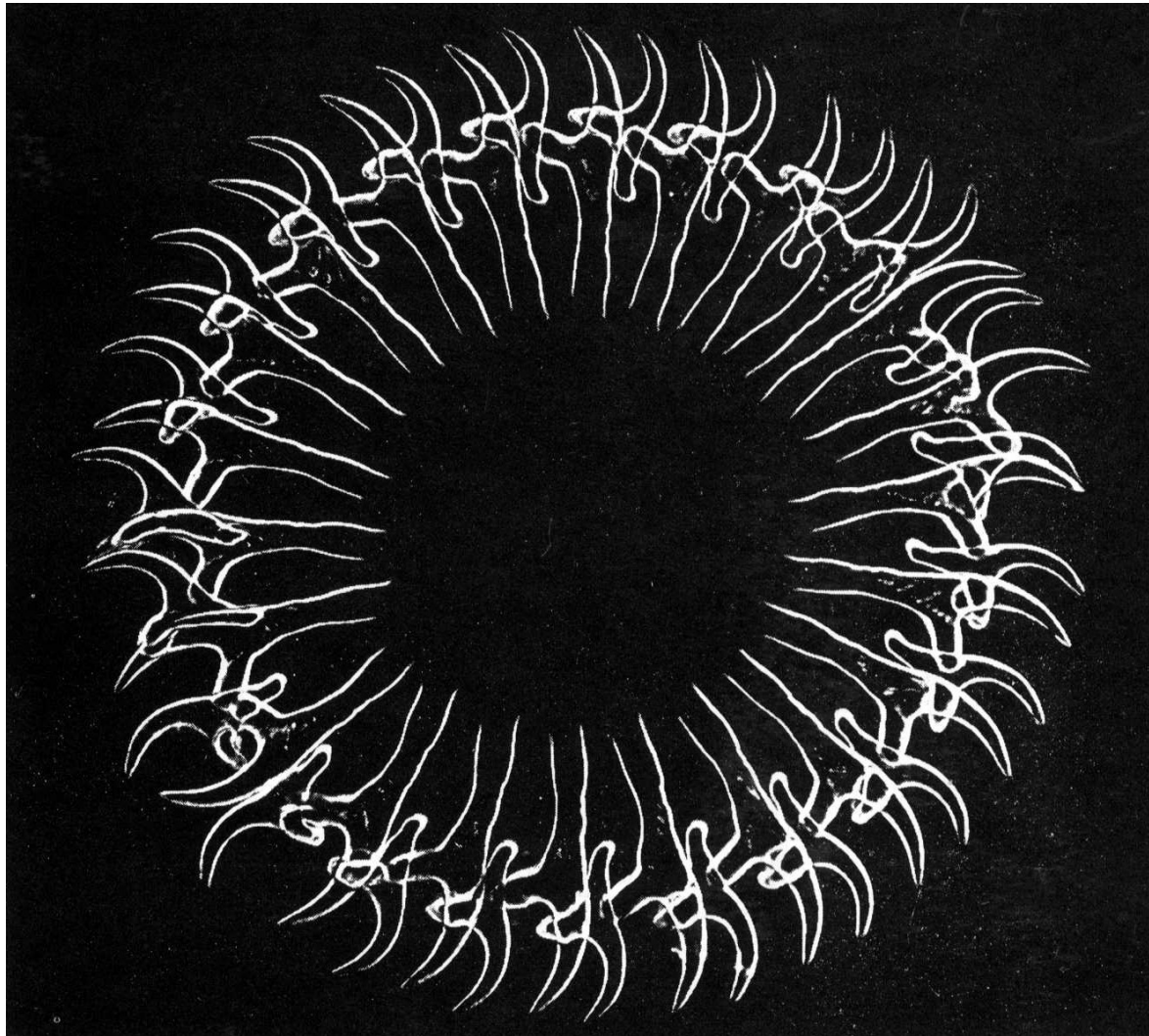


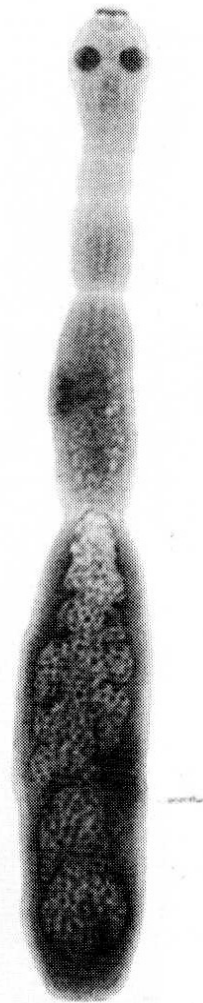
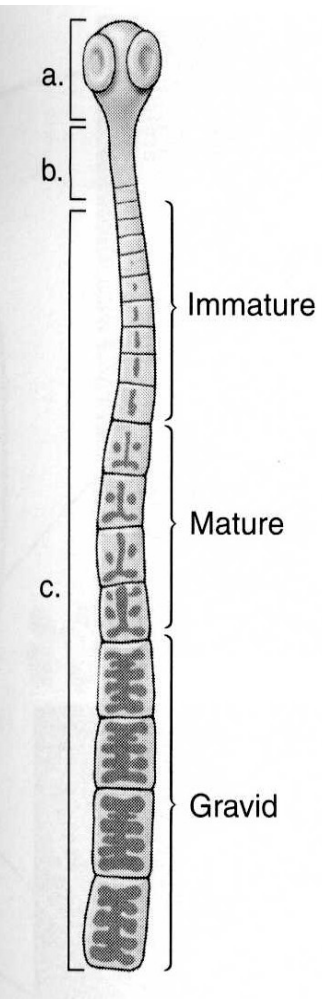
# Tasemnice I



# Tasemnice - charakteristika

- Výhradně parazitická skupina
- Absence střeva
- Larvy s embryonálními háčky
  - 10 lycofóra - Cestodaria
  - 6 hexacanth – Eucestoda
- Medicínsky a veterinárně významné
- Popsáno přes 4000 druhů – nejvíce řádů u ryb
- Nejpočetnější řád – Cyclophyllidea – ptáci a savci

# Scolex, krček, strobila



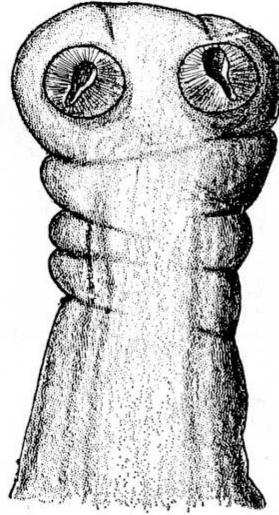
# Tasemnice - morfologie

- Hlavička – scolex – přichycovací orgán
- Strobila – proglotidy (segmenty)
- Přichycovací orgány – 5 základních typů:
  - Mělké zářezy a rýhy – Caryophyllidea
  - Štěrbiny – bothrie – Pseudophyllidea
  - Svalnaté bothridie – Tetraphyllidea
  - Chapadélka – tentakule – Trypanorhyncha
  - Svalnaté přísavky - Cyclophyllidea

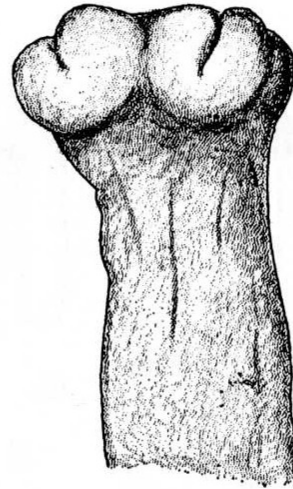
# Typy scolexů tasemnic



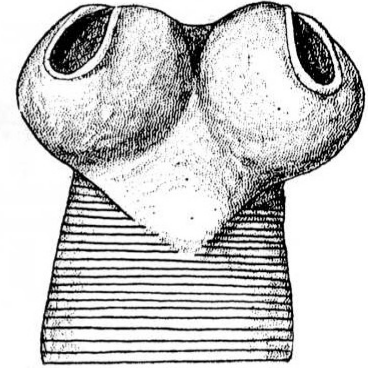
A



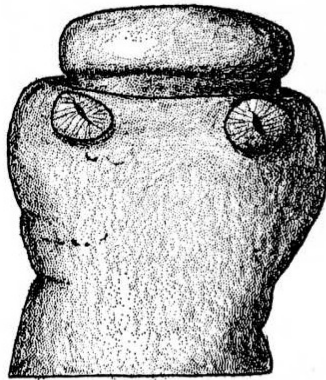
B



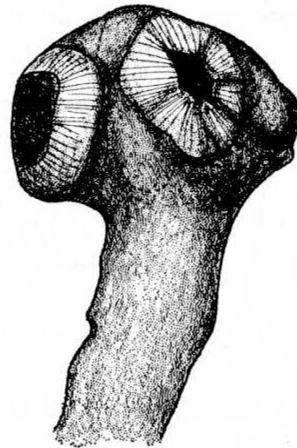
C



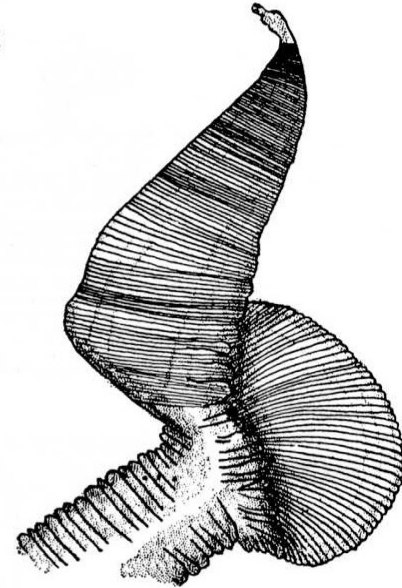
D



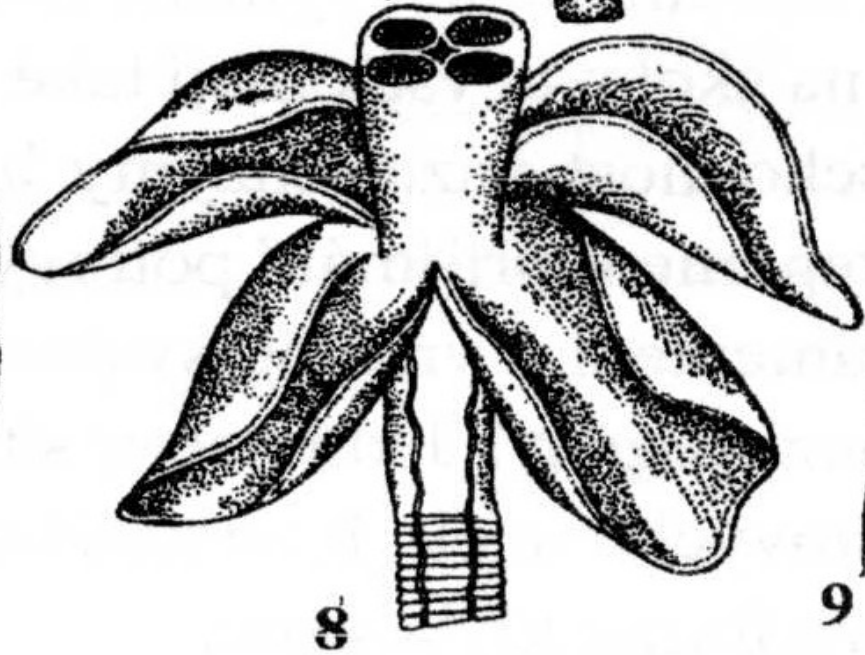
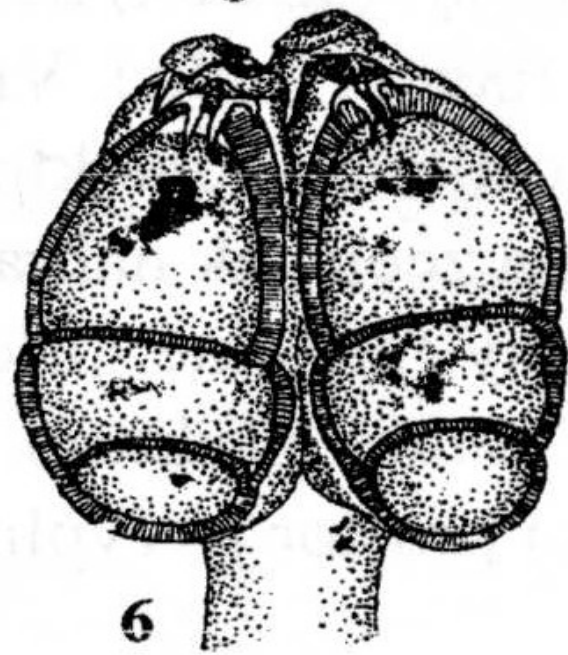
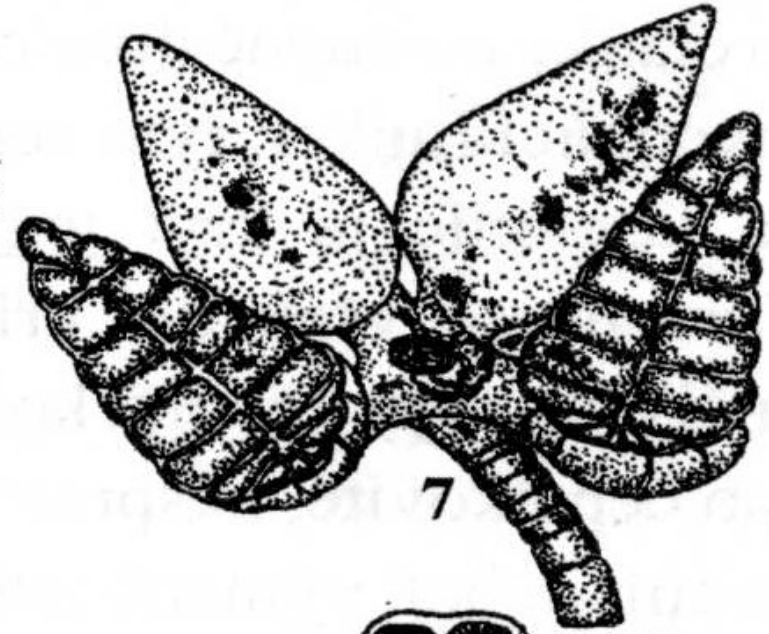
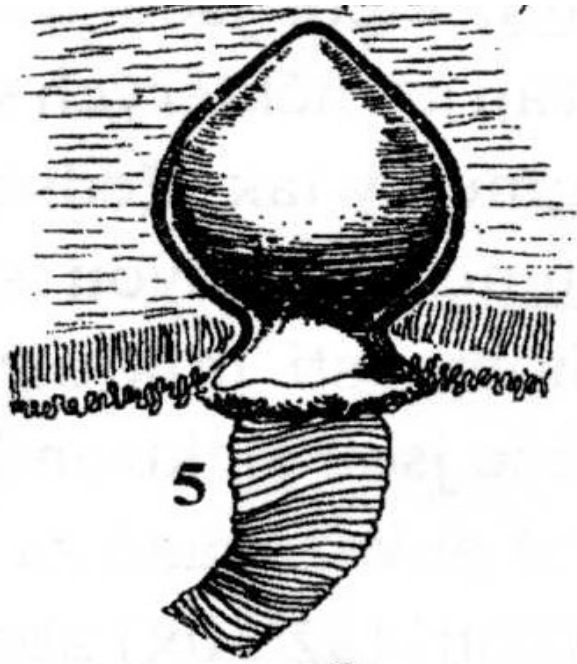
E



