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A Rare Presentation of Metaplastic Breast Carcinoma as Breast Abscess

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Abstract: *Metaplastic breast carcinoma (MBC) is a rare neoplasm containing a mixture of epithelial and mesenchymal elements. The biphasic pattern containing both elements is common and monophasic pattern with spindle cell component alone is very rare. Metaplastic carcinoma carries a prognosis dissimilar to that of ductal carcinoma which is worser. This is the case of a 50 year old patient with MBC presenting as breast abscess. A thorough literature search has revealed paucity of data regarding spindle cell variant of MBC presenting as breast abscess.*

Keywords: *Metaplastic breast carcinoma, Spindle cell Carcinoma, Breast Abscess.*

I. Introduction

Metaplastic breast carcinoma (MBC) is a rare neoplasm containing a mixture of malignant epithelial and mesenchymal elements(biphasic). It represents as little as 0.02% of all breast malignancies(2).The epithelial component is usually ductal carcinoma but may include other variants like squamous carcinoma. The mesenchymal component is usually composed of non-specific malignant spindle cells but may include differentiated sarcomas likefibrosarcoma, leiomyosarcoma and osteogenic sarcoma [1]. Monophasic metaplastic carcinomas with spindle cell component are included under spindle cell carcinomas. A thorough literaturesearch revealed a number of case reports where such tumours have presented as a breast lump, but this is the first report of MBC,spindle cell variant presenting as a breast abscess.

II. Case History

A 50 year-oldpostmenopausalwoman of Telangana region presented with a three week history of rapid swelling, pain and erythema in her right breast. There was no history of trauma, and symptoms had not settled with oral antibiotics. She had never taken hormone replacement therapy. She had a low grade pyrexia, but was otherwise well. On examination, her entire right breast was erythematous, warm , swollen, fluctuant and pointing in the outer lower quadrant. The right nipple was inverted since her symptoms began. Initial investigations revealed raised inflammatory markers and a neutrophillia. She also had a raised alkaline phosphatase levels .Ultrasound examinationshowed multiple loculations containing thick pus.

An initial diagnosis of a breast abscess was made, and needle aspiration was attempted although this did not yield pus.Atypical oval to spindle shaped cells were seen in the background of inflammatory cells.An inflammatory process co-existing with malignancy was suspected and a biopsy was advised(Fig 1).The abscess was drained, and biopsy of the residual lesion was done.

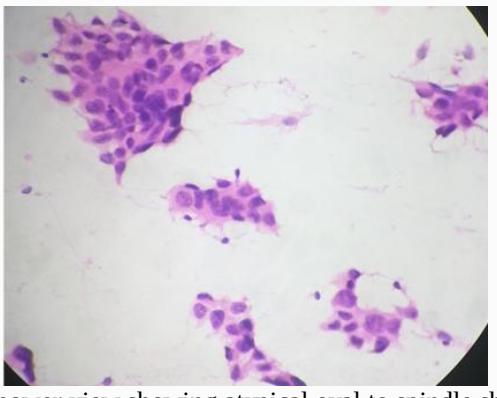

Fig 1 –FNAC high power view showing atypical oval to spindle shaped cell clusters.

Histology showed tumour (2.5× 2× 1 cm), invading the breast and muscle, with extensive vascular and ymphatic invasion.(Fig 2,3,4).

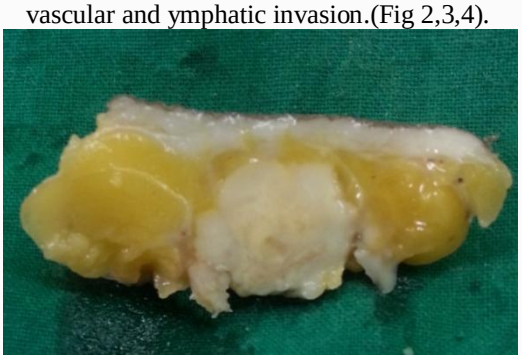

Fig 2 showing Gross specimen demonstrating grey white circumscribed tumor in the center along with the adjacent fatty tissue of the breast

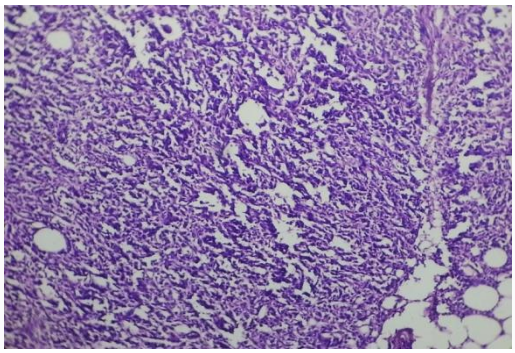

Fig-3 showing tumor cells arranged in diffuse sheets[low power view]

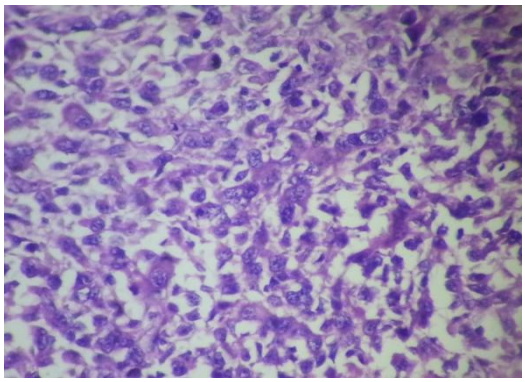

Fig-4 showing individual spindle shaped tumor cells with moderate pleomorphism ,hyperchromatism and prominent nucleoli.

