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Viper bite in dog and its therapeutic management

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Abstract
The present case study deals with a viper bite in dog and its successful treatment. A Male Great Dane dog aged about two years was presented to the Teaching Veterinary Clinical Complex, Orathanadu on August 2016 with a history of snake bite. Clinical examination revealed edema of face and fang mark on the left lower lip. Based on history and clinical examination the case was tentatively diagnosed as Viper bite. Detailed clinical examination was conducted and samples were collected. Hematology revealed leukocytosis, neutrophilia, lymphocytosis, monocytosis and thrombocytosis. Snake bite in animals generally occurs during grazing/hunting or while playing in the garden. Based on the clinical symptoms, clinical findings and history of the owner the case was diagnosed as snake bite and therapeutic management was carried out immediately. The successful treatment was done with anti-snake venom, fluid, corticosteroid, and antibiotic with careful monitoring.

Keywords: Viper bite, Anti snake venom, Therapy, Microcytosis

1. Introduction
According to Garg [1], Snake bite cases were more common in horses and dogs when compared to other animals such as cattle, sheep and goat. Snake envenomation can be difficult to diagnose if the incident was not witnessed. Clinical signs may vary greatly depending on the species of snake involved and the quantity and toxicity of the venom injected. Dogs commonly present with extensive edematous swelling, severe pain, ecchymosis, and discoloration of the skin in the affected area within several hours after the bite. The animals exhibit various symptoms like cardio pulmonary dysfunction, local tissue damage, blood coagulation defects, atexia etc, depending on type of snake bite [2]. Ananda *et al.*, [3] opined that systemic signs can vary and may include hypotension, shock, cardiac arrhythmias, bleeding disorders, ptyalism, nausea, vomiting, respiratory distress, mental confusion, rhabdomyolysis, and acute renal failure. Kahn [4] reported that the snakebite with envenomation is a true emergency and it needs rapid examination and appropriate treatments are paramount. The current study reports on successful use of antihistamine together with anti-snake venoms, fluids, corticosteroids and antibiotics with no untoward effects.

2. Materials and Methods
A two year old male Great Dane dog was presented to the Teaching Veterinary Clinical Complex, Veterinary College and Research Institute, Orathanadu with the history of dullness, depression, staggering gait, oozing of blood from bitten area and edematous face. All the physiological parameters were recorded. Dogs were clinically examined for signs. The blood samples were collected with and without ethylene diamine tetra acetic acid (EDTA) for hematological parameters like haemoglobin, packed cell volume and total leukocyte count estimation and biochemical parameters such as alanine aminotransferase and creatinine estimation. In the present study, the dog was treated with polyvalent anti-snake venom along with 250 ml of 5% dextrose was administered intravenously followed by Dexamethasone at the dose of 2mg/kg was administered. Chlorpheniramine malate 2ml and Botrophase 1ml also given intravenously. In addition, Enrofloxacin at the dose of 5 mg/kg body weight intramuscularly and tetanus toxoid 2ml i/m were also given. The antibiotic therapy was continued for 5 days to the dogs along with and liver tonic.

3. Results and Discussion

In the present study, physical examination of the dog revealed swollen areas with fang marks on the lateral aspect of the left lower lip and cooled extremities, congested conjuctival mucus membrane and tachycardia. Most bites in dogs involve the head, face, or neck and bites to the body rarely occur, but tend to involve much more severe envenomation [5]. The bite sites were oozing dark colored blood and upon palpation exhibited severe pain and were warm to touch. In the present case study, poisoned dog showed clinical signs such as dullness, depression, staggering gait, oozing of blood from bitten area and edematous face. This was in agreement with Ananda *et al.* [3] who reported salivation, dullness, muscular weakness with abnormal gait. This clinical signs can be attributed to the enzymatic and non-enzymatic compounds in the snake venom. However hyalurinadase cleaves internal glycoside bonds in certain acid mucopoly saccharides resulting in decreased viscosity of connective tissues which allow other fractions of venom to penetrate the tissues. According to Klaassen [6], the edema observed at the site of bite may be attributed to enzyme hyaluronidase which acts as a spreading factor. The alterations in the hematological parameters might be due to damage to the blood cells by snake venom [3]. The hematological parameters revealed decreased hemoglobin concentration and packed cell volume and increased platelet and total leukocyte count (Table 1). The biochemical values showed elevated levels of alanine aminotransferase and creatinine. Blaylock [7] suggested that the increased leucocytes count is attributed to systemic infection as snake fangs and oral cavity has bacterial contaminants. O' Shea [8] observed that increased biochemical values like alanine aminotransferase and creatinine may be due to the hepatotoxic and nephrotoxic effect of snake venom.

