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Teaching case

Recurrent apocrine carcinoma of the scrotum: A case report

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ABSTRACT

Apocrine carcinoma is a rare tumor of the skin that typically arises in areas rich in apocrine glands, such as axilla and perineum.

The main differential diagnosis is a metastasis from a primary apocrine carcinoma of the breast.

Several authors have attempted to define morphological and immunohistochemical parameters to differentiate metastasis from primary apocrine carcinoma of the skin, but none of these had been demonstrated to be reliable markers.

Here, we report a case of primary apocrine carcinoma of the scrotum that relapsed three times within a few years, without any clinical or radiological evidence of any other tumor of breast or other sites.

Introduction

Scrotal cancer is a rare tumor, especially after improvement of the hygienic conditions in industrial working places [9].

Recently, Johnson et al. [7] identified the incidence of scrotal cancer and assessed the impact of scrotal cancer histology on survival. A total of 766 patients with primary scrotal cancer were examined, the most common histological type was squamous cell carcinoma (35.1%), followed by Extramammary Paget's Disease (EMPD) (21.9%), sarcoma (20.4%), basal cell carcinoma (16.7%), melanoma (3.3%) and adnexal skin tumors (2.6%). Although patients with adnexal skin tumors were classified as having high risk with low survival, the presence of a localized disease showed a relatively high survival, similar to that of EMPD, sarcoma and basal cell carcinoma.

Apocrine carcinoma of the skin represents a rare group of sweat-gland carcinomas. In general, it occurs in areas where apocrine glands or modified apocrine glands (ceruminous and Moll glands) are present (ano-genital regions, ear canal, scalp, mammary areola and axilla). It is an extremely rare tumor. Scrotal apocrine carcinoma is a slow-growing tumor with a tendency toward a prolonged course; it is able to metastasize to lymph nodes, lungs, liver, brain and bone [6].

The symptoms are non-specific, often manifesting with scrotal eczema or dermatitis and pruritus. In many cases, diagnosis is delayed for these reasons. Solid or cystic masses and reddish purple subcutaneous nodules are often the first sign of presentation.

We report a case of a 51-year-old man who underwent four scrotal resections between 2007 and 2013 for a primary apocrine carcinoma.

Materials and methods

After fixation in 10% buffered formalin, the surgical specimen, including the entire tumor, was sampled according to standard procedures and processed into paraffin. Serial 4-μm thick sections were stained with hematoxylin–eosin (H&E) for conventional histology, periodic acid-Schiff (PAS) and PAS-diastase for mucin detection.

Immunohistochemistry was performed on the paraffin sections with the following reagents: Ki-67 (MIB-1, DakoCytomation, Glostrup, Denmark), GCDFP-15 (EP1582Y, Ventana), S100 (4C4.9, Ventana), low molecular weight cytokeratins (CAM5.2, Ventana), CK5/6 (D5/16B4, Ventana), EMA (E29, Ventana), CEA (CEA 31, Ventana), E-cadherin (36, Ventana), estrogen receptor (SP1, Ventana), progesteron receptor (1E2, Ventana), PSA (polyclonal, Ventana), smooth muscle actin (1A4, Ventana), p53 (DO-7, Ventana), p63 (4A4, Ventana), d2-40 (d2-40, Ventana), androgen receptor (SP107, Ventana) and lysozyme (polyclonal, Ventana). Immunostaining was highlighted with a polymeric system (DAKO ADVANCE HRP)

