

# NASAL SCHISTOSOMIASIS AMONG LARGE RUMINANTS IN WAYANAD, INDIA

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**Abstract.** In May, 2007 a total of 54 cattle and 47 buffaloes were examined for *Schistosoma nasale* infection at a municipality slaughterhouse in Kalpetta, Wayanad, India. Eleven point one percent of cattle and 23.4% of buffaloes were positive, all with only mild parasite loads, with fewer than 5 per animal. The prevalence of *Schistosoma nasale* among large ruminants in Wayanad, India is relatively low compared to previous studies.

**Keywords:** *Schistosoma nasale*, large ruminants, slaughterhouse, India

## INTRODUCTION

Nasal schistosomiasis, caused by the blood fluke *Schistosoma nasale*, is a snail borne trematode infection of cattle and buffaloes. It causes nasal granulomas and snoring disease among cattle, but only a subclinical infection among buffaloes. The main molluscan vectors, *Lymnaea luteola* and *Indoplanorbis exustus*, carry the larval form, Cercariae indicae (Singh, 2003). The zoonotic importance is considerable in view of the scope for dermatitis in man likely to be provoked by the cercaria of *S. nasale* in common water sources (Anantaraman, 1981). The present study was undertaken to identify the actual status of nasal schistosomiasis among slaughtered large ruminants in Wayanad District, Kerala, India.

## MATERIALS AND METHODS

In May, 2007 a total of 54 cattle and 47 buffaloes were examined for *Schistosoma nasale* infection at a municipality slaughterhouse in Kalpetta, Wayanad, India. Materials for the study were collected during evisceration and dressing (Sumanth *et al*, 2004). The cranial part of one nasal cavity was opened by two horizontal incisions in the nasomaxillary incisure, one above the nasal process of the incisive bone, the other under the nasal bone. Samples were taken from the lateral wall of the cavity, the conchae and the underlying parts of the nasal septum. The nasal samples (125-250g) were cut into small pieces and immersed in large glass bowls containing normal saline and left undisturbed for four to five hours. The cuttings were then removed and, the saline filtered through a black muslin cloth into another bowl and the cloth was inverted into a petri dish containing normal saline. When present, *S. nasale* were observed directly or under a stereomicroscope and worm counts were made. To confirm the species, some of the

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parasites were stained using acetic alum carmine.

RESULTS

Fifty-four cattle and 47 buffaloes brought for slaughter at a municipality slaughterhouse in Kalpetta, Wayanad were examined for *Schistosoma nasale* infection. The prevalences of infection based on the detection of worms of *S. nasale* in the material collected from the slaughtered cattle and buffalo are presented in Table 1. *S. nasale* pairs were observed in 6 cattle (11.1%) and 11 buffaloes (23.4%).

The intensity of infection with *S. nasale* was determined based on the number of pairs obtained from the nasal cuttings. All the animals examined had mild infection with fewer than 5 pairs per animal. There were no localized lesions or nodular areas in the medial septum, on the dorsal edge of the ventral nasal concha or on the lateral wall of the middle meatus of the nasal cavity of any of the animals.

DISCUSSION

Routine diagnosis of nasal schistosomiasis relies heavily on the observation of clinical symptoms. Field veterinarians undertake examination of nasal discharge to reveal typical palanquin shaped ova of *S. nasale* when "snoring" is pronounced. This occurs usually when nasal polyps are large and obstruct the air passage. Detection of subclinical nasal schistosomiasis in live animals is difficult, since the affected animals do not show obvious signs of disease.

Nasal schistosomiasis was previously reported from the state of Kerala, India by Rajamohanam and Peter (1975) who studied nasal schistosomiasis among buffaloes and cattle and found only pin head sized

Table 1  
Presence of *Schistosoma nasale* among cattle and buffaloes in Wayanad, India, May 2007.

	Cattle	Buffalo
Number of samples tested	54	47
Number positive for <i>S. nasale</i>	6	11
Percent positive	11.1%	23.4%

eruptions and congestion of the nasal mucosa, suggesting buffaloes are more suitable hosts than cattle. The prevalence of infections is decreasing over the years since few clinical cases are reported by field veterinarians.

The prevalence of nasal schistosomiasis observed in the present study was low for the state of Kerala. Previous reports reveal higher prevalences of infection from other states in India. Sumanth *et al* (2004) reported a prevalence of 69.2% among Karnataka. Sreeramulu (1994) found prevalences of 60.3% among non-descript bullocks and 68.9% among Hallikar bullocks in Andra Pradesh. Banerjee and Agrawal (1992) found a prevalence of 44% in Madhya Pradesh. De Bont *et al* (1989) found a country-wide prevalence of 12.6% in neighboring Sri Lanka.

The only natural host in the transmission of *S. indicum*, *S. spindale* and *S. nasale* is *Indoplanorbis exustus* (Kumar and de Burbure, 1986), which is widely prevalent in the state.

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## REFERENCES

- Anantaraman M. The epizootiology of nasal schistosomiasis in animals. *Proc Indian Acad Sci (Anim Sci)* 1981; 90: 659-63.
- Banerjee PS, Agrawal MC. Epizootiological studies in bovines on fluke infections with special reference to schistosomiasis. *Indian Vet J* 1992; 69: 215-20.
- De Bont J, Van Akin D, Vercruyssen J, Franssen JM, Southgate VR, Rollinson D. The prevalence and pathology of *Schistosoma nasale* Rao, 1933 in cattle in Sri Lanka. *Parasitology* 1989; 98: 197-202.
- Kumar V, de Burbure G. Schistosomes of animals and man in Asia. *Helminthol Abst (Ser A)* 1986; 55: 469-80.
- Rajamohan K, Peter CT. Pathology of nasal schistosomiasis in buffaloes. *Kerala J Vet Sci* 1975; 6: 94-100.
- Singh KS. Veterinary helminthology. New Delhi: Indian Council of Agricultural Research, 2003: 113-5.
- Sreeramulu P. Epizootiology of nasal schistosomiasis in bovines in Andhra Pradesh. *Indian Vet J* 1994; 71: 1043-44.
- Sumanth S, D'Souza PE, Jagannath MS. Study of the nasal and visceral schistosomiasis in cattle slaughtered at an abattoir in Bangalore, South India. *Rev Sci Tech* 2004; 23: 937-42.