LETHARGY, SYSTEMIC INFLAMMATION, AND HYPOPHOSPHATEMIA IN A GROUP OF SOUTHERN WHITE RHINOCEROS (*Ceratotherium simum simum*)

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Abstract

Hypophosphatemia associated with systemic inflammation has been reported with idiopathic hemorrhagic vasculopathy syndrome in black rhinoceros (*Diceros bicornis*).[1] A similar syndrome has not been reported in southern white rhinoceros (*Ceratotherium simum simum*). During fall 2017, six cases of systemic inflammation and hypophosphatemia of unknown etiology were identified in white rhinoceroses in South Florida. Clinical signs included slow stiff gait, lethargy, and weakness. Two rhinoceroses developed ulcerative lesions on the caudal aspect of the distal front limbs. Histopathology revealed generalized thrombosis, necrotizing vasculitis and eosinophilic cellulitis. Clinicopathologic findings included leukocytosis characterized by neutrophilia ± left shift, neutrophil toxicity, low to normal HCT, mild hypoalbuminemia, mild hyperglobulinemia, and marked hypophosphatemia (0.2-1 mg/dl). Leptospirosis titers to serovar *L. grippotyphosa* were positive in 6/6 cases (1:400-1:3200). All six rhinoceroses had been previously vaccinated for leptospirosis, including this serovar, mostly recently in 2014. Convalescent titers were performed in 3/6 cases, though none showed an increasing titer to this serovar. Leptospirosis PCR on urine samples from 3/6 cases was negative. Serum amyloid A was significantly elevated in at least one case and haptoglobin was elevated in 6/6 cases. All cases responded to treatment with enrofloxacin 5 mg/kg p.o., s.i.d and monosodium phosphate supplementation 6 mg elemental phosphorus/kg p.o., s.i.d. Ulcerative vasculitis lesions were treated with topical antimicrobials and steroids and eventually healed with no other lesion development. No recurrence of these episodes has been seen. Although a similar syndrome has been previously described in black rhinoceroses, this is the first report of this clinical syndrome in southern white rhinoceroses.

Key words: *Ceratotherium simum simum,* hypophosphatemia, leptospirosis, southern white rhinoceros, vasculitis

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