F

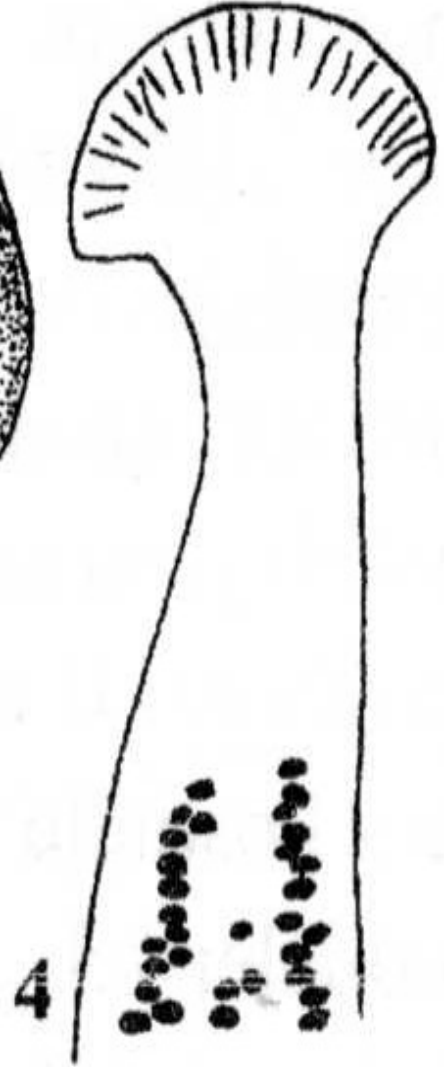
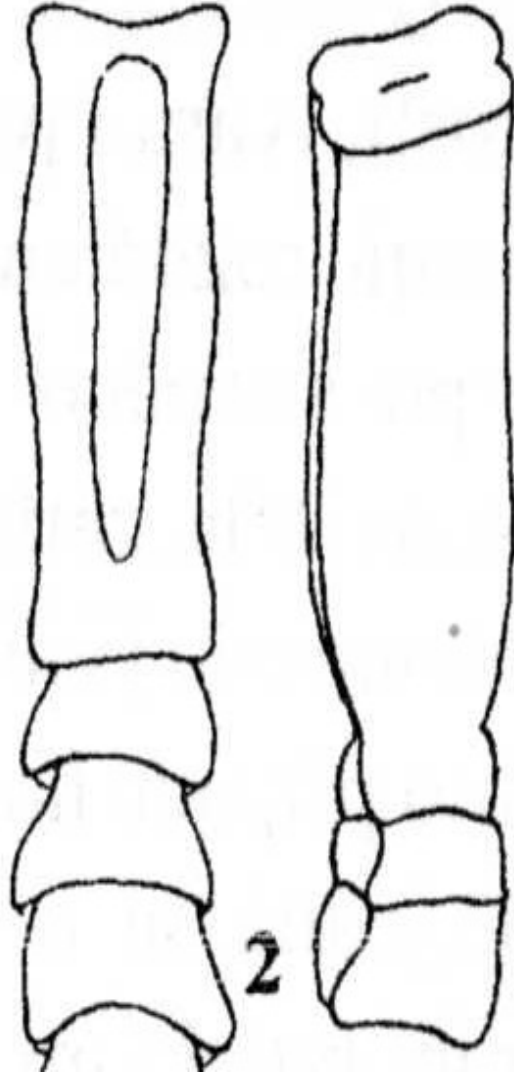
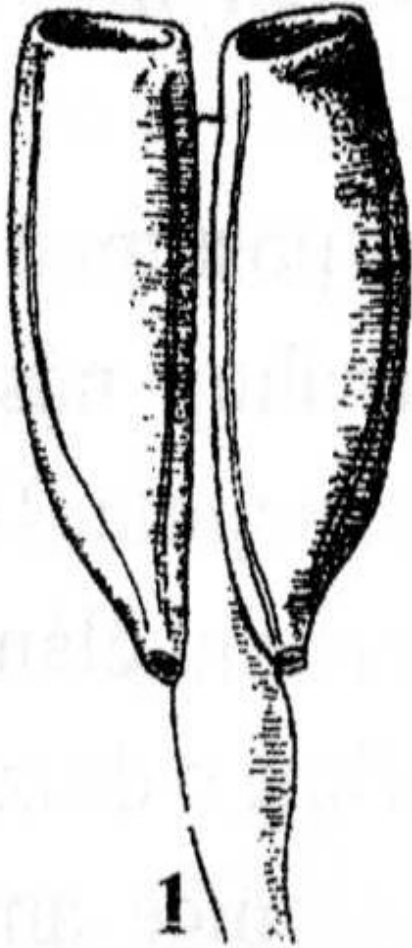


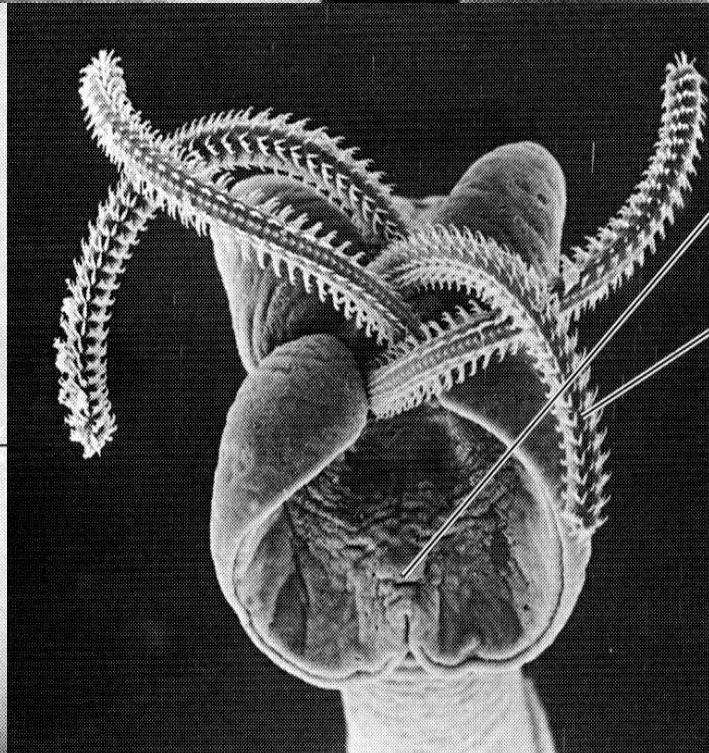
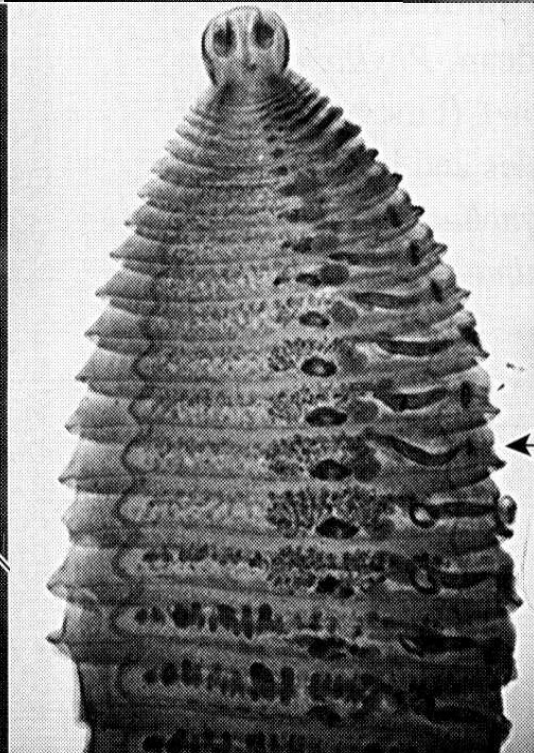
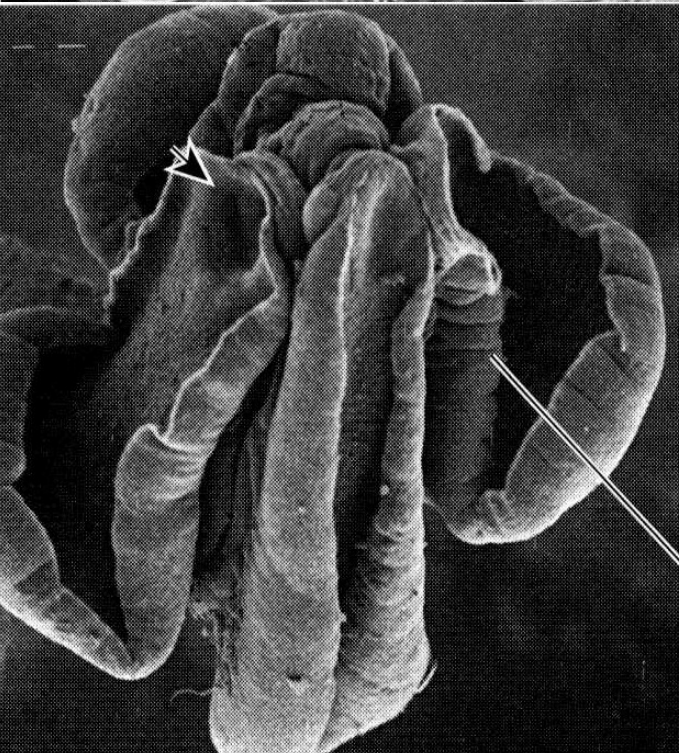
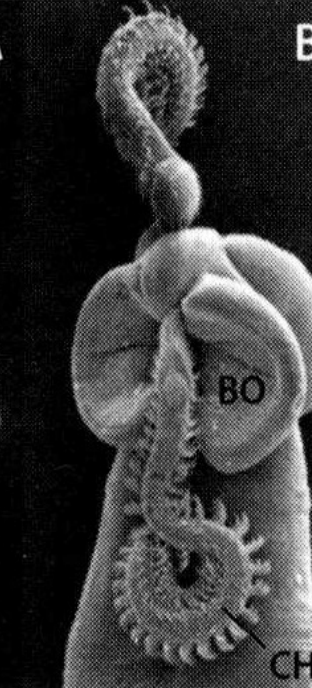
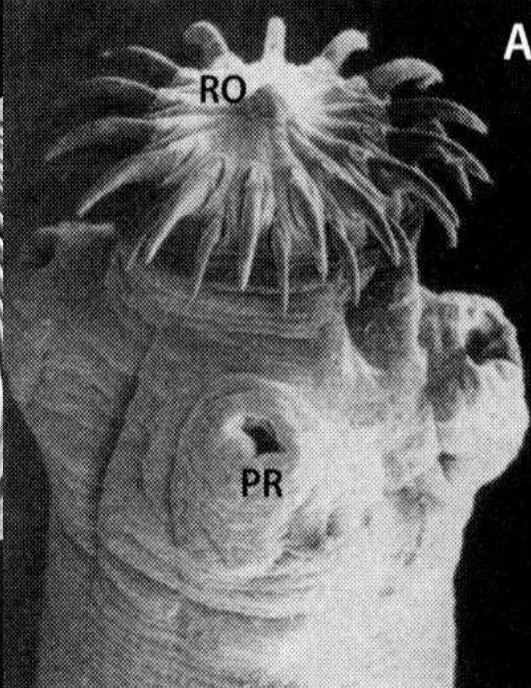
G



8

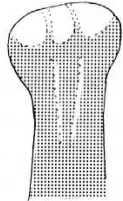
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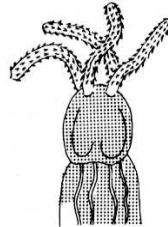




# Scolexy různých řádů tasemnic



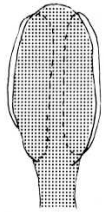
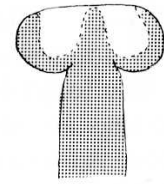
CARYOPHYLLIDEA



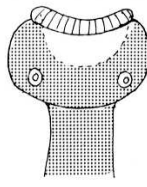
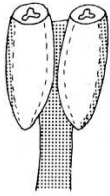
TRYPANORHYNCHA



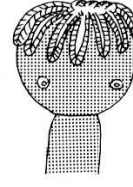
SPATHEBOTHRIIDEA



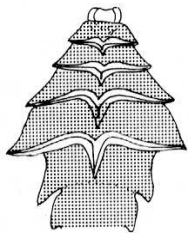
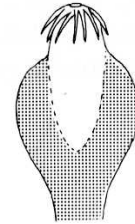
PSEUDOPHYLLIDEA



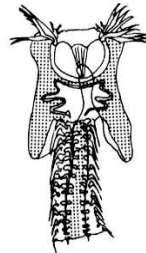
LECANICEPHALIDEA



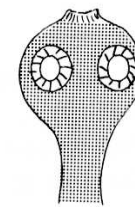
APORIDEA



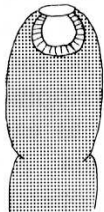
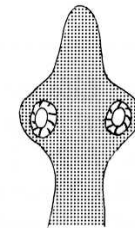
LITOBOTHRIDEA



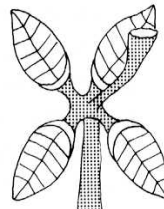
DIPHYLLIDEA



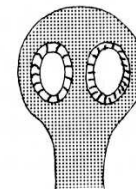
PROTEOCEPHALATA



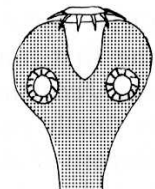
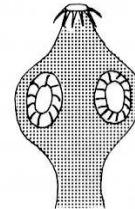
NIPPOTAENIDEA



