

Granular Cell Tumor in Breast: An Unusual Mimicker of Breast Carcinoma

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Abstract

Granular cell tumor is a rare neoplasm of soft tissues which usually appears in tongue and rarely affects female breast. It is probably of schwann cell origin. Granular cell tumor appears mammographically, by ultrasonography as well as clinically a breast carcinoma hence it is a mandate diagnostic challenge to differentiate this benign mimicker from malignancy through histopathology and immunohistochemistry. We present a case of 42 years postmenopausal women presented with a lump in right breast measuring 15×13 mm seen in 7 'o' clock position of left breast. It was BIRADS 4a i.e; low probability of malignancy. Biopsy was done and histopathology favoured the diagnosis of Granular cell tumor which was confirmed by Immunohistochemistry.

Keywords: granular cell tumour, myoblastoma, breast carcinoma

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I. Introduction

Granular cell tumor(GCT) is a benign rare tumor that usually affects head and neck mostly tongue.(1) Only 6-8% of granular cell tumors are diagnosed in breast and are mostly benign.(2) GCT was first described in tongue in 1854 by Weber (3) and then in breast by Abrikossoff. (4) Initially it was considered a myogenic lesion affecting female breast often referred as Myoblastoma.(4) But immunohistochemical features point out that GCT originates from perineural or putative schwann cells of peripheral nerves or their precursors growing into lobular breast tissue.(5,6)Although most of the GCTs are benign, <1% of cases, including those of the breasts, are malignant.(7) Sometimes, GCT can also appear in the pectoral muscle mimicking breast cancer in females.(8) GCT of the breast is uncommon (1 GCT in 1000 cases of breast cancer), and it is difficult to identify because it mimics carcinoma clinically and radiologically; this is the reason why it is misdiagnosed. Usually, it appears as a painless rounded nodule and is mobile. This is why it is initially diagnosed as a fibroma or carcinoma. This lesion should be differentiated from carcinoma in order to apply the best treatment option.(2)

The most frequent location is the upper-middle and medial quadrant, and the most frequent positive receptors are S-protein, periodic acid–Schiff (PAS) and diastase.(9,10)It is more common in middle aged, premenopausal, black women and is extremely rare in male patients apply the best treatment option.(2)

II. Case Report

Here we present the case of a 42 years old female who presented with a painless lump in left breast in outer lower quadrant. Clinically it was palpable and movable lump . There was no palpable lymphnode in the axilla and opposite breast and axilla were normal. Further mammography was done and it showed a nodule in the left breast at 7 'o' clock position, according to Breast Imaging Reporting And Data System , category 4a was given. Ultrasonography confirmed it as a solid nodule located in outer lower quadrant of left breast with maximum diameter of 15mm.

Initially before biopsy this nodule was considered as breast carcinoma and biopsy was requested to get the final diagnosis for appropriate treatment. Histopathological examination of biopsy revealed something unexpected what was thought as breast carcinoma turned out to be a benign granular cell tumor (Figure2). Immunohistochemistry was done , in our case S100, ER, PR, cytokeratin were done. The tumor showed diffuse positive reaction for S100 and calretinin. It showed negative reaction for cytokeratin, ER and PR.

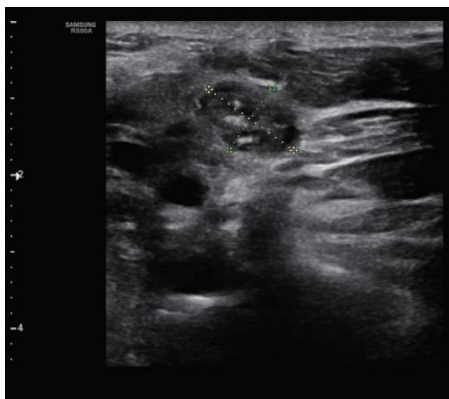


Figure.1 ultrasonography showing a nodule in the left breast with maximum diameter of 15mm

III. Discussion

This study aims to clearly differentiate Granular cell tumour from breast carcinoma. Initially it was considered a myogenic lesion affecting female breast often referred as Myoblastoma.(4) But immunohistochemical features point out that Granular cell tumour originates from perineural or putative schwann cells of peripheral nerves or their precursors growing into lobular breast tissue.(5,6) Although most of the Granular cell tumours are benign, <1% of cases, including those of the breasts, are malignant.(7) Although Granular cell tumour mimics breast carcinoma clinically, mamographically and on ultrasonography, the management and prognosis of these two entities are poles apart. Histologically our case showed cells arranged in poorly defined clusters and sheets; these are large polygonal to oval cells with abundant eosinophilic granular cytoplasm showing indistinct cell borders. The nuclei are small to medium size, round to oval with mild pleomorphism. However no significant nuclear atypia noted.

