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## RESEARCH ARTICLE

### APOCRINE CARCINOMA BREAST – A RARE CASE REPORT

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#### ABSTRACT

Apocrine carcinoma of breast constitute less than 1% of all malignant neoplasms of the breast. Apocrine carcinoma of the breast has an incidence of 1-4%. Here we present a case of apocrine carcinoma of the breast in a 70 year old lady. Mammogram was suggestive of a malignant lesion. Fine needle aspiration cytology: features were suggestive of malignancy with the following possibilities: oncocytic carcinoma, apocrine carcinoma and neuroendocrine carcinoma. Modified radical mastectomy was done and the tumor was diagnosed as apocrine carcinoma of breast after immunohistochemical workup. The patient was discharged and the postoperative period was uneventful.

#### INTRODUCTION

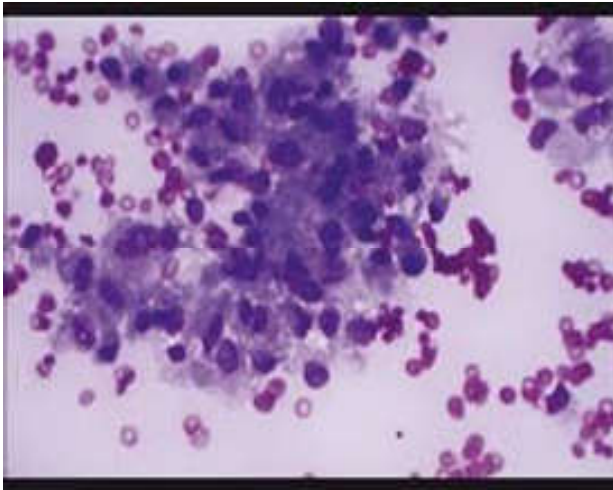
Apocrine carcinoma of the breast is one of the rare malignant breast neoplasm constituting 1-4% of all breast malignancies (Gayathri, 2012). Microscopically, apocrine carcinoma has the same architectural pattern as invasive ductal carcinoma, not otherwise specified type, differing only in their cytological appearance. Cells are characterized by typical apocrine features exhibiting abundant eosinophilic granular cytoplasm and prominent nucleoli (Yerushalmi et al., 2009). Usually apocrine carcinomas tend to show expression of androgen receptor positivity and Gross cystic disease protein fluid-15 (GCDPF-15) and estrogen and progesterone receptor negativity (Tsutsumi, 2012). These carcinomas have good response to fluoxymesterone (Durham, 2000).

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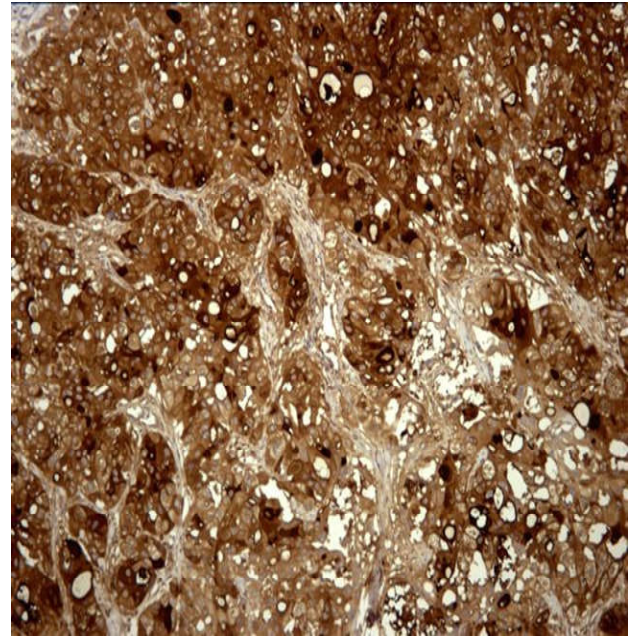
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**Case report:** A 70 year old lady presented in our surgical OPD with rapidly growing lump in the right breast since 6months. On examination there was a lump measuring 3X3 cms in the upper outer quadrant in the right breast. The tumor was not adherent to the the overlying skin. No axillary nodes were palpable. Fine needle aspiration cytology was done, which revealed highly cellular smear composed of cohesive and discohesive clusters of large polygonal cells with pleomorphic nuclei, prominent nucleoli and abundant amount of basophilic cytoplasm in a background of hemorrhage. Features suggestive of malignancy with the following possibilities: oncocytic carcinoma, apocrine carcinoma and neuroendocrine carcinoma.

