Scholars Journal of Medical Case Reports **ISSN 2347-6559 (Online)**
Sch J Med Case Rep 2014; 2(3):150-152 **ISSN 2347-9507 (Print)**

(An International Publisher for Academic and Scientific Resources) DOI: 10.36347/sjmcr.2014.v02i03.011

Granular Cell Tumor of the Breast: A case report

Ibrahim Sehitoglu[1*], Recep Bedir[2], Hasan Gucer[3], Pelin Bagci[4], Rukiye Yilmaz[5], Ender Ozer[6], Ibrahim Aydin[7]
[1,2, 3, 5]Recep Tayyip Erdogan University, School of Medicine, Department of Pathology, Rize, Turkey
[4]Marmara University, School of Medicine, Department of Pathology, Istanbul, Turkey
[6, 7]Recep Tayyip Erdogan University, School of Medicine, Department of Surgery, Rize, Turkey

***Corresponding Author:**
Name: Ibrahim Sehitoglu
Email: sehitogluibrahim@gmail.com

Abstract: Granular cell tumor is a type of benign tumor that rarely shows malignant findings. It can occur in any part of the body, it is most commonly seen in the tongue. The breast is an extraordinary localization site for granular cell tumor. When it forms a solitary mass with irregular contours in the breast, it can mimic a clinically and radiologically malignant breast tumor, which may lead to unnecessary aggressive surgical approaches. We aim to present and discuss our case of granular cell tumor in the breast in terms of its histopathological properties, which is difficult to do in a clinic through histopathological diagnosis.
Keywords: Granular cell tumor, Breast, Histopathology, Immunohistochemistry.

INTRODUCTION

Granular cell tumor (GCT) is a type of tumor that is usually benign, although it may present rare malignant behavior. It mostly occurs on the tongue, but can be localized in the oral cavity, internal organs, or subcutaneous fatty tissues. It arises in the breast 5%–6% of the time. It commonly manifests in the form of solitary masses in premenopausal women. It rarely shows multifocal or bilateral properties [1, 2]. The origin of tumor cells remains controversial. However, based on their morphological and immunohistochemical properties, they are thought of as originating from Schwann cells within the peripheric nerve system [3, 4]. When GCT forms a solitary mass with irregular contours in the breast, it can mimic a clinically and radiologically malignant breast tumor, which may lead to unnecessary aggressive surgical approaches [5]. We aim to present and discuss our case of GCT in the breast in terms of its histopathological properties, which is difficult to do in a clinic through histopathological diagnosis.

CASE REPORT

A 48-year-old female patient was admitted to a general surgery polyclinic with complaints of a non-painful palpable mass in the lower external quadrant of her right breast. Mammographic image showed a well-circumscribed mass without microcalcification in the lower outer quadrant in the right breast (Fig. 1). With these findings the mass was considered a benign tumor as fibroadenoma. The mass was biopsied and sent to our laboratory for investigations. On examining, the mass found to be a yellowish-white mammary tissue with dimensions of 4.3 × 2.7 × 1.5 cm. In a cross-section of the tissue, a light, yellowish-white tumoral lesion with a partially irregular contour, solid appearance, and firm consistency was observed. Tumor diameter was 12mm. In a microscopic examination of the tumor, the cells were found to be round or polygonal in shape, displaying a large, eosinophilic, and granular cytoplasm; and a small, central, or excentric, hypercromatic nucleus was observed to be divided by fibrous septa and to have formed solid layers and nests (Fig. 2).

Furthermore, in the tumor, perineural invasion was present (Fig. 3) and there was no mitosis, necrosis, nuclear atypia, or pleomorphism. In the immunohistochemical examination, it was found that tumor cells showed strong nuclear and cytoplasmic staining with S100 (Fig. 4), whereas there was only cytoplasmic staining with CD68. Tumor cells showed no staining with pancytokeratin, CEA, HMB 45, Vimentin, and GCDFP15. The tumor was found to have a ki67 proliferative activity index of 1% (Fig. 5) .In the differential diagnosis, fat necrosis, apocrine, and secretory carcinoma of the breast, malignant melanoma, and metastatic renal cell carcinoma were considered. Based on the histopathological and immunohistochemical findings, the case was diagnosed as a granular cell tumor. Local recurrence was not detected with the 22-month follow up.

