Original Research Paper

Volume-9 | Issue-6 | June-2019 | PRINT ISSN No. 2249 - 555X

Pathology

METAPLASTIC BREAST CARCINOMA WITH UNDIFFERENTIATED SPINDLE CELL SARCOMA AND SQUAMOUS METAPLASIA: A CASE REPORT

Dr. Muktanjalee Deka — Associate Professor, Department of Pathology, Gauhati Medical College and Hospital

Dr. Tulika Thakuria* — Postgraduate Trainee, Department of Pathology, Gauhati Medical College and Hospital *Corresponding Author

ABSTRACT

INTRODUCTION: Metaplastic breast carcinoma(MBC)s are heterogeneous group of neoplasms accounting for 0.2-5.0% of all breast carcinomas. Incidence is <1% of all invasive breast carcinoma. Considering only the tumours with mesenchymal metaplasia, MBC accounts for approximately 1% of invasive breast carcinoma.

CASE REPORT: We report a case of 30-year-old female presented with a gradually progressive palpable mass in the right breast for 6 months. FNAC of the mass showed loosely cohesive clusters, sheets and singly dispersed hyperchromatic, pleomorphic epithelial cells and spindle cells. Histopathological examination of the tumour showed an admixture of infiltrating ductal carcinoma with spindle cell sarcoma and focal squamous metaplasia. Based on these features the diagnosis of Metaplastic breast carcinoma with undifferentiated spindle cell sarcoma and squamous metaplasia was made. The diagnosis was confirmed with immunohistochemistry.

CONCLUSION: MBCs are rare primary breast malignancy, aggressive, chemoresistant and carry a poor prognosis.

KEYWORDS : Metaplastic breast carcinoma, Immunohistochemistry, Spindle cell sarcoma.

INTRODUCTION

Metaplastic breast carcinomas account for 0.2-5.0% of all invasive breast cancers, considering only the tumours with mesenchymal metaplasia it accounts approximately 1% of invasive breast carcinomas(Syed A. Hoda, 2014; *WHO Classification of Tumours of the Breast*, 2012). The incidence is <1% of all invasive breast carcinoma(Yerushalmi, Hayes, & Gelmon, 2009). Usually diagnosed in women >50 years of age, mean age being 61.1 years(Pezzi et al., 2007; Yerushalmi et al., 2009). From the literature it is evident that Metaplastic carcinoma typically affects women, so far only one case of metaplastic carcinoma in a male patient has documented(Chen et al., 2011; Syed A. Hoda, 2014).

CASE REPORT

A 30years old female presented with a palpable mass in the right breast for a period of 6 months which was insidious in onset, gradually progressive in size and right sided nipple discharge with no other associated symptoms or no family history. Fine Niddle Aspiration Cytology(FNAC) was performed and hypercellular smears showed loosely cohesive clusters, sheets and singly dispersed hyperchromatic, pleomorphic epithelial and spindle cells. Epithelial cells had a high nucleo-cytoplasmic ratio, enlarged nuclei with granular chromatin and prominent centrally located nucleoli. Spindle cells had fusiform nuclei with the delicate wispy cytoplasmic process. Background showed chronic inflammatory cells predominantly lymphocytes. Above cytomorphological features show possibility of Metaplastic breast carcinoma.

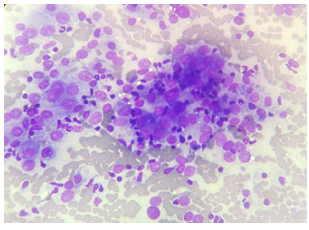

Fig1. 400x view, Epithelial cells and spindle shaped cells(MGG Stain)

