

CLINICO-HAEMATOLOGICAL PROFILES AND THERAPEUTIC MANAGEMENT OF SNAKE BITE IN DOGS

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A total of six clinical cases of snake bite were examined clinico-haematologically. The clinical examination revealed the normal rectal temperature but increased respiration as well as heart rates. The hematological values showed decreased Hb and PCV but increase in polymorphonuclear cells. All these snake bite dogs had been successfully treated with slow i.v. administration of antivenin along with corticosteroids i.m., adrenaline (1: 10,000 dilution in i.v. fluid), inj. DNS (5%), i.m. administration of antibiotic(s) and local antiseptic dressing with Povidone Iodine after irrigation or washing the affected area(s) with soap water. Out of six dogs, four dogs survived and two died even after treatment.

Key words: Clinico-haematological profiles, Dogs, Snake bite, Therapeutic management.

Introduction

From time immemorial, the snakes are known to be the deadliest foes of both man and animal by virtue of being highly venomous. Snake bites mostly often occur when animals graze, hunt or plough in the infested areas. Snake bite, the biggest problem has been frequently reported in dogs (Nicholson, 1995 and Vijaykumar *et al.*, 2001) and sometimes in cats (Palanivel *et al.*, 2007). The body parts of dogs which are bitten by snakes are head, around nostril and neck. The severity of the snake bite in dogs depends upon the type of snake, age of the dog, size of the dog, the number of bites and the amount of venom injected (Hungerford, 1990). Therefore, snake venomation in dogs is an emergency which requires rapid examination and critical care for the proper treatment. This paper reports six clinical cases of snake bite in dogs and their clinical management.

Material and Methods

A total of six male dogs (1 Boxer, 3 Labrador, 2 Mongrel) age between 8 months and 9 years, presented in the Veterinary Clinics, College of Veterinary & Animal Sciences, Palampur, with history of snake bite on different area(s)/ parts on face, mouth and/or on the nostril, were served as subject for this study. Clinical examination revealed the presence of fang marks and swelling on the biting areas, restless, breathing problems, frothy salivation, dull and depression, three dogs showed incoordination, pale conjunctival mucous membrane, vomiting and passing of reddish urine. The clinical parameters viz.; rectal temperature, respiration and heart rates were recorded in all these snake envenomated dogs following standard clinical examination methods (Kelly, 1984). Blood samples were

collected in EDTA vials for hematological examination such as hemoglobin concentration (Hb), packed cell volume(PCV), differential leukocyte count(DLC) and total leukocyte count(TLC) following standard methods (Jain, 1986).

Each dog was administered one and half vial of Lyophilised polyvalent anti snake venom (M/S. Serum Institute of India Ltd.). Each vial of Lyophilised anti snake venom powder was first reconstituted into 10ml of water for injection supplied by the same company and wait for 5 minutes. This clear supernatant solution was first given 5ml i.m. immediately and 10ml slow i.v. in dextrose saline (5%) solution. Additional amount of injection Dextrose saline (5%) solution 1 bottle (450ml) slow i.v. was given over a period of 2 hours. Dexamethasone sodium phosphate (Inj. Dexona of M/S. Cadila India Ltd.) @ 4mg/dog was administered intramuscular immediately and 4mg/dog in slow i. v. infusion of Dextrose saline (5%) solution. In addition to these, each dog was given 1ml Inj. Nikethamide and 0.3ml (0.3mg, 1: 10,(00) Inj. Adrenaline in i. v. fluid. In two cases 2ml of antihistamine (Inj. Avil of M/S Hoechst India Ltd.) was administered intramuscularly to prevent the shock. Besides, local antiseptic dressing with Povidone Iodine after irrigation/washing with soap water and i.m. administration of antibiotic (s) i.e. either the combination product of Ampicillin and Cloxacillin 250mg or Ceftriaxone 250mg twice daily were adopted for combating the bacterial invasions.

Results and Discussion

The recorded clinical parameters showed almost normal rectal temperature, increased respiration and heart rates ($100.96 \pm 0.40^{\circ}\text{F}$, $86.83 \pm 20.01/\text{rminute}$ and $107.66 \pm 5.57/\text{minute}$,

respectively). The hematological examination revealed decreased values of Hb (7.63±0.95gm/dl), PCV (24.5±3.80%) and leukocytosis (14.79±0.69 x 10³ µl) with Neutrophilia (76.0±1.21 %). Out of six cases four dogs survived and two died even after careful clinical management. The toxicity of snake venom has been attributed mainly due to proteolytic enzymes viz., phosphatidase, cholinesterase and neurotoxin. Diagnosis of snake bite is quite challenging but the presence of fang marks, history along with the clinical symptoms helps diagnosis of these clinical cases. The clinical features viz.; salivation, haematuria, incoordination, pale mucous membrane, cold extremities and vomiting which were observed in these cases correlates with the observation of other workers (Hungerford, 1990; Palanivel *et al.*, 2007). Clinical signs varies due to different types of snake varies in their venom composition and also depending upon the site of bite and amount of venom injected etc. (Nicholson, 1995). Intravascular hemolysis may be the cause of hemoglobinurea. Lal *et.al.*, 1998 and Nicholson, 1995 have also reported the hemolytic action of venom and hemoglobinurea that simulates to our present report. Moreover, Lysolecithin formed in the tissue by venom may also produce hemolysis. Polymorphonuclear leukocytosis and leukocytosis observed in this study corroborate to the observation of earlier workers (Lal *et.al.*, 1998; Vijaykumar *et al.*, 20012; Singh, 2002) while identification of snake is not possible, polyvalent snake venom is preferred for the treatment of snake bite. All these six dogs were treated with polyvalent anti snake venom, corticosteroids, broad-spectrum antibiotics and also by fluid therapy. Polyvalent antsnake venom, tetanus toxoid and broad spectrum antibiotics for the treatment of snake envenomation had been recommended by Bailey and Garland (Bailey and Garland, 1992) and Nicholson, 1995. In the present cases, adrenaline along with corticosteroids and antihistamine were used for managing the possible anaphylaxis. The use of steroids in snake bites is contraindicated however, their use is only advocated in sever allergic reactions [Lal *et.al.*, 1998]. The anaphylactic reactions may be observed occasionally as the antivenom is derived from hyper immunized

horse serum and contains concentrated purified immunoglobins which may lead to immediate or delayed immune reaction in some cases (Jain, 1986). Antihistamines, hydrocortisone and adrenaline can be given to counter anaphylactic reactions (Lal *et.al.*, 1998). The use of antihistamine for the treatment of snake bite is of general practice but its use is contraindicated as it potentiates the toxic action of venom (Singh, 2002). Our study substantiates the previous reports.

Acknowledgement

The authors are thankful to the Dean, Dr. GC. Negi College of Veterinary & Animal Sciences, Palampur (H.P.) for providing facilities.

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