

Case Report on Post-Mortem and Ante-Mortem Findings of Snakebite in Cows Bitten by Cobra and Krait

Omesh Kumar Bharti, Anil Kumar Sharma* and Rajeev Sharma

Department of Animal Husbandry, Himachal Pradesh, India

(Received : July, 2022 178/22 Accepted : August, 2022)

Abstract

In this article we are reporting postmortem findings involving hemorrhages of all the vital organs due to cobra bite in a Holstein cow and ante-mortem findings involving neuro-muscular symptoms in a jersey cow which was bitten by common krait.

Key words: Cobra bite in cow, India, Krait bite in cow, Snake bite, One Health

Snakebite is a life threatening disease in humans as well as animals and is a major public health issue in rural communities of India. It primarily affects poor agricultural workers, farmers, and cattle herds living in rural areas of developing countries. It is thus an occupational disease. However, the impact of snakebite on these rural communities could be even higher if a One Health approach is taken to consider the direct impact on domestic animals and indirect impact on the livelihood of affected communities. Snakebite is common in domestic animals but is not a reportable disease in India so no data on mortality or morbidity in India is available.

Case Reports

Case 1: Sudden death of a high yielding Holstein Friesian cow in village Deothi was reported and suspected to be bitten by a cobra. Postmortem was conducted on the cow. (Post mortem no. VH-Deothi/PM/2020-21/23). External appearance revealed bluish discoloration and more visible in uncovered/non-hairy parts of cow's body. Cow's body was swollen when found dead in the shelter at the time of post-mortem. Bloody discharge was observed from nostrils and

rectum of the cow. Blood clots were observed underneath the skin, indicative of bursting of micro-capillaries. Abdominal muscles showed milliary haemorrhagic regions. In respiratory tract, haemorrhagic trachea and bronchi were observed. Lungs were filled with blood indicative of Pulmonary haemorrhages. Liver had echymotic haemorrhage, spleen was enlarged and haemorrhagic. Pericardial and epicardial haemorrhages were observed in heart. Chambers of heart were filled with blood having current jelly clots. In urogenital system kidneys and urinary bladder were also found haemorrhagic. The cow died due to multiple haemorrhages of the vital organs followed by asphyxia and shock.

Case 2: We report a fatal snakebite in 7 year old lactating cow (Fig 1) that was bitten on the tongue by a 2.5 ft Krait (Fig 2) while grazing grass in makeshift cow shed. Cow died 4 hrs after the bite. A 7 year old lactating Jersey cross-bred cow was brought dead (Fig 1) to the clinic with the history of snake bite by a Krait snake which was found near the cow and was beaten to death by the villagers (Fig 2). Post mortem was not conducted as the owner was reluctant for post mortem, but anti-mortem findings were observed i.e. after bitten by Krait snake; the cow showed immediate sign of anorexia and started dwindling. Bluish discoloration of and swelling on tongue was observed near to the site of bite. Animal fell on the ground and died after 4 hours of bite. In cows we are reporting anti-mortem neuromuscular effects for the first time. External body condition of dead carcass was normal.

The details of these two cases are given in **Table I**.

*Corresponding author : Email : Sharmaisanil6@gmail.com



Fig 1 : Jersey Cow died due to Krait bite



Fig 2 : Common Krait snake in cow fodder killed by villagers

Discussion

Snakebite is a neglected tropical disease estimated to cause more than 100,000 human deaths and affect more than 400,000 victims each year (Gutiérrez *et al.*, 2017). It primarily affects poor agricultural workers, farmers, and cattle herds living in rural areas of developing countries. It is thus an occupational disease. Snakebite is common in domestic animals but is not a reportable disease in India so no data on mortality or morbidity in India is available. In a study by Isabelle *et al* (2021) it was found that snakebite in animals took place predominantly inside and around the house or farm in Nepal (92%) and Cameroon (71%). According to first Global Scoping Review on snakebite in domestic animals, only 4 cases were reported from India (Isabelle *et al* 2019). Pathology of

Viperidae snakebite in cow has been reported by Banga *et al* (2009). Then however, pathology of neurotoxic snakes like krait or Cobra in cow has not yet been described in India but a study from Pakistan (Umer Farooq *et al*, 2014) has reported respiratory distress due to Cobra bite and congested trachea. We are reporting the post-mortem findings of Cobra bite in other vital organs of cow. There are no national treatment guidelines for snakebite in India. Then however, some vets have tried to address the issue based on human treatment guidelines (Bharadwaj, 2020). Neuromuscular effects of krait bite has been reported in humans (Silva *et al*, 2016).

References

Banga H.S, R.S Brar, and S.G. Chavhan (2009) Pathology of snake bite in cow. *Toxicology International* 16(1) : 69-71.

Table I.

Type/breed of Cow bitten	Bitten by	In area	In year	Site of bite	Time lapse between bite and death	Average milk yield of cow before death (in litres)	Tentative cost of animal (in rupees)	Average economic loss annually (in rupees)	Compensation received from insurance company/ govt. agency (in rupees)
Holstien Fresian	Cobra	Deothi, Distt. Shimla (H.P.)	2020	Left foreleg	2 hours	20L	50000	3,00,000	25000 (received)
Jersey Cross	Krait	Basa vazira, Nurpur-Kangra (H.P.)	2022	Tongue	4 hours	8L	25000	2,00,000	20000 (proposed)

- Bharadwaj (2020) Treatment of Snakebite cases in Cattle in India *Pashudhan Praharee*.
- Gutiérrez, J.M J.J. Calvete, A.G. Habib, R.A. Harrison, D.J. Williams, and D.A. Warrell, (2017) **Snakebite envenoming**. *Nat. Rev. Dis. Primers*, 3 p. 17063.
- Isabelle Bolon, Sara Babo Martins, Carlos Ochoa, Gabriel Alcoba, María Herrera, Henri Magloire Bofia Boyogueno, Barun Kumar Sharma, Manish Subedi, Bhupendra Shah, Franck Wanda, Sanjib Kumar Sharma, Armand Seraphin Nkwescheu, Nicolas Ray, François Chappuis, and Rafael Ruiz de Castañeda, (2021) What is the impact of snakebite envenoming on domestic animals? A nation-wide community-based study in Nepal and Cameroon, *Toxicon*: 9–10, 100068,
- Isabelle Bolon, Matias Finat, María Herrera, Andrea Nickerson, Delia Grace, Stephanie Schütte, Sara Babo Martins, Rafael Ruiz de Castañeda. (2019). Snakebite in domestic animals: First global scoping review, *Preventive Veterinary Medicine* **170(1)** : 104729.
- Silva A, Maduwage K, Sedgwick M, Pilapitiya S, Weerawansa P, Dahanayaka NJ, Buckley NA, Johnston C, Siribaddana S, Isbister GK. (2016) Neuromuscular Effects of Common Krait (*Bungarus caeruleus*) Envenoming in Sri Lanka. *Negl. Trop. Dis.* 10(2) : 1371.
- Umer Farooq, Hamid Irshad, Riasat Wasee Ullah, Aman Ullah, Muhammad Afzal, Asma Latif, Amer Bin Zahur. (2014) Snake Bite in Jersey Cattle; a Case Report. *Research Journal for Veterinary Practitioners* **2** (5): 82 – 83.