SLAFRAMINE INTOXICATION IN HORSE IN SANTA CATARINA STATE

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ABSTRACT

A case of slaframine toxicosis has been reported in a seven year-old, half-breed horse weighing 400Kg, used for traction. The animal demonstrated excessive salivation as the clinical sign and it was maintained on a pasture with red clover (*Trifolium pratense*). Upon the inspection of the pasture, observed leaves changes compatible with infection by *Rhizoctonia leguminicola*. The suspicion was slaframine toxicosis, and removal of the animal from the pasture with clover was indicated as treatment. The clinical sign stopped 24h after the feed had been withdrawn confirming the therapeutic diagnosis.

Keywords: ptialism, alimentation, clover, micotoxicoses.

INTOXICAÇÃO POR ESLAFRAMINA EM EQUINO NO ESTADO DE SANTA CATARINA

RESUMO

Relata-se um caso de intoxicação por eslaframina em um equino, mestiço, macho, de sete anos de idade, pesando 400 kg, utilizado para tração. O animal apresentava como sinal clínico salivação excessiva, permanecia em piquete formado de trevo vermelho (*Trifolium pratense*). À inspeção da pastagem foram observadas alterações foliares compatíveis com infecção por *Rhizoctonia leguminicola*. A suspeita foi intoxicação por eslaframina, e como tratamento o animal foi retirado da pastagem de trevo. Após 24h o animal cessou o sinal clínico de salivação excessiva, confirmando o diagnóstico terapêutico.

Palavras-chave: ptialismo, alimentação, trevo, micotoxicose.

INTOXICACIÓN POR ESLAFRAMINA EN EQUINO EN LA PROVINCIA DE SANTA CATARINA

RESUMEN

Se relata un caso de intoxicación por eslaframina en equino, mestizo, macho, de siete años de edad, con peso de 400 kg, de utilización para tracción. El animal presentaba como señal clínico salivación excesiva, permaneció en área con formación por el trébol rojo (*Trifolium*

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pratense). Por la inspección del pastaje fueron observadas alteraciones en las hojas, compatibles con infección por *Rhizoctonia leguminicola*. La sospecha fue intoxicación por eslaframina, como tratamiento se fue retirado el animal de la pastaje de trébol rojo. Después de 24h el animal ceso el señal clínico de salivación excesiva, cuando se confirma el diagnóstico terapéutico.

Palabras clave: ptialismo, alimentación, trébol, micotoxicosis.

INTRODUCTION

The slaframine is an indolizidine alkaloid produced by the fungus *Rhizoctonia leguminicola* (1), affecting various plants, more pertinently described herein those used as fodder for animal feed such as red clover (*Trifolium pratense*) white clover (*Trifolium repens L.*), alfalfa (*Medicago sativa*) (2,3) associated with high temperature and humidity conditions, and the fungus does not grow at temperatures below 25°C (4,5).

Slobbers syndrome affects horses and ruminants that ingest such plants, either raw or in the form of hay containing slaframine causing excessive salivation (drooling) which may extend from a few hours to days depending on the amount and individual sensitivity to the ingested compound. Other clinical signs may include anorexia, diarrhea, frequent urination, epiphora, colic and abortion syndrome (3). After hepatic metabolism, the slaframine is converted to its active form 6-ketomina with acetylcholine similar structure, with parasympathomimetic effect on exocrine glands, particularly the salivary glands and the pancreas due to its high affinity for muscarinic receptors of type 3 (6,7,8).

Clinical signs are shown in a short period and animals usually recover shortly after ingestion, it may cause some distress to the owners when faced with their animals affected by the mycotoxin (1,4). The diagnosis can be therapeutic, restricting access to contaminated food, by the identification of *Rhizoctonia leguminicola* or slaframine compound in the suspected food or by slaframine detection in plasma samples of affected animals (1).

This study aims to report the poisoning slaframine in an equine after ingestion of red clover in southern Brazil.

