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## RHINOPLASTY: MANAGEMENT OF A FIBROMYXOSARCOMA IN THE HORN OF A SOUTHERN WHITE RHINOCEROS (*Ceratotherium simum simum*)

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### Abstract

A 33-yr-old, 1600-kg captive-born female southern white rhino (*Ceratotherium simum simum*) at a safari park presented with an abscess at the base of her primary horn. There was minimal response to systemic antibiotic treatment and daily flushing. Approximately 6 wk after presentation the animal was anesthetized with etorphine (0.0019 mg/kg), azaperone (0.078 mg/kg) and butorphanol (0.06 mg/kg) i.m. for diagnostics and treatments.<sup>3</sup> The distal third of the horn was removed, revealing a large necrotic mass extending from the base of the horn. Six additional anesthetic events were performed over the next 7 mo to debulk the mass and remove most of the horn. Histologic diagnosis was fibromyxosarcoma, based on the presence of neoplastic spindle cells with stromal mucin and collagen production. Open wound treatment included topical antiangiogenesis treatment and intralesional injections of Cisplatin SR<sup>(TM)a</sup>, a sustained release form of cisplatin used to treat equine sarcoids.<sup>1,4</sup> Systemic therapy included antibiotics based on culture and sensitivity, gabapentin (1.0 mg/kg p.o. s.i.d.) for analgesia as well as oral piroxicam (0.1 mg/kg p.o. s.i.d.) for its anti-inflammatory and anti-tumor properties.<sup>2</sup> Seventeen months after initial presentation, there was no evidence of neoplastic cells. At 20 mo, the horn wound is healed over, and horn regrowth is evident. However, there is a low-grade osteomyelitis in the horn base that is being treated with long-term oral antibiotics and monitored with monthly radiographs using operant conditioning.

<sup>a</sup>Cisplatin SR<sup>TM</sup>, 5mg/ml, SR Veterinary Technologies, Windsor, CO 80550 USA.

**Key words:** Cancer, *Ceratotherium simum*, cisplatin, fibromyxosarcoma, neoplasia, rhinoceros

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### LITERATURE CITED

1. Gamble, K. Squamous cell carcinoma in *Buceros* hornbills. In: Miller, RE, Fowler M (eds.). Zoo and wild animal medicine, Volume 7, Current therapy. St. Louis (MO): Elsevier; 2012. p. 281-285.

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2. Knapp, DW, Richardson RC, Chan TC, Bottoms GD, Widmer WR, DeNicola DB, Teclaw R, Bonney PL, Kuczek T. Piroxicam therapy in 34 dogs with transitional cell carcinoma of the urinary bladder. *J Vet Intern Med.* 1994;8(4):273-278.
  3. Radcliffe, RW, Merkel PvdB. Rhinoceroses. In: West, G, Heard DG, and Caulkett N (eds.). *Zoo animal and wildlife immobilization and anesthesia.* Ames, (IA): Blackwell Publishing; 2007. p. 543-566.
  4. The'ou, AP, Pascoe JR, Galuppo LD, Fisher PE, Griffey SM, Madigan JE. Comparison of perioperative versus postoperative intratumoral administration of cisplatin for treatment of cutaneous sarcoids and squamous cell carcinomas in horses. *J Am Vet Med Assoc.* 1999;215:1655-1660.