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Case Report

Granular Cell Tumor of Breast: A Rare Case Report

Monika Gupta[1], Nikhilesh Kumar[2], Honey Bhasker[3], Megha Bansal[3], Ritu Sharma[3], Deepak Munjal[4]

[1]Professor, Department of Pathology, T. S. Misra Medical College and Hospital, Lucknow, Uttar Pradesh, India, [2]Professor and HOD, Department of Pathology, T. S. Misra Medical College and Hospital, Lucknow, Uttar Pradesh, India, [3]Associate Professor, Department of Pathology, T. S. Misra Medical College and Hospital, Lucknow, Uttar Pradesh, India, [4]MD 2nd Year Post Graduate Student, Department of Pathology, T. S. Misra Medical College and Hospital, Lucknow, Uttar Pradesh, India

Abstract

Granular cell tumour of the breast is considered as one of the rare tumours. GCTB, a largely benign tumour, arises from Schwann cells. In rare cases it can exhibit malignancy. It poses a particular problem as its characteristics can mimic breast carcinoma clinically, radiologically and macroscopically. We are reporting a case of a 60-year-old lady who presented with a granular cell tumor in the breast. Patient presented with a 3.0 × 3.0 cm hard immobile mass in the left breast. Mammography revealed an, with ill-defined borders and without any calcification. FNAC was inconclusive and in this patient the mass was considered as benign and excision of lesion was done with some healthy tissue amount of histopathology confirming the diagnosis.

Key words: Breast, Cell, Tumor

INTRODUCTION

The first granular cell tumor was reported by Abrikossoff in 1926 in the tongue. He termed this lesion as myoblastoma and proposed that it originated from striated muscle. His theory was initially supported by the tissue culture studies of three granular cell tumors. Subsequently, his theory was rejected as other authors showed evidence of histiocytic or smooth muscle derivation. Today, the most widely accepted theory is that of a Schwann cell origin, because of the S-100 positivity of the tumor and the similarities of its cells ultrastructural features with those of Schwann cells.[1-5]

CASE REPORT

A 60-year-old female presented to our hospital with the complaint of a mass in her left breast since the past 2 years which was painful and slowly increasing in size. Physical examination revealed a 3 × 3 cm hard immobile mass in upper inner quadrant of the left breast. Examination of the other breast and axilla was normal. No palpable lymph nodes were found.

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Ultrasonography showed a 3.2 × 2.9 cm diameter mass with diffuse hypodensity along with a small cyst measuring 2 mm in diameter. Mammography revealed an opaque mass with ill-defined borders and without any microcalcifications. FNAC was, however, inconclusive. With these findings, the mass was considered as benign and the lesion was removed with some healthy tissue around it.

The histological examination revealed dilated ducts lined by apocrine cells and filled with eosinophilic secretions. The stroma showed cords and nests of polygonal cells with centrally placed small, round to oval nuclei, and abundant eosinophilic granular cytoplasm. These cells were crowded over the nerve fibers. Mitotic activity was not seen. These granular cells were seen infiltrating the surrounding adipose tissue and were associated with areas of fibrosis. Special stains were done and cytoplasmic granules in the tumor cells were diastase resistant and Perioidic Acid Schiff (PAS) positive. A diagnosis of benign granular cell tumor was made. Tumor cells showed positivity for S-100 and this confirmed our diagnosis [Figures 1 and 2].

DISCUSSION

The cytoplasm shows a granular appearance which may be caused by accumulation of secretory granules, mitochondria, or lysosomes. Mital *et al.* showed evidence of granule origin as infoldings of cell membrane by

Corresponding Author: Dr. Monika Gupta, Professor, Department of Pathology, T. S. Misra Medical College and Hospital, Lucknow, Uttar Pradesh, India.

a process similar to myelin formation around nerves and they suggested that subsequent phagocytosis of the infoldings by lysosomes results in the characteristic cytoplasmic granules.

Granular cell tumors can arise throughout the body and these lesions in the breast account for 5–6% of all cases. Granular cell tumors in the breast are usually benign tumors and very few malignant cases have been reported. These tumors commonly occur in women between 30 and 50 years of age ranging from 17 to 74 years with a frequency of approximately 1 in 1000 breast cancers. The tumor arises from the Schwann cells in the intralobular stroma of the breast.

It occurs more frequently in the upper inner quadrant of the breast, in contrast to breast carcinoma, which is found more frequently in the upper outer quadrant. This distribution appears to correspond to the area of innervation of the skin of the breast by the supraclavicular nerve. This tumor usually appears as a solitary unilateral lesion, but rarely it present as multiple lesions in the breast and other parts of the body.

