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Case Report

Secretory Carcinoma of Male Breast: A Rare Case Report

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Abstract:

Introduction: Secretory breast carcinoma (SBC) is a rare (<1%) low grade breast carcinoma. It is the most prevalent breast carcinoma in children.

Case Report: A 21 years old male presented in surgery outpatient department with lump in left breast. On examination, a swelling of size 2.5cm x 2cm was observed in left sub areolar region, it was firm, mobile and slightly tender. Ultrasound showed a heterogenous lesion of size 1.9 cm x 1.5 cm near areolar region. Fine needle aspiration cytology (FNAC) smears revealed loosely cohesive sheets, clusters and singly scattered epithelial cells having moderate amount of amphophilic cytoplasm with mild nuclear enlargement in some cells. Background shows inflammatory cells and macrophages. Cytological possibility of gynaecomastia with epithelial hyperplasia, proliferative breast disease or a salivary gland neoplasm was given. An incisional biopsy was performed measuring 1.5 x 1 x 0.5 cm in size which was grey brown in colour. Microscopy revealed a tumor arranged in sheets, nests and tubules with secretions at places which was infiltrated by mild mixed inflammatory infiltrate. The tumor cells were round to oval with moderate amount of cytoplasm. Desmoplastic stroma along with macrophages and cholesterol clefts also seen at places. Immunohistochemistry (IHC) on the biopsy showed positivity for PAS (periodic acid–schiff), S-100 and SMA (smooth muscle actin).

Conclusion: SBC are a rare form of breast cancer and even rarer in male children. This case report takes on importance as there are few papers published about this subject hindering the standardization of diagnosis, treatment and establishing a prognosis.

Keywords: Immunohistochemistry, Low Grade Breast Carcinoma, Secretory Carcinoma.

Introduction

Secretory breast carcinoma (SBC) is a rare (<1%) low-grade breast carcinoma. It is commonly seen in people of age group less than 30 years and is the most common type of breast carcinoma in children. [1] McDivitt and Stewart originally coined the term''Juvenile breast cancer'', since the average age of the seven patients described in their series was nine years old with a range of three to fifteen years. [2]

Along with more and more adult cases reported, the original term has been replaced by the more appropriate "secretory breast cancer" (SBC) in 1980s. Male to female ratio is 1:6. [3] SBC can occur in any quadrant of the breast and frequently below the mammary areola. It always presents as slow-growing, painless, well-circumscribed, mobile, palpable mass. [2,4] Ultrasonography is ideally suited for the evaluation of breast mass. The diagnostic microscopic criteria are abundant granular cytoplasm or clear vacuolated cytoplasm. Tubule formation is common along with prominent fibrous bands. The secretory material in cells, lumens and stroma is mucicarmine, alcian blue, and PAS positive, diastase resistant. It is characterized by low-grade nuclear cytology, bland, uniform nuclei and rare mitotic figures. Sheet-like growth with mainly circumscribed margins with occasional foci of infiltration and in situ component are common. [1]

As a rare type of breast carcinoma, there are at present no consensus guidelines for treatment. Although recommendations vary among authors, surgical intervention is the primary mode of treatment for secretory carcinoma. [3] A review of literature revealed few cases of secretory carcinoma of the

breast in males and this is the first case seen and reported from our centre.

Case Report

We present the case of a 21-year-old male presenting with a painful lump in left breast in surgery OPD. The lump was present since childhood however it was increasing in size and becoming painful since the last two months. There was no history of trauma. Ultrasound showed a heterogenous lesion of size 1.9 cm x 1.5 cm near areolar region. On examination, a swelling of size 2.5 cmx 2 cm was observed in left sub-areolar region. The swelling was firm in consistency, mobile and slightly tender. Overlying skin was normal but nipple retraction was present. Contralateral breast and nipple areola complex was normal.

FNAC was performed and the slides were stained and reported. Stained smears examined revealed loosely cohesive sheets, clusters and singly scattered epithelial cells. Cells had a moderate amount of amphophilic cytoplasm with mild nuclear enlargement in some cells. At places cells exhibit acinar pattern with globules of purple colour. Background shows inflammatory cells and macrophages. Cytological possibility of gynaecomastia with epithelial hyperplasia, proliferative breast disease or a salivary gland neoplasm was given.

