An Aggressive Treatment for Aggressive Digital Papillary Adenocarcinoma

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GOAL

To recognize the clinical and histologic signs of aggressive digital papillary adenoma (ADPA) and adenocarcinoma (ADPAca)

OBJECTIVES

Upon completion of this activity, dermatologists and general practitioners should be able to:

1. Recognize the symptoms of ADPA and ADPAca.
2. Differentiate ADPA from ADPAca.
3. Discuss the immunocytochemistry of ADPA and ADPAca.

CME Test on page 210.

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Aggressive digital papillary adenoma (ADPA) and adenocarcinoma (ADPAca) are adnexal tumors that are not often recognized because of their rarity. We present a rare case of ADPAca involving the left middle finger of a 43-year-old man. Histopathological features of ADPAca are distinct from those of other eccrine sweat gland tumors; however, ADPAca may be misdiagnosed particularly for a metastasis of papillary adenocarcinoma originating in the colon, thyroid, or breast. Clinicopathological correlation is essential to rule out a possible risk of metastatic carcinoma of the skin. Recognition of these tumors is important because of a potential risk of local recurrence and distant metastases. Aggressive surgical treatment consisting of digit amputation is advocated in the treatment of ADPAca.

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Aggressive digital papillary adenoma (ADPA) and its malignant counterpart, aggressive digital papillary adenocarcinoma (ADPAca), occur on the digits. The lesion is found 3 times more commonly on the hands than on the feet.[1] Males are affected more often than females (7:1). Also, the condition has a predilection to persons of middle age. The tumor presents as a solitary, asymptomatic, gradually enlarging area of cystic mass or swelling that lasts from several months to several years.[2] ADPA and ADPAca can be distinguished by degree of pleomorphism, mitotic

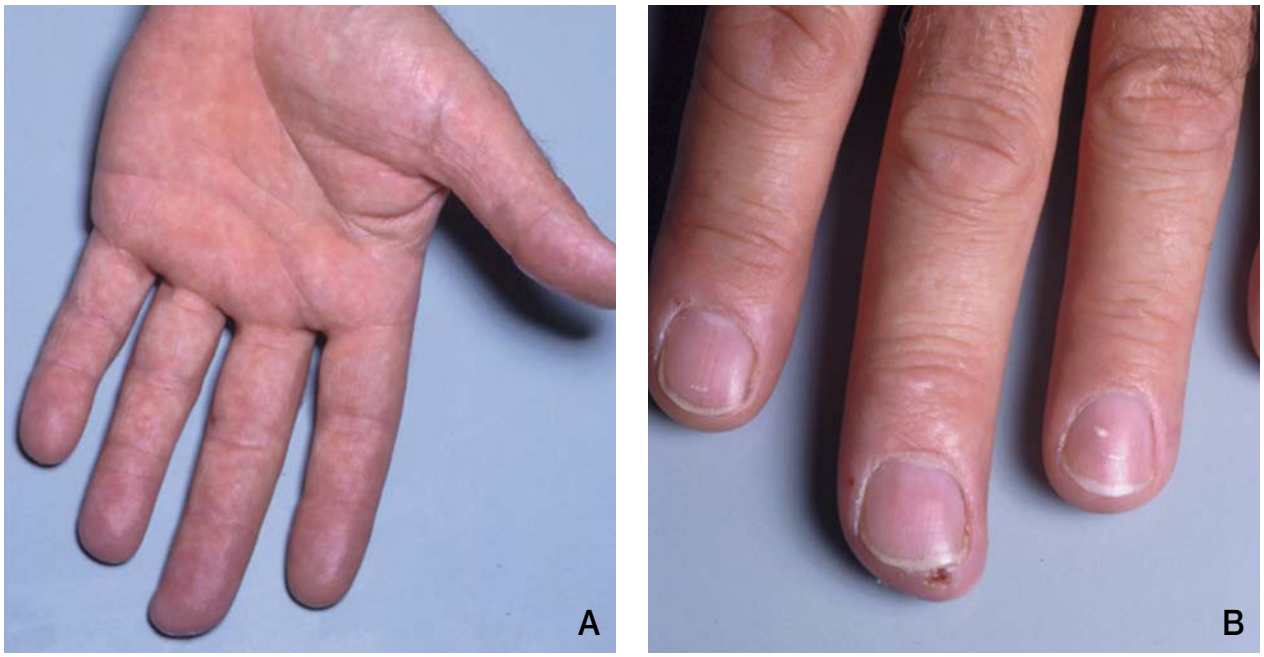

Figure 1. A firm subcutaneous nodule between the distal interphalangeal joint (A) and the nail plate (B).

rate, and necrosis. Patients in half of the reported cases have experienced local recurrence after initial removal.[1] ADPAca is more likely to recur or metastasize.

Case Report

A 43-year-old otherwise healthy man presented with a 6-month history of a solitary enlarging tumor on the tip of the left middle finger between the nail bed and the distal interphalangeal joint (Figure 1). The tumor was hard and freely movable. The only symptom was a throbbing sensation. Results of an x-ray examination showed a soft tissue tumor without bony involvement. Chest x-ray results were normal.

