
SUDDEN DEATH IN THREE SOUTHERN WHITE RHINOCEROS (*Ceratotherium simum simum*) SECONDARY TO PRESUMPTIVE *Clostridium perfringens* ENTEROTOXEMIA

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Abstract

Within 3 mo, three female Southern white rhinoceros (*Ceratotherium simum simum*) from a private conservation center died suddenly. Ages ranged from 4-10 yr and two had young calves. All individuals were acting normal shortly before death. Biochemical panels, complete blood counts, urine, milk, and fecal analyses were unremarkable. Individuals had mild abdominal transudate, splenic congestion, adrenal hemorrhage, and multifocal intestinal congestion. Analysis of stomach contents for toxins, virus isolation, negative stain electron microscopy, and blood cultures were unrewarding. Gammaherpesviruses were identified via polymerase chain reaction (PCR) from the jejunum and spleen of two rhinoceros. Histologic findings were mild mucosal congestion and hemorrhage in the small and large intestinal mucosa, consistent with acute enteric and systemic shock. Rapid intestinal sample acquisition was challenging and tissue autolysis precluded complete histologic examination of the gut. Clostridial enterotoxemia was suspected, based on the cumulative postmortem findings. Heavy growth of *Clostridium perfringens* genotype A was cultured from all rhinoceros; however, available toxin tests yielded negative results. Based on the presumptive diagnosis, the entire rhinoceros herd was vaccinated with *Clostridium perfringens* toxoids.^{ab} Serum was obtained from all rhinoceros at the time of initial vaccination, time of vaccine booster, and 1 mo following to evaluate antibody response.^c All rhinoceros, with the exception of a young calf, showed positive serologic response to vaccination. Many of the rhinoceros developed mild vaccine site reactions, consisting of local soft tissue swelling and occasional abscessation. Vaccination was otherwise well tolerated. Since completion of the vaccine series, no additional cases have occurred.

^a*Clostridium perfringens* types C&D toxoid, Professional Biological Company, Denver, Colorado, 80216 USA, 2 ml s.c., 2 series, 4-wk interval.

^b*Clostridium perfringens* type A toxoid, Novartis Animal Health US, Inc, Larchwood, Iowa, 51241 USA, 2 ml s.c., 2 series, 4-wk interval.

^cBIO K 291-Monoscreen AbELISA *Clostridium perfringens* alpha toxin/blocking, Bio-X Diagnostics S.A., Rochefort, 5580 Belgium

Key words: *Ceratotherium simum simum*, *Clostridium perfringens*, enterotoxemia, white rhinoceros

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