

Atypical clinical manifestations in cattle infected with *Schistosoma nasale*

Sirigireddy Sivajothi¹ and Bhavanam Sudhakara Reddy²

Sri Venkateswara Veterinary University, Andhra Pradesh, India.

¹Department of Veterinary Parasitology

²Department of Veterinary Medicine

College of Veterinary Science, Proddatur-516360

Abstract

Present communication reports the neurological manifestations as head shaking in cattle with *Schistosoma nasale* infection. Cattle showed bilateral nasal discharges, dyspnoea and head shaking with flipping of head, rubbing of muzzle on the objectives. Nasal scrapings examined under a microscope revealed distinctive boomerang shaped eggs with a terminal spine, confirming the diagnosis of *Schistosoma nasale* infection. The cattle were treated with three injections of anthiomaline in combination with symptomatic and supportive medications. Clinical improvement was observed by the tenth day of treatment, and the head shaking resolved completely.

Keywords: Cow, *Schistosoma nasale*, Nervous signs, Anthiomaline

Introduction

The blood fluke *Schistosoma nasale*, a snail-borne trematode infection in cattle, is the cause of nasal schistosomiasis. In cattle, it causes the development of nasal granulomas and snoring disease (Bulbul *et al.*, 2017). Several reports are available in various parts of India with *S. nasale* infection and reported the signs of serous to mucopurulent nasal discharge, epistaxis, sneezing, dyspnoea, and snoring. The nasal cavity may develop small abscesses and nasal granulomas during the chronicity (Kotle *et al.*, 2012; Yogeshpriya *et al.*, 2018). Reports of nervous signs associated with this disease are very limited (Mouli and Christopher, 1993).

Case History and Observations

The Mega Animal Health Camp in Reddyvari Palli Village, Chinnmandem Mandal, YSR district of Andhra Pradesh, featured adult crossbred cattle exhibiting symptoms of bilateral nasal discharges. Congested conjunctival mucous membranes, parotid lymphadenopathy, dyspnoea, inspiratory distress, and sporadic head shaking with flipping of head, rubbing of muzzle on the objectives were observed (Fig.1). Samples of whole blood, serum, nasal scrapings, urine, and dung were collected. Stained blood smears and wet blood film analysis revealed no haemoprotozoan diseases. No parasitic ova were found in dung samples. Serum glucose levels (83 mg/dL) were within acceptable range, and a dipstick analysis of the urine revealed no

ketone bodies. The nasal scrapings examined under a microscope, revealed a boomerang shaped eggs with a terminal spine of *Schistosoma nasale* eggs (Fig. 2) and a fully developed miracidium inside the eggs (Fig. 3).

Treatment and Discussion

Treatment included administration of anthiomaline (lithium antimony thiomalate, 15 ml deep IM, at weekly interval for three weeks), flunixin meglumine (@ 1.5 mg/kg body weight I/M), oxytetracycline (@ 7.5 mg/kg body weight I/M, BID), and oral supplementation with immune-modulatory herbal syrup (Restobal @ 50 ml BID) for five days. Cattle showed clinical improvement by altered respiration by the fifth day of therapy and disappearance of head shaking on tenth day of therapy.

Cattle may develop noticeable growths, congestion, epistaxis, and unilateral or bilateral miliary/cauliflower-like nasal granulomas during the pathophysiology of infection (Ravindran and Kumar, 2012). The rhinoscopy diagnostic process revealed the extent of closely spaced lesions blocking the nostrils. Seromucoid nasal discharge and blood-tinged mucopurulent nasal discharge were typical clinical symptoms displayed by positive cattle (Ponnuswamy *et al.*, 2016). Paresis, lameness, limb and lower jaw oedema, recurrent tympany, purulent bilateral conjunctivitis, and respiratory distress are some of the uncommon clinical manifestations that Mouli and Christopher (1993) noted in buffaloes. In the present study, to rule out neurological

*Corresponding author: bhavanamvet@gmail.com

signs, a blood examination was conducted, which tested negative for haemoprotozoan diseases. Additionally, there was no indication of hypoglycemia, and urine analysis revealed the absence of ketone bodies.



Fig.1 Cattle showing the nasal discharges

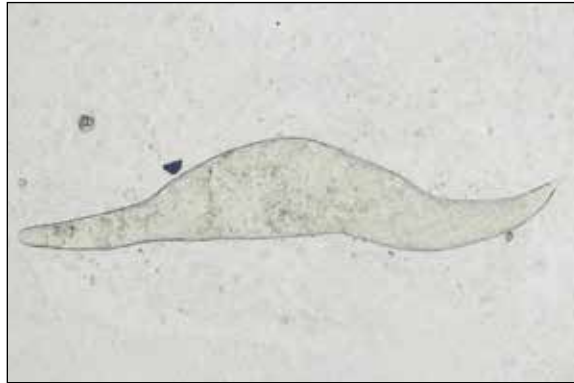


Fig.2. Microscopic examination of nasal scrapings – Presence of *Schistosoma nasale* egg (400x)



Fig.3. Microscopic examination of nasal scrapings – Presence of *Schistosoma nasale* egg with matured miracidium (400x)

Cattle that have a chronic *Schistosoma nasale* infection may develop squamous cell metaplasia, a buildup of inflammatory cells, inflammation surrounding parasitic eggs, and vein congestion in the afflicted areas. Similar to trigeminal neuralgia in humans, the head

shaking observed in the present cases may involve the ophthalmic branch and maxillary portion of the trigeminal nerve. According to the available literature, neurological signs have been reported in one study involving buffaloes, but no additional documentation has been found.

Conclusions

It is recommended that cattle showing nervous signs of head shaking to be screened for the *Schistosoma nasale* infection, especially in geographical areas with a high snail population.

References

- Bulbul, K.H., Das, M., Islam, S., Sarmah, P.C., Tamuly, S., Borah, P. and Hussain, J (2017). Prevalence of nasal schistosomosis in cattle of Kamrup district of Assam, India. *Vet. Pract.*, **18**, 213-215.
- Kolte, S.W., Kurkure, N.V., Maske, D.K. and Khatoon, S. (2012). Prevalence of *Schistosoma nasale* infection in bovines from eastern Vidharbha (Maharashtra) vis-à-vis infection in *Indoplanorbis exustus*. *Vet. Parasitol.*, **26**, 140-143.
- Mouli, S.P. and Christopher, J. (1993). Some unusual clinical manifestations associated with *Schistosoma nasalis* infection in buffaloes. *Buffalo Bull*, **12**, (1) 3-6.
- Ravindran, R. and Kumar, A. (2012). Nasal schistosomiasis among large ruminants in Wayanad, India. *Southeast Asian J Trop Med Public Health*, **43**, 586-588.
- Ponnuswamy, K.K., Sivaraman, S., Venkatesakumar, E., Sivaseelan, S. and Vijayakumar, G. (2016). Rhinoscopic diagnosis of nasal schistosomiasis and its medical management in a cow. *Indian Vet. J.*, **93**(6), 33-35
- Yogeshpriya. S., Veerselvan, M., Jayalaksmi, K., Krishna Kumar, S. and Selvaraj, R. (2018). Epidemiology and clinical features of naturally occurring nasal schistosomiasis. *Indian Vet. J.*, **95**(3), 81-82.