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Basal cell carcinoma of the skin with matrical differentiation: a case report

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Introduction

Basal cell carcinomas display a considerable variety of appearances under light microscope as well as in clinical practice. From a histopathologic point of view, basal cell carcinomas can be divided into two groups: undifferentiated and differentiated types (1). The latter group tend to show differentiation towards the cutaneous appendices which are hair follicle, sebaceous gland, apocrine gland and eccrine gland. On the other hand, undifferentiated basal cell carcinomas show no differentiation and are called solid or primordial basal cell carcinomas. Among the differentiated group of lesions those with differentiation toward hair follicles are called keratotic or pilar types. Cystic or sebaceous type, adenoid and sometimes reticulated type basal cell carcinomas are names used for cases showing differentiation towards sebaceous glands and apocrine or eccrine glands respectively. Adamantinomatoid and granular variants as well as basal cell carcinomas with clear , signet ring and multinucleated cells are rare forms of basal cell carcinoma. (1,2). Eccrine epithelioma which is a form of adenoid type basal cell carcinomas (BCC) is also rare and important type in terms of its capacity to infiltrate deeply even to the underlying bone (1).

Matrical differentiation characterised by the presence of islands of shadow cells identical to cells in pilomatricoma has also been rarely reported in basal cell carcinoma (3). A case of basal cell carcinoma in which this very rare form of differentiation was observed among the tumour islands is reported here.

Case Report

Seventy eight-year old male patient sought medical attention for a slowly growing painless cutaneous lesion which he had first noticed ten years ago on his left forehead skin. The lesion was excised and sent to the Department of Pathology of Dokuz Eylül University Hospital for histopathologic examination. Grossly, the lesion was located on normal appearing skin with a greatest diameter of 20 mm. The lesion itself was 1.5 x 1 x 0.5 cm in size and elevated from the skin surface. It was a gray nodular mass with central ulceration. On microscopic examination, tumoral lesion embedded in the dermis was composed of nodular masses of rather uniform basophilic cells with oval nuclei and narrow cytoplasm. Tumour islands were retracted from the stroma in some areas and palisade arrangement of the nuclei on the periphery of the nests could be seen (Figure 1). The tumour showed keratotic and adenoid differentiation and occasional areas with cystic change could be seen. Besides, large islands of pale areas composed of shadow cells were observed. Shadow cells were characterised by their distinct border and a central unstained area representing a shadow of the lost nucleus (Figure 2). The surrounding stroma showed chronic inflammatory cells and congested capillaries. The final diagnosis was basal cell carcinoma with matrical differentiation.

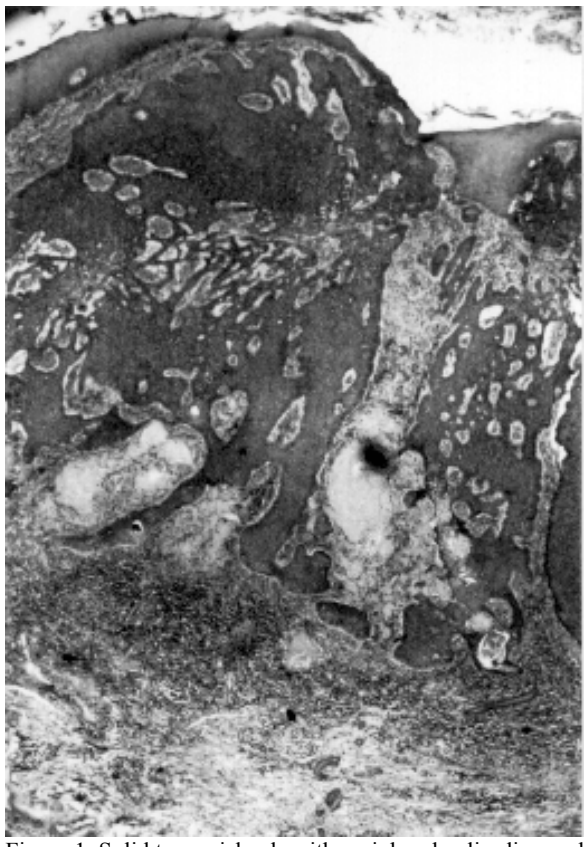

Figure 1. Solid tumor islands with peripheral palisading and shadow cell groups in the dermis (20 X, H&E).

