
EOSINOPHILIC GRANULOMA IN THE BLACK RHINOCEROS (*Diceros bicornis*)

Allan P. Pessier, DVM,^{1†*} Linda Munson, DVM, PhD,² and R. Eric Miller, DVM³

¹Department of Pathology, Zoological Society of San Diego, P.O. Box 120551, San Diego, CA 92112-0551 USA; ²Department of Veterinary Pathology, Microbiology and Immunology, University of California, Davis, CA 95616 USA; ³St. Louis Zoological Park, 1 Government Drive, St. Louis, MO 63110 USA

[†]Present address: University of Illinois Zoological Pathology Program, Loyola University Medical Center, Room 0745, Building 101, 2160 South First Street, Maywood, IL 60153 USA

Abstract

Mucosal and cutaneous ulcerative syndrome, recently described as superficial necrolytic dermatopathy (SND),³ is a common cause of morbidity in captive black rhinoceros. As part of the clinicopathologic investigation of SND, a subset of animals were identified that had distinct eosinophilic inflammatory lesions concurrently manifested with characteristic histologic lesions of SND. These oral, nasal and cutaneous inflammatory lesions had several features that closely resembled eosinophilic granuloma (EG) as described in domestic cats, dogs and horses and were reviewed in greater detail. In all, eight rhinoceros with EG were identified and all had oral lesions. Oral EG occurred most often behind the prehensile lip and consisted of large discrete fungating masses with areas of ulceration that usually presented clinically with a history of oral bleeding. Nasal lesions occurred in the external nares and presented with epistaxis. Simultaneous nasal and oral lesions occurred in three animals and simultaneous cutaneous lesions occurred in a single animal. Three animals had recurrent lesions over periods of several years and no apparent seasonality was identified. EG lesions in some animals spontaneously resolved, whereas others were apparently responsive to corticosteroid treatment or cryotherapy.² Importantly, two animals treated with corticosteroids died due to secondary systemic fungal infections. Histologically, EG lesions were characterized by marked submucosal or dermal neovascularization (granulation tissue) with prominent infiltrates of eosinophils and scattered foci of collagen degeneration. Mucosal or epidermal hyperplasia was also present and in many cases was associated with epithelial degenerative changes consistent with SND. The EG lesions were interpreted as having a distinct pathogenesis from the SND lesions. The cause of the EG could not be determined, but factors associated with EG or EG-like lesions in domestic species include hypersensitivity,^{4,6} hereditary factors,⁴ trauma⁶ and, in cats, cutaneous herpesvirus infection.¹ Clinical differentials for EG lesions include neoplasia and SND without EG; histologic examination of biopsy specimens is required for definitive diagnosis.

ACKNOWLEDGMENTS

The authors would like to acknowledge the following institutions and individuals for contributing case material and information used in this report: Brookfield Zoo (Drs. Lindsay Phillips and Janis Ott-Joslin), Busch Gardens of Tampa, Denver Zoo (Dr. David Kenny), Detroit Zoo (Dr. Robyn Barbiers), Oklahoma City Zoo (Drs. Mike Barrie and Ed Ramsey), Saint Louis Zoo (Drs. Mary Duncan and Randy Junge), The Zoological Society of San Diego (Drs. Jack Allen,

Marilyn Anderson, Cathy Harvey, Rebecca Papendick, Bruce Rideout and Jeff Zuba).

LITERATURE CITED

1. Hargis A.M. and Ginn P.E. 1999. Feline herpesvirus-1 associated facial and nasal dermatitis and stomatitis in domestic cats. *Vet Clin North Am Small An Pract* 29 (6): 1281-1290.
2. Miller R.E. and Junge R.E. 1998. Treatment of a nasal ulcer in a black rhinoceros (*Diceros bicornis*) using cryosurgery. *Proc. Am. Assoc. Zoo Vet. and Am. Assoc. Wildlife Vet.* 1998: 213.
3. Munson L., Koehler J.W., Wilkinson J.E., and Miller R.E. 1998. Vesicular and ulcerative dermatopathy resembling superficial necrolytic dermatitis in captive black rhinoceroses (*Diceros bicornis*). *Vet. Pathol.* 35: 31-42.
4. Power H.T. and Ihrke P.J. 1995. Selected feline eosinophilic skin diseases. *Vet. Clin. North Am. Small An. Pract.* 25 (4): 833-850.
5. Slovis N.M., Watson J.L., Affolter V.K. and Stannard A.A. 1999. Injection site eosinophilic granulomas and collagenolysis in three horses. *J. Vet. Intern. Med.* 13: 606-612.
6. Yager J.A. and Scott D.W. 1993: The skin and appendages. In: J.V.F. Jubb, P.C.Kennedy, and N. Palmer (eds.) *Pathology of Domestic Animals*, 4th ed. Academic Press Inc., San Diego, California. Pp. 699-700.