

Pathology in Practice

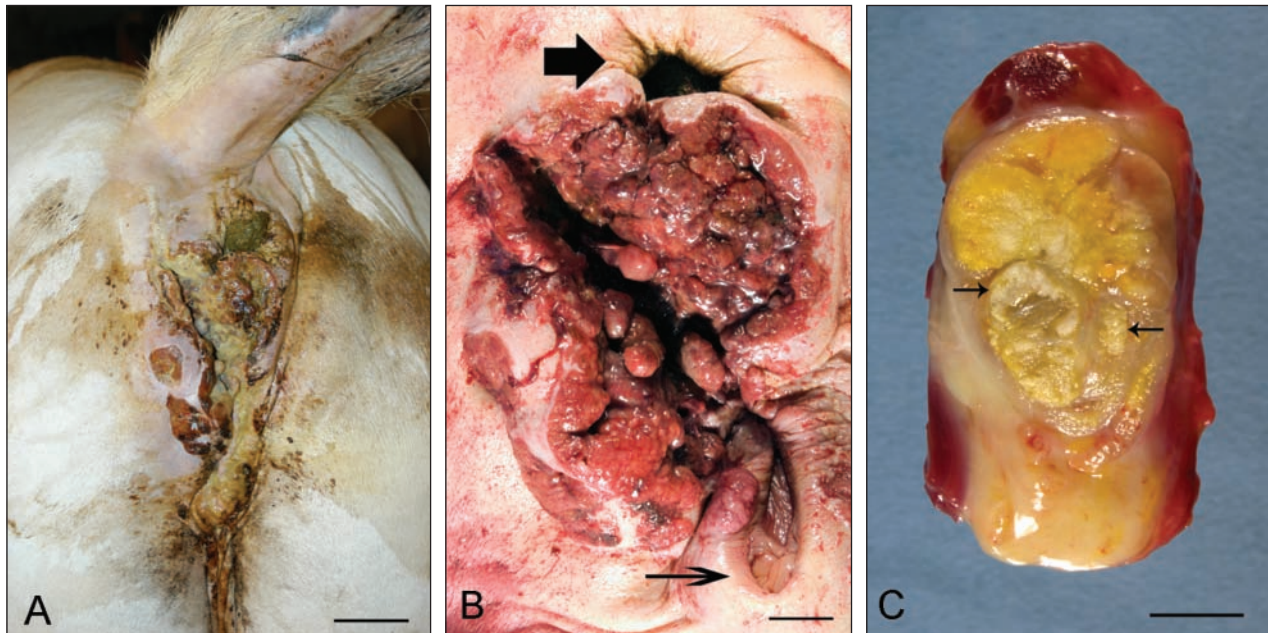


Figure 1—Photographs of an ulcerated mass on the perineum of a horse before (A) and after (B) removal of the creamy yellow exudate, and the cut surface of an anal lymph node (C) that was removed from the horse following euthanasia. The exudate covered a fissure that extends from the left dorsal to the right ventral borders of the mass (A). Multiple dark red nodules are present in the fissure that extends from the anus (thick arrow) to the ventral commissure of the vulva (thin arrow; B). The anal lymph node is large (4 cm in maximal dimension; C). Notice the yellow to white, raised, irregularly shaped foci (arrows) effacing the cortex and medulla. Bar in panels A, B, and C = 5, 2, and 1 cm, respectively.

History

A 12-year-old Paint mare was evaluated at the Purdue University Veterinary Teaching Hospital because of a large ulcerated mass on the perineum. The horse was retired and kept on pasture; therefore, the owner had only recently noticed the mass because it interfered with defecation. Physical examination revealed that the superficial inguinal lymph nodes were large. Because of the poor prognosis and impracticality of surgically removing the mass, the owner elected euthanasia, and necropsy was performed.

This report was submitted by Chad B. Frank, DVM, MS; Jordan D. Hammer, DVM; and Margaret A. Miller, DVM, PhD, DACVP; from the Animal Disease Diagnostic Laboratory (Frank, Miller) and Departments of Comparative Pathobiology (Frank, Miller) and Veterinary Clinical Sciences (Hammer), School of Veterinary Medicine, Purdue University, West Lafayette, IN 47907. Address correspondence to Dr. Frank (cbfrank@purdue.edu).

Clinical and Gross Findings

A firm, raised, mottled dark red to tan ulcerated mass (13 × 10 × 4 cm) extended from the dorsal commissure of the vulva to the left ventral aspect of the perianal region (Figure 1). A fissure (1.5 cm in width; 10 cm in length) that exuded a thick, creamy yellow exudate extended from the left dorsal to the right ventral boundaries of the mass. Multiple raised, dark red nodules protruded from the fissure. On cut section, the mass contained multiple firm, gritty, white to tan pinpoint foci and draining tracts that oozed a thick, yellow substance. The anal lymph nodes were large (6 × 5 × 4 cm), firm, and diffusely mottled tan to white. The medulla and deep cortex of the lymph nodes were infiltrated by multifocal to coalescing, pinpoint to 1-cm-diameter, yellow, slightly raised, roughened, irregularly shaped nodules.