TETRAPHYLLIDEA



CYCLOPHYLLIDEA

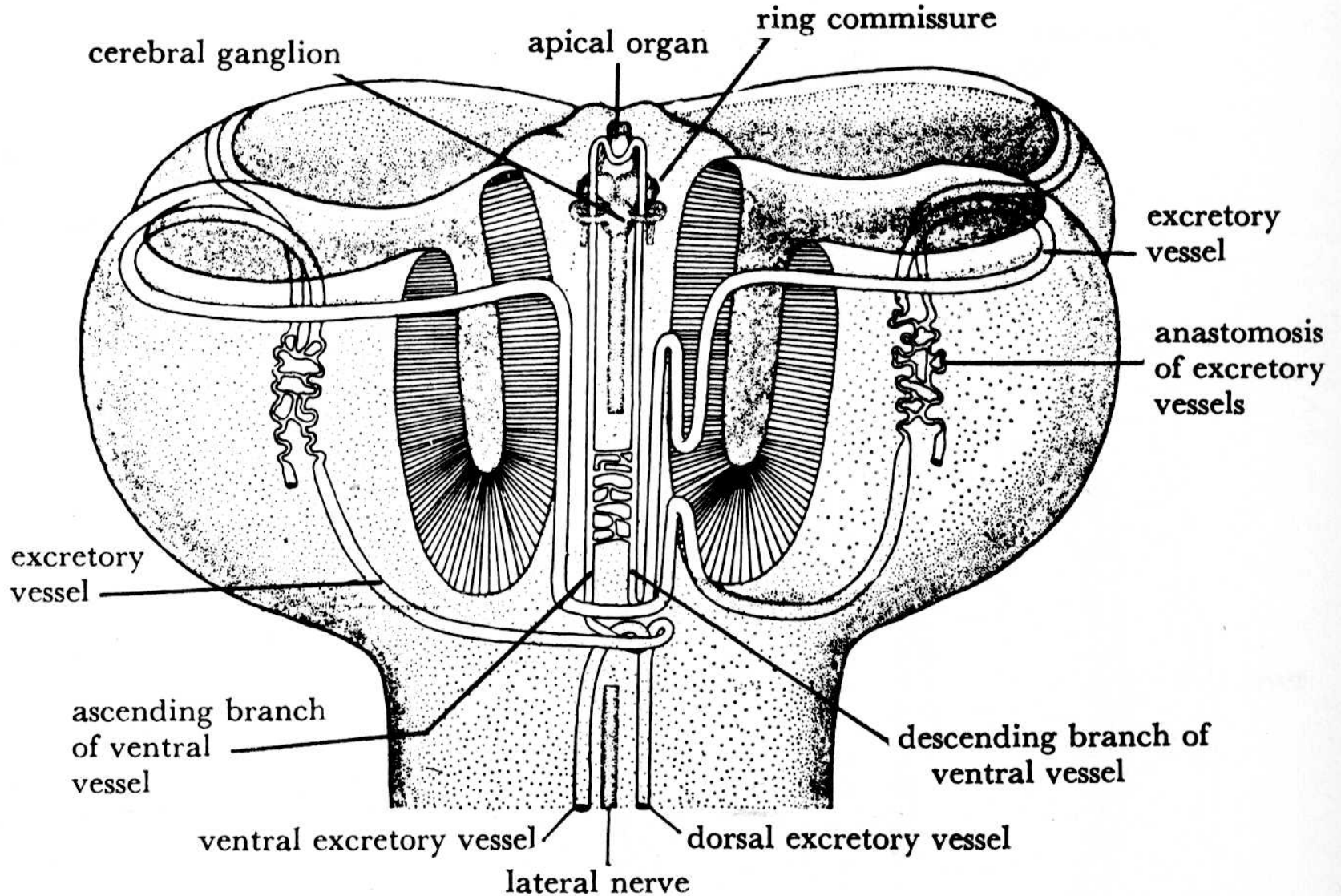


**Fig. 1.48.** Diagrammatic representation of scolices in different orders of tapeworm

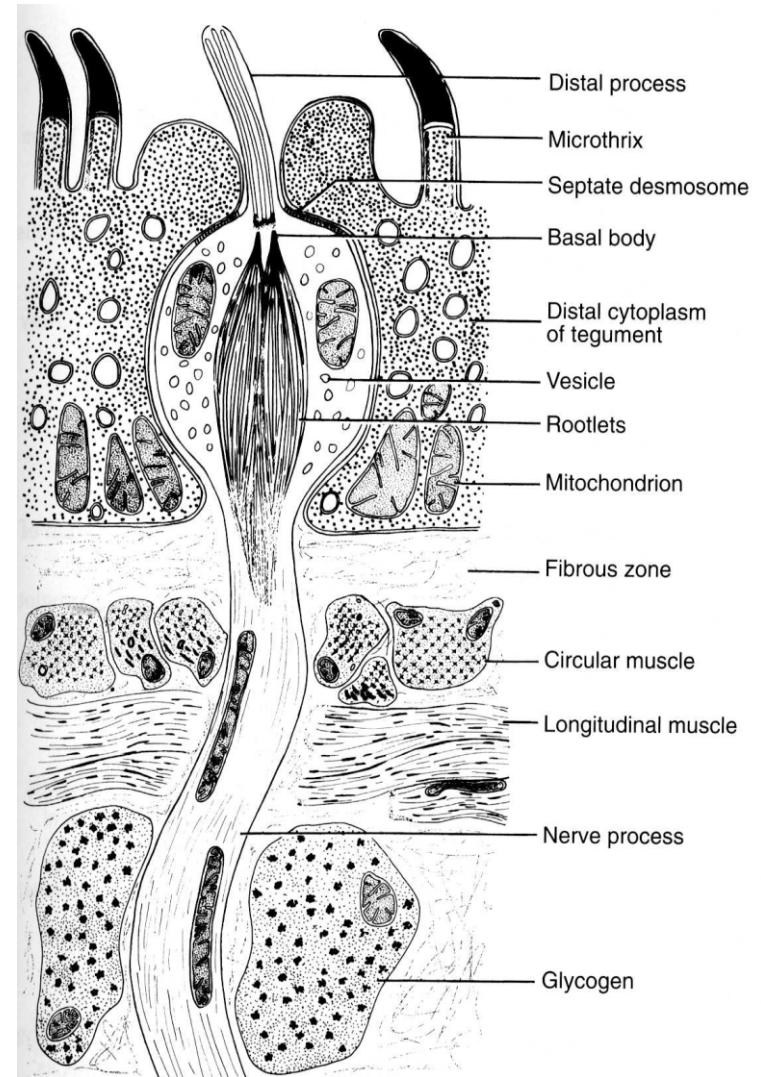
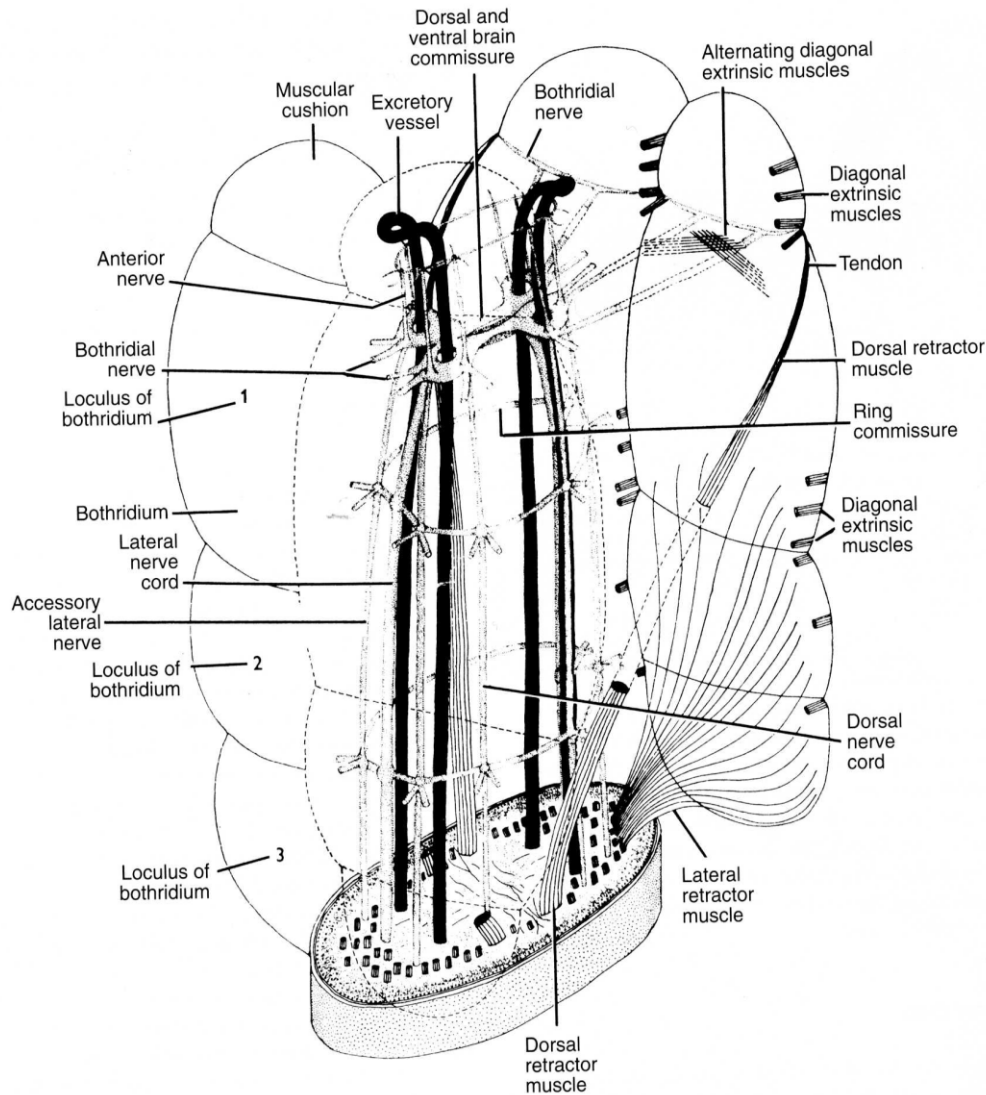
# Tasemnice - anatomie

- Scolex – krček - germinativní zóna
- Strobila – proglotidy – články:
  - Apolytické články – odškrcovány články s vajíčky
  - Anapolytické články – vajíčka jsou oddělována s neodělených článků
- Tegument – povrch těla
- Parenchym - pojivová tkáň
- Svalovina (tři vrstvy)
- Nervová soustava
- Exkreční soustava – protonefridie
- Pohlavní soustava – hermafroditi
- Příjem potravy – povrchem těla

