

**Metacercariae of *Achillurbainia* sp. from mountain crabs,  
*Parathelphusa rugosa* in Ceylon  
(Trematoda : Achillurbainiidae)\***

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**Introduction**

As the member of family Achillurbainiidae Dollfus, 1939, the following four species belonging to two genera were recorded in literature : *Achillurbainia nouveli* Dollfus, 1939 from a palpebro-orbital abscess of a Malaysian leopard and from a retro-auricular abscess of a Chinese girl, *A. recondita* Travassos, 1942 from the maxillary sinus of an opossum in Brazil, *A. ratti* Miyazaki et Kwo, 1969 from the trachea and bronchi of swamp giant rats in Malaysia, and *Poikilorchis congolensis* Fain et Vandepitte, 1957 from a subcutaneous retro-auricular cyst of a native in Africa. But, the life cycle of these flukes as well as the source of human infection with some of them have been entirely unknown, although Chen (1965) suggested that fresh-water crabs were certainly susceptible vectors in case of the Chinese girl mentioned above.

During joint researches on *Paragonimus* in Ceylon, the junior author obtained big metacercariae from the above-mentioned crabs collected in mountain streams in Kandy area. Visiting Ceylon in March 1970, the senior author identified them as *Achillurbainia* sp. Though mature adults have never been obtained by experiment, the authors wish to

demonstrate morphology of the new metacercaria.

**Materials and Methods**

The crabs, *Parathelphusa rugosa* (Kingsley), collected in mountain streams were examined for *Paragonimus* metacercariae by pressing the tissues between plate glass. Not infrequently, the new metacercariae were obtained from the crabs, which were much bigger than those of *Paragonimus*. They were carefully investigated and photographed, and some of them were infected to a cat and rats. Other larvae were flattened in 70% alcohol, and three of them were brought to Japan for further observation. Later, they were stained with carmine and mounted in balsam for the present description.

**Results**

The metacercariae obtained were all excysted, moving very actively. Pinkish granules could not be noticed in the body, which were very common in *Paragonimus* metacercariae parasitic in the same crab. The present description was based on the three stained specimens, one of them having been broken at the level of ventral sucker. Accordingly, measurements, in millimeters, were made on the two specimens.

Worm A (Figs. 1 and 2) : Body thin and flat, 3.7 by 1.2 in size. No spines on cuticle. Oral sucker 0.54 by 0.48 ; pharynx 0.19 by

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0.18, followed by a very short esophagus. Intestine reaches to the end of body, winding particularly in posterior half. Ventral sucker 0.54 by 0.53, showing almost the same size as the oral sucker. Ovary recognized on the left side of body as a small group of cells. Seminal receptacle situated just behind the ovary. Uterus noticed as an empty tube at the beginning and at the terminal part. Testicles, small clusters of cells, are scattered ventrally, as shown in the circle of Fig. 1. They amount to 45 in the circle. Seminal vesicle meanders as a slender tube along the uterus between the ventral sucker and pharynx. Genital pore situated close to pharynx on the level of esophagus. Excretory bladder extends to the beginning part of female reproductive organs.

Worm B (Fig. 3): Body 3.4 by 1.3, posterior half being slightly contracted and partly damaged at the terminal. Oral sucker 0.54 by 0.51; pharynx 0.19 by 0.17; ventral sucker a little larger than the oral sucker, measuring 0.58 in diameter. Posterior half of intestine highly twisted by contraction of hindbody. Ovary and seminal receptacle located on the right side of body. Other features are completely similar to the worm A.

The hindbody of the worm C was entirely lost, but morphology of the forebody is completely agreed with that of other two worms.

### Discussion

From the above-mentioned morphological features, the new metacercaria was identified as *Achillurbainia* sp., although no mature adults were obtained by experiment. Of the four known species belonging to Achillurbainiidae, the present metacercaria seems to be *A. ratti* by the position of the genital pore. The ratio of the oral and the ventral sucker is different from that of adult *A. ratti*, but it is probable that the ratio may be changeable according to maturity of the worm.

In the present paper it was impossible to describe features of the encysted metacercariae and their habitat in the crab host, but it is most likely that the cyst wall is thin

and fragile, and the larva is parasitic mainly in the liver of crabs.

Concerning the source of infection to the final host with the member of Achillurbainiidae, nothing has been known except that Chen (1965) suspected fresh-water crabs to be the vector of human infection with the fluke he regarded as *A. novveli*. The present finding by the authors has approved Chen's opinion, though the causative agent seems to be different species.

