Laryngeal Leeches Causing Exercise Intolerance, Respiratory Distress and Hemoptysis In A Hunting Dog

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Citation

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Abstract

A five-year-old, entire male, mixed breed dog, used for hunting was referred for assessment of exercise intolerance, cough, and hemoptysis of 1 week duration. Initial oral and radiographic examinations of the neck and throat suggested upper respiratory tract obstruction. Deep oral examination under injectable, general anesthesia with aid of laryngoscope and tongue depressors revealed the presence of 2 leeches attached to the lateral wall of the larynx. The leeches were carefully removed using long alligator forceps. Following recovery from anesthesia, the dog's breathing seemed more comfortable. One week later, the owner reported that the dog returned to hunting without any respiratory problems. Laryngeal leeches should be considered in the differential diagnoses of upper respiratory tract obstruction and exercise intolerance in hunting dogs. In addition, the leeches can be easily removed under short-term, injectable anesthesia without the need for endotracheal intubation.

INTRODUCTION

Leeches, a hermaphroditic, blood-sucking parasite- are rarely reported in humans and animals as a cause of respiratory problems. Leeches belong to the phylum Annelida, class Hirudinea, order Rhynchobdellida (White, 1998). They vary in color, length, and shape. They may be black, brightly colored, or mottled. They can range in length from a few millimeters to many centimeters. They are cylindrical or leaf-like in shape, depending on the contraction of their bodies (Lent et al., 1988, El-Awad and Patil, 1990, White, 1998). They live in stagnant water in ponds and lakes. In humanbeings, leeches as a foreign body and parasite in the respiratory tract have been reported in the Mediterranean countries, in Africa, Asia and Europe (Gerlach and Gerlach, 1975, White, 1998). In animals, leeches infesting the nasal cavity were reported in one camel in Iraq (Al-Ani and Al-Shareef, 1995). This is the first case report of leeches in the laryngeal area of a dog causing respiratory distress, exercise intolerance and hemoptysis.

CASE REPORT

A 5-year-old, 45-kg, mixed breed, intact male dog was presented to the Veterinary Health Center (VHC) at the Faculty of Veterinary Medicine, Jordan University of Science and Technology, Jordan with 1 week history of exercise intolerance, respiratory distress at rest that exaggerate with exercise, coughing, and hemoptysis. The dog was purchased by his owner 1 week earlier with an unknown vaccination and deworming history. The dog had been used by his previous owner for hunting in a rural area where ponds of stagnant water are abundant. At presentation the dog was in a good body condition with obvious respiratory distress. The dog was suffering from continuous, soft cough, and inspiratory dyspnea suggestive of possible upper respiratory tract obstruction. The temperature and heart rate of the dog were within normal limits. There were no clinical sings suggestive of pulmonary or cardiovascular disease based on the initial examination using stethoscope. A complete blood cell count (CBC) and serum biochemical profile was performed. The CBC revealed a mild normocytic, normochromic, anemia and slight neutrophilic leukocytosis (Table 1). The biochemical profile was within normal limits (Table 2).

Figure 1

Table 1: Hematology values in a dog infested with laryngeal leaches

Parameter	Unit	Value	N
RBC	106C/µL	4	5.5 - 8.5
Hb	a/L	9.7	12-18
PCV	%	28	37 - 55
MCV	FL	71	60-77
MCH	pg	24.4	19 - 23
MCHC	g/dL	34.2	32-36
Platelets	10 ³ C/mL	336	2.0-9.0
WBC	103C/µL	16.7	6.0 - 17
Seg.	103C/µL	14.34	3.6-11.5
Neutrophils			
Bands	103C/µL	0.334	0.0-0.3
Lymphocytes	10 ³ C/µL	1.67	1.0-4.0
Eosinophils	103C/µL	0.0	0.01-1.25
Monocytes	10 ³ C/µL	0.334	0.01-1.35

RBC= red blood cells; MCV= mean corpuscular value; MCH= mean corpuscular hemoglobin; MCHC= mean corpuscular hemoglobin concentration; WBC= white blood cells; Seg. Neutrophils= segmented neutrophils; N= normal range (Feldman & others 2000)

Figure 2

Table 2: Serum biochemical analysis in a dog infested with laryngeal leaches

Parameter	Unit	Value	N	
TP	g/dL	6.5	5.4 - 7.0	
Urea	mg/dL	17	20 - 60	
Creatinine	mg/dL	1.2	0.5 - 1.5	
Glucose	mg/dL	172	67 - 125	
Phosphorus	mg/dL	3.9	2.6 - 6.8	
Magnesium	mg/dL	1.9	1.5 - 2.7	
ALT	U/L	73	15 - 84	
AST	U/L	126	6.2 - 13	
AP	U/L	107	20 - 156	
LDH	U/L	121	10 - 273	

