

A Case of Hidradenoma Showing Eccrine & Apocrine Differentiation

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Considerable confusion exists in designating hidradenoma and the terms previously used include 'solid cystic hidradenoma', 'clear cell hidradenoma' and 'eccrine sweat gland adenoma'. Recently, hidradenoma has been re-classified into an apocrine and eccrine variant which may cause further confusion.

We experienced a case of hidradenoma showing eccrine and apocrine differentiation on the calf of a 60-year-old female who presented with a pruritic, solitary, erythematous nodule with central ulceration. The clinical and histopathologic features of both eccrine and apocrine hidradenoma subtypes were reviewed and compared. (*Ann Dermatol* 17(1) 20~23, 2005)

Key Words: Eccrine hidradenoma, Apocrine hidradenoma

INTRODUCTION

Hidradenoma has recently been subdivided into an eccrine and apocrine variant¹. The eccrine variant, the less common subtype of the two, has also been called poroid hidradenoma². The two hidradenoma subtypes are clinically indistinguishable, usually presenting as an asymptomatic, erythematous-to-brownish, often cystic, cutaneous or subcutaneous nodule³. But despite their similar clinical appearance, the eccrine and apocrine variants of hidradenoma differ histologically.

Histologically, both present as circumscribed, non-encapsulated tumors, but their cell composition differs. Whereas apocrine hidradenoma is composed of clear, polygonal and mucinous cells, poroid hidradenoma is composed of predominantly poroid and cuticular cells, as in other poroma subtypes¹.

Poroid hidradenoma lacks the polygonal, clear and mucinous cells of the apocrine variant.

We herein report a case of hidradenoma showing eccrine and apocrine differentiation. By comparing the clinical and histological characteristics of the two subtypes, we aim to clarify hidradenoma.

CASE REPORT

A 60-year-old woman presented with a 2-year history of a solitary, erythematous, 1.5×1 cm sized



Fig. 1. A solitary erythematous nodule on the calf.

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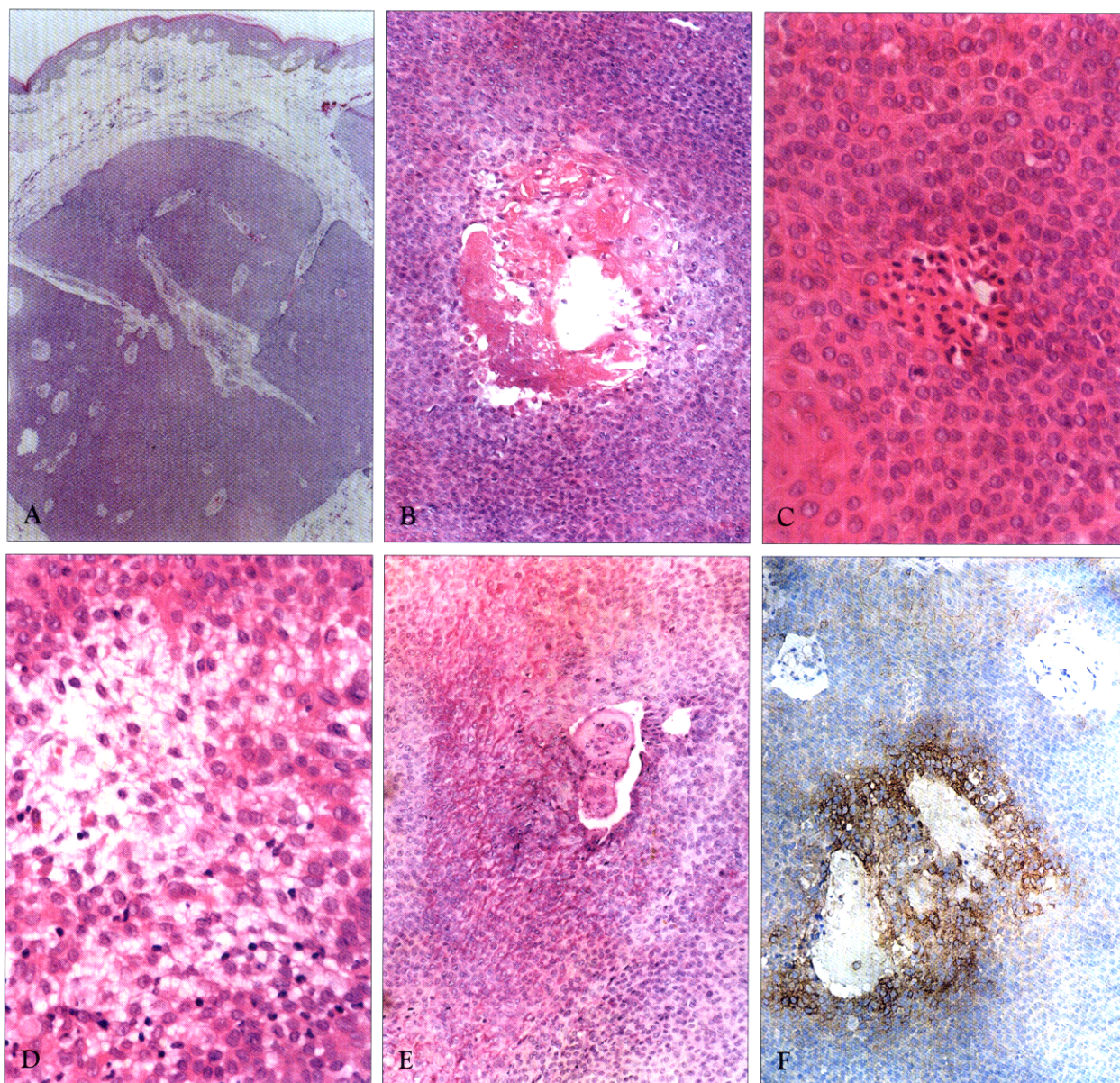


