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SECRETORY CARCINOMA OF BREAST-A RARE CASE REPORT

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Abstract : Secretory carcinoma of breast is a rare histological variant of breast carcinoma with an incidence of 0.15. It is relatively more common in the first three decades of life with median age of 23 years. However it is reported in adults of both sexes. In our institution, a 58 year old female, presented with history of lump in the right breast for 2 years and with pain and ulceration for past six months. Modified radical mastectomy was done. Histopathological examination showed a malignant tumour with microcystic and tubuloalveolar pattern and irregular microlumens containing eosinophilic secretions. Intracytoplasmic and intraluminal secretions showed Periodic Acid Schiff positivity. Immunohistochemistry for Estrogen receptor, Progesterone Receptor and Her 2-neu were negative (triple negative). It was a case of secretory carcinoma of breast. It is a unique, triple negative breast carcinoma ,with indolent clinical behavior, late local recurrences and prolonged survival, even with lymph node metastasis.

Keyword : Secretory carcinoma, Basal like carcinoma, Breast.

Introduction:

Secretory carcinoma of breast is a rare histological variant of breast carcinoma with an incidence of <0.15% worldwide. Secretory breast carcinoma was originally recognized in 1966 by McDivitt and Stewart as an uncommon variety of mammary carcinoma in children, which they designated as 'juvenile carcinomas'. Tavassoli and Norris subsequently reported 19 cases ranging in age from 9 to 69 years old; therefore, they recommended replacing the term 'juvenile carcinoma' with the descriptive term 'Secretory"1. Secretory breast carcinoma belongs to the phenotypic spectrum of basal-like breast carcinomas. It is relatively more common in the first three decades of life with median age of 23 years. Although it was originally described as a juvenile breast carcinoma, occurring in young children, most cases have been reported in adults of both sexes with a Male: Female ratio of 1:62.It is the only epithelial tumour with balanced translocation of t(12:15) and expression of ETV6 – NTRK3. The biological consequence of this translocation is the fusion of the dimerization domain of a transcriptional regulator (ETV6) with a membrane receptor tyrosine kinase (NTRK3) that activates the Ras-Mek1 and PI3K-Akt pathways which are important for breast cell proliferation and survival3. This specific translocation is associated with congenital fibrosarcoma and mesoblastic nephroma, two morphologically similar pediatric mesenchymal tumors with no epithelial features

Case History:

A 58 year old female presented with history of lump in the right breast for 2 years and with pain and ulceration for past six months. Modified radical mastectomy was done. A fungating mass destroying the nipple areola complex was noted on the external aspect(fig.1). C/S: revealed a circumscribed, firm grey white to tan, lobulated mass in the central quadrant measuring 8x6.5x5.5cm.(fig. 2)

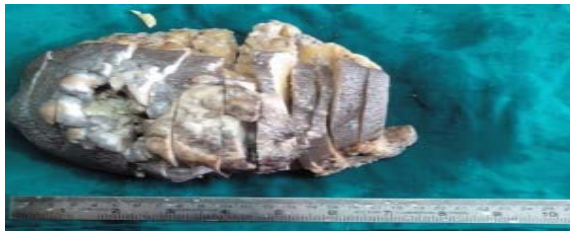

Fig 1. A fungating mass destroying the nipple areola complex was noted on the external aspect

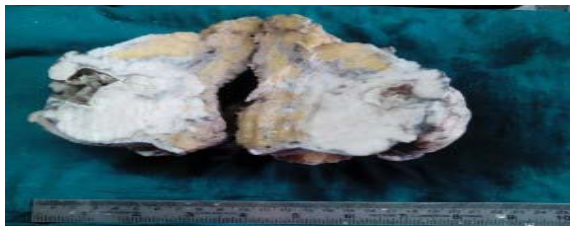

Fig 2.Cut surface: revealed a firm grey white to tan, lobulated mass in the central quadrant

Histopathological examination showed a malignant tumour with microcystic and tubuloalveolar pattern and irregular microlumens containing eosinophilic secretions(fig.3). The tumour cells were polygonal with vacuolated to eosinophilic cytoplasm and round to ovoid nuclei and prominent nucleoli (fig.4).Minimal atypia and pleomorphism were seen with low mitotic activity (1-2 mitoses/10hpf).Overlying skin showed tumour invasion. Cut margins all around and deep margin did not reveal tumour invasion. No lymphovascular invasion was

noted. 9 out of 16 nodes showed metastatic carcinomatous deposits.

