Global Veterinaria 6 (5): 438-440, 2011
ISSN 1992-6197

Prevalence of *Linguatula serrata* Nymphs in One-Humped Camel *(Camels dromedarus)* in Tehran, Iran

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Abstract: One-humped camel *(camelus dromedarius)* is an important multipurpose popular local animal species of Iran and more than 200,000 dromedary camels live in the arid and semiarid deserts of eastern provinces of the country. *Linguatula serrata* is one of the main parasitic zoonoses, inhabits the respiratory system of canines which are its definitive hosts. Humans can be infected with this parasite by consuming raw glandular food of infected intermediate hosts (camel, sheep, cattle, goat, etc.). In this study, 100 one humped camel were randomly chosen. They have been examined during four months, 64 of these camels were found to be affected. Minimum 2 and maximum 162 nymphs of *Linguatula serrata* were separated from mesenteric lymph nodes of camels.

Key words: *Linguatula serrate* · Halzoun syndrome · Mesenteric lymph nodes · one-Humped camel · Iran

INTRODUCTION

Linguatula serrata (Frolich, 1789) is a complete parasite, highly specialized in endoparasitism, with the adults residing in the upper respiratory tracts of carnivore mammals, inducing parasitic rhinitis and the larvae and nymph migrating and encysting in the various visceral organs of herbivores. Omnivorous mammals, including humans, may act either as final or intermediate hosts. Therefore the presence of this infection in carnivores or herbivores is potentially zoonotic, causing visceral and nasopharyngeal linguatulosis or 'Halazoun Syndrome' in humans [1].

The eggs are expelled from the respiratory passages of the final host and, when swallowed by a suitable herbivorous animal, larvae reach the mesenteric lymph nodes, liver and lung, in which development to the infective nymphal stage occurs. The larval stage is up to 500 μm long, devoid of annulations and mouth parts and undergoes a series of molts (six to nine) to produce the nymph which is 4-6 mm long. The nymph usually lies in a small cyst surrounded by a viscid turbid fluid. Final hosts such as dogs become infected by eating the infected viscera of animals, especially sheep, goat and cattle [2]. The objective of this study was to determine the prevalence rate of *Linguatula serrata* nymphs in mesenteric lymph nodes in camel slaughtered at Tehran slaughterhouse, Tehran, Iran.

MATERIAL AND METHODS

Over a four month period, 100 slaughtered one-humped camels (*Camelus dromedarius*) were randomly selected. Five to seven mesenteric lymph nodes were collected from each camel. They were cut into small pieces and rubbed in tepid water for about 15 min. The samples were then examined for the presence of nymphs using a stereomicroscope and the nymphs were collected and identified. The nymphs were stained by azocarmine and studied by microscope. The data were analyzed using chi-square and Fisher's exact tests.

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Table 1: The prevalence rate of *Linguatula serrata* nymhs in mesenteric lymph nodes of camels slaughtered in Tehran Slaughterhouse,Tehran, Iran

Species	No	Infective cases	Healthy cases	Maximum number of nymphs	Minimum number of nymphs	Average number of nymphs
Camel	100	64	36	163	2	9.94