Fig. 2. (A) A well circumscribed tumor mass in the dermis (H&E stain, $\times 40$). (B) The tumor lobule is mostly composed of basophilic, cuboidal poroid cells. In the center, necrosis of the poroid cells forming a cystic structure is observed (H&E stain, $\times 200$). (C) The cuticular cells are observed forming small ducts. The cells have abundant pink cytoplasm and larger nuclei compared to the poroid cells (H&E stain, $\times 200$). (D) Clear cells presenting focally within the tumor mass. (E) PAS staining reveals glycogen granules in the poroid cells and clear cells (PAS stain, $\times 200$). (F) EMA staining is observed in the cuticular cells (EMA stain, $\times 200$).

nodule on the calf (Fig. 1). A central erosion of the lesion with clear fluid discharge was observed. The patient was a hepatitis B virus carrier and was diagnosed as hypothyroidism 10 years ago. No other abnormalities were observed during the physical examination or with the laboratory findings.

Histopathological examination of the lesion showed tumor masses located in the dermis (Fig. 2A). The epidermis was not atrophic and did not participate in tumor formation. Interlobular cystic spaces and intralobular pseudoducts were observed within the tumor. The tumor was principally com-

posed of small, dark-staining, and monomorphous poroid cells (Fig. 2B) and larger, paler, and more pleomorphic cuticular cells (Fig. 2C), but focally, clear cells, polyhedral cells and squamous eddies were observed too (Fig. 2D). Poroid and clear cells were clearly distinguished by periodic acid-Schiff (PAS) staining. Unlike poroid cells which contained a few PAS-positive, diastase-sensitive glycogen granules, clear cells had abundant glycogen in the cytoplasm (Fig. 2E). Immunohistochemical staining with epithelial membrane antigen (EMA) was positive for predominantly the cuticular cells (Fig. 2F). The patient received no additional treatment after punch biopsy and further growth of the remnant tumor has not yet been observed.