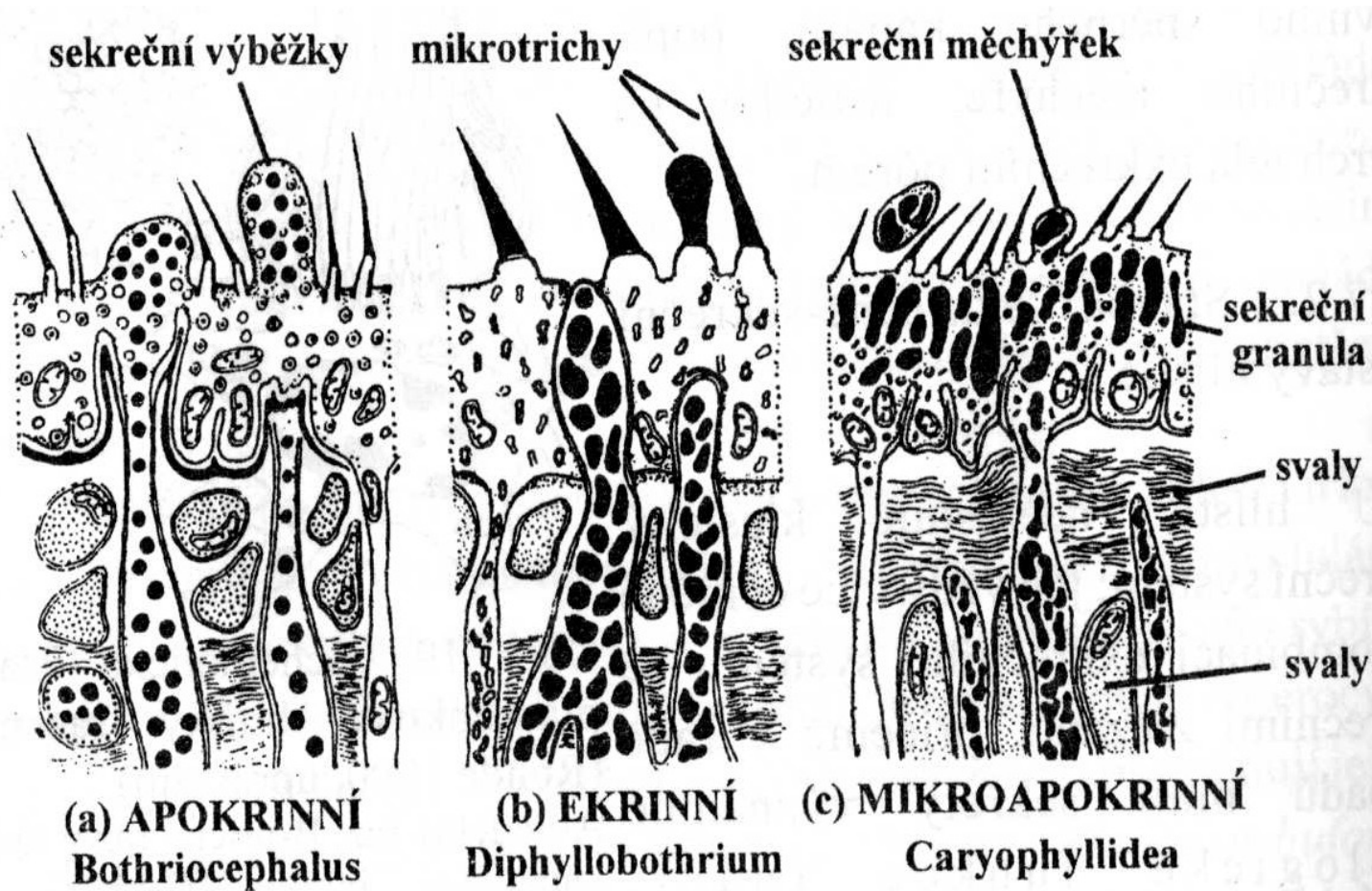
# Schéma scolexu tasemnice



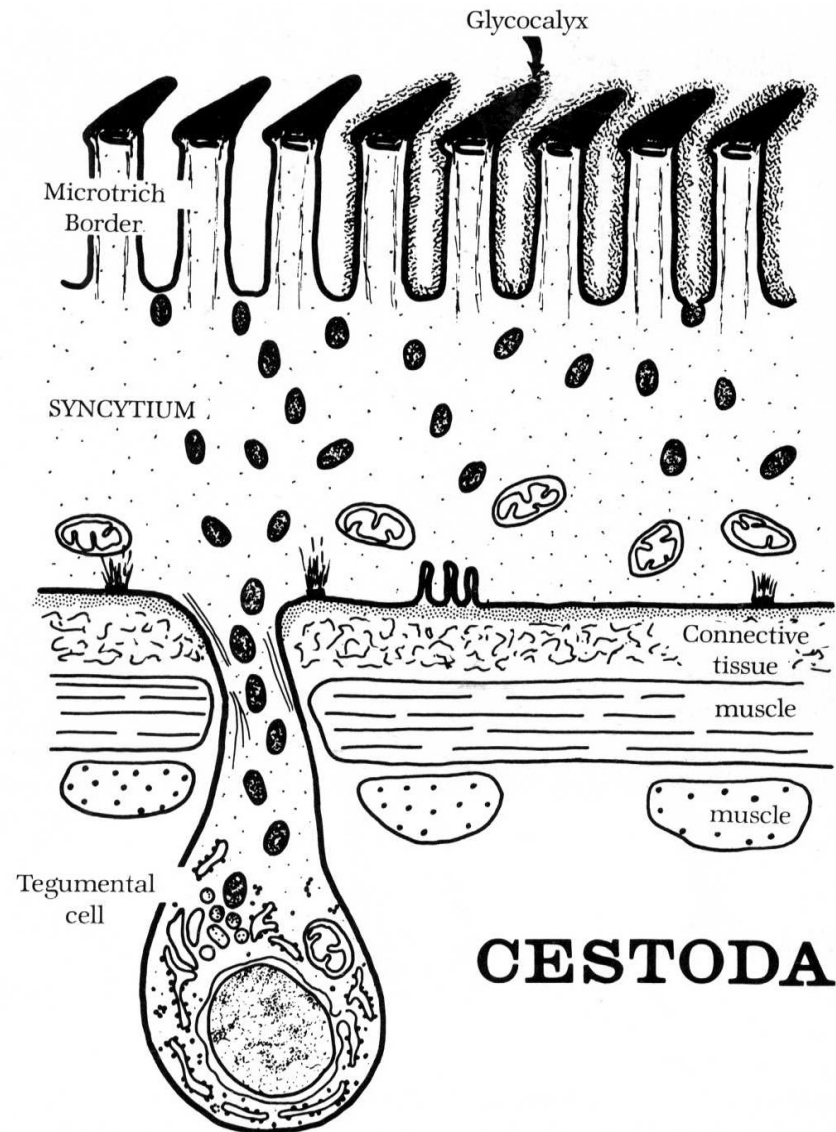
# Smyslové orgány na scolexu



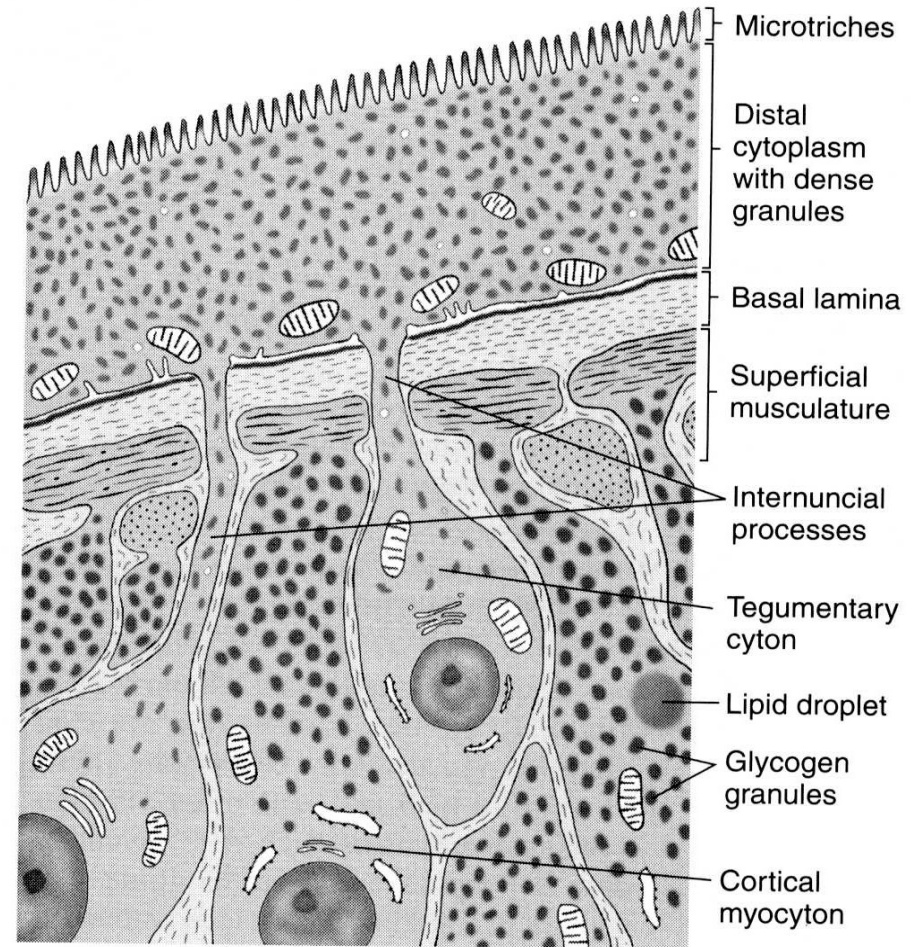
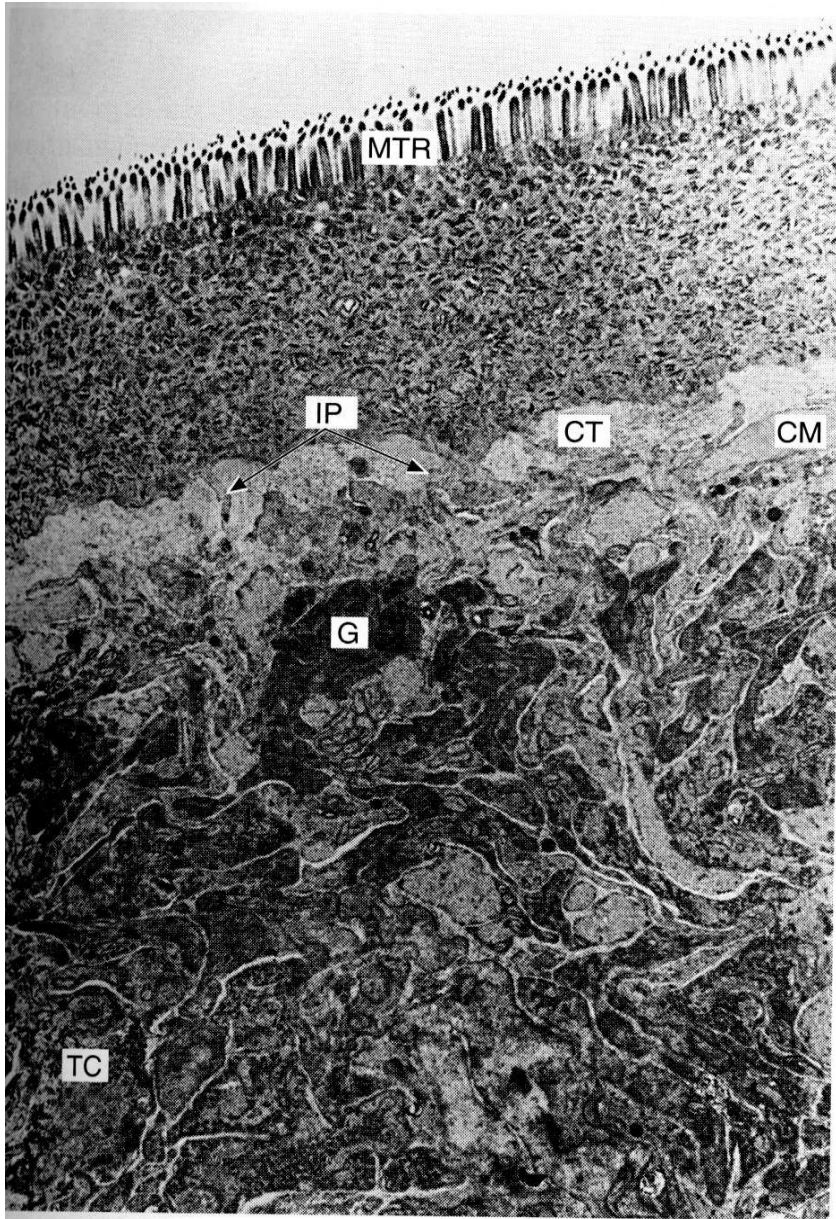
# Tři typy sekrece žlaz na scolexu



# Tegument – povrch těla

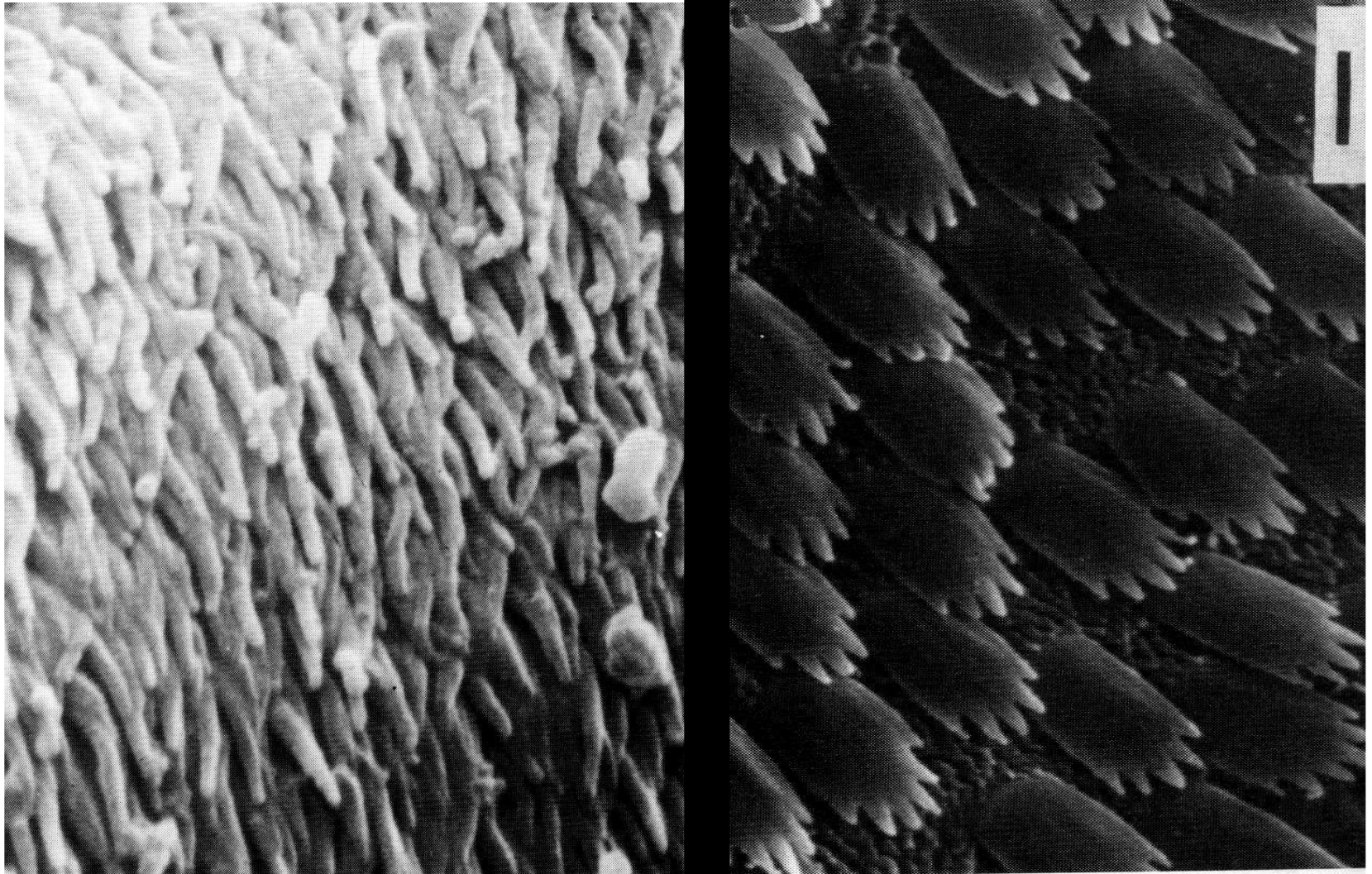


# Tegument – povrch těla



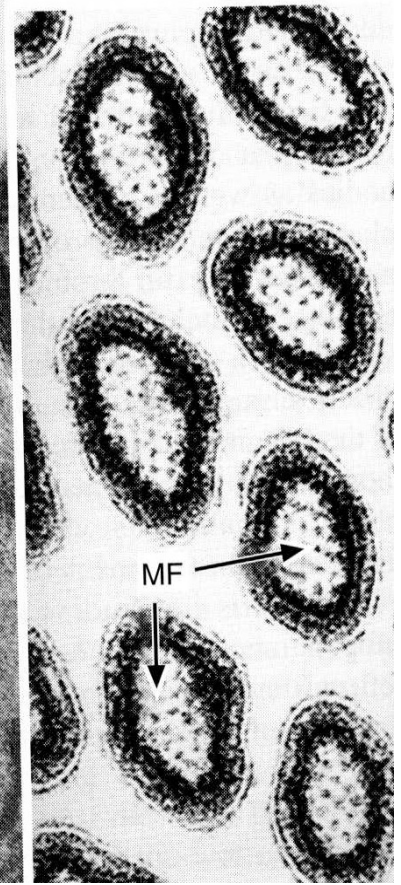
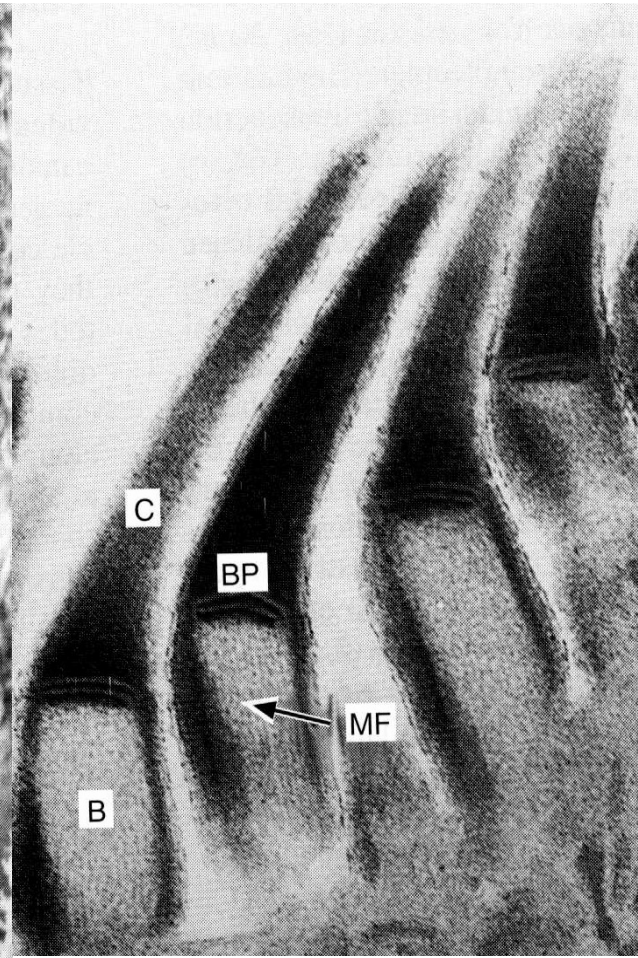
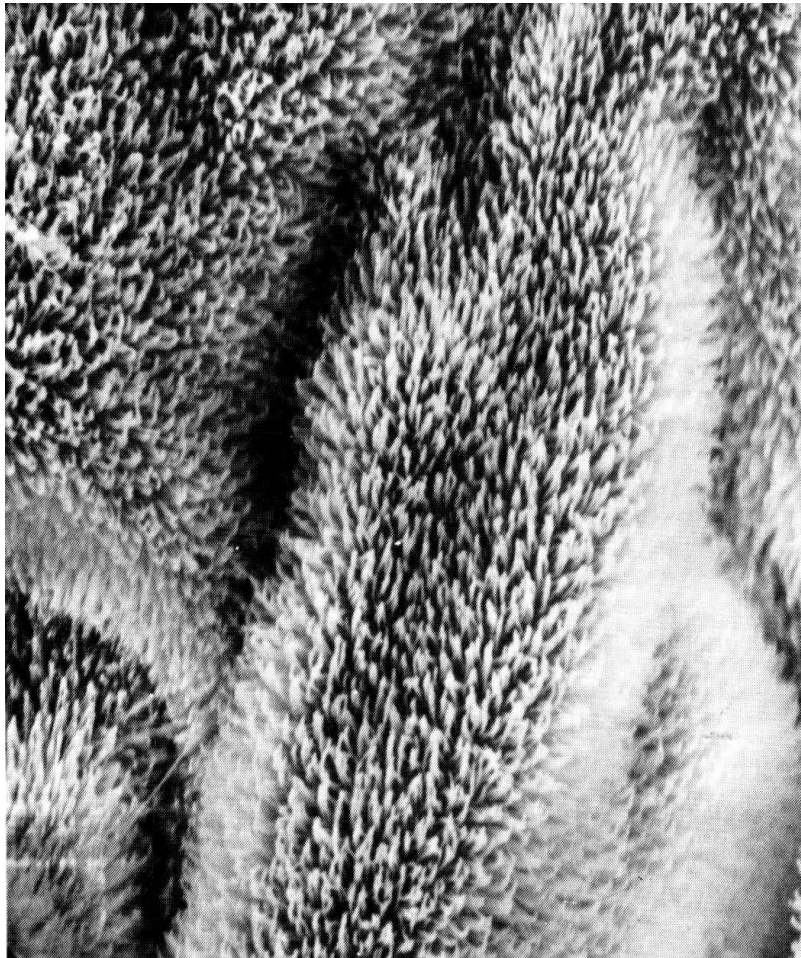
(b)

