PREVALENCE OF *SCHISTOSOMA NASALE* IN CATTLE IN CAUVERY DELTA REGION OF TAMIL NADU

M.K. Vijayasarathi[*1], A. Latchumikanthan[1] and A. Meenakshisundaram[2]
Department of Veterinary Parasitology
Veterinary College and Research Institute
Tamil Nadu Veterinary and Animal Sciences University
Orathanadu, Thanjavur District, Tamil Nadu, India

ABSTRACT

Nasal washings and faecal samples were collected from 110 cows during the period between July 2019 and June 2020 in and around the Orathandu, Cauvery delta zone of Tamil Nadu to document the seasonal prevalence of Schistosoma nasale and Schistosoma spindale. These samples were processed and screened by using the standard parasitological techniques. Out of 110 nasal washings, 23 samples (20.9%) confirmed the Schistosoma nasale infection by the presence of eggs. No faecal samples could be detected positive for Schistosoma spindale infection during the study period

Key Words: Cattle, Cauvery Delta, Prevalence study**,** *Schistosoma nasale, Schistosoma spindale*, Tamil Nadu

INTRODUCTION

Nasal schistosomosis is caused by the blood fluke *Schistosoma nasale* in cattle and buffalo and the disease is commonly called as Snoring disease. It is recognized as the fifth major helminthosis of domestic animals in the Indian subcontinent (Sumanth *et al*., 2004). *Indoplanorbis exustus,* is the fresh water snail acting as intermediate host for this disease. Cauvery delta region of Tamil Nadu is considered as a rich source of fresh water in the river, irrigation channel and lakes throughout the year which attributes more snail population in this region. Yogeshpriya *et al.* (2017) reported the clinical case of nasal schistosomosis in cattle at Orathanadu, Cauvery delta zone of Tamil Nadu.

This study has been carried out to document the seasonal prevalence of *Schistosoma nasale* and *Schistosoma spindale* in cattle in and around Orathanadu, Thanjavur district of Tamil Nadu.

MATERIALS AND METHODS

Nasal washings and faecal samples were collected in normal saline solution and zip block covers respectively from 110 cows and Kannanthangudi, Oorachi, Paruthikottai and Thennamanadu of Orathanadu Taluk, Thanjavur district and Veterinary Clinical Complex, VCRI, Orathanadu were used as sampling areas for this study.

[*]Corresponding author; Email: sarathivet@gmail.com
[1]Assistant Professor
[2]Professor

A total of 110 nasal washings were processed by adding 5-10 ml of 10% NaOH solution in a test tube and boiled for 2-3 minutes for removal of tissues and cooled. After the centrifugation at 2000 rpm for 3 minutes, the supernatant solution was discarded and sediment was examined for the presence of *S. nasale* eggs. A total of 110 faecal samples were also processed by the sedimentation technique and screened for presence of *Schistosoma spindale* eggs.

RESULT AND DISCUSSION

Microscopic examination of nasal washings confirmed the presence of boomerang or palanquin shaped egg with terminal spine and fully developed miracidium in 23 samples (Fig.1). These eggs were identified as *S. nasale* as per the standard taxonomical keys given by Soulsby (1982). *Schistosoma nasale* eggs in nasal scrapings of cattle was also reported by Banerjee and Agrawal(1992), Sumanth *et al*. (2004) in Karnataka, Ravindran and Kumar (2012) in Kerala and Latchumikanthan *et al.* (2014) in Puducherry. No faecal samples could be detected positive for *S. spindale* eggs.

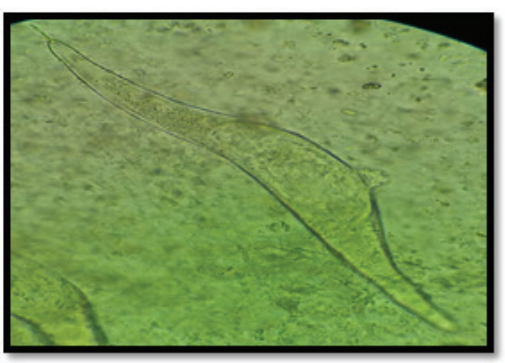

Fig.1. Boomerang shaped or palanquin shaped *Schistosoma nasale* eggs

The present study revealed that 20.9% prevalence of *S. nasale* infection in cattle in Orathanadu, Cauvery delta region of Tamil Nadu. Similarly, Muraleedharan *et al*. (1976) and De Bont *et al.* (1989) reported the prevalence rates of 10 - 15 % and 12.6 % infection for *S. nasale* in cattle in Karnataka and Sri Lanka respectively.

The major reason for the prevalence of *S. nasale* infection in the Cauvery delta region might be due to running of fresh river water round the year. The transmission of infection occurs in cattle by cutaneous penetration of cercaria of *S. nasale* from the infected *Indoplanorbis* spp. snails to the susceptible animals during the time of grazing.

In order to control the infection, grazing near water bodies infected with snails should be avoided (Soulsby, 1982). Control of snails, early diagnosis, treatment and periodical deworming in cattle help in the control of schistosomosis in ruminants.

CONCLUSION

The prevalence of *S. nasale* infection in cattle was 20.9%. No *S.spindale* could be detected in faeces of animals during the study period in the village viz., Kannanthangudi, Oorachi, Paruthikottai and Thennamanadu, Orathanadu Taluk, Thanjavur district of Tamil Nadu.

ACKNOWLEDGEMENT

We thankfully acknowledge the Veterinary Clinical Complex, Veterinary College and Research Institute, Orathanadu, Thanjavur District, Tamil Nadu for regularly

sending the nasal and faecal samples suspected for schistosomosis infection.

REFERENCES

Banerjee, P.S. and Agrawal, M.C. (1992). Epizootiological studies in bovines on fluke infections with special reference to schistosomiasis. *Indian Veterinary Journal*, **69**:215–220.

DeBont, J., Van Aken D., Vercruysse, J., Fransen, J.M., Southgate, V.R. and Rollinson, D. (1989).The prevalence and pathology of *Schistosoma nasaleRao*, 1933 in cattle in Sri Lanka. *Parasitology*, **98**:197–202.

Latchumikanthan, A., Pothiappan, P., Ilayabharathi, D., Das, S.S., Kumar, D. and Ilangovan, C. (2014). Occurrence of *Schistosoma nasale* infection in bullocks of Puducherry. *Journal of Parasitic Diseases*, **38**(2):238–240.

Muraleedharan, K., Kumar, S.P. and Hegde, K.S. 1976. Studies on the epizootiology of nasal schistosomiasis of bovines, intensity and severity of infection. *Mysore Journal of Agricultural Sciences*, **10**(3):463–470.

Ravindran, R. and Kumar, A. (2012).Nasal schistosomiasis among large ruminants in Wayanad, India. *The South East Asian Journal of Tropical Medicine and Public Health*, **43**(3):586.

Soulsby, E.J.L. (1982). Helminths, Arthropods and Protozoa of Domesticated Animals, 7th Edn. Bailliere Tindall Ltd, London.

Sumanth, S., D'Souza, P.E. and Jagannath, M.S. (2004). A study of nasal and visceral schistosomiasis in cattle slaughtered at an abattoir in Bangalore, South India. *Revue scientifique et technique (International Office of Epizootics)*, **23**(3): 937-942.

Yogeshpriya, S., Saravanan, M., Jayalakshmi, K., Veeraselvam, M., Krishnakumar, S. and Selvaraj, P. (2017). Nasal schistosomiasis in cattle-A clinical case report. *International Journal of Science, Environment and Technology*, **6**(2): 1071-1074.