Case Report

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A Case Study on Granular Cell Tumor

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Abstract

Introduction: Granular Cell tumor (GCT) is a rare neoplasm. A total of 5%-15% of all cases occur in the breast. This article report a case of a GCT of the breast followed up by a review of literature. To our knowledge, thisis the youngest adult case.

Case report: A 19-year-old girl presented with a mass in the left breast. Ultrasonography exam showed an irregular hypoechoic, hypovascular lesion. Sheunder went a breast lumpectomy under local anesthesia.

Conclusion: Histopathology confirmed the diagnosis of GCT of the breast. Patient is on regular follow up and is presently free of disease. Strong recommendation of long-term follow-up.

Keywords: Granular cell tumor; Breast cancer; Abrikossoff tumor

Introduction

Granular cell tumor (GCT) is a benign rare neoplasm, initially indentified in the tongue by Weber in 1854 then described in the breast by Abrikossoff in 1926 [1,2]. The histogenesis of the lesion is still uncertain. Due to the immunohistochemical features, it is assumed to be derived from perineural or Schwann cells [3]. GCT can affect all soft tissue and may be multifocal, with the tongue being the most common site [3,4]. GCT of the breast (GCTB) account for 5%-15% of all GCT [5]. Herein, we report the youngest adult case of GCTB, with a brief review of the literature.

Case Report

A 19-year-old girl, with no medical history of malignancy, presented with a palpable lump in the left breast since 4 months. This mass was noticed by the patient at breast by self-examination. On physical examination, a firm, mobile and well-defined mass of 20 mm was observed. No skin abnormalities were notified. There was no axillary or supraclavicular lymph nodes. The right breast examination was normal.

Ultrasonography (US) of the breast showed an irregular hypoechoic and hypovascular mass of 14 × 12 mm. Radiologists evaluated the mass as ACR 3 **(Figure 1).**

Figure 1 Left breast ultrasonography: Showing an irregular hypoechoic noduleat the union of the upper quadrants. There is no increase of the vascularity of the tumor.

A breast Lumpectomy without lymph node dissection under local anesthesia was performed. On macroscopic examination, the tumor consisted of a fragment of fatty tissue with lobulated margins measuring 15 mm and containing a firm, well-limited, yellowish-white nodule.

Histological examination revealed a tumor proliferation organized in clusters and trabeculae. These cells are polygonal, with abundant eosinophilic and finely granular cytoplasm. Nuclei are rounded and not atypical. The stroma is fibrous abundant **(Figure 2).**

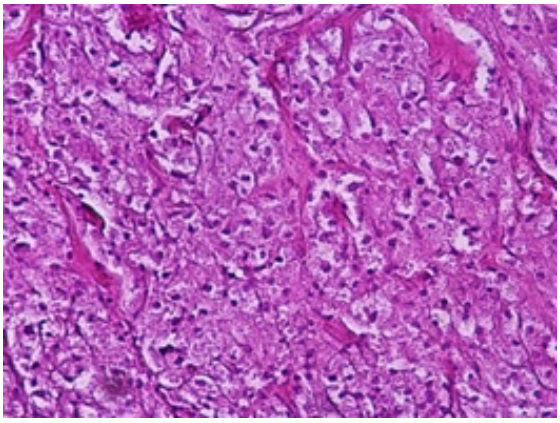

Figure 2 H&E-stained section showing granular cells tumor cytological features, abundant and granular eosinophilic cytoplasm (H&E stain, 200x magnification).

Immunohistochemical examination showed the typical receptors of this tumor. In our case, GCT showed positive immunoreaction to Periodic Acid Schiff (PAS), S-100, and Vimentin and negative immunoreactivity against cytokeratin, estrogen and progesterone receptors. The diagnosis of GCT of the breast was confirmed. Our patient is on regular follow up and is clinically disease free at present.

Discussion

GCT are classified as rare tumors in the setting of breast tumor. Initially, it was described as myogenic lesion (myoblastoma) [2]. Actually, these tumors assumed to be arising from interlobular stroma (Schwann cells) and spread through the cutaneous branches of the supraclavicular nerve [5].

They are more common in premenopausal women occurring more frequently in the upper inner quadrant of the left breast [6]. In our case, the tumor was at the union of the upper quadrants in the left breast and to our best knowledge, this is the youngest adult case of GCTB in the literature.

GCTB are usually asymptomatic. As in our case, it may presents as a firm, slow growing, well defined painless mass. Tumors are generally 2 cm or smaller [4].

US imaging usually shows a heterogeneous and poorly-defined mass with hypervascular echotexture. They are generally hypoechoic with posterior acoustic shadowing due to the presence of reactive fibrosis [7].

At mammography, the common features of GCT include stellation and irregularity without calcifications [7].

In our case, US was performed. It showed an irregular hypoechoic, hypovascular mass of 14 × 12 mm.

The optimal surgical approach for GCT remains conservative surgery (quadrantectomy or wide local resection). Sentinel node biopsy or lymph node dissection are not indicated in the surgical treatment [5]. In our case, the patient underwent a breast lumpectomy under local anesthesia. Gross section usually shows a firm, greyish-white to yellow mass with well-defined borders [8].

Histopathologically, the cells are arranged of in nests or sheets. They are polygonal in shape and contain abundant eosinophilic cytoplasm with distinct borders. The granules are usually prominent and fill the cytoplasm. Nuclei are small, round to slightly oval, centrally located and hyperchromatic. The stroma is collagenous. Multi-nucleation and rare mitotic features may be seen [8].

Histochemical analysis confirms the histological diagnosis. The granules were PAS positive. The tumor cells are strongly immunorecative to S-100 protein and stain positively for CD68 andvimetin. Cells are negative for cytokeratin, oestrogen and progesterone receptors [5].

Malignant GCTB is a very rare condition that occurs in 1%-2% of all GCT. They must be suspected when pathologically enlarged lymph nodes are detected, the tumor is larger than 5 cm or there is infiltration of the adjacent tissues [6]. Misdiagnosis could be avoided with pre-operative breast core biopsy.

The prognosis for benign GCTB is excellent. Local tumor relapses after inadequate surgical resections are rarely described (2%-8%) [9]. Patients should be monitored for at least 10 years as distant recurrences have been reported [5].

Conclusion

The clinico-radiological and pathological features of GCT in our case are conform to literature. Conservative surgery remains the standard of care. There is no role of adjuvant therapy. However, long-term follow-up is strongly recommended.

Conflict of Interest

The authors declare that they have no conflict of interest.

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