Discussion

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Basal cell carcinomas may differentiate toward cutaneous appendages especially hair follicle and sebaceous structures. Eccrine and apocrine gland differentiation have also been reported. Shadow cells which are typically present in pilomatricomas point to differentiation towards hair matrix and they have rarely been reported in basal cell carcinomas. Shadow cells are characterised by their distinct border, eosinophilic cytoplasm and a central unstained area corresponding to the lost nucleus.

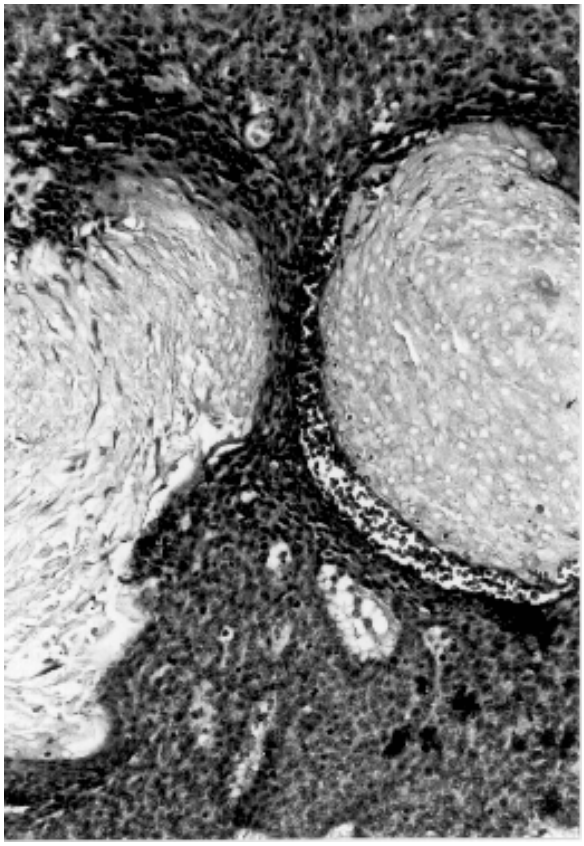

Figure 2. Shadow cells characterised by their distinct border, eosinophilic cytoplasm and a central unstained area corresponding to the lost nucleus (100 X, H&E).

Shadow cells undergo a type of keratinization normally seen in the hair cortex and show strong birefringence under polarized light like the keratogenous zone of hair (3,4). Ultrastructural studies showed the presence of thick keratin fibrils concentrically arranged around a faintly visible nucleus in cells which are in transition to shadow cells in pilomatricoma, these resembled the cells in, the keratogenous zone of normal hair (4). Apart from pilomatricoma, shadow cells were reported to be present in a variety of tumours which are pilomatrix carcinoma, proliferating trichilemmal tumour, trichilemmal cyst, chondroid syringoma, epidermal cysts of Gardner's syndrome, late phases of herpetic infections, and other rare unclassified hair follicle tumours (3,4,5).

Pilomatricoma is a tumour with differentiation toward hair cells. Unlike basal cell carcinomas, pilomatricoma manifests itself as a firm,, deep sited, often encapsulated nodule which is covered with normal skin (4). In the present superficially located case, the relation of the tumour with basal layer of the epidermis and the ulceration of the epidermis could be apparently seen. Unlike sharply demarcated margins of pilomatricomas, the tumour was not delineated. On the other hand, the case showed the typical histopathologic features of basal cell carcinoma with adenoid and keratotic differentiations, occasional retractions of tumour nests from the stroma and a noduloulcerative appearance.

Pilomatrix carcinomas showing shadow cells, although included in the differential diagnosis, could be easily excluded because of the lack of anaplastic cells and numerous mitosis in the present case. Keratinising basophilic cells gradually losing their nuclei can be seen in the wall of trichilemmal cysts. The tumour did not resemble a cystic lesion. Shadow cells must also be distinguished from amorphous debris which is seen especially in cystic basal cell carcinoma, and they result from the necrotic changes of tumour islands and from clear or vacuolated cells sometimes present in proliferating trichilemmal cysts due to glycogen storage (4).

Although this rare differentiation in basal cell carcinomas may not effect the clinical outcome; it should be considered because of its differential diagnostic difficulties with the hair matrix lesions of distinct clinical behaviours.

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