ABATTOIR SURVEY OF *SCHISTOSOMA SPINDALE* INFECTION IN THRISSUR

Bindu Lakshmanan[1], Abdu Rauoof[2], Muhammed Fawaz[2] and H. Subramanian[3]
Department of Veterinary Parasitology
College of Veterinary and Animal Sciences
Mannuthy- 680 651, Thrissur, Kerala

Received - 31.08.10
Accepted - 31.03.11

Abstract

Mesenteric worm count technique was employed to study the prevalence of intestinal schistosomosis among cattle and buffaloes slaughtered in Thrissur. Of the forty eight mesentery samples processed, 45.4 per cent animals carried Schistosoma spindale infections with a significant proportion harbouring moderate infections. Long term chronic infections cause significant production loss to the herd. Prevalence of the disease was very high when compared to the existing reports based on faecal egg detection techniques. The study emphasises the need for developing alternate field level diagnostic tests for schistosomosis.

Keywords: *Schistosoma spindale*, *mesenteric worm count, Thrissur.*

Intestinal schistosomosis due to *Schistosoma spindale* is an economically important blood fluke infection widespread in India and other developing countries which is manifested as chronic diarrhoeic disease if large number of worm pairs inhabit the mesentery (Agarwal and Southgate, 2000).

A significant prevalence of *S. spindale* infection among cattle, goats and buffaloes has been reported based on slaughter house studies in South India (Sumanth *et al*., 2004; Ravindran *et al*., 2007). As per the annual report of Animal Husbandry Department (2003), about 3226 cattle and 109 buffaloes in Kerala are affected with schistosomosis based on faecal sample examination and clinical signs. Such routine diagnostic methods have poor sensitivity and thus underestimate the actual prevalence which ultimately interferes with the control strategies. In order to accurately assess the status of *S. spindale* infection in Thrissur, a preliminary abattoir survey was conducted during 2008-09.

Materials and Methods

Mesenteric samples of 30 cattle and 18 buffaloes were collected during evisceration at local slaughter houses in Thrissur. The samples were identified separately, cut into small pieces and immersed in normal saline for 5 to 6 hours. The recovered worm pairs were identified, counted and intensity of infection was assessed as per Sumanth *et al*. (2004).

Results and Discussion

The recovered worms pairs were identified as *S. spindale* (Soulsby,1982).The male worms were stout without tubercles and female worms carried 5 to 6 eggs at a time in their ootype (Fig.). Of the 48 mesentery samples processed, 45.8 per cent of animals harboured *S. spindale* infection. A considerable proportion of worm positive animals had moderate infections (45.4 %) of which majority were buffaloes (Table). None of the animals had high intensity of infection. De Bont and Vecruysse (1998) had reported that symptoms, morbidity and mortality of

[1] *Assistant Professor*
[2] *Veterinary Graduates*
[3] *Dean*

Table: Intensity of *S. spindale* infection

Intensity of infection	Worm pairs	No. of animals infected	
		Cattle	Buffaloes
Mild	1-20	8	4
Moderate	20-100	4	6
High	>100	0	0
Total		12 (25.0%)	10 (20.8%)

schistosomosis are to some extent related to the intensity of infection.

Buffaloes and oxen are the principal natural hosts of *S. spindale*. Nevertheless, long term chronic schistosome infections cause significant loss to the herd in terms of animal growth, productivity and increased susceptibility to other parasitic and bacterial diseases (Mc Cawley *et al.,* 1984). Previous studies on *S. spindale* in domestic ruminants using mesenteric worm count technique reported an infection rate of 31.2 % in Srilanka (De Bont *et al*., 1991), 37 % in Bangladesh (Islam,1975) and 57.3 % in Wayanad , Kerala (Ravindran *et al.,* 2007). The results of this abattoir survey in Thrissur indicate that a significant proportion of animals are infected with *S spindale*.

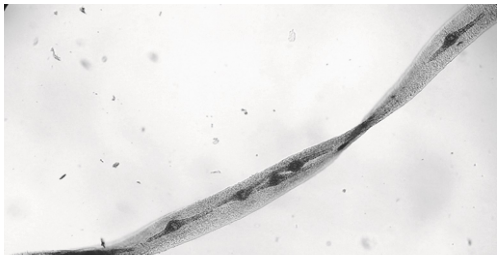

Fig. Female worm of *S.spindale* with eggs

Nevertheless, it should be remembered that the number of animals detected positive by faecal sample examination is very less since the tests frequently employed by a field veterinarian has poor sensitivity and eggs are often missed (De Bont *et al*., 1991). Agarwal (1999) had also opined that *S. spindale* infections are not easily detected by faecal sample examination. In the light of the high infection rate noticed in Thrissur, it is imperative that alternate field level diagnostic tests may be standardised for specific and sensitive antemortem diagnosis of the disease among food animals.

References

Agarwal, M.C.1999. Schistosomosis: An underestimated problem in South Asia. *World Anim Rev*., **92**:55-57.

Agarwal, M. C. and Southgate, V. R. 2000. *Schistosoma spindale* and bovine schistosomosis. *J .Vet. Parasitol*., **14**: 95-107.

De Bont, J.,Vecruysse, J.,Van Aken, D., Southgate, V.R., Rollinson, D.and Moncrieff, C. 1991.The epidemiology of *Schistosoma spindale*, Montgo mery,1906 in cattle in Srilanka. *Parasitology*,**102**: 237-241.

De Bont, J. and Vecruysse, J.1998. Schistosomosis in cattle. *Adv Parasitol*., **41**:286-363.

Islam, K.S. 1975. Schistosomiasis in domestic ruminants in Bangladesh. *Trop. Anim. Hlth Prod*.,**7**:244.

Mc Cawley, E. H., Majid, A. A. and Tayeb, A.1984. Economic evaluation of the production impact of bovine schistosomiasis and vaccination in Sudan. *Prev. Vet. Med*., **2**:735-754.

Ravindran, R., Lakshmanan, B., Ravishankar, C. and Subramanian, H. 2007. Visceral schistosomiasis among domestic ruminants slaughtered in Wayanad, South India. *South east Asian J. Trop. Med. Pub. Hlth*, **38**:1008-1010.

Soulsby, E. J. L.1982. Helminths, Arthropods and protozoa of domesticated animals.7th ed. Bailliere Tindall, London.pp.71-73.

Sumanth, S., D'Souza, P. and Jagannath, M. S. 2004. A study of nasal and visceral schistosomosis in cattle slaughtered at an abattoir in Bangalore, South India. *Rev. Sci. Tech*., **23**:937-942.

❑