

## Description of *Psilorchis hominis* sp. nov. from Man (Trematoda : Echinostomatoidea : Psilostomidae)

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As previously reported by Okabe *et al.* (1972), an inhabitant in Saga City was found to be infested with two echinostomatid species, *viz.* *Echinostoma macrorchis* Ando et Ozaki, 1923, and *Echinochasmus* sp., at the times of bile examinations. After an administration of ethylene tetrachloride, he discharged about 50 mature trematodes in feces. About 30 of those worms were identical to *E. macrorchis*, but the rest 20 were found to be an unknown species of the family Psilostomidae from its general structure and quite different from *Psilochasmus japonicus* Ishii, 1935 (= *P. longicirratus* Skrjabin, 1913, after Yamaguti, 1939), which is a sole representative of the family from Japan up to present. These worms in question were more or less destructed because of the drug, only two of them were, however, barely escaped from such destruction and mounted *in toto* for the present study. Careful observations on these 2 specimens, gravid and ungravid, revealed that these were the new species belonging to the genus *Psilorchis* Thapar et Lal, 1935, which has been restrictedly known from some piscivorous birds collected in India and Italy. The present paper is, therefore, believed to be the first account of the psilostomid trematode from man.

### Case

*Patient*: 48-year old, male, manager of several Chinese restaurants, inhabiting in

Saga City for these 10 years, formerly in other localities in Saga Prefecture, Omuta City, Tokyo, and Manchuria.

*Date*: Sept. 1, 1971.

*Chief complaint*: Pain in hypochondriac region and occasional febricula.

*Anamneses*: Adipectomy about duodenum (15 years ago) and tuberculous peritonitis cured by 9 months' internal therapy (5 years ago).

*History*: Since 3 years ago, the patient had been suffered with occasional general fatigue and dull pain which became frequent for this one year in hypochondriac region to the dorsal side. On Aug. 20, 1971, the same pain occurred with pyrexia of 38.2°C, chill, and vomituration. Those symptoms continued for 2-3 days and then abated. He consulted a doctor and was dignosed as cholecystitis. He, later, consulted Omuta Municipal Hospital and entered it on the same day.

*Present status*: Physique moderate, without anemia, jaundice, edema, nor tumescence of superficial lymphatic glands. Cardiac sound and cardiopometry normal. Liver slightly palpable, right kidney also palpable, but other organs such as spleen not palpable.

*Laboratory examinations*: Erythrocyte 4,920,000, hemoglobin 95%, hematocrit 48.5%, leucocyte 13,500 (eosinophile 1.5%) on Sept. 2, 1971. Leucocyte, however, reduced to 6,000 to 10,000 but eosinophile ranged 2 to 3% by several following examinations. No other special findings. Feces also normal, no worm eggs found by repeated fecal examinations using direct smear or floating

methods.

The patient was diagnosed as cholecystitis and was given some antispasmodics and digestives. At the fourth bile examination on Sept. 25, 1971, a trematode was sucked into the duodenal tube with duodenal juice (preceding to A bile) and was later identified as *E. macrorchis* of which a few eggs were also found in A bile. At the next bile examination on Sept. 29, 2 more examples of the same echinostomatid were again found in the same way. Then he was dosed with 15 capsules of ethylene tetrachloride accompanied by magnesium sulfate at 8 AM of Dec. 8. Then 25 and 26 worms were discovered in feces discharged at 10 and 11 AM of the same day, respectively. Thirty-one of them were also identical with *E. macrorchis* but the rest 20 were the species in question. After this treatment a few echinostomatid eggs were still found in feces by occasional examinations using concentra-

tion method. In addition, 1 example of *Echinochasmus* sp. and 4 examples of *E. macrorchis* were discovered in A biles collected on Dec. 21, 1971, and Jan. 25, 1972, respectively. Since Feb. 9 no worm egg was recognized in feces or bile. The second application of the same anthelmintic was tried on Mar. 25, 1972, but no worm was found in feces (Table 1). The patient left the Hospital on Mar. 29 and no information of recurrence of the similar symptoms is received since then.

*Psilorchis hominis* sp. nov.

