Open Access

Check for updates

Short Communication

Journal of Veterinary and Animal Sciences
ISSN (Print): 0971-0701, (Online): 2582-0605
https://doi.org/10.51966/jvas.2025.56.3.544-546

Occurrence of amphistomosis in wild ruminants in The Nilgiris, Tamil Nadu, India

M. Aravind[1], K. Jeeva[1], B. Nishanth[2], K. Rajesh Kumar[3], S.T. Bino Sundar[1*] and P.N. Richard Jagatheesan[4]

[1]Department of Veterinary Parasitology, Veterinary College and Research Institute, Theni, Tamil Nadu Veterinary and Animal Sciences University, Madhavaram Milk Colony, Chennai- 600 051, Tamil Nadu, India. [2]Directorate of Research, Tamil Nadu Veterinary and Animal Sciences University, Madhavaram Milk Colony, Chennai- 600 051, Tamil Nadu, India. [3]Forest Veterinary Assistant Surgeon, Forest Veterinary Dispensary, The Nilgiris, Tamil Nadu, India. [4]TANUVAS Regional Research and Educational Centre, Pudukottai, Tamil Nadu, India.

Citation: Aravind, M., Jeeva, K., Nishanth, B., Kumar, K.R., Sundar, S.T.B. and Jagatheesan, P.N.R. 2025. Occurrence of amphistomosis in wild ruminants in The Nilgiris, Tamil Nadu, India.
J. Vet. Anim. Sci. **56** (3):544-546

Received: 12.06.2025 Accepted: 11.07.2025 Published: 30.09.2025

Abstract

A systematic study on the occurrence of amphistomosis in wild ruminants observed during post mortem examination in the Nilgiris district of Tamil Nadu, India was undertaken. A total of 14 wild ruminants comprising of eight Indian gaurs, five sambar deers and one spotted deer were screened during the fourteen months period from December 2023 to January 2025. During post mortem examination a total of 201 amphistomes were collected, labelled and processed as per standard procedures. The amphistomes were morphologically identified as Cotylophoron cotylophorum which were pear shaped and featured by tandem testes, a distinct genital sucker surrounding the genital pore and a large ventral sucker. The dimensions of amphistomes measured were found to be 6-12 mm in length and 2-5 mm in width. The present observations on the occurrence of amphistome infection in large numbers will be important to frame strategies for control of amphistomes in these animals.

Keywords: *Occurrence, Cotylophoron cotylophorum, wild ruminants, The Nilgiris*

Parasites cause a multitude type of problems for these wild animals causing morbidity and mortality (Thawait *et al.,* 2014). The parasitic infection may negatively influence the health of the animals (Bhaydiya *et al*., 2021). One of the common trematode infections affecting wild ruminants is amphistomosis (Pfukenyi and Mukaratirwa, 2018). Amphistomes, commonly referred to as 'stomach' or 'rumen' flukes because of the localization of these flukes in the stomach of ruminants, are digenetic trematodes distinguished by a fleshy body structure, pink or red with a large posterior sucker. They have a typical trematode life cycle and various species of snails (*Planorbis, Bulinus, Indoplanorbis, Galba, Lymnaea, Gyraulus* etc.) act as intermediate hosts (Soundararajan *et al*., 2018; Tandon *et al*., 2019). Infection is acquired by ingestion of metacercaria along with herbage during grazing.

Corresponding author: microfilbino@gmail.com, Ph: 9884798320

Paramphistomes in domestic and wild ruminants are distributed word wide, particularly in Australia, Africa, and India (Rolfe *et al*., 1991; Lotfy *et al*., 2010; Maitra *et al*., 2014; Pfukenyi and Mukaratirwa, 2018). Among the 80 paramphistomes, *Cotylophoron cotylophorum*, *Paramphistomum cervi* and *Gastrothylax crumenifer* have been commonly reported in wild ruminants in India, of which *P. cervi* causes mortality in sambar deer and spotted deer (Arora, 2003). Soundararajan *et al*. (2024) identified *Cotylophoron cotylophorum* and *Fischoederius elongatus* from the rumen of cervids in The Nilgiris, Tamil Nadu. Sibula *et al*. (2024) recorded a total of 38 amphistome species from the wild ruminant species, belonging to the Bovidae family in Africa. The present study was undertaken to investigate the occurrence of amphistomosis in wild ruminants in the Nilgiris district of Tamil Nadu, India.