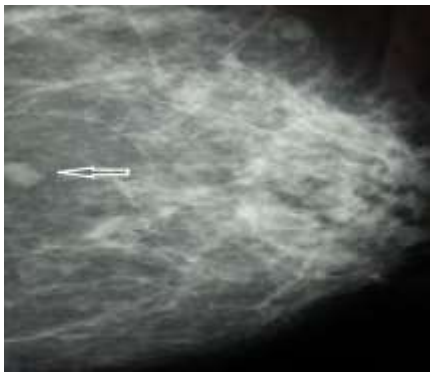

Fig. 1: Mammogram of the breast shows a mass in the lower outer quadrant in the right breast (arrow) with no microcalcification

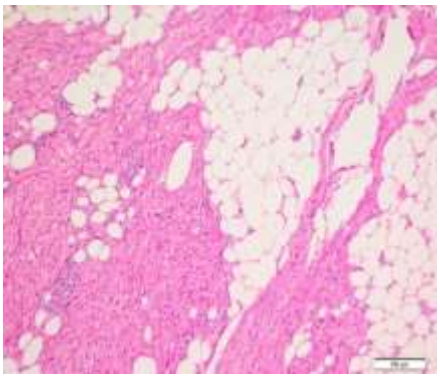

Fig. 2: The tumor shows nests and sheets of polygonal cells with abundant granular eosinophilic cytoplasm and excentric small nuclei (H&Ex100)

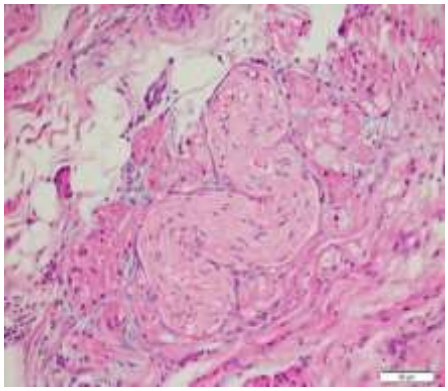

Fig. 3: The presence of perineural invasion in the tumor (H&Ex200)

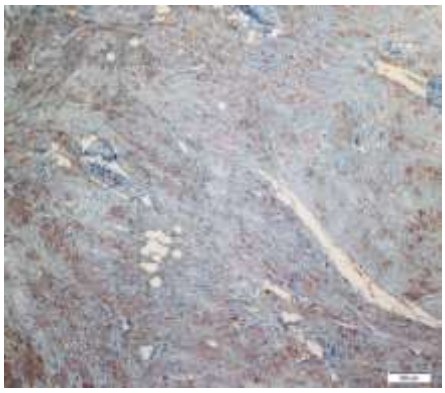

Fig. 4: The tumor cells show diffuse, strong positivity with S-100 (x40)

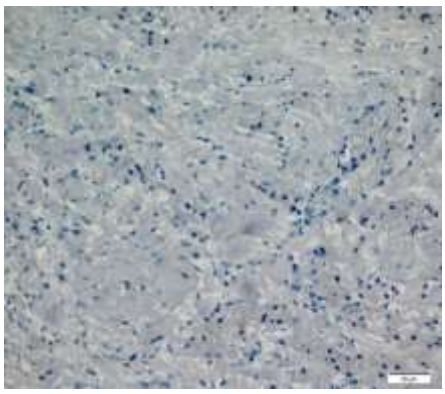

Fig. 5: Ki 67 proliferation activity index is low in the tumor (x200)

DISCUSSION

GCT was first described in 1926 by Abrikosoff. It is a type of benign tumor that rarely shows malignant findings [4]. It most commonly affects women aged 30–50. However, there are reports stating that it can also be seen in women aged 17–74. While it can occur in any part of the body, it is most commonly seen in the tongue (30%). The breast is an extraordinary localization site for GCT. Out of all GCT cases, only 5%–6% of them are localized in the breast. It was reported that GCT is responsible for less than 1% of malignant neoplasms in the breast [1, 6].

The mammographic images of GCTs are variable. These lesions appear as ranging from a round shaped mass to an infiltrating spiculated lesions. Therefore mammographic presentation of GCT of the breast is difficult to distinguish from carcinoma. Microcalcifications are generally not a feature of GCTs [1, 5]. In this case, mammographic images showed a well-circumscribed mass without microcalcification in the lower outer quadrant in the right breast. With these findings the mass was considered a benign tumor as fibroadenoma. Breast carcinoma was excluded due to absence of spiculated mass with infiltrative margins.