Host: Man, 48-year old.

Habitat: Probably in small intestine.

Locality: Saga City.

Date: Dec. 8, 1971.

As stated above, only 2 specimens are available for the present study. The following description is based on the holotype, the gravid specimen, though some sup-

Table 1 Discoveries of the trematode adults or eggs from bile and feces of the patient

Date	Material	Specimenes examined	Remarks	Remarks
Nov. 25, 1971	Bile	<i>Echinostoma macrorchis</i> , 1 ex. (No. 1)		
Nov. 29	Bile	<i>E. macrorchis</i> , 2 exx. (Nos. 2-3)		
Dec. 8	Feces	Dose of anthelmintics <i>E. macrorchis</i> , 31 exx. and eggs (92-105×55-63 $\mu$ ) <i>Psilorchis hominis</i> , 20 exx. and eggs (118-141×80-97 $\mu$ )		Fig. 1 (Holotype)
Dec. 17	Feces	Echinostomatid eggs (95-101×54-62 $\mu$ )		
Dec. 21	Bile	<i>Echinochasmus</i> sp., 1 ex. and eggs (90-99×56-60 $\mu$ )		
Jan. 10, 1972	Feces	Echinostomatid eggs		
Jan. 13	Feces	Echinostomatid eggs (95-101×54-62 $\mu$ )		
Jan. 25	Bile	<i>Echinostoma macrorchis</i> , 4 exx. (Nos. 4-7)		
Jan. 27	Feces	Echinostomatid eggs (95-103×65 $\mu$ )		
Feb. 1	Bile	An echinostomatid egg (98×62 $\mu$ )		
Feb. 9	Feces	No egg		
Feb. 16	Feces	No egg		
Mar. 25	Feces	Dose of anthelmintics No adult nor egg		

plementary measurements or comments are made on a single ungravid paratype and quoted in parentheses for reference.

### Description

Body elongated; anterior one-fourth of body tapering, lateral margins rather concave, probably under the influence of the drug; posterior two-thirds of lateral margins of body almost parallel except blunt caudal end; broadest at level of uterine region between acetabulum and anterior testis; 4.44 mm. (3.90 mm.) in length, 0.92 mm. (0.70 mm.) in breadth. Cuticle aspinose. Terminal oral sucker small, almost circular,  $160 \times 170 \mu$  ( $170 \times 155 \mu$ ); prepharynx present,  $55 \mu$  ( $50 \mu$ ) in length; pharynx longitudinally elongated, elliptical (or almost circular), slightly smaller than oral sucker,  $170 \times 110 \mu$  ( $130 \times 130 \mu$ ); esophagus long, somewhat swollen in middle portion, probably under the influence of the drug,  $160 \mu$  ( $220 \mu$ ) in length. Bifurcated intestinal ceca slender in uterine region but gradually thickening in distal portion slightly zigzag running posteriorly and ending near the caudal end of body. Acetabulum located at one-fifth portion of body from anterior end, conspicuously voluminous, almost circular,  $450 \times 400 \mu$  ( $400 \times 400 \mu$ ). Testes tandem, not lobed; anterior testis equatorial, transversely (or longitudinally) elongated, elliptical,  $360 \times 450 \mu$  ( $400 \times 340 \mu$ ); posterior testis just behind the anterior, longitudinally elongated, elliptical, as large as the anterior,  $490 \times 350 \mu$  ( $440 \times 270 \mu$ ). Cirrus pouch gourd-shaped, situated between cecal bifurcation; posterior two-fifths of it overlapping right half of acetabulum; its terminal portion minutely winding and opening to genital pore at a little front of acetabulum. Ovary obliquely elliptical (or spherical), dextral to uterine duct, somewhat atrophied in gravid specimen,  $120 \times 140 \mu$  ( $250 \times 230 \mu$ ). Uterus complicatedly convoluting between acetabulum and anterior testis, containing numerous eggs, opening to genital pore. Vitellaria distributed on either side of body behind acetabulum to the caudal end of ceca, especially abundant in posttesticular

region where more or less approaching to each other and almost anastomosing. Eggs elliptical, yellowish brown, not embryonated, operculated; uterine eggs  $122-128 \times 68-72 \mu$  (2 eggs, average  $125 \times 70 \mu$ ), delivered eggs in feces  $121-141 \times 80-97 \mu$  (12 eggs, average  $129 \times 90 \mu$ ), apparently larger than the echinostomatid eggs simultaneously obtained from the same patient.

