

SNAKE ENVENOMATION IN A DOG-A CASE REPORT

Rahmaan S.B^{1*}, Sajitha I.S², Divya C.³ and V.R. Ambily⁴

^{1,2&3}Department of Veterinary Pathology, ⁴Department of Clinical Medicine Ethics
and Jurisprudence

College of Veterinary and Animal Sciences, Mannuthy-680 651.

*Corresponding author - rahmaanaindian@gmail.com

Recieved: 26-07-2019 Accepted 12-08-2019

ABSTRACT

A three year old male Spitz dog's carcass was presented to the Department of Veterinary Pathology, College of Veterinary and Animal Sciences, Mannuthy. On detailed postmortem examination of the carcass, fang marks were noticed near the medial canthus of the right eye. The visceral organs such as lungs, kidneys and liver showed severe congestion. Histopathological examination revealed interstitial haemorrhages in kidneys, sinusoidal congestion in liver and congestion in lungs. Based on detailed postmortem examination and histopathological examination, the case was diagnosed as snake envenomation by haemotoxic group of snakes.

Keywords: Fang marks, sinusoidal congestion, snake envenomation

INTRODUCTION

Snakebites and insect stings are the most commonly encountered bio toxins (Mount, 1989). 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 (Garg, 2002). In India, 216 species of snakes were identified, amongst which 60 are poisonous species (Gupta and Peshin, 2014). The majority of bites and consequent mortality is mainly caused by Indian cobra (*Naja naja*), Common Krait (*Bungarus caeruleus*), Russell's viper (*Daboia russelii*) and Saw-scaled viper (*Echis carinatus*) (Meenatchisundaram and Michael, 2009). In animals, most of the snake bite cases remain unnoticed as identification of fang marks may not be possible in majority of case. This is a record of the pathological features of a case of snake bite in a dog.

MATERIALS AND METHODS

A three year old male Spitz dog was presented to the Department of Veterinary Pathology, College of Veterinary and Animal Sciences, Mannuthy for necropsy with a history that the animal was dull and depressed in the evening and found dead on next day morning. A thorough necropsy was conducted and the tissue samples *viz.*, lung, liver, kidney, spleen and heart were collected in 10% buffered formalin and processed for routine histopathological examination by routine paraffin embedding technique (Luna, 1968).

RESULTS AND DISCUSSION

The carcass revealed a punctured wound with oedema and haemorrhagic borders near the medial canthus of right eye (Fig 1). On reflecting the skin, the subcutaneous muscle showed extensive oedema and haemorrhages. Lung showed severe congestion and subpleural ecchymotic haemorrhages. Liver was enlarged and severely congested. Kidneys were congested and cut surface showed reddish brown haemorrhagic areas. On histological examination, sinusoidal congestion was seen in liver. Congestion alveolar and interstitial haemorrhages were observed in lung parenchyma (Fig 2). Kidneys showed interstitial haemorrhages and tubular necrosis (Fig 3).

Among the domestic animals, dogs

are the most frequently attacked and killed by the snakes (Osweiler, 1996). In dogs, frequently affected sites by snake bite are 64 percent in head and 13 percent in neck, 11 percent in forelimbs and prescapular areas, 7 percent in thorax/abdomen and 5 percent in hindlimbs (Willey and Schaer, 2005). The dog in this report had bite marks in the face. In viper bites, pulmonary haemorrhages, probably due to the action of haemorrhagins and disseminated intravascular coagulation, are the immediate causes of death (Benvenuti *et al.*, 2003). Venom affects the capillary membrane permeability and facilitates fall in effective blood volume which results in multi-system organ failure (Thangapandiyan *et al.*, 2013). Based on the history, gross pathology and histopathology, this case was diagnosed as bite by a snake belonging to *Viperidae* family.