The patient underwent Modified Radical Mastectomy. On gross examination serial sectioning of the mastectomy specimen revealed an irregular grey white tumor measuring 5X4X2 cms involving the upper outer quadrant of the breast with infiltrative margins.



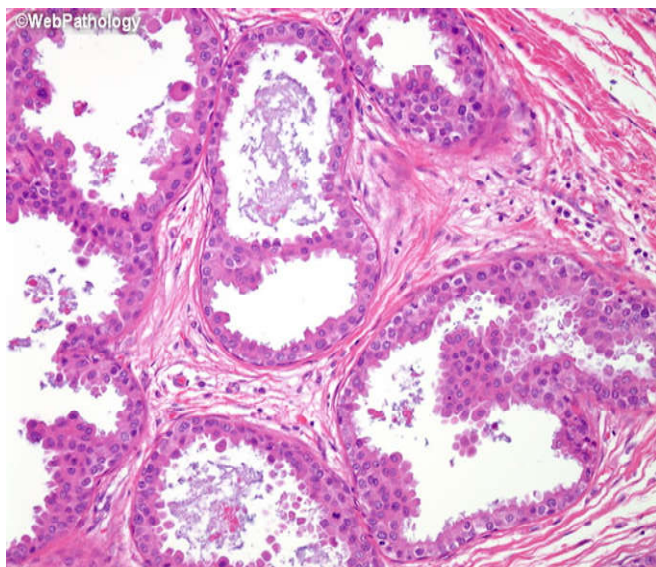
**Fig 1.** FNAC of the right breast showing large polygonal cells with abundant granular basophilic cytoplasm in a background of hemorrhage



**Fig 4.** Diffuse positivity for GCFDP15



**Fig 2.** Irregular grey white tumor resembling invasive carcinoma of breast



**Fig. 3.** Histopathology section showing the nested pattern of cells with pouting of the cells

All the margins were free from the tumor. There were seven lymph nodes in the attached fibrofatty tissue. On microscopic examination: multiple sections studied from the tumor showed malignant tumor composed of polygonal cells arranged in nests and sheets exhibiting nuclear pleomorphism and hyperchromasia, prominent nucleoli and abundant granular cytoplasm. Mitotic figures 2-3/hpf were noted. The adjacent areas showed apocrine metaplastic changes. All the seven nodes were negative. Representative sections were sent for immunohistochemical studies with the following panel of markers: ER,PR, HER2, NSE, Androgen receptor Chromogranin, Anti mitochondrial antibody and GCFDP – 15. The tumor cells showed immunoreactivity for GCFDP15 and androgen receptor positivity. All other markers (estrogen receptor, progesterone receptor and Her2 neu) were negative. Ki67 index was about 30%. The final diagnosis was apocrine carcinoma of right breast with Modified Bloom Richardson Grade 2(3+2+2=7).

## DISCUSSION

Apocrine carcinoma of the breast is a rare neoplasm mainly occurring in elderly females (Yerushalmi *et al.*, 2009). Since apocrine changes are indicative of a benign lesion, the diagnosis of apocrine carcinoma is made only when the architectural features are clearly those of malignancy (Yerushalmi *et al.*, 2009). Benign apocrine lesions on cytology show low cellularity and are composed of cells arranged in more regular sheets with bland nuclei, central nucleoli and abundant granular cytoplasm. Invasive apocrine carcinomas show moderate to highly cellular smears composed of cohesive and discohesive clusters of tumor cells exhibiting nuclear pleomorphism and hyperchromasia, prominent nucleoli in a dense abundant granular cytoplasm (Tsutsumi, 2012). Histopathological and immunohistochemical studies are required to arrive to a final diagnosis.

**Differential Diagnosis:** The differential diagnosis includes oncocytic carcinoma and neuroendocrine carcinoma of the breast. Oncocytic carcinoma will show cells with low grade nuclei and abundant granular cytoplasm.

Immunohistochemical studies will show strong diffuse positivity with anti-mitochondrial antibody. Neuroendocrine carcinoma are composed of cells arranged in solid nests, separated by fibrous tissue. Immunohistochemical studies will show positivity for chromogranin, synaptophysin and non-specific enolase. Apocrine carcinoma are composed of large tumor cells with pleomorphic hyperchromatic nuclei and abundant granular cytoplasm. The majority are ER, PR negative and GCFDP15 positive. Ki67 is positive in malignant apocrine carcinomas. Recognition of apocrine neoplasms of breast from benign neoplasms will add to the understanding of the disease pathogenesis and predicting prognosis of the disease.

**Conflicts of interest:** Nil.

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