Journal of Interdisciplinary Histopathology
www.scopmed.org
DOI: 10.5455/jihp.20150211113147

Case Report

Granular cell tumor of the breast: An unusual tumor of the breast masquerading as malignancy

Padmapriya Jaiprakash, Kanthilatha Pai

Department of Pathology, Kasturba Medical College, Manipal University, Jaipur, Rajasthan, India

Address for correspondence:
Kanthilatha Pai, Department of Pathology, Kasturba Medical College, Manipal University, India.
E-mail: klpai@yahoo.com

Received: November 19, 2014
Accepted: February 11, 2015
Published: February 16, 2015

ABSTRACT

Granular cell tumor (GCT) is a rare neoplasm of the breast, accounting for <0.1% of breast tumors. GCT may mimic a malignant tumor clinically and radiologically, thereby causing overtreatment in a few cases. We present a case of a 28-year-old woman who presented with a breast lump of short duration, which was highly suggestive of malignancy radiologically. Wide local excision of the lump showed histological features suggestive of GCT, which was confirmed by immunohistochemical studies.

KEY WORDS: Breast, granular cell tumor, tumor

INTRODUCTION

Granular cell tumor (GCT) is a rare neoplasm of the breast, accounting for <0.1% of breast tumors [1]. GCT may mimic a malignant tumor clinically and radiologically, thereby causing overtreatment in a few cases [2]. We present a case of a 28-year-old woman who presented with a breast lump of short duration, which was highly suggestive of malignancy radiologically. Wide local excision of the lump showed histological features suggestive of GCT, which was confirmed by immunohistochemical studies.

CASE REPORT

A 28-year-old lady presented with a history of a lump in the left breast for a period of 3 months. There was no history of pain or nipple discharge. On examination, an ill-defined lump was felt, which was firm to hard, measuring about 4× 4 cm in size, in the upper inner quadrant of breast. There was no fixation to the pectoralis muscle, skin or nipple retraction or axillary lymphadenopathy. An ultrasound scan showed ill-defined opaque lesion with micro calcifications (BIRADS 5 category) in the left breast, highly suggestive of malignancy. Fine needle aspiration cytology was inclusive. A wide local excision of the lump was done with a margin of 5 mm and was sent for histopathological examination. Grossly, the specimen consisted of a single irregular fibrofatty tissue bit weighing 9 g and measuring 3×2.5×2.5 cm. Cut section showed ill-defined lesion with grey white areas [Figure 1] Microscopic examination revealed breast acini and ducts lined by bilayered epithelium with few cystically dilated ducts and some with moderate epitheliosis. This was surrounded by sheets and cords of large cells with abundant pale eosinophilic, finely granular cytoplasm and central vesicular nuclei [Figure 2 and 3]. No nuclear pleomorphism, increased mitoses or necrosis was seen. These tumor cells stained positive with CD68 [Figure 4] and S100 [Figure 5] on immunohistochemistry. A final diagnosis of GCT of breast was made based on morphological features and immunohistochemistry.

DISCUSSION

GCT of the breast is usually a benign tumor, arising most commonly in the upper inner quadrant of the breast, in premenopausal age group [2]. Though it constitutes 6% of cases of GCT, in the breast it is a rare tumor, constituting only 0.1% of cases [3]. It usually presents as a painless lump in the breast. Skin and nipple retraction in some cases may result in mistaken clinical diagnosis of a malignant tumor. Diagnostic imaging findings can further add to the dilemma as it varies from a well circumscribed mass to indistinct or speculated lesion on mammography. Though originally considered a muscle tumor, immunohistochemistry and electron microscopy have proven it to be of Schwannian origin arising from intra-lobular stroma.