The results of a microscopic examination of a biopsy specimen showed deep dermal neoplastic lobular proliferations of glandular structures with papillary projections protruding into cystic lumina (Figure 2). The dermal tumor was separated from an intact epidermis by a grenz zone. Moderate cellular atypia and numerous mitoses were observed. Necrosis and underlying bone and vascular invasions were characteristically absent. Immunocytochemical examination revealed cells positive for carcinoembryonic antigen (CEA) within the glandlike spaces; cells positive for S-100 protein were demonstrated within the tumor lobules (Figure 3).

Routine blood investigations, including full blood count, in addition to investigations of urea and electrolytes, liver function, glucose, and serologic tumor markers were within normal limits. Whole body scanning using computerized tomography revealed normal results. Because serologic tumor markers and results of whole body scanning were both normal, the growth was not considered to be a metastatic lesion.

After clinicopathological correlation, a diagnosis of ADPAca was made because of frequent mitotic figures (4–5 per high-power field) and invasion of the tumor lobules to the deep dermis. The treatment chosen was an interphalangeal digit amputation to prevent a possible risk of metastasis. On follow-up, no recurrence or metastasis was observed for 2 years after amputation.

Comment

ADPA and ADPAca were first described by Helwig in 1984.[3] ADPA and ADPAca are rare sweat gland tumors of eccrine differentiation. Common sweat gland tumors, including malignant counterparts of eccrine poroma, chondroid syringoma, nodular hidradenoma and eccrine spiradenoma, may present a problem in histological differential diagnosis. However, histopathological features of ADPA and ADPAca are distinctive with eccrine glandular differentiation. Moreover, the typical anatomical location of ADPA and ADPAca is almost exclusively on the digits. Secondary skin tumors of the breast, colon, and thyroid may pose a problem in histological differential diagnosis of ADPAca. Clinicopathological correlation is essential to rule out a

