

**A New Species of Acanthocephala, *Mediorhynchus indicus* sp. n.,  
an Intestinal Parasite of Domestic Fowl,  
*Gallus gallus domesticus* in Kerala**

PANAMTHUNDIL VARGHESE GEORGE, ANTONY MATHAI NADAKAL,  
NAIR KUNJANPILLAI VIJAYAKUMARAN AND MUTHUSWAMI RAJENDRAN

(Received for publication; December 8, 1980)

**Key words:** *Mediorhynchus indicus* sp. n., fowl

### Introduction

While collecting helminth parasites of domestic fowl in Trivandrum area in an attempt to study seasonal variations in infection rate, four specimens of acanthocephalid worms, two males and two females, were obtained from the intestine of one of the birds. Examination of these worms revealed that they belonged to the genus *Mediorhynchus*.

Only three species of acanthocephalans have been recorded from galliform birds until now; *M. gallinarum* in India (Bhale-  
rao, 1937), *M. seleneis* in Africa (Harris,  
1973) and *Empodius* sp. in Celebes (Yama-  
guti, 1954). Schmidt and Kuntz (1977) re-  
vised the genus *Mediorhynchus* and con-  
sidered *Empodius* sp. the same as *M.*  
*gallinarum*. They also treated *M. selenge-  
sis* as a junior synonym of *M. gallinarum*.  
So far about 35 species of *Mediorhynchus*  
have been described from different regions.  
This paper is concerned with the descrip-  
tion of a new species under *Mediorhynchus*  
based on four specimens.

### Materials and Methods

The worms recovered from the intestine of the fowl were washed in 0.9% normal saline and kept under refrigeration till the proboscis became fully extended. The specimens were fixed in 70% ethanol. Paraffin sections of one female worm were taken at 8  $\mu$  thickness and stained in Harris' haematoxylin and eosin. The eggs were obtained from the body cavity of the gravid female. Whole mounts were also prepared using Harris' haematoxylin and eosin stains. Figures were drawn to scale using a camera lucida. Measurements are given in microns unless otherwise stated.

### Description

#### *Mediorhynchus indicus* sp. n.

Worms colourless. Pseudosegmentation apparent at the posterior part of worm. Sexual dimorphism well marked. Proboscis conical, truncate and divided into two regions: anterior part with hooks and posterior part with spines (Figs. 1, 2). Proboscis sac claviform and anterior part of which is double layered, inner wall being thick. Ganglion located in the middle part of the proboscis sac. Trunk cylindrical, spineless

Department of Zoology, Mar Ivanios College,  
Trivandrum-695015, Kerala, India.

and narrow posteriorly. Neck indistinct. In both sexes the proboscis armature consists of 14-17 longitudinal rows, each with 8-10 spines. First two and last four rows of hooks are 32-40 long. Third and fourth hooks of each row are 45-52 long. Spines similar in size and with cuticular papillae. Hook root elongate and 30-42 long. Main lacunar canals with lateral branches. Lemnisci double, equal, posterior part reflexed and extended beyond the proboscis sac. Genital pores terminal.

