CASE REPORT

# Nasal Leech Retrieval in a German Shepherd Dog: A Case Report

Jyotsana Bhatt Joshi[1], Pradeep Kumar[2]*, Chetna Gangwar[3], Alok Kumar Singh[4], Renu Singh[5], Jaysanker Singh Yadav[1]

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Leeches are hermaphrodite parasites that feed on blood and can vary in length and color. These worms are segmented and have two suckers on them. The term "Hirudiniasis" refers to the infestation caused by this class of leech, which is Hirudinea. The primary habitats of leeches are ponds, lakes, and streams (Abdisa, 2018). The frequency of a nasal leech infestation varies with location. The life cycle begins with the development of eggs encased in cocoons, which then attach themselves to the underwater surface bodies. At last, the juvenile leeches emerge from their cocoons. Dogs and other animals typically get leech infestations when they consume water or swim in rural streams (Chen *et al*., 2010).

According to reports in both human and veterinary medicine, leech infestations can affect a number of organs, including the eye, bladder, peritoneum, external vagina, and nasal passages. Depending on the organ affected, these infestations can cause a wide range of clinical symptoms (Nett *et al*., 2001; Abdisa, 2018). Leech saliva contains hirudin, ,a natural anticoagulant which prevents thrombin from forming clots, and histamine-like compounds promote prolonged bleeding by dilation of blood vessels. The primary signs and symptoms are nasal blockage, recurrent epistaxis, coughing, dysphagia, snoring, hemoptysis, and dyspnea (Bani *et al*., 2007). Although the bite is usually painless, the wounds bleed for a long time and are unlikely to create scars when they heal. The invertebrate often kills its prey by entering through the mouth or nostrils and sucking blood from the mucosal membranes of the throat, larynx, or nostrils (Bulent *et al*., 2010). There are very few reports of leech infestations in dogs (Bahmani *et al*., 2011) and cats (Chang *et al*., 2006) in the literature. To the authors' knowledge, this is the first report in VCC, DUVASU, Mathura, Uttar Pradesh of naturally occurring leech infestation of the nasal cavity of the dog and its successful clinical management.

## Case History and Observations

A female German shepherd pet dog, age 2.5 years, weighing 38 kg, was brought to the Veterinary Clinical Complex of the College of Veterinary Science & Animal Husbandry, DUVASU, Mathura (Uttar Pradesh, India), with the history of anorexia, retching, and epistaxis from left nostril over a month (Fig. 1). The family had gone from Mathura to Dehradun and Mussoorie a month ago along with their pet dog to celebrate the summer season and swim in the river. During that time the leech might have attached in the nostril of the dog. After few days of coming back, dog started bleeding from its left nostril and owner consulted a local doctor in Mathura, who gave medicine to stop the bleeding. After that the bleeding band went away, but two days back it started bleeding again and the owner saw something black hanging out of its nostril. He just felt to take it out, but it went inside. Then he brought the dog to the College Clinics. The owner also said that the dog has not taken anything for the last one day.

The dog seemed uncomfortable; having irregular breathing pattern along with strider and was anorexic. There was no history of any other disorder in this case. Upon physical examination the rectal temperature was 102.6°F, heart rate 85/min and respiration rate 42/min. Dog also had pale mucous membranes, nose bleeding and general weakness. To know the complete blood profile of the dog, 2 mL blood sample in EDTA vial was extracted from the dog's cephalic vein for complete blood cell count and results found that the all parameters were in normal range (Table 1).

[1]Department of Veterinary Surgery and Radiology, Uttar Pradesh Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusandhan Sansthan (DUVASU), Mathura-281001, India

[2]Department of Veterinary Parasitology, DUVASU, Mathura-281001, India

[3]Veterinary Clinical Complex, DUVASU, Mathura-281001, India

[4]Department of Veterinary Parasitology, College of Veterinary Science & Animal Husbandry, NDVSU, Rewa-486001, India

[5]Department of Veterinary Pathology, DUVASU, Mathura-281001, India

**Corresponding Author:** Pradeep Kumar, Department of Veterinary Parasitology, DUVASU, Mathura-281001, India. e-mail: drpkdiwakar@gmail.com

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**Table 1:** Haematological values of the leech affected dog

| Parameter | Value | Normal range |
|---|---|---|
| Hb (g/dL) | 15.90 | 12-19 |
| RBCs ($10^6$/µL) | 6.94 | 5- 7·9 |
| TLC ($10^3$/µL) | 11.79 | 6-17 |
| PCV (%) | 46.00 | 35-57 |
| MCV (fl) | 66.30 | 60-77 |
| MCH (pg) | 22.90 | 19.5-24.5 |
| MCHC (g/dL) | 34.60 | 30-36.3 |
| Platelet ($10^3$/µL) | 261.00 | 200-600 |
| Neutrophils (%) | 72 | 60-75 |
| Lymphocytes (%) | 23 | 12-30 |
| Eosinophils (%) | 3 | 2-9 |
| Monocytes (%) | 2 | 2-10 |
| Basophils (%) | 0 | 0-1 |
| Abs. neutrophils ($10^3$/µL) | 8.49 | 3.6-12.72 |
| Abs. lymphocytes ($10^3$/µL) | 2.71 | 0.72-5.10 |
| Abs. eosinophils ($10^3$/µL) | 0.35 | 0.12-1.53 |
| Abs. monocytes ($10^3$/µL) | 0.24 | 0.12-1.7 |
| Abs. basophils ($10^3$/µL) | 0.00 | 0-0.01 |

As a conventional approach, saturated saline solution was used for the retrieval of nasal leech, but was not successful even after numerous attempts. So, it was decided to retrieve it with the ethmoid forceps.