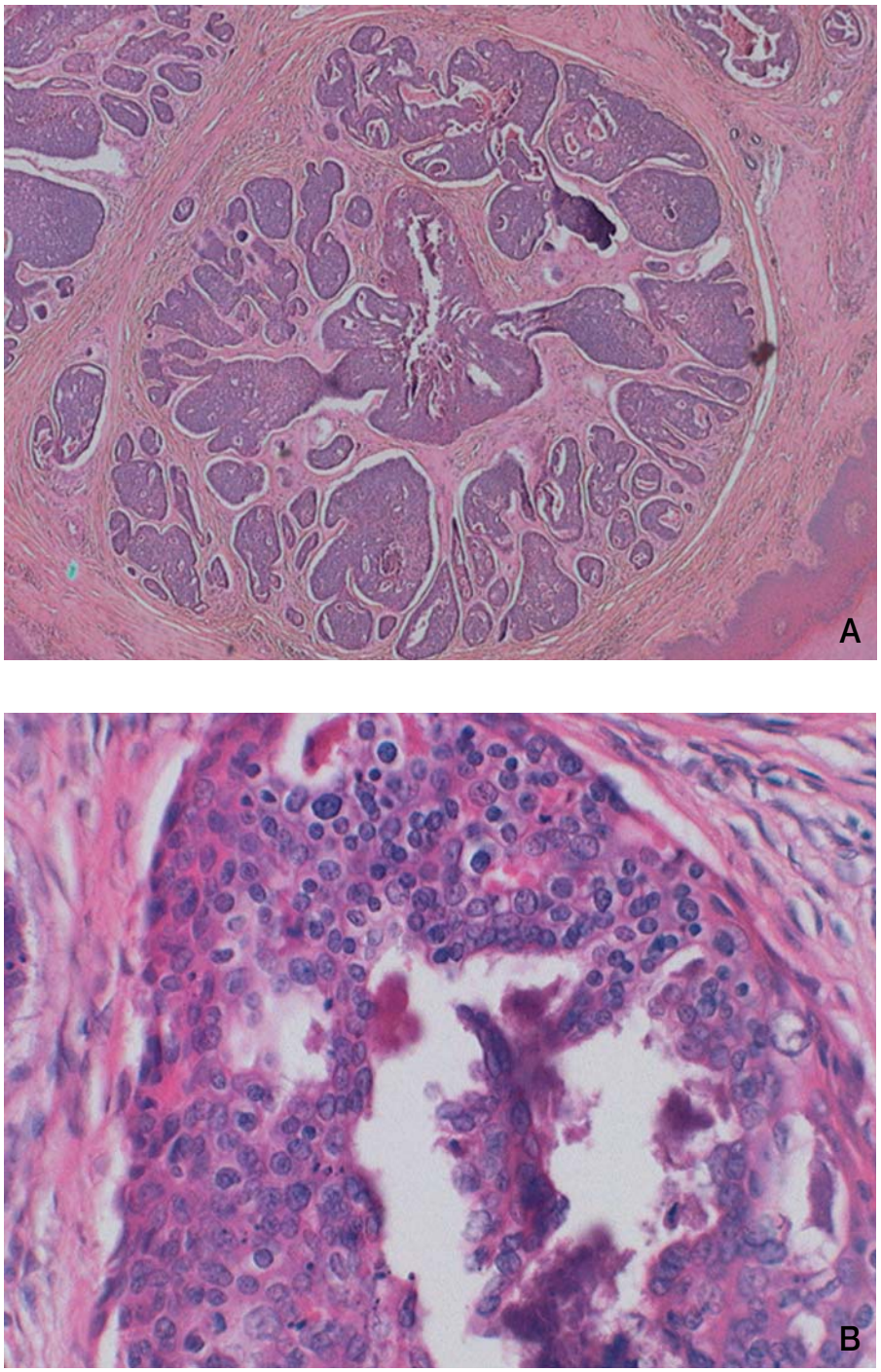

Figure 2. Low-power (A) and high-power (B) views of a multilobulated deep dermal tumor consisting of glandular structure with papillary projections protruding into the cystic lumen (H&E, original magnifications ×40 and ×200).

possible risk of these tumors. In our case, a diagnosis of ADPAca was entertained after careful clinicopathological correlation. The tumor had a characteristic forefinger localization and showed a microscopic papillary pattern and cells positive for CEA and S-100 protein antigen. It should be noted that the lack of features to identify a primary site for internal malignancy together with immunocytochemistry are aids in the differential diagnosis of ADPAca. Cells positive for CEA within the gland-like spaces and for S-100 protein within the tumor lobules are important features of ADPA or ADPAca.

Differentiating ADPA from ADPAca may be of prognostic importance. Histopathology is the only way to distinguish both tumors. Poor glandular differentiation and the presence of necrosis, cellular

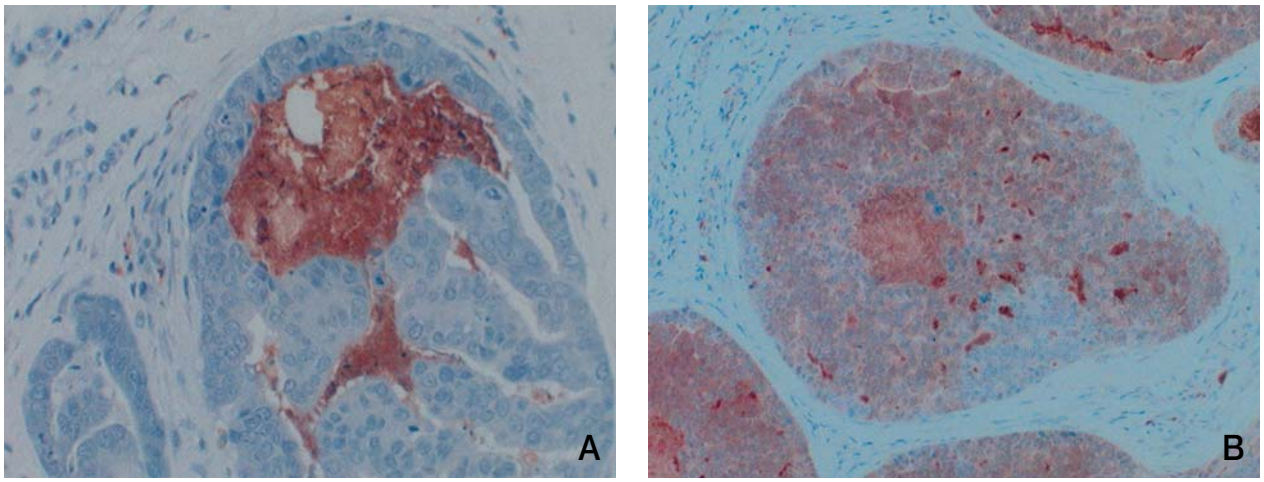

Figure 3. The cells lining the lumen (A) were positive for carcinoembryonic antigen (immunocytochemical stain, original magnification ×100). The tumor cells (B) were positive for S-100 protein (immunocytochemical stain, original magnification ×40).

atypia, and pleomorphism, in addition to numerous mitotic figures and tumoral invasion of vessels and underlying bones, favor a diagnosis of ADPAca rather than ADPA. However, follow-up data on 45 of 67 patients with ADPA or ADPAca revealed a significant rate of local recurrence and metastases (6 cases), which resulted in death in 3 cases.[4] In our case, none of the clinical or histologic parameters studied were found to be predictive of recurrence or metastasis, indicating that the originally proposed criteria for distinguishing between benign (adenoma) and malignant (adenocarcinoma) tumors may not be helpful for distinguishing biologic behavior.

Hence, irrespective of histological appearance, all aggressive digital papillary tumors should be regarded as malignant with potential metastasis and fatality for which aggressive surgical treatment consisting of digit amputation is advocated.[2-5] The lung is the most common site (70%) to metastasize, then in decreasing order, the brain, skin, bone, kidney, and retroperitoneum.[2,4] Because the lung is the most common site of metastasis, it is essential to perform a routine chest x-ray examination in the confirmed cases of all aggressive digital papillary tumors.[2]

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