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Neospora caninum is a cause of perinatal mortality in axis deer (*Axis axis*).

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Abstract

Neospora caninum is a worldwide distributed protozoan that may cause neuromuscular disease in dogs and reproductive failure in domestic and wild ruminants. One axis fawn (*Axis axis*) and four neonates from the same deer herd died at a zoo in Argentina within a four-month period. The fawn presented with dilatation of the anal sphincter at birth and incontinence, developed weakness and ataxia and died at 14 days of age. At necropsy, a mega formation of the distal large intestine was observed. Microscopically, non-suppurative encephalitis, suppurative bronchopneumonia, fibrin necrotic enteritis and degenerative changes in the liver were observed in hematoxilin and eosin-stained tissue sections, and thick-walled *N. caninum*-like cysts were observed in fresh brain samples. Serologic studies for *N. caninum* revealed an IFAT titer of 1:6400 in the fawn and 1:25, 1:400, 1:3200 and 1:6400 in the neonates. *N. caninum* DNA was detected in brain samples from the fawn and from one neonate by PCR, and the parasite was isolated in vitro from the fawn's brain after passage through gerbils (*Meriones unguiculatus*) and gamma-interferon knock-out mice. *N. caninum* DNA obtained from the fawn, neonate and isolated parasites showed the same microsatellite pattern. This suggests a common infection source for both animals. The diagnosis of *N. caninum* infection was confirmed, suggesting its association with perinatal mortality in captive axis deer. To the best of our knowledge, this is the first report of clinical disease associated to *N. caninum* infection in axis deer and of isolation of the parasite from this wild ruminant species.

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KEYWORDS:

Axis axis; Multilocus-microsatellite analysis; *Neospora caninum*; Perinatal mortality