

Central Nuclear Palisading in Nodular Basal Cell Carcinoma: Morphological and Immunohistochemical Concerns

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While basal cell carcinoma (BCC) is the most common malignant skin neoplasm, and histologically is one of the easiest to diagnose, the possibility of a wide spectrum of morphologies, although rare, may lead to difficulty in differential diagnosis. This report describes the existence of a rare type of BCC with central nuclear palisading forming Verocay-like bodies, with a related immunohistochemical (IHC) profile, and describes the possible differential diagnosis when compared with other epithelial and mesenchymal neoplasms with comparable histological form, structure and configuration.

CASE REPORT

A papulo-nodular lesion, measuring approximately 0.8 cm in diameter, was removed from the right shoulder of a 72-year-old man, with an initial suspected diagnosis of BCC due to the lesion's smooth surface, irregular brown colour, and partially ulcerated centre with a well-defined edge (Fig. 1). Histologically, the lesion was a nodular and micronodular BCC with clefting and mucin around the epithelial component. In addition, basaloid epidermal cells with the expected peripheral nuclear palisading were observed at the periphery of the lesion (Fig. 2a). However, some central segments of the BCC showed unusual characteristics of the nuclei, which were arranged in a pattern of parallel rows similar to classical Verocay bodies, which are typical of the Antoni A areas of a classic schwannoma tumour (Fig. 2b).

Immunohistochemically, the neoplasm expressed diffuse positivity for pancytokeratin (CK) and CK 19



Fig. 1. Clinical aspect of the 0.8 cm lesion on the right shoulder.

(Fig. 2c), and was negative for CK 7, CK 20, vimentin, S100 protein, human melanin antigen (HMB-45), human melanin antigen (MART-1), neurofilament, glial fibrillary acid protein (GFAP), neuron specific enolase (CD34) and actin smooth muscle.

In addition, there was weak neuron specific enolase positivity centrally with nuclear palisading, and a variegated and strong positivity with chromogranin A, but not for synaptophysine.

DISCUSSION

BCC containing regions of central nuclear palisading (Verocay-like bodies), is an extremely rare type of skin cancer; only a few cases have been described in the literature (1, 2). Usually, there are no diagnostic problems or issues with excisional biopsies, due to the other general aspects of BCC. However, a punch biopsy, to allow diagnosis of full-thickness skin specimens, may present a challenge with regard to differential diagnosis.

Verocay or Verocay-like bodies are commonly found in schwannoma (3), but can also be found in other mesenchymal tumours such as melanocytic naevus with schwannian differentiation, leiomyoma, cutaneous fibrous histiocytoma, myoblastoma and spindle cell lipoma (4–6). Immunohistochemistry facilitates differential diagnosis from this array of neoplasms, because BCC typically expresses CK pool and CK 19, but not S100 protein, vimentin, CD34 or smooth muscle actin.

Verocay-like bodies are also found in other epithelial neoplasms, such as rippled-pattern trichoblastoma (7) and sebaceoma (8); however, the absence of peripheral stromal structures, such as papillary mesenchymal bodies and fibrocellular stroma, makes it difficult to distinguish these neoplasms from BCC with Verocay bodies without additional studies: CK-20 immunoreactive cells and scattered sebaceous cells are useful findings to distinguish trichoblastoma and sebaceoma, respectively, from BCC.

In our case the lesion showed a weak NSE expression and a focal strong positivity for chromogranin, indicative for neuroendocrine differentiation. These markers, present in neoplasms such as Merkel cell carcinomas, were described in BCC in 2001 by Collina et al. (9). Although Merkel cell carcinomas are not included in the differential diagnosis of lesions with Verocay-like bodies, common morphological features of BCC and

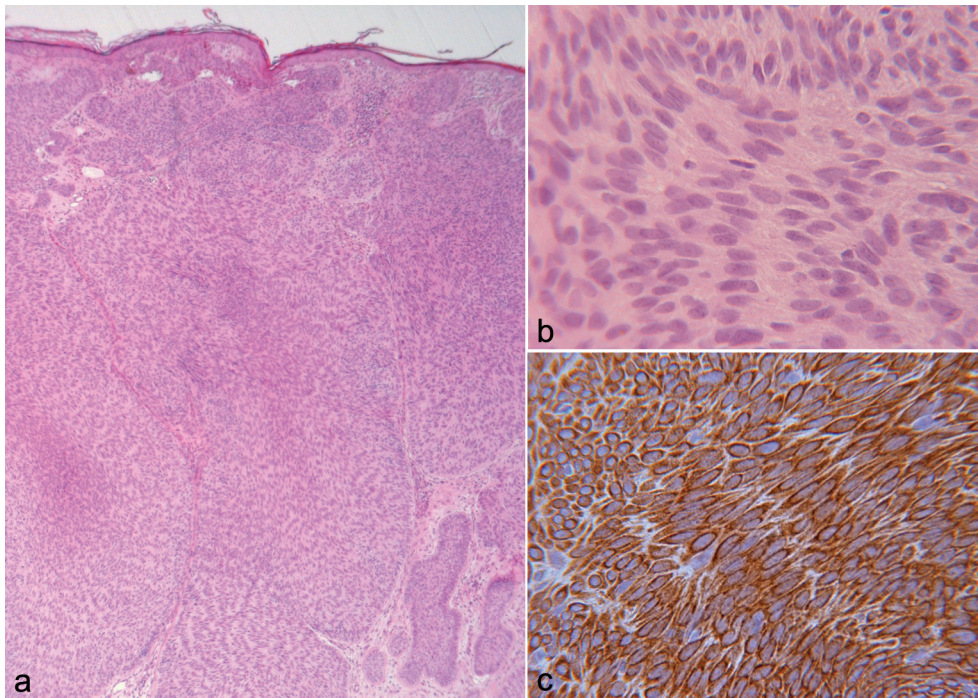


Fig. 2. (a) Low magnification of basal cell carcinoma (BCC) (haematoxylin-eosin (H&E); $\times 10$). (b) Central nuclear palisading (H&E; $\times 25$). (c) Diffuse positivity with cytokeratin 19 (immunostaining; $\times 25$).

Merkel cell carcinomas have been described by Ball & Tanhuanco-Kho (10). Nevertheless, the authors did not describe central nuclear palisading Merkel cell carcinomas, which is a peculiar finding of this case.

Furthermore, in Merkel cell carcinoma there is typical positivity for CK 20 with paranuclear dots, which are rare or absent in BCC (11), or occasionally CK 20-/CK 7+ expression (12), which is also absent in BCC. In the present case, the main histological aspect and IHC profile excluded Merkel carcinoma and led to a diagnosis of BCC.

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