benign and malignant entities like- malignant fibroepithelial lesions with myxochondroid stroma and true sarcoma of breast with cartilaginous metaplasia. [6] Metaplastic carcinoma is a heterogeneous group of tumour that also includes low grade fibromatosis like spindle cell carcinoma, sarcomatoid carcinoma, metaplastic carcinoma with osteoclastic giant cells, adenosquamous carcinoma.

The heterologous chondroid component of matrix producing carcinoma can be present in 2 patterns. One displays a typical structure of low grade cartilage and second shows epithelial tumour cells embedded in homogenous eosinophilic extracellular matrix giving appearance of chondroid aura. [7] Cartilaginous metaplasia may be uncommonly seen in other mammary tumors like fibroadenoma, phyllodes tumour and pleomorphic adenoma. The unequivocal presence of carcinoma is helpful distinguishing feature in such cases.

In the original description of matrix producing carcinoma by Wargotz and Norris, [1] the authors concluded that the outcome of patients with matrix producing carcinoma is not significantly different from those with invasive ductal carcinomas of similar grade and stage. However one more recent study by Down-Kelly Erinn DO et al. [8] suggests that Matrix producing carcinomas are more aggressive tumours. Study also tells that they examined cases of matrix producing carcinoma diagnosed and evaluated whether the local and distant recurrence rates for matrix producing carcinoma were significantly different from those

of invasive ductal carcinomas. They also evaluated that specific histological characteristics of matrix producing carcinoma were associated with tumour recurrence.

CONCLUSION

In summary, diagnosis of matrix producing carcinoma is important though it is a rare variety of metaplastic carcinoma because it is an aggressive variant with increased loco regional and distant tumour recurrence compared with invasive ductal carcinomas.

REFERENCES

1. Wargotz E, Norris H. Metaplastic carcinoma of breast: matrix producing carcinoma. Histopathology 2001; 39:518-83.
2. Feder JM, de paredes ES, Hogge JP, Wilken JJ. Unusual breast lesions radiological and pathological correlation. Radiographics 1999; 19:11-26.
3. Ninomiyo J, Oyama I, Horiguchi J, Koilbuchi Y, Yashida T, Ijima K et al. Two cases of breast cancer with cartilaginous and osseous metaplasia. British Journal of Cancer 2005: 12; 52-6.
4. Saxena S, Bansal A, Mohil RS, Bhatnagar D. Metaplastic carcinoma of breast: A rare breast tumour. Indian Journal of pathology and microbiology, 2004; 47:217-20.
5. Straalhof D, yakimets WW, Mourad WA. FNAC of sarcomatoid carcinoma of breast: A cytological overlooked neoplasm. Diagnostic cytopathology, 1997; 16:242-6.
6. Fulciniti F, Mansueto G, Vetrani A, Accurso A, Fortunato A, Palmbini L. Metaplastic breast carcinoma on FNAC samples: A report of three cases. Diagnostic cytopathology, 2005; 33:205-9.
7. Kinkor Z, Boudova L, Ryska A, Kajok, Svee A. Matrix producing carcinoma of breast with myoepithelial differentiation. Ceska Gynekol, 2004; 69:229-36.
8. Down-Kelly Erinn DO et al. Matrix producing carcinoma of breast – An aggressive subtype of a Metaplastic carcinoma, The American Journal of Surgical Pathology, April 2009, Volume 33, Issue 4, Page 534 – 541.

Figure I: Highly pleomorphic cells of ductal carcinoma

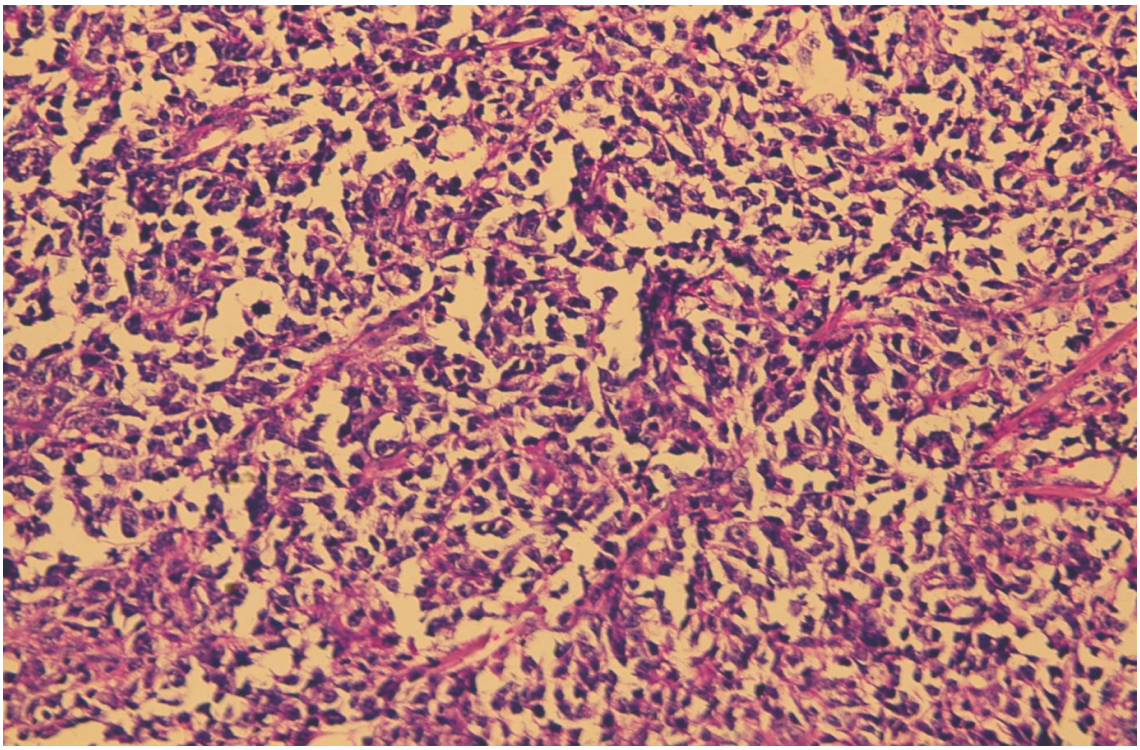

Figure II: Malignant ductal cells with background of malignant cartilaginous matrix