

FIRST REPORT OF NASAL SCHISTOSOMOSIS IN A CROSSBRED COW IN HARYANA

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SUMMARY

A case of nasal schistosomosis was observed in a crossbred cow in the village Ambwala, district Panchkula, Haryana. The cow had granulomas on dorsal side of both the nasal cavities with snoring sound and increased nasal discharge. Microscopic examination of nasal discharge confirmed the presence of *Schistosoma nasale* eggs. This is the first report of 'snoring disease' from Haryana. Since the snails *Indoplanorbis exustus*, the intermediate host, are common in Haryana; the disease might emerge as a major problem in the eastern part of Haryana where environmental conditions are conducive for snails.

Key words: Cattle, Haryana, *Schistosoma nasale*

Nasal schistosomosis, caused by *Schistosoma nasale*, is characterised by the presence of cauliflower like nasal granuloma in the nasal cavity and snoring sound in cattle and buffaloes. The disease results in laboured breathing and nasal discharge. Adult flukes are found in the blood vessels of the nasal mucosa, but the main pathogenic effects are caused by the eggs leading to formation of abscess in the mucosa. The abscesses rupture and release eggs and pus into the nasal cavity, which eventually leads to extensive fibrosis. In addition, large granulomatous growths are common on the nasal mucosa and occlude the nasal passages causing dyspnea. The adult *S. nasale* causes "snoring disease" in cattle and remains symptomless in buffaloes though extruding its eggs in nasal discharge. The intermediate host of *S. nasale* is *Indoplanorbis exustus* which is widely prevalent throughout Indian subcontinent (Agrawal and Alwar, 1992; Agrawal, 2012). The nasal schistosomosis was reported for the first time from Madras and later on reported from West Bengal (Alwar, 1956), Karnataka (Muraleedharan *et al.*, 1976; Sumanth *et al.*, 2004), Maharashtra (Bhilegaonkar *et al.*, 1977), Bihar (Sahay and Sahai, 1978), Andhra Pradesh (Sreeramulu, 1982), Uttar Pradesh (Bhatia and Rai, 1983), Madhya Pradesh (Banerjee and Agrawal 1991), Kerala (Ravindran and Kumar 2012) and other parts of India as reviewed by Agrawal and Alwar (1992) and Agrawal (2012).

In March, 2015, a crossbred cow of four and a half year old was reported with snoring sound and increased nasal discharge from Ambwala village of Panchkula district, Haryana. Clinical examination of

the cow revealed the presence of granuloma like growth in both the nasal cavities. As the animal was suspected of nasal schistosomosis (with no previous report from the state) the nasal discharge was collected in 2% saline for immediate screening and subsequently in 10% NaOH for confirmation after digestion of the nasal mucosa. On microscopic examination of the nasal secretions, presence of the typical egg (Fig. 1) having boomerang shape and a spine at one end was observed thus confirming the disease as nasal schistosomosis.

The Ambwala village is located on the bank of river Ghaggar with a lot of water ditches in the adjacent areas with wild grass and other vegetation growth making the area congenial for the growth and maintenance of the snail. The animal shed where the suspected cow was kept was typical of that area. The animals were kept in open, under trees and in a room with thatched roof. It was a small holder dairy unit with five crossbred cows and two buffaloes. The 4½ years old diseased cow was in lactation, having average health and around 250 Kilogram b wt. The animals were allowed to graze and visit the water bodies during morning and evening hours of the day.

The examination of the cow showed one large nasal granuloma of approximately 0.5 cm diameter on the dorsal surface of each nasal cavity (Fig 2). There was muco-sanguineous nasal discharge along with laboured breathing. The breathing sound was audible during day time which increased in volume during late evening and early morning hours of the day as reported by the animal owner. The cow was purchased about two years ago from a nearby village of district Panchkula. The owner reported the presence of nasal sound for the

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Fig. 1. Egg of *Schistosoma nasale* (X 400)



Fig. 2. Granuloma of the nasal cavity associated with *Schistosoma nasale* infection

last six months and also reported the increase and decrease in number and size of the nasal granulomas with time. History revealed absence of such signs or symptoms in other animals in the area/village. The nasal secretions collected from the surrounding three cattle and two buffaloes were also found to be negative on microscopic examination.

Praziquantel (25mg/ kg body weight) is drug of choice but it is uneconomical to use in cattle and buffaloes. Anthiomaline is another common drug used for nasal schistosomosis but relapse is common. Agrawal (2012) reported that triclabendazole (20 mg/ kg body weight) can cure symptoms of snoring disease quite economically as compared to praziquantel. The animal was administered triclabendazole suspension @ 20 mg/ kg b wt (Fasinex, Novartis) orally for the treatment and followed for a month. The owner reported improvement in the snoring sounds after the treatment but it was temporary. No further treatment was attempted after that as the owner did not turn up.

The first report of *S. nasale* infection in Haryana is epidemiologically very significant as the snail-borne trematode diseases always try to increase their geographical area as reported in *Bivitellobilharzia nairi* from elephants in Kanha National Park, Madhya Pradesh, India (Singh and Agrawal, 2000). Given the abundant presence of the *I. exustus* snail in Haryana, the disease may emerge as a major problem in the eastern part of Haryana where environmental conditions are more conducive for snails. The situation demands a detailed investigation in terms of quantum of natural infection present in the area and management of the disease.

REFERENCES

- Agrawal M.C. (2012). Schistosomes and schistosomiasis in South Asia. Springer (India) Pvt Ltd, New Delhi.
- Agrawal M.C. and Alwar V.S. (1992). Nasal schistosomiasis : A review. *Helminth. Abstr.* **61**: 373-384.
- Alwar, V.S. (1956). Nasal granuloma in the state of West Bengal. *Indian Vet. J.* **33**: 254-255.
- Banerjee, P.S. and Agrawal, M.C. (1991). Prevalence of *Schistosoma nasale* Rao 1933 at Jabalpur. *Indian J. Anim. Sci.* **61**: 789-791.
- Bhatia, B.B. and Rai, D.N. (1983). A note on the incidence of nasal schistosomiasis in cattle and buffaloes in Uttar Pradesh. *Indian Vet. Med. J.* **7**: 117-119.
- Bhilegaonkar, N.G., Banras, M.A. and Sardey, M.R. (1977). Some incidence of nasal schistosomiasis in Maharashtra. Proceedings of the 1st National Congress of Parasitology, Baroda, 43-44.
- Muraleedharan, K., Kumar, P., Hegde, K.S. and Alwar, V.S. (1976). Studies on the epizootiology of nasal schistosomiasis of bovines 1. Prevalence and incidence of infection. *Mysore J. Agri. Sci.* **10**: 105-117.
- Ravindran, R. and Kumar, A. (2012). Nasal schistosomiasis among large ruminants in Wayanad, India. *Southeast Asian J. Trop. Med. Pub. Hlth.* **43**: 586-588.
- Sahay, M.N. and Sahai, B.N. (1978). Studies on the susceptibility of the laboratory animal, kid and lambs to experimental infection with *Schistosoma nasale* Rao, 1933. *J. Parasitol.* **64**: 1135-1136.
- Singh, K.P. and Agrawal, M.C. (2000). Kanha National Park becomes new endemic focus for elephant schistosomiasis. *J. Bombay Nat. Hist. Soc.* **97**: 420-422.
- Sreeramulu, P. (1982). Some epidemiological observations on nasal schistosomiasis in Andhra Pradesh. *Livestock Adv.* **7**: 47-48.
- Sumanth, S., D'Souza, P.E. 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. Int. Epiz.* **23**: 937-942.