Titolo rivista/libro: EJD. European journal of dermatology

Titolo articolo/sezione: Extramammary invasive Paget's disease and apocrine angiomatous hamartoma: an unusual association

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ISSN: 1952-4013

DOI: 10.1684/ejd.2018.3438

Anno: 2018

Volume: 28

Fascicolo: 6

Editore:

Pag. iniziale: 853

Pag. finale: 855

(HR: 0.938; 95% CI: 0.898-0.980). Nevertheless, there was no significant correlation between severity and prognosis according to our definition.

EP severity varies greatly among patients [1, 5]. Former studies have generally evaluated the condition of patients using the Psoriasis Area and Severity Index (PASI), however, this failed to reflect general condition and systemic involvement in patients. To assess the severity of EP, we therefore proposed that the following should be considered: hyperthermia, swelling and exudation of skin lesions, oedema of the lower limbs, and superficial lymphadenopathy. These characteristics were chosen because they are common manifestations in EP patients and indicate systemic inflammatory reaction as well as skin barrier destruction. We believe that this practical method improved our ability to identify and manage moderate-to-severe EP patients, who would expect longer hospital stays and have a higher chance of developing comorbidities such as anaemia, hypoalbuminaemia or life-threatening infections. Moreover, severity stratification helped clinicians make therapeutic decisions.

Previous reports have evaluated the prognosis of erythroderma of different aetiologies [6, 7]. In this study, we explored risk factors for EP-related death or recurrence and found that pruritus and superficial lymphadenopathy were risk factors, while a long course of psoriasis before the onset of EP was a protective factor. Thus, close follow-up is essential, especially for those patients with higher risks of recurrence. ■

Disclosure. *Financial support: the Chinese Academy of Medical Sciences Initiative for Innovative Medicine (2017-I2M-3-020) and the Central Healthcare Research Fund of China (W2017BJ21). Conflicts of interest: none.*

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doi:10.1684/ejd.2018.3437

Extramammary invasive Paget's disease and apocrine angiomatous hamartoma: an unusual association

Paget's disease (PD) is a rare intraepithelial adenocarcinoma comprising mammary and extramammary (EMPD) types [1-3]. EMPD may be primary or, less frequently, secondary to an underlying malignancy mainly involving the rectum, prostate, bladder, cervix, or urethra. In addition, a minority of EMPD tumours are secondary to an underlying cutaneous adnexal carcinoma, mostly of apocrine type [1-5]. All skin regions may be affected.

We present an exceptional case of invasive primary EMPD associated with an apocrine hamartoma (AH) with vascular proliferation. One case of invasive EMPD associated with an apocrine nevus has been previously reported, but a relevant vascular component was not demonstrated [6]. As opposed to the eccrine angiomatous hamartoma (EAH), in which neo-formed vessels are intimately admixed with eccrine glands, an angiomatous component has not yet been identified in AH [6-8].

A 64-year-old man presented with a two-year history of itching erythema in the right groin. On physical examination, a 5.5 × 6-cm erythematous plaque was observed (*figure 1A*). A punch skin biopsy showed intraepidermal atypical cells with vesicular nuclei and abundant cytoplasm, positive for cytokeratin 7 (CK7), gross cystic disease fluid protein 15 (GCDFP-15), and c-erbB2, and negative for CDX2 and prostate-specific antigen (PSA). Inflammatory cells were present in the underlying dermis. These findings were consistent with primary EMPD (*figure 1B*). Preoperative examinations (breast, bladder, and prostate ultrasound and chest-abdomen-pelvis computed tomography) revealed no other cancers. A wide surgical excision was then performed. Within the excisional biopsy, a poorly differentiated invasive component was identified (*figure 1C-F*), mostly organised in trabeculae with occasional ducts focally showing decapitation secretion, indicative of apocrine differentiation (*figure 1D, F*). Immunohistochemistry revealed robust positivity of all neoplastic cells for anti-CK7 (*figure 1C*) and GCDFP-15 antibodies (*figure 1D*) and negativity for anti-progesterone receptor and anti-CK 20/CDX2 (double immunostaining) antibodies (not shown). The intraepithelial compartment demonstrated strong nuclear expression of GATA-binding protein 3 (GATA3) and oestrogen receptors (*figure 1E*), and a widespread weak-to-moderate positivity for c-erbB2 (not shown). The invasive component revealed heterogeneous GATA3 expression (*figure 1E*) and, in contrast with the intraepithelial component, nearly complete negativity for oestrogen receptors and c-erbB2 (not shown). Additionally, sweat glands were observed close to numerous, variably-sized vessels (*figure 1F*), similar to the so-called EAH [7, 8]. Interestingly, in the present case, glands were apocrine (*figure 1F-I*) and showed hyperplasia, dysplasia, and intraductal growth (*figure 1I*), resembling the apocrine *in situ* carcinoma previously described in nevus sebaceous [9]. Of note, the hamartoma was mostly found at the tumour periphery (*figure 1G-I*). Tumour-induced angiogenesis involving small vessels was also observed very close to the adenocarcinoma.

