

HALICEPHALOBUS GINGIVALIS IN TWO HORSES FROM HONDURAS AND COSTA RICA.

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INTRODUCTION

Halicephalobus gingivalis (formerly *Micronema deletrix*) is a small nematode of the family Panagrolaimidae. It is a saprophytic, free-living and opportunistic organism, commonly found in organic matter, such as soil and manure. Disease by this parasite has been reported mainly in horses, but also in humans. The route of infection is believed to be oronasal (ingestion, inhalation or both). The tissue damage is caused by its migratory behavior and almost all organs are affected. The life cycle is unknown, and only larval or female forms have been described in horses as well as in humans. To the best of our knowledge, only two cases of *H. gingivalis* in horses have been reported in Latin American. In this paper for the first time, two additional cases from the Atlantic region of Central America are reported.

RESULTS

A. Clinical findings:

Case1. A six-year-old, Arabian stallion. It was disoriented, circling left in his pen, and apparently blind, without indication of trauma. When the animal was walked in a straight line, the incoordination was more evident in the rear than in the fore limbs. It put his head against the pen wall. The right side of the upper and lower lips was drooping. The tongue tonicity and the cervical sensitivity were diminished. No other nervous signs like trismus or prolapse of the third eyelid were observed. The CBC showed moderate leukocytosis, with 81% of neutrophils and 19% of lymphocytes. The blood smear was negative to hemoparasites. Also it was serologically negative to *Leptospira* spp. The animal was treated with systemic anti-inflammatory drugs and antibiotics. Because there was no improvement, he was euthanized at the farm after five days of clinical signs.

Case2. An eight-year-old, Spanish stallion. The trainer indicated that six days before death, the horse was depressed and would not eat or drink water. The animal was treated with antibiotics and analgesics, without response and died spontaneously three days after onset of clinical signs.

B. Pathological findings:

Case1. The head, both kidneys and a piece of liver were sent for pathological examination. Grossly, both kidneys showed large white nodules, ranging from 0.10 to 2.50 cm (Fig.1).



Fig. 1. Both kidneys showing two small cortical nodules. Observed the white diffuse aspect.

The brain, kidney and liver samples were fixed in 10% buffered formalin, embedded in paraffin, sectioned at 5- μ m, and stained with hematoxylin and eosin. In addition, six scraping samples from the kidney were collected and stained with Giemsa. Three of them were also sent for parasitological identification. Cytologically, several tangential nematodes, mixed with mononuclear cells, epithelial cells and fibrocytes were seen (Fig.2).

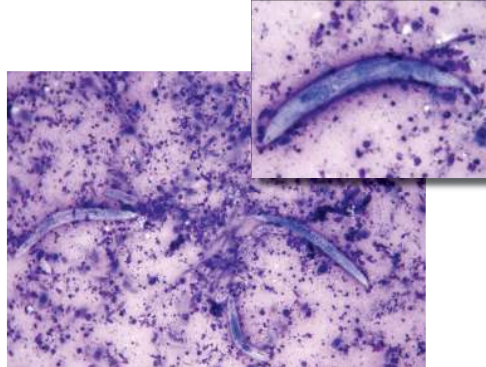


Fig. 2. Cytology. There are fragments and entire parasites, mixed with inflammatory cells and fibrocytes. Insert: An adult parasite. Giemsa stain.

Histopathologically, both kidneys showed similar changes consisting of multiple necrotic foci with longitudinal and transversal sections of nematode larvae (Fig3). In the brain, there were several foci with similar parasites, surrounded by lymphocytes and gitter cells (Fig.4).

Case2. A necropsy was performed in the field and only two small (0.50 and 1.50 cm) white pieces of kidney were collected and sent for histopathological examination. The gross and histological findings were similar to those of case one. (Fig.5)

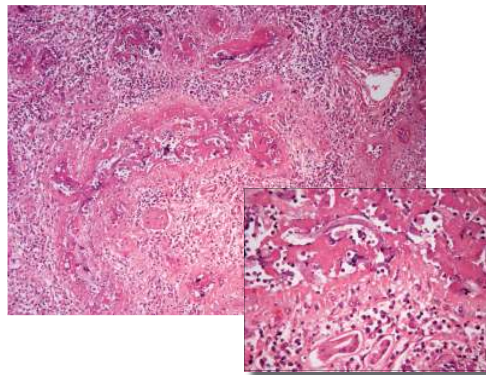


Fig.3. A kidney showing diffuse necrosis with several parasites sections. Insert: In the bottom some tubules. Upper coagulation necrosis with fragments and entire parasite.

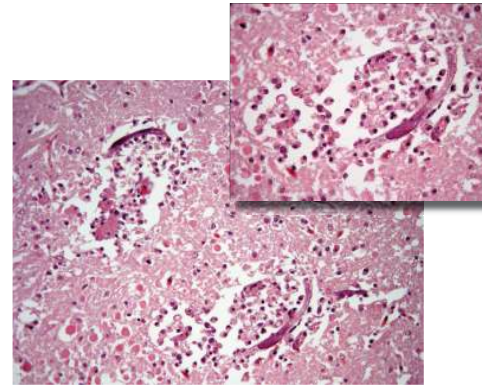


Fig.4. The brain. Two parasites sections surrounding by inflammatory cells. Insert: A detail with a lot of gitter cells.



Fig.5. Kidney, case 2. Sagittal section. Near 90% of the renal parenchyma was replaced.

C. Parasitological findings:

A large numbers of nematodes of different stages (larvae and adult) were found. Female were 200–300 μ m in length and 15–20 μ m in diameter and had a cylindrical body with tapered head anterior end and tail, and a rhabditiform esophagus (see Fig.2 Inset) with the characteristic corpus, isthmus, and valved bulb. The larval stages were smaller and have the same features as the fully developed worms but lack a reproductive system. These morphologic features are consistent with the description of *H. gingivalis*.

DISCUSSION

The clinical signs associated with *H. gingivalis* are very variable. It will depend the organ or system affected. Among the most common affected are the brain and the kidney, as occurred in these two horses. Despite the fact is still speculative as how *H. gingivalis* enters to the body; however, it appears likely that it enters through breaks in the skin or mucosa, especially the oronasal. Interestingly, both horses were from the Atlantic region of Central America. Also both cases occurred during the raining season, climate conditions that may ideal for the

multiplication in the soil or manure, damage the anatomic barriers and then penetrate and establish the infection. Although uncommon, *H. gingivalis* should be considered in the differential diagnosis of horses with neurological signs. The reports of this two first cases from Central America, confirm the assumption that this nematode is cosmopolitan.

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