DIFFERENCES IN TREATMENT AND MANAGEMENT OF FOOT ABSCESSES IN A SOUTHERN WHITE RHINOCEROS (*Ceratotherium simum simum*) AND A SOUTHERN BLACK RHINOCEROS (*Diceros bicornis minor*) AT FOSSIL RIM WILDLIFE CENTER

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Abstract

Differences in treatment and management of foot abscesses in a Southern white rhinoceros (*Ceratotherium simum simum*) and a Southern black rhinoceros (*Diceros bicornis minor*) are described. While some treatments were similar between animals, differences in temperament and lesion location dictated dissimilar management approaches.

A 22-yr-old male Southern white rhinoceros presented acutely with left front leg lameness. Upon visual examination, a longitudinal crack in the hoof wall extending from the coronary band to the palmar surface of the hoof wall was identified. Debridement of necrotic tissue associated with an underlying abscess was performed under anesthesia on two separate occasions. Initial debridement resulted in normal hoof growth for 3.5 mo before the abscess recurred. Treatment failure was attributed to inability to keep the defect clean and the animal's weight, which caused the hoof defect to split laterally. At the time of the second debridement, the hoof defect was laced with 18 gauge stainless steel wire and reinforced with epoxy (Equi-Thane™ SuperFast™, Vettec, Inc., Oxnard, CA 93033 USA). This resulted in better distribution of forces along the defect and allowed for improved healing. Hoof recovery was achieved with daily treatment for over a year. Treatments included oral administration of biotin (Biotin, Purina-Mills, LLC, Gray Summit, MO 63039 USA), cleaning and packing the hoof defect on a daily basis, and application of products designed to moisturize the hoof and promote new hoof growth (Hoof-alive®, Don Gregory Sales, LLC, Buffalo, WY 82834 USA). Packing was done with a proprietary farrier's mixture containing pine tar and fish oil soaked oakum.

An 18-yr-old female Southern black rhinoceros, with a 3-yr history of chronic intermittent abscess formation that culminated in a foot pad defect, required multiple immobilizations for treatment and management. In June 2006, a puncture wound was noted in the sole of the right front foot. The defect was debrided, cleaned with chlorhexidine diacetate (Nolvasan®, Fort Dodge Animal Health, Fort Dodge, IA 50501 USA) and packed to keep it clean. Although the sole defect appeared to be growing out, by late January 2007 a tract had opened in the interdigital space between the middle and medial toes. The tract was cultured, and the animal was started on trimethoprim-sulfamethoxazole (Sulfamethoxazole and Trimethoprim Tablets, USP, Double strength, Interpharm, Inc., Hauppauge, NY 11788 USA; 16 mg/kg p.o. b.i.d.). Antibiotics were changed to enrofloxacin (Baytril 68, Bayer Health Care LLC, Shawneee, KS 66216 USA; 5 mg/kg p.o. s.i.d.) when this animal developed a reaction to trimethoprim-sulfamethoxazole. Treatment consisted of flushing the wound with tincture of iodine 3.5% and then packing it to keep it clean. Although the defect healed over the next 5 mo, subsequently, at approximately 3-

mo intervals, the foot abscessed and then healed again. Twice this animal was treated with flunixin meglumine (Banamine Paste, Schering-Plough, Union, NJ 07083 USA; 1.6 mg/kg p.o. s.i.d.) for 4 days and enrofloxacin (5 mg/kg p.o. s.i.d.) for 21 days. Flushing with tincture of iodine was performed as the animal allowed. In the next 10 mo, from 9 April 2008 to 25 February 2009, this animal was immobilized five times for repeat radiographs, a single fistulagram, one ultrasound examination, repeated regional limb antibiotic perfusion treatments with cefazolin (Watson Pharmaceuticals, Inc., Morristown, NJ 07962 USA; 4 g) and amikacin (Amikacin Sulfate Injection, Phoenix Pharmaceutical, Inc., St. Joseph, MO 64503 USA; 2 g), debridement, packing with metronidazole (Metronidazole, PLIVA®, Inc., Pomona, NY 10970 USA; 1.2 g) mixed with oxytetracycline (Tetradure 300, Merial Limited, Duluth, GA 30096 USA) to form a paste, followed by bandaging and boot placement. Repeat cultures yielded bacteria sensitive to the antibiotics used or mixed bacterial populations. By February 2009, the wound showed healthy granulation tissue formation but was not completely healed. Aggressive treatment with frequent boot changes was curtailed by the presence of abrasions associated with bandaging the foot and boot placement. The animal also began to show avoidance behaviors and decreased appetite as a result of repeat, weekly immobilizations. Blood work at the time showed a hypophosphatemia, which has been seen with black rhinoceroses under stress.[1] The temperament of this animal made daily wound care impossible. The combination of lesion location on the palmar surface of the foot, inability to work with this animal on a daily basis, and the development of complications with treatment made this case much more prolonged and less immediately successful than that involving the white rhinoceros.

LITERATURE CITED

1. Miller, E. R. 2003. Rhinoceridae (Rhinoceroses). *In:* Fowler, M. E., and R. E. Miller (eds.). Zoo and Wild Animal Medicine, 5th ed. Elsevier, St. Louis, Missouri. Pp. 558-569.