The Pharma Innovation Journal 2022; SP-11(9): 1552-1553

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(9): 1552-1553

www.thepharmajournal.com
Received: 27-07-2022
Accepted: 29-08-2022

G Senthil Kumar
Department of Clinics, Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Namakkal, Tamil Nadu, India

T Arul Kumar
Department of Clinics, Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Namakkal, Tamil Nadu, India

P Vikramachakravarthi
Department of Clinics, Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Namakkal, Tamil Nadu, India

S Dharmaceelan
Department of Clinics, Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Namakkal, Tamil Nadu, India

Corresponding Author:
G Senthil Kumar
Department of Clinics, Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Namakkal, Tamil Nadu, India

Therapeutic management of cobra envenomation in a dog: A case report

G Senthil Kumar, T Arul Kumar, P Vikramachakravarthi and S Dharmaceelan

Abstract
Most of the snake bites are reported on the head, neck and in limbs of dogs due its playing and chasing nature of the dogs. A 4 years old male Spitz dog was presented to the Small Animal Medicine Unit of Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal with a history of snake bite. Swelling on the face, frothy salivation and fang mark just above the muzzle were the clinical findings. The case was diagnosed as Cobra envenomation based on the snake identification. The hemato-biochemical analysis revealed anemia, neutrophilia and elevated creatinine. The dog was treated with polyvalent anti-snake venom, supportive therapy with tetanus toxoid and antibiotic besides oxygen supplementation. Dog showed an uneventful recovery.

Keywords: Dog-cobra envenomation, polyvalent anti-snake venom

Introduction
Territorial and aggressive dogs have the tendency to chase and attack predators like snake and get bitten in face and other extremities. Spectacled Cobra (*Naja naja*), Common Krait (*Bungarus caeruleus*), Russell's viper (*Daboia russelii*) and Saw-scaled Viper (*Echis carinatus*) are the major venomous snakes in India. The 20 minutes whole blood clotting time (20MWBCT) has been used as field test to diagnose hemotoxic envenomation by certain snakes like Russell's Viper. The fixed-fang snakes like Cobra generally have neurotoxic venoms. These venoms affect the nervous system and respiratory system by causing difficulty in breathing in affected animal. Hence blood clotting within 20 minutes and presence of respiratory distress are suggestive of neurotoxic envenomation. Cobra envenomation is often leads to death due to respiratory failure. The toxin produced by cobra binds to the nicotinic receptors in the post-synaptic membrane and prevents binding of acetylcholine in muscles never endings ultimately leads to paralysis of respiratory muscles and respiratory failure (Karalliedde, 1995) [3]. Localized swelling, pain on bitten area, convulsions, vomiting and paralysis are the symptoms of venomenous snake bite. The specific treatment available for the snake envenomation is neutralizing the toxin by Anti-snake venom. With this background of information, the present case was diagnosed as cobra envenomation and the dog was successfully managed with polyvalent anti-snake venom with other supportive drugs and discussed.

Case History and Observations
A 4 years old male Spitz was presented to the Small animal Medicine unit of Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal with a history of snake bite. Swelling on the face, frothy salivation and fang mark just above the muzzle were the preliminary clinical findings. Animal was on lateral recumbency. The owner had brought the killed snake which had bitten the dog and the snake was identified as spectacled cobra based on its specific morphological feature. Frothy salivation that drools on one side of the cheek, drooping of eyelids, labored breathing, reduced reflex in the extremities and rigidity of limbs were the other important clinical findings. The rectal temperature, respiratory rate and heart rate were 38.6°C, 14/min and 52/min respectively. Absence of pulmonary effusion was found on thorax X-ray. 20 MWBCT test showed a blood clotting time of 10 minutes. Complete blood count revealed anemia and neutrophilia. Elevated creatinine was found on serological estimation. Based on the snake identification, differential diagnosis with 20 MWBCT test and X-ray, the case was diagnosed as cobra envenomation.

Whole blood and serum samples were collected periodically for analysis and to determine the status of progression. The dog was treated with 10 ml of Polyvalent Anti-snake venom mixed in 100 ml of normal saline and administered slowly in intravenous route. The dog was monitored for any untoward reactions closely at regular interval for the first 30 minutes. Inj. Ceftriaxone @ 20 mg/kg, I/V, Inj. Furosemide @ 0.5 mg/kg I/V and Inj. Tetanus toxoid 0.5 ml I/M were administered as part of treatment besides oxygen therapy. Second dose of 10 ml of Polyvalent Anti-snake venom mixed in 100 ml of normal saline was administered after 6 hours.

Results and Discussions

In the present case, the swelling observed at the face could be attributed to enzyme hyaluronidase that acts as a spreading factor. The enzyme hyaluronidase cleaves internal glycoside bonds in certain acid mucopolysaccharides resulting in decreased viscosity of connective tissues which allow other fractions of venom to penetrate the tissues (Klaassen, 2008) [4]. Bluish discoloration of swollen areas with fang marks on tip of nose may be due to local necrosis possibly caused by bacterial contaminants present in the oral cavity of the snake (Mwangi *et al*., 2014) [5]. The anemia and neutrophilia observed in this case might be due to systemic infection caused by the bacterial contaminants present in the oral cavity of snakes. Increased levels of creatinine found in serum biochemical estimation could be due to the damage occurred in kidney nephrons by nephrotoxins present in the snake venom. The use of broad spectrum antibiotics is indicated to prevent thrombosis of blood vessels and systemic infection that may occur in contaminated snake bite (Ananda *et al*., 2009) [1]. The fang mark area of the skin was thoroughly cleaned with antiseptic solution and dressed with povidone iodine which may reduce the chance of tetanus spore entering animal body due to contaminated snake bite (Dhillion *et al*., 2009) [2]. Oxygen supplementation was attributed to the labored breathing due to flaccid paralysis of respiratory muscles. Anti-snake venom treatment is the only specific treatment for cobra envenomation and the dog was monitored closely for subsequent three days. Animal showed complete and uneventful recovery.

Reference

1. Ananda KJ, Mohan K, Kamran A and Sharada R. Snake bite in dogs and its successful treatment. Veterinary World 2009;2(1):66-67.
2. Dhillion KS, Simran JK and Sagar R. Cobra snake bite in a Labrador pup and its successful treatment. J. Entomol. Zool. Studies 2020; 8 (2) : 1936 - 1938
3. Karalliedde L. Animal Toxins. British Journal of Anesthesiology 1995;74:319-27.
4. Klaassen CD. Properties and Toxicities of animal Venoms. In: Toxicology. 7th Edn, McGraw-Hill, New Delhi 2008, 1093-1098.
5. Mwangi WE, Kimeli P, Mathai LW, Muasya DW, Kipyegon AN. Management of Puff Adder (Bitis arietan) snake bite and envenomation in dogs: Case report. International Journal of Veterinary science 2014;3(3):160-62