

## Medical Management of Strychnine Poisoning in a Labrador retriever

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**Abstract:** One year old Labrador retriever reported in the hospital with severe convulsion and stiffness of all four limbs. History revealed accidental consumption of the bark of *Strichnos nux vomica* one hour before. Animal showed a "saw horse" appearance. Visible Mucous membranes were congested and the body temperature of the animal was elevated. Animal was showing severe dyspnoea and tachycardia upon auscultation. An intravenous injection of xylazine @ 0.5mg/kg body weight was given initially to induce vomiting. An endotracheal tube was fixed. Animal was intubated and artificial respiration was provided. A stomach tube was passed and gastric lavage was done using Luke warm water. Activated charcoal was given @ 2g/kg body weight via the same stomach tube. An intravenous bolus dose of diazepam injection @0.5 mg/kg body weight administered initially followed by continuous rate infusion. Animal was continuously monitored and made an uneventful recovery after 24 hours.

**Keyword:** Strychnine, gastric lavage, activated charcoal.

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### I. Introduction

Strychnine is an indole alkaloid obtained from the *Strichnos nux vomica* and it is mainly used as a pesticide. However malicious or accidental poisoning is common among dogs. It is highly toxic to most of the domestic animals and the oral LD 50 in dog is in between 0.5-1 mg/kg ((Safdar A Khan, 2010)).It mainly affects the nervous system by causing uncontrolled firing of the nerves that cause muscle movement ultimately to muscle injury, muscle cell breakdown, and hyperthermia. Clinical signs include restlessness, anxiety, muscle twitching, stiffness of the neck, generalized seizures, dilated pupils and hyperaesthesia. The respiratory muscles are contracted resulting in difficulty while breathing, lack of oxygen to the body. Severe extensor rigidity of limbs produces a "saw horse" posture. Clinical signs may be present within 10 minutes to 2 hours of ingestion. Death in strychnine poisoning is due either to exhaustion or asphyxia (J T C McCALLUM and G F KEMPF, 1933).

### II. Case History And Observations

One year old male Labrador retriever was presented to the Teaching Veterinary Clinical Complex, Mannuthy with severe convulsion and stiffness of all four limbs. From the history, it was understood that the dog was accidentally consumed the bark of *Strichnos nux vomica* one hour before. The characteristic "saw horse stands" was noted in the preliminary observation. On physical examination, the visible mucous membranes were congested and the body temperature of the animal was elevated (104°F). Animal was showing severe dyspnoea. Tachycardia was observed upon thoracic auscultation. An intravenous injection of xylazine @ 0.5 mg/kg body weight was given to induce vomiting initially. Electrocardiogram revealed the bradyarrhythmia. Atropine sulphate was given @ 0.02mg/kg BW intramuscularly to nullify the bradyarrhythmia produced due to xylazine. An endotracheal tube was fixed. Animal was intubated and artificial respiration was provided. A stomach tube was passed followed by gastric lavage with luke warm water. Activated charcoal was given @2g/kg body weight via the stomach tube as slurry. Diazepam injection @ 0.5mg/kg was given initially as a bolus followed by continuous rate infusion @ 0.3 mg/kg/hr. in 5% Dextrose solution. Continued the fluid therapy with Dextrose normal saline @20 mg/kg intravenously. Animal was continuously monitored over 24 hours and recovered uneventfully.

### III. Treatment And Discussion

In the present case the animal was effectively treated by inducing emesis, gastric lavage followed by oral activated charcoal and intravenous diazepam. Early presentation of the animal fastened the recovery. As per the current views in veterinary practice and available literature, there is no specific antidote available for strychnine poisoning and death due to malicious or accidental poisoning of strychnine is common among dogs in India. Positive diagnosis can only be made by identifying strychnine in the stomach contents and viscera. The

drug can be identified by chemical tests and microscopic identification of typical strychnine crystals (Duverneuil et al., 2004). However, a tentative diagnosis can be made based on clinical signs and history. So a chance of recovery exist in how early the animal is being presented to the hospital followed by doing a gastric lavage and binding of remaining toxins in the GI tract with activated charcoal.

Treatment should be aimed at decontamination, control of seizures, prevention of asphyxia, and supportive care. Decontamination includes the removal of gastric contents by inducing emesis or gastric lavage and binding of the remaining bait in the GI tract with activated charcoal. Emesis can be induced with either apomorphine @ 0.03mg/kg IV, or xylazine at 0.5mg/kg IV or IM. Animal that is seizing should be anaesthetized first followed by passing of an endotracheal tube. Gastric lavage can be performed with tepid water or with potassium permanganate solution (Hubel A, 1898). After emesis or gastric lavage, activated charcoal @2-3 g/kg should be administered through the stomach tube as slurry to absorb the remaining baits in the GI tract. Muscle relaxants such as methocarbamol (at 100-200mg/kg IV), Diazepam (0.5mg/kg), and propofol (@ 0.1-0.6 mg/kg /min as an IV infusion) can be used. Severely affected dogs should be intubated and artificial respiration should be provided.

Intravenous fluid therapy should be administered to force diuresis and normal kidney function. Hyperthermia should be corrected with appropriate methods like cool bath, fans etc. Acid-base balance should be monitored and corrected if necessary. (Safdar A Khan, 2010)

### **Acknowledgements**

The authors are thankful to the Director of Clinics, KVASU and the Dean, College of Veterinary and Animal Sciences, Mannuthy for providing the necessary facilities.

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