Formulate differential diagnoses from the history, clinical findings, and Figure 1—then turn the page →

Histopathologic Findings

Histologic examination of sections of the perineal mass revealed that the dermis and subcutis were effaced by a moderately cellular, infiltrative, poorly demarcated, unencapsulated neoplastic mass. The mass consisted of islands, nests, and anastomosing cords of tightly adhered polygonal to columnar cells with distinct cell borders and faint intercellular bridges (Figure 2). Neoplastic cells had moderate amounts of pale eosinophilic cytoplasm, a central round to ovoid nucleus with an open-faced chromatin pattern, and 1 or 2 prominent amphophilic nucleoli. There were as many as 8 mitotic figures/hpf and numerous binucleated cells; the mitotic figures were predominantly in the basilar layer. Anisocytosis and anisokaryosis were marked. Some neoplastic nests had central necrosis, and a few formed keratin pearls. Cells of larger nests were differentiated—from peripheral basaloid cells with scant pale eosinophilic cytoplasm and clumped chromatin to central keratinized cells with small nuclei and intensely eosinophilic cytoplasm. A few cords had disrupted basement membrane zones, and individual or small clusters of cells had infiltrated the adjacent stroma (Figure 3). Neoplastic cells were surrounded by bands of fibrous tissue mixed with scattered nuclear debris, hemorrhage, neutrophils, and fewer eosinophils. The overlying epidermis was segmentally ulcerated and covered by a serocellular crust. The grossly observed yellow foci in the cortex and medulla of the anal lymph nodes corresponded to nests of neoplastic cells. Similarly, an island of neoplastic cells was detected in a blood vessel of an abdominal lymph node.

Morphologic Diagnosis

Perineal squamous cell carcinoma (SCC).

Comments

The gross and histologic findings in the horse of this report supported the presumptive clinical diagnosis of SCC. The tumor was moderately differentiated with metastases identified in the anal lymph nodes and an abdominal lymph node. The large anal lymph nodes compressed the horse's rectal lumen and resulted in the reported difficulty with defecation. In addition to SCC, the differential diagnoses for an equine perineal mass include lymphoma, parasitic granuloma (eg, habronemiasis), sarcoid, and melanoma. However, because of the soli-

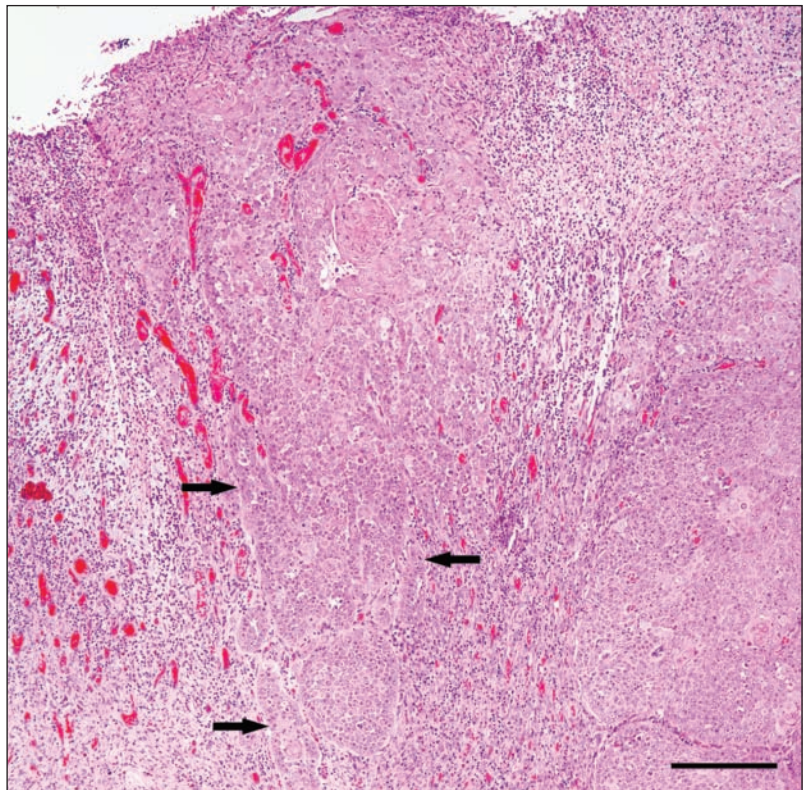


Figure 2—Photomicrograph of a section of the perineal mass in the horse in Figure 1. Notice the island of neoplastic epithelial cells extending from the ulcerated surface (top of image) into the dermis (arrows). H&E stain; bar = 250 μ m.