Right modified radical mastectomy was done and the specimen was sent to Department of Pathology, GMCH for the histopathological examination. On gross examination of the specimen, a tumour mass was detected having a measurement of 5.5x4.5x3.5cm^3. The Cut surface of the tumour was solid, greyish white with areas of necrosis and haemorrhage. Histopathological examination of the tumour showed an admixture of infiltrating ductal carcinoma and undifferentiated spindle cell sarcoma. Epithelial cells were hyperchromatic with marked nuclear pleomorphism. Mitotic count was 10 per 10 high power fields. Modified Bloom Richardson score of IDC was 8(3+3+2). Bipolar spindle cells were hyperchromatic, pleomorphic and arranged in nonspecific pattern. Squamous metaplasia was noted focally. A moderate inflammatory cell infiltrate consisting of mature lymphocytes and areas of necrosis was also noted. The case was diagnosed as Metaplastic breast carcinoma with undifferentiated spindle cell sarcoma and squamous metaplasia. Immunohistochemical examination was performed with tumour cells showing CK positivity and ER, PR, Her2neu negativity.

Fig.2. Grossly tumour mass is solid, greyish white in colour.

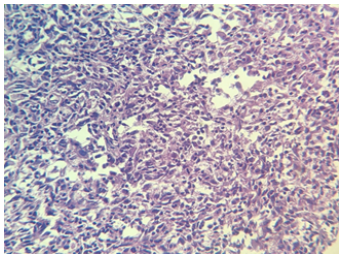

Fig.3. 400x view, Hyper chromatic, pleomorphic spindle cells (H&E Stain).

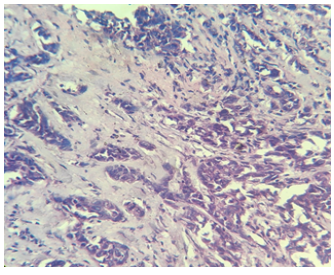

Fig.4. 400x view, Infiltrating ductal carcinoma (H&E Stain).

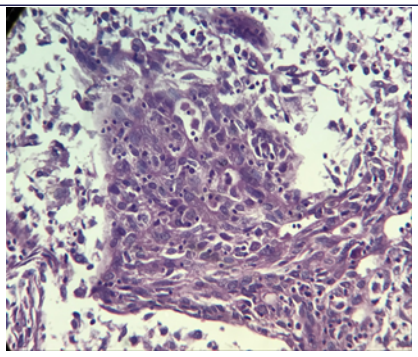

Fig.5. 400x view, Squamous metaplasia (H&E stain).

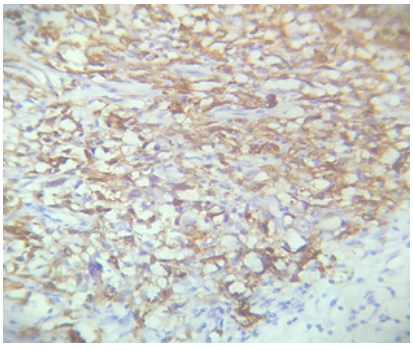

Fig.6. 400x view. shows CK positivity.

DISCUSSION

Metaplastic carcinoma of breast encompasses a group of neoplasms characterized by differentiation of the neoplastic epithelium into squamous cells and/or mesenchymal looking elements, including but not restricted to spindle, chondroid, osseous, and rhabdomyoid cells(WHO Classification of Tumours of the Breast, 2012). The initial clinical presentation of a metaplastic carcinoma is typically as a palpable mass showing rapid growth over a short period of time. Large lesions can be complicated by fixation to the skin or chest wall and skin ulceration(Oberman, 1987; Wargotz, Does, & Norris, 1989). Most tumors are unilateral, but one patient with bilateral metaplastic carcinoma has been described(Kaufman, Marti, Gallager, & Hoehn, 1984). The size of metaplastic mammary carcinomas ranges from 0.5 to 24cm. The median size of metaplastic spindle cell carcinomas and of carcinomas with areas of spindle cell metaplasia is 5.2 and 5.5 cm respectively(Syed A. Hoda, 2014). Metaplastic carcinoma is subdivided into two categories:

(a) Carcinomas with squamous and/or spindle cell metaplasia.
(b) Carcinomas with heterologous metaplasia that have a mesenchymal phenotype, including chondroid and osseous metaplasia(Syed A. Hoda, 2014).

