CASE REPORT

Granular Cell Tumour of Breast: A Case Report

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ABSTRACT

Granular cell tumour is a benign tumour of putative schwannian origin. It commonly arises in skin and subcutaneous tissue. Head & neck region particularly tongue is most commonly affected site.We report a case of granular cell tumor of breast in a 63 year old postmenopausal woman who presented with a 1.9X 1.8x 1.1cm painless mass in her left breast. Clinical and radiological features suggested malignant lesion but with the combined use of microscopy and immunohistochemical examination the case was correctly diagnosed as granular cell tumor of the breast. The purpose of this article is to emphasize GCT as a differential diagnosis of carcinoma of breast as it can mimic the same clinically and radiologically.

Keywords: Breast, carcinoma, granular cell tumor, S-100

INTRODUCTION

Granular cell tumour is rare soft tissue neoplasm arising in the Schwann cells of the peripheral nervous system. Most of the cases are benign with only 1-2% cases being malignant. It usually appears in head & neck, particularly tongue. Breast is an uncommon site of GCT (5-8%), where it can simulate carcinoma both clinically as well as radiologically. Precise histopathological examination and immunohistochemical analysis is required in these cases to avoid confusion with carcinoma.

CASE REPORT

A 63 year old postmenopausal woman presented with a painless lump in the left breast since 6 months. On physical examination a firm painless lump was noted in the upper inner quadrant of her left breast without any skin changes. Right breast and axilla were normal Mammography revealed a BIRADS 5 lesion with illdefined margins measuring 2.0cm in greatest dimension. Trucut biopsy of the patient showed sheets of cells with abundant granular cytoplasm suggesting the possibility of granular cell tumour. Wide local excision was performed and sample sent for histopathological examination. Grossly, the tumor was greyish white firm with infiltrating margins measuring 1.9 x 1.8 x 1.1cm. Microscopic examination revealed a poorly circumscribed tumor composed of sheets & cords of large polygonal cells with abundant eosinophilic granular cytoplasm and small round nuclei(Fig.1). All margins of the tumor were free. An immunohistochemical analysis was performed which showed positive immunoreactivity for S-100(Fig. 2)and CD 68 while negative for ER and PR. Patient is on regular follow up and is clinically disease free at present.

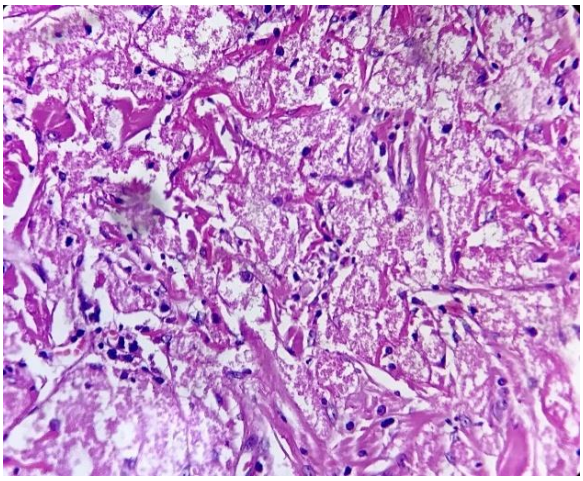

Figure 1: Sheets of large polygonal cells with adundanteosinophilic granular cytoplasm and small round nuclei(40x)

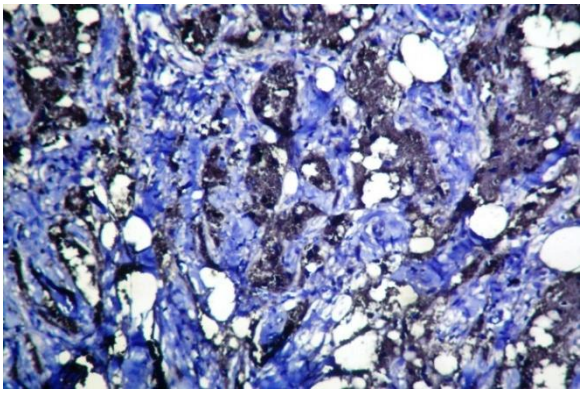

Figure 2: Cells of the GCT showing positive immunohistochemical staining with S-100 (20x)

DISCUSSION

Granular cell tumour is a soft tissue neoplasm of nervous system origin. This tumour has a wide distribution, which usually arises in skin and subcutaneous tissue.Head & neck region particularly tongue is the most commonly affected site.[1] Other affected sites are breast(5-8%), bronchus, larynx and digestive tract. Weber[2] was first to describe this tumour followed by Abrikossoff[3] who reported first case of granular cell tumour in the breast. The first report of this tumour which was published by Abrikossoff in 1931 attributed it's origin to striated muscle hence the lesion was termed "myoblastoma".[3]Several studies with positive S-100 immunohistochemical staining and electron microscopic features revealed that the tumor originates in Schwann cells of the peripheral nerves. The tumor is also known as Abrikossoff tumor and Granular cell myoblastoma.Breast is an uncommon site of GCT where only 1 case of GCT occurs for every 100-200 cases of carcinoma.[4]

Presence of GCT in breast may create diagnostic challenge to pathologists as it can be easily confused with carcinoma both clinically as well as radiologically.[5] GCT of the breast arises from intralobular stromal areas corresponding to innervations by supraclavicular nerve.[1,6] The patient usually presents with a slowly growing single painless nodular mass. Multiple masses may be associated with LEOPARD syndrome which is caused by mutation in PTPN11.[7] In around 10% cases coexist with malignant lesions of breast including ductal carcinoma.[8] Similar to other lesions of the breast GCT also has a female preponderance.The most common age of presentation is 30-50 years with an overall age ranging from 14-77 years. Majority of the cases are found in upper inner quadrant in contrast to carcinoma of the breast which are most common in upper outer quadrant.[1,8]

On mammography, GCT is seen as mass with spiculated, circumscribed or lobulated borders and is difficult to differentiate from invasive carcinoma.[9] Ultrasonographic finding of GCT is hypoechoic solid mass with spiculated margins. Most of the GCT occurring in the breast are benign and wide local excision with adequate margins is the mainstay of the treatment. Fewer than 1% cases of all granular cell tumour, including mammary GCT are malignant. No incidence of recurrence was noted in most of the cases with positive or close margins.

Fanburg-Smith et al proposed six histological criteria to differentiate malignant from benign GCT which includes necrosis, spindling, vesicular nuclei with large nucleoli, increased mitotic activity (> 2 mitoses/10 high-power fields at 200x magnification), high nuclear to cytoplasmic N:C) ratio, and pleomorphism. On Immunohistochemical analysis the tumor shows positive immunoreactivity for S-100, CD 68, Calretinin and CEA. GCT is negative for hormonal markers including ER, PR & HER-neu and cytokeratin.

Electron microscopic study of the tumour showed presence of myelin figures indicating it's neural origin and numerous lysosomes which corresponds to granules seen on light microscopy.[10,11]

CONCLUSION

Granular cell tumour is an uncommon tumor of the breast and it should always be considered as the differential diagnosis of other benign or malignant lesion of breast. The tumour originates in the schwann cells of the peripheral nerves. When present in breast it mimics carcinoma both clinically and radiologically. Most of the cases are benign with only less than 1% being malignant. Wide surgical excision with adequate margins is the mainstay of the treatment. Overall prognosis is good.

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