It generally presents as a painless mass in the breast in women but can mimic breast cancer because of its fibrous consistency, fixation to the pectoral fascia, and skin or nipple retraction. On mammography it shows typical stellate mass lacking calcifications with a dense core. It may even present as a round well circumscribed mass resembling fibroadenoma. On ultrasonography granular cell tumors can present as solid, poorly marginated lesions with marked posterior shadowing or as more benign looking well circumscribed solid masses. In our case, the mass was in the inner quadrant but was painful and immobile with no skin retraction. Breast ultrasound revealed a poorly circumscribed hypodense mass with a small cyst measuring 2 mm in diameter. Mammography revealed a poorly circumscribed speculated mass without any microcalcifications. Grossly, the tumor presents as a firm to hard, well circumscribed mass or a poorly defined mass with infiltrative borders. The cut surface is white or gray and may also have a yellow-tan color. Some lesions measuring up to 6 cm have been reported, but the tumors are generally 3 cm or smaller. Fine needle aspiration biopsy is usually inadequate for definitive diagnosis but may be helpful in differentiating the lesion from carcinoma breast. A few cases have been reported describing the cytological features, which are cellular uniformity and cytoplasmic granularity. However, as the granular cell metaplasia can mimic granular cell tumor in cytologic specimens, so excisional biopsy should be undertaken for a definite diagnosis. Microscopically, the lesion comprises compact nests or sheets of cells that contain eosinophilic cytoplasmic granules. These granules are usually prominent and fill the cytoplasm, sometimes showing cytoplasmic vacuolization and clearing. They are diastase resistant and PAS positive. Cell borders are well defined and cells vary in shape from polygonal to spindle shaped. Nuclei are round to slightly oval with an open chromatin pattern and prominent nucleoli. Some cases may show mild nuclear pleomorphism and occasional multinucleated giant cells may also be seen. Small nerve bundles are sometimes seen in the tumor or in close association in the periphery of lesion.

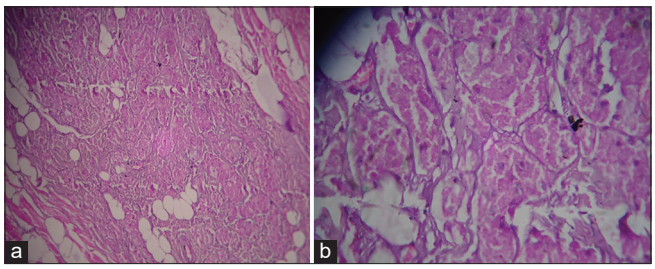

Figure 1: Histopathological section (a and b) showed the cods and nests of polygonal cells with centrally placed small round to oral nuclei and abundant granular eosinophilic cytoplasm. These cells are crowded over the nerve fibers (H&E ×100)

The treatment of granular cell tumor is wide local resection. Local recurrence may sometimes occur after incomplete excision, but sometimes it may be hard to distinguish between recurrence and multifocal asynchronous lesions. Chemotherapy or radiotherapy is only given in malignant counterparts. The differential diagnosis is a challenge and

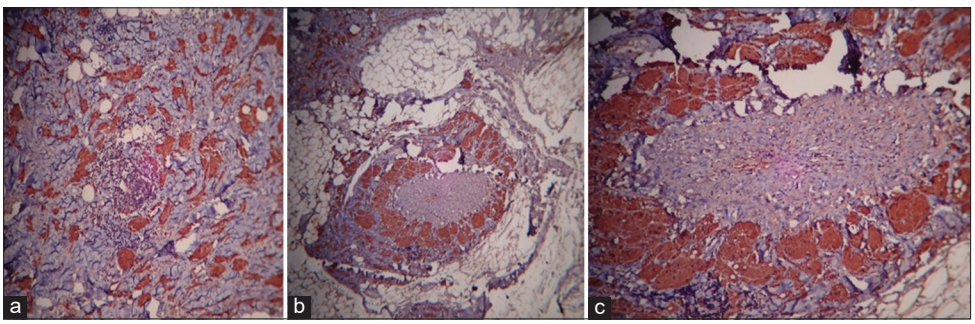

Figure 2: (a-c) Showed positivity for S100 cells (IHC)

the tumor must be differentiated from breast carcinoma, sclerosing adenosis, histiocytic, or metastatic lesions.[6-9]

CONCLUSION

Granular cell tumor of the breast is a rare benign neoplasm. The clinical and mammographic findings may simulate those seen in carcinoma breast. These tumors should be distinguished from carcinomas with oncocytic appearance, histiocytic lesions, and metastatic carcinomas.

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