

Purpose

Aggressive digital papillary adenocarcinoma (ADPA) is a rare malignancy of sweat glands with few cases involving the foot reported in the literature. The aggressive nature of this tumor contributes to high rates of metastatic disease and recurrence. The purpose of the present study is to describe the clinical presentation and surgical management of this rare malignancy and to review treatment recommendations based on the current body of literature.

Literature Review

The histologic features of ADPA are distinct from other sweat gland malignancies and are responsible for the high rates of metastatic disease and local recurrence following surgical excision.¹ A recent population study reported an overall incidence of 0.08 per 1,000,000 person-years with 72% of ADPA tumors occurring in the upper extremity, 25% in the lower extremity and 2% on the face.² A male-to-female ratio of 4:1 to 10:1 has been reported with peak incidence in patients aged 40-70 years.² The rate of metastatic disease has recently been reported at 24.1% with sentinel node biopsy positive for malignancy in 10.7% of cases.²

Duke et al. studied the recurrence rate of ADPA following surgical excision and reported a 50% recurrence rate when the soft tissue mass was locally excised in a single-staged procedure and a 5% recurrence rate when the patient underwent subsequent wide re-excision or digital amputation following initial local excision.³ While ADPA is more commonly described on the upper extremities, reports of foot and ankle ADPA have been published.⁴⁻⁶ Case studies of ADPA in foot and ankle literature have highlighted the benign clinical presentation of this aggressive and highly metastatic malignancy and emphasized the importance of early biopsy and surgical intervention.⁴⁻⁶

Case Study

A 67-year-old female presented with a five-year history of a firm, enlarging, painful mass to the dorsal foot. The mass was clinically measured at 1.0 x 1.0 cm and was noted to be adhered to overlying skin (Fig. 1). Upon initial assessment, skin was intact with mild erythema secondary to shoe gear irritation.

Patient declined recommendation for biopsy or imaging studies and wished to proceed with surgical excision. An excisional biopsy was performed and pathologic analysis demonstrated features consistent with ADPA with excisional margins positive for malignancy (Fig. 3).

A wide re-excision of the malignancy site was performed with 2 cm margins in conjunction with General Surgery who were consulted for lymphoscintigraphy with sentinel lymph node biopsy. The remaining soft tissue deficit to the dorsal foot was 8 cm x 6 cm which was covered with a split thickness skin graft harvested from ipsilateral thigh.

Following wide local excision, margins were found to be clear of malignancy and the sentinel lymph node biopsy was negative without concern for metastatic disease. At final follow up, the skin graft had fully incorporated at the excision site without evidence of local recurrence or metastatic disease (Fig. 2).