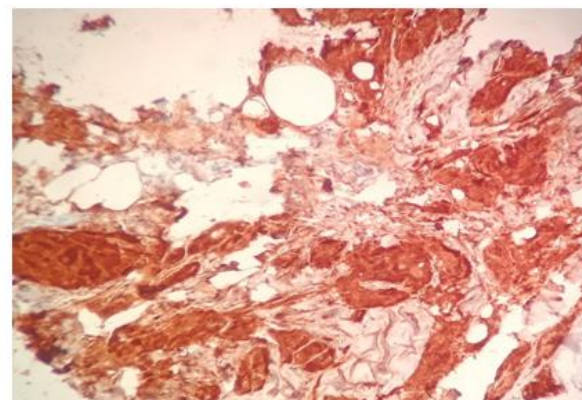
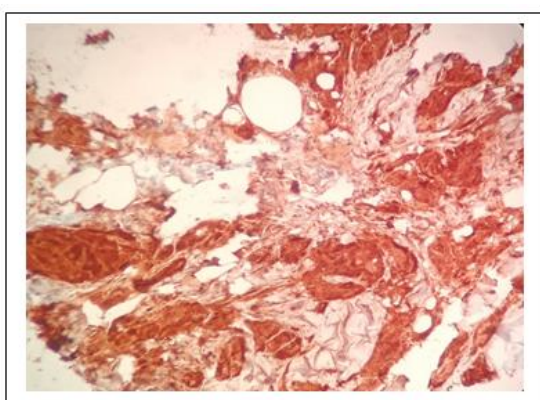
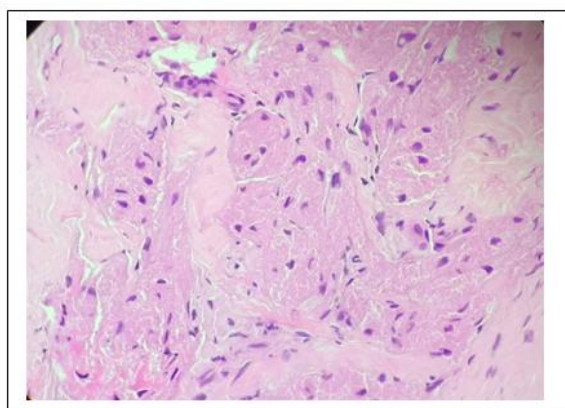
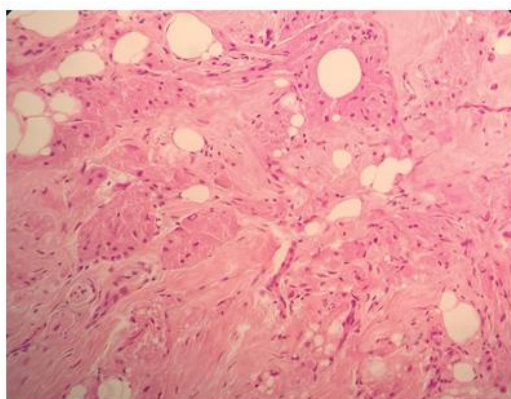


FIGURE: 2a. Hematoxylin and eosin image of granular cell tumour (100X)
2b. Hematoxylin and eosin image of granular cell tumor showing large polygonal cells with granular eosinophilic cytoplasm and indistinct cell borders (400X)
2c. Immunohistochemistry showing diffuse positive S100 in tumour cells.
2d. IHC showing diffuse nuclear and cytoplasmic calretinin positivity in tumor cells.

Some studies carried out till date to analyze the reactivity of GCT against calretinin indicate controversial results.(12–14) Fine and Li suggested interaction between calretinin expression and the squamous epithelium and the tumour cells.(15)Jiménez-Herrero et al concluded that calretinin is a useful marker for the diagnosis of GCT, due to the existence of an immunostaining intensity gradient when the tumour is close to the squamous epithelium, especially when hyperplasia is present, which is usual in GCT.(12)

IV. Conclusion

It is pivotal to have knowledge of Granular cell tumor in breast to avoid over diagnosing it as breast carcinoma as for GCT Wide local excision with negative margins would suffice the treatment. Diffuse S100 and calretinin expression on IHC with negative reaction for CK, ER, and PR support the notion that granular cell tumour is of neural origin and in this case we are clearly not dealing with breast carcinoma. calretinin and S100 are useful markers to aid the correct diagnosis of GCT.

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