Grossly, the tumor is usually circumscribed, but hard in consistency. Microscopically, the presence of nests and sheets of polygonal cells with well-defined cell borders, finely granular cytoplasm and central vesicular nucleus is seen. Granules are said to be strongly periodic acid Schiff positive, diastase resistant, presumably representing phagolysomes. Occasional

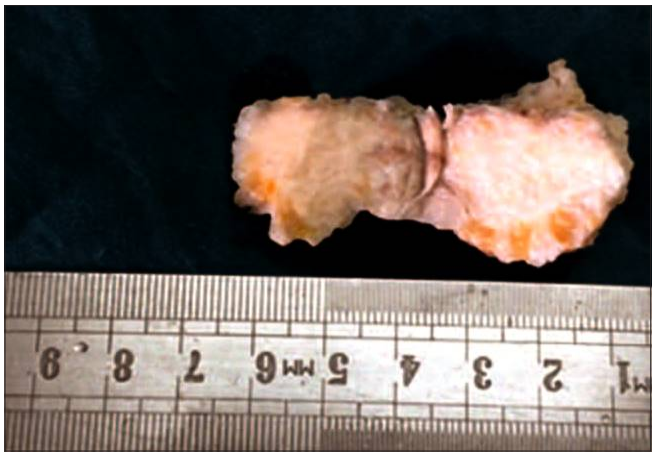

Figure 1: Gross examination shows ill-defined grey white mass with interspersed yellow areas

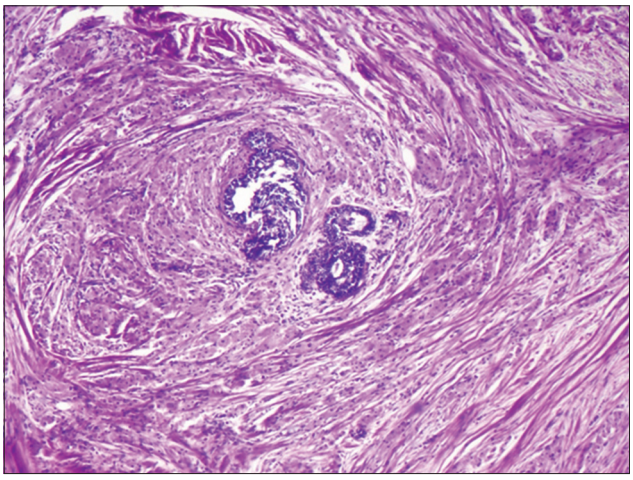

Figure 2: Photomicrograph showing breast acini surrounded by sheets of polygonal to spindle shaped cells with eosinophilic granular cytoplasm, H and E, ×100

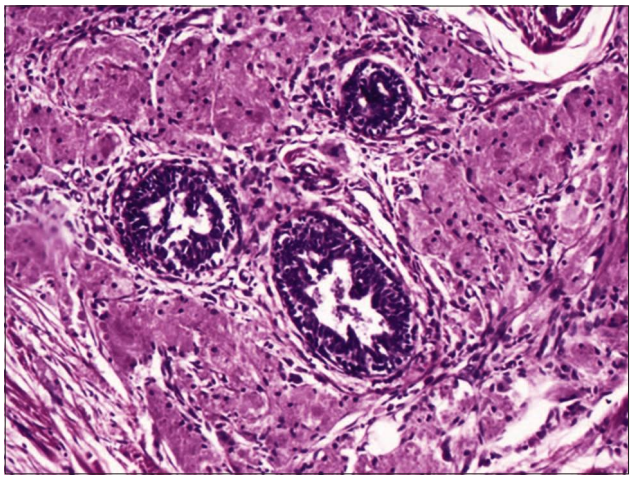

Figure 3: Photomicrograph showing clusters of polygonal cells with vesicular nuclei with eosinophilic granular cytoplasm around breast acini, H and E, 200