Figure 1: Clinical image of soft tissue mass at initial encounter



Figure 2: Clinical image of excision site at final follow-up, 12 months post-op

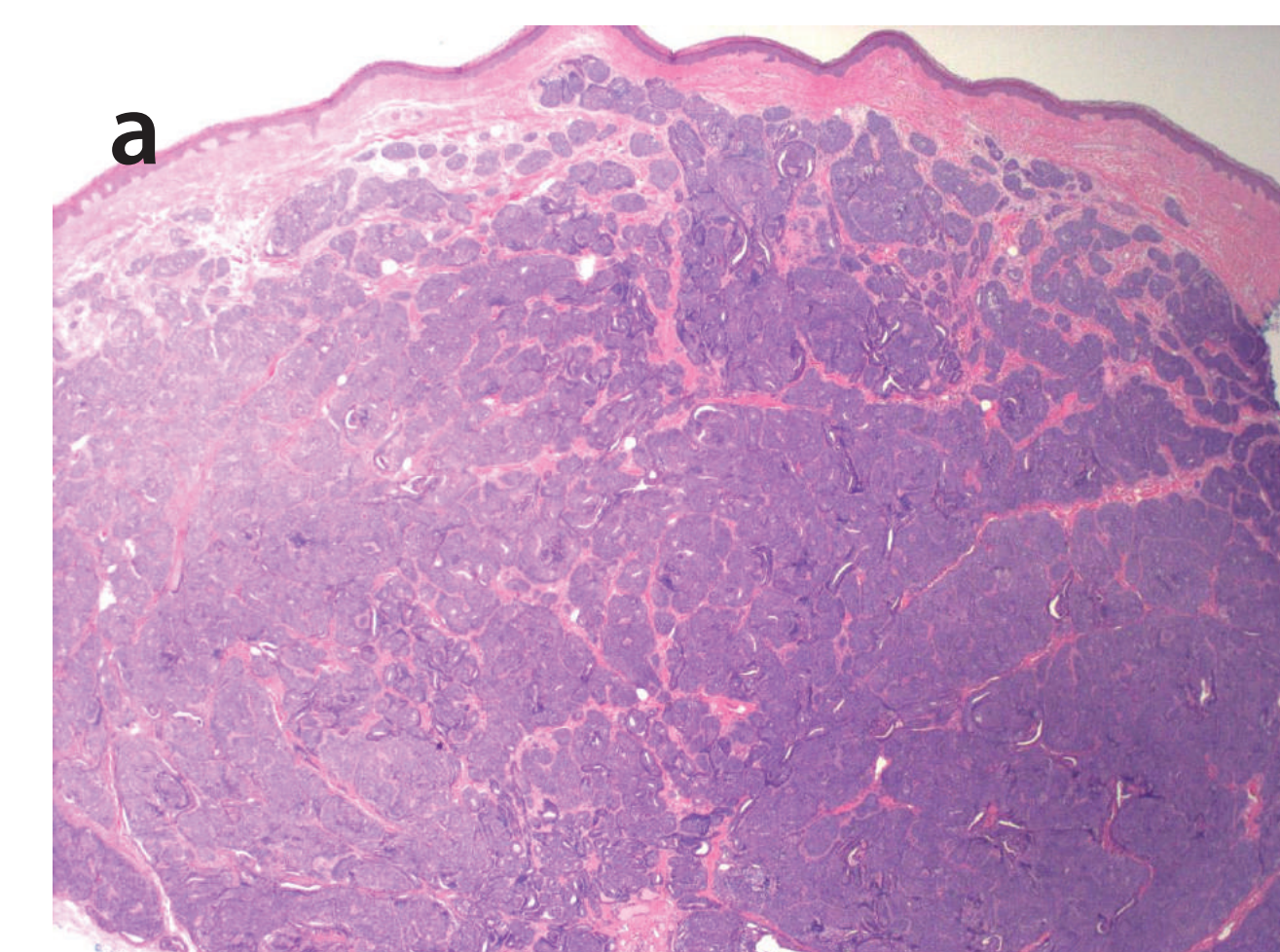


