

Dermatofibroma-like Atypical Granular Cell Tumour

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Sir,

Granular cell tumours (GCTs) are uncommon tumours that occur at a wide range of sites (1) and are characterized by granular, acidophilic cytoplasm that contains abundant lysosomes upon ultrastructural examination (2). Although they vary considerably in cellular and nuclear morphology, tumour cells tend to cluster into aggregates, with some situated between bands of collagen. The nuclei are small, round and centrally located, with no mitoses. GCTs are shown to express S-100 protein upon immunohistochemical examination and to contain numerous pleomorphic secondary lysosomes, including occasional angulate forms upon ultrastructural examination. We describe an atypical GCT with a histological architecture resembling that of a dermatofibroma.

CASE REPORT

A 48-year-old man presented with a solitary, round, dome-shaped hard nodule, 1.0 × 1.0 cm in size, and slightly yellow in colour in the pubic area which had grown over a period of 4 years (Fig. 1). The nodule was slow-growing, fixed and painful when subjected to pressure. Examination of haematoxylin and eosin-stained sections revealed that the tumour was situated in the reticular dermis with extension into the papillary dermis and associated with mild hyperplasia of the overlying epidermis with elongation of the rete ridges and hyperpigmentation of the basal layer (Fig. 2 top). The tumour was made up of sheets of cells arranged singly and in nests or lobules separated by thin delicate collagen bundles. At the periphery of the lesion, tumour cells were arranged in a whorled pattern, and appeared to be infiltrating the surrounding tissue. The tumour cells were oval, polygonal to spindle-shaped with distinct cellular borders. The majority of cells had abundant eosinophilic granular cytoplasm and small, bland, eccentrically placed nuclei, and considerable variation in cellular and nuclear size was noted. The tumour cell nuclei showed prominent nucleoli, pleomorphism and nuclear contour irregularities (Fig. 2 bottom); however, no mitosis or necrosis was seen. Immunohistochemical staining revealed that tumour cells showed immunoreactivity for S-100, vimentin, neuron-specific enolase and CD68. No immunopositivity for desmin, smooth muscle actin, CD34, CD57, alpha-1-antitrypsin, MAC387, factor VIII and factor XIIIa was observed. Electron microscopy revealed that the tumour was composed of



Fig. 1. A dome-shaped, hard nodule in the pubic area.

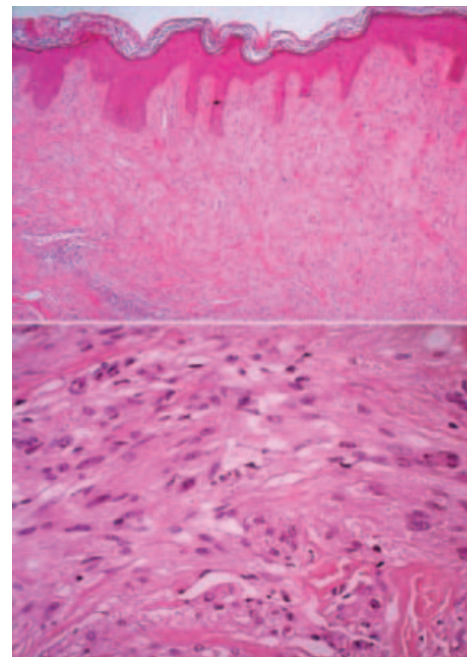


Fig. 2. (top) Hyperplasia of the overlying epidermis and hyperpigmentation of the basal layer (haematoxylin and eosin, original magnification × 40). (bottom) Tumour cells show nuclear pleomorphism and prominent nucleoli (× 200).

spindle-shaped cells with bland or round to irregular nuclei and occasional prominent nucleoli. The abundant cytoplasm contained numerous pleomorphic granules of various densities. These granules were thought to be secondary lysosomes. The tumour was completely excised. No recurrence of the lesion has been noted since surgical excision.

DISCUSSION

Most granular cell tumours are benign, but a malignant counterpart also exists. In contrast to the more common benign lesions, malignant tumours are larger, with a more aggressive clinical presentation of rapid growth and metastatic potential. Recently, Fanburg-Smith et al. (3) classified atypical, malignant and benign granular cell tumours on the basis of six histological criteria: necrosis, spindling, vesicular nuclei with large nucleoli, increased mitotic activity, high nuclear to cytoplasmic ratio and pleomorphism. Neoplasms that met three or more of these criteria were classified as histologically malignant, those that met one or two criteria were classified as atypical, and those that displayed only focal pleomorphism, but fulfilled none of the other criteria, were classified as benign.

The cells of the present tumour showed some nuclear pleomorphism and spindle-shaped nuclei with prominent nucleoli. The Fanburg-Smith classification places this lesion into the atypical category. In addition, the histological features of the lesion examined closely resembled those of dermatofibroma-like granular cell tumour reported by Cheng et al. (4). Dermatofibromas typically display hyperplasia of the overlying epidermis with elongation of the rete ridges and hyperpigmentation of the basal layer. Spindle-shaped cells are distributed singly in between collagen bundles, often in a whorled pattern. The neoplasm presented here was a partially circumscribed mass of spindle cell proliferation with infiltrating borders. Hyperplasia of the overlying epidermis with mild elongation and hyperpigmentation of rete ridges was observed. The tumour cells were mainly spindle-shaped and arranged in a whorled pattern at the periphery of the lesion.

The differential diagnosis of the lesion examined includes many cutaneous neoplasms with granular cell changes, such as leiomyoma, leiomyosarcoma, angiosarcoma, basal cell carcinoma, schwannoma, dermatofibrosarcoma protuberans and dermatofibroma (5–13). It is particularly important that the neoplasm presented should be differentiated from a granular cell dermatofibroma due to similarities of architecture.

In such instances, a correct diagnosis can be reached by the identification of more typical histological characteristics of a given entity and by the use of appropriate batteries of immunohistochemical markers. The lesion described here possessed the characteristics of

a true granular cell tumour. In contrast to granular cell dermatofibroma, it was immunopositive for S-100 protein and neuron-specific enolase, and did not react with factor XIIIa. In addition, the tumour cells were immunoreactive for CD68 and vimentin, but were conspicuously negative for factor VIII, cytokeratin, smooth muscle actin, desmin, CD34 and MAC387. A CD68 immunoreactivity indicates the presence of lysosomes rather than specific histiocytic lineage (14). The absence of desmin and smooth muscle actin immunoreactivity, and the absence of a fascicular growth pattern in the histological features, effectively exclude the possibility of leiomyoma and leiomyosarcoma (5, 6). The absence of the anastomosing vascular pattern characteristic of conventional angiosarcoma, and lack of immunoreactivity for factor VIII exclude the possibility of angiosarcoma (7).

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