Focal symmetrical hemorrhagic encephalomalacia associated with diminazene aceturate therapy in a dog

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Introduction: Neurotoxicity in dogs attributed to repeated therapeutic doses of the protozoal drug diminazene aceturate within a short period of time (less than 6 weeks) has been described. Diminazene poisoning also occurs when one single therapeutic dose is given to sick dogs or when used prophylactically at normal doses in healthy animals. This report describes diminazene aceturate accidental poisoning in a dog.

Materials and methods: A 7 y-old male weimaraner was referred to private practice on July 2002. Signalment, history, clinical findings and therapy were retrieved from the veterinarian. A blood sample was collected for clinical pathology. At necropsy, the brain and organs were fixed in 10% formalin and processed for histopathology.

Results: There was a history of spontaneous bleeding from the ear margin and edematous swelling of the opposite pinna. A tentative diagnosis of tick-borne hematozoan disease was done and babesial therapy with diminazene aceturate was instituted (2 IM injections at the correct dosage within 4 days). One day after the last diamidine injection, the animal showed imbalance, vomiting and behavioural changes, eating grass and unusual objects e.g. wood (pica). At admission in a veterinary hospital, the animal was excited and with incoordinated gait. Hematologic findings included blood neutrophilia and eosinophilia. A platelet count was not done. The animal died spontaneously 48 hours after the onset of the neurological signs and a necropsy was performed. Serial transverse sections of the brain revealed focal, symmetrical, bilateral, sharply demarcated, vivid red lesions on the brain stem affecting the rostral and caudal colliculi and caudal cerebellar peduncles. There was softening and slight depression of the affected areas. No gross lesions were observed on the external surface of the brain. The spleen was small, pale, with a shrunken capsule. Green leaves and stems were impacted in the lower half of the esophagus. Histological lesions included severe, extensive hemorrhagic encephalomalacia with neutrophilic infiltration. No blood parasites were observed in the histological sections.

Discussion: Brain lesions reported in this case are typical of diamidine poisoning. The differential diagnosis should include cerebral babesiosis in which there are hemorrhagic and malacic random lesions on the subcortical gray matter at the base of the sulci, caudate nucleus and corpus striatum. Diffuse pallor or swelling of the brain with cerebellar prolapse through the foramen magnum and congestive, bright pink discoloration of its external surface are also described in this protozoal disease.