DISCUSSION

Hidradenoma was first described by Lever as clear cell myoepithelioma in 1948, and based on the histochemical staining and electron microscopic findings^{4,6}, was thought to be a tumor originating from the eccrine sweat glands. Due to the variable histological patterns, various terms to describe the condition have been adopted, such as nodular hidradenoma⁷, solid cystic hidradenoma⁸ and clear cell hidradenoma⁵, which cause considerable confusion for dermatologists. Recently, hidradenoma has been classified into two subtypes—an eccrine and apocrine variant¹. Eccrine hidradenoma, the rarer subtype of the two, is also known as poroid hidradenoma².

Poroid hidradenoma was described as a variant of the eccrine poroma group in 1990 by Abenoza and Ackerman². According to their classification, poroid hidradenoma is a tumor consisting of solid and cystic components within the dermis but with no epidermal connection (features of hidradenoma) having cytologic characteristics of poromas². In other words, the tumor cells consist of poroid and cuticular cells.

The term hidradenoma, also referred to as eccrine sweat gland adenoma of the clear-cell type⁹, clear cell hidradenoma⁵ or solid cystic hidradenoma⁸ in previous reports, has been classically applied to benign, circumscribed, intra-dermal neoplasms composed of clear cells and polyhedral cells^{8,10}. They have now been re-classified as apocrine hidradenoma on the basis of their presumed apocrine histogenesis, such as the exhibition of "decapitation" secretion¹¹.

The poroid and apocrine hidradenoma subtypes are clinically identical, presenting as a solitary, subcutaneous nodule or partially cystic mass of gradual growth³. Both hidradenoma subtypes have preponderance in females of the middle to older age groups and there is no site of predilection in either group. In our case, the lesion occurred on the calf of a 60 year-old woman, presenting as a slightly pruritic, solitary, erythematous nodule with central erosion. We initially diagnosed the lesion as being either an epidermal cyst or abscess.

The diagnosis of poroid or apocrine hidradenoma is only possible by histological examination¹. So far, only two types of cells (poroid and cuticular) have been reported in poroid hidradenoma cases^{1,2,11-15}. However, in our case, clear cells and squamous eddies were observed to a certain degree as well. This may be explained by the co-existence of poroid (eccrine) hidradenoma (main component) and apocrine hidradenoma (minor component). Clear cells have previously been mentioned as a minor component of eccrine poroma and dermal duct tumors¹⁶.

PAS staining is useful in distinguishing poroid and clear cells, since poroid cells contain few PAS-positive, diastase sensitive glycogen granules compared to clear cells, where abundant glycogen is observed in the cytoplasm¹². In both hidradenoma subtypes, the cystic spaces are lined by an eosinophilic cuticle which are either devoid of any content, or contain a lacy, flocculent material which is PAS-positive and diastase resistant¹². The EMA is a useful marker for diagnosing skin appendage tumors, especially poroid hidradenoma, as tumor cells and the luminal surface of the ductal lumina in tumors originating from the eccrine gland stain positive¹⁷. In our case, intradermal tumor lobules with ductules and interlobular cysts were observed in the dermis, with no epidermal involvement. Predominantly, the tumor was composed of smaller, darker poroid cells admixed with larger, paler cuticular cells showing conspicuous ductal differentiation. But PAS-positive, diastase-labile clear cells were focally present as well. The poroid cells and cuticular cells lining the ductal lumen stained positive with EMA. Due to the histopathological findings, we diagnosed the lesion as hidradenoma showing eccrine and apocrine differentiation.

The differential diagnosis of poroid and apocrine hidradenoma has to be made with basal cell carcinoma and other poroma subtypes. The absence or

extreme rarity of palisading peripheral cells, lack of keratin cysts and weakness of stromal reaction in the hidradenoma subtypes enables differentiation from basal cell carcinoma¹⁸. Unlike hidradenoma, dermal duct tumors consist of several small aggregations of neoplastic cells, have no stroma of their own, and are devoid of large cystic structures¹². The tumor cells of eccrine poroma and hidradenoma simplex are either limited or originate from the epidermis. This clearly differs from the hidradenoma subtypes, where the tumor cells are restricted to the dermis². Here we report a rare case of hidradenoma showing eccrine and apocrine differentiation.

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