Journal Homepage: - www.journalijar.com
INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)
Article DOI: 10.21474/IJAR01/5454
DOI URL: http://dx.doi.org/10.21474/IJAR01/5454

RESEARCH ARTICLE

DILEMMAS IN THE DIAGNOSIS OF METAPLASTIC BREAST CARCINOMA.

Nawaf Khurshid Sheikh, Bavana Raina, Nidhi Gupta, Arvind Khajuria and KC Goswami.
Department of Pathology, Acharya Shri Chander College of Medical Sciences & Hospital, Jammu.

Manuscript Info

Manuscript History

Received: 17 July 2017
Final Accepted: 19 August 2017
Published: September 2017

Abstract

Introduction:-

Metaplastic carcinoma of breast is an aggressive and rare tumor with incidence of 1% of all breast cancers and it has a poor prognosis (1). It is a disease of the elder population, but there are young patients reported in the literature (2). Spindle cell carcinoma is a rare sub-type of the metaplastic carcinoma. Over 90% of metaplastic carcinoma of breast are ER, PR, and HER2/neu negative ("triple negative") (3).

Metaplastic carcinoma of breast is a generic term for breast carcinoma of ductal type in which the predominant component of the neoplasm has an appearance other than epithelial and glandular; usually a spindle cell component predominates. This case is a diagnostic challenge essentially when the tumor is mainly composed of sarcomatous elements and no ductal cell component is seen. Surgical removal is the first line of intervention.

Case study:-

A 35 years old young female patient presented to the OPD in General Surgery with chief complaints of a fast growing painless lump in the inferolateral quadrant of left breast since two months. There was no associated history of nipple discharge, fever, or itching. No significant family history. On clinical examination a firm oval shaped non tender swelling measuring 9 x 8 cm was reported. She had already undergone mammography and FNAC at a private center. Mammographic findings were highly suspicious of malignancy and reported as BI-RADS 4C (Fig.1); FNAC reported as ductal carcinoma (Fig. 2). We admitted the patient and carried further investigation for surgery. A Modified radical mastectomy with lymph node dissection was done and sent for histopathological examination.

Results:-

A modified mastectomy specimen with lymph node dissection was received in the Histopathology Section, Department of Pathology. Gross examination of specimen revealed a growth 7 x 6 cm in lower outer quadrant of breast. The growth was greyish white in color, firm in consistency and not adherent to the overlying skin. The specimen was fixed in 10% formalin. Paraffin sections were prepared and stained with haematoxylin and eosin. 9 lymph nodes were retrieved from the specimen. Microscopic examination of the sections from the growth revealed a sarcomatous morphology with predominantly spindle cells in fascicles with focal storiform pattern, moderate nuclear atypia with 6-8 mitoses/10 hpf (Fig.3). The adjoining breast tissue and entrapped ducts showed moderate atypical ductal hyperplasia. All lymph nodes (0/9), skin margins, nipple and areola were free of tumor invasion. No vascular and perineural invasion was seen. Based on these histological features a differential diagnosis of (1)

Corresponding Author:- Nawaf Khurshid Sheikh.
Address:- Department of Pathology, Acharya Shri Chander College of Medical Sciences & Hospital, Jammu.

Sarcoma high grade (2) Myofibroblastoma (3) Malignant phylloides tumor and (4) Metaplastic carcinoma with high grade spindle cell component was made. Immunohistochemistry revealed pan-cytokeratin and vimentin expressions so patient was diagnosed as metaplastic breast carcinoma for further management.