Figure 3a: 2x magnification, large epithelial proliferation within the dermis

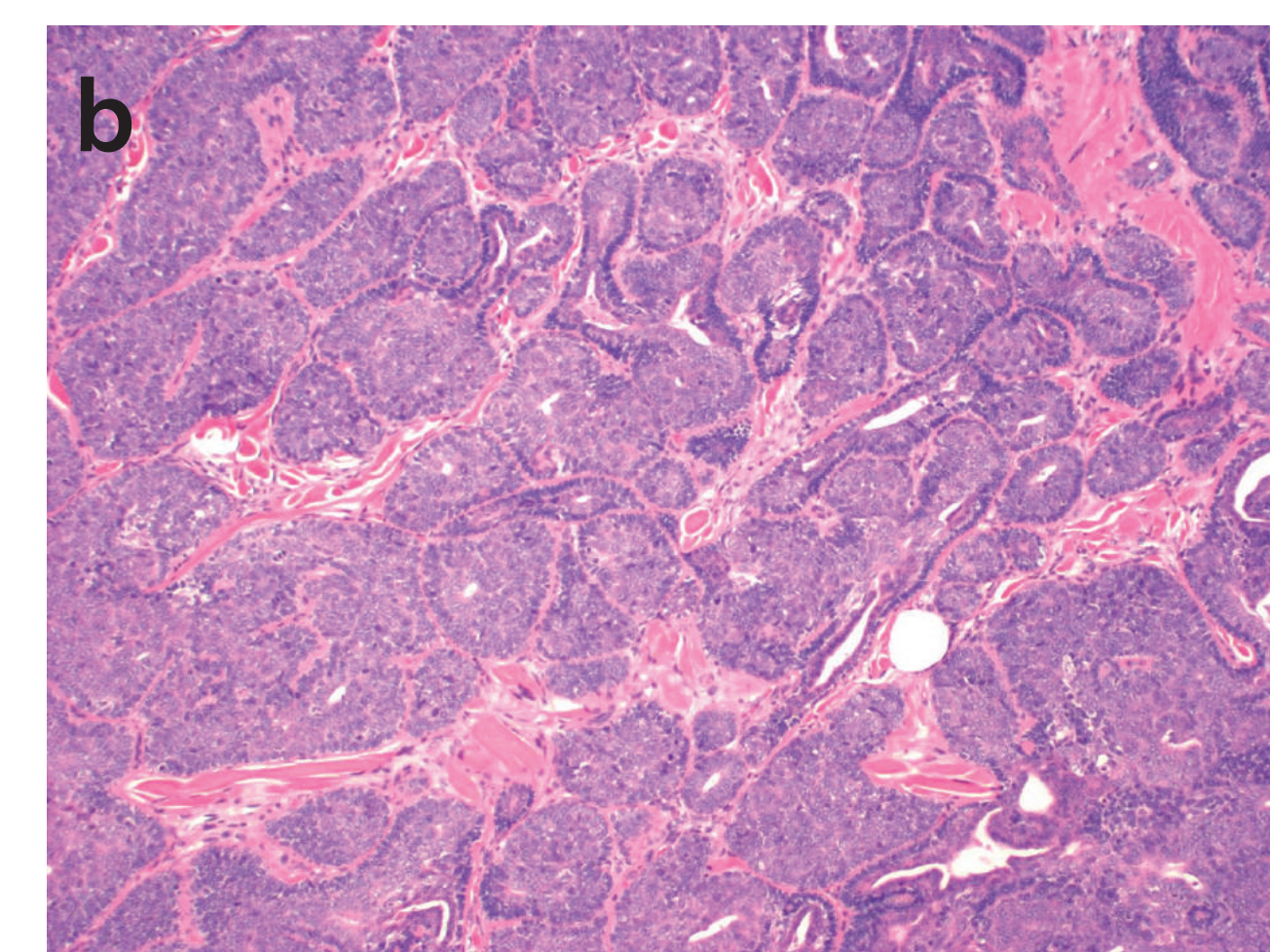


Figure 3b: 10x magnification, solid nodule of cell ducts with papillary formations

