Cutaneous Sweat Gland Carcinomas with Basaloid Differentiation

An Update with Emphasis on Differential Diagnoses

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KEYWORDS

• Basaloid • Primary cutaneous • Sweat gland carcinoma • Mucinous carcinoma • Endocrine • Adenoid-cystic • Apocrine

KEY POINTS

- The clinical behavior of sweat gland carcinomas ranges from indolent to aggressive.
- Sweat gland carcinomas show significant morphologic overlap.
- The histologic features of sweat gland carcinomas do not always correlate well with outcome.
- Separating sweat gland carcinomas from metastases of visceral adenocarcinomas may be impossible on histology alone and careful clinical work-up may be necessary.

INTRODUCTION

Cutaneous sweat gland tumors show a wide range of histologic features and clinical behavior. Most sweat gland tumors are benign and experience with malignant tumors is limited. The clinical behavior of sweat gland carcinomas ranges from indolent with potential for locally destructive growth and recurrence but only rare metastatic disease to those with frankly malignant behavior and associated mortality. Accurate diagnosis and classification is therefore necessary to predict prognosis and guide treatment. A particular diagnostic challenge is the morphologic overlap of some sweat gland carcinomas with benign disorders because of their deceptively bland histologic appearances. Furthermore, the separation of cutaneous metastases from visceral primary adenocarcinomas poses a significant challenge. Although the demonstration of

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a myoepithelial layer is a helpful clue for some primary cutaneous tumors, others can only be separated on clinical grounds with the aid of clinical history and screening.

The following discussion of sweat gland carcinomas with basaloid features highlights these issues. It includes rare and possibly underrecognized neoplasms, such as primary cutaneous cribriform apocrine carcinoma, a tumor of indolent behavior; endocrine mucin-producing sweat gland carcinoma (EMPSGC), a tumor of indolent behavior that may be a precursor to invasive mucinous carcinoma; primary cutaneous adenoid cystic carcinoma, a tumor with high local recurrence rates but infrequent metastasis despite its identical histologic and genetic features to visceral primary neoplasms; spiradenocarcinoma, the behavior of which is predicted by its morphologic appearances, ranging from locally aggressive to outright malignant with associated mortality; and digital papillary adenocarcinoma, characterized by potential for disseminated metastatic disease and mortality despite innocuous and bland histologic features. The salient diagnostic features and pitfalls of these neoplasms with emphasis on differential diagnosis are discussed here.

PRIMARY CUTANEOUS CRIBRIFORM APOCRINE CARCINOMA

Primary cutaneous cribriform apocrine carcinoma is a poorly documented and rare neoplasm. It has been proposed to represent part of a morphologic spectrum with apocrine carcinoma.[1] Its entirely indolent and benign behavior raises the question whether it should truly be regarded as a carcinoma.

Clinical Presentation

The tumors are slowly growing firm nodules, measuring 1 cm to 3 cm in diameter. There is a strong predilection for the proximal extremities of middle-aged adults and females are twice as frequently affected as males.[1–3] The clinical behavior is entirely benign with as yet no documented recurrences or metastases.[1,2]

Histologic Features

This well-circumscribed, nodular but unencapsulated neoplasm is centered in the dermis (**Fig. 1**A). It is composed of interconnecting islands and strands of medium-sized cuboidal tumor cells showing prominent duct formation, giving rise to a cribriform architecture (see **Fig. 1**B). There is little cytologic atypia and nuclear pleomorphism is not a feature (see **Fig. 1**C). The mitotic activity is low. Focal decapitation secretion may be present as evidence of its apocrine differentiation.

Immunohistochemistry

Tumor cells express cytokeratins, AE1/3, MNF116, Cam5.2, and cytokeratin 7 (CK7). Epithelial membrane antigen (EMA) and carcinoembryonic antigen (CEA) staining highlights luminal differentiation. S100 staining shows patchy positivity in tumor cells but smooth muscle actin (SMA) and calponin fail to demonstrate a surrounding myoepithelial cell layer.

Differential Diagnosis

Primary cutaneous cribriform apocrine carcinoma shows a characteristic and reproducible histologic appearance. It is separated from adenoid cystic carcinoma by lack of an infiltrative architecture and absence of the characteristic mucin-filled pseudocysts. Aggressive digital papillary adenocarcinoma is characterized by a solid and cystic growth with macropapillae. Furthermore, it is confined to the distal extremities.