

Spindle Cell Carcinoma - A Rare Variant of Metaplastic Carcinoma of Breast; A Case Report with Review of Literature

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Abstract: *Metaplastic carcinoma comprises of a rare and heterogenous group of breast cancers characterised by differentiation of neoplastic epithelium into squamous cells and/or mesenchymal looking elements. Spindle cell carcinoma is a rare variant of metaplastic carcinoma which shows predominantly spindle cells. It has a poor prognosis with a high rate of local recurrence and distant metastasis. We present a rare case of spindle cell carcinoma of the breast in a 65 year old female patient to highlight its rare occurrence and challenging diagnosis as well as poor outcome.*

Keywords: Breast cancer, Immunohistochemistry, Metaplastic carcinoma, Spindle cell carcinoma

1. Introduction

Metaplastic carcinoma of the breast is a very rare type of breast cancer which accounts for 0.3 % of all breast cancers [1]. It shows adenocarcinoma with areas of metaplasia like squamous, spindle, osseous or chondroid pattern. Spindle cell carcinoma is a rare type of metaplastic carcinoma which shows predominantly spindle cells [2]. The diagnosis is based on histopathological examination and immunohistochemistry profile.

We present a case of spindle cell carcinoma of breast in a 65 year old female patient to highlight its rarity, biological behaviour and distinct histopathological features.

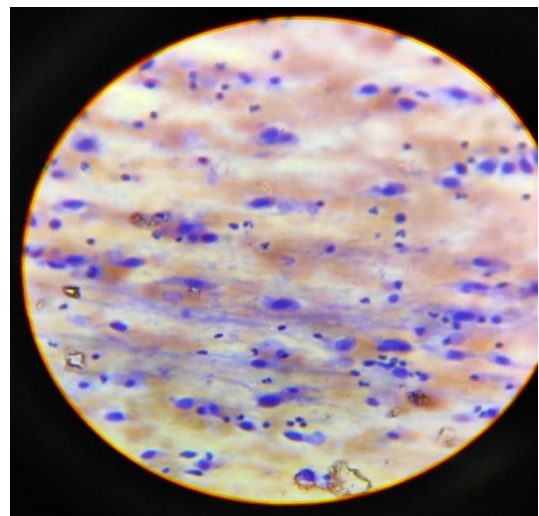
2. Case Report

A 65 year old female patient presented with lump in the right breast since 2 months. Lump was painless, firm and increased rapidly in size. Sonomammography revealed a lesion in right breast; ill-defined, non circumscribed, measuring 4.8 x 3.1 x 2.8 cm, infiltrating adjacent tissue, with no areas of calcifications, highly suspicious of malignancy with right axillary lymphadenopathy.

Chest X ray and ultrasonography of the abdomen and pelvis revealed no evidence of metastatic focus.

Fine needle aspiration cytology of the lump revealed spindle shaped to pleomorphic neoplastic cells which were scattered singly showing bizarre nuclei with absent bare nuclei. Considering these features, the diagnosis offered was malignant spindle cell tumor.

Figure 1



Photomicrograph of FNAC smear-Pleomorphic to spindle-shaped neoplastic cells scattered with bizarre nuclei (400 X Giemsa stain).

Right modified radical mastectomy was done with right axillary clearance and specimen was received for histopathological examination.

Gross examination revealed a firm tumor measuring 4.5 x 4.2 x 3.8 cm. Tumor had infiltrating borders. Cut section was grey white. Nine axillary lymph nodes were dissected, the largest lymph node measuring 1 x 0.8 x 0.3 cm.

Figure 2

Gross examination –
Grey white tumor with infiltrating border.

Microscopy of tumor revealed purely spindle shaped neoplastic cells scattered singly as well as seen in loose clusters. These cells showed enlarged pleomorphic nuclei with increased mitosis and very scanty cytoplasm. Foci of invasive carcinoma or ductal carcinoma in situ were not seen with extensive sampling. Overlying skin and surgical margins were free from tumor. Out of the nine axillary lymph nodes dissected, metastasis was seen in two lymph nodes.

