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Case Report

The First Record of *Linguatula serrata* Infection of Two-Humped Camel (*Camelus bactrinus*) In Iran

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Abstract

Linguatula serrata, is a cosmopolitan zoonotic parasite. Adult of *L. serrrata* parasitize the nasopharynx of canids. Consuming raw glandular material of infected intermediate hosts (camel, sheep, cattle, goat, etc.) can infect human. In Iran, two–humped camel is merely found in cold regions (Ardabil and East Azarbijan provinces) and is in danger of extinction. A seven-year-old two-humped male camel, due to car accident injury was sent to slaughterhouse of Tabriz, Iran. In meat inspection practice, the visceral organs were taken out. A small red nodule having a white center was observed at the surface of the left lobe of lung. To study more, the whole of the left lobe of lung was sent to the parasitology laboratory. One nymph of *L. serrata* was separated from the specimen. This is the first report of infection *with L. serrate* of two-humped camel in Iran.

Keywords: *Two-humped camel,* Linguatula serrata*, Iran*

Introduction

Linguatula serrata is a cosmopolitan zoonotic parasite, belonging to the phylum Pentastomida (1-4). Adult of *L. serrata* inhabit in the respiratory system of canids, which serve as final host, and their infective eggs containing larva are discharged into the environment by their nasopharyngeal secretions and ingested by herbivorous animals, the natural intermediate hosts (2, 3, 5, 6). Then larva reaches the mesenteric lymph nodes (MLNs), liver, lung, etc. in which it develops to infective nymphs after 6 to 9 months (2). Human beings may also be infected by both the nymph stage, a condition called nasopharyngeal linguatulosis or Halzoun syndrome and the egg, a condition called visceral linguatulosis (5,7). The human infection to this parasite has been reported in different parts of the world as well as Iran (4,5,7) and *L. serrata* infection in animal intermediate host as main source of infection in public health, should be considered as an important field of study.

Case report

A seven-year-old two-humped male camel, critically damaged by car accident, was sent to slaughterhouse of Tabriz, Iran. In meat inspection practice, the visceral organs were taken out and studied. One small red nodule

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with a white center being less than 1 cm was observed at the surface of left lobe of the lung. In addition, the sign of congestion were seen around the nodule. To determine its cause, all the left lobe of the lung was sent to parasitology laboratory. In the laboratory, using a scalpel, a small slice was done on the nodule.
In the nodule the white piece were observed which were doubted to be nymph of *L. serrata* parasite. To study more carefully, the completely left lobe of lung was examined based on digestion method and so the sample was divided to smaller pieces. Then samples were digested in 200 ml of pre-heated digestion fluid containing 5g pepsin (7178, Merck) and 25 ml hydrochloric acid (374, Merck) in 1000 ml distilled water, and incubated at 37°C for 24 h (2). Finally, using a stereomicroscope, one nymph of *L. serrata* was collected and identified (Fig. 1).

Fig. 1: *Linguatula serrata* nymph isolated from lung under a stereomicroscope (×25)

Discussion

Linguatulosis poses veterinary and public health importance in the world including Iran. As intermediate host, one-humped or two-humped camel, like the other ruminants, may play a vital role in the life cycle of *L. serrata*. As the camels are mostly kept freely in the pastures, they are very susceptible in persistence of infection and its dissemination (8). There are already many reports on the infection of one-humped camel, to nymph of *L. serrata* as well as cattle, sheep and goat in Iran (9-12). In literature, the most infected organs of one humped camel are reported to be mesenteric lymph nodes, liver and lung respectively (3, 8).
Two-humped camel is merely found in cold regions of Iran (Ardabil and East Azerbaijan provinces) in the western north of country and

is in danger of extinction. Today there are less than 100 two-humped camels throughout Iran. Small population of two-humped camel in Iran leads to lack of information about their infections. This is the first report of *L. serrata* infection in two-humped camel in Iran.

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