# Mikrotrichy na povrchu těla

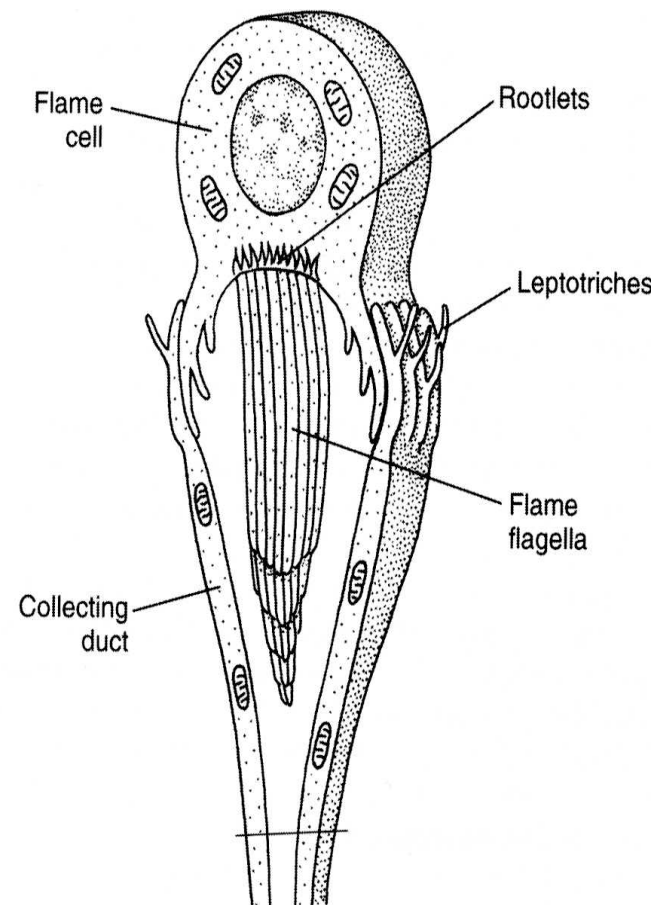
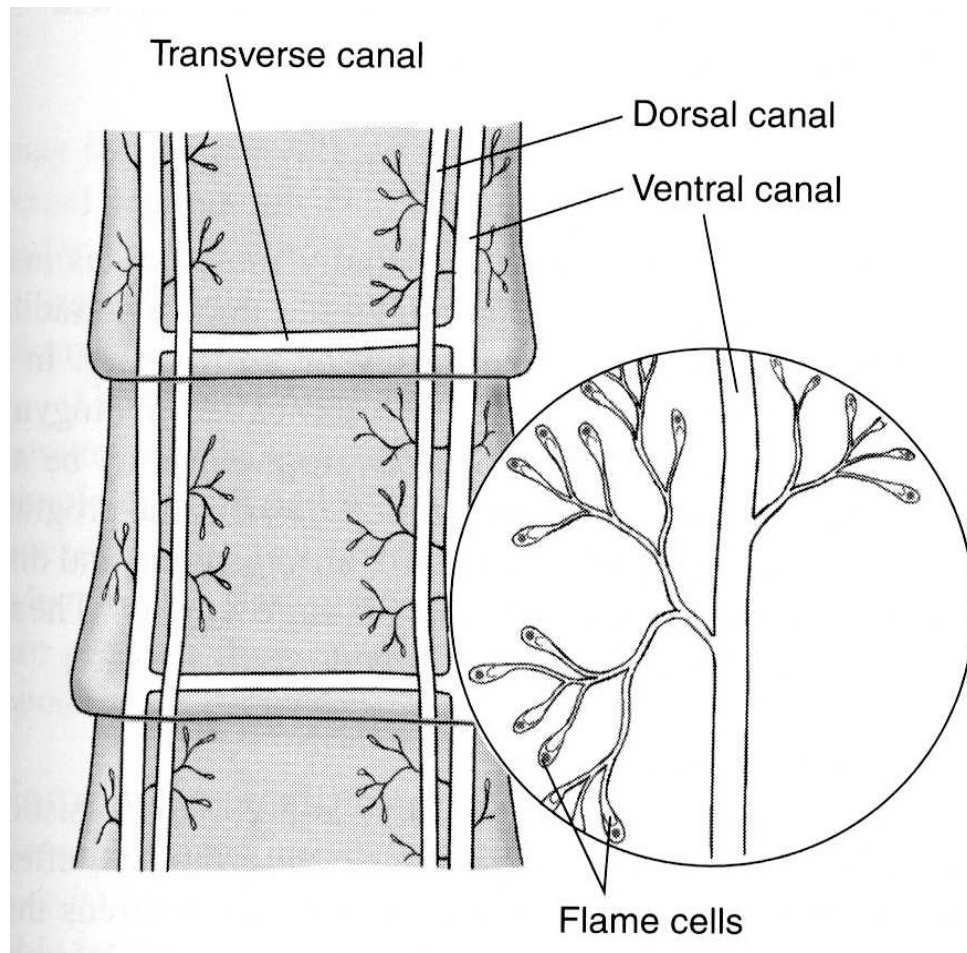




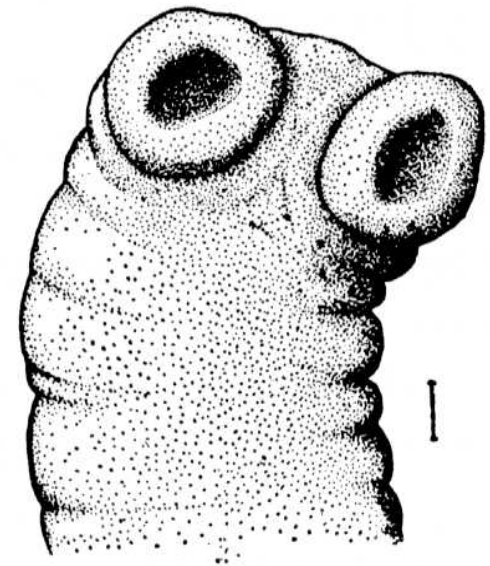
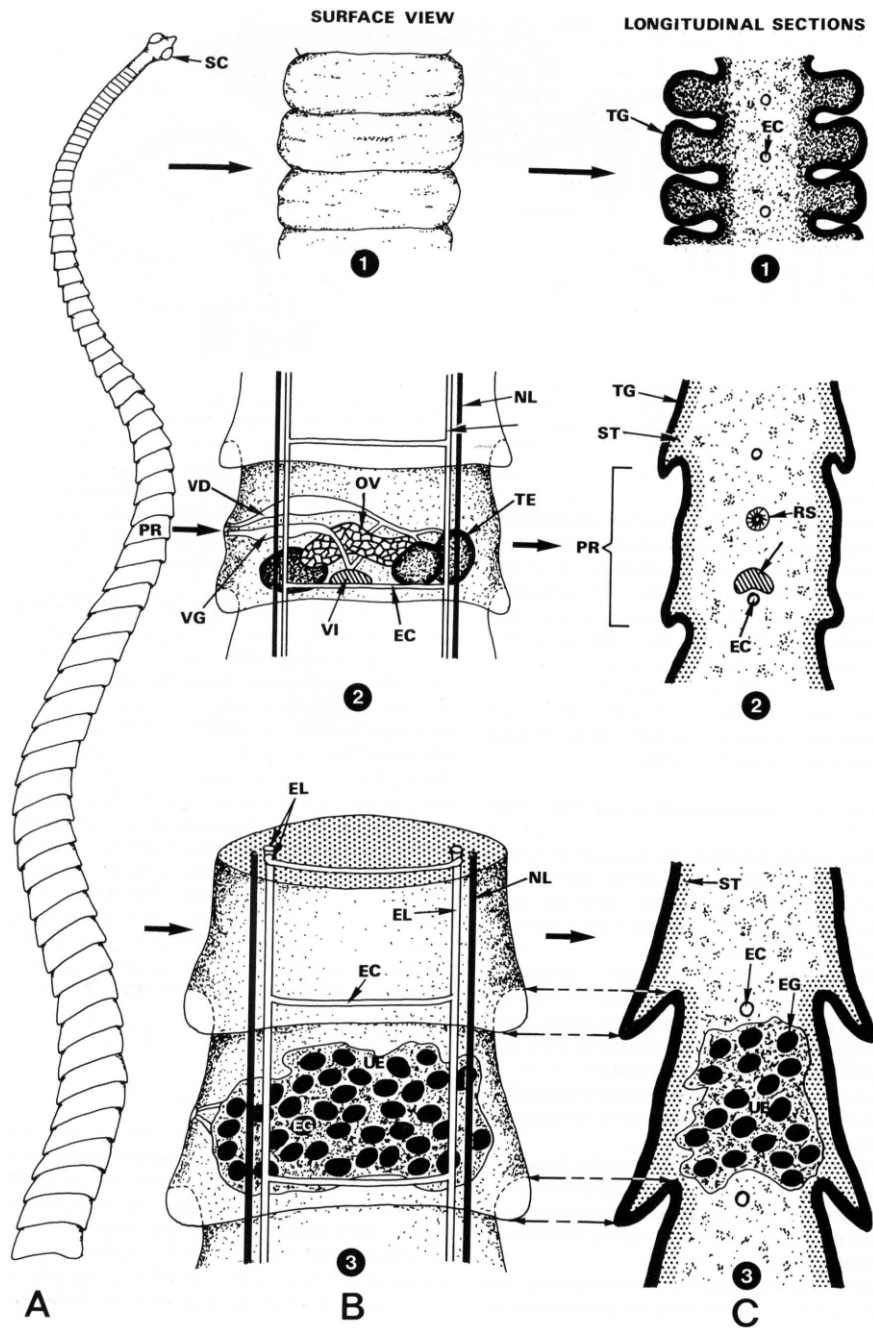
# Mikrotrichy



# Exkreční soustava tasemnice



# Anatomie strobily tasemnice



A  
Fig. 3.98

B

C

# Tasemnice – pohlavní soustava

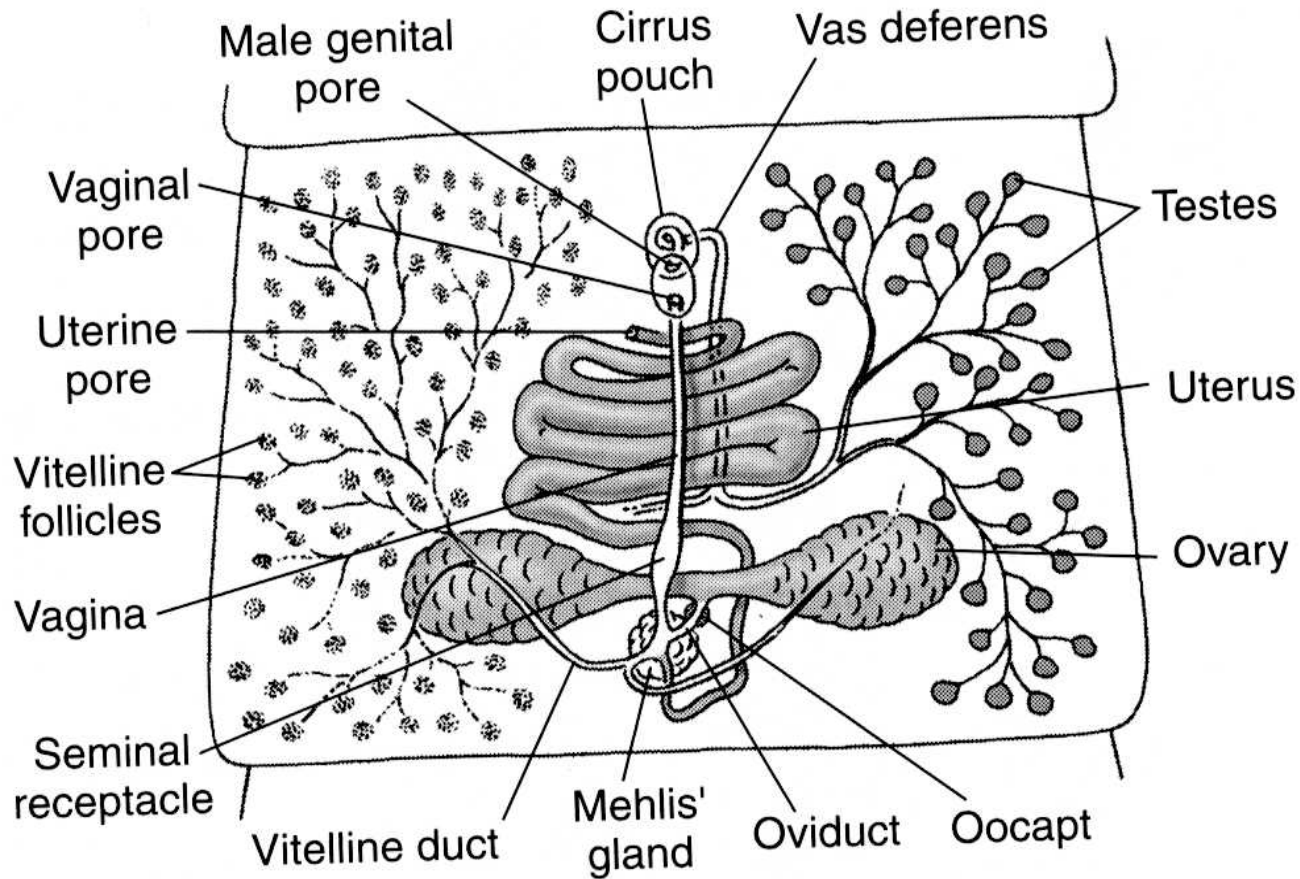
## Samčí:

- Varlata – testes
- Vasa efferentia
- Vas deferens
- Vesicula seminalis
- Ductus ejaculatorius
- Cirrus a cirrový váček

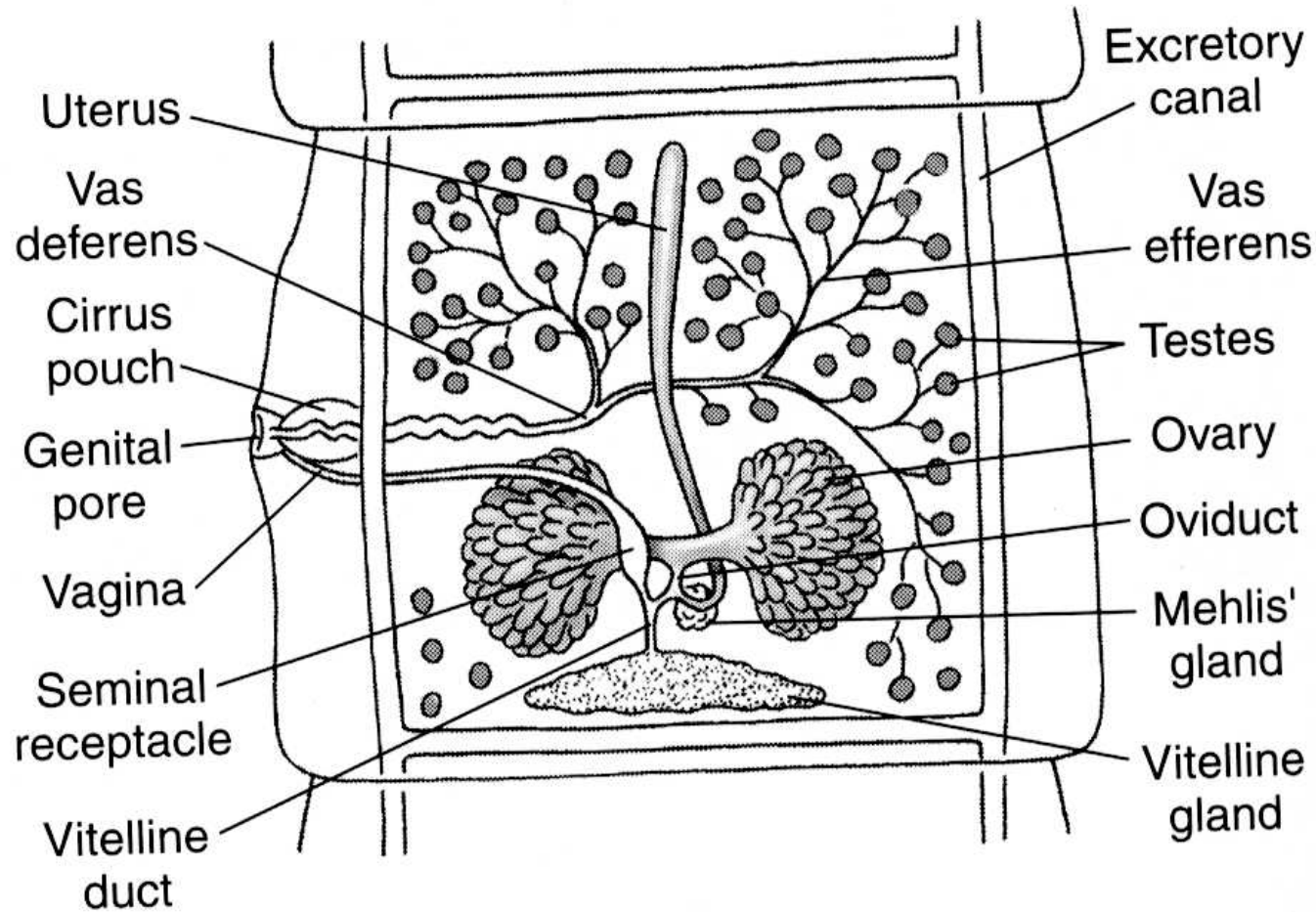
## Samičí:

- Vaječník – ovarium
- Vejcovod – ovidukt
- Receptaculum seminis
- Žloutkové trsy – vitelaria
- Ootyp
- Mehlisovy žlázy
- Děloha – uterus
- Vagina

