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Case Report

Cutaneous apocrine adenocarcinoma in a goat

Daniel R. Rissi*

Athens Veterinary Diagnostic Laboratory, Department of Pathology, College of Veterinary Medicine, University of Georgia, Athens, Georgia
Dr. Daniel R. Rissi, Athens Veterinary Diagnostic Laboratory, Department of Pathology, College of Veterinary Medicine, University of Georgia, Athens, GA 30602, USA.

*Corresponding author: rissi@uga.edu
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Abstract

Apocrine neoplasms are rare in goats. This report describes an apocrine adenocarcinoma in a 5-year-old female Boer goat with an ulcerated, exophytic, multilobulated mass on the left dorsolateral cervical area. Histologically, the dermis was effaced and expanded by a poorly demarcated epithelial neoplasm with desmoplasia. Neoplastic cells were arranged in acini with papillary projections into the lumen and had cuboidal or columnar, eosinophilic, occasionally vacuolated cytoplasm. Nuclei were round and had finely stippled chromatin with one nucleolus. Neoplastic cells contained periodic acid-Schiff (PAS)–positive and diastase–resistant, alcian blue–positive cytoplasmic granules. There were 6 mitoses in 2.37 mm^2 (equivalent to 10 FN22/40X fields). Histologic and histochemical features in the current case were consistent with a cutaneous apocrine gland adenocarcinoma.

Keywords: apocrine neoplasia, apocrine carcinoma, dermatopathology, goat.

Introduction

Apocrine gland neoplasms, mainly adenomas and adenocarcinomas, are commonly reported in companion animals but uncommonly to rarely described in other animal species (3, 6). In dogs and cats, these neoplasms can occur at many anatomic locations. While apocrine adenomas are slow growing and typically do not recur after complete surgical excision, adenocarcinomas are locally invasive and can metastasize to regional lymph nodes (3, 6). In goats, apocrine gland neoplasms are exceedingly rare, with an apocrine gland adenoma (pelvic limb) and an adenocarcinoma (unspecified anatomic location) reported to date, both as part of large population studies describing other neoplasms or skin disorders (4, 7). This report describes a cutaneous apocrine adenocarcinoma in a goat.

Case report

A 5-year-old female Boer goat was evaluated because of an ulcerated, exophytic, multilobulated mass on the left dorsolateral cervical area. Physical examination revealed no other abnormalities. The mass was surgically excised, fixed in 10% neutral buffered formalin, and submitted to histologic examination. Tissue sections were routinely processed for histology and stained with hematoxylin and eosin (H&E) for routine histologic examination.

Histologically, the dermis was effaced and expanded by a poorly demarcated epithelial neoplasm with surrounding areas of desmoplasia that were infiltrated by nests of neoplastic cells (Fig. 1). Neoplastic cells were arranged in multiple acini with papillary projections into the lumen that surrounded eosinophilic secretory material admixed with neutrophils and macrophages (Fig. 2). Secretory material (Fig. 3) was rarely observed emerging from the apical surface of neoplastic cells (apocrine blebbing). Most neoplastic cells had cuboidal or columnar, eosinophilic, occasionally vacuolated cytoplasm with indistinct cell borders. Neoplastic cells contained a variable amount of periodic acid-Schiff (PAS)–positive and diastase–resistant, alcian blue–positive cytoplasmic granules (Figs. 4 and 5). Nuclei were round and had finely stippled chromatin with one nucleolus. There were 6 mitoses in 2.37 mm^2 (equivalent to 10 FN22/40X fields). Scattered lymphocytes and plasma

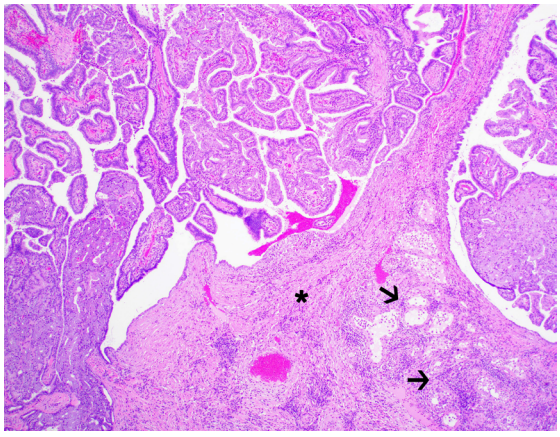

Figure 1. A poorly demarcated epithelial neoplasm with areas of desmoplasia (asterisk) infiltrated by nests of neoplastic cells (arrow) expands the dermis. Hematoxylin and eosin (5X).

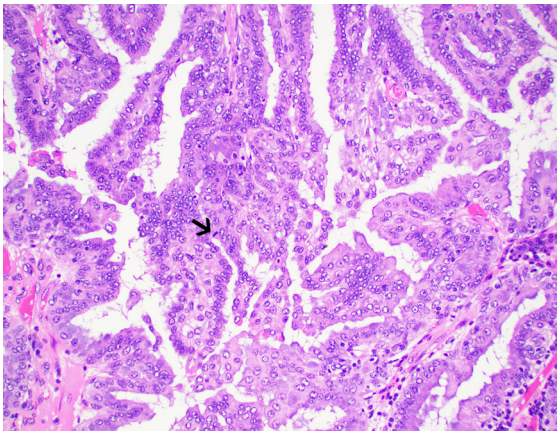

Figure 2. Cuboidal to columnar neoplastic cells arranged in multiple acini with papillary projections into the lumen. A mitosis is observed (arrow). H&E (20X).