Discussion:-

Metaplastic breast carcinomas are rare tumors. Among malignant mammary neoplasms, term "metaplasia" has traditionally been reserved for tumors that exhibit microscopic structural changes that diverge from glandular differentiation, such as squamous, spindle cell, chondroid, and osseous morphology. These phenotypic alterations are the expression of genotypic properties that are not typical of normal mammary epithelial and myoepithelial cells, but result from a process of genetic dedifferentiation. The scientific term used for this phenomenon is "epithelial to mesenchymal transition"(4). The extent of metaplastic changes in breast carcinoma varies from isolated microscopic foci in an otherwise typical mammary carcinoma, to complete replacement of glandular growth by the metaplastic phenotype as in the present case. However, in most tumors areas of infiltrating ductal carcinoma even though small and focal are present but in the present case even on thorough sampling, no malignant ductal component, foci of chondroid or osseous morphology could be seen. The sarcoma like component may resemble a high grade sarcoma, myofibroblastoma or malignant phylloides tumor.

Fig.1:- Hypoechoic well defined mass in left inferolateral quadrant Breast.

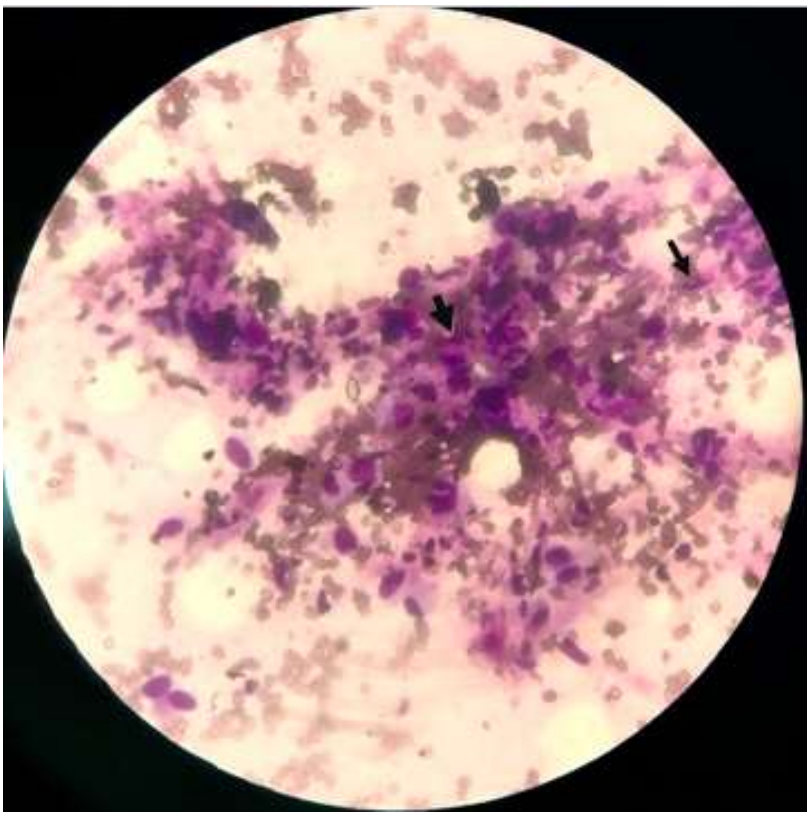

Fig.2:- Pleomorphic ductal cells with spindle cells. MGG (40x).