A total of 14 wild ruminants comprising of eight Indian Gaurs, five Sambar deers and one spotted deer were screened during the fourteen months study period from December 2023 to January 2025 during post mortem examination. All flukes were recovered and despatched to the Department of Veterinary Parasitology, Veterinary College and Research Institute, Theni for processing and species identification. The flukes from different wild ruminants were counted separately and recorded. The flukes were flattened, stained with Borax Carmine Aqueous (Grenacher's) stain, processed and mounted in DPX mountant and examined under stereoscope and light microscope and morphological characteristics were recorded.

The amphistomes recovered from the wild ruminants were identified as *Cotylophoron cotylophorum* morphologically. Fresh worms were pink in colour resembling pomegranate seeds and were pear shaped. The dimensions were length 6-12 mm and width 2-5 mm. Microscopical features after staining revealed tandem testes, a distinct genital sucker surrounding the genital pore and a large ventral sucker (Fig. 1).

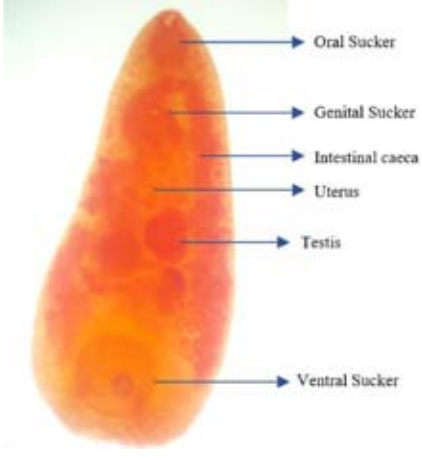

Fig. 1. *Cotylophoron cotylophorum* fluke stained with Borax Carmine and mounted in DPX

Out of 14 wild ruminants comprising of eight Indian Gaurs, five sambar deers and one spotted deer, infection with amphistomes was observed in three animals (One Indian Gaur, one sambar deer and one spotted deer). Amphistomes are widely distributed in various species of ruminants (Sibula *et al*., 2024; Soundararajan *et al*., 2024) and very frequently they can be encountered in the environment. However, in this case the amphistomes were recovered in only three animals. Out of the three infected wild ruminants, two were males and one was a female, two were below five years and one was above five years of age.

The presence of amphistomes in grazing cattle and wild gaurs in the Mudumalai wildlife sanctuary were recorded and supported the evidence of cross transmission to wild ruminants in the forest areas (Mandal *et al*., 2002; Vimalraj *et al*., 2014; Allwin *et al*., 2016). In this study, the areas from which the animals were reported falls under the broader area of Mudumalai National Park and various gastro-intestinal parasites are commonly present in many wild ruminants inhabiting there.

Domestic and wild animals share the same type of parasites due to common grazing areas and watering areas. However, the intensity of infection varies due to multiple reasons. Rainfall and type of climate also influences the parasitic load. In the Nilgiris forest region, the tannin content of trees and their leaves acts as a natural anthelminthic, reducing the parasite burden. This could also be the cause for the low occurrence in this study. The results of the present study demonstrates that amphistome infection with *Cotylophoron cotylophorum* occurs in wild ruminants in The Nilgiris, Tamil Nadu observed over a period of fourteen months.

Summary

The present data records the occurrence of amphistome infection in wild ruminants in the Nilgiris, Tamil Nadu. The present study will help zoologists, veterinarians, parasitologists and allied professionals for understanding amphistome infection in wild ruminants and to design suitable control strategies which will be highly essential for the development of disease control campaigns in wild ruminants in future.