Excision biopsy was advised for confirmation of diagnosis. Later, an incisional biopsy was performed and sent to the department of Pathology. The biopsy was processed as per routine histopathological method and slides were prepared and reported. The biopsy measured 1.5x1x0.5 cm in size and was grey brown in colour. Microscopy (fig1 and fig2) revealed a tumor cells arranged in sheets, nests and tubules with secretions at places. The tumor cells were round to oval with moderate amount of cytoplasm. Mitotic figures are scanty and foci of necrosis were observed. The tumor sheets were infiltrated by mild mixed inflammatory infiltrate. Desmoplastic stroma along with macrophages and cholesterol clefts also seen at places.

Immunohistochemistry (IHC) was done for confirmation; tumor cells were positive for S-100 (fig 3) and SMA, while negative for ER (estrogen receptor) and PR (progesterone receptor).

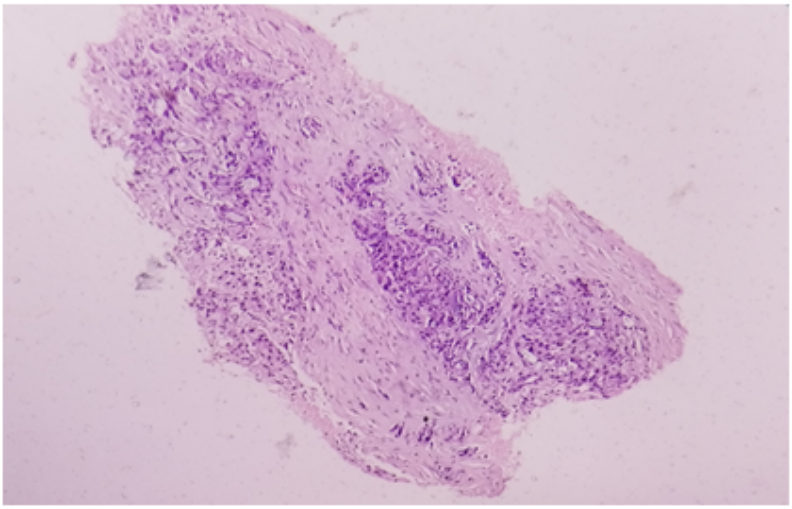

Figure 1: Micrograph 40x magnification (H & E stain) - Showing sheets of tumor cells

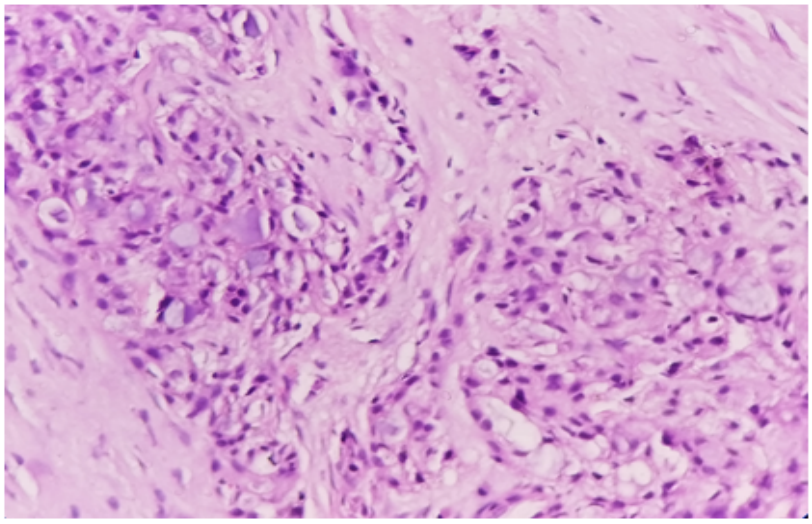

Figure 2: Micrograph 100x magnification (H & E stain) - Showing glands and solid nests with microacini and cysts with extracellular secretions