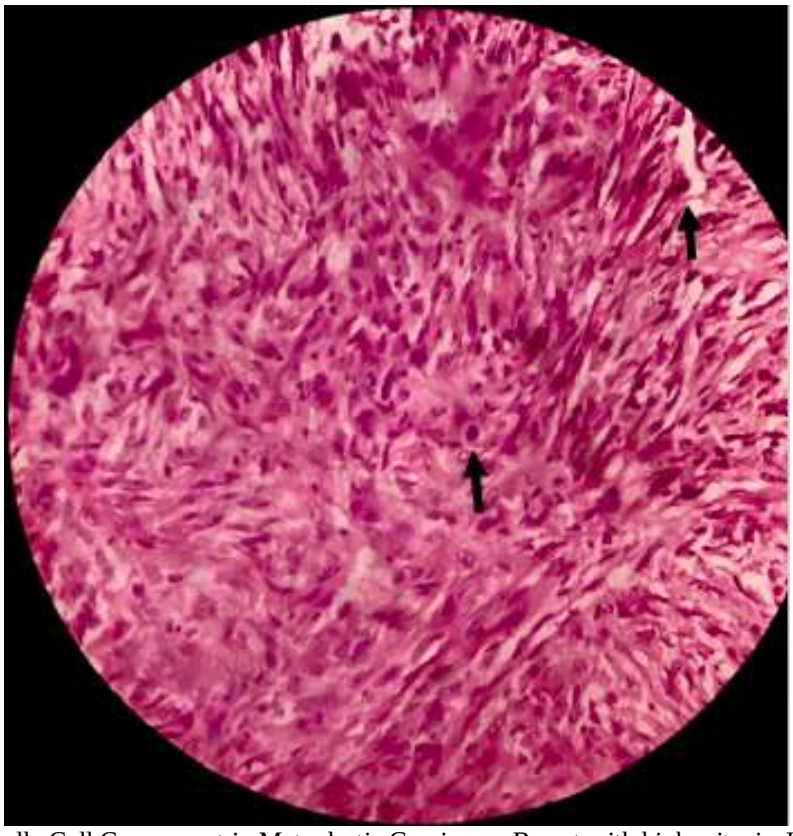

Fig.3:- Spindle Cell Component in Metaplastic Carcinoma Breast with high mitosis. H&E (40x).

A palpable mass is the presenting symptom in most of the patients, but it can also be diagnosed after an abnormal mammographic report. Metaplastic breast carcinoma is frequently a self-limited disease, but it can be infiltrative. Distant metastasis of spindle cell breast carcinoma usually occurs hematogenously and the lung is the most frequent site for distant metastasis (5). Most metaplastic carcinomas are negative for ER and PR & HER 2/neu and are managed by radical mastectomy followed by radiation and chemotherapy. The present case was doing well in post mastectomy period and was receiving radiotherapy at present. Immunohistochemistry is of particular value in evaluation of the tumors that lack evidence of carcinoma. The sarcoma like elements of these tumors acquire vimentin positivity and other features of mesenchymal nature (phenotypical switch), it is always possible to demonstrate epithelial markers (wide spectrum cytokeratin positivity) in at least occasional cells.

Conclusion:-

A dilemma in the diagnosis of metaplastic carcinoma of breast is not unusual. Spindle cell metaplastic breast cancer must be considered in differential diagnosis of breast cancers in case of any pure mesenchymal tumor even if the epithelial components cannot be seen histologically. Mammography is not helpful if there is no element of chondroid and osseous metaplasia. Immunohistochemistry is of particular value in evaluation of the tumors that lack evidence of carcinoma.

Careful evaluation of sections is warranted as metaplastic breast cancer is characterized by poor prognosis. A metaplastic component representing more than 95% of the tumor is associated with decreased disease free survival.

Acknowldgement
Authors acknowledge the assistance provided by the Department of Pathology Ascoms, Jammu for the histopathological reporting.

References:-

1. Patrikar A, Maimoon S, Mahore S, Akhtar MA, Wilkinson A. Metaplastic carcinoma of breast (carcinosarcoma variant): a case report. Indian J Pathol Microbiol 2007; 50(2):396-98.
2. Pezzi CM, Patel-Parekh L, Cole K, et al. Characteristics and treatment of metaplastic breast cancer. analysis of 892 cases from the National Cancer Data Base. Ann Surg Oncol 2007;14:166-173.
3. Hennesy BT, Giordano S, Broglio K, Duan Z et al. Biphasic Metaplastic Sarcomatiod carcinoma of breast. Annals of Oncology 2006;17:605-13.
4. Kalluri R. Weinberg RA. The basics of epithelial-mesenchymal transition/ Clin Invest 2009;119:1420-1428.
5. **Ann Surg Oncol 2007;14:166, Breast Cancer Res Treat 2007;101:349**