

# Benign granular-cell tumour of the breast

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**G**ranular cell tumour (GCT) is a rare lesion of putative Schwann's cell origin. It affects many organs, including the breast. Recognition of this usually benign tumour is important, since clinically, radiologically and grossly, GCT of the breast often mimics carcinoma. Histologically, tumour cells are abundant, with eosinophilic cytoplasmic granules and round nuclei. Here we report the case of a 70-year-old woman with a benign GCT of the breast, of interest for its rarity and her family history of breast cancer. We also review the literature on GCT of the breast.

GCT in the breast is a relatively uncommon lesion that must be differentiated from carcinoma.<sup>1</sup> They are rarer than breast carcinomas: about 1 GCT for 1000 cases of breast carcinoma. It was first described in 1926 by Abrikosoff as granular cell myoblastoma, assuming a myogenic origin.<sup>2</sup> With its immunohistochemical and ultrastructural features, GCT is now considered to originate from Schwann's cells.<sup>3,4</sup>

## Case report

A 70-year-old woman arrived with a firm, fixed, painless mass in the subareolar region of her right breast. Physical examination revealed no enlarged nodes in the axilla. Ultrasonography revealed a hypoechoic, nonhomogeneous mass with an acoustic shadow. Mammography showed a dense shadow 10 mm in diameter, with specula suggesting parenchymal fibrosis; malignancy was suspected. A wide local

excision of the breast tissue, except for skin and the nipple, was performed. Intraoperative consultation about the specimen suggested a grossly malignant lesion, but no carcinoma cells were found on examination of the imprint or a frozen section of the tumour.

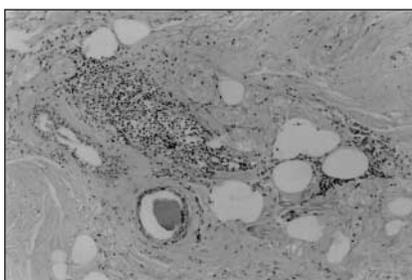
The tumour was 0.8 cm in diameter on cut section, yellowish-white and solid, with infiltrating borders. Specimens were fixed in 10% buffered formalin and embedded in paraffin to obtain 4-µm sections, stained with hematoxylin-eosin and for periodic acid-Schiff (PAS) reaction after diastase digestion. Histologically, the tumour was composed of nests and rows of large polyhedral cells with granular, eosinophilic cytoplasm and small central nuclei; remnants of normal breast tissue were intermingled within the lesion (Fig. 1). No mitotic figures were observed. The cytoplasmic granules were PAS-positive and diastase-resistant. Immunohistochemistry revealed intense cy-

toplasmic immunoreaction to the S-100 protein (Fig. 2) and none to pankeratin, estrogen receptor, progesterone receptor and c-erbB-2.

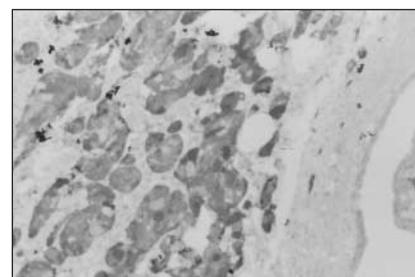
Ten months after surgery, the patient was doing well and remained free of recurrence.

## Discussion

Clinically, GCT can simulate carcinoma because of its fibrous consistency, fixation to the pectoral fascia, and skin retraction. Some GCTs appear as an ill-defined or stellate lesion on mammograms, which strengthens the clinical impression of carcinoma.<sup>5</sup> Grossly, the lesion is generally more sharply circumscribed and more uniform than typical carcinoma, but some are hard in consistency and irregular enough in outline that carcinoma can not be excluded without microscopic inspection,<sup>5</sup> as in our case: since no nuclear atypia and mitoses were seen under the microscope, the lesion was judged to be benign. Although GCTs are usually be-



**FIG. 1.** Large, polygonal cells with wide, coarsely granular cytoplasm and small round nucleus (hematoxylin-eosin stain, ×100).



**FIG. 2.** Cytoplasmic granules were positive for S-100 protein (×200).

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nign, there are a few reports of them behaving in a malignant fashion, with metastatic spread.<sup>3,4</sup>

Treatment of GCT is wide local resection. Chemotherapy, alone or in association with radiotherapy, is not given unless the tumour is malignant.<sup>3,5</sup>

The differential diagnosis is a challenge, and tumour must be differentiated from breast carcinoma, sclerosan adenosis, histiocytic or metastatic lesions.

GCT of the breast is not commonly associated with other breast tumours. Familial cases have been reported, but data are inadequate to suggest genetic inheritance.<sup>5</sup> In our case, both mother and aunt of the patient had diagnoses of invasive ductal carcinoma. This familial history in

a patient with GCT raises questions about a relationship with invasive ductal carcinoma.<sup>2</sup> Reports about co-localization and simultaneous ipsilateral and contralateral occurrence of these 2 tumours also suggest such a relationship. Further data to test this hypothesis are needed.

**Competing interests:** None declared.

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# Pure invasive micropapillary carcinoma of the male breast: report of a rare case

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**B**reast carcinoma in men is a relatively rare disease with an incidence of nearly 1% of all breast cancers; it accounts for <1% of all cases of cancer in men. The most common histologic subtype of invasive breast carcinoma in either sex is infiltrating ductal carcinoma, which accounts for about 85% of all tumours.<sup>1</sup> Invasive micropapillary carcinoma (IMPC) of the breast has a 2.7% incidence, and lobular carcinoma, 1%. Even rarer subtypes include medullary, tubular, mucinous and squamous carcinomas.

IMPC is a morphologically distinctive form of ductal carcinoma in which the tumour cells are arranged in morule-like clusters. A pure IMPC of the breast is very rare.<sup>2</sup> This report describes a pure micropapillary carcinoma in a 66-year-old man, with additional relevant clinical,

pathological and immunohistochemical features.

**Case report**

A 66-year-old man came to us with a painless mass in his left breast. Upon palpation, the mass was round, well circumscribed, solid, mobile and approximately 1.5 cm in diameter. His axillary lymph nodes were not enlarged. Mammographic examination of his left breast showed a partially infiltrative mass without microcalcifications and with no axillary lymph node enlargement. These clinical and radiological features were suspicious for malignancy. Although a fine-needle aspiration biopsy showed some cytologic features that suggested malignancy, an excisional biopsy was performed because the

clinical and radiological features were unconvincing.

The final histopathology of the biopsy revealed a pure IMPC of the male breast with an intraductal component of not more than 25%, with micropapillary variant. On microscopic examination, the primary distinctive feature of the tumour was the overall nested pattern, in which the nests were surrounded by artificially created clear spaces (Fig. 1). Tumour cells within the nests had either a solid or a tubular configuration. Papillary structures were also seen in small clusters nearly without fibrovascular core.

Using the modified Bloom-Scharf-Richardson scoring system, we graded the tumour as poorly differentiated (grade III). In this case, ductal carcinoma in situ was also present and this compo-

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