On ultrasound, GCTs can present as solid, ill defined lesions with marked posterior acoustic shadowing or as more benign-appearing well-circumscribed solid masses [1,5]. There are few reports on the MRI findings of GCT of the breast. The MRI findings of GCTs described isointensity on T1 and T2 weighted images and heterogeneous rim enhancement after gadolinium injection [7].

GCT shows similarities between the benign and malignant lesions of the breast, which can cause confusion in the diagnosis. These are fat necrosis, apocrine and secretory carcinoma of the breast, malignant melanoma, and metastatic renal cell carcinoma. Since therapeutic approaches vary, differential diagnosis is highly important. In the differential diagnosis, apart from routine histopathological examination, immunohistochemical stainings were used. Morphologically, foamy histiocytes, giant cells, and lymphocytes are often present in fat necrosis, whereas in our case, there were only foamy histiocytes. Besides, immunohistochemically, because of the positiveness for CD68 and S100, the diagnosis of fat necrosis was excluded. Based on the positiveness for S100 and negativeness for pancytokeratin and GCDFP15, the diagnoses of apocrine carcinoma and secretory carcinoma were ruled out. In this case, malignant melanoma after negativeness for HMB-45 and metastatic renal cell carcinoma were abandoned after negativeness for pancytokeratin.

Only 1% of GCTs are malignant. To consider a tumor as malignant, the histopathological criteria must include the following properties: tumor diameter of > 5 cm, presence of necrosis, increased mitotic rate (more than two mitoses in 10 high-power fields), nuclear pleomorphism, rapid growth, and local invasion [2,8]. Based on these criteria, the diagnosis of malignant GCT was excluded.

GCTs need surgical treatment. Surgery requires excision of the mass with solid contours. In cases with perineural invasion, in which the mass cannot be fully removed, the tumor is more aggressive and can increase local recurrence [5, 9]. In the excision performed for diagnostic purposes, additional surgical intervention was not required, as the contours were negative and there were no findings in favor of malignancy. In spite of perineural invasion, local recurrence was not detected during the 22-month follow up.

CONCLUSION

GCT is a generally benign tumor that can easily be mistaken as a primary or secondary malignant tumor of the breast. In lesions that suggest malignancy in a macroscopic way, GCT must be considered. To prevent unnecessary therapeutic approaches, histopathological examination and immunohisto-chemical staining should be performed.

REFERENCES

1. 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 Journal, 2004; 10(6): 528–531.
2. Aneiros-Fernandez J, Arias-Santiago S, Husein-Elahmed H, Ovalle F, Siendones MI, Aneiros-Cachaza J; Cutaneous granular cell tumor of the breast: a clinical diagnostic pitfall. J Clin Med Res., 2010; 18; 2(4): 185-188.
3. Tural D, Akar E, Oztürk T, Turna H, Serdengeçti S; Malignant clinical presentation of a benign granular cell tumor of breast in a patient with previously treated contralateral invasive ductal carcinoma. Case Rep Oncol Med., 2012: 974740.
4. Ilvan S, Ustündağ N, Calay Z, Bukey Y; Benign granular-cell tumour of the breast. Can J Surg., 2005; 48(2):155-156.
5. Pergel A, Yucel AF, Karaca AS, Aydin I, Sahin DA, Demirbag N; A therapeutic and diagnostic dilemma: granular cell tumor of the breast. Case Rep Med., 2011: 972168.
6. Filipovski V, Banev S, Janevska V, Dukova B; Granular cell tumor of the breast: a case report and review of literature. Cases J., 2009; 10(2): 8551.
7. Scaranelo AM, Bukhanov K, Crystal P, Mulligan AM, O'Malley FP; Granular cell tumour of the breast: MRI findings and review of the literature. Br J Radiol., 2007; 80(960): 970-974.
8. 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; 29(1): e656-e657.
9. Liebig C, Ayala G, Wilks JA, Berger DH, Albo D; Perineural invasion in cancer: a review of the literature. Cancer, 2009; 115(15): 3379-3391.