A Leech in the Upper Airway Tract: Case Report in CHU Oran and Review of the Literature

Abstract

We report an unusual case of hemoptysis, aphonia and the sensation of something in the throat observed in a 64-year-old patient, with emphysema history and smoker, who was admitted at the department of pneumology of EHU Oran, Algeria. After 48 hours of admission, at fibroscopy examination he was finally diagnosed with live foreign body, the patient spontaneously expelled a leech after local anesthesia by xylocaine. *Hirudo medicinalis* was identified by parasitological examination. A complete disappearance of symptoms and the evolution is rapidly favorable. In Algeria, leech infestation are not uncommon where 120 cases were described between 1962 and 1971 by Gerlach, so even unusual causes like leech infestation came up to be an important differential diagnosis of patient with sign of bleeding or obstruction of the upper airways a high index of suspicion is of great help to make an early diagnosis and ensure prompt treatment.

Keywords: Hemoptysis; *Hirudo medicinalis*; Fibroscopy examination; Byparasitological examination

Introduction

Leeches (*Hirudo medicinalis*) have been used in medicine for thousands of years to treat a wide range of ailments. Nowadays, leeches are used successfully for only a few conditions, notably in the field of reconstructive or microsurgery. However, they can act like parasite and infest human which cause wide range of symptoms. The species of human importance (order: Gnathobdellida; family: Hirudinidae) are divided into land leeches and aquatic leeches. Aquatic leeches enter the human body through orifices and occur worldwide. Human infestation with land leeches is more common than with aquatic leeches, but the latter more commonly cause dangerous infestations [1]. Aquatic leeches enter the human body through orifices and occur worldwide. Human infestation with land leeches is more common than with aquatic leeches, but the latter more commonly cause dangerous infestations [1]. Aquatic leeches live in fresh water and have weak jaws because they do not require attachment to the skin for feeding purposes but to the mucosa. Infestation is rare. Most cases occur in low-income countries where access to safe water is a problem [2]. Some cases have been reported from Europe [3]. Aquatic leeches enter the human body during swimming or drinking by attaching to the conjunctiva, mucous membranes of the nose, larynx, pharynx, esophagus, urethra, vagina, or anus, or else. In this paper we report an unusual case of upper airways obstruction by leech infestation and we review some similar cases in the literature.

Case Report

M.A a 64-year-old male patient, from Saida city, with emphysema history and smoker, was referred from the Saidahospital to the department of pneumology of the EHU Oran for exploration of hemoptysis. After 48 hours of admission, at fibroscopy examination he was finally diagnosed with live foreign body. The patient spontaneously expelled a leech after local anesthesia by xylocaine. *Hirudo medicinalis* was identified by parasitological examination. A complete disappearance of symptoms and the evolution is rapidly favorable. In Algeria, leech infestation are not uncommon where 120 cases were described between 1962 and 1971 by Gerlach, so even unusual causes like leech infestation came up to be an important differential diagnosis of patient with sign of bleeding or obstruction of the upper airways a high index of suspicion is of great help to make an early diagnosis and ensure prompt treatment.

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Leeches belong to the Annelida phylum and Hirudinea class. Most of leeches are hematophagous, which makes them predominantly blood suckers that feed on blood from vertebrate and invertebrate animals. Almost 700 species of leeches have been described. Among them, 100 species are marine, 90 terrestrial and the rest of them live in freshwater.

Leeches are parasites that vary in color and range in length from a few millimeters to half a meter; they are cylindrical or leaf-like in shape, depending on the contraction of their bodies, Leech bodies are composed of 34 segments [2,4].

A leech has two suckers, one at each end. The mouth is located on the small sucker and has three jaws with sharp teeth that make a Y-shaped incision in the flesh [2].

In tropical regions, leech bites on the skin are a common event. However, serious consequences of leech bite injury to the internal viscera are uncommon. If they do occur, they can cause significant morbidity and may even be fatal [1]. The clinical symptoms are variable depending on location. Internal attachment of leeches in different areas of human body such as nose [5], pharynx [6], larynx [4], vagina [7], bronchi, eyes and rectum have been reported in several cases.

After the contaminated water is drunk, the leech may adhere to anywhere along the upper aero digestive tract. Possible areas are the nasal cavity oropharynx and hypopharynx, larynx, trachea, and esophagus.

From that location they secrete a cocktail of anticoagulant substances among them hirudin, which inhibits coagulation of the blood and start to suck blood, leeches ingest blood averaging 890% of their weight, for these reasons they can cause severe anemia. They grow rapidly through blood sucking and may stay where they are for some weeks.