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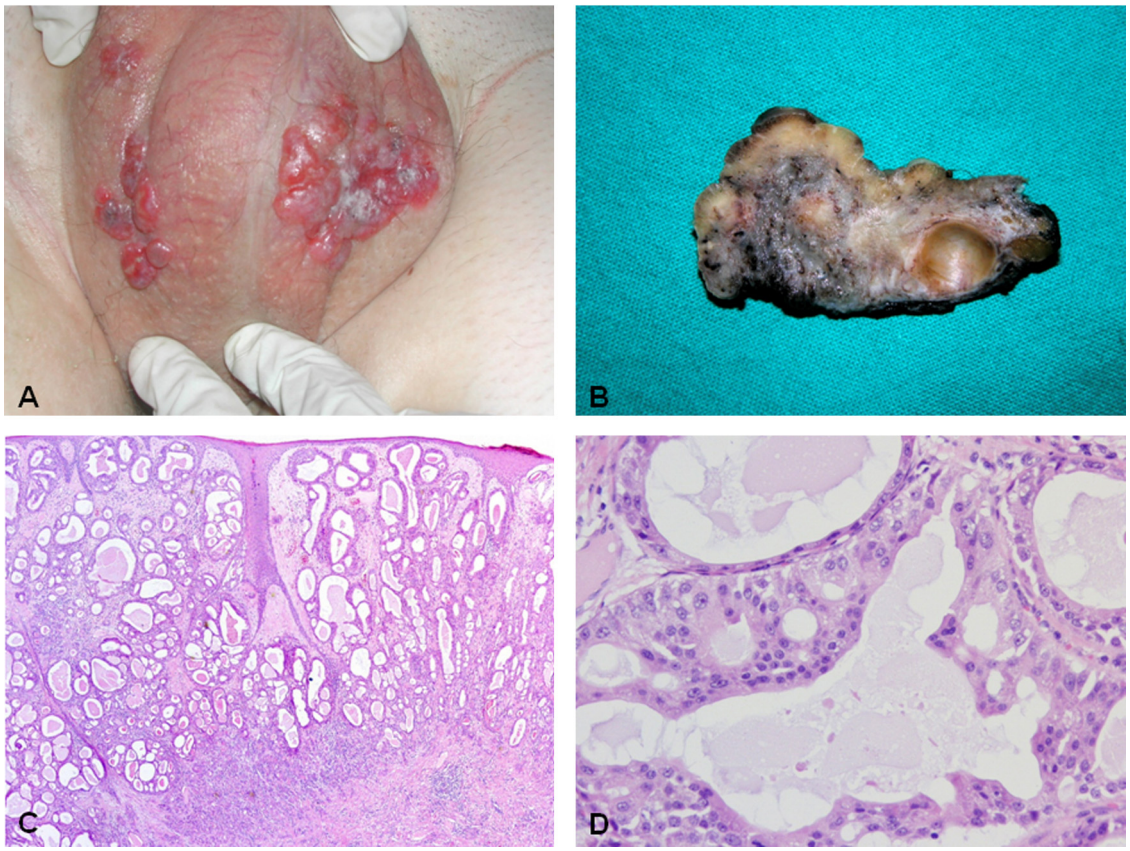

Fig. 1. (A) The patient presented with multiple scrotal reddish and whitish nodules in the scrotum. (B) Grossly, the lesions were whitish plaque-like formations, with alternating solid and cystic areas. (C) Panoramic view of the tumor showed two distinct components, cystic and solid (H&E, 20×). (D) The cystic structures contained eosinophilic secretion, lined by cells with apocrine features, forming papillae tufting in the lumen (H&E, 400×). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

and finally visualized with 3,3′-diaminobenzidine (DAB) and counterstained with hematoxylin.

Case report

A 45-year-old Caucasian man came to our attention in June 2007 with some rapidly growing bilateral scrotal nodules (Fig. 1A), present for a few months. The lesions, located at the right and left hemiscrotum, measured 4 cm and 3 cm in greatest diameter respectively, the largest one was ulcerated. At admission, the patient was well, and physical examination did not show any other remarkable lesion. The past history of the patient included surgery at the age of 6 for bilateral cryptorchidism. For more than 9 years, he had been working as a clerk in a plywood factory where different kinds of glue are commonly used.

Routine laboratory studies were normal.

Thoraco-abdominal computed tomography, bone scan and breast ultrasound were negative.

He received local excision of 4 × 3 cm and 3 × 1.5 cm wide skin flaps, in both right and left hemi-scrotum.

Grossly, the lesions were whitish plaque-like formations, with alternating solid and cystic areas (Fig. 1B).

Histologically, two distinct components were evident at panoramic observation, cystic and solid (Fig. 1C). The cystic dilated structures contained eosinophilic, PAS positive-diastase resistant secretion, were bordered by cells with apocrine features (with abundant eosinophilic cytoplasm, “decapitation” secretion in the form of apical snouts, vesicular nuclei with prominent nucleoli) forming papillae, tufting in the lumen and sometimes growing in a cribriform pattern (Fig. 1D).

Infiltration and ulceration of the covering skin were present, with focal pagetoid spread (Fig. 2A). The solid component of the lesions was a malignant tumor infiltrating the dermis, with apocrine features, growing in tubular, cribriform and trabecular patterns (Fig. 2B and C). Cytologically, the cells had a more undifferentiated, high grade appearance. Endolymphatic emboli were evident (Fig. 2D). Hyperplastic apocrine glands were observed at the margins and intermixed with the malignant glandular structures.

The apocrine nature of this malignant neoplasm was supported by the strong expression of GCDFP-15 and lysozyme. The tumor stained also positively for androgen receptor, low molecular weight cytokeratins, EMA, CK5/6 (focal) and E-cadherin. Immunostains for CEA, d2-40, S100, smooth muscle actin, p53, PSA, estrogen and progesteron receptors were negative. Immunohistochemical staining for P63 detected myoepithelial cells only at the basal layer of the normal and hyperplasic apocrine glands but was completely negative in the malignant component.

Frequent atypical mitosis and cellular pleomorphism were evident in the less differentiated areas.

All these findings were consistent with the diagnosis of multicentric apocrine adenocarcinoma of the scrotum associated with apocrine gland hyperplasia.

The assumption of a metastasis from a mammary apocrine adenocarcinoma was excluded by an accurate clinical and instrumental examination of the patient.

The patient developed three local recurrences in 2008, 2010 and 2013 respectively, all with the same diagnosis. The follow-up