Conflict of interest

The authors declare that they have no conflict of interest.

References

Allwin, B., Balakrishnan, S., Kumar, N.V., Jayathangaraj, M.G., Vedamanickam, S. and Gopal, S. 2016. Prevalence of Gastrointestinal Parasites in Gaur (*Bos gaurus*) and Domestic Cattle at Interface

Zones of the Nilgiri Hills, Tamil Nadu, India. *J. Vet. Sci. Technol*. **7**: 280.

Arora, B.M. 2003. Indian wildlife diseases and disorders, Association of Indian zoo and wildlife veterinarians, Bareilly. 606p.

Bhaydiya, N., Rokde, A., Singh, K.P., Sharma, V., Sharma, G. and Kumar, S. 2021. Ecology of gastrointestinal parasites interactions in wild Gaur (*Bos gaurus*). *J. Anim. Res.* **11**:217-221.

Lotfy, W.M., Brant, S.V., Ashmawy, K.I., Devkota, R., Mkoji, G.M. and Loker, E.S. 2010. A molecular approach for identification of paramphistomes from Africa and Asia. *Vet. Parasitol.* **174**: 234–240.

Maitra, A., Yadav, C.L. and Sanjukta, R.K. 2014. Seasonal prevalence of paramphistomosis in domestic ruminants in different agro-climatic zones of Uttarakhand, India. *Asian Pac. J. Trop. Dis.* **4**: 748-753.

Mandal, P., Jayathangaraj, M.G., John, L., Latha, B.R. and Raman, M. 2002. Prevalence of helminthic infection in free ranging chital (*Axis axis*) at Mudumalai Wildlife Sanctuary, Tamil Nadu. Proceedings of the XIII National Congress of Veterinary Parasitology, Kolkata pp. 14-16.

Pfukenyi, D.M. and Mukaratirwa, S. 2018. Amphistome infections in domestic and wild ruminants in East and Southern Africa: A review. *Onderstepoort J. Vet. Res.* **85**: 1584.

Rolfe, P.F., Boray, J.C., Nichols, P. and Collins, G.H. 1991. Epidemiology of amphistomosis in cattle. *Int. J. Parasitol.* **21**:813–819.

Sibula, M.S., Nyagura, I., Malatji, M.P. and Mukaratirwa, S. 2024. Prevalence and geographical distribution of amphistomes of African wild ruminants: A scoping review. *Int J. Parasitol. Parasites Wildl.* **23**:100906.

Soundararajan, C., Komathi, A., Prabhu, K.P., Rajeshkumar, K., Krishnamoorthy, M., Geetha, K.K. and Azhahianambi, P. 2024. Cataloging of helminths and ectoparasites on wild cervids in Tamil Nadu, India (unpublished data).

Soundararajan, C., Venkatesan, R. and Nagarajan, K. 2018. Prevalence of snails in north eastern and hilly zones of Tamil Nadu, India. *Int. J. Zool. Stud.* **3**: 29-32.

Tandon, V., Roy, B., Shylla, J.A. and Ghatani, S. 2019. Amphistomes. In: Toledo, R., Fried, B. (Eds.), Digenetic Trematodes. *Adv. Exp. Med. Biol*. **1154**: 365–392.

Thawait, V.K., Maiti, S.K. and Dixit, A.A. 2014. Prevalence of gastro-intestinal parasites in captive wild animals of Nandan Van Zoo, Raipur, Chhattisgarh. *Vet. World.* **7**: 448-451.

Vimalraj, P.G., Jayathangaraj, M.G., Sridhar, R., Senthilkumar, T.M. and Latchumikanthan, A. 2014. Endoparasites in cattle nearby tribal areas of free-ranging protected areas of Tamil Nadu state. *J. Parasit. Dis.* **38**: 429-431. ■