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Tubulovesicula dorabi, New Species (Trematoda: Hemiuridae Looss, 1899: Dinurinae Looss, 1907) From the Fish *Chirocentous dorab* (Forsk.) of Karachi Coast

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Abstract.- A new trematode *Tubulovesicula dorabi* n.sp., is reported and described here from the intestine of the fish *Chirocentrus dorab* collected from West Wharf, Karachi coast. This trematode is characterized by having flattened, plump body with tail poorly demarcated (3.8-4.2 x 1.33-1.70mm), oral sucker terminal, very small,(0.13-0.15 x 0.15-0.17), esophagus absent, caeca wide reaching to near posterior end of the body, testes two, relatively small,(0.015-0.061 x 0.133-0.160) immediately post acetabular, seminal vesicle is long,(0.71-0.73) twisted, at the dorsal and middle level of acetabulum, pars prostatica long(0.45-0.48) surrounded by numerous prostatic cells, hermaphroditic pouch is muscular, hermaphroditic duct wide, genital pore at the level of intestinal bifurcation. Ovary is elliptical or bean-shaped, submedian in the anterior of posterior half of body,(0.05-0.07 x 0.15-0.17), receptaculum seminis is very small, post-ovarian, vitellaria transversely arranged consisting of seven long unequal tubules, uterus slightly entering into tail, anteriorly reaching to hermaphroditic duct. Eggs are numerous, small, almost rounded.

Key words:- *Tubulovesicula dorabi* new species, intestine, *Chirocentrus dorab*, Karachi coast.

INTRODUCTION

Hemiurid trematodes are one of the common parasites of fishes of Karachi coast (Bilqees, 1981; Shaukat *et al*., 2008). Species of several hemiurid genera have been described from fishes of Karachi coast including the genus *Tubulovesicula* (Yamaguti, 1934; Zaidi and Khan 1977; Bilqees and Nighat, 1981; Bhutta and Khan, 1975; Shaukat *et al*., 2008). Other species are *T. spari* Yamaguti, 1934 (Bilqees, 1981); *T. anguillae* Yamaguti, 1934 (Zaidi and Khan, 1977); *T. magna* Bilqees and Nighat, 1981; *T. anguisticauda* Nicoll, 1914; Yamaguti, 1934 (Bhutta and Khan, 1975); *T. microcauda* Shaukat *et al*., 2008. During present studies trematodes of the genus *Tubulovesicula* were recovered from the intestine of the fish *Chirocentrus dorab* are described here, regarded new and named as *T. dorabi*, new species.

MATERIALS AND METHODS

Thirty-seven fish *Chirocentrus dorab* were collected from West Wharf, Karachi coast and examined for trematode parasites. Five trematodes of genus *Tubulovesicula* Yamaguti, 1934 were recovered from the intestine of one fish. These were fixed in hot 70% alcohol with few drops of acetic acid, stained with Mayer's carmalum, dehydrated in graded series of alcohols, cleared in clove oil and xylene and mounted permanently in Canada balsam. Diagrams were made with a Camera Lucida. Measurements were taken length by width in millimeters. Holotype and paratype specimens are in the collection of the first author, in the Department of Zoology, Jinnah University for Women, Karachi and are accessible to any one interested to get as loan.

Tubulovesicula dorabi, new species
(Fig. 1)

Host:	*Chirocentrus dorab* (Forsk.) Chirocentridae
Location:	Intestine
Locality:	West Wharf, Karachi coast
No. of specimens:	5 from a single fish, 37 fish examined
Holotype No.:	BMC – T210

Diagnosis

Body flattened, plump, slightly bent ventrally, smooth with anterior end narrow, posterior rounded, tail not distinctly demarkated, shorter than body proper or soma. Body length, 3.8-

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4.2 including tail, greatest width, 1.33-1.37 at the level of vitellaria. Oral sucker is terminal, 0.13-0.15 x 0.15-0.17, prepharynx absent, pharynx rounded, very small, 0.08-0.10 in diameter. Intestinal caeca radiating directly from its base, esophagus is absent.

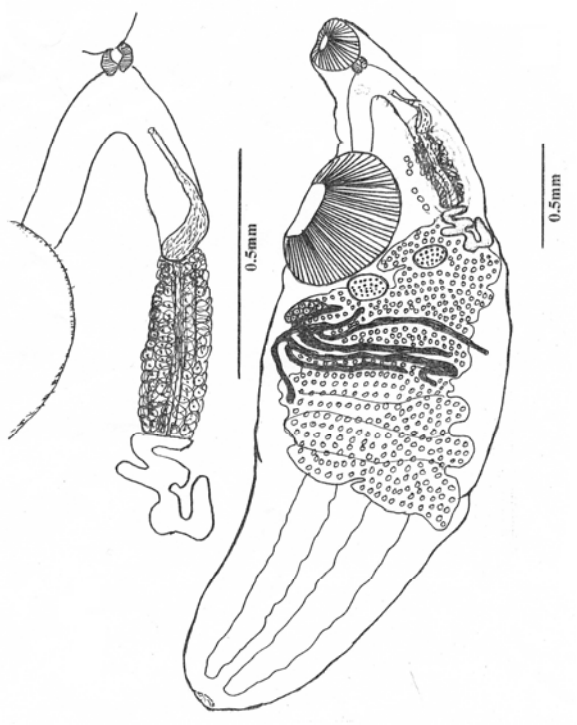

Fig. 1. *Tubulovesicula dorabi* new species; (a) Whole mount holotype specimen; (b) Postacetabular and preactabular region showing seminal vesicle,pars prostatica and genital opening.

Intestinal caeca long, wide reaching near to posterior end of the tail. Acetabulum is much larger than oral sucker, 0.61-0.66 x 0.49-0.51, situated in anterior half of body proper. Testes two, close to acetabulum, unequal, anterior smaller, 0.059-0.061 x 1.33-1.35, posterior, 0.015-0.017 x 0.14-0.16 in size. Seminal vesicle antero lateral to anterior testis, long and twisted, 0.71-0.73 in length. Pars prostatica is relatively long 0.45-0.48 in length, composed of numerous intermingled prostatic cells. Hemaphroditic duct enclosed in a pouch. Genital opening at level of intestinal bifurcation. Ovary is eliplical or bean-shaped, post-testicular, situated laterally as appears in the ventrolateral view, 0.05-0.07 x 0.15-0.17 in size. Vitellaria consist of seven, unequal almost straight tubules, arranged transversely, radiating immediately from the base of ovary, near posterior region of ecsona, not reaching into tail. Uterus large, slightly entering into tail, eggs numerous, small, rounded to oval in shape, 0.0015-0.0017 x 0.0014-0.0015 in size. Excretory pore is terminal, wide, arms uniting at the level of pharynx.

Etymology

Species name reports to the fish host.

DISCUSSION

The genus *Tubulovesicula* was proposed by Yamaguti (1934) with the genotype *Tubulovesicula spari* from the stomach of the fish *Sparus macrocephalus*. This genus is characterized by having a spindle-shaped body, subterminal oral sucker, pharynx contiguous to oral sucker, esophagus short, ceca terminating near posterior extremity of tail. Acetabulum larger than oral sucker, in anterior third of body or a little further behind. Testes two, postacetabular, more or less obliquely juxtaposed, separated from each other by uterus, seminal vesicle tubular, sinuous, anterodorsal to testes. Pars prostatica long, surrounded by numerous prostatic cells. Hermaphroditic duct is enclosed in muscular pouch, expanded at base, genital opening at level of intestinal bifurcation. Ovary is kidney-shaped, a little left of median plane. Vitellaria consisting of seven tubular lobes, seminal receptacle present. Metraterm is also present.

The present specimens are included in this genus as these show more of the generic characters with variations in body shape, terminal oral sucker and twisted, long seminal vesicle. Yamaguti (1934) also described *T. anguillae* and *T. muraenesocis*.

Later on several species have been added in the genus including *T. angusticauda* (Nicoll, 1915); Yamaguti, 1934; *T. californica* Park, 1936; *T. diacopae* Nagaty et Abdel-Aal, 1962; *T. lindburgi* (Layman, 1930); Yamaguti, 1934; *T. madurensis* Nigrelli, 1940; *T. magnacetebulum* Yamaguti, 1939; *T. marsupialia* Oshmarin, 1965; *T. nanamoensis* (McFarlane, 1936); Manter, 1947; *T. pinguis* (Linton, 1940); Manter 1947; *T. pseudorhombi*

Yamaguti, 1939; *T. serrani* Nagaty, 1956. Some species were regarded synonym of other species of the genus or other genus. As mentioned above five species of the genus are known from marine fishes of Pakistan including *T. spari* Yamaguti, 1934; (Bilqees, 1981) from the fish *Muraenesox cinereus*, *T. anguillae* Yamaguti, 1934 (Zaidi and Khan, 1977) from *Harpodon nehreus*, *T. magna* Bilqees and Nighat, 1981, from *Pomadasys olivaceum*; *T. anguisticauda* Nicoll, 1914, Yamaguti, 1934 (Bhutta and Khan, 1975), Bilqees, 1981 from *Muraenesox cinereus* and *T. microcauda* Shaukat *et al*., 2008 from *Otolithus argenteus*.

Present new species *T. dorabi* from the fish *Chirocentrus dorab* is the sixth species with a new host record for the genus *Tubulovesicula*. The new species is different from the above mentioned species mainly in having combination of characters such as a long, twisted, seminal vesicle, large pars prostatica extending to anterior one third of acetabulum and more or less transversely arranged vitelline tubules, with flattened body, and indistinct tail. Present species also shows variations in body size (3.8-4.2 x 1.33-1.37) as compared to previous species from the same locality *T. microcaudum* (5.4-5.42 x 1.11-1.15); *T. anguisticauda* (3.33-4.30 x 0.90-1.56); *T. spari* (4.98-6.96 x 1.26-1.56); *T. anguillae* (1.30-1.39 x 0.39-0.40). Shape and position of seminal vesicle in the present new species is also different from the previously described species. In *T. spari* and *T. microcaudum* seminal vesicle is long and slender. In *T. anguillae* it is S-shaped, while in *T. pseudorhombi* seminal vesicle is long and spirally coiled. *T. anguisticauda, T. serrani, T. muraenesocis, T. magna, T. lindbergi, T. pinguis, T. diacope, T. madurensis, T. marsupialis, T. nanomoensis* and *T. californica* have tubular seminal vesicle. But the present new species has a long, twisted, seminal vesicle. *T. pinguis* also has cervical glands which are absent in other species including the present species.

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