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## Snake bite in dogs and its management

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### Abstract

Two non-descript dogs (male and female) were presented to People for Animals with the history of snake bite injury. Male dog was presented with facial swelling with bite mark on the forehead, bleeding from gums and hematuria, whereas female dog had swelling on the left hindlimb extending from stifle to digits, bleeding from interdigital spaces and ecchymotic hemorrhages on the inner thigh. The haematobiochemical values of both the dogs showed decreased haemoglobin, packed cell volume and thrombocyte count, increased total leukocyte count, blood urea nitrogen, creatinine and alanine aminotransferase. The successful treatment was done with polyvalent anti-snake venom, fluid and antibiotic therapy for continuously for 5 days and both the dogs made uneventful recovery.

**Keywords:** Non-descript dogs, snake bite, management

### Introduction

Snake bite in animals generally occurs during hunting or while playing in the garden. Among the domestic animals, dogs are most frequently attacked and killed by the snakes (Osweiler, 1996) [4]. Systemic clinical manifestations after being bitten include degeneration and crust in bitten area, pain, weakness, severe hypotension, dizziness, nausea, leukocytosis and thrombocytopenia (Cihan, 2004) [1]. Snake bite injury is an emergency condition which requires rapid examination and adequate treatment is essential. The present paper describes snake bite in dogs and its management.

### Case history and Observation

A male and female non-descript dogs brought to People for Animals, Ponda, Goa with the history of snake bite injury. On physical examination, male dog had facial swelling with bite mark on the forehead, bleeding from gums and hematuria. Whereas; female dog had swelling on the left hindlimb extending from stifle to digits, bleeding from interdigital spaces and ecchymotic haemorrhages on the inner thigh. On clinical examination, rectal temperature was (101.3 °F, 100 °F), inappetance, heart rate and respiratory rate was (80/min, 75/min) (26/min 20/min), respectively.

Blood samples were taken on the both the dogs, clotting time was more than 20 min and on haematobiochemical examination, haemoglobin (7.5%, 9.2%), packed cell volume (21%, 28%), increased total leukocyte count (20000/ml, 23000/ml), blood urea nitrogen (151 mg/dl, 120mg/dl), creatinine (2.93 mg/dl, 1.7 mg/dl) and alanine aminotransferase (343 IU/L, 250 IU/L) in male and female dogs, respectively.

### Treatment

Both the dogs were treated with lyophilized polyvalent anti-snake venom. After dilution, anti-snake venom was slowly administered intravenously in a shot of 1ml at an interval of 3-4 minutes up to 10 ml. In addition, 500 ml of 5% DNS each was administered intravenously to both the dogs. Enrofloxacin at the dose of 5 mg/kg and dexamethasone at the dose of 2mg/kg i/m was administered, respectively. Atropine sulphate at the rate of 0.04mg/kg, tetanus toxoid 1ml i/m and Brotopase 1ml i/v were given. Then the animals were kept under observation for 5 days.

On second day, inflammation was reduced on both the dogs and continued with antibiotic therapy. On third day, hematuria and buccal mucosal haemorrhages was absent in male dog.

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In female dog, ecchymotic hemorrhage and bleeding from interdigital space was reduced. Both the dogs showed marked improvement and started eating. After one week of treatment, both the dogs were recovered uneventfully.

### Discussion

Snake venoms are complex mixture of proteins and peptides, consisting of both enzymatic and non-enzymatic compounds. The other components of snake venoms are glycoproteins, lipids, and biogenic amines, such as histamine, serotonin and neurotransmitters (catecholamines and acetylcholine) (Klaassen, 2008) <sup>[2]</sup>. Clinical signs such as frothy salivation, dullness, muscular weakness with abnormal gait observed in the present study can be attributed to the enzymatic and non-enzymatic compounds in the snake venom. According to Klaassen (2008) <sup>[2]</sup>, hyaluronidase cleaves internal glycoside bonds in certain acid mucopolysaccharides resulting decreased viscosity of connective tissues allowing other fractions of venom to penetrate the tissues. The cyanotic edema observed at the site of bite may be attributed to enzyme hyaluronidase which acts as a spreading factor. Passing of blood in the urine and buccal mucosal observed in male dog and ecchymotic hemorrhages in the inner thigh and interdigital space bleeding in female dog can be hypothesized to the haematotoxic effect of snake venom which may interfere with many components of the haemostatic system (Wolff, 2006). The alterations in the hematological parameters might be due to damage to the blood cells by snake venom. The increased biochemical values like alanine aminotransferase and creatinine may be due to the hepatotoxic and nephrotoxic effect of snake venom (O'Shea, 2005) <sup>[3]</sup>.

Polyvalent snake anti-venom was preferred in the present case as it provides protection against the venom of big four (common cobra, common krait, saw scaled viper and russell's viper) species of the snakes (Suchitra et al. 2010). Sometimes lyophilized polyvalent anti-snake venom may cause anaphylactic reactions (Sai *et al.*, 2008) <sup>[5]</sup> to overcome the untoward effect to antivenom, dexamethasone injection was given to the dogs. However, in the present study corticosteroid was preferred over antihistamines as in certain times it potentiates the toxic action of the snake venom (Singh 1980). The use of tetanus toxoid provides protection against the tetanus spore that might have entered animal body from contaminated snake mouth (Shukla, 2009) <sup>[6]</sup>. Prophylactically, broad spectrum antibiotic was administered to the dogs, as the fangs of the snake are supposed to be contaminated with various types of bacteria.

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