The Prevalence of *Linguatula serrata* Nymph in Mesenteric Lymph Nodes of Domestic Ruminants in Iran, 2011

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**Abstract:** Linguatulosis is a zoonotic parasitic disease caused by Endoparasite that belongs to the arthropod class. This study surveys the status of infection in North of Iran and its potential risks for humans. In a cross-sectional study during June 2010 to June 2011 on slaughtered livestock in Amol slaughterhouse including 107 goats, 100 sheep and 100 cattle from northern provinces were selected randomly and their mesenteric lymph nodes macroscopically and microscopically examined for *Linguatula serrate* nymph. Totally 110 animals out of 307 were infected with *Linguatula serrate* nymph and prevalence of rate in goat, sheep and cattle were 19(19%), 17(17%) and 74 (69.15%), respectively. Linguatulosis is an endemic infection in the most of Iran provinces and it has an active transmission. Therefore, more studies and attention of authorities are required regarding its prevention and control.

**Key words:** Prevalence · *Linguatula serrate* · Nymph · Ruminants · Iran

**INTRODUCTION**

*Linguatula serrata*, Frohlich 1789, is an arthropod which belongs to Pentastomida class and it is cosmopolitan parasite. Commonly is known as “tongue worm” due to its worm-like shape. These endoparasites are equipped with a small mouth and tiny claws. Their cuticles appear transversely striated and the length of females is about 8-13 cm while in males is 1.8-2cm. These parasites not only can infect animals but also they are human occasional parasites [1-4].

The adult *L. serrata* typically dwell in the respiratory and body passages of mammals, birds, reptiles and mammalian carnivores. Especially among these, dogs are normally considered as definitive hosts for pentastomes that reside in nasal sinuses and nasopharynx [5]. Infection of final hosts is normally caused by using uncooked offal of suitable herbivores such as sheep, goat and cattle that they are considered as intermediate host in this life cycle [1].

Humans normally are infected by swallowing of raw or undercooked infected liver and lymph nodes of ruminants to either halzoun or marrara syndrome. This shows hypersensitivity and inflammation reaction of the upper respiratory tract and bucco pharyngeal mucosa [6, 7]. This is noteworthy that humans have ability of either being an intermediate host with encapsulated nymph in inner organs or being definitive host with mature worms in nose [8]. The aim of current study is determination of the prevalence rate of *L. serrate* nymphs in mesenteric lymph nodes of livestock slaughtered in Amol slaughterhouse.

**MATERIALS AND METHODS**

From June 2010 to June 2011 in a cross-sectional study, 107 goats (from northern provinces), 100 sheep (from Ghochan) and cattle (from Amol, with the mean of 2 to 4 age) with different ages and sexes were selected randomly. They were slaughtered in Amol slaughterhouse.
which is located in North of Iran). Then, three to five mesenteric lymph nodes were separated and cut into small pieces and immersed in a plate which had normal saline solution. In order to allow nymphs to come out from tissue, they have left in plate for 5 hours at 37°C. During this time, nymphs came out and floated in the solution. Afterwards they were isolated under a stereoscope. The morphologic characteristic of recovered larva was studied by means of light microscope and they were recognized using Soulsby keys [1].

**RESULTS**

Totally out of 307 cattle, goat and sheep, 110 were infected with *L. serrate* nymphs. Furthermore, among 107 goats, 73 (68%) were infected with *L. serrate* larva. The number of infected mesenteric lymph node of goats were variable in the range of 1-530 and its mean was 16.92%. Totally 1793 larva was isolated that 105 larva were extracted from goats and sheep. The lowest and the highest separated larva from mesenteric lymph glands of sheep were 1 and 47, respectively and its mean was 44%. Among 100 slaughtered cattle, 19 (% 19) cattle were engaged with nymphs. Its range of isolated nymph was 1-12 and its average was 1.04%. Totally 25 nymphs were extracted from 100 cattle.

**DISCUSSION**

Results of some literature reviews include 29.9%, 49%, 28.9% and 37%, for *L. serrate* nymphs of slaughtered goats in Shiraz (Iran), Kerman (Iran), Jordan, Turkey respectively [9-12]. However, the prevalence of

<table>
<thead>
<tr>
<th>City</th>
<th>No.</th>
<th>Infected</th>
<th>Uninfected</th>
<th>The highest</th>
<th>The lowest</th>
<th>Mean</th>
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<tr>
<td>Gharmsar</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>18</td>
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<tr>
<td>Neishabour</td>
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<td>13</td>
<td>1</td>
<td>252</td>
<td></td>
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<tr>
<td>Ghochan</td>
<td>49</td>
<td>41</td>
<td>8</td>
<td>521</td>
<td></td>
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<tr>
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<td>2</td>
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<tr>
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<td>10</td>
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<tr>
<td>Ghonbad</td>
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<td>1</td>
<td>12</td>
<td>2</td>
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</tr>
<tr>
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<td>648</td>
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<tr>
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<td>3</td>
<td>0</td>
<td>46</td>
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risk factor for carnivores and humans. It requires particular attention for prevention and control owing to its zoonotic nature. Hence, both inspection of mesenteric lymph nodes in slaughterhouse by veterinary professionals and further researches on dogs are highly recommended. Additionally, prevention of halzoun in humans considering some facts appears to be essential. Firstly, members of the focal society should become aware of the disease. Secondly, society requires having access to clean water in order to prevent contamination from eggs. Furthermore, changing food habits can be effective as well. Last but not least, highly cooked meat and viscera can prominently prevent humans from infection.

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**REFERENCES**