



Prevalence of *Linguatula serrata* infection in small ruminants in and around Pantnagar, Uttarakhand

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The tongue worm, *Linguatula serrata*, is a zoonotic arthropod parasite. The larvae and nymphal stages develop in visceral organs like mesenteric lymph nodes (Sivakumar *et al.* 2005), mesenteries (Sangwan *et al.* 2007), liver (Shekarforoush *et al.* 2003) and lungs (Krishna *et al.* 1973) of ruminants like sheep, goats, cattle and buffaloes (intermediate hosts). They pick up eggs of this pentastomid while grazing on fields contaminated by dogs, cats and other carnivores (definitive host). In man, both the developing and mature stages have been reported (Maleky 2001). The nymphal stages in the nasopharyngeal passage cause an acute syndrome called 'halzoun' or 'marrara' syndrome.

L. serrata infection was reported from different parts of India (Krishna *et al.* 1973, Sivakumar *et al.* 2005 and Sangwan *et al.* 2007) but no such cases have been reported from this area. Therefore, the present investigation was undertaken to know the prevalence of *L. serrata* infection in sheep and goats slaughtered in and around Pantnagar.

Mesenteries and mesenteric lymph nodes (MLN) of 97 small ruminants (95 goats and 2 sheep) slaughtered at 2 slaughter houses – Pantnagar and Rudrapur in Udham Singh Nagar, Uttarakhand were examined for *L. serrata* nymphal stages from January 2005 to December 2005. The mesenteries and MLNs were chopped into fine pieces and kept separately in normal saline at 27°C for 3–4 h. The sediment was thereafter examined for nymphal stages. The nymphs were collected and stained with borax carmine and identified as per their morphological characters (Soulsby 1982).

The nymphal stages of *L. serrata* were recovered only from MLNs (Fig.1). An overall prevalence of 12.37% (11 goats and one sheep) was observed (Table 1). The highest percent of infection (37.5) was recorded in the month of

September whereas no MLNs were found infected with nymphal stages during the month of May, June, July and December. The number of nymphal stages ranged from 2–210. The MLN of sheep harbouring the maximum number (210) was grossly oedematous with ecchymotic haemorrhages.

Shekarforoush *et al.* (2003) have also reported higher infection of *L. serrata* nymphs in MLNs as compared to liver with a maximum of 40 and a minimum of one nymph in MLNs. Sangwan *et al.* (2007) collected 150 parasites from mesentery of a goat in Karnal, Haryana. Sivakumar *et al.* (2005) observed *L. serrata* nymphs in MLNs of only two buffaloes of 100 examined.

The MLNs and mesenteries examined were of the animals taken by animal owners to roadside grazing land which are frequented by dogs leading to visceral linguatulosis. This first report of *L. serrata* infection in this area is important due to the fact that lower public health standards can enhance the infection rates of rare parasite in an area.

Table 1. Prevalence of *Linguatula serrata* infection in sheep and goats in and around Pantnagar

Month	Host (number examined)	Positive for <i>L. serrata</i> nymphs	Number of nymphs recovered	% prevalence
Jan.	G (9)	1	02	11.11
Feb.	G (13)	3	35	23.01
Mar.	G (14)	1	2	7.14
Apr.	G (7); S(1)	G–ve; S +ve	210	12.5
May	G (7)	-	-	-
June	G (9)	-	-	-
July	G (5) S(1)	-	-	-
Aug.	G (5)	1	11	20.0
Sept.	G (8)	3	16	37.5
Oct.	G (5)	1	5	20.5
Nov.	G (6)	1	9	16.67
Dec.	G (7)	-	-	-
Overall	G(95); S(2)	G(11); S(1)	2–210	12.37

G, Goat; S, sheep.

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Fig. 1. Mesenteric lymph nodes infected with *Linguatula serrata* nymphs

SUMMARY

Mesenteries and mesenteric lymph nodes (MLN) of 97 small ruminants (95 goats and 2 sheep) slaughtered at two slaughter houses – Pantnagar and Rudrapur in Udham Singh Nagar, Uttarakhand were examined for *L. serrata* nymphal stages from January 2005 to December 2005. The nymphal stages of *L. serrata* were recovered from MLNs but not from the mesenteries. An overall prevalence of 12.37% (11 goats and one sheep) was observed. The highest percent of infection (37.5) was recorded in September whereas no MLN was found infected with nymphal stages in May, June, July and December. The number of nymphal stages ranged from 2–210. The MLN of sheep harbouring

the maximum number was grossly oedematous with ecchymotic haemorrhages.

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REFERENCES

- Krishna L, Charan K and Paliwal O P. 1973. A pathological study on the larval forms of *Linguatula serrata* infection in goats. *Indian Veterinary Journal* **50**: 317–18.
- Maleky F. 2001. A case report of *Linguatula serrata* in human throat from Tehran, Central Iran. *Indian Journal of Medical Sciences* **55** (8):439–41.
- Sangwan A K, Chaudhuri S S and Bisla R S. 2007. Visceral pentastomosis in a goat. *Journal of Veterinary Parasitology* **21** (1): 83–4.
- Shekarforoush S S, Razavi S M and Izadi M. 2003. Prevalence of *Linguatula serrata* in sheep in Shiraz, Iran. *Journal of Veterinary Parasitology* **17** (1): 67–8.
- Sivakumar P, Sankar M, Nambi P A, Praveena P E and Singh N. 2005. The occurrence of nymphal stage of *Linguatula serrata* in water buffaloes (*Bubalus bubalis*): Nymphal morphometry and lymph node pathology. *Journal of Veterinary Medicine Series A* **52** (10): 506–9.
- Soulsby E J L. 1982. *Helminths, Arthropods and Protozoa of Domesticated Animals*. 7th edn. Pp. 809. ELBS and Bailliere Tindal, London,.