Fig. 1: Fang marks near medial canthus of eye (Arrow)

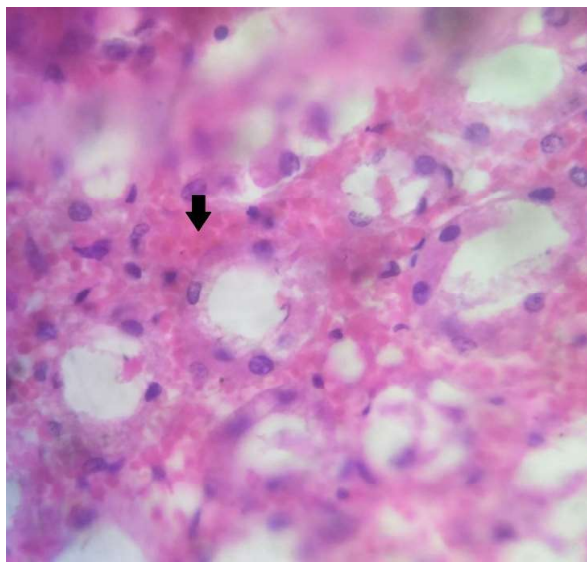


Fig. 2: Kidney- Interstitial haemorrhages (arrow) (H&E ×1000)

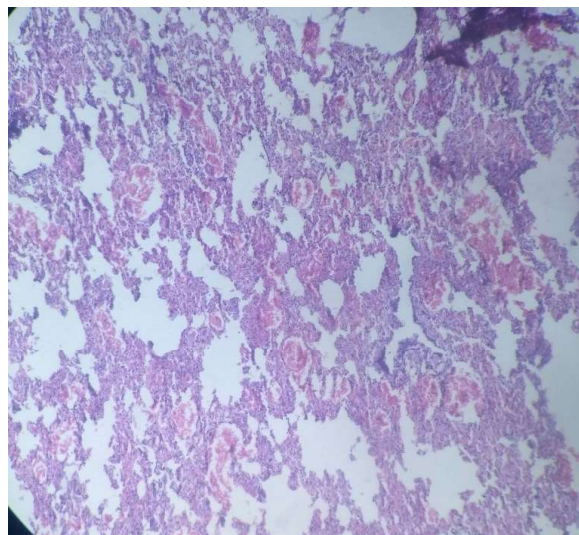


Fig. 3: Lungs- Alveolar and interstitial haemorrhages (H&E ×100)

REFERENCES

- Benvenuti, L.A., França, F.O., Barbaro, K.C., Nunes, J.R. and Cardoso, J.L. 2003. Pulmonary haemorrhage causing rapid death after *Bothrops jararacussu* snake-bite: a case report. *Toxicon*. 42(3):331-334.
- Garg, S. K. (2002): In *Zootoxins. Veterinary Toxicology*, CBS publishers and Distributers 1st Edn New Delhi.
- Gupta, Y.K. and Peshin, S.S.2014. Snake bite in India: current scenario of an old problem. *J. Clin. Toxicol.* 4(1):1-9.
- Luna, L.G., 1968. *Manual of histologic staining methods of the Armed Forces Institute of Pathology.*
- Thangapandiyan, M., R. Mohanpriya, B., Manohar, M. and Balachandran, C. 2013. Pathology of Snake envenomation in a dog. *Indian. Vet. J.* 90 (5):119-120.
- Meenatchisundaram, S. and Michael, A. 2009. Snake bite and therapeutic measures: Indian scenario. *Indian. J. Sci. Techno.* 2(10):69-73.
- Mount ME.1989, *Text book of Veterinary Internal Medicine*. 3rdEdn, W.B. Saunders Co, Philadelphia, London. 1:72.

Oswiler, G.D. (1996): Toxicology, The National Veterinary Medicine Series for Independent Study, Williams and Wilkins, Philadelphia, Pp. 440.

Willey, J.R. and Schaer, M. 2005. Eastern diamondback rattlesnake (*Crotalus damanteus*) envenomation of dogs: 31 cases (1982–2002). *J. Am. Anim. Hosp. Assoc.* 41(1):22-33.