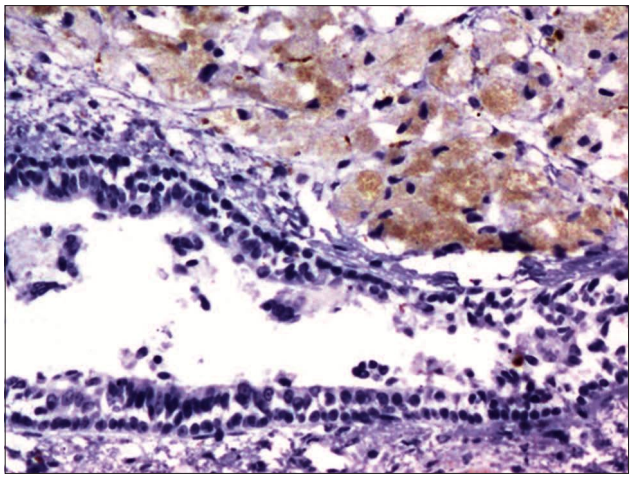

Figure 4: Photomicrograph showing CD 68 cytoplasmic positivity among tumor cells

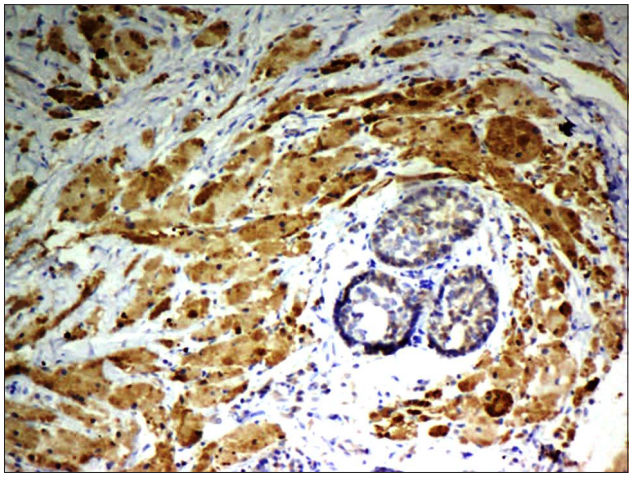

Figure 5: Photomicrograph showing S100 positivity among tumor cells

cases have been associated with synchronous or metachronous invasive carcinomas as also ductal hyperplasia [4].

Histological criteria suggestive of malignancy proposed by Fanburg-Smith [5,6] include the presence of necrosis, nuclear pleomorphism, high nucleo-cytoplasmic ratio, vesicular nuclei with largenucleoli, spindling of the cells, and increased mitotic activity (>2 mitoses per 10 HPF at × 200 magnification) are evaluated. Histologically, when two criteria are present, a diagnosis of atypical GCT is given. Presence of three or more criteria is more likely to indicate malignancy. Our case did not show any features suggestive of a malignant nature.

A variety of lesions mimic GCT histologically. Benign lesions like fat necrosis and sclerosing adenosis, due to the presence of histocytes and malignant lesions composed of large cells with abundant eosinophilic cytoplasm including pleomorphic lobular carcinoma, apocrine carcinoma and secretory carcinoma and metastatic tumors like renal cell carcinoma, malignant melanoma and alveolar soft part sarcoma may mimic GCT [3].

Immunohistochemical panel may include pancytokeratins to rule out carcinomas. Confirmation is by the positive reaction to both S-100 and CD68.

CONCLUSION

GCT is a rare tumor of the breast, which may mimic malignancy clinically and radiologically. Hence, a pre-operative diagnosis is advisable before a radical surgery, in a young lady to avoid overtreatment.

REFERENCES

1. Aoyama K, Kamio T, Hirano A, Seshimo A, Kameoka S. Granular cell tumors: A report of six cases. World J Surg Oncol 2012;10:204.
2. De Simone N, Aggon A, Christy C. Granular cell tumor of the breast: Clinical and pathologic characteristics of a rare case in a 14-year-old girl. J Clin Oncol 2011 1;29:e656-7.
3. Gokce H, Durak MG, Akin MM, Canda T, Balci P, Sevinc AI. Granular cell tumor of the breast: A case report. J Breast Health 2011;7:230-3.
4. Al-Ahmadie H, Hasselgren PO, Yassin R, Mutema G. Colocalized granular cell tumor and infiltrating ductal carcinoma of the breast. Arch Pathol Lab Med 2002;126:731-3.
5. Fanburg-Smith JC, Meis-Kindblom JM, Fante R, Kindblom LG. Malignant granular cell tumor of soft tissue: Diagnostic criteria and clinicopathologic correlation. Am J Surg Pathol 1998;22:779-94.
6. Adeniran A, Al-Ahmadie H, Mahoney MC, Robinson-Smith TM. Granular cell tumor of the breast: A series of 17 cases and review of the literature. Breast J 2004;10:528-31.

Source of Support: Nil, Conflict of Interest: None declared.