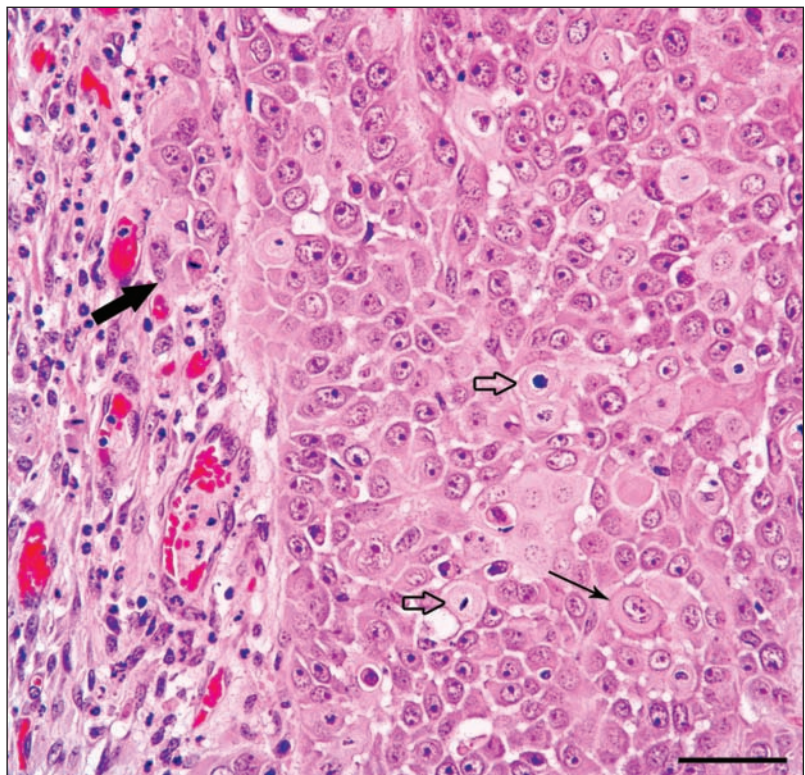


Figure 3—Photomicrograph of a portion of the neoplastic epithelial cell island in the section of the perineal mass in Figure 2. Faint intercellular bridges, especially around keratinized neoplastic cells (thin black arrow) and mitotic figures (open arrows), are visible. Focally, the neoplastic epithelial cells breach the basement membrane and infiltrate the surrounding stroma (thick black arrow). H&E stain; bar = 50 μ m.

tary nature of the mass, absence of pigment in perineal skin, and local invasiveness as well as metastases, those other diseases were considered less likely.

In a study¹ in the Pacific Northwest region of the United States, SCCs were the second most common cutaneous neoplasia in horses and accounted for 18.3% of tumors in that species. There is a reportedly higher prevalence of SCC among Belgians, Clydesdales, Shires, American Paints, and Appaloosas.^{2,3} Extended exposure of nonpigmented or sparsely haired skin to UV light is considered a major risk factor for the development of this type of tumor.³ Initially, solar irradiation results in solar dermatosis, which progresses to SCC over several years.⁴ Cutaneous neoplastic masses most often involve the mucocutaneous junctions of the eyelids but also commonly develop elsewhere on the face and on the perineum and external genitalia.³ Typically, these tumors are locally invasive; if metastasis to lymph nodes occurs, it is usually associated with tumors that are poorly differentiated.³

Surgical excision is recommended for tumors in locations where they can be removed with wide margins.³ When this approach is not feasible, surgical debulking in combination with topical 5-fluorouracil treatment or intratumoral cisplatin chemotherapy is a reasonable alternative.³ The prognosis for most cutaneous SCCs is good if appropriate treatment is initiated early, before extensive local tissue invasion or metastasis has occurred.

References

1. Valentine BA. Survey of equine cutaneous neoplasia in the Pacific Northwest. *J Vet Diagn Invest* 2006;18:123–126.
2. MacFadden KE, Pace LW. Clinical manifestations of squamous cell carcinoma in horses. *Compend Contin Educ Pract Vet* 1991;13:669–675.
3. Goldschmidt MH, Hendrick MJ. Tumors of the skin and soft tissues. In: Meuten DJ, ed. *Tumors in domestic animals*. 4th ed. Ames, Iowa: Blackwell Publishing, 2002;45–119.
4. Ginn PE, Mansell JE, Rakich PM. Skin and appendages. In: Maxie MG, ed. *Jubb, Kennedy, and Palmer's pathology of domestic animals*. Vol 1. 5th ed. Philadelphia: Saunders-Elsevier, 2007;553–780.