
26 Family Dipylidiidae Stiles, 1896

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Introduction

The taxonomy of the dilepidid cestodes *sensu lato* has long been controversial. At family level and below, some authorities have recognized one family, Dilepididae, with three subfamilies Dilepidinae, Dipylidiinae and Paruterininae (e.g. Yamaguti, 1959; Schmidt, 1986). Others have given each of these subfamilies the rank of family (e.g. Matevosyan, 1953, 1963; Wardle, McLeod & Radinovsky, 1974). Revisions of the group by contributors to the present volume have resulted in the recognition of the families Dilepididae Fuhrmann, 1907, Metadilepididae Spasskii, 1959, Paruterinidae Fuhrmann, 1907 and Dipylidiidae Stiles, 1896 (see Bona, Georgiev & Korniyushin, Korniyushin & Georgiev, this volume; Mariaux, 1990, 1991a; Mariaux & Vaucher, 1989). As treated here, the Dipylidiidae corresponds to the Dipylidiinae as recognized by Witenberg (1932) in containing only the three genera *Dipylidium*, *Diplopylidium* and *Joyeuxiella*, all parasitic in carnivorous mammals. Matevosyan (1963) also included *Mirandula* Sandars, 1965 and *Diskrjabinella* Matevosyan, 1953. *Mirandula* is now in the Dilepididae (Bona, this volume) and *Diskrjabinella* is treated here as a *genus inquirendum*. The type material of *D. avicola* (Fuhrmann, 1906), the type-species, and of *D. columbae* (Fuhrmann, 1908) is in very poor condition and the genus may be synonymous with *Diplopylidium* (Bona, pers. comm.). Other genera placed in the Dipylidiinae by Yamaguti (1959) and Schmidt (1986) have been transferred to the family Dilepididae (Bona, this volume).

Family Dipylidiidae Stiles, 1896

Diagnosis: Scolex with protrusible rostellum armed with several rows of hooks. Hooks usually thorn-shaped, occasionally taeniod. Rostellar pouch absent. Suckers unarmed. Strobila small to medium. Proglottids numerous; mature and

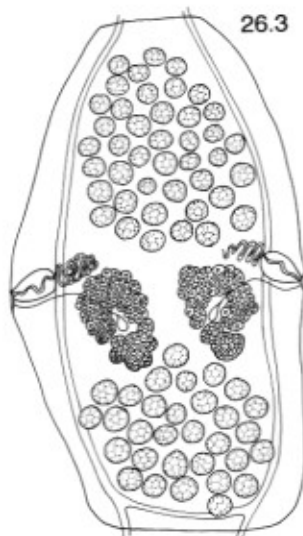
gravid proglottids longer than wide. Two sets of genitalia per proglottid. Genital pores bilateral. Testes numerous, occupy intervascular space, may reach anterior margin of proglottid or not. Cirrus-sac usually reaches or crosses osmoregulatory vessels. Vas deferens coiled, voluminous. Seminal vesicles absent. Ovaries lobulate, distinctly bi-alate or not. Vitellaria compact, lobed, immediately post-ovarian. Vaginal orifice anterior or posterior to opening of cirrus-sac. Vagina crosses cirrus-sac or not. Small seminal receptacle present at level of ovary. Uterus not persistent, replaced by thin-walled capsules containing one or several eggs. Paruterine organ absent. Adults in carnivorous mammals, larval stages in amphibians, reptiles or insects. Type-genus *Dipylidium* Leuckart, 1863.

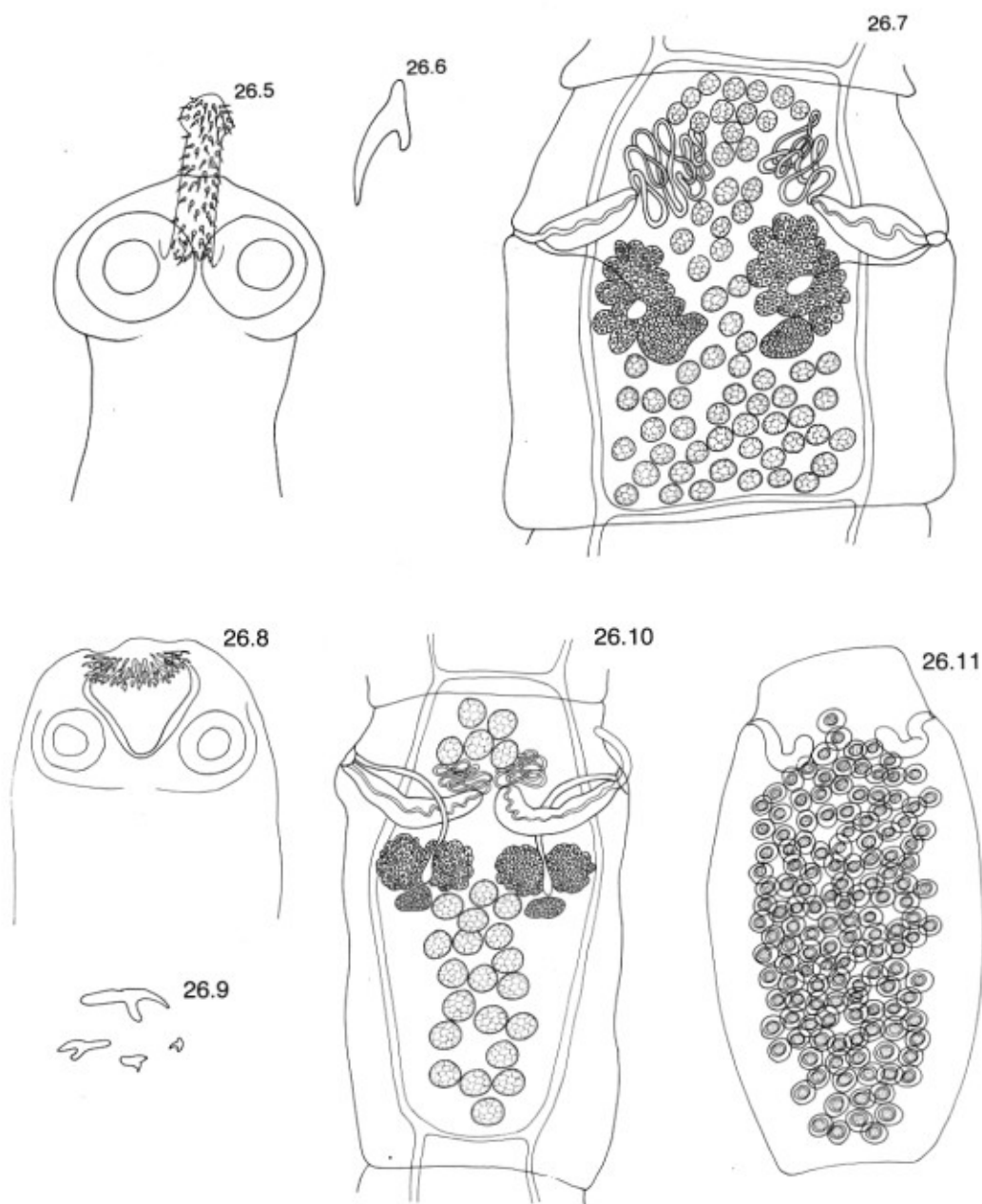
Key to genera:

- 1a. Uterine capsules each contain several eggs. Vagina posterior to cirrus-sac *Dipylidium* Leuckart, 1863. (Figs 26.1–26.4)
(Syn. *Microtaenia* Sedgwick, 1884.)

Diagnosis: Rostellum conical, armed with several alternating rows of uniformly thorn-shaped hooks. Genital pores equatorial or postequatorial in mature and gravid proglottids. Testes fill medulla, extend to or close to anterior margin of proglottid. Cirrus-sac club-shaped or pyriform, reaches osmoregulatory vessels or not. Vagina does not cross cirrus-sac. Uterus initially reticulate, transient. Uterine capsules fill medulla, extend laterally beyond osmoregulatory canals. Adults in carnivores, larval stage in insects. Cosmopolitan. Type-species *D. caninum* (Linnaeus, 1758).

- 1b. Uterine capsules each contain one egg. Vagina posterior to or crossing cirrus-sac 2.





Figs 26.1-26.4 *Dipylidium caninum* (Linnaeus, 1758). 26.1. Scolex. 26.2. Rostellar hooks. 26.3. Mature proglottid. 26.4. Egg capsules.

Figs 26.5-26.7 *Joyeuxiella echinorhynchoides* (Sonsino, 1889). 26.5. Scolex. 26.6. Rostellar hooks. 26.7. Mature proglottid. (After Jones, 1983.)

Figs 26.8-26.11 *Dipylidium* Beddard, 1913. 26.8-26.9. *D. acanthotetra* (Parona, 1887). 26.8. Scolex. 26.9. Rostellar hooks. 26.10. *D. nolleri* (Skryabin, 1924), mature proglottid. 26.11. *D. acanthotetra*, gravid proglottid.

- 2a. Rostellar hooks uniformly thorn-shaped. Vagina opens posteriorly to cirrus-sac *Joyeuxiella* Fuhrmann, 1935. (Figs 26.5–26.7)
(Syn. *Joyeuxia* López-Neyra, 1927 preoccupied.)

Diagnosis: Rostellum either conical with hooks regularly arranged in alternating rows and hook blades shorter than bases, or elongated with bulbous tip, hooks more irregular, blades longer than bases. Hooks always thorn-shaped. Genital pores pre-equatorial in mature and gravid proglottids. Testes fill space between and behind female organs, present anterior to level of vasa deferentia or not. Cirrus-sac oval, usually crosses osmoregulatory canals. Vagina does not cross cirrus-sac. Uterine capsules each contain one egg, extend laterally beyond osmoregulatory canals or not. Adults in carnivores, larval stages in reptiles. Europe, Russia, Africa, Middle East. Type-species *J. chyzeri* (Ratz, 1897), syn. of *J. pasqualei* (Diamare, 1893).

- 2b. Anterior rows of rostellar hooks taenioid. Vagina opens anteriorly to cirrus-sac *Diplopylidium* Beddard, 1913. (Figs 26.8–26.11)
(Syn. *Progynopylidium* Skryabin, 1924.)

Diagnosis: Rostellum flattened apically, armed with several alternating rows of hooks. Hooks in anterior rows have distinct handle and guard, posterior hooks thorn-shaped. Genital pores pre-equatorial in mature and gravid proglottids. Cirrus-sac elongated, proximal end flexed anteriorly, crosses osmoregulatory canals. Testes occupy most of medulla, extend close to anterior margin of proglottid. Vagina crosses cirrus-sac. Ovaries lobulate, more or less distinctly bi-alate. Uterine capsules medial to osmoregulatory canals, monovular. Adults in carnivores, larval stages in amphibians and reptiles. Europe, Africa, Asia, India, China. Type-species *D. genettae* Beddard, 1913.