LECTIN HISTOCHEMISTRY PATTERN OF AN EQUINE LYSOSOMAL STORAGE DISEASE CAUSED BY SIDA CARPINIFOLIA POISONING

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Aim of the study: This study reports an acquired lysosomal storage disease in ponies in the state of Rio Grande do Sul, Southern Brazil. The purpose of this study is to characterize the lesions in neural tissues by histology and by lectin histochemistry.

Materials & methods: Sida carpinifolia is a perennial shrub that occurs in southern Brazil. This plant has been found as the cause of a lysosomal storage disease in goats. In May 1998, a neurological disease were observed in ponies. Clinical signs in the affected animals included stiff gait, generalized muscle tremors, signs of abdominal pain manifested by kicking at the belly, rolling, falling and moaning, recumbence and death. Three out of eleven ponies died. Deaths occurred within 24 hours after the onset of the clinical signs. The animals were moved from a paddock with shortage of pasture to a 3 ha pasture. Deaths occurred after 15-20 days the animals were introduced in the new area. In the paddock they were held during that period, there were large amounts of S. carpinifolia with evidence of having been consumed by the ponies. Deaths stopped after the animals were moved from that area and stopped consuming the plant. Necropsy of 1 one pony revealed no significant gross lesions except for moderate distension of the cecum and large colon which were filled with large amounts of ingesta.

Results: Histological examination revealed swollen neurons with multiple cytoplasmic vacuoles in the brain, cerebellum, spinal cord, autonomic ganglia - trigeminal and celiac ganglia, and submucosal and myenteric plexus of the intestines. In the kidneys, there was marked vacuolation of the proximal convoluted tubular cells. Cerebellum and Gasserian ganglia were processed by lectin histochemistry. The vacuoles in different cells reacted strongly to the following lectins: Concanavalia ensiformis, Triticum vulgaris, and succinylated-Triticum vulgaris.

Conclusion: The pattern of staining, coincides with the data reported for S. carpinifolia poisoning in goats, swainsonine toxicosis and inherited mannosidosis.