Some tumors exhibit more than one type of growth. The most common combined configuration includes squamous and undifferentiated spindle cell areas, sometimes with a storiform pattern(Syed A. Hoda, 2014; Wargotz et al., 1989). The presence of DCIS strongly supports the diagnosis of metaplastic carcinoma. Chronic inflammation is often present both at the periphery of metaplastic carcinomas and dispersed within the neoplasm(Syed A. Hoda, 2014). Metaplastic spindle cell carcinoma of the breast typically grows in between non-neoplastic ducts and lobules, entrapping native mammary epithelial elements within the tumor, especially at its periphery(Syed A. Hoda, 2014).

Immunohistochemical analysis of metaplastic carcinomas has revealed that >90% of these cancers are negative for estrogen receptor(ER), progesterone receptor(PR) and HER2neu and express keratins 5/6 and 14, and EGFR(WHO Classification of Tumours of the Breast, 2012). These tumors have a high metastatic potential. More than 50% of these tumors are associated with local or distal recurrence. The spread is hematogenous type rather than lymphatic—(Yerushalmi et al., 2009). Metaplastic breast cancers have lower response rates to conventional adjuvant chemotherapy and a worse clinical outcome. The median survival from the detection of metastatic disease was 8–12 months(Luini et al., 2007; Syed A. Hoda, 2014).

CONCLUSION

Metaplastic breast carcinomas are rare primary breast malignancy. Being aggressive and chemoresistant, it carries a poor prognosis. The differential diagnosis of metaplastic carcinoma with spindle cells (with or without squamous morphology) includes phyllodes tumour, fibrosarcoma, and high-grade pleomorphic sarcoma. Combination of histopathological and immunohistochemical examination is mandatory for diagnosis.

REFERENCES

1. Chen, I., Lin, C., Huang, C., Lien, H., Hsu, C., Kuo, W., . . . treatment. (2011). Lack of efficacy to systemic chemotherapy for treatment of metaplastic carcinoma of the breast in the modern era. 130(1), 345.
2. Kaufman, M. W., Marti, J. R., Gallager, H. S., & Hoehn, J. L. J. C. (1984). Carcinoma of the breast with pseudosarcomatous metaplasia. 53(9), 1908-1917.
3. Luini, A., Aguilar, M., Gatti, G., Fasani, R., Botteri, E., Brito, J. A. D., . . . treatment. (2007). Metaplastic carcinoma of the breast, an unusual disease with worse prognosis: the experience of the European Institute of Oncology and review of the literature. 101(3), 349-353.
4. Oberman, H. A. J. T. A. j. o. s. p. (1987). Metaplastic carcinoma of the breast. A clinicopathologic study of 29 patients. 11(12), 918-929.
5. Pezzi, C. M., Patel-Parekh, L., Cole, K., Franko, J., Klimberg, V. S., & Bland, K. J. A. o. S. O. (2007). Characteristics and treatment of metaplastic breast cancer: analysis of 892 cases from the National Cancer Data Base. 14(1), 166-173.
6. Syed A. Hoda, E. B., Frederick C. Koerner, Paul P. Rosen. (2014). Rosen's breast pathology (Fourth ed.): Lippincott Williams & Wilkins, a Wolters Kluwer business.
7. Wargotz, E. S., Does, P. H., & Norris, H. J. J. H. p. (1989). Metaplastic carcinomas of the breast. II. Spindle cell carcinoma. 20(8), 732-740.
8. WHO Classification of Tumours of the Breast. (2012). (Sunil R. Lakhani, Ian O. Ellis, Stuart J. Schnitt, Puay Hoon Tan, & M. J. v. d. Vijver. Eds. 4th ed.): International Agency for Research on Cancer (IARC):Lyon.
9. Yerushalmi, R., Hayes, M., & Gelmon, K. J. A. o. o. (2009). Breast carcinoma—rare types: review of the literature. 20(11), 1763-1770.