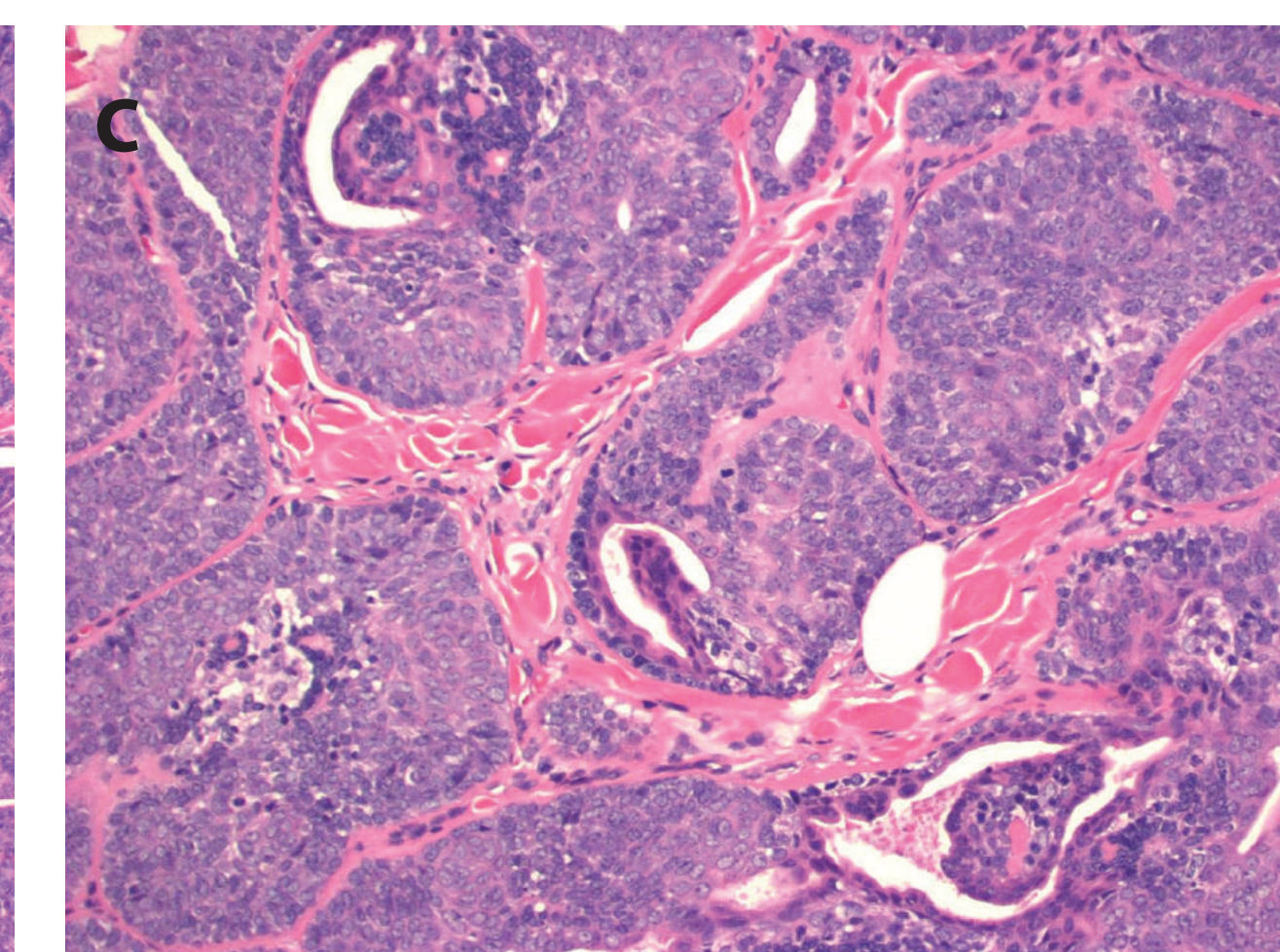


Figure 3c: 20x magnification, focal luminal necrosis with continued duct formation following a papillary type architecture