### Summary

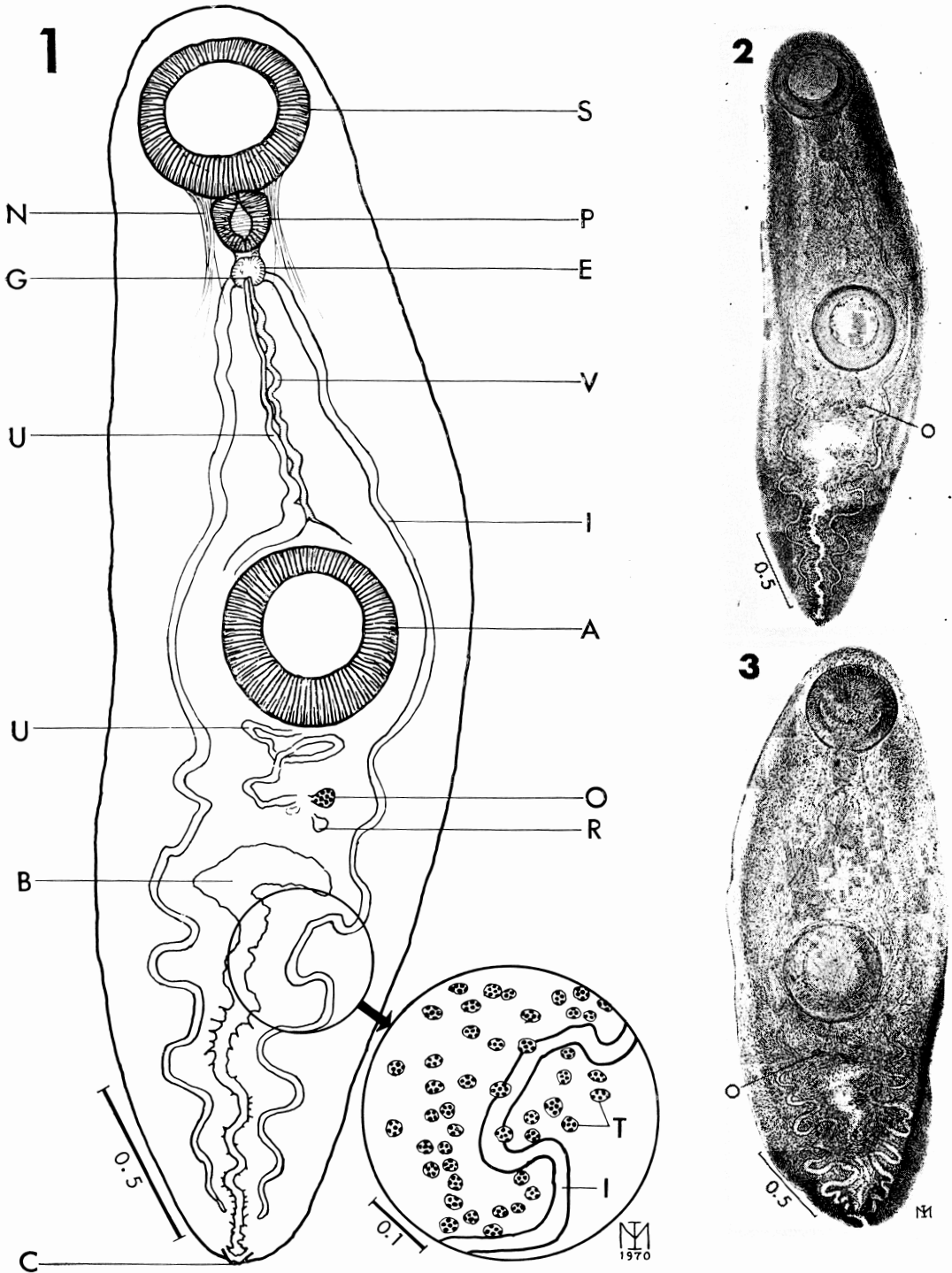
The metacercaria of *Achillurbainia* sp. was first found from fresh-water crabs, *Parathelphusa rugosa* (Kingsley), living in mountain streams in Kandy area, Ceylon. Morphology of the larva was described in detail, but its specific name was not given, because no mature worms were experimentally obtained. But, it appears that the larva belongs to *Achillurbainia ratti* Miyazaki et Kwo, 1969.

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Ventral view of stained and mounted specimens. Scale in mm.

Figs. 1 & 2: worm A, Fig. 3: worm B.

A: ventral sucker, B: excretory bladder, C: excretory pore, E: esophagus, G: genital pore, I: intestine, N: nerves, O: ovary, P: pharynx, R: seminal receptacle, S: oral sucker, T: testicle, U: uterus, V: seminal vesicle

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セイロンの山手にすむカニ, *Parathelphusa rugosa* ヒダサワガニ(新称)から  
発見された *Achillurbainia* sp. のメタセルカリア [特別掲載]

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科 Achillurbainiidae には2属4種が知られており、その中の2種はヒトの皮下膿瘍からも、とりだされている。しかし、この仲間の発育史は全く不明、したがって、ヒトへの感染源も全然わからない。ただ、Chen (1965) が、1中国娘の症例で、淡水産のカニをうたがっているだけである。著者らは1970年3月、セイロン中部丘陵地帯の Kandy で肺吸虫の調査を行ない、上記のカニから、肺吸虫以外に、はるかに大形のメタセルカ

リアをみつけた。その特長から *Achillurbainia* に属することを知り、ここにわしく記載した。

ただし、実験的に成熟した虫体がえられなかつたので、種名まではわからなかつたが、幼虫の生殖孔が食道の高さにまで達している点から、既知種の中では、*A. ratti* を最もうたがっている。とにかく、従来不明であった Achillurbainiidae の仲間の発育が、ようやくわかりかけ、Chen の推察が実証された。