TITLE: COATIS (*NASUA NASUA*) FROM SOUTHERN BRAZIL ARE ALSO HOSTS FOR *NEORICKETTSIA HELMINTHOECA*

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ABSTRACT:

Neorickettsia helminthoeca is a helminth-borne, obligate intracellular bacterium of reticuloendothelial cells of dogs that belongs to the genus *Neorickettsia*, which is endemic in specific geographical locations of North America and Brazil. This bacterium has been identified predominantly in dogs, and possibly bears. This paper describes the first identification of *N. helminthoeca* in coatis (*Nasua nasua*). Tissue fragments (small intestine, lungs, kidney, liver, and spleen) of coatis (*n*=3) that died at the Bela Vista Sanctuary, Paraná, Southern Brazil were routinely processed from histopathology using the Hematoxylin and Eosin stain. Selected formalin-fixed paraffin embedded (FFPE) tissue fragments of the small intestine, lungs and spleen were used in an immunohistochemical (IHC) assay designed to identify the antigens of *N. helminthoeca*. Histopathology revealed chronic enteritis in all coatis; parasitic enteritis was diagnosed in two coatis, one of these contained examples of a trematode within the lumen of the small intestine and the ovum of a trematode encysted in the intestinal mucosa. Other significant pathological findings included interstitial pneumonia (n=2) and pyogranulomatous splenitis (n=1). Positive immunolabelling for *N. helminthoeca* was identified within macrophages of the small intestine and reticuloendothelial cells within the germinative centers of the spleen of all coatis; the intestinal trematode was *N. helminthoeca* positive. All pulmonary fragments revealed negative immunolabelling for *N. helminthoeca*. These findings indicate that these coatis were infected by *N. helminthoeca*, but since clinical and gross pathological findings were not recorded, it is uncertain if this pathogen produced clinical disease in this canid host; therefore, coatis may be asymptomatic or dead-end hosts for this organism. Additionally, these results corroborate with similar findings of *N. helminthoeca* in dogs from Southern Brazil.

KEYWORDS: chronic enteritis; diagnostic pathology; immunohistochemistry; intestinal trematode.