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Cobra Envenomation in a Doberman Dog – A Case Report

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Abstract

A two-year-old male Doberman dog was presented in a recumbent state with a history of snake bite and clinical manifestations of dullness, depression, respiratory distress and frothy salivation. Clinical examination revealed two fang marks on the lateral aspect of the left shoulder with oozing of blood. Haematological evaluation showed leukocytosis and reduced packed cell volume. Based on the clinical signs and history, the condition was diagnosed as cobra envenomation. The dog was treated with polyvalent anti-snake venom along with atropine sulphate, antibiotics, B-complex, fluid therapy and antiseptic wound dressing. Uneventful recovery was observed within three days.

Keywords: Cobra bite, *Naja naja,* Dog, Anti-snake venom, Neurotoxic envenomation.

Introduction

Snakebite is a frequently encountered emergency in small animal practice in India, where dogs often come into close proximity with venomous snakes. Both cobra (neurotoxic) and viper (hemotoxic) envenomation are commonly reported, with multiple authors documenting year-round incidence in different regions (Vigneswari *et al.,* 2020; Vijayakumar *et al.,* 2019). Cobra (*Naja naja*) venom exerts potent postsynaptic neurotoxic effects that interfere with neuromuscular transmission, resulting in respiratory distress, muscle weakness, hypersalivation and rapid collapse (Sooryadas, 2012). Viper envenomation typically produces hemorrhage, coagulopathy, renal dysfunction and significant local tissue damage (Arun *et al.,* 2021; Saravanan *et al.,* 2017). The present case report describes the clinical presentation and successful management of cobra envenomation in a Doberman dog.

Case History and Observation

A two-year-old male Doberman was presented in a recumbent state (Fig 1) to District Veterinary Hospital, Karimnagar with history of snake bite and sudden onset of dullness, depression, respiratory difficulty and frothy salivation (Fig 2). Physical examination revealed two distinct fang marks on the lateral aspect of the left shoulder with mild swelling and oozing of blood (Fig 3). Mucous membranes were congested, and temperature, respiration, pulse rates were recorded as 102.3 F, 18/min, 42/min respectively. Blood sample was collected to evaluate the blood clotting time and haematology. The haematological parameters revealed decreased haemoglobin concentration (9.6 g/dl) and packed cell volume (27%) and increased total leukocyte count (31 $\times 10^3$/ µL) with normal blood clotting time of 12 minutes (20 WBCT method). Based on history of the owner, clinical signs and laboratory results, the case was diagnosed as cobra envenomation and therapeutic protocols were initiated immediately

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Treatment and Discussion

The dog was administered with polyvalent anti-snake venom (10ml) diluted in 100ml Normal Saline intravenously over a period of one and half hour. Atropine sulphate (@ 0.02mg/kg IM), ceftriaxone (@20mg/kg IM), tetanus toxoid (@ 0.5 ml IM), Vitamin B1, B6 and B12 (@ 2ml IV) were administered. The bite site was thoroughly cleaned with antiseptic solution (KMno4) and dressed with povidone iodine. Antibiotic and supportive therapy were continued for 5 days. Clinical improvement was noticed within 12–18 hours of treatment. Frothy salivation diminished and respiratory distress reduced significantly. By second day, the dog was alert and in sternal recumbency, and appetite gradually returned. By third day, the dog achieved complete recovery with stable vital signs, normal gait and resolution of neurological signs. Clinical signs such as salivation, dullness, muscular weakness with abnormal gait observed in the present case have also been observed by Ananda *et al.* (2009). These clinical signs can be attributed to the enzymatic and non-enzymatic compounds in the snake venom, according to Klaassen

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Fig.1. Dog presented in recumbent state with dullness, depression.

Fig.2. Frothy salivation from mouth

Fig.3. Fang marks on the lateral aspect of the left shoulder.

(2008). The present case exhibited typical neurotoxic signs of cobra envenomation, including respiratory distress, hypersalivation, recumbency and muscular weakness which are consistent with previous reports of cobra envenomation in Indian dogs (Sooryadas, 2012; Abinaya *et al.*, 2019; Dhillon *et al.,* 2020). The rapid and complete recovery observed in present case corresponds with the outcomes documented in both cobra and viper envenomation cases (Saravanan *et al.,* 2017; Vijayakumar *et al.,* 2019). Cobra envenomation in dogs is a life-threatening emergency requiring rapid diagnosis and early administration of polyvalent anti-snake venom. In the present case, timely intervention combined with comprehensive supportive therapy resulted in complete recovery within three days.

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