

Therapeutic Management of Snakebite in a Male Dog

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Abstract: A 2 year old male German shepherd dog was presented to the Teaching Veterinary Clinical Complex, Goregaon Mumbai with a history of Frothy salivation, dull, depressed, abnormal gait and bloody diarrhea with recumbent position. They were diagnosed for snake bite based on the history and physical examination. The hematological parameters showed reduced values of hemoglobin, packed cell volume and increased total leukocyte count. The successful treatment was done with anti-snake venom, fluid, 5% dextrose, dexamethasone phosphate, normal saline, tetanus toxoid and broad-spectrum antibiotic brought about an uneventful.

Keywords: Germanshepherd, Snake bite, Anti-snake venom treatment

INTRODUCTION

There are nearly 216 species of snakes in India in which 60 are considered poisonous [1]. The most poisonous, medically important species of India distributed widely throughout the country, nearly one lakh animals in the world fall prey to venomous snake bite every year. In India Madhya Pradesh has recorded the highest number of snake bite followed by Maharashtra. Snake bites are common in most rural areas and particularly in forest and forest fringe villages. Snake bite in animals generally occurs during grazing or hunting or while playing in the garden. Most of the cases of snake bite have been reported in dogs and horses [2]. The clinical effects are more severe in small animals as compared to large animals. Dogs and cats are most often bitten around the head and limbs. Venom is two type neurotoxic or haemotoxic. Neurotoxic signs are flaccid paralysis, respiratory paralysis. In case of haemotoxic venom, the toxins are released in the blood and cause Arterial thrombosis and necrosis [7]. Snake bite in human and animal that requires rapid examination and critical care for proper treatment. The present paper describes snake bite in dog and its therapeutic management.

CASE REPORT

A two year old Male German shepherd dog was presented to the Teaching Veterinary Clinical Complex, Goregaon Mumbai with a history of frothy salivation, dull, depressed, abnormal gait and pupillary dilation and with bloody diarrhea. According to owner, the dog was usually placed in park for playing in evening time and had a history of problem. On physical examination of the dog revealed cyanotic swollen areas with fang marks present on the left forepaw of dog was observed.



Fig. 1: Swollen areas with fang mark on left forepaw



Fig.2: shows bloody diarrhea

DIAGNOSIS

On the basis of history and physical examination of the dog was suspected for snakebite. The clinical parameters like rectal temperature, pulse and respiratory rate were 102 F, 39 / min and 22 / min. The blood sample collected from the dog with ethylene diamine tetra acetic acid (EDTA) for hematological parameters like haemoglobin, packed cell volume and

total leukocyte count estimation. The hematological parameters revealed decreased hemoglobin concentration (11.6 g/dl) and packed cell volume (38 %) and increased total leukocyte count (21000/ml) in dog.

TREATMENT

The dogs were treated with polyvalent snake venom anti-Serum (Bharat Serums & Vaccines Limited, Thane - India). Snake venom antiserum along with 250 ml of 5% dextrose was administered intravenously followed by Dexamethasone (Dexona, CadilaPharma) at the dose of 2mg/kg was administered and Atropine Sulphate (ATN-MB, Martin & Brown Bio Science) at the rate of 0.04mg/kg intramuscularly. Chlorpheniramine maleate 2ml (Avinil) and Botrophase 1ml (Juggart) also given intravenously. In addition, Enrofloxacin (Enrocin, Ranbaxy) at the dose of 5 mg/kg, i/m and tetanus toxoid (serum institute of India) 2ml i/m were also given. The antibiotic therapy was continued for 5 days to the dogs along with and liver tonic. After one week of treatment, it was confirmed that the dogs were recovered uneventfully.

RESULTS AND DISCUSSION

All clinical signs as frothy salivation, dull, depressed, bloody diarrhea and swelling on the left forepaw was somewhat reduced on next day. Dog started normal feeding from third day. The recovery was recorded following the treatment with antiserum along with antibiotics, dexamethasone and tetanus toxoid. Broad-spectrum antibiotics, tetanus toxoid and polyvalent snake venom antiserum have earlier been tried successfully for the treatment of snake bite envenomation in dogs, cats and other animals [3].

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). There are more than hundred different proteins in each venom; with elapid and viperid venoms constituting 25-70% and 80-90% of enzymes respectively. Some non-enzymatic polypeptide toxins and non-toxic proteins are also present. The snake venoms are mainly characterized as neurotoxic and hemotoxic. The neurotoxic venoms act at molecular level, by disrupting the neuromuscular junctions, limiting muscle activity while hemotoxic venoms cause tissue destruction in body systems besides their effect on circulatory system. The venom enzymes include hydrolases, hyaluronidase, kininogenase. Other enzymes include phosphomono- and diesterases, 5'-nucleotidase, DNAase, NAD-nucleosidase, l-amino acid oxidase, phospholipase A2 (PLA2), peptidases and zinc metalloproteinase hemorrhagins. Hyaluronidase aids in venom dissemination from the bite site through tissues [1]. The toxins such as the haemorrhagins cause spontaneous bleeding in the

gingival sulci, nose, skin and gastrointestinal tract [4]. The most effective antidote against snake venom is the anti-snake venom. It is usually pepsin refined F (ab) fragments of IgG purified from the serum or plasma of a horse or sheep that has been immunized with the venom of one or more species of snakes. ASV neutralizes the venom of a particular species (monovalent/ monospecific) or various different species (polyvalent/polyspecific). The antibodies against a particular species may also neutralize the venom of a closely related species (Paraspecific activity). In India, horses are hyper immunized against the venom of four common poisonous snakes the "Big Four" (Cobra, Krait, Russell's viper and Saw-scaled viper), to produce polyvalent anti snake venom. Sometimes lyophilized polyvalent anti-snake venom may cause anaphylactic reactions [5] 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 [6]. Prophylactically, Tetanus toxoid and broad spectrum antibiotic were 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

Thus from this study it is concluded that snake bite is more dangerous in animal if diagnosis is not proper in short time. Approximately 80% of pets survive snake bite if treated quickly.

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