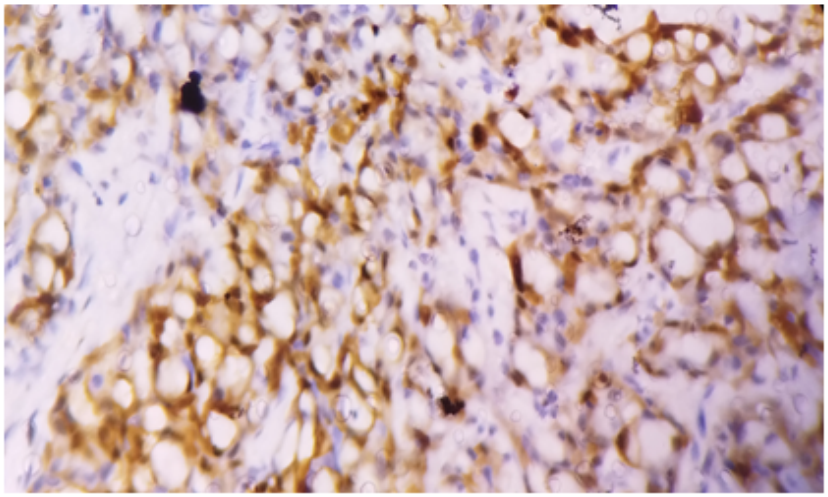

Figure 3: Micrograph 100x Magnification (IHC) - Showing cells positive for S-100

Discussion

Breast carcinoma constitute 11.7% of all cases of carcinomas.8 Secretory carcinoma is a very rare subtype of breast carcinoma, accounting for less than 0.15% of all infiltrating breast carcinomas. [5] As clinically SBC is a slow growing, painless, well circumscribed and palpable mass it can easily be confused with benign lesion. [6]

Sonographic findings include a hypoechoic round or oval or tubular or micro lobulated mass, usually single closely mimicking a benign tumour or well circumscribed carcinoma. In mammography, SBC usually presents as a distinctly spiculated lesion or as a discrete, lobulated, solitary mass with smooth or irregular borders. The typical slow growth of the tumour and nonspecific findings in imaging makes the diagnosis of SBC a challenging one, thus emphasizing on the importance FNAC and histopathology for its diagnosis. [6]

The tumor size varies from 1 to 16 cm with an average diameter of 3 cm. Though uncommon, distant metastasis at presentation has also been observed. [7] Tumor cells have low grade features with small to medium size, oval to round nuclei, scant mitotic activity and abundant granular eosinophilic cytoplasm. The secretory material in cells, lumen and stroma is mucicarmine, alcian blue and PAS positive.

Mucinous carcinoma, acinic cell carcinoma and apocrine carcinoma are primary malignant breast lesions that may resemble secretory carcinoma morphologically.[6] So various positive IHC stains like epithelial membrane antigen, cytokeratin, carcinoembryonic antigen (polyclonal), S -100 and α-lactalbumin are usually done to differentiate SBC from its differential diagnosis.

SBC are generally negative for estrogen and progesterone receptors and have a low proliferation index. [8,9] Recently, its presence is confirmed by a distinct ETV6-NTRK3 mutation which confers

the tumor proliferative and survival advantage. It's the only epithelial tumor of the breast with a balanced translocation, t (12;15) that creates an ETV6-NTRK3 gene translocation.[3] This specific translocation is associated with congenital fibrosarcoma and mesoblastic nephroma. Though considered an indolent neoplasm, it does metastasize to lymph nodes and recur after local excision. [10] It is a low-grade triple-negative (ER-/PR-/ HER2-) carcinoma that expresses basal cell markers. [11,12] However, it is genetically unique and is associated with a better prognosis than other basal-like tumors. [10]

The primary modality of treatment for secretory carcinoma breast is surgery but due to lack of proper reports and rare incidence, there is no proper protocol for the management of this tumour. The incidence of axillary lymph node involvement is identified to be around 30% regardless of the gender. So, an axillary lymph node dissection is high recommended for the tumour more than 2 cm. [13,14]

Conclusion:

Secretory breast carcinomas are a rare form of breast cancer and even rarer in male children. This case report takes on importance due to its infrequency and the fact that there are few papers published about this subject, which hampers the standardization of diagnosis, treatment and establishing a prognosis. Therefore, the presented case can contribute to the literature with information about this rare type of breast tumor.

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