Leech endoparasitism described worldwide, and for the pharyngolaryngeal localization cases came from Africa (morocco, Ethiopia), India and Middle East (Turkey, Iran, Syria, Yemen) and one case from developed country Spain (Table 1). Our case is the first case described from Algeria in decades.

Aquatic leeches are common in Algeria where two species have been described Hirudo medicinalis and Limnatis nilotica. In the past leeches infestation were a major cause of morbidity and mortality for animals, and even cases of human infestation were described in French soldiers, travels and gerlach's series [8-10]. At present, the situation is unclear rarely described maybe because of adequate safe water supply and/or the use of traditional medication by the local population to remove the leech.

We also performed literature review about pharyngolaryngeal leeches infestation from 1999 to 2015. There are 17 cases reported in the literature (Table 1). The age distribution of patients is ranged from 17 months to 73 years. The male are more affected than female (11 vs 5).

The major symptoms reported are the result of bleeding such as hemoptysis, hematemeses and blood in sputum sometimes associated with symptom of obstruction (dysphonia, cough, sensation of something in the throat, dysthnia, and even suffocation) and fever in children. Any delay of diagnostic can lead to lethal complications such as severe anemia and suffocation.

The symptoms may be misdiagnosed as asthma, laryngitis, tuberculosis, hookworm and malignancies [11].

The diagnostic of leech infestation was done by laryngoscopy or fibroscopy. And in some cases until the patient spontaneously expelled the leech [9] and only in few reports diagnostic was suspected on the medical history of the patient.

All patients have a contact with exposed water; the mode of contamination is more likely drinking than swimming (Table 1). Removal of leeches from the larynx is difficult, can be performed by direct laryngoscope with the patient under general or local anesthesia and the parasite is extracted with forceps, in fortunate cases the leech was spontaneously expelled by the patient [9], after application of xylocaine in our case or attached to the forceps [10].

In four reports patients consulted only when they failed to remove the leech with traditional medicine (ingestion of chewing tobacco as our patient, dehydratation……). The application of traditional medications may lead to dislodging of the leech deeper and may result in suffocation to death [2].

The length of leeches ranged from to 3.7 to 7 cm. Only 4 reports identified the leech to species level Myxobdella africana in 6 cases from Kenya, Limnatis linotica in 2 cases from turkey and Theromyzon tessulatum in one cases from Spain [3,6,13-21]. After the removal the evolution is favorable and all patient discharged, in some cases blood transfusion or iron supplement were required to correct the anemia.

### Conclusion

Leeches endoparasitism should be included in the differential diagnosis of patients with hemoptysis and or signs of airways obstruction. They are distinct from other causes of hemoptysis. Early diagnostic is necessary to avoid severe consequences.
<table>
<thead>
<tr>
<th>Country (area)</th>
<th>Age/Gender</th>
<th>Mode of contamination</th>
<th>Symptoms</th>
<th>Complications</th>
<th>Duration</th>
<th>Diagnostic</th>
<th>Removal</th>
<th>Leech (length cm)</th>
<th>Evolution</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morocco</td>
<td>17 m/M</td>
<td>Swimming</td>
<td>Hematemesis, Pallor, Fever 38°C, POLYNÉIQUE, Cough</td>
<td>Respiratory distress, ANEMIA</td>
<td>One week</td>
<td>Fibroscopy, One week endoscopy</td>
<td>forceps</td>
<td>5/1.5</td>
<td>discharged</td>
<td>[8]</td>
</tr>
<tr>
<td>Yemen</td>
<td>60 /M</td>
<td>Drinking</td>
<td>Progressive hoarseness, blood stained sputum, mild throat pain, Hemoptysis</td>
<td>One month</td>
<td>Indirect laryngoscopy – One month</td>
<td>Spontaneously expelled</td>
<td>5.5/1</td>
<td>discharged</td>
<td></td>
<td>[9]</td>
</tr>
<tr>
<td>India</td>
<td>48 /M</td>
<td>Drinking</td>
<td>Cyanotic, Severe breathlessness, Difficulty of speaking, Inspiratory stridor with bilateral decreased air</td>
<td>3 hours</td>
<td>Indirect laryngoscopy, 3 hours</td>
<td></td>
<td>Attached to the forceps</td>
<td>5/0.5</td>
<td>discharged</td>
<td>[10]</td>
</tr>
<tr>
<td></td>
<td>7 /M</td>
<td></td>
<td>spitting blood, inspiratory stridor</td>
<td>Indirect laryngoscopy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>discharged</td>
<td>[4]</td>
</tr>
<tr>
<td></td>
<td>35 /M</td>
<td></td>
<td>spitting blood</td>
<td>3 months</td>
<td>Indirect laryngoscopy</td>
<td>Direct laryngoscopy, local anaesthesia</td>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 /F</td>
<td></td>
<td>spitting blood, difficulty in breathing, inspiratory stridor</td>
<td>Indirect laryngoscopy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>42 /M</td>
<td></td>
<td>spitting blood, dysphagia, feeling of a foreign body in the throat</td>
<td>2 weeks</td>
<td>Indirect laryngoscopy, 2 weeks</td>
<td>Direct laryngoscopy, local anaesthesia</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syria</td>
<td>6 /M</td>
<td>Drinking</td>
<td>Cough, hemoptysis, sensation of suffocation, stridor</td>
<td>Severe respiratory distress, Cachectic, Cyanotic</td>
<td>3 hours</td>
<td>Indirect mirror laryngoscopy, 3 hours, One month</td>
<td>General anesthesia</td>
<td>7</td>
<td>discharged</td>
<td>[11]</td>
</tr>
<tr>
<td>Morocco</td>
<td>38 /F</td>
<td>Drinking</td>
<td>Toux, hemoptysis, dyspnea, aphonie</td>
<td>10 days</td>
<td>Fibroscopy</td>
<td>Laryngoscopy, direct forceps</td>
<td>4cm</td>
<td>discharged</td>
<td>[12]</td>
<td></td>
</tr>
</tbody>
</table>

