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Case Report

Leech infestation causing upper airway obstruction and severe anemia in a three year old child in rural Ethiopia

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Abstract

Background: Leeches are hermaphrodites that rarely infest humans. When they infest humans, they most commonly enter in the endoparasite form when a human host drinks or swims in leech-infested water.

Case presentation: A three-year old female presented to Arba Minch General Hospital with three days of difficulty breathing and ten days of blood-stained saliva. She was reported to have been drinking spring water that was known to be infested by leeches. She was diagnosed with upper airway obstruction and severe anemia secondary to leech infestation by direct laryngoscopy. The leech was removed with McGill's forceps. She was transfused with three units of whole blood and observed for 48 hours prior to discharge.

Conclusion: Although rarely seen in patients living in rural endemic areas, leech infestation should be considered in patients presenting with both upper airway obstruction and severe anemia. Increasing the availability of clean water in all rural areas is strongly recommended. Where this is not possible, the community should be educated on the importance of using boiled and filtered water for human consumption.

Keywords: leech, airway obstruction, anemia, Ethiopia

Introduction

Leech infestation is prevalent in areas where stagnant river or spring water use is common. (1) There are two forms of leeches: aquatic and terrestrial.(1,2) Terrestrial leeches have stronger teeth and are able to bite through intact human skin, whereas aquatic leeches attach to mucous membranes to bite and suck blood .(5)

Aquatic leeches are often acquired while swimming in or drinking infested water. After attaching to the host tissue, the leech secretes local anesthesia and an anticoagulant, Hirudin.(1–6) Hirudin facilitates blood flow from host to the parasite. (5) The most common route of ingestion is by drinking infested water, with the proximal respiratory and digestive tracts

primarily affected.(7–10) Less frequently, leeches can affect the pharynx, bronchi, sclera, vagina, rectum and bladder.(7,8) The patient may present with hematemesis, epistaxis, upper airway obstruction, rectal bleeding, hematuria, or a foreign body sensation at the affected site. It is rare to observe upper air way obstruction secondary to leech infestation below the oral hypo pharynx because this typically leads to suffocation.**(**11**)**

Case Description

A three-year old female patient from a rural village with no prior medical history presented to the Arba Minch General Hospital children's health department with difficulty breathing for three days, as reported by her caregiver. Additionally, she had blood-stained saliva for ten days duration, which was initially dark red, and later turned bright red in the several days before presentation. She also had dark bloody stool during this period. Her caregiver reported the child consumed local spring water and that local cattle had suffered leech infestations after drinking from the same spring water. She was fully vaccinated according to the national protocol. On physical examination, the blood pressure was normal but tachycardic. The patient was afebrile but tachypenic and oxygen saturation was 97% on room air. There was significant conjunctival pallor bilaterally. Anthropometry measurement was missed from our evaluation and we were not able to trace back because of she was from far distance.

Laboratory workup was notable for hemoglobin of 3.0g/dl. The remainders of biochemical studies were within the normal limits. The chest X-ray was unremarkable. The patient was taken to operation room and underwent procedural sedation. With the laryngoscope, a 10 cm Leech attached to the epiglottis was removed with McGill forceps (Fig.1). The bleeding was visualized to have stopped after leech removal. Postoperatively, the patient's tachypnea and work of breathing improved and she was transfused with three units of whole blood. Post transfusion hemoglobin becomes 9g/dl and hematocrit 30%. After 48 hours, the patient was discharged home with complete resolution of respiratory difficulty and iron supplementation. The family was educated to use boiled or filtered water when consuming water from a contaminated source.

Fig. 1 Removed Leech measuring 10 cm

Discussion

Aquatic leeches are common in less developed countries, and are often acquired while bathing or using infested water for domestic activities. [1] Leeches prefer upper aero digestive tracts, such as nasal passages, but there are also reports of bladder, ocular, rectal, vaginal and bronchial leech infestation.(1–5)

Leeches suck blood by biting the host, then releasing their saliva, which contains potent anticoagulant, into the wound. As leeches can suck up to ten times their body weight in blood, they can cause severe anemia in their host.(9) In endemic areas, symptoms of nasal bleeding, bloody saliva, and coughing in a patient prompt consideration of leech infestation. (1–4,8–10,12,13) While patients with nasal leech infestations often present with nasal bleeding, those with laryngeal, epiglottal, tracheal and bronchial infestation present with cough,

difficulty of breathing, hematemesis and hemoptysis .(1,2)

Although uncommon, patients with pharyngolaryngeal leech infestation can die of severe anemia and suffocation.(1,2,5–9) There are reports from Ethiopia of leech infestation causing anemia and airway obstruction like Debre Tabor (Amara region, North Ethiopia), Chagni (Amara region, North Ethiopia), Dedo (Oromia region, South West Ethiopia) and Gimbie (Oromia region, Ethiopia). The majority of these patients were between 1-2 years of age, transfused and discharged. (8–10,14,15) Unlike these reports, our patient presented with upper airway obstruction secondary to leech attachment on the epiglottis where it is not common site to attach for the leech probably because of it continuous movement. In our case the patient was taken to the operating room and, under anesthesia, the oral cavity was examined by direct laryngoscopy. A mobile, blush-colored foreign body attached to the epiglottis was identified and removed by applying McGill forceps but no paralytic agent was used. The bleeding arrested and the stridor resolved when the leech was removed. There are various traditional medicinal methods for removal of leeches. One method aims to remove the leech by dehydrating the patient, in an attempt to dehydrate the leech. In another method, different traditional medicines are applied and the mid body of the leech is squeezed. (8–10,14,15) Often, traditional medical practices can be harmful to the patient. For example, if a leech in the pharyngolarynx is not grasped securely, the leech detaches and lodges in the airway and suffocates the patient. (1,2,7) The standard method of leech removal involves removal of whole body of the leech under direct vision. After the patient is put under general anesthesia, a paralytic agent is sprayed on the leech, after which its whole body is removed by blunt edged forceps. (2,4,10,14)

Conclusion

In a child presenting with upper airway obstruction and severe anemia from a leech-endemic area, leech infestation should be considered as a differential diagnosis. For communities using unsafe water sources, health education on water purification and filtering should be prioritized. Additionally, local governments should be encouraged to facilitate availability of clean water. To avoid suffocation and unwanted complications, traditional medical practices should not be performed.

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Consent for publication

Written informed consent for publication was obtained from mother of the child.

Data availability

Not applicable.

Data Availability statement

The data in this case report will be accessed by the contact address of the Author.

Conflict of interest

No financial or non-financial competing interests.

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