



STUDIES ON THE INCIDENCE AND NATURE OF AMPHISTOME INFECTION IN SNAILS

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ABSTRACT

In all 17,074 specimens of snails belonging to the following seven species (*Melania* (T.) *lineatus* (Muller), *M. (T.) tuberculatus* (Muller), *Lymnaea luteola* Lamarck, *L.auricularia*(Draparnaud), *Indoplanorbis exustus*(Deshayes), *Gyraulus convexiusculus* (Hutton), *Bulimus pulchellus* (Benson)) were collected and examined. During the present survey, out of 17,074 snails examined only 190 snails, i.e. 1.11% were found to be positive for amphistome infection; and 862 snails, i.e. 5.04% were found positive for cercariae of other trematodes.

KEYWORDS : Amphistomes, Trematodes, Snails, Incidence.

INTRODUCTION

Domestic animals are most important to the economy of a country in form of milk industry, food industry, leather industry and their byproducts. The amphistomataous parasites of these animals play a vital role in form of heavy economic loss to the country due to poor health heavy mortality of such animals caused by the heavy infection of these amphistomes in adult as well as immature forms. Large numbers of trematodes have been reported from Indian cattle, buffaloes, sheep, goats and other domestic animals. The amphistomes are the most common termatodes which cause heavy mortality among the livestock. Therefore the present study was undertaken on the occurrence of adults and larval amphistomes in aquatic snails.

MATERIAL AND METHODS

Snails were collected mainly in the morning hours from various sources. They were sorted out, counted and examined for amphistome cercariae and other trematode infection on the same day, using Leiper's (1915) Test-tube technique. A Survey of the incidence and nature of amphistome infection in aquatic snails in Etah District (U.P.) was carried out for a period of 36 months. i.e. from October, 2000 to September, 2003.

RESULTS AND DISCUSSION

In all 17,074 specimens of snails belonging to the following seven species were collected and examined. *Melania* (T.) *lineatus* (Muller), *M. (T.) tuberculatus* (Muller), *Lymnaea luteola* Lamarck, *L.auricularia*(Draparnaud), *Indoplanorbis exustus*(Deshayes), *Gyraulus convexiusculus* (Hutton), *Bulimus pulchellus* (Benson). Small number of the following species of snails were also examined but they were found to be negative for amphistome infection except to snail marked (*) which was found infected only once for *Cercaria bansipurensis* n.sp *Cyclophorus* (Litostylus) *involutus* (Muller), *Vivipara bengalensis* (Lamarck), *V. dissimilis* (Muller), *Pila globosa* (Swainson), *Pila sp.*, **Helicorbis coenosus* (Benson), *Lamellidens marginalis* (Lamarck).

INCINCE OF AMPHISTOME INFECTION IN AQUATIC SNAILS

During the present survey, out of 17,074 snails examined only 190 snails, i.e. 1.11% were found to be positive for amphistome infection; and 862 snails, i.e. 5.04% were found positive for cercariae of other trematodes (Table 1).

Out of 2, 910 specimens of *B. pulchellus*, only 12 (i.e. 0.41%) were found positive for amphistome infection, while 103 (i.e. 3.53%) were found to be infected with other tematodes. Jain (1976) reported 0.45% amphistome infection in *B. pulchellus* in Bareilly district (U.P.)

Out of 6,942 specimens of *G. convexiusculus*, 39 (i.e. 0.56%) were found positive for amphistome infection and 153 (i.e. 2.2%) for other trematode larvae. Singh (1958) observed a very high incidence of *Giganocotyle explanatum* in *G. convexiusculus*. Singh and Malaki (1963) reported 61.5% amphistome infection in *G. conexusculus*

from Kumaon hill. Jain (1976) reported only 0.58% snails of *G. convexiusculus* species harbouring amphistome infection and 2.8% snails were found infected with the infection of other trematodes in Bareilly district (U.P.)

Out of 1,739 *I. exustus* examined, 121 (i.e. 6.95%) were found to harbor amphistome infection and 288 (i.e. 16.56%) were infected with other trematodes. Sewell (1922) recorded that in the Calcutta area trematode infection in *I. exustus* varied from 0.5-44.2% while in the Wynaad area it ranged from 0.0-50% Varma (1954) recorded much lower trematode infection in *I. exustuss* in Bihar.

Out of 333 *L. luteola*, only 18 specimens (i.e. 5.4%) were found infected with amphistome cercariae, and 33 (i.e. 9.9%) were positive for other trematode infections, Malaki (1960) reported 32.4% infection of distome cercariae in *L. luteola* of Kumaon hills. Sahai (1967) found 5.80% of *L. luteola* positive for larval trematodes. Jain (1976) recorded 5.9% snails infected for amphistomes and 10.7% for other trematodes.

Out of 3,440 specimens of *L. auricularia* examined during the present survey. None was found positive for amphistome infection, but 258 (i.e. 7.5%) were found to harbor infections of other trematodes. Sewell (1922) recorded 33.3% and 16.6% infections in *L. acuminata* from Manipore and Assam, respectively, Bhalerao (1933) found that 40-60% *L. acuminata* (= *L. auaricularia*) were infected with *Fasciola gigantica* in Almora (Uttar Pradesh), Sahai(1967) reported that 9.13% *L. auricularia* were infected with larval trematodes. Jain (1976) found no amphistome infection but reported that 8.8% snails were harborin infection of other trematodes in Bareilly district.

Table-1 Incidence of amphistome and other trematode in snails

Snails species	No. of Snails examined	Total no. of infected snails	Percentage of total infection	Positive for amphistome infection		Positive for other trematode infection	
				No. of snails	Percentage	No. of snails	Percentage
<i>B.pulchellus</i>	1910	115	3.94	12	0.41	103	3.53
<i>G.convexiusculus</i>	6942	192	2.76	39	0.56	153	2.20
<i>I.exustus</i>	1739	409	23.5	121	6.95	288	16.56
<i>L.luteola</i>	333	51	15.31	18	5.4	33	9.9
<i>L.auricularia</i>	3440	258	7.5	-	-	258	7.5
<i>M.lineatus</i>	787	20	2.54	-	-	20	2.5
<i>M.tuberculatus</i>	923	7	0.75	-	-	7	0.75
Total	17074	1052	6.16	190	1.11	862	5.04

Out of 787 *Melania* (T.) *lineatus* examined, not a single specimen was found positive for amphistome infection, but 20 (i.e. 2.54%)

specimens were found positive for other larval trematodes. Sewell (1922) reported 5.45% trematode infection in *M. lineatus* in the tank of the Zoological Garden, Calcutta, Sahai (1967) found 1.64% *M.(T.) lineatus* positive for larval trematodes. Jain (1976) found no amphistome or other trematode infection in this snail.

Out of 923 *Melania (T.) tuberculatus* examined, only 7 specimens (i.e. 0.75%) were found positive for larval trematodes other than amphistomes. Sewell (1922) recorded 5.0 to 71.1% trematode infection in *M. tuberculatus* in India. Sahai (1967) recorded only 0.12% *M. (T.) tuberculatus* positive for larval trematodes. Jain (1976) reported only 1.1% infection of other trematode infection and no amphistome infection in this snail. No infection was found in *Pyla* spp. in the course of the present study.

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