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TICK PARALYSIS IN A GREY FOX

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Abstract: One hundred seventeen *Dermacentor variabilis* were removed from the head and back of a grey fox (*Urocyon cinereoargenteus*) showing paresis and diminished motor reflexes of the hind limbs. Rapid and total recovery led to a diagnosis of tick paralysis.

INTRODUCTION

A number of species of ticks are capable of producing progressive ascending paralysis in man, cattle, dog and bison (*Bison bison*) as well as other animals.^{5,8} *Dermacentor andersoni* produces a neuromuscular substance in the saliva which interferes with the synthesis or release of acetylcholine at motor end plates.^{3,4,5,7,8} *Dermacentor occidentalis* previously has been reported as a cause of tick paralysis in cattle and blacktailed deer (*Odocoileus hemionus columbianus*) in California.^{1,6} The purpose of this report is to present the signs of tick paralysis in the grey fox and verify the tick involved as *Dermacentor variabilis*.

CASE HISTORY

An adult male grey fox (*Urocyon cinereoargenteus*) found along a country road was unable to use its hind limbs and was brought into the Wildlife Disease Section on 17 April 1978. The animal weighed 4 kg, was alert, responsive and only mildly aggressive. In attempting to escape it would drag its hindquarters but offered no resistance when grasped by the nape of the neck. Ocular or nasal discharges were not present. Examination of the oral cavity and pharynx revealed pale, pink, dry mucous membranes, a rapid capillary refill time but no lesions. Pupils were of equal size, responsive to light and the anterior

chamber and the retinal fundus appeared normal. The rectal temperature was 39 C, the heart rate 80/min., and the respiratory rate 20/min., all considered normal. Stethoscope auscultation of both lung fields was unremarkable. A loss of tone to the anal sphincter and sluggish response to stimulus was noted. The hind limbs were semi-flaccid and flexor or toe pinch and patellar reflexes were absent. No pain or crepitation could be elicited on palpation of the hind limbs, pelvis, sacral, lumbar, or thoracic spine; moreover, no fractures, dislocations or evidence of soft tissue or skin trauma could be found. A strong femoral pulse was present in both hind limbs. The urinary bladder was extremely distended.

A number of ticks were visible about the head, neck and shoulders. Further exploration revealed many additional ticks at various locations, resulting in a tentative diagnosis of tick paralysis. Ticks were carefully removed manually and with forceps. The animal was given subcutaneous fluids, Benzathine and Procaine Penicillin intramuscularly, canine distemper vaccinated, and sprayed with a carbaryl and pyrethrin containing insecticide spray. The bladder was manually expressed and the animal was placed in a cage and given food and water.

Within 24 h, partial use of the hind limbs had returned and at 48 h, use of the

hind limbs and anal sphincter were normal. Patellar and flexor reflexes were present. Appetite was good and aggression manifested as fear toward humans, was marked. The animal was returned to the locale where it was found and released.

Examination of the ticks removed revealed 15 fully engorged females, 26 partially or unengorged females and 76 males. They were identified as *Dermacentor variabilis* on the basis of scutal pattern, spiracular plates and host and geographic location.²

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