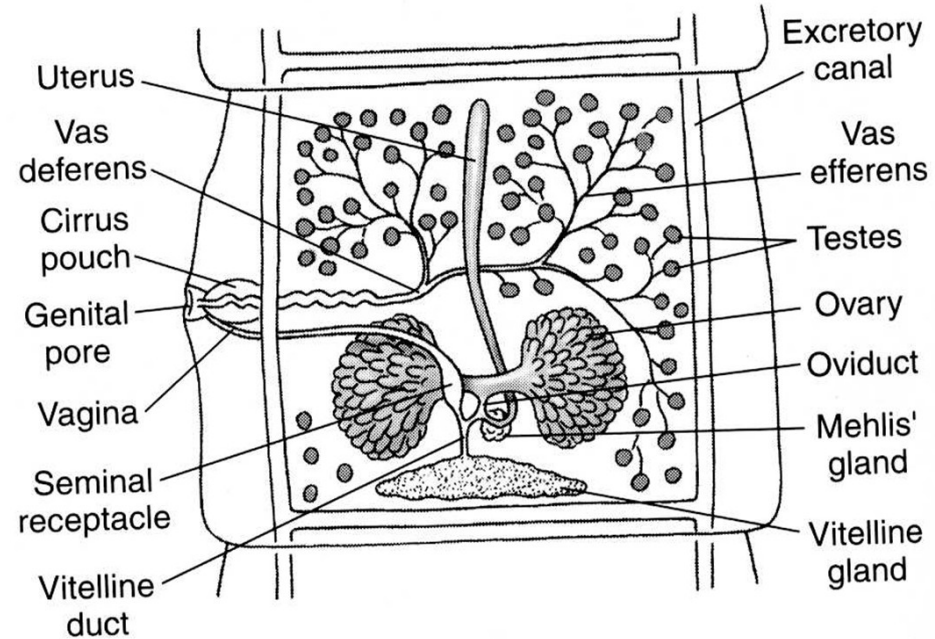
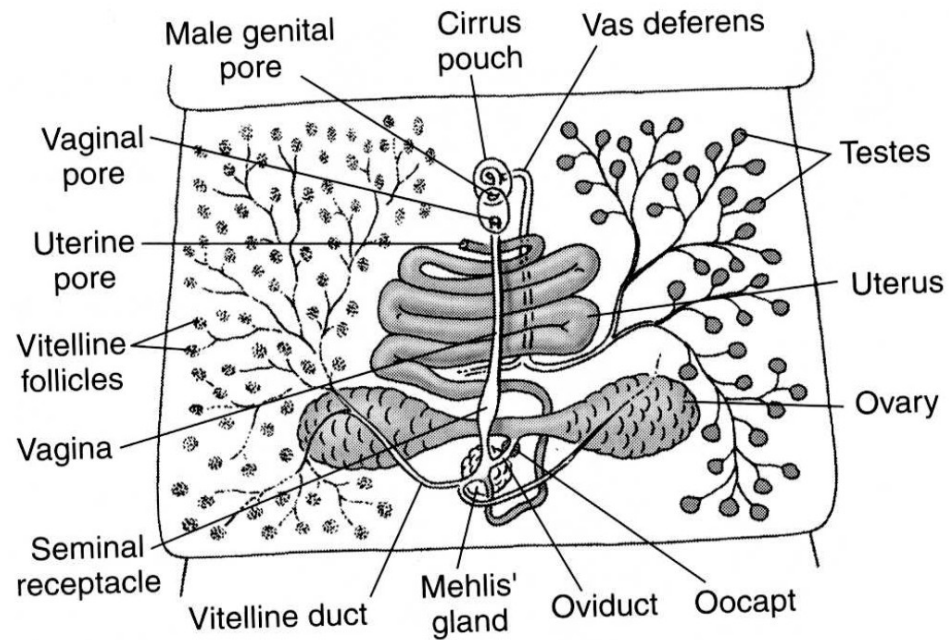
# Pohlavní soustava akvatické tasemnice



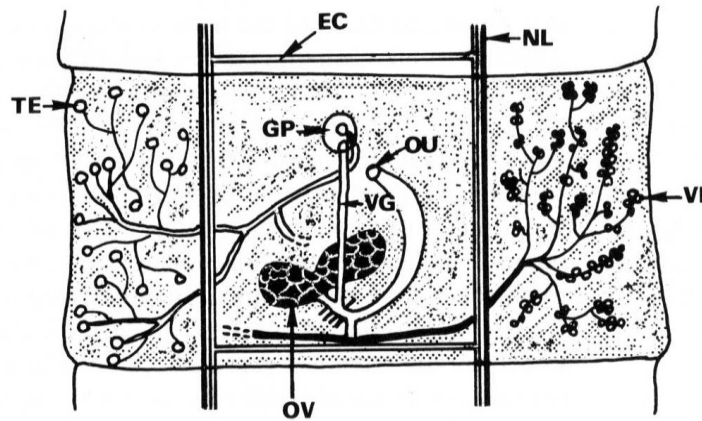
# Pohlavní soustava terestrické tasemnice



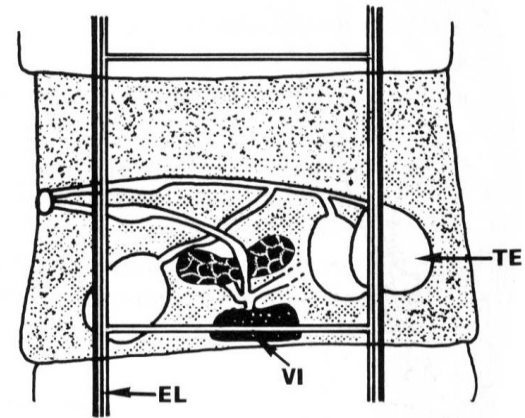
# V čem spočívá rozdíl ?



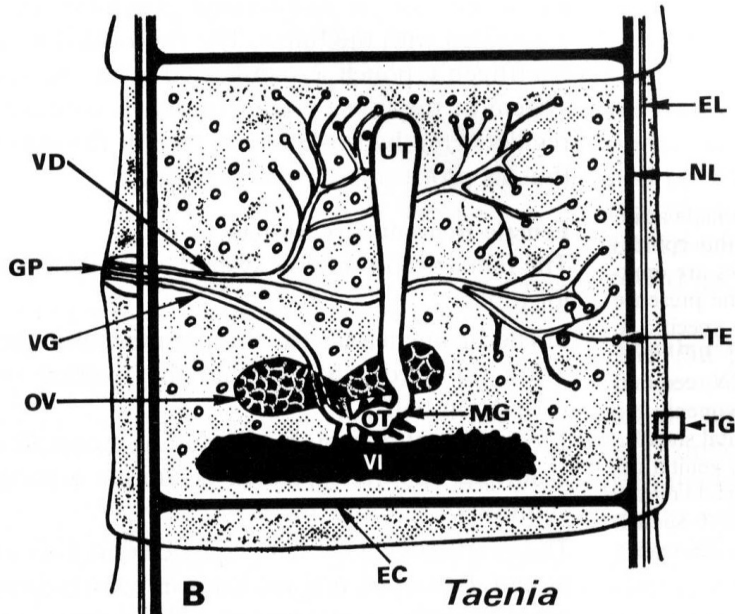
# Srovnání stavby článků



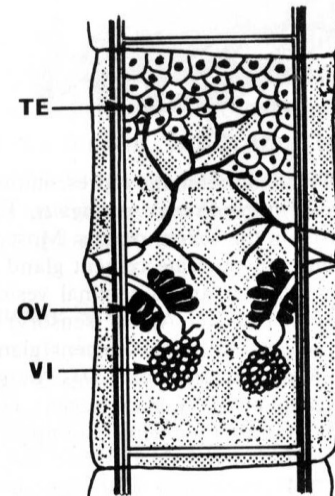
**A** *Diphylobothrium*



**C** *Hymenolepis*



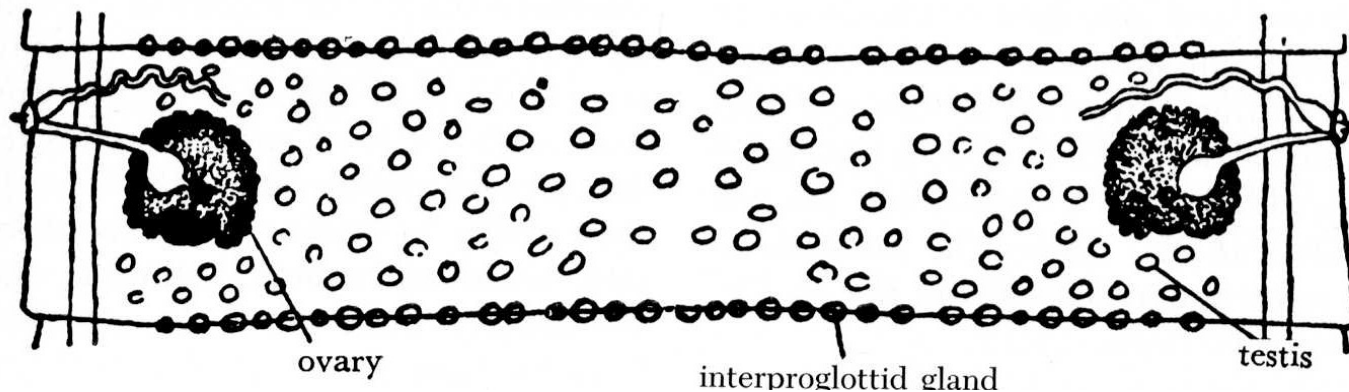
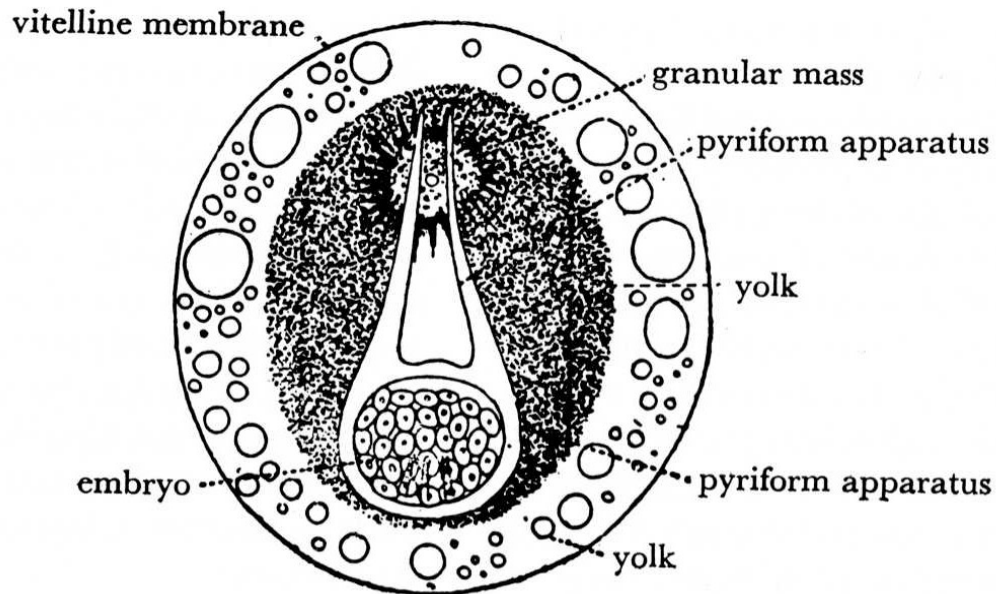
**B** *Taenia*