CASE REPORT

A seven year-old gelding crossbreed horse weighing 400Kg, used for traction, member of the Extension Program "Amigo do Carroceiro" was attended at Veterinary Hospital of Agroveterinary Sciences Center (CAV), from Santa Catarina State University (UDESC), Lages, SC, Brazil, presenting a chart of excessive salivation for four days. The animal consumed food and water normally, it had no regurgitation and feces and urine were normal. It was maintained on a pasture with red clover (*Trifolium pratense*), and received commercial animal feed around three kg per day, mineral and water *ad libitum*. The intense salivation was observed by the owner 24 hours after the introduction of the animal in the pasture with red clover. The cause remained stable with no other clinical alterations. Normothermia, heart rate (36 beats/min), respiratory rate (16 breathing/min), strong pulse, dehydration degree lower than 5% and regular nutritional status were observed at the physical examination. The animal presented excessive salivation (Figure 1) without lesion in the oral cavity or tongue at inspection and no esophageal obstruction at nasogastric tube. There was normal ingestion of water and alfalfa hay when offered, without dysphagia or regurgitation. Use of cholinergic drugs or cholinesterase inhibitors, which could lead salivary stimulation, was not stated. Upon the inspection of the pasture, black patches in concentric circles on the leaves of red clover compatible with infection by *Rhizoctonia leguminicola* fungus were found (Figure 2). The

suspicion was slaframine toxicosis and the removal of the animal from the pasture with clover was indicated as treatment. The clinical sign of intense salivation (sialorrhoea) stopped by 24h after the feed had been withdrawn confirming the therapeutic diagnosis of slaframine toxicosis.

Figure 1. Seven year-old gelding crossbreed horse, used for traction, presenting a chart of excessive salivation (sialorrhoea) due to slaframine toxicosis in red clover (*Trifolium pratense*) contaminated by *Rhizoctonia leguminicola* fungus.

Figure 2. Leaves of Red clover (*Trifolium pratense*) with black patches indicating the presence of the fungus *Rhizoctonia leguminicola*.

DISCUSSION AND CONCLUSION

The slobbers syndrome was first described in cattle in the 30s, although the condition probably has already been observed previously (2,5). Diagnosis of poisoning requires complete physical examination, the main finding is excessive salivation, associated with

exposure to forage presenting phytopathological changes consistent with infection by fungus. Resources for the isolation and identification of *Rhizoctonia leguminicola* or slaframine detection are limited and unnecessary in most cases, although chromatographic methods for the detection of toxin in hay, plasma and milk had been reported (1,3,7).

Wijnber et al. (9) described the slobbers syndrome outbreak in horses ingesting the Netherlands Red clover where salivation was the only clinical signs presented. Borges et al. (3) reported an outbreak of slaframine in Mangalarga Paulista breed horses in Brazil after the alfalfa hay was contaminated, but the majority of cases involve eating clover. Physical descriptions of changes in leaf clover observed in the present report (circular concentric blackened spots) are similar to those described in the literature for the fungus *Rhizoctonia leguminicola* observed by other authors (2,3,7).

According to Schmitz (10), the clinical signs of acute drooling accompanied by the identification of the fungus *Rhizoctonia leguminicola* are sufficient to establish the diagnosis. Even if the toxin present in clover contaminated with the black spots have not been analyzed, the typical clinical signs and resolution after removal of clover horses and the absence of lesions in the oral cavity justifying a diagnosis of poisoning slaframine (9). Generally, it does not require any treatment, because the animals can recover spontaneously when contaminated food source is removed, yet the clinical signs may persist for 1-2 days (7). In severe cases, the use of atropine was used with questionable effectiveness. In horses and ruminants gastrointestinal side effects may occur with atropine (1,4).

As prevention, owners should be aware of the typical appearance of forage or hay infected and instructed not to allow the animal to have access to the suspected food or only allow access to a limited number of animals in order to verify some clinical demonstration (1).

This case report underlines the inclusion of slaframine intoxication in the differential diagnosis of cases of excessive salivation in horses.

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