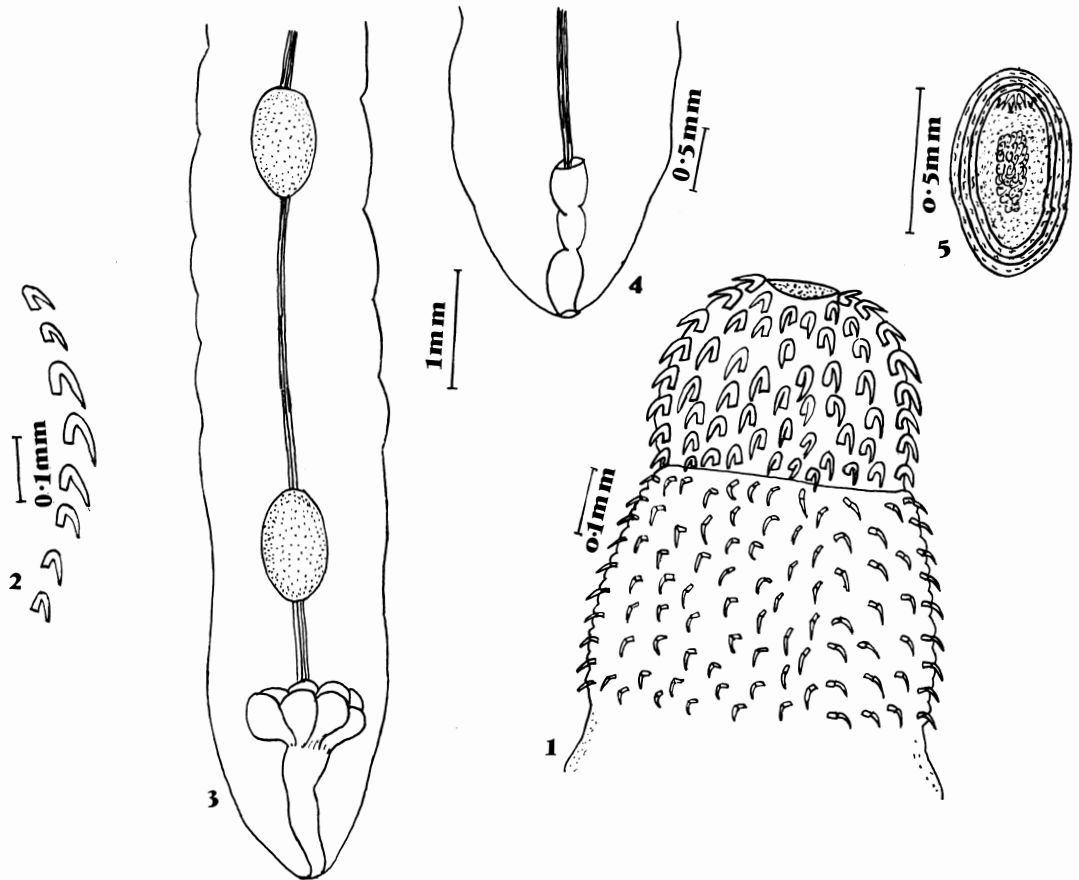
*Male:* (Measurements based on two specimens) Fig. 3.

Males measured 1.2-1.8×0.14-0.15 cm; proboscis 451-480×415-430; proboscis receptacle 1.3-1.34 mm×321-334; lemnisci

4.5-4.56 mm×430-462; testes 830-915×540-670; cement glands 320-336×270-300 and common genital duct 650-700×250-380. Testes equal, post-equatorial, tandem and ovoid. Testes separated from each other and from cement gland group. Cement glands eight, ovoid, equal and exist in a group. Genital ducts open to the ejaculatory duct. Bursa not observed.

*Female:* (Measurements based on two gravid females) Fig. 4.

Females measured 2-2.5×0.2-0.25 cm; proboscis 620-640×350-450; proboscis receptacle 1.3-1.35 mm×324-360; lemnisci 4.48-4.52 mm×452-470; uterine bell 320-340×310-325; uterus proper 240-260×290-312; vagina 480-512×420-446; eggs 72-76×



Figs. 1-5.

40–46 and embryos 50–56×25–30. Eggs with three shells and the middle one without polar prolongations (Fig. 5). Embryo armed with 6 hooks. Central nuclear mass distinct in the embryo.

Definitive host: *Gallus gallus domesticus*

Location: Ileo-caeco-colic junction

Locality: Trivandrum (Kerala)

Type specimens: Deposited in the Research Laboratory, Department of Zoology, Mar Ivanios College, Trivandrum.