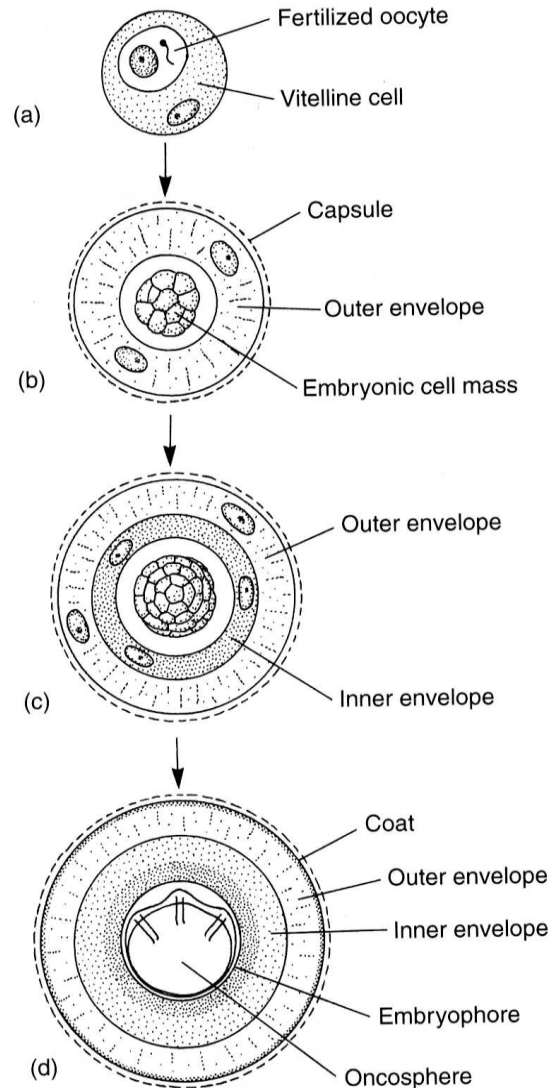
**D** *Dipylidium*



# Vajíčko a článek tasemnice



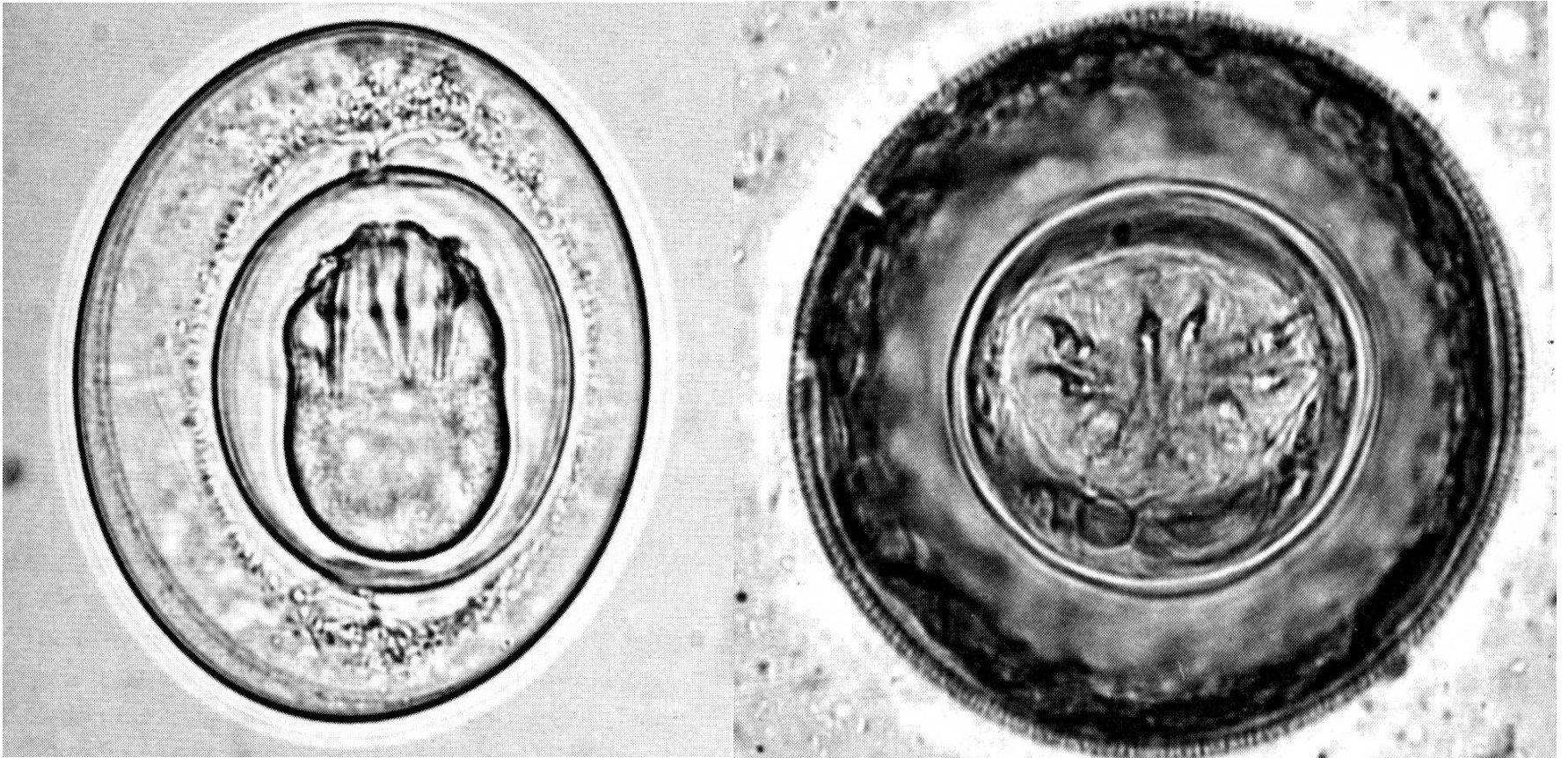
# Formování embrya ve vajíčku



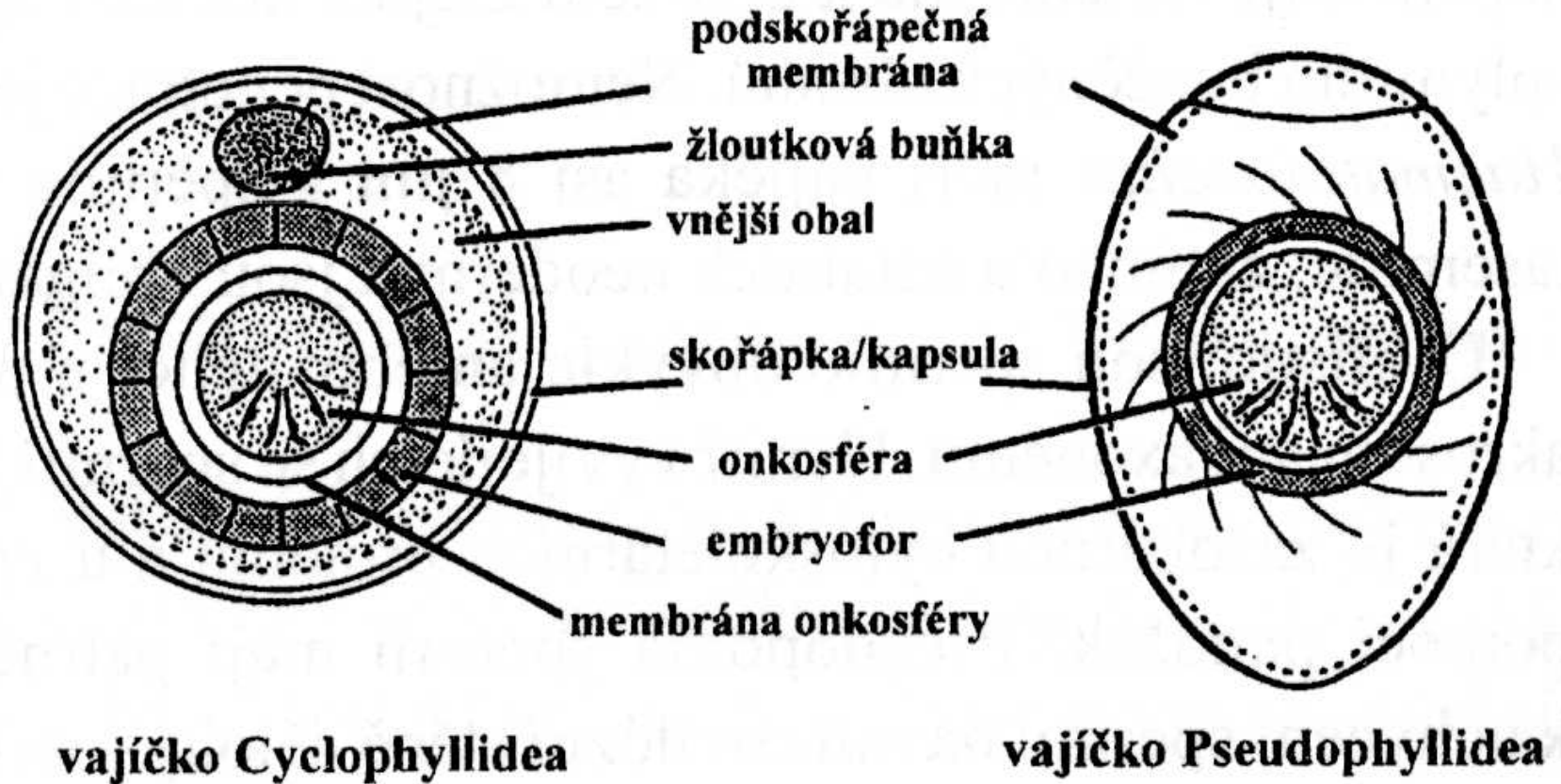
# Vývojová stádia a vývoj

- Vajíčko
- Larvální stádia
- Koracidium – obrvené a plave ve vodě
- Onkosféra – v meziphostiteli
- Metacestod - larvální stádia – viz níže:
- Procerkoid, Plerocerkoid - Pseudophyllidea
- Plerocercus - Trypanorhyncha
- Cysticerkoid, Strobilocercus, Tetrathyridium –  
Cyclophyllidea
- Cysticercus, Coenurus, Echinococcus,  
Hydatida, Alveokok - Taeniidae

