Halicephalobus gingivalis (H.deletrix) in the brain of a horse

Halicephalobus gingivalis (H.deletrix) no cérebro de um eqüino

ABSTRACT

A 10-year-old Mangalarga gelding with rhabditiform nematode infection in the brain is described. Clinical signs were limited to circling and right side paralysis. Histological examination of the brain revealed marked gliosis and discreet edema. The perivascular mononuclear inflammatory infiltrate was composed of few layers of lymphocytes, plasmocytes and macrophages and rare eosinophils. The presence of rhabditiform nematodes was associated with the infiltrate. Areas of malacia associated with the parasites and parasite tracks with axonal spheroids were also seen close to the vessels and to the etiological agent and were more evident in the white matter. In the meninges there was moderate inflammatory infiltrate associated with perivascular parasites. The identification of the nematode was based on the histological examination of the cerebral fragments.

Key words: nematode, equine, central nervous system, Micronema deletrix.

RESUMO

Um eqúino macho, com 10 anos, Mangalarga, apresentou uma infecção por um nematódeo rabditiforme no cérebro. Os sinais clínicos limitaram-se ao fato de o animal andar em círculos e apresentar paralisia do lado direito. O exame histológico do cérebro revelou acentuada gliose e discreto edema intersticial. O infiltrado inflamatório mononuclear perivascular era composto por poucas camadas de linfócitos, plasmócitos, macrófagos e raros eosinófilos, associados aos nematódeos rabditiformes. Áreas de malacia e trajetos com esferóides axonais são vistos ao redor de vasos e do agente etiológico, sendo mais evidentes na substância branca. Nas meninges, o infiltrado inflamatório foi moderado e associado a parasitas perivasculares. A identificação do nematódeo foi baseada no exame histológico do cérebro do cavalo.

Palavras-chave: nematódeo, eqúino, sistema nervoso central, Micronema deletrix.

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The migration of larvae of insects and of nematodes may affect the CNS of several species of domestic animals. The parasites reported in equines include: Micronema deletrix, Hypoderma lineatum, Hypoderma bovis, Strongylus vulgaris, Draschia megastoma, Setaria sp. and hydatid cysts of Echinococcus granulosus (GEORGE, 1990). The genus Halicephalobus, previously known as Micronema, is classified in the order Rhabditida, which includes free-living nematodes found in the soil and decaying organic matter. Only parasitic females, larvae, and eggs have been described in tissues, another habitat in which males and females exist is suspected, although not yet described (RAMES et al., 1995). The infections in horses and humans have been assigned to H. deletrix. It is believed that the species reported in horses and humans is H. gingivalis and that H. deletrix is its synonym (ANDERSON et al., 1998). ISAZA et al. (2000) have the first report of this parasite in a zebra (Equus grevyi).
Blood and lymph lesions and are carried to other parts of the body. It is presumed that the nematodes enter the tissues through oral or nasal wounds, based on the common infestation of these sites. It is presumed to be contamination of oral or nasal wounds, which progresses rapidly to lateral recumbency. The horse was euthanized four days after the onset of clinical signs.

Unfortunately only a small portion of the cerebral cortex was sent to the Department of Veterinary Pathology of UNESP – São Paulo State University, in Jaboticabal, SP, Brazil. Histological examination of sections from cerebral cortex revealed diffuse and marked gliosis in the neuropil and discrete interstitial edema. In some areas satellitosis and neuronophagia were observed. Different stages of neuronal degeneration were observed and they were characterized by neuronal bodies in the phase of peripheral chromatolysis or already in necrotic state. There was a discrete mononuclear inflammatory infiltrate with lymphocytes, plasmocytes, macrophages and rare eosinophils. The presence of specimens of nematodes was verified associated to the infiltrate, in longitudinal and transversal sections (Figure 1A), besides areas of malacia near the parasites (Figure 1B) and areas rich in gitter cells. Tracks with axonal spheroids were also observed near the blood vessels (Figure 1A). In the meninges moderate lymphoplasmacytic infiltrate associated to extravascular parasites was verified. The identification of the nematode was confirmed by the examination of the histological material from the horse, mainly because of the rhabditiform esophagus of the parasite. The parasite body is cylindrical and is 200 μm long and 15 to 20 μm in diameter. The histopathological description of this case report is similar to the literature descriptions of granulomatous inflammation associated with nematodes in the CNS of animals (FERRIS et al., 1972; RUBIN, 1974; GEORGE, 1990).

The H. deletrix infection appears to have a low incidence in Brazil, as there are no descriptions in the literature. However the clinical observations and field pathological investigations are few. Thus we have to consider the differential diagnosis with this parasite for horses with neurological signs.

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REFERENCES


