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Case Report

Human Linguatulosis Caused by *Linguatula serrata* in the City of Kerman, South-eastern Iran- Case Report

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Abstract

Human linguatulosis poses an important medical and veterinary concern in endemic countries. Animals, as reservoir host, play a major role in transmission of infestation and epidemiology of the disease. This study reports a case of human linguatulosis caused by *Linguatula serrata* in the city of Kerman, South-eastern Iran. A woman suffering from upper respiratory symptoms is presented. The patient consumed raw liver of sheep who was admitted to the Afzalipour University Hospital in Kerman for the symptoms of upper respiratory tract. In microscopic examination of the nasopharyngeal discharge, *L. serrata* was detected. This report has future medical implication in precise diagnosis of *L. serrata* in patients with complaints of nasopharyngeal symptoms.

Introduction

Linguatula serrata, entitled tongue worm, and a worm-like blood sucking parasite; belongs to the phylum *Pentastomida*. This zoonotic pentastomid parasite live mainly in the nasal passages and frontal sinuses of carnivorous, principally of dog and occasionally other animals including reptiles, birds and mammals (1). The eggs,

containing embryos are expelled either with nasal secretions or in the feces. When ingested by an intermediate host such as rodents (rabbits and rats), ruminants (sheep, goats, cattle and camels) and accidentally by humans (1), the embryos migrate to the mesenteric lymph nodes and various other organs, where they feed on blood and fluids and molt to become mature nymphal stage. The nymph may retain alive in the intermediate host for at least two to three years, where they become encapsulated (2).

Humans are accidentally infected by ingesting water and vegetables or frequently by eating raw liver containing nymphs (2). To cause infection the nymphs must cling to the mucus membrane of the mouth before being swallowed or when vomited. In human beings they may produce no symptoms, but sometimes cause severe catarrh, bleeding and suppuration and may cause much sneezing, difficulty in breathing, irritations and discomfort of upper respiratory tract, when they obstruct the nasal passages (1, 2) .

In Iran, high prevalence of *L. serrata* infestations (range; 16.1% - 76.5%) in dogs, sheep, goats, cattle and camels from Shiraz (3), Shahre-kord (4, 5), Kerman (6-9), Tabriz (10), Rafsanjan (11), Nagaf-Abad (12) and Isfahan (13) have already been reported. Sporadic infestation of human linguatulosis have been documented from different provinces of Iran including Tehran (14, 15), Mashhad (16) and Shiraz (17).

This study was aimed to report an interesting case of human linguatulosis in the city of Kerman in 2013. This study has future medical implication in precise diagnosis of *L. serrata*, when nasopharyngeal symptoms are suspected.

Case presentation

A 32-year-old woman was admitted to the respiratory tract clinic at the Afzalipour Hospital of Kerman University of Medical Sciences in the city of Kerman, the center of Kerman province, south- eastern Iran in 2013. She used to consume raw liver of sheep for many years, a traditional belief for its nutritional values. The last time she ate pieces of raw liver, she felt burning sensation and itching irritation of the upper respiratory mucus membranes in particularly nasopharyngeal region and throat.

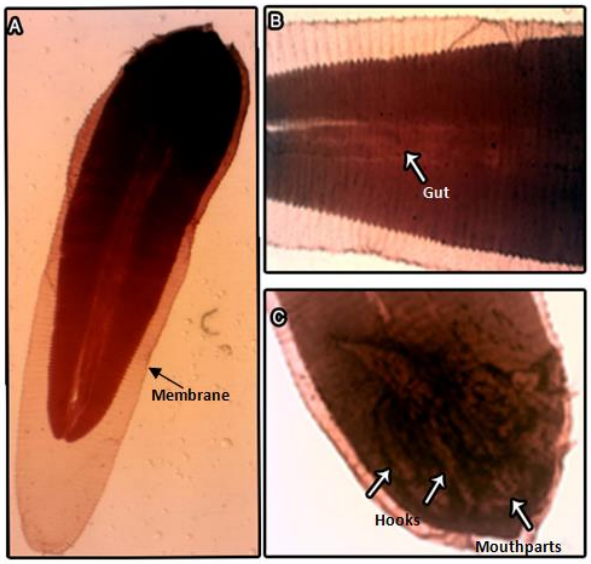

Fig. 1: *Liguatula serrata* demonstrating(A) a nymphal instar(B) gut in mid-posterior and (C) two pairs of hooks around the mouthparts

The condition became worst, gradually within a week, where other symptoms including sneezing, coughing and respiratory discharges appeared, progressively. Upon examination by nasopharyngoscopy and bronchoscopy, no foreign bodies were observed. Following further coughing, accompanied by blowing of the nasal areas, three worm-like pentastomid were expelled. They were transferred to the Department of Parasitology and Mycology at the School of Medicine in Kerman University of Medical Sciences for further differentiation.

The pentostomids were fixed in ethanol and stained by acetic carmine and mounted. They were examined under a conventional light microscope and identified as the nymphal instars

of *Linguatula serrata*. In close microscopic examination, the head actually consists of the mouth, two pairs of hooks, and surface membrane with spines and marginal segmentation (Fig. 1).

The parasite was 4.2 mm in length, appeared whitish with a typical tongue- like, flattened shape, superficially segmented and rounded anteriorly while pointed at the posterior end. Cetirizine medicine and Flixonase aqueous nasal spray were used for treatment of allergic reaction induced by *L. serrata*. The patient was also administered physiological saline solution for washing the nasal areas. Follow- up examination of the patient showed no symptoms or complaints, with a thankful appreciation and comfortable feeling.

Discussion

Linguatulosis due to *L. serrata* is a cosmopolitan pentastomid, mainly in carnivorous and herbivorous animals (3-13). Human infestations have sporadically been reported from Latin Americas, Africa, Asia and Europe (2). Most of the infestation is acquired by ingesting vegetables or water contaminated with pentostome eggs or by consuming undercooked and raw liver of livestock (1).

The symptomatic condition of the patient in this report is much like that of marrara or halzoun syndrome caused by *L. serrata* (18), an inflammation and itching of the upper respiratory tract. Similar sporadic linguatulosis of human has previously been reported from different provinces of Iran (14-17) and other countries (18, 19). Interestingly, high prevalence of infestations in dogs and ruminants (sheep, goats, cattle and camels), as definitive and intermediate hosts, respectively, play an important role in epidemiology of human linguatulosis, in this county. These animals as potential source of infection and as a threat, pose an important public health and veterinary concern worldwide, mainly in endemic counties such as Iran.

Physicians should be aware and consider *L. serrata* infestation in patients with complaints of upper respiratory tract symptoms, especially in endemic areas, where humans consume raw or under-cooked liver or when they are in close contact with domestic and home- reared animals.

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