Spindle cells were triple negative(oestrogen,progesterone,HER-2neu) but were cytokeratin and vimentin positive.(Fig5,6)

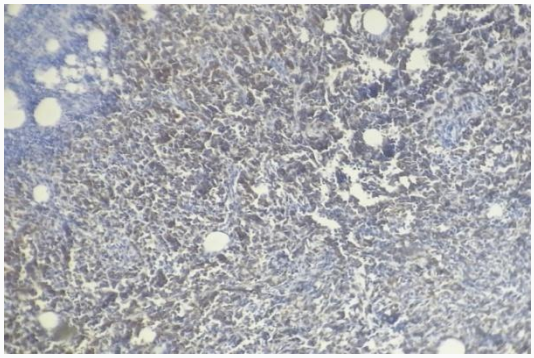

Fig-5 showing cytokeratin positivity of spindle cells

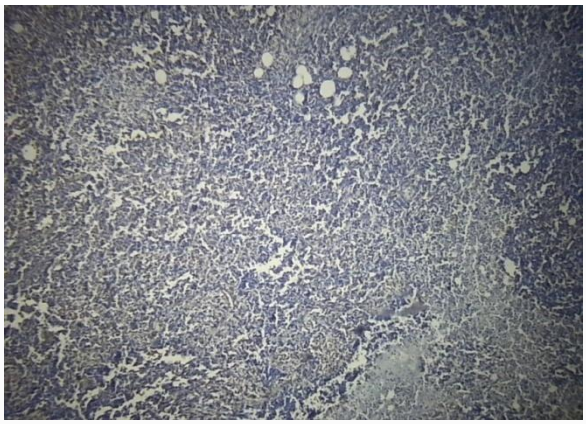

Fig-6 showing vimentin positivity of spindle cells

This confirmed the diagnosis ofMBC,spindle cell variant.
The patient was later subjected to thorough search for any lymphatic and/or vascular metastases,No lymph node involvement was observed but bone metastases were detected.

III. Discussion

The presentation of malignancy as a breast abscess is well described [3] however to our knowledge this is the first reported case of MBC,spindle cell variant presenting in this way.

Metaplastic breast cancer is a heterogeneous disease. Metaplastic sub-types have been difficult to isolate. Because of the rarity not a lot of research has been done on these tumors.Three recently published series over 13, 11 and 16 years yielded only 21, 19 and 43 patients respectively [4-6]. There is still quite a bit of discussion on how to classify the sub-types and how to describe them most precisely. In 1989 a detailed study of MBC was done by Wargotz and Norris and The World Health Organization (WHO) in 2011 came up with a new and more accurate categorization of MBC[7-12].Wargotz and Norris divided MBC into five sub-types asMatrix-producing carcinoma,spindle-cell carcinoma;Carcinosarcoma;Squamous cell carcinoma;Osteoclastic giant cell.

The WHO classified the sub-types as Low-grade adenosquamouscarcinoma,Fibromatosis-like metaplasticcarcinoma,Squamous cell carcinoma ,Spindle cell carcinoma ,Carcinoma with mesenchymal differentiation ,Chondroid differentiation ,Osseous differentiation ,Other types of mesenchymal differentiation and Myoepithelial carcinoma.

The mesenchymal element involved is important in determining outcome [2].Spindle cell carcinoma of the breast (SpCC) is characterized by a histology that shows a predominant spindle cell pattern. The spindle cells may be benign appearing low-grade cells or may have a high-gradesarcomatoid appearance. Although ductal, lobular and squamous patterns may also be present, sometimes there is a pure spindle cell pattern, and the diagnosis may be difficult by routine H&E, especially on needle core biopsies. The differential diagnosis includes other spindle cell lesions, such as primary sarcoma, Nodular fasciitis, Myofibroblastic lesions, Phyllodes tumor, and Inflammatorypseudotumor[13]. Immunohistochemistry can be very helpful. The spindle cells are generally positive for Vimentin and Cytokeratin. S100 may be positive[14,15].

Wargotz et al, in 1988 [8]reported 100 cases of SpCC but one caveat with this study is that a high percentage of the cases contained a conventional infiltrating ductal or intraductal component.

Two more recent studies have examined series of spindle cell carcinomas of the breast. As this entity is rare, the numbers of cases were small, but they nonetheless are an important attempt to further characterize the behavior of these tumors. Khan et al [17] reported 19cases in a 15 year period. Six of the tumors contained a component of conventional carcinoma, usually infiltrating ductal. Fifteen of the tumors were high grade, and 4 were intermediate grade. Carter et al [16] reported 29 cases in a 10 year period. All cases contained greater than 80% spindle cell component.

IV. Conclusion

Metaplastic carcinoma of the breast is an extremely rare malignancy and the spindle cell type has never before been reported as presenting as a breast abscess. The prognosis is predicted to be worse than for conventional duct cell carcinomas and may behave similar to other triple negative carcinomas

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