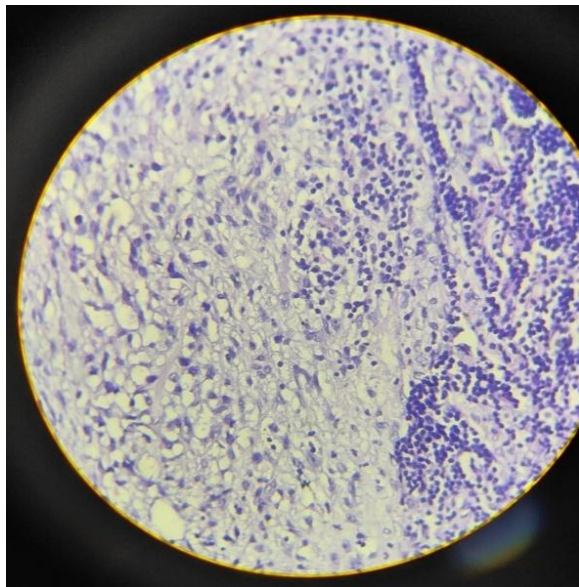
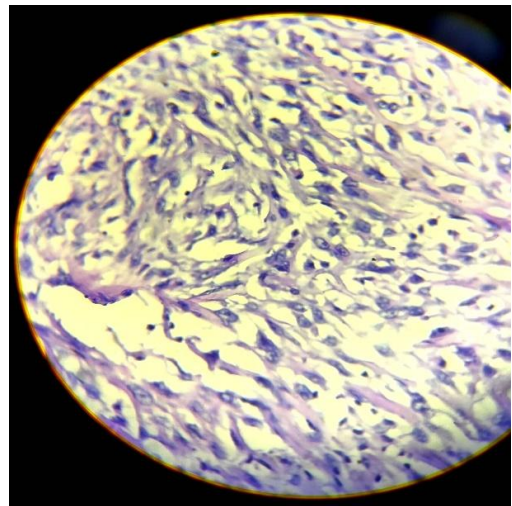
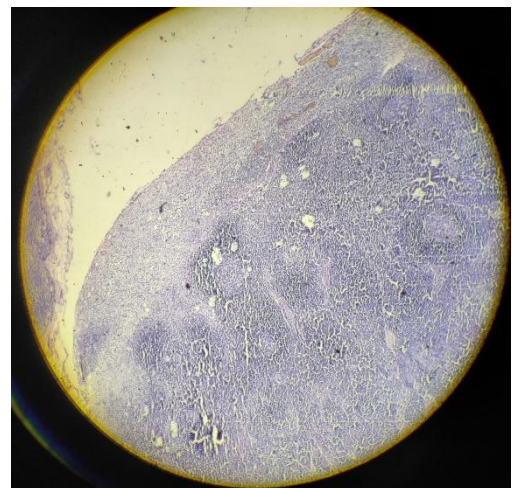
Figure 3 (a)**Figure 3 (b)**

Figure 3 (a) and Figure 3 (b): Photomicrographs showing spindle-shaped and neoplastic cells scattered singly with bizarre nuclei (3a: 40 X H&E, 3b: 400 X H&E).

Considering these features, diagnosis was offered as spindle cell carcinoma of right breast Grade III with metastasis in two out of nine axillary lymph nodes.

Figure 4

Photomicrograph showing metastasis in lymph node (400 X H&E).

Immunohistochemistry profile of tumor was ER, PR and HER-2 neu negative.

Figure 5: P63 (4A4)

Figure 6: CK (AE1/AE3)

3. Discussion

Spindle cell carcinoma is a very rare variant of metaplastic carcinoma and represents 0.1 % of all breast cancers [3]. According to WHO classification of tumors of breast, it is a special subtype of breast carcinoma [4]. The origin of this tumor is subject to debate. Some scholars explain that it arises from a single cell line while others believe that the origin is from myoepithelial cells. The evidence for it is these tumors show high expression of p63 [5].

Common age of presentation of this tumor is average 55 years and etiology is same as invasive breast carcinoma of no special type, especially triple negative breast carcinoma. These tumors usually present with a large size and nodal metastasis is less likely.

Our case presented at the age of 65 years with axillary lymph node metastasis. Mammography findings reveal a mean tumor size of 32 mm. Microcalcifications are uncommon, as seen in our case [6].

The diagnosis of this tumor is based on histopathological examination and immunohistochemistry markers.

On gross examination, these tumors are well-defined with focal marginal irregularity. Areas of necrosis and hemorrhage may be found [7].

Histopathology of these tumors reveals pure or dominant population of spindle cells with some other components like ductal carcinoma squamous cells, rarely malignant cartilage or bone.

These spindle cells reveal marked cytological atypia and are seen scattered as well as in small clusters. Our case also revealed purely spindle cells [8, 9].

Pure spindle cell carcinoma may be considered in the differential diagnosis of other spindle cell tumors like malignant phyllodes tumor, primary low grade sarcoma, fibromatosis and myoepithelial carcinoma [10, 11].

Immunohistochemistry allows more accurate diagnosis. Findings of focal positivity for cytokeratin 9 (AE1, AE3, ck 5/6, ck 7).

P63 is a specific marker for epithelial cell proliferation. Myoepithelial markers are SMA and CD10. This tumor is ER, PR and Her-2 neu negative as in our case [12].

Spindle cell carcinoma has worse prognosis than matrix producing and squamous carcinoma. Owing to rarity of spindle cell carcinoma, very little is known about its biological behaviour and treatment.

4. Conclusion

Spindle cell carcinoma is a very rare type of metaplastic carcinoma of breast. The diagnosis, treatment and outcome of the tumor are very challenging. Histopathological examination plays a significant role in definitive diagnosis.

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