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### Case Report

## A Rare Cause of Epistaxis: Nasopharyngeal Leech Infestation

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### **Abstract**

Leeches are rare cause of foreign body in airways. A 23-year-old male, experiencing epistaxis and difficulty in swallowing is presented. During nasopharyngoscopy, a moving leech was observed on the nasopharynx posterior wall in midline location, and removal of the leech was decided under general anaesthesia. The flexible nasopharyngoscopy was inserted, but removal was unsuccessful due to the leech's movements. Leeches are blood-sucking parasites, so neuromuscular blocking agent was given to prevent the movement. After administration, motion of the leech was lost and easily removed undamaged. In patients presenting with unexplained epistaxis, hemoptysis, dyspnea, and foreign body sensation in the airway, leech infestation should be included as the differential diagnosis and history of contact with stream water should be questioned. We concluded that use of low dose neuromuscular blocking agents facilitates the gentle removal, and could be necessary for successful management of removal of leech under general anaesthesia.

### Introduction

Leeches are rare cause of foreign body in the airways (1). Most of the leech species live in freshwater, while minority can be found in land and marine. Infestation can occur by drinking contaminated water or swimming in

infested streams, pools and ponds (2). They can locate in the body cavities like nose, pharynx, larynx, trachea, esophagus, vagina as well as they can attach to skin. Patients usually present with



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symptoms of hemoptysis, dyspnea, coughing, dysphonia, and a feeling of a foreign body (3).

Leeches are ectoparasites and vary in color, length and shape. Although most species are 2.5 cm in length, the smallest leech species is 1 cm long. They suck blood by incising the skin with three sharp teeth on the jaws, without causing pain, and release a variety of mediators such as local anesthetics, histamine-like vasodilators, anticoagulants, and antibiotics in their saliva. They can absorb blood up to 3-10 times of their average weight (4).

Leeches have also therapeutic properties. They have been used for medical purposes since ancient times. In modern medicine, they are preferred especially in reconstructive and microsurgery and for treatment of wound healing, periorbital hematoma, phlebitis. They act by removing pooled blood and preventing blood clots by secreting their mediators in the injured area (4).

When they are localized in nasopharynx, the symptoms may be misdiagnosed as nasopharyngeal neoplasms, juvenile nasopharyngeal angiofibroma or nasal polyps (5).

In this case, we present the management of removal of a live leech located in posterior nasopharyngeal wall under general anesthesia.

### **Case Report**

A 23-year-old male patient experiencing epistaxis and difficulty in swallowing for the previous two days referred to the Department of

Ear-Nose-Throat, Ankara Training and Research Hospital, Ankara, Turkey. There was no prior history of comparable epistaxis, systemic disease, drug use or nasal trauma. He reported drinking stream water two days ago while travelling. Informed consent was taken from the patient before the study.

Routine ear, nose and throat examination revealed normal findings. After anterior rhinoscopy and oropharyngeal inspection, only hemorrhagic clots were visible, there were no active bleeding sites. During nasopharyngoscopy, a moving leech in gray-green color was observed on the nasopharynx posterior wall in midline, and removal of the leech was performed under general anesthesia. Prior to surgery, routine laboratory test results for complete blood count, coagulation parameters, and biochemistry were within normal ranges. The patient was premedicated with midazolam 2 mg iv. Propofol 2 mg/kg, fentanyl 100 mcg, and lidocaine 1 mg/kg were given intravenously to induce anesthesia after preoxygenation. Then laryngeal mask airway (LMA) was placed. Anesthesia was maintained with Sevoflurane 2%, in 50 % O<sub>2</sub> and N<sub>2</sub>O mixture. The flexible nasopharyngoscopy was inserted and the leech was visible, but removal was unsuccessful due to the leech's movements. As the leeches are blood-sucking parasites, we decided to administer neuromuscular blocker agent to prevent the movement, therefore rocuronium 20 mg iv was given. Two minutes after rocuronium administration, motion of the leech was lost and easily removed undamaged using foreign body forceps (Fig. 1).



**Fig. 1:** The removed leech

LMA was removed at the end of the procedure, and emergence was uncomplicated. In the postoperative period, the symptoms were relieved. After an overnight surveillance, the patient was discharged home.

The informed consent was obtained from the patient.

### **Discussion**

Leeches are the parasites that usually live-in water streams, lakes and dirty pools (3). Infestations in humans may occur with

ingesting or swimming in contaminated water. The most common localization of the infestation in the airway is the nasal cavity. They attach to the mucosal membrane by their anterior suckers and teeth located on the jaw.

After attaching to mucosal membrane, they secrete saliva containing anticoagulant, hirudin, and histamine-like substances, which can cause continuing mucosal bleeding (6). The clinical signs of bleeding can be epistaxis, hemoptysis, or even anemia (7).

Since leeches attach to mucosal surfaces strongly, it is difficult to remove them from the tissue. The removal should be done gently and carefully to prevent both the mucosal damage and rupture of the parasite. It is important to remove all parts of the body. If the head is remained, bleeding can continue. It was reported that irrigation with cocaine, lidocaine, or hypertonic saline would help to detach the leech (3). However, injecting these substances can result in side effects like bronchospasm, laryngospasm, or chemical injury to the airways (1). In cases of infestations in the airways, general anesthesia appears to be a safer option for removal of the parasite. We also preferred general anesthesia for removal of the nasopharyngeal localized leech in our case. However, inhalational anesthesia was inadequate for removal as the leech was moving. As the leech sucked blood, it was decided to administer a neuromuscular blocking drug to paralyze it.

Leech muscle structure is composed of muscle fibers which are arranged from outside to inside; consisting circular, diagonal and longitudinal fibers. In addition, there are dorso-ventral located muscle fibers (7). In previous studies, acetylcholine was shown in the leech nervous system, and it has been isolated after stimulation of the nerves leading to the dorsal muscles of the leech. In addition, a study showed the leech neuromuscular junction is nicotinic. In another study, tubocurarine antagonized the neuromuscular transmission after stimulation of the nerve innervating the muscle (8). The pattern of motor innervation and neuromuscular transmission in the longitudinal muscle of the leech was investigated. The cholinergic neuromuscular blocking agent curare reversibly reduced the amplitude of the excitatory synaptic potentials evoked by the motor neuron. It was suggested that acetylcholine was the transmitter released by the longitudinal motor neuron (9).

Leech infestation is rarely seen in the airway. In patients presenting with unexplained epistaxis, hemoptysis, dyspnea, and foreign body sensation in the airway, leech infestation should be one of the differential diagnoses and history of contact with stream water should be questioned. Removal of the leech may be unsuccessful as it moves. Leeches have a muscle structure induced by acetylcholine and neuromuscular transmission is blocked by neuromuscular blocking agents.

## Conclusion

The use of low dose neuromuscular blocking agents facilitates the gentle removal, and could be necessary for successful management for removal of the leech under general anesthesia.

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## Conflict of Interest

Nothing to declare.

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