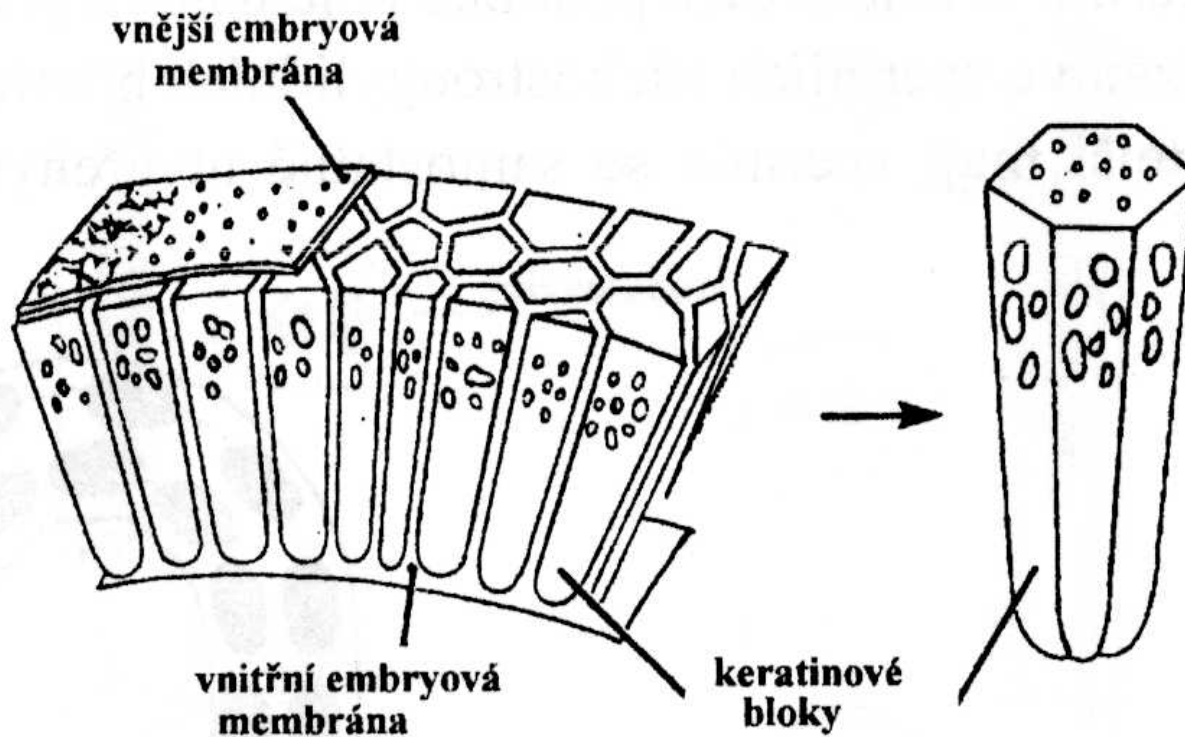
# Vajíčka tasemnic



# Vajíčka tasemnic

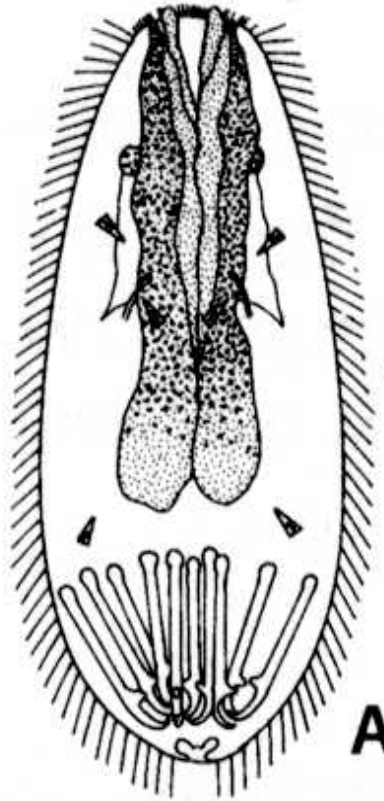


# Stěna vajíčka - embryofor



embryofor *Taenia solium*

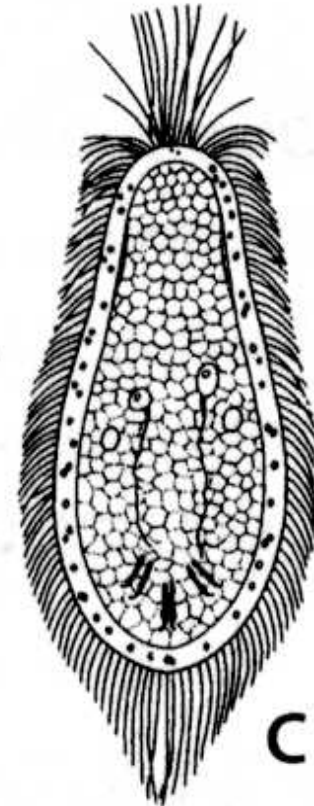
# Larvální stádia tasemnic



**lycophora (A)**

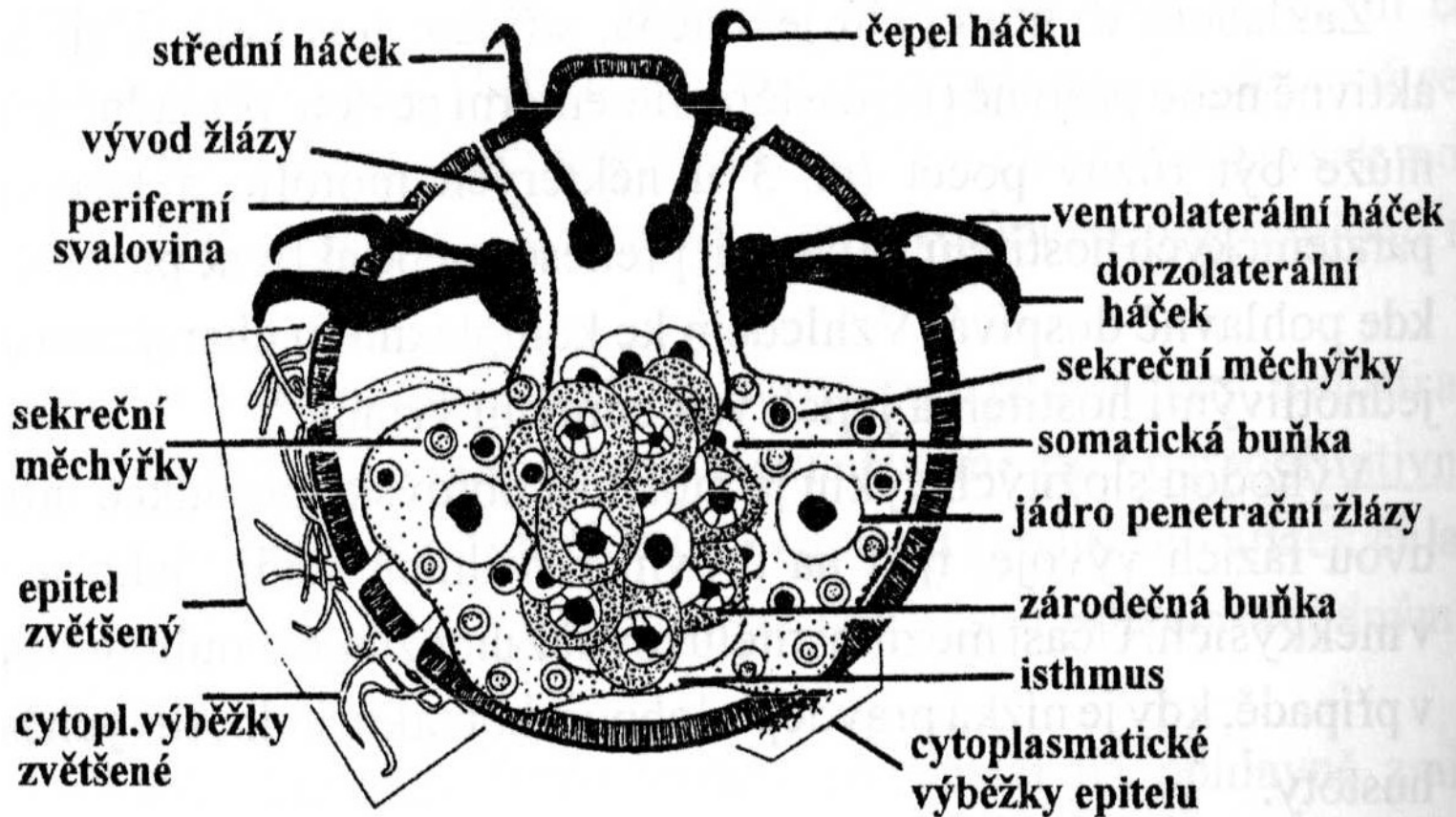


**oncosphaera (B)**



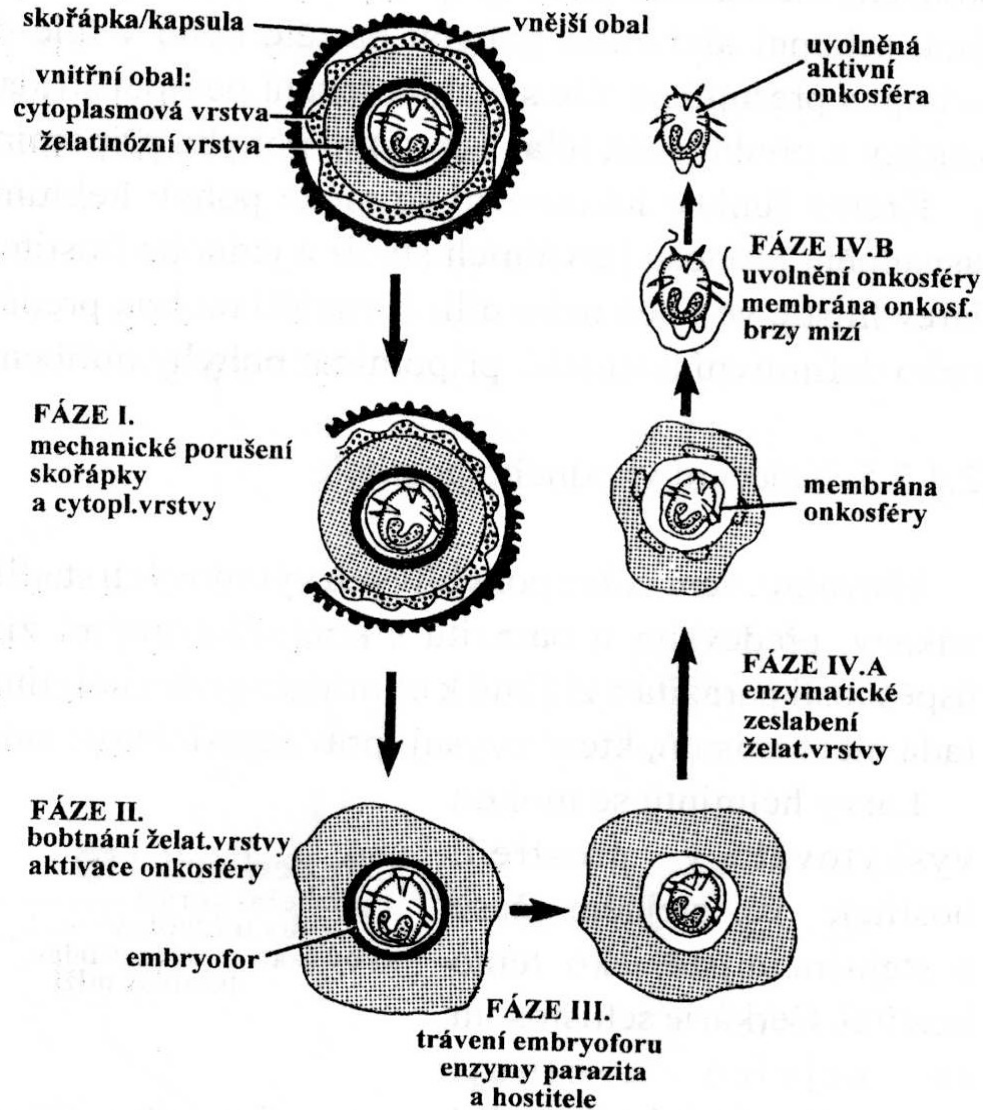
**coracidium (C)**

# Anatomie onkosféry

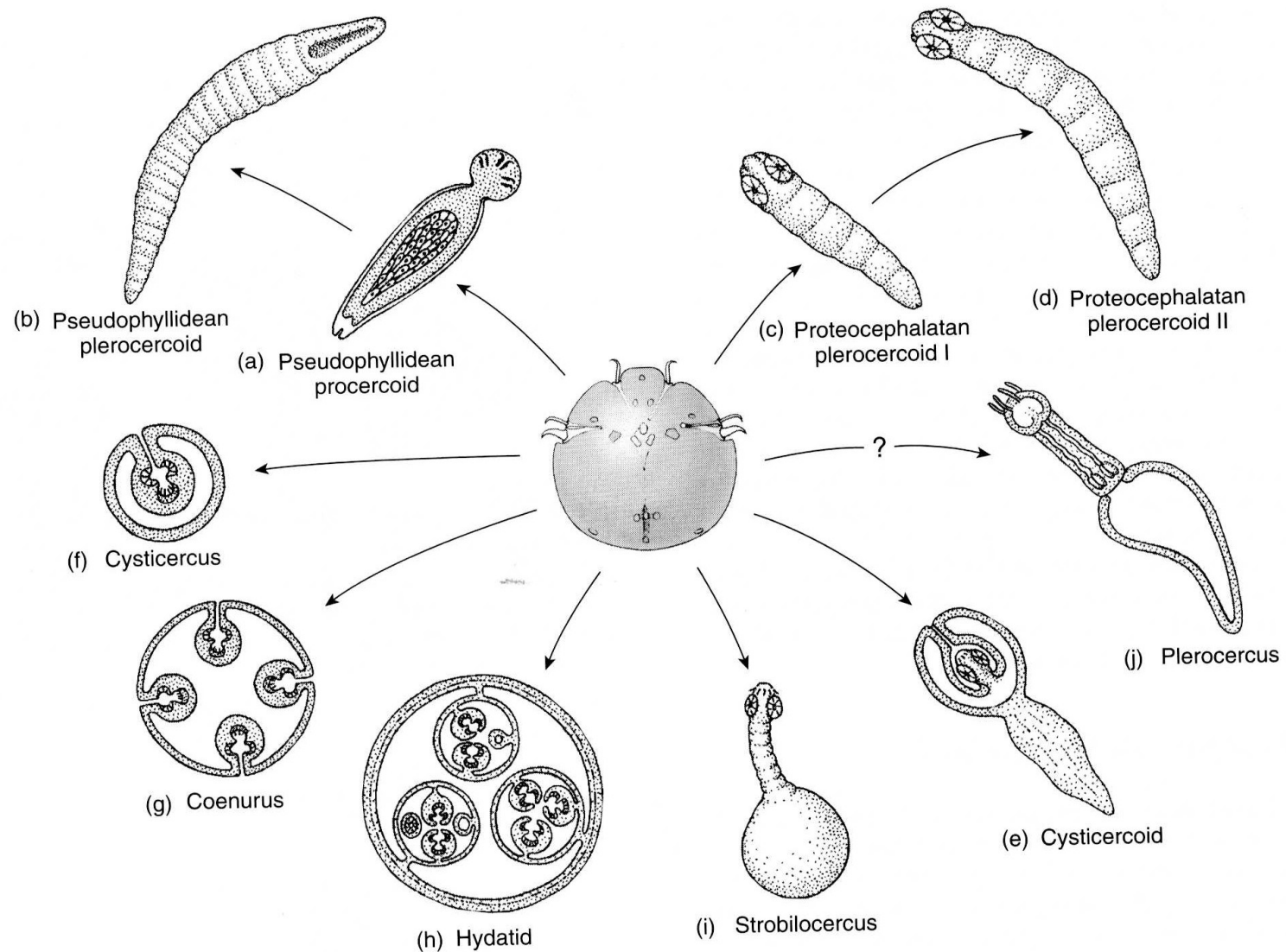




# Stádia líhnutí onkosféry



# Základní typy metacestodů

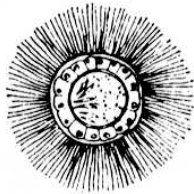


# Larvální stádia – akvatický cyklus

## PSEUDOPHYLLIDEA



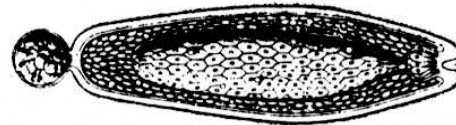
EGG



CORACIDIUM



ONCOSPHERE

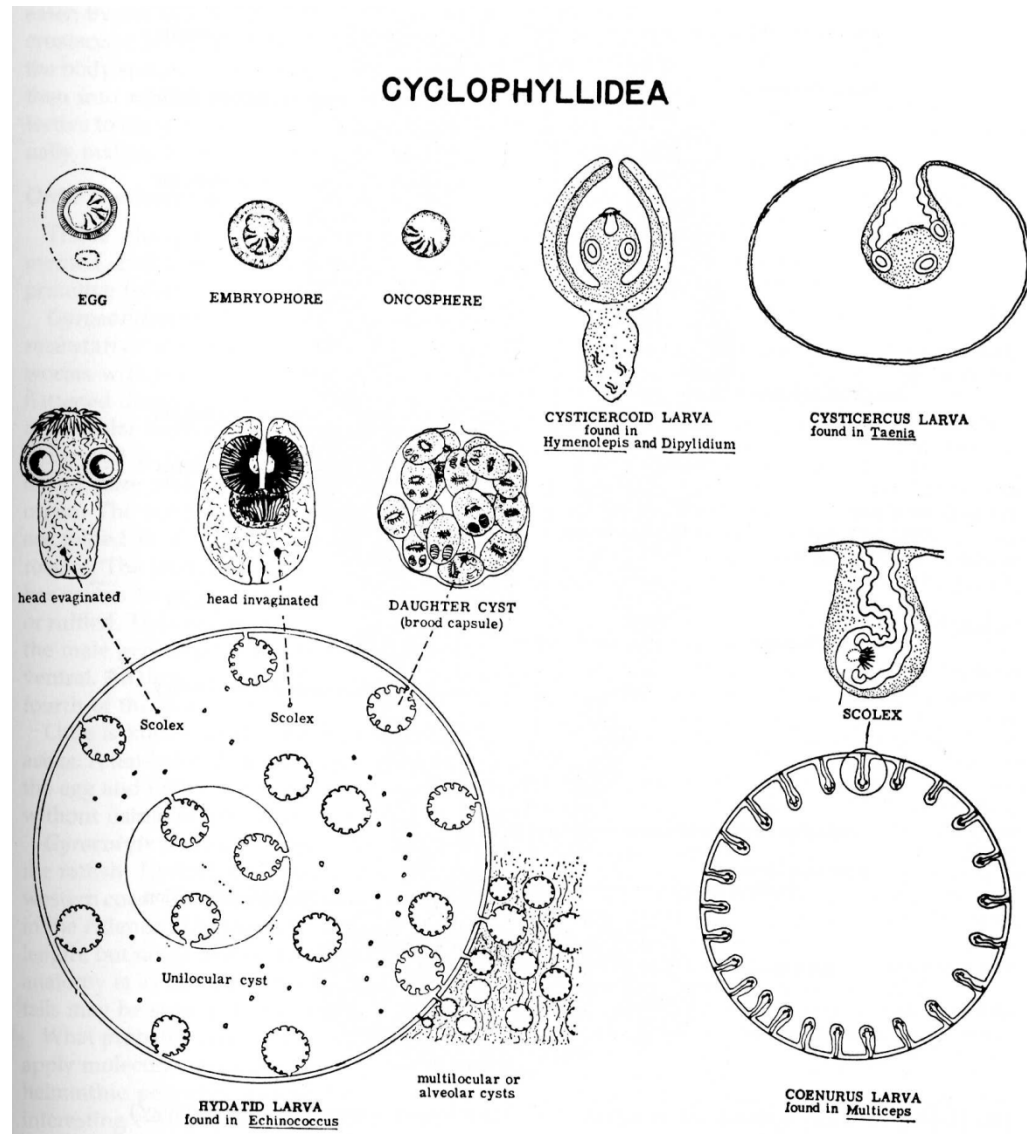
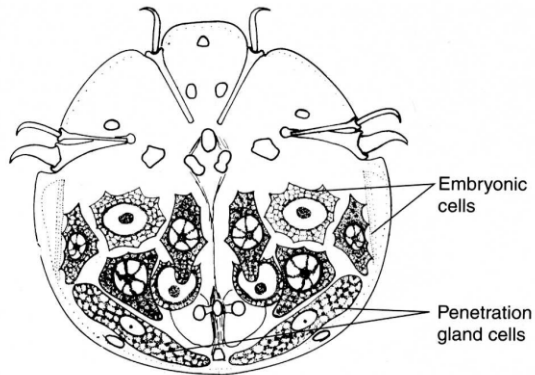


PROCERCOID LARVA

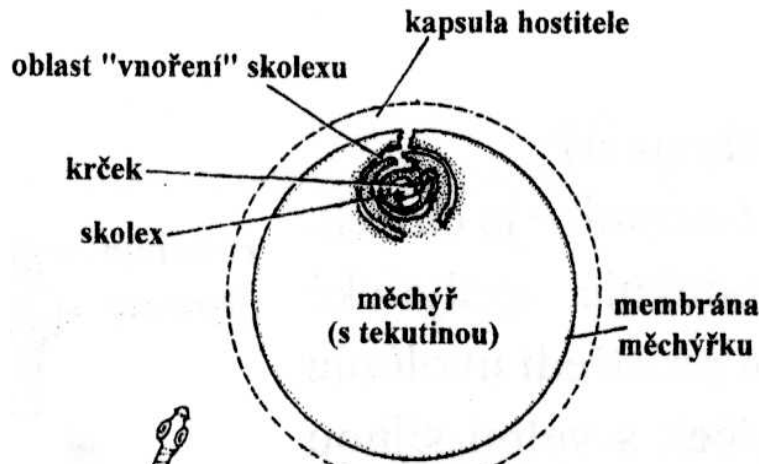


PLEROCERCOID OR  
SPARGANUM LARVA

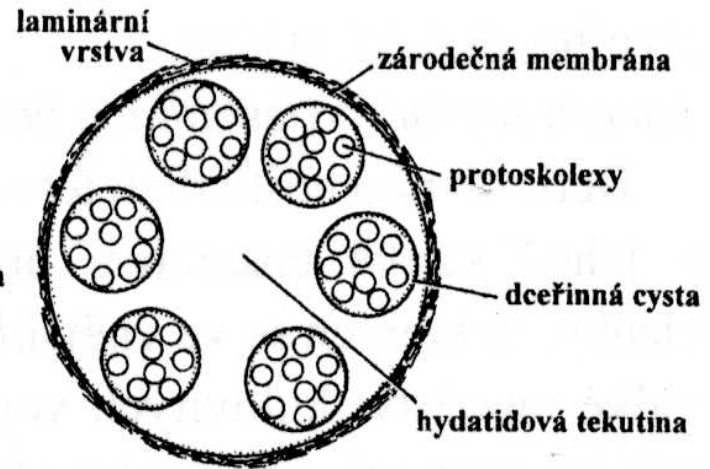
# Larvální stadia – terestrický cyklus



# Cystická larvální stádia



**CYSTICERKUS**(*T.solium*)



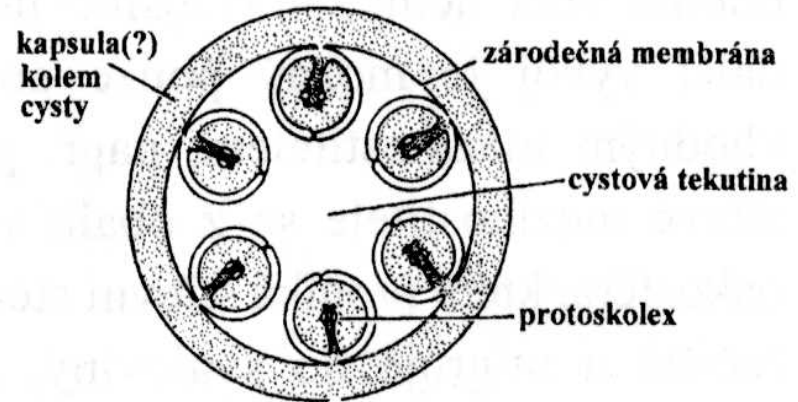
**HYDATIDA**(*E.granulosus*)



**STROBILOCERKUS**  
(*T.taeniaeformis*)

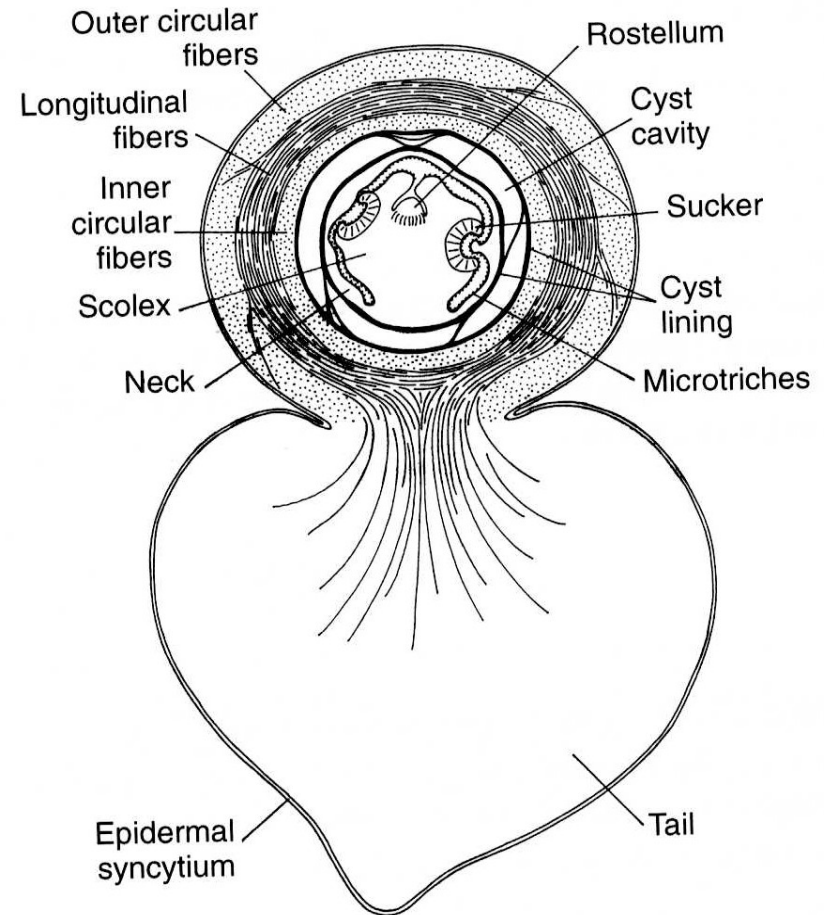