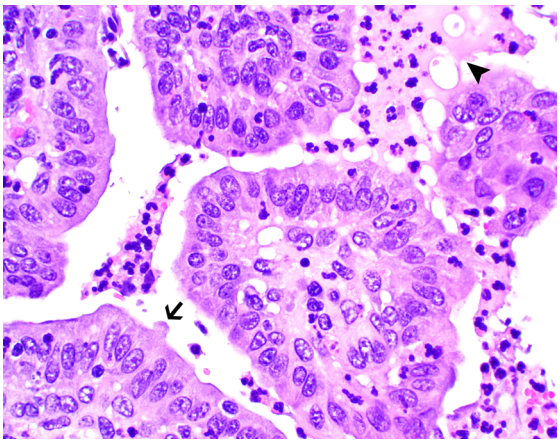

Figure 3. Secretory material emerges from the apical surface of neoplastic cells (apocrine blebbing, arrow) and accumulates within neoplastic acini (arrowhead). H&E (40X).

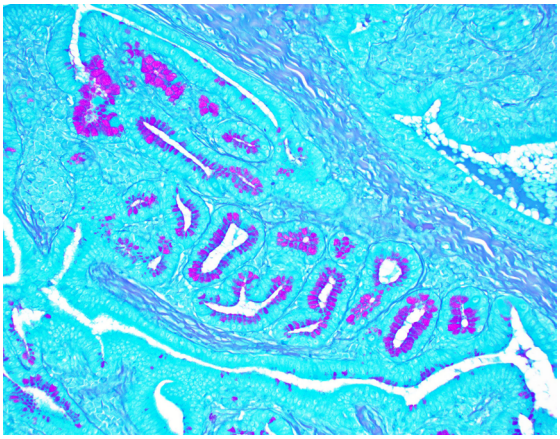

Figure 4. Neoplastic cells with periodic acid-Schiff (PAS)–positive and diastase–resistant cytoplasmic granules (pink). PAS reaction with diastase (10X).

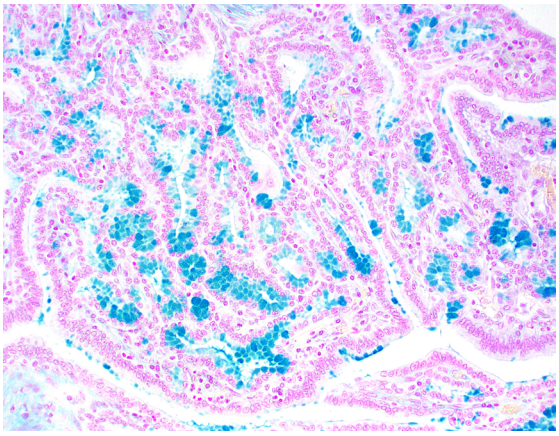

Figure 5. Neoplastic cells with alcian blue–positive cytoplasmic granules (blue). Alcian blue stain (10X).

cells with fewer neutrophils were observed throughout the adjacent fibrous connective tissue.

Discussion

The histologic features of neoplastic cells and the presence of cytoplasmic blebbing characteristic of apocrine secretion sufficed for the diagnosis of apocrine gland neoplasm in the current case (1, 2, 5). Although neoplastic cells were well differentiated, the increased mitotic activity and the presence of tumor invasion with desmoplasia were characteristic of apocrine carcinomas (1, 5, 6). The apocrine origin of the neoplasm was further supported by the histochemical features of neoplastic cells using PAS reaction and alcian blue stain (5). Although immunohistochemistry for pan-cytokeratin (general epithelial immunomarker) or cytokeratin 8, 18, and 19 (immunomarkers for glandular differentiation in epithelial cutaneous tumors) can be utilized to further

confirm the diagnosis (2), it was not deemed necessary in this case due to the characteristic morphologic features of the neoplasm, particularly the apocrine blebbing, which is typically observed in apocrine neoplasms (1, 2, 5).

Cutaneous neoplasms are uncommonly reported in goats and comprised nearly 11% of all skin diseases in one retrospective study (7). Squamous cell carcinoma has been consistently reported as the most common cutaneous neoplasm of goats, and occurs mainly at sites with sparsely haired skin such as the perianal and perivulvar areas (4, 7). Apocrine neoplasms are exceedingly rare in goats and thus no information regarding possible predisposing anatomic locations for tumor development and metastatic potential of tumors can be inferred (4, 7).

Conflict of Interest

The authors declare no competing interests.

References

1. Goldschmidt MH, Goldschmidt KH. Epithelial and melanocytic tumors of the skin. In: Meuten DJ, editor. Tumors in Domestic Animals: Wiley; 2016. p. 88-141.
2. Gulbahar MY, Alkan I, Aslan L, Golen I. Mixed apocrine sweat gland tumor of the tail in a cow. Vet Pathol. 2002;39(2):281-5.
3. Kalaher KM, Anderson WI, Scott DW. Neoplasms of the apocrine sweat glands in 44 dogs and 10 cats. Vet Rec. 1990;127(16):400-3.
4. Lohr CV. One hundred two tumors in 100 goats (1987-2011). Vet Pathol. 2013;50(4):668-75.
5. Morandi F, Benazzi C, Simoni P. Adenocarcinoma of apocrine sweat glands in a mouflon (Ovis musimon). J Vet Diagn Invest. 2005;17(4):389-92.
6. Simko E, Wilcock BP, Yager JA. A retrospective study of 44 canine apocrine sweat gland adenocarcinomas. Can Vet J. 2003;44(1):38-42.
7. White SD, Affolter VK, Molinaro AM, Depenbrock SM, Chigerwe M, Heller MC, et al. Skin disease in goats (Capra aegagrus hircus): a retrospective study of 358 cases at a university veterinary teaching hospital (1988-2020). Vet Dermatol. 2022;33(3):227-e64.