*Type materials*: Holotype (slide no. 296, Fig. 1) and 1 paratype (no. 297); there are other 6 mounted specimens (nos. 298-303) which are more or less destroyed by the drug and excluded from the type series.

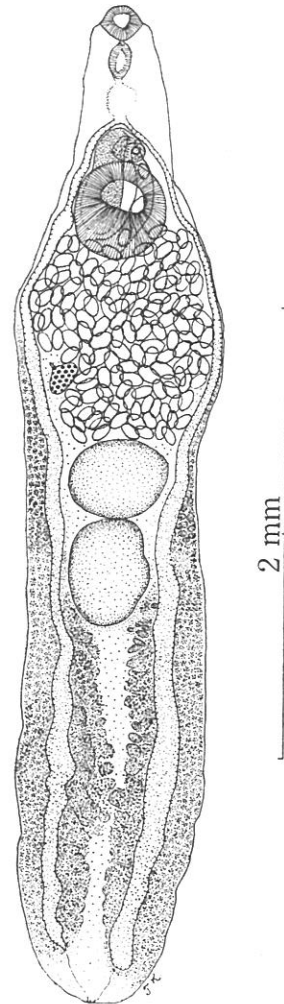


Fig. 1 *Psilorchis hominis* sp. nov.  
ventral view, holotype.

*Type depository:* All the types, other mounted specimens, and unflattened but fixed materials are preserved in the Department of Parasitology, Kurume University School of Medicine.

### Discussion

The genus *Psilorchis* has been restrictedly recorded from some piscivorous avian hosts collected in India and recently, an Italian species, *Opistorchis piana* Galli-Valerio, 1898, was transferred to this genus by Yamaguti (1971). So far as the original description is referred, the transfer of the Italian species is quite reasonable and we pay our greatest respect to him for his splendid insight and erudition. The present new species is allied to *P. piana* but differs from it by smaller size of body. It is also allied to *P. ajgainis* Lal, 1938, but is easily distinguished by the situation of testes which are locating more anteriorly. All of hitherto described species of the genus *Psilorchis* are distinguishable by the following key.

Key to the species of the genus *Psilorchis*  
Thapar et Lal, 1935

1. Testes lobed. . . . . 2
- Testes entire. . . . . 3
2. Cuticular spines present.  
    . . . . . *P. mehrai* Gupta, 1956
- Cuticular spines absent.  
    . . . . . *P. halcyoni* Chatterji, 1949
3. Large species, body length more than 10 mm. . . . . 4
- Moderate-sized species, body length less than 9 mm. . . . . 5
4. Esophagus shorter than pharynx.  
    . . . . . *P. piana* (Galli-Valerio, 1898)
- Esophagus apparently longer than pharynx. . . . . *P. seekhpari* Jain, 1968
5. Cuticular spines present. . . . . 6
- Cuticular spines absent. . . . . 8
6. Ovary transversely elongated oval.  
    . . . . . *P. indicus* Thapar et Lal, 1935
- Ovary spherical. . . . . 7
7. Anterior testis slightly larger than posterior testis. . . . . *P. ketupai* Chatterji, 1956

- Anterior testis as large as posterior testis.  
    . . . . . *P. thapari* Baugh, 1949
- 8. Both testis entirely situated in the posterior half of body. . . . . *P. ajgainis* Lal, 1938
- Anterior testis equatorial.  
    . . . . . *P. hominis* sp. nov.