Table 1: Haemato-biochemical findings of dogs with snake envenomation (Pre and post treatment)

S. No.	Parameters	Pre treatment (0^{th} day)	Post treatment (on 10^{th} day)
1	Red blood cells ($\times 10^6/\mu l$)	3.8	6.29
2	Hemoglobulin (g/dl)	5.3	13
3	Packed cell volume	18	37.10
4	Mean corpuscular volume (fl)	47.36	59
5	Mean corpuscular hemoglobin (pg)	13.94	20.7
6	Mean corpuscular hemoglobin concentration (g/dl)	29.44	35.1
7	Platelet count ($\times 10^3/\mu l$)	78	149
8	White blood count ($\times 10^3/\mu l$)	34.91	5.7
9	Lymphocyte ($\times 10^3/\mu l$)	5.08	0.4
10	Neutrophils ($\times 10^3/\mu l$)	26.94	4.3
11	Monocytes ($\times 10^3/\mu l$)	2.54	0.1
12	Alanine aminotransferase (U/L)	180	38
13	Creatinine (mg/dl)	1.76	0.85

After 10 days of treatment, it was confirmed that the dogs were recovered uneventfully. Corticosteroid was administered in this case to counteract development of shock due to hemorrhage as well as to overcome the untoward effect to antivenom as lyophilized polyvalent anti-snake venom may sometimes cause anaphylactic reactions [10].

Although, antihistamines can at certain times potentiates the toxic action of the snake venom [3], there use is important as it counteracts the severe side effects produced by histamine in snake venom. Shukla [6] suggested that the administration of tetanus toxoid in snake bite cases provides protection against the tetanus spore that might have entered animal body from contaminated snake mouth. Broad spectrum antibiotics were administered to the dogs, as snake fangs are contaminated with different types of bacteria which are mainly gram negative enterobacteriacae [7]. 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-snakevenom may cause anaphylactic reactions to overcome the untoward effect to antivenom, dexamethasone injection was given to the dogs.

4. Conclusion

Treatment of snake bite usually consists of intravenous fluids and the administration of antivenom to neutralize the snake venom in the pet's body. The present study concluded that the snake bite in animals is more dangerous when the diagnosis is not in proper time.

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6. References

1. Garg SK. In Zootoxins. Veterinary Toxiciology, CBS publishers and Distributers 1st Edn New Delhi, 2002.
2. Bhardwaj RK. Clinico-Haematobiochemical and Therapeutic Management of Snake bite in Canines. Intas Polivet. 2011; 12(II):204-205.
3. Ananda KJ, Mohan K, Ansar K, Sharada R. Snake bite in dogs and its successful management. Vet. World. 2009; 2:66-67
4. Khan DR. Wildlife of Bangladesh - A Checklist (from Amphibia to Mammalia with Bengali Names). Shahitya Prakash, Dhaka, 2010, 128.
5. Anoop Kumar, Rohi RR, Pooja Pawar, Rakesh Yadav, Pravesh Yadav. Therapeutic Management of Snakebite in a Male Dog. Scholars Journal of Agriculture and Veterinary Sciences. 2016; 3(2):103-104
6. Klaassen CD. Properties and Toxicities of animal Venoms. In: Toxicology. 7th Edn, McGraw-Hill, New Delhi. 2008, 1093-1098.
7. Blaylock RSM. Normal oral bacteria flora from some South African snakes. Onderstepoort J Vet Res, 2001; 68:175-182.
8. O'Shea M. Venomous Snakes of the World. Princeton: Princeton University Press, 2005.
9. Shukla PC. Snake bite in animals and its treatment. Pashudhan. 2009; 35(2):2-4.
10. Sai BRM, Satish K, Thirumala RS. Therapeutic management of snake bite in a dog. Intas Polivet. 2008; 9:116-118.