

Therapeutic Management of Snakebite in Dogs

Pardeep Sharma*

Department of Veterinary Medicine, DGCN- College of Veterinary and Animal Sciences, CSKHPKV- Palampur, Himachal Pradesh, India

***Corresponding Author:** Pardeep Sharma, Department of Veterinary Medicine, DGCN- College of Veterinary and Animal Sciences, Himachal Pradesh, India.

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Abstract

Three cases with history of snakebite were presented to emergency critical care unit, COVAS, Palampur. On clinical examination all three were dull and depressed. Clinical and physical examination was done, and dogs were treated immediately.

Keywords: Snakebites; Dogs; Management

Abbreviations

°F: Degree Fahrenheit; CMM: Conjunctival Mucous Membrane; bpm: Beats per minute; I.V.: Intravenous; I.M.: Intramuscular; p.o.: Per os

Introduction

Snakebites are a common cause of morbidity and mortality in the dogs of hilly areas. The risk of snakebite is high due to the presence of a huge fauna flourishing in a favourable climate, ambient environmental temperature, and heavy rainfall in this hilly area of study. There are nearly 216 species of snakes in India in which 60 are considered poisonous [1].

Snakebites and insect stings are commonly encountered biotoxins [2]. Snakes do not attack/prefer not to bite animals unless they are disturbed. Among the domestic animals, dogs are most frequently attacked and killed by the snakes [3]. The most common local signs for snake bite in dogs include swelling, oedema and haematoma, attributed mostly to venom haemorrhagin activity and acute lameness with pain, when limb envenomation occur [4]. Snakebite with envenomation is an emergency and rapid examination and treatment should be initiated soon. The present paper describes three cases of snakebite in dogs presented at COVAS, Palampur and their therapeutic management.

Case History and Clinical Examination

Case-1

A Pomeranian female dog weighing 8 Kg, 13 years of age was presented to the emergency critical care unit of COVAS, Palampur with history of fight with the snake and snake bit the animal. Since then, the animal was unable to stand and also not responded to any external stimuli.

On clinical examination animal was dull, depressed and was unable to bear weight on its legs. Rectal temperature was 101.8°F, CMM was pink and heart rate was 200 bpm. Fang marks were present on the right upper lip and the clotting time was more than 45 minutes. Haematology was not performed as the case was presented late night and immediate intervention was needed. Based on the clinical symptoms, clinical findings, and history of the owner it was diagnosed as a case of snakebite and therapeutic measures were undertaken immediately.

Case-2

A Mongrel female dog weighing 22 Kg, 10 months of age was presented in emergency critical care unit with history of snakebite and the animal was anorectic at the time of presentation. Faeces were liquid in consistency and urine was dark yellow in colour.

On clinical examination, the animal was dull. The rectal temperature was 104°F, heart rate was 131 bpm and CMM was pink. Alterations in haematology were leucocytosis ($34.1 \times 10^9/L$), granulocytosis (92.6%) and slight increase in haematocrit (47%). Clotting time was increased (8 minutes 30 seconds) and bleeding time was within normal range (2 minutes 20 seconds).

Case-3

A German Shepherd male dog aged 1.5 years was presented to the clinics with history of snakebite on nose three days back. Feed intake was reduced but water intake was normal. Animal was having blood-tinged diarrhoea and vomiting was also observed by the owner.

On clinical examination, the animal was recumbent and dull. Rectal temperature was 100.7°F, heart rate was 120 bpm and CMM was pink. Alterations in haematology were leucocytosis ($50.8 \times 10^9/L$), granulocytosis (87.8%) and platelet count was $72 \times 10^9/L$. Rest all the haematological parameters were normal.

Treatment and Discussion

All three dogs were kept calm in lateral recumbency with head little below the level of the rest of body to minimise the circulatory spread of venom. The fang marks area was thoroughly cleaned with 5% $KMnO_4$ solution. Dexamethasone sodium phosphate (Injection Dexona M/s Cadila India Ltd.; 4 mg) was administered intramuscularly prior to administration of antsnake venom. Then the dogs were treated with a single vial of lyophilised polyvalent antsnake venom (M/s Serum Institute of India). As per manufacturers recommendation the lyophilised powder was first mixed in 10 ml of sterile water and was administered along with 5% dextrose saline solution. Beside this antibiotic Inj. Ceftriaxone 250 mg (M/s Intas Pharmaceuticals) was administered intravenously. Next day onwards the animals were given antibiotics and intravenous fluids, and this was continued till five days. Unfortunately, the Pomeranian dog did not survive which may be because of the extensive hemolysis caused by the venom of the snake. The other two dogs responded well to the treatment and recovered fully after the treatment. The recovery was recorded following the treatment with polyvalent snake-antivenom along with antibiotics. Broad-spectrum antibiotics, tetanus toxoid and polyvalent snake venom antiserum have been used earlier also with success for the treatment of snakebite envenomation in dogs, cats and other animals [5].

Snake venom is a highly complex cocktail of proteins, peptides, non-protein toxins, carbohydrates, lipids, amines, and other molecules. The chemical composition of venom varies at all taxonomic levels. The snake venom mainly contains proteins (> 90%, dry weight). The toxins such as the haemorrhagins cause spontaneous bleeding in the gingival sulci, nose, skin and gastrointestinal tract.

Species of the snake was not identified by the owner. Polyvalent snake anti-venom was preferred in these cases as it provides protection against the venom of most dangerous four (common cobra, common krait, saw scaled viper and Russell's viper) species of the snakes commonly found in India. 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. Treatment usually consists of intravenous fluids and the administration of antivenom to neutralize the snake venom in the pet's body.

Conclusion

Snakebite in animals is an emergency condition, approximately 66% of pets survive snakebite if treated quickly.

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