with lateral branches from posterior region of main stem.

**Caiguiriinae subfam. n.**

With characters of the family. Ventral sucker not included in genital atrium. Intestinal ceca may reach equatorial line of ventral sucker or extending posterior to it as far as anterior to testes. Uterus not extending posterior to testes, with anterior limits fluctuating from oral region to esophageal bifurcation. Vitelline glands follicular, cecal, extracecal or postcecal, extending from acetabular region to anterior to testes. Testes diagonal or symmetrical. Ovary pretesticular.

**Caiguiria gen. n.**

Heterophyidae, Caiguiriinae. Oral sucker larger than ventral. Pharynx smaller than ventral sucker. Testes not lobed, in posterior half of postacetabular region. Ovary not lobed, may be with irregular borders, in front of corresponding testis. Uterus not extending posterior to testicular region, intruding into preacetabular zone, in which confluent occasionally. Posterior limits of vitelline glands may reach slightly posterior to anterior margin of testes. Seminal receptacle well developed, para- or postovarian. Genital atrium with a single gonotyl. Excretory vesicle Y- or T-shaped, with lateral branches from its posterior region.

**Literature Cited**


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**Cestrahelmins rivularis** sp. n. (Digenea: Deropristiidae) from White Sturgeon, *Acipenser transmontanus*, in the Columbia River, Washington

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**ABSTRACT:** *Cestrahelmins rivularis* sp. n. is described from the intestine of white sturgeon, *Acipenser transmontanus* Richardson, in the central Columbia River, State of Washington, USA. *C. rivularis* and *C. laruei* Fischthal, 1957 are the two existing representatives of the genus and of the subfamily Cestrahelminthinae Peters, 1961 (emended from Cestrahelminae). *C. rivularis* is differentiated from *C. laruei* by the following features: 1) distinct prepharynx, 2) genital pore with prominent sphincter, 3) unswollen forebody, 4) vitellaria extending anterior to the ventral sucker, 5) metraterm tubular, not saccular, 6) body spines uniform in size and distribution, and 7) seminal receptacle overlapping only the anterior testis. This initial record of *Cestrahelmins* from sturgeon, family Acipenseridae, supports morphological studies which demonstrate close affinities between the Cestrahelminthinae and Deropristiinae, within the family Deropristididae Skrjabin, 1958.

Light infections of an intestinal trematode belonging to the family Deropristiidae were found in 6 of 28 white sturgeon, *Acipenser transmontanus* Richardson, collected in the central Columbia River near Richland, Washington through 1969. Subsequent study revealed the organism to belong in the genus *Cestrahelmins* Fischthal, 1957, but to differ markedly from *C. laruei* Fischthal, the only known species of the genus.

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*This paper is based on work performed under United States Atomic Energy Commission Contract AT(45-1)-1830.*
Figures 1-2. 1. *Cestrahelmins rivularis* sp. n. Holotype, ventral view. 2. Paratype, lateral view, with ceca omitted.
Materials and Methods

Recovered specimens were relaxed in distilled water, pipetted into hot AFA (Galigher's), washed in 70% ethanol, stained with Lynch's alcoholic borax carmine, counterstained with fast green, cleared in beechwood creosote, and mounted in Canada balsam under coverslips without pressure. Morphometric data are taken from six animals, ventral perspective only, and are given in millimeters except for the eggs (20 measured), which are in microns. The range of each parameter is followed by the average in parentheses. Figures are drawn to scale with aid of grid coordinates.

Cestrahelmins rivularis sp. n.  
(Figs. 1, 2)

Description

With characteristics of the family Deropristidae Skrjabin, 1958 as defined by Peters (1961), and the subfamily Cestrahelmintinae Peters, 1961. Body elongate, 2.75–3.35 (2.99), extremities tapering and rounded; widest near midbody behind ventral sucker, 0.75–0.82 (0.79). Body entirely spined except for extreme caudal end; spines minute, arranged in close transverse rows, uniform in size and distribution. Forebody 1.05–1.39 (1.25) long, unswollen anteriorly, lacking remnants of cerceal eyespots; hindbody 1.37–1.83 (1.54) long. Oral sucker subterminal, aspinose, 0.19–0.24 (0.21) by 0.17–0.24 (0.21). Ventral sucker preequatorial, spherical, relatively small, 0.20–0.22 (0.21) by 0.21–0.23 (0.22). Ratio of oral to ventral sucker 1:1.04.

Prepharynx present, about ½ length of esophagus, but relationship varying with contraction of anterior end. Pharynx pyriform, 0.15–0.17 (0.165) by 0.12–0.17 (0.15). Esophagus slender, 0.44–0.61 (0.49) long. Intestinal bifurcation near anterior margin of ventral sucker. Ceca slender, slightly greater in diameter than esophagus; extend posterolaterally to level of posterior testis, terminate well in advance of posterior end. Main excretory vesicle saccate, behind testes, with terminal excretory pore. Post testicular space 0.60–0.71 (0.64) long.