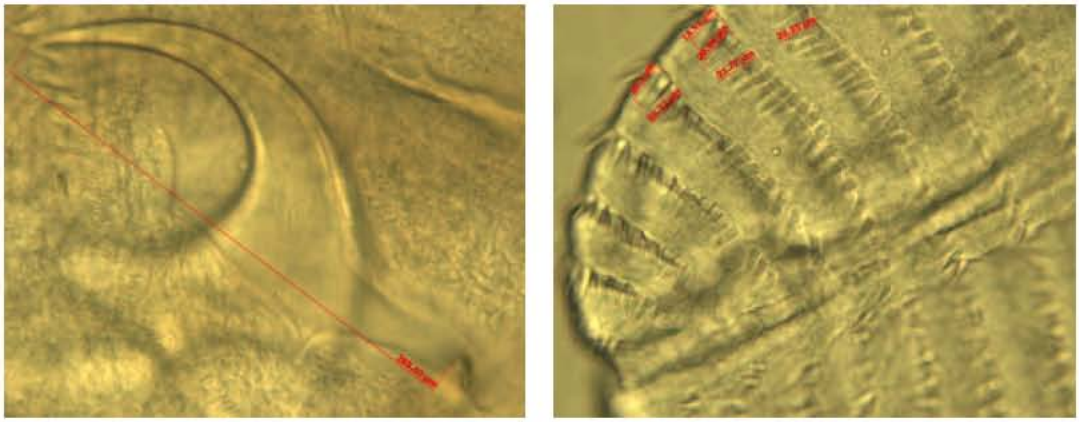

Fig. 1: The average length of Hook (left) and the mean length of the Spines

RESULTS

The results of the study showed prevalence of *Linguatula serrata* infection among 100 camels in Tehran slaughterhouse, Tehran, Iran. The prevalence rate was only considered regarding presence of nymphs in the mesenteric lymph nodes. 64 of 100 camels were found to be positive. After separating the nymphs, they were counted. Totally 1006 nymphs were separated from the infected mesenteric lymph nodes. Minimum 2 and maximum 162 nymphs of *Linguatula serrata* were separated from mesenteric lymph nodes; average number of separated nymphs in each mesenteric lymph node was 9.94.

In the next stage, the lengths of hooks were measured, the shortest was 18.91 µm and the longest was 21.77 µm. The average length of the rostellum was 265.63 µm.

DISCUSSION

According to shekarforosh *et al*. [9], the most infected lymph nodes was mesenteric lymph nodes. The maximum number of separated nymphs in their study was 32 and minimum was 1. Radfar [3], in his study, examined 210 camels among which 34 were positive. The maximum and minimum number of separated nymphs was 2 and 13, respectively. But the present study showed significant rise in the infection rate in camels slaughtered in the slaughterhouse of Tehran. Number of infected nymphs was also much more than the previous studies which proves that there is a high prevalence of infection in the camels slaughtered in Tehran.

On the other hand, in Shiraz (Iran), the prevalence rate was 29.9% in goats [4], in urmia slaughterhouse (Iran), 44% in cattle [5], 49.1% in goats slaughtered in Kerman (Iran) [6], 19% in cattle of India [7], 14.8% in cattle slaughtered in Babol (Iran) [10] and 12.5% in camels slaughtered in Shiraz [8, 9].

Considering importance of this infection for the human health and of course eating raw regions in Iran, few studies were done to know this parasite and the ways it is transmitted.

In many cases, the infected people are recovered very quickly. Because there are no lethal symptoms for this infection, people do not take it serious, therefore, it is absolutely necessary to pay attention to the prevention of this disease and also decrease the intermediate host and domestic animals especially in Tehran, Iran.

REFERENCES

1. Lazo, R.F., E. Hidalgo, J.E. Lazo, A. Bermeo and M. Laguno, 1999. Ocular linguatuliasis in Ecuador: Case report and morphometric study of the larva of *Linguatula serrata*. Am. J. Trop. Med. Hyg., 60: 405-409.
2. Razavi S.M., S.S Shekarforush and M. Izadi, 2004. Prevalence of *Linguatula serrata* nymphs in goats in shiraz, Iran. Small Ruminant Res., 54: 213-217.

3. Radfar, M.H., S. Fathi, H. Asgaryan Nezhad and E. Norozi Asl, 2010. Prevalence of *linguatula serrata* nymphs in one- humped camel *(camelus dromedaries)* in Southeast of Iran. Sci. Parasitol., 11(4): 199-202.
4. Youssefi, M.R. and S.H. Hadizadeh Moalem, 2010. Prevalence of *linguatula serrata* Nymphs in Cattle in Babol Slaughter house, North of Iran. World J. Zool., 5(3): 197-199.
5. Tajik, H., M. Tavasoli, H. Khani and S. Javadi, 2007. Prevalence of *linguatula serrata* nymphs in slaughtered camels of Iran. J. Camel Pract. Res., 14: 69-71.
6. Noruollahi Fard, R.S., R. Kheirandish, E. Norouzi Asl and S. Fathi, 2010. Prevalence of *linguatula serrata* nymphs in goats slaughtered in kerman slanghterhouse. Kerman, Iran. Vet. Parasitol., 171: 176-178.
7. Ravindran R., B. Lakshmanan, C. Ravishankar and H. Subramanian, 2008. Prevalence of *Linguatula serrata* in domestic ruminunts in South India. Southeast. Asian J. Trop. Med Pablic Health., 39: 808-812.
8. Oryan, A., S.M. Sadjjudi, D.M. Mehrabani and M. Rezaei, 2008. The status of *Linguatula serrata* in fection of stray dog in Shiraz, Iran. Comp. Clin. Pathol., 17: 55-60.
9. Shakerian, A., S. Shekarforoush and S. Ghafari Rad, 2008. Prevalence of *Linguatula serrata* nymphs in one humped camel *(camelus dromedaries)* in Najaf Abud, Iran. Res. Vet. Sci., 84: 243-245.