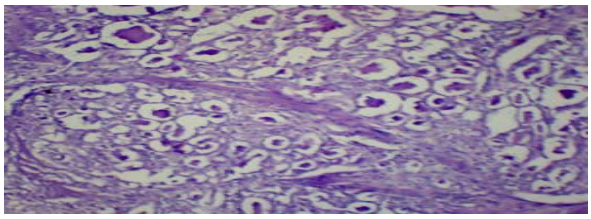

Fig 3. Malignant tumour with microcystic and tubuloalveolar pattern and irregular microlumens containing eosinophilic secretions (H&E,10X)

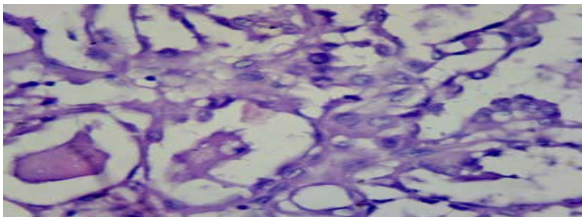

Fig 4. Tumour cells have vacuolated to eosinophilic cytoplasm and round to ovoid nuclei with prominent nucleoli (H&E, 40X) Ancillary studies:

1)Special stains: Intracytoplasmic and intraluminal secretions showed Periodic Acid Schiff positivity(fig.5)

2)Immunohistochemistry for Estrogen receptor, Progesterone Receptor and Her 2-neu were negative (triple negative).

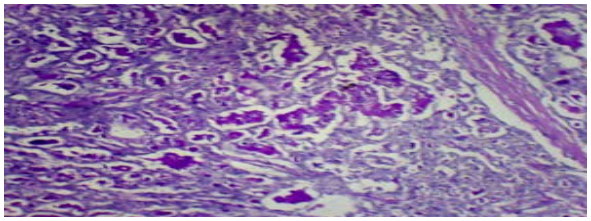

Fig 5. Intracytoplasmic and intraluminal secretions showed Periodic Acid Schiff positivity(10X)

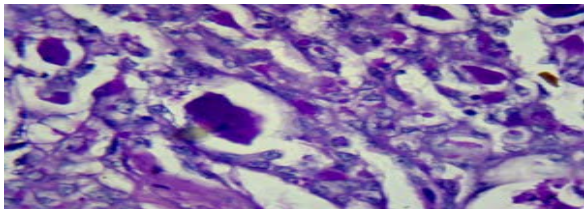

Fig.6 Intracytoplasmic and intraluminal secretions showed Periodic Acid Schiff positivity(40x)

Discussion:

Secretory carcinoma occurs in both children and adults with a wide age range from 3 to 83 years. Most reported cases are in young women, with a median age of 25 years. Similar to invasive ductal carcinoma, not otherwise specified, the most common location of secretory carcinoma appears to be the upper-outer quadrant, but it can occur in any part of the breast4. Secretory breast carcinoma as the name implies, is characterised by the presence of a large amount of intracellular and extracellular, eosinophilic secretion that stains positive for periodic acid–Schiff stain. This feature differentiates this neoplasm, from other typical ductal carcinomas of the breast5.

Secretory breast carcinoma is a distinct subset of invasive breast carcinoma, belonging to the spectrum of basal like carcinoma6,7. Unlike the typical basal-like breast carcinomas, it only shows mild atypia. These neoplasms have indolent clinical behavior, late local recurrences and prolonged survival, even with lymph node metastasis8. It is a unique, triple negative breast carcinoma with characteristic molecular ETV6 – NTRK3 expression3. Although secretory breast carcinoma usually has a favorable prognosis, factors like multicentricity, tumor size greater than 2 cm, infiltrative margins, and more than 3 positive lymph nodes are indicators of a relatively worse prognosis. Systemic metastasis is exceedingly rare9. The basal-like immunoprofile and characteristic molecular expression are further intriguing aspects of this rare type of breast carcinoma. The characteristic ETV6-NTRK3 molecular alteration, leading to a stable chimeric tyrosine kinase fusion product, may be the target of promising new treatment for this unique breast carcinoma10.

Conclusion:

Secretory carcinoma is a rare slow-growing tumor, and though considered an indolent neoplasm, it does metastasise to lymph nodes. Despite the low frequency, secretory breast carcinomas is presented here, as it elicits pathologic interest because of their unique morphology and favourable prognosis.

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