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## Therapeutic management of carbamate intoxication in a goat: A case report

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### Abstract

A two year Tellichery goat was presented to the Veterinary College and Research Institute Hospital, Namakkal with the history of salivation, tremors and shivering immediately after consuming of carbamate accidentally in the field of grazing. Clinical examination revealed salivation, staggering gait, shivering, constriction of pupillary constriction. The goat was administered with activated charcoal, atropine sulphate, and fluid therapy. The animal had uneventfully recovery following therapy.

**Keywords:** Carbamate poisoning, activated charcoal and atropine sulfate

### Introduction

Carbamates are considered to be safer than organophosphates. Carbamate insecticides have the same mechanism of toxicity action as the OP insecticides, except their effects are more reversible and less severe. The most popular of these pesticides for residential uses are carbaryl and propoxur. Many carbamates such as aldicarb and methomyl are also used in agricultural applications. This paper reports the clinical signs and successful therapeutic management of carbamate toxicity with atropine sulphate in goat.

### Case History and Observation

A two year old tellichery goat was presented to the Veterinary College and Research Institute Hospital, Namakkal with signs of salivation, tremor, and convulsion. The owner of the goat reported that the animal had accidentally consumed the carbamate component when taken out for grazing. Clinical Examination revealed that the animal was in lateral recumbency with profused salivation, tremor, convulsion, tachypnoea, frequent urination, unable to stand because of muscle weakness and pupillary constriction. (Fig: 1-2). Grunting dyspnoea was noticed.

### Treatment and Discussion

The goat was administered with atropine sulphate (@ 0.3mg/Kg body weight intravenously one third of drug given subcutaneously) twice daily and Normal saline (@20ml/kg body weight intravenously). Activated charcoal was given orally @ 1gm per kg B wt.

Intoxication by carbamates and organophosphates in production animals are among the main causes of poisonings. Carbamates and organophosphorus components exerts their toxic effects by competitive inhibition of acetylcholinesterase. This inhibition leads to accumulation of acetylcholine at the neuromuscular junction. (Smith, 1985). The acute clinical manifestations will depend on the stimulation of the receptors for acetylcholine which are of two types: nicotinic and muscarinic. Due to the muscarinic effect in the gastrointestinal system there is an increase in salivation, defecation and gastroenteritis. At ocular level, the most frequently observed effect is miosis. On the heart the inhibitory effects of acetylcholine on the SA node cause bradycardia. In the respiratory system, the stimulation of the glands of the bronchial tree produces a large amount of secretion that can obstruct the airways. On the other hand, due to the nicotinic effect tremors and muscle weakness occur at the neuromuscular level and it is also possible that paresis. Or total paralysis occurs after the acute cholinergic crisis. (Osweiller 2011) [4]. The muscarinic effects of acetylcholine are the visceral responses and nicotinic effects are of skeletal muscle responses like twitching, tremor, tetanus and convulsions (Constable *et al* 2017) [1].

The clinical signs and treatment with atropine @0.3 mg/kg B.wt was successful in goat as observed by Giadinis 2009) [2]

5. Mary C, Smith, David M, Sherman. Goat Medicine, 2009, 386.



**Fig 1:** Pupil constriction



**Fig 2:** Salivation

### Summary

Carbamate intoxication can be fatal for goats if untreated. Therapeutic management can be done with atropine sulphate @ 0.3 mg/kg can be useful in treating this condition successfully.

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