

ON THE OCCURRENCE OF A LARVAL CESTODA (*GYMNORHYNCHUS* SPECIES) IN THE COELOM OF *PAMA PAMA* (HAMILTON, 1822) FROM THE RIVER PADMA AND MEGHNA

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Examination of 154 specimens of *Pama pama* from the rivers Padma and Meghna revealed the presence of a larval cestoda (*Gymnorhynchus* species) in the viscera. The incidence of the larvae was fairly common throughout the year (July 1966 to June 1969) but could not be correlated with the season. The infection intensity, however, was found slightly higher (3–3–7 worms per infected host) between June and November than that (1–3–2–6 worms per infected host) between December and May. Infestation by the parasite was never heavy and infected individuals looked healthy.

Pama pama is locally very common in the rivers of Padma and Meghna near Chandpur. The local name of this species is 'Poa'. It is fairly large fish (my largest specimen measuring 34.5 cm in length). Examination of this species revealed the presence of a larval cestoda (*Gymnorhynchus* sp.) in the coelom. The incidence of the larvae in cysts was fairly common throughout the year. Principal workers on cestodes from Indian fishes are Southwell^{1,2} Southwell and Prasad,^{3,4} Bhalerao,⁵ Rao,⁶ Singh,⁷ Subhadrappa,⁸ Subramanian^{9,10} Verma,^{11,12} Woodland¹³ and others. Although the occurrence of this larva was reported earlier^{1,2} from the mesentery of the fish *Arius gagora*, their incidence and infection intensity were not recorded. The present paper is intended to describe the incidence and infection intensity of the larva in the host and to determine if a seasonal variation exists in its incidence and intensity.

Materials and Methods

Fish specimens were usually collected in each month from the landing centre and occasionally from the fish markets at Chandpur. A total of 154 specimens were examined during July, 1966 to June, 1967. Samples of fish in the collection were examined. The specimens were dissected and the viscera were examined carefully. The larvae were collected and complete counts were made in all the cases. The cestodes were found to evert the scolex spontaneously when left in a dish of tap-water in a few hours time. The identification was based on the characters of the scolex, bothria etc. Identification up to generic level was done after Southwell^{1,2} and Yamaguti.¹⁴ A number of specimens of the organism were stained by the precipitated borax-carmin method and mounted in Canada balsam. The percentage of incidence and intensity of infestation was recorded month-wise. The data on their month-wise incidence and intensity were analysed statistically to ascertain the possible seasonal variation.

Results

Of the 154 specimens of *Pama pama* examined, only 98 were found infested with the larval form of (*Gymnorhynchus* species) on the viscera on Coelom. The larvae were mostly encysted and in some instances they were found free in the viscera. The cysts are long, milky white and tadpole-shaped measuring from 20–40 mm length and 1.5–3.0 mm breadth. The head of the cyst which houses the larva measures from 3–6 mm in length and 2–3 mm in breadth. These cysts when left in a dish of tap-water exhibit movements and within a short time the larvae become unencysted and show vigorous movement of the scolex. The free unencysted larva and its attached blastocyst when extended fully measures from 40–70 mm in length and, in reality, is the plerocercoid stage of the parasite. The structure of the cyst, the unencysted larva and the details of the proboscides and bothria of *Gymnorhynchus* species are shown in Fig. 1.

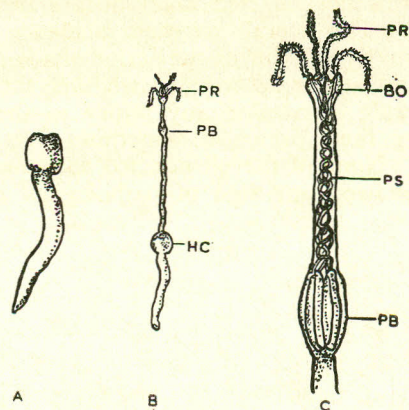


Fig. 1.—The structure of the cyst, unencysted larva and the details of the proboscides and bothria of *Gymnorhynchus* species in *Pama pama*. A—Cyst; B—unencysted larva with attached be as to cyst; C—scolex of the larva showing proboscides and bothria; PR—proboscides; BO—bothria; PS—proboscis sheath; PB—proboscis bulb; HC—Head of the cyst.

TABLE 1.—INCIDENCE AND INFECTION INTENSITY OF LARVAL CESTODA (*Gymnorhynchus* species) IN PAMA PAMA FROM JULY 1966 TO JUNE 1967.

Month of observation	No. of specimen examined	% of incidence	Infection intensity
July	16	100.00	3.70
August	12	75.00	3.66
September	16	62.50	3.30
October	8	37.50	3.30
November	12	83.80	3.40
December	17	58.80	2.40
January	8	75.00	1.33
February	10	50.00	2.20
March	12	50.00	2.50
April	22	45.40	2.10
May	9	100.00	2.55
June	12	33.30	3.50

The highest number of larvae collected from one individual was 9 during July 1966. The infection intensity of the larvae varied between 1.33–3.70 in different months of observation. The incidence of the larvae varied between 33.3–100% in different months. The percentage of incidence and infection intensity of the larvae from July 1966 to June 1967 are shown in Table 1.

Discussion

Statistical analysis of the data did not reveal any correlation between the season and the percentage of incidence of the larva in the coelom of the specimens examined. But the infection intensity showed a particular pattern i.e. the same was observed higher (3.3–3.7 worms per infected host) during June to November and lower (1.3–2.6 worms per infected host) during December to May. The overall average incidence of the larvae was 63.5% during the period of observation.

It could not be ascertained whether the larvae are capable of causing any injury to the host's tissue by their presence, sometimes free in the coelom. None of the 98 infected specimens examined showed any sign of pathological distress.

The eversible proboscides armed with hooks can certainly cause injury and damage to the tissue of the host, if the larva is unencysted and its proboscides are everted. During examination of viscera, however, none of the larvae with everted proboscides could be detected.

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References

1. T. Southwell, Ceylon J. Sci., **15**, 41 (1929).
2. T. Southwell, *The Fauna of British India Including Ceylon and Burma. Cestoda* (Taylor and Francis, London, 1930), Vol. 1, p. 391
3. T. Southwell and B. Prashad, Record of Indian Museum, **15**, 77 (1918).
4. T. Southwell and B. Prashad, Record of Indian Museum, **15**, 1 (1920).
5. G.D. Bhalerao, J. Helminthol., **14**, 141 (1936).
6. K.H. Rao, Current Sci. (India), **23**(10), 333 (1954).
7. K.S. Singh, Indian J. Helminthol., **1**, 41 (1948).
8. C.K. Subhpradha, Indian J. Helminthol., **7**(2), 41 (1957).
9. K. Subramanian, Record Indian Museum, **41**, 131 (1939).
10. K. Subramanian, Record Indian Museum, **43**(3), 266 (1941).
11. S.C. Verma, *On a New Proteocephalid Cestoda from an Indian Freshwater Fish* (Allahabad University Studies, 1926), vol. 2, p. 353.
12. S.C. Verma, *Some Cestodes from Indian Fishes including Four Species of Tetrphyllidea and Revised Key to the Genus Accanthothrium* (Allahabad University Studies, 1928), vol. 4, p. 119.
13. W.N.F. Woodland, Parasitology, **16** 441 (1924).
14. S. Yamaguti, *Systema Helminthum, Cestodes of Vertebrates* (Interscience, New York, 1959), p. 1.