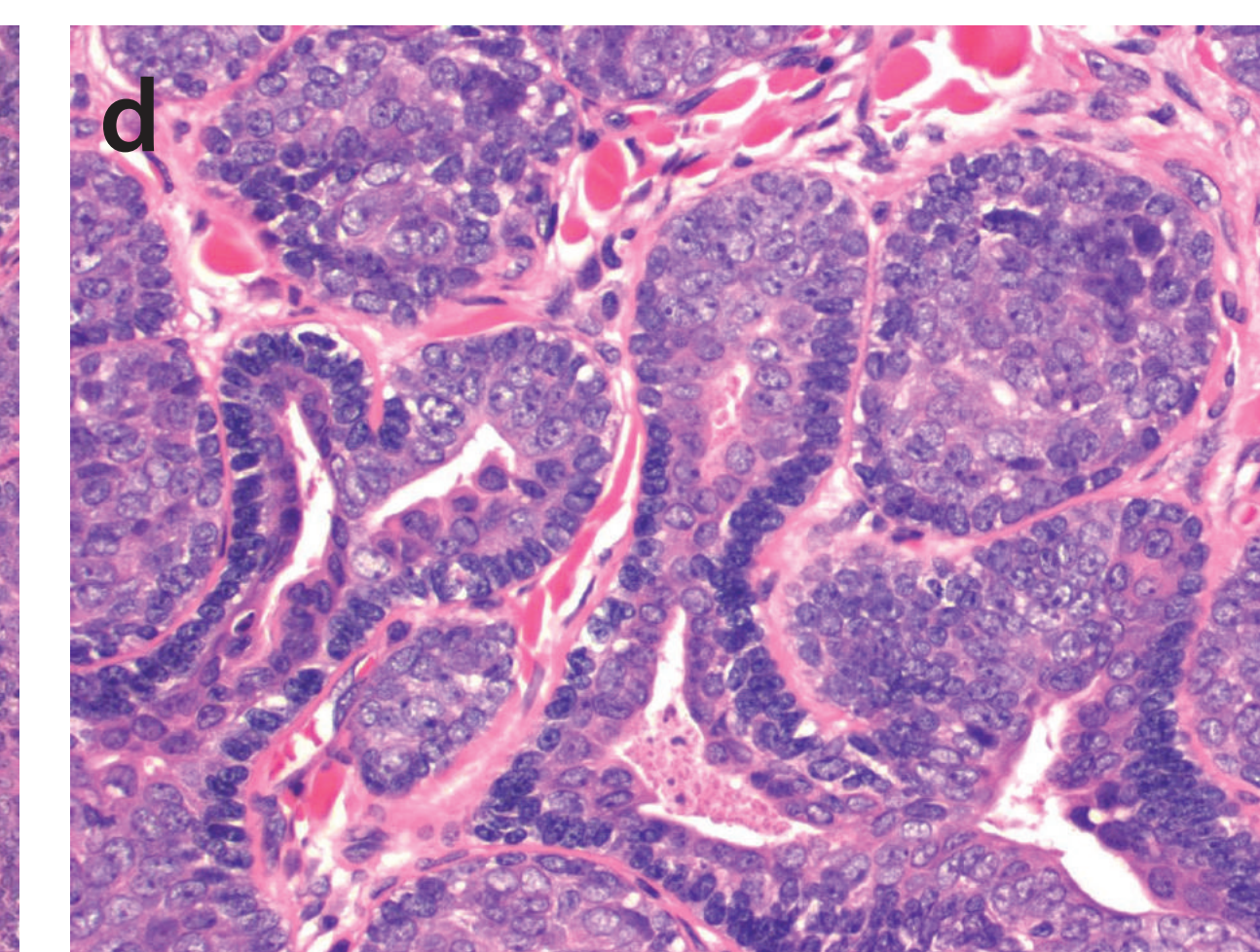


Figure 3d: 40x magnification, increased focal luminal necrosis with moderate atypia consistent with ADPA

Analysis & Discussion

ADPA, first described by Helwig in 1984, is a rare carcinoma with the propensity to metastasize if not diagnosed and treated early.⁷ ADPA arises from the eccrine sweat glands, typically involving the volar aspect of the digits of the hands more so than the feet.⁸ Due to the typical slow, non-painful growth of this malignancy, it is often confused with other benign growths on the foot such as a fibroma or ganglion cyst. Early detection is key and is performed by advanced imaging along with a biopsy for definitive diagnosis. The gold standard treatment after confirming diagnosis of ADPA is wide excision with amputation being the preferred treatment if on a digit. Due to high rates of metastatic disease, sentinel lymph node biopsy is often performed in conjunction with mass excision in order to assess for metastasis.

We present a rare case of a 67-year-old female with ADPA to the dorsal aspect of the right foot which, to the author's knowledge, is the only reported case on the dorsal foot that does not involve the digits. The patient refused diagnostic advanced imaging prior to surgical intervention, thus an initial excisional biopsy was performed. Histological findings of ADPA, most notable for solid papillary formations, are diagnostic and in the present case were able to identify malignancy in the benign-appearing soft tissue mass. It has previously been advocated that all soft tissue masses be treated as malignant and metastatic until proven otherwise and the importance of this is highlighted by this case.⁹ Wide local excision of the primary lesion is the definitive treatment, however given the high metastatic potential of ADPA, a multidisciplinary treatment approach including consultation to Oncology and General Surgery is necessary for management of possible metastatic disease.

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