**Fig. 1:** Nostril of dog having bleeding and Arrow showing mouth of leech

## Treatment and Discussion

The dog was restraint on the table under sedation with Atropine sulfate @ 0.04 mg/kg body weight followed by Xylazine @ 1 mg/kg body weight, and on examination of the nostril, a leech was visible in it. The leech was then grasped and retrieved in two attempts using ethmoid forceps. The leech that was found within the nostril measured around 7 cm (Fig. 2).

A leech enters the body through one or more orifices, usually the nasopharyngeal area, causing orificial hirudiniasis. When in touch with vertebrate hosts, leeches, which are hermaphrodite parasites that feed on blood, attach themselves to the skin and begin to draw blood. It is well known that both aquatic and terrestrial leeches can prey on people and pets. Bathing in stagnant pools, springs, or streams contaminated with leeches and their cocoons can result in infestation. Severe consequences such as haemoptysis, haematemesis, severe respiratory distress, and airway blockage can result from leech infestation (Abdisa, 2018). Leech bite results in severe anaemia in the host (Hadrani *et al*., 2000). Since leech bites are painless, an infestation may go unnoticed for a while until a warning sign materializes. Common symptoms of a leech infestation in the nose include epistaxis, nasal blockage, and the feeling of a moving foreign body (Abdisa, 2018). Leech saliva contains histamine-like chemicals that produce vasodilatation and hirudin, which inhibits thrombin in the clotting process. These compounds cause persistent bleeding (Hadrani *et al*., 2000).

As soon as a patient receives a diagnosis of nasal leech infestation, the infestation should be eliminated. Due to its sticky and movable body and strong attachment to the nasal mucosa, leeches may be challenging to remove directly (Belay *et al*., 2013). There are numerous methods for getting rid of nasal leeches, however there is no one set protocol as of yet. Although the majority of medical professionals remove nasal leeches using a local anesthetic spray, it might be better to remove leeches when under general anaesthesia. Recently endoscope-assisted bilateral nasal leech retrieval was conducted by Singh *et al*. (2022) in dog, but in the present

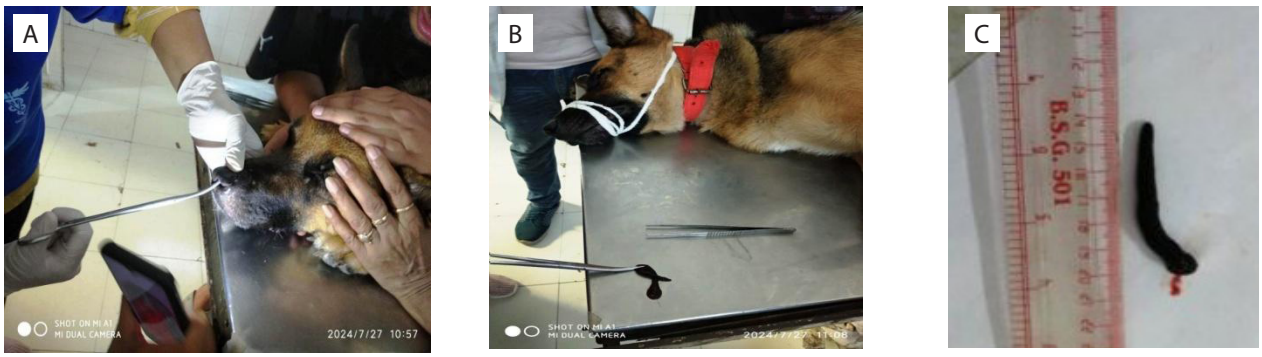


**Fig. 2:** (A) Manual removal of leech with the ethmoid forceps, (B) After removal of leech, (C) Length of leech (7 cm)

case infestation was unilateral and by using ethmoid forceps result was successful.

Before removing nasal leeches, some medical professionals advise spraying the nasal cavity with hypertonic saline, turpentine oil, diluted chloroform, or a 5% cocaine solution (Rajaei *et al*., 2014). Nasal leech infestation has been treated using a variety of cutting-edge methods. These consist of anterior rhinoscopy with suction and a watch-and-wait strategy where water is taken in a kidney tray and positioned one centimeter below the nasal vestibule (Rajaei *et al*., 2014). The normocytic normochromic anaemia was found in some of the previous studies (Rajaei *et al*. 2014) but in this case all parameters were in normal range. This may be because the owner took this case seriously and the dog did not lose much blood. Some of the literature mentioned that after removing the leeches prescribing iron supplement could help to relieve anaemia (Bani *et al*., 2007).

This article describes a nasal leech infestation in a dog that had mucous membrane pallor, nasal haemorrhage, and anaemia. When a patient with unilateral epistaxis is presented and has a history of drinking contaminated water, bathing in ponds, rivers, or puddles, or living in forested or leech-rich areas, there is a need to be extremely suspicious.

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