### Comment

It is well known that the psilostomid trematodes to which the present genus *Psilorchis* belongs are closely related to the Echinostomatidae. In the present human case, two echinostomatid species were simultaneously discovered. One of them, *Echinostoma macrorchis* is usually found in the house rat and its metacercaria is found in some snails such as *Viviparus* (= *Cipangopaludina*) and *Segmentina* (= *Polypylis*) or some immature amphibians, viz. tadpoles of *Rana nigromaculata* and *R. catesbeiana* or *Hynobius* as revealed by various authors. The patient is fond of eating the raw meats of sweetfish, crucian carp, catfish, oyster, and chicken. He is also much fond of fishing and has a habit of crunching some bivalved molluscs such as *Venerupis*, *Sinovacula*, etc. caught nearby at the fishing site and using them as the baits. Though the approximate route of infection is still unknown, he may be infested with the trematodes when he ate some raw fresh-water fish or crunched some molluscs.

The present paper is the first record of human infestation not only with the genus *Psilorchis* but with the family Psilostomidae and the first record of the genus from Japan.

### Summary

A new psilostomid species found from a 48-year old man inhabiting in Saga City, Kyushu, is described under the name of *Psilorchis hominis* sp. nov. The patient had been suffered with occasional hypochondriac pain and febricula and diagnosed as cholecystitis. He was also infested with *Echinostoma macrorchis* and *Echinochasmus* sp. as previously reported (Okabe *et al.*, 1972). The present new species is distinguishable from

other congeneric species by a key attached in the text. This is the first record not only of the genus from Japan but also of the human infestation with the psilostomid trematode from the world.

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#### References

- 1) Baugh, S. C. (1949) : On a new avian trematode, *Psilorchis thapari* (Fam. Psilostomidae) with a record of *Psilochasmus oxyurus* (Crep.) from India. Ind. J. Helminth., 1, 79-84.
- 2) Chatterji, P. N. (1949) : On a new species of the genus *Psilorchis* Thapar and Lal, 1935 (Family Psilostomidae Odhner, 1913). Proc. Nat. Acad. Sci. India, B, 18, 1-5.
- 3) Chatterji, P. N. (1956) : On a new *Psilorchis* species recorded for the first time at Cuttack. Proc. Nat. Acad. Sci. India, 26, 34-36.
- 4) Galli-Valerio, B. (1898) : *Opistorchis pianae* nov. sp., eine neue Distomidenart der Wildente. Zbl. Bakt., I. Abt. Orig., 23, 145-146.
- 5) Gupta, P. D. (1956) : On *Psilorchis mehrai* n. sp. (Psilostomidae : Trematoda). Proc. Nat. Acad. Sci. India, 25, 1-5.
- 6) Jain, S. P. (1968) : On *Psilorchis seekhpari* n. sp. (Fam. Psilostomidae) from an Indian duck-*Anas acuta* (Linn.). Ind. J. Helminth., 19, 145-149.
- 7) Lal, M. B. (1938) : On a new species of *Psilorchis* from the intestine of the common teal, *Nettion crecca*. Livr. jub. Prof. Travassos, 259-262.
- 8) Okabe, N., Adachi, M., Fukuda, M., Okabe, K., Kifune, T., and Takao, Y. (1972) : (On a human case infested with 3 species of the trematodes.) Nippon Iji Shimpo, (2531), 46-48. (In Japanese)
- 9) Thapar, G. S., and Lal, M. B. (1935) : On the morphology of a new genus of trematode parasite of the kingfisher from Lucknow. Proc. Ind. Acad. Sci., 2, 88-94.
- 10) Yamaguti, S. (1971) : Synopsis of digenetic trematodes of vertebrates. Vols. I and II, Keigaku Publ. Co., Tokyo, 1074 pp., 349 pls.

### 人から見出された新吸虫 *Psilorchis hominis* の記載——裸口吸虫科 (新称) 吸虫による人体寄生第1例

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別途報告した(岡部ほか, 1972) 3種吸虫に感染した患者(男, 48歳, 佐賀市在住)より駆虫して得た20隻の虫体のうち比較的完全な2隻の標本をもとに *Psilorchis hominis* sp. nov. を命名記載した。本属は従来インドより7種, イタリアより1種が, いずれも鳥類から見

されていたのみで, 日本からは初めての記録であり, 人体寄生虫例としては属のみならず科 Psilostomidae (裸口吸虫科—新称) としても最初の記録となる。なお本新種の和名としては, ヒトラコウキュウチュウ (新称) を与えたい。