ABSTRACT
Breast carcinomas are the leading cause of mortality and morbidity in the female population. Granular cell tumor (GCT) is a rare tumor, which commonly involves the tongue, lower extremity, skin, and digestive tract. It is derived from Schwann cells. Benign and malignant GCTs exist but the criteria that define them are poorly stated in the literature. Our case is an unusual case of atypical GCT in a 52-year-old female who presented with left breast lump. The diagnosis was confirmed by immunohistochemistry. Early diagnosis and intervention in such cases is critical to increase patient survival and reduce postoperative morbidity and mortality.

Keywords: Breast carcinoma, Epithelial malignancy, Granular cell tumor, Neoplasms.

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INTRODUCTION
Breast cancer is the most common cancer in women worldwide. About 1.7 million new cases were diagnosed in 2012. Granular cell tumor is an uncommon neoplasm that was first described by Abrikossoff in 1926 as “granular cell myoblastoma,” assuming it was of myogenic origin. Subsequently, immunohistochemical and ultrastructural features are suggestive of a perineural or Schwann cell origin. However, the exact histogenesis of GCT is still unknown.

CASE REPORT
A 52-year-old female came to the surgical outpatient department with a history of lump in the left breast of 4 months duration. The lump gradually increased in size. It was firm, located in the upper outer quadrant, and did not involve the overlying skin. There was no nipple discharge or skin retraction. Axillary lymph nodes were not palpable.

Fine needle aspiration was carried out at a primary care center where it was reported as positive for epithelial malignancy, data or slides of which were not available. The patient underwent left modified radical mastectomy with axillary lymph node clearance.

We received the entire intact specimen measuring 25 × 19 × 2 cm with skin flap measuring 20 × 5 × 0.5 cm. Nipple and areola measured 1.5 cm in diameter. The tumor was located in the upper outer quadrant and measured 2 × 1 × 0.5 cm. The tumor was firm to hard and was grossly away from all resected surgical margins. The deep resection margin was 0.7 cm away. A total of 12 axillary lymph nodes were dissected. On microscopic examination, the tumor comprised of tumor cells arranged in sheets, nests, and lobules with infiltration into the surrounding breast parenchyma. Individual tumor cells were large, polygonal with mild nuclear pleomorphism and abundant granular cytoplasm (Fig. 1). There was no evidence of necrosis. All the surgical resected margins were free of tumor and the lymph nodes showed no evidence of metastatic tumor deposits.

Immunohistochemistry was carried out which showed that the tumor cells were strongly positive for S-100 stain (Fig. 2A) with a Ki-67 index of 3% (Fig. 2B). Thus, a diagnosis of atypical GCT was made.

DISCUSSION
A benign GCT is an uncommon tumor that may arise anywhere in the body, most common sites of origin being the tongue, followed by soft tissues. The GCT of the breast accounts for between 5 and 15% of all GCT cases. It occurs in a wide range of ages from teenagers to elderly, most commonly in women between 30 and 50 years. Afro-American women have higher incidence of GCT. Atypical GCT of breast is quite rare. The differential diagnoses to be considered are for tumor cells with abundant granular cytoplasm, such as secretory carcinomas, benign and malignant adnexal tumors, and soft tissue tumors, such as fibrohistiocytic lesions, alveolar soft-part sarcoma, and fasciitis. Immunohistochemistry can be used as a tool for confirmation of GCT in such cases.

Once the diagnosis of GCT is confirmed, it is important to establish whether it is benign, atypical, or malignant. Malignant GCT differs from benign counterpart in following clinical features:

- Sudden rapid growth in a tumor of long duration
• Larger size on presentation (median size of 4–5 cm as compared with benign tumors which in most cases are less than 3 cm in size)
• History of local recurrence
• Frequent localization to the lower limbs (unlike benign GCTs, which commonly occur in the head, neck, and tongue)

Histological criteria of malignancy was first proposed by Fanburg-Smith et al. They proposed six histologic criteria for the diagnosis of atypical and malignant GCT, viz. necrosis, spindling, vesicular nuclei with large nucleoli, increased mitotic activity (>2 mitoses/10 high-power field at x200 magnification), high nuclear-to-cytoplasmic ratio, and pleomorphism. Neoplasms that meet three or more of these criteria are classified as histologically malignant; those which meet one or two criteria are classified as atypical and those with only focal pleomorphism are classified as benign.

Our case showed a mitotic activity of 3% and focal pleomorphism with prominent nucleoli, thus being categorized into the atypical group. Insufficient tumor resection often results in local recurrence, and has a tendency to spread through both lymphatic and hematogenous routes. Chemotherapy and Radiotherapy have little role in treatment. Surgical resection is the primary option. Resection with adequate margins is necessary because the tumor has no capsule and is invasive.

CONCLUSION
Atypical GCT occurring in the breast is rare. More data are required to assess disease-free survival. Although rare, they should be considered in the differential diagnosis of tumors with unusually large granular cell morphology. Immunohistochemistry is confirmatory.

REFERENCES
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