Lysosomal storage disease in *Sida carpinifolia* toxicosis: an induced mannosidosis in horses

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**Summary**

*Reasons for performing study:* This study reports a neurological disease unrecognised until now in ponies in southern Brazil.

*Hypothesis:* Epidemiological data strongly suggests that the ingestion of *Sida carpinifolia* is involved in the aetiology. We tested the hypothesis that it is an acquired lysosomal storage disease.

*Methods:* Following the death of 3 ponies, all ponies from the premises were closely monitored; epidemiological data and clinical findings carefully recorded. Fragments of several organs, including CNS, were fixed in neutral formalin and embedded in paraffin-wax. Sections were stained with haematoxylin and cosin. Representative sections of the cerebellum and trigeminal ganglia were submitted to lectin histochemical procedures.

*Results:* The neurological disorder, characterised by stiff gait, muscle tremors, abdominal pain and death, was observed on a farm with 3 hectares of pasture. Three of 11 ponies died 15–20 days after they had been introduced into a new paddock heavily infested by the plant *Sida carpinifolia*. No significant gross lesions were observed.

The main histological findings included multiple cytoplasmatic vacuoles in swollen neurones 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 vaculation of the proximal convoluted tubular cells. Sections of cerebellum and trigeminal ganglion were submitted to lectin histochemistry. The vacuoles in different cerebellar and ganglion cells reacted strongly to the following lectins: *Concanavalis ensiformis, Triticum vulgaris* and succhinylated-Triticum vulgaris.

*Conclusions:* The pattern of staining coincides with that of both swainsonine toxicosis and inherited mannosidosis reports. The histopathological changes were similar to those described in *S. carpinifolia* spontaneous and experimental poisoning in goats. This disease seems to be similar to *Swainsona, Oxytropis* and *Astragalus* toxicosis.

*Potential relevance:* *S. carpinifolia* should be evaluated as a possible cause in the diagnosis of equine neuropathies.

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