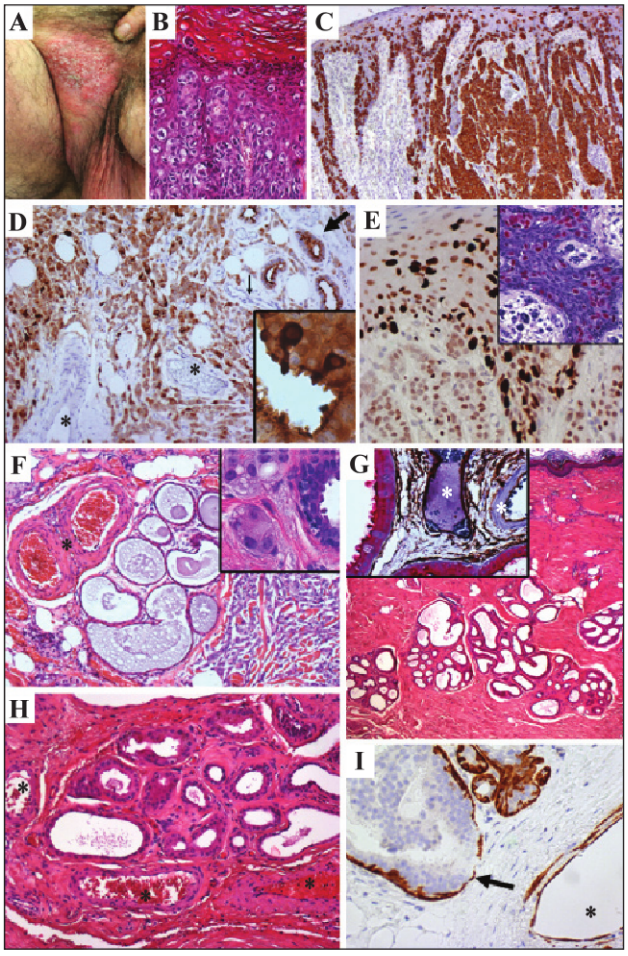

Figure 1. A) Erythematous, crusted, and eroded plaque on the right inguinal region. **B)** Intraepidermal Paget's cells (original magnification: ×100). **C)** Both the overlying intraepithelial Paget's cells and the underlying invasive adenocarcinoma are positive for CK7 (original magnification: ×50). **D)** GCDFP-15 invasive cancer cell positivity, detailed in the inset; the thick arrow indicates a GCDFP-15-positive normal apocrine gland, the thin arrow points to one of the vessels within proliferation of apocrine glands, and asterisks indicate large vessels (original magnification: ×50; inset: ×400). **E)** GATA 3 expression is high in the intraepidermal layer (several keratinocytes are also stained) and heterogeneous in the invasive cancer component (original magnification: ×50); oestrogen receptor expression is high in intraepidermal cancer cell nuclei (inset, original magnification: ×200). **F)** Blood vessels (asterisks), dilated apocrine glands, and the invasive component of Paget's disease, detailed in the inset (original magnification: ×50; inset: ×400). **G-H)** Dermo-hypodermal hamartomatous growth of apocrine glands and vessels; admixture of apocrine glands with blood vessels (asterisks on vessels) is highlighted by double immunohistochemistry for GCDFP-15 (the apocrine cells are stained red) and CD34 (the endothelium is stained brown) (original magnification: [**G**] × 25, [**H**] × 100; inset × 200). **I)** Apocrine gland showing epithelial hyperplasia and *in situ* intraductal carcinoma, characterized by an uninterrupted peripheral layer of smooth actin-positive myoepithelial cells (arrow); the muscle layer of the wall of a nearby vessel (asterisk) is also immunostained (original magnification: ×200). Haematoxylin and eosin staining was performed for (**A**, **B**, **F** [+inset], **G**, **H**), and immunohistochemistry was performed using the following chromogens: diaminobenzidine (**C**, **D**, [+insert], **E**, **I**) and new fuchsin (insets of [**E**] and [**G**]).

The patient underwent adjuvant cyclophosphamide chemotherapy and radiation therapy. After two years of follow-up, the patient appears healthy and free of disease.

EMPD is a rare entity that is more common in women than in men, unusually manifests in the groin, and rarely exhibits an infiltrating component, unlike its mammary counterpart [1-6]. As such, the present case is exceptionally rare as this is an invasive EMPD, located in the groin of a male and, additionally, is associated with an angiomatous sweat gland hamartoma for which we propose the name "apocrine angiomatous hamartoma" (AAH). Immunohistochemistry is relevant for the diagnosis of primary EMPD [1-3, 10]. Notably, while the CK20/CDX2 and PSA immunonegativity supported the exclusion of an intestinal or prostatic origin, respectively, the apocrine nature of this tumour was suggested by the GATA3 and GCDFP-15 immunopositivity and the association with AAH. Of note, in all cases of invasive EMPD of the groin reported to date, there was an association with apocrine adenocarcinoma [4, 5]. In the current case, the spectrum of epithelial gland changes suggests an adnexal origin of the invasive component, whereas the clinical presentation indicates a pre-existing intraepidermal EMPD. Some phenotypic differences (particularly oestrogen receptor and c-erbB2 expression) suggest that intraepidermal and adnexal adenocarcinoma could be two distinct lesions, possibly induced by the same oncogenic stimuli, as indicated by other authors [1].

In conclusion, to our knowledge, this report is the first documenting AAH associated with invasive EMPD. In the light of this association with a malignancy, although EAH is considered a benign lesion for which aggressive treatment is rarely indicated [8], we recommend strict monitoring of AAH. ■

Disclosure. *Financial support: none. Conflicts of interest: none.*

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doi:10.1684/ejd.2018.3438

Erratum

Several authors of the article "A randomized comparison of combined itraconazole and Nd:YAG 1064-nm laser vs itraconazole alone for the treatment of cutaneous sporotrichosis" (EJD 2018;28:558-9) have been omitted.
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