TP= total protein; ALT= alanine transferase; AST= aspartate aminotransferase; AP= alkaline phosphatase; LDH= lactate dehydrogenase; N= normal range (Kaneko and others 1997)

Palpation of the abdominal cavity revealed no abnormalities. On oral examination, there was slight congestion of the mucous membranes of the oropharynx. Fresh blood could be seen in the laryngo-pharyngeal area mixed with saliva. Using mouth gag and a laryngoscope, the epiglottis could be seen and upon opening the laryngeal cavity with aid of tongue depressor, a reddish-tan objects could be seen in the laryngeal cavity. To investigate the laryngeal area, ventrodorsal and lateral radiographic views were obtained. On the lateral radiograph, a multiple, cord-like, radio-opaque lesions were seen in the laryngeal cavity (Figure 1).

Figure 3

Figure 1: Lateral radiograph of the laryngeal area of a 5year-old dog. Notice cord-like opacity filling the laryngeal cavity.



To thoroughly investigate these lesions, the dog was placed under injectable, general anesthesia using atropine sulfate (Atropine; Spain) at a dose of 0.04 mg/kg intramuscularly as pre-anesthetic, followed by intravenous injection of Xylazine hydrochloride (Xyloject; Egypt) and Ketamine hydrochloride (Ketaset; Fort Dodge, USA) at doses of 1.1mg/kg and 11mg/kg respectively. The mouth of the dog was fully opened and the laryngeal cavity was fully explored. Two leeches were found attached to the lateral wall of the larynx. The leeches were dark red in color, 7-10 mm in diameter and 5-7 cm long (Figure. 2).

Figure 4

Figure 2: Two leeches removed from the laryngeal cavity of a 5-year-old dog.



After removal of the leeches, there was no bleeding

observed. The dog recovered from anesthesia uneventfully and the dog's breathing seemed comfortable. Oral iron supplement (Ferrous sulfate; Schering-Plough) at a dose of 300 mg iron per day was prescribed to the dog for 2 weeks following the removal of the leeches. Telephone conversation with the owner 1 week later revealed that the dog recovered well and returned to hunting without any breathing problems. The owner was educated regarding dog vaccines and deworming programs.

DISCUSSION

In humans and animals, leeches attaches on the mucosa of the oropharynx, nasopharynx, tonsils, esophagus, or nose but rarely in the larynx. Infestation occurs when people and animals drink from inhabitated waters by leeches (White, 1998, Yalcin and Keles, 2001, Bilgen et al., 2002, Mohammad et al., 2002). When in the larynx, clinical signs are haemoptysis, snoring, dyspnea, cough, and in humans a choking feeling (Alavi, 1961).

In this case, the dog was presented with mixed clinical signs suggestive of upper respiratory tract obstruction and exercise intolerance. These signs can be explained by the leech as a foreign body shutting the airways. In addition, moderate to severe anemia was the only abnormal parameter on the laboratory profile of the dog. While attached to mucous membranes of the host, the leech sucks blood and ingests about 9 times its weight causing severe anemia over time (Al-Hadrani et al., 2000). The leech sucks blood by the aid of a powerful jaws and muscular suckers at both their anterior and posterior ends (Stickland, 2000). While sucking blood, its saliva contains anticoagulant factors such as hirudin, which inhibits thrombin and factor IXa, and hementerin (plasminogen activator) leading to bleeding and hemoptysis. The saliva also contains other enzymes such as antielastase, antiplasmin, and antitrypsin (El-Awad and Patil, 1990).

In human beings, leeches are generally removed from the larynx under general or topical/local anesthesia by direct laryngoscopy. The application of local analgesic such as 30% cocaine, 1:10000 adrenalin, or dimethyl phtalate will aid its detachment without breaking the leech and leaving its head attached leading to further inflammation (Uygur et al., 2003, Fooanant et al, 2006). In our case, after induction of general anesthesia using injectable anesthetic agents, it was easy to fully open the mouth and remove the leeches using long alligator forceps with aid of tongue depressor.

CONCLUSIONS

To the authors' knowledge, this is the first report of laryngeal leeches in dogs causing respiratory problems. We recommend that a laryngeal leech should be included among the differential diagnoses of cases with hemoptysis, respiratory distress, and exercise intolerance in hunting dogs especially during the leech season (from May to September). In dogs, one safe and easy way to remove the leeches from the larynx is under short-term, injectable anesthesia using mouth gag, laryngoscope, tongue depressor and alligator forceps without the need for laryngeal intubation.

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