### Discussion

The present species differs from *M. gallinarum* in having a proboscis with 14–17 longitudinal rows, each with 6–8 hooks and teloboscis with 25–28 rows, each with 8–10 spines. *M. gallinarum* measured 48×2.8 mm in contrast with 12–25×1–2.5 mm size of present species. *M. gallinarum* possessed a pair of long lemnisci while they are short and reflexed at the posterior extremities in the present species. Two pairs of paraproboscidal sacs have been described in *M. gallinarum* but they are not identified in the present species. Hooks of *M. gallinarum* were 50–66 long while in the present species they are smaller, being 32–52 long.

The new species agrees with *M. alecturae* (Johnston and Edmonds, 1947) in having equal and post-equatorial testes, pseudosegmentation, closely placed 8 cement glands and terminal genital pores; but no Saefftinger's pouch has been identified. The eggs of present species are smaller than those of *M. alecturae*. It also differs from *M. alecturae* in having smaller trunk, larger number of hooks and spines and in the absence of uterine pouches.

*M. centurorum* (Nickol, 1969) differs from the present species in having unequal testes and cement glands, smaller eggs, larger trunk, fewer number of hooks and spines. *M. wardi* (Schmidt and Canaris, 1967) differs from the present species in having

smaller sculptured egg shell.

The present species can be distinguished from other known species in having the proboscis with 14–17 longitudinal rows of 6–8 hooks and teloboscis with 25–28 rows of 8–10 spines, equal testes, smaller eggs and lemnisci with reflexed posterior end. It is therefore considered as a new species and given the name *Mediorhynchus indicus*.

### Summary

A new species of Acanthocephala, *Mediorhynchus indicus* sp. n. parasitic in domestic fowl is described. Proboscis of this worm is conical, armed with 14–17 longitudinal rows, each with 6–8 hooks and teloboscis with 25–28 longitudinal rows, each with 8–10 spines. Other distinguishing features of this worm are: comparatively larger proboscis hooks, smaller eggs, equal testes and lemnisci with reflexed posterior extremities. This may be considered as the second species of acanthocephalid worm recorded from domestic fowl.

### Acknowledgement

We are thankful to the authorities of Mar Ivanios College, Trivandrum for providing library and laboratory facilities.

### References

- 1) Bhalerao, G. D. (1937): On a remarkable Acanthocephala from a fowl in India. Proc. Zool. Soc. London. s.B., 107(2), 199–203.
- 2) Harris, M. T. (1973): A new acanthocephalan from an East African galliform bird. Bull. Br. Mus. (Nat. Hist.), Zool., 24, 455–460.
- 3) Johnston, T. H. and Edmonds, S. J. (1947): Australian Acanthocephala, Nos. 6. Rec. South Austr. Mus., 8(4), 555–562.
- 4) Nickol, B. B. (1969): Acanthocephala of Louisiana Picidae with description of a new species of *Mediorhynchus*. J. Parasit., 55, 324–328.
- 5) Schmidt, G. D. and Canaris, A. G. (1967): Acanthocephala from Kenya with descriptions of two new species. J. Parasit., 53, 634–637.
- 6) Schmidt, G. D. and Robert, E. Kuntz (1977):

Revision of *Mediorhynchus* Van Cleave, 1916 (Acanthocephala) with a key to species. J. Parasit., 63, 500-507.

7) Yamaguti, S. (1954): Parasitic worms mainly from Celebes. Part 8. Acanthocephala. Acta. Med. Okayama, 8, 406-413.

インド産フクロ *Gallus gallus domesticus* 腸管より採取した  
鉤頭虫の一新種 *Mediorhynchus indicus* sp. n.

Panamthundil Varghese George, Antony Mathai Nadakal,  
Nair Kunjanpillai Vijayakumaran and Muthuswami Rajendran

(マルイバノア大学動物学教室)

インド、トリパニドラム地方のフクロ腸管より *Mediorhynchus* 属の4隻(雄, 雌2隻ずつ)の鉤頭虫を得, 頭吻の鉤は1列6~8箇で14~17列, 後吻に1

列8~10箇の棘が25~28列あり, 大型の頭吻鉤, 小型の虫卵, 等大の精巢, その他が既知種と異っていた。