**Table 1** Literature review about laryngeal leech infestation.
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<table>
<thead>
<tr>
<th>Country (area)</th>
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<th>Diagnostic</th>
<th>Removal</th>
<th>Leech (length/cm)</th>
<th>Evolution</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>34/M</td>
<td>drinking</td>
<td>a foreign body sensation in his throat, hemoptysis, dysphagia, recurrent hemoptysis, dysphagia, melena, and progressive nocturnal dyspnea</td>
<td>1 week transnasal laryngoscopy 1 week</td>
<td>local anesthesia failed under general anesthesia, the microlaryngoscopic extraction</td>
<td>Theromyzon tessulatum 5cm</td>
<td>[3]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td>5/F</td>
<td>Drinking</td>
<td>Vomiting fresh blood, Epistaxis, Pallor, Tachycardia, fever</td>
<td>anemia</td>
<td>3 days</td>
<td>Laryngoscopy</td>
<td>Local anesthesia, Limnatis nilotica 3.7/0.7</td>
<td>discharged</td>
<td>[13]</td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td>8/F</td>
<td>Drinking</td>
<td>several days hemoptysis, subfebrile</td>
<td>forceps</td>
<td></td>
<td></td>
<td>Limnatis linotica 5/1</td>
<td>discharged</td>
<td>[6]</td>
<td></td>
</tr>
<tr>
<td>Iran</td>
<td>73/M</td>
<td>Drinking</td>
<td>intermittent hemoptysis, dysphagia, dyspnea</td>
<td>fiberoptic laryngoscopy</td>
<td>4 ml lidocaine</td>
<td></td>
<td>discharged</td>
<td>[14]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iran</td>
<td>41/F</td>
<td>Drinking</td>
<td>Respiratory distress, Tachypnea, stridor, feeling something in the throat, vomiting, nausea</td>
<td>laryngoscopy</td>
<td></td>
<td></td>
<td>General anesthesia, Lidocaine forceps</td>
<td>discharged</td>
<td>[15]</td>
<td></td>
</tr>
<tr>
<td>Morocco</td>
<td>71/F</td>
<td>Drinking</td>
<td>hemoptysis</td>
<td>anemia</td>
<td>8 days</td>
<td>Expelled from the nose</td>
<td>7/1.5</td>
<td>discharged</td>
<td>[16]</td>
<td></td>
</tr>
<tr>
<td>Ethiopia</td>
<td>7/M</td>
<td>Drinking</td>
<td>Blood stained saliva, shortness of breath</td>
<td>Anemia</td>
<td>14 days</td>
<td>Laryngoscopy</td>
<td>Forceps General anesthesia</td>
<td>6</td>
<td>discharged</td>
<td>[2]</td>
</tr>
<tr>
<td>Iran</td>
<td>64/M</td>
<td>Drinking</td>
<td>Hemoptysis, sensation of foreign body, dysphonia, mild respiratory distress</td>
<td>Indirect laryngoscopy</td>
<td></td>
<td></td>
<td>General anesthesia, Rigid laryngoscopy forceps</td>
<td>5.5</td>
<td>discharged</td>
<td>[17]</td>
</tr>
</tbody>
</table>

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obstruction, especially in patients with a history of contact with unfiltered water where aquatic leeches are commonly found. Cases such as this should be considered as emergencies, and all measures should be taken to avoid complications and death. Therefore, to prevent leech infestation in endemic regions, local people are advised to be informed more effectively about the necessity to use safe water.
References