

Snake Bite in a Dog

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Abstract: In this study, it was aimed to present a snake bite and following complications in a dog. A 3 years old male pointer dog, which was brought to the clinic with snake bite complaint, was used in this case. In the anamnesis, it was obtained that the dog was bitten by a snake in the field 2 days ago. In the clinical examination of the dog, two snake bite evidence with hemorrhage spreading from the paw to the whole front leg and ecchymosis were detected. In addition, weakness, reluctant to walk, increase in body temperature, respiratory and pulse rate, abundant salivation and hematuria were the major findings. In the therapy, the bitten area was irrigated with antiseptic solutions and cold application was applied to the region. Antibiotic (Cefazolin sodium) and antihistaminic (Mepyramine maleat) were administered by intravenous fluid therapy (5% Dextrose + 0.9% Sodium Chloride). In addition to therapy, bandage was applied to the swelling leg. On the third day of the treatment, severe necrosis and muscle degeneration were detected. Hence, it was decided to amputate the necrotic leg. Unfortunately, the dog died during the operation. It was thought that without administering first aid medication and antivenin after being snake bitten, mortal complications may occur in such cases.

Key words: Dog, snake bite, antibiotic, species, sever nerosis

INTRODUCTION

Snakes are carnivorous reptiles and vipers (Crotalidae family) make up most of venomous species. It is estimated that >150,000 cats and dogs are being bitten by snakes annually (Peterson, 2006a). Vipers and related species use venom to immobilize or kill their prey. It is also, accepted that they attack human and/or animal for defense purposes. Their venom production and aggressiveness are known to be increased in higher environmental temperature (Gregory-Dwyer *et al.*, 1986). It has been reported that a snake bite is extremely dangerous because snakes discharge whole venom through their fangs to the bitten animal (Peterson, 2006a). At least ten different enzymes and non-enzymatic protein and peptides varying in different species are present in snake venom. Tissue damage is consistent with proteolytic enzymes catalyzed by minerals such as calcium, magnesium and zinc. Arginine ester hydrolase that inhibits clotting activity is a free bradikinin (Anderson and Ownby, 1997). Wide varieties of systemic clinical manifestations after being bitten include degeneration and crust in bitten area, pain, weakness, severe hypotension, dizziness, nausea, leukocytosis and thrombocytopenia (Cihan, 2004;

Peterson and Meerdink, 1989; Peterson, 2006a, b). The severity of snake bite depends on numerous factors. For example, in dogs the factors are of bitten part of body; amount of venom; size of animal; injured size; age and species of snake; initiation of treatment and variety of supportive therapy (Peterson, 2006a). In this case report, clinical findings, supportive treatment and the complications are aimed to present in a dog referred to the clinic with history of a snake bite and without giving antivenin administration after being bitten.

MATERIALS AND METHODS

A 3 years old and 15 kg weight pointer breed male dog was referred to the clinic with a history of bitten by a snake on his left front leg. It is obtained in the anamnesis that the dog was bitten by the snake 2 days ago.

In the physical examination, the prominent findings are bite mark evidence over left front leg, ecchymosis, swelling and bleeding starting from paw to whole leg (Fig. 1). Weakness, hyperpnea, tachycardia, excessive salivation and hematuria were also present.

In the treatment, intramuscularly 20 mg kg⁻¹ cefazolin sodium (Sefazol®, Mustafa Nevzat) as antibiotic,



Fig. 1: After 2 days of snake bite, bite evidence with haemorrhagy over the paw and ecchymosis on the whole left front leg



Fig. 2: After 3 days of initiation of therapy, the appearance of diffuse necrosis and muscle degeneration

2 mg kg⁻¹ mepyramine maleat (Histavet®, Vetas) as anti-histamine and intravenously 350 ml of 5% dextrose plus 0.9% sodium chloride (Dekstrosol®, Vilsan) were administrated to the affected animal. Additionally, cold compress and bandage application were applied to the bitten area and the swelling leg. Antivenin administration was not given since 2 days had passed over being bitten.

On the third day of treatment, necrosis was observed on the bitten leg (Fig. 2) and a decision was made to amputate the leg. However, the dog died during the surgical operation.

RESULTS AND DISCUSSION

Although, there are many first aid precautions to cure snakebites, these measures have been reported not to prevent morbidity and mortality (Clark *et al.*, 1993; Peterson, 2006b). Cihan (2004) advised that antivenin administration should be applied first 12 h of being bitten and some authors (Brown, 1966; Glen and Straight, 1978; Smith and Ownby, 1985) reported it in 24 h. Currently, a unique and effective treatment of venomous snakebite is antivenin administration after being bitten (Brown, 1966; Cihan, 2004; Glen and Straight, 1978; Smith and Ownby, 1985). On the other hand, cleaning and irrigation of bitten area by antiseptic and soap and shock treatment were reported as supportive therapy (Cihan, 2004; Peterson, 2006a). The present dog was referred to the authors' clinic without having any first aid treatment and/or antivenin administration two days after being bitten.

In humans, snake venom causes permanent immobilization of affected region or sequela to other parts (Peterson, 2006b). The reported findings after being bitten by snakes are pain, weakness, hypotension, dizziness, nausea, leukocytosis, thrombocytopenia, lymphadenopathy, hyperpnea, tachycardia, prolongation of clotting time, decrease in hemoglobin, pitalism, siyanosis, proteinuria, hemorrhage (melena, hematuria, hematemesis), abnormal behavior and convulsion (Cihan, 2004; Peterson and Meerdink, 1989;

Peterson, 2006a, b). Most important complications are local tissue damage; vascular defects; hemolysis; a disseminated intravascular coagulation and pulmonary, cardiac, renal and neurologic defects (Keith, 2005). However, all of these findings were not reported in every case (Peterson, 2006a). In the present case, swelling and ecchymosis were observed around bitten area of the leg. Weakness, hyperpnea, tachycardia, ptyalism and hematuria were also noted as systemic findings. The developed findings were thought to be present because first aid treatments and/or antivenin administration had not been applied to the affected dog right after being bitten.

Hypotension related with snake bite may result from congestion of organs as hepatosplenic (in dogs) or pulmoner (in cats). These changes may not be edema. Venom alters capillary membrane permeability causing effective circulating blood volume falls and may contribute to multisystem organ failure. Blood and fluids pool in the microcirculation, causing hypotension, lactic acidemia, shock and in severe cases. Furthermore, as seen in the present case, the bitten mark, the swelling leg and necrosis are remarkable complications of viper snake bite (Peterson, 2006b).

CONCLUSION

It is observed that the complications may inevitably result in death in such cases without giving antivenin.

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