Testes two, suboval and equal, postovarian, positioned obliquely in hindbody; anterior testis sinistral, 0.20–0.31 (0.27) by 0.24–0.29 (0.27); posterior testis dextral, 0.24–0.31 (0.27) by 0.24–0.32 (0.27). Cirrus sac elongate and gourd-like, 0.72–1.0 (0.91) by 0.13–0.16 (0.15); distal end left of ovary; sac ascends dextrally, then curves sinistrally around cephalic margin of ventral sucker. In lateral view, cirrus sac runs anteriordorsally, folds sharply (45°) near dorsal surface at junction of seminal vesicle and pars prostatica, and continues anteroventrally to genital atrium. Cirrus sac contains muscular, spined, eversible cirrus; elongate pars prostatica with diffuse gland cells; and saccate, undivided seminal vesicle. Cirrus joins metraterm near genital pore. Genital pore at anterior margin of ventral sucker, sinistral, surrounded by prominent sphincter. Genital atrium short, nearly nonexistent.

Ovary single, suboval, 0.18–0.27 (0.23) by 0.21–0.24 (0.22), dextral to midline, pretesticular; separated from ventral sucker by diagonally crossing cirrus sac, from anterior testis by dorsally situated seminal receptacle. Oviduct short, sinistral to ovary. Mehlis' gland ill defined. Laurer's canal not detected. Seminal receptacle suboval, relatively large, dorsal to and overlapping ovary and anterior testis. Uterus sinuous, with ascending and descending limbs; coils extend from posterior margin of ventral sucker to near posterior end of body. In lateral view, uterine coils predominantly ventral, but occupy space behind posterior testis. Metraterm tubular, muscular, originating dorsoposterior to ventral sucker, walled internally with minute, acicular spines. Eggs numerous, operculate, ovoid; 32.21–41.5 (36.95) by 15.39–24.93 (22.02). Vitellaria in restricted lateral fields 0.53–0.66 (0.61) long, originate anterior to ventral sucker, extend to ovary; follicles compact, 9–12 per field, oval, pyriform, or elliptical in outline. Left and right vitelline ducts extend from posterior vitelline fields near level of ovary.

Type host: White sturgeon, Acipenser transmontanus Richardson (Teleostei: Acipenseridae).

Microhabitat: Spiral valve, occasionally anterior intestine.

Incidence and intensity: In 6 of 28 hosts, 1 to 6 parasites; 14 small fish, less than 52 cm total length, all uninfected.

Type locality: Central Columbia River, State of Washington, USA.

Etymology: "Rivularis," L. rivus, dim. rivulus, a channel, groove, or stream; in reference to the typical river habitat of the type host.
Type specimens: USNM Helm. Coll.; holotype, No. 71430; 5 paratypes, Nos. 51431.

Discussion

Skrjabin (1958) included only the genera Deropristis Odhner, 1905, Pristicina Cable, 1952, and Skrjabinopsolus Ivanov in Ivanov and Murygin, 1937 (Syn. Pristotrema Cable, 1952) when he established the family Deropristiidae. These three genera form a natural taxonomic group, the subfamily Deropristiinae as initially proposed by Cable and Hunninen (1942) and subsequently modified by Cable (1952). Peters (1961) proposed the subfamily Cestrahelminthinae within the Deropristiidae to include the genus Cestrahelmins Fischthal, 1957, whose family relationships were previously problematical. The subfamily name should be emended to Cestrahelminthinae. (The Greek noun helmins issues from the basic stem helminth. The use of this word requires that the entire stem be adopted according to the International Code of Zoological Nomenclature.)

The type and only described species of Cestrahelmins is C. laruei Fischthal, 1957, an intestinal parasite of the muskellunge, Esox masquinongy, taken in Wisconsin, USA. One of the key features separating the Cestrahelminthinae from the Deropristiidae, according to Peters (1961), is the absence of a distinctly bipartite seminal vesicle. Peters, who reexamined the type specimen and sections of C. laruei, determined that what Fischthal (1957) considered to be the inner, thick walled part of a bipartite seminal vesicle was actually the pars prostatica. The new species, C. rivularis, superficially appears to have a bipartite seminal vesicle but the anterior part is actually a pars prostatica as in C. laruei. This feature is particularly noticeable in lateral view (Fig. 2).

C. rivularis and C. laruei are alike, but differ from all other deropristids, in the following subfamily characteristics: 1) seminal vesicle not bipartite, 2) pars prostatica prominent, 3) esophagus long, 4) intestinal bifurcation near the ventral sucker, 5) oeca not reaching posterior extremity, and 6) genital pore sinistral. Moreover, the vitelline follicles are large, scanty and occur in restricted lateral fields, while the testes are oblique and situated in advance of the posterior end of the body.

C. rivularis, however, differs from C. laruei in the following features: 1) prepharynx distinct, 2) genital pore with prominent sphincter, 3) forebody unswollen, 4) vitellaria extending anterior to the ventral sucker, 5) metraterm tubular, not saccular, 6) body spines uniform in size and distribution, and 7) seminal receptacle overlapping only the anterior testis. In addition, morphometric feature (i.e., pharynx, testes, ovary, ventral, and oral suckers) are generally larger in C. rivularis, and the sucker ratios are significantly different. As far as now known, C. rivularis infects primitive teleosts of the family Acipenseridae whereas C. laruei parasitizes more modern fishes of the family Esocidae.

Cable (1955) noted that representatives of the genera Deropristis, Pristicina, and Skrjabinopsolus evidently parasitize sturgeon wherever these hosts occur (i.e., northern hemisphere). The appearance of a species of Cestrahelmins in a North American acipenserid supports taxonomic studies (Peters, 1961) which demonstrate close affinities between the Cestrahelminthinae and Deropristiidae.

Acknowledgment

Dr. R. M. Cable, Department of Biological Sciences, Purdue University, pointed out similarities between the new species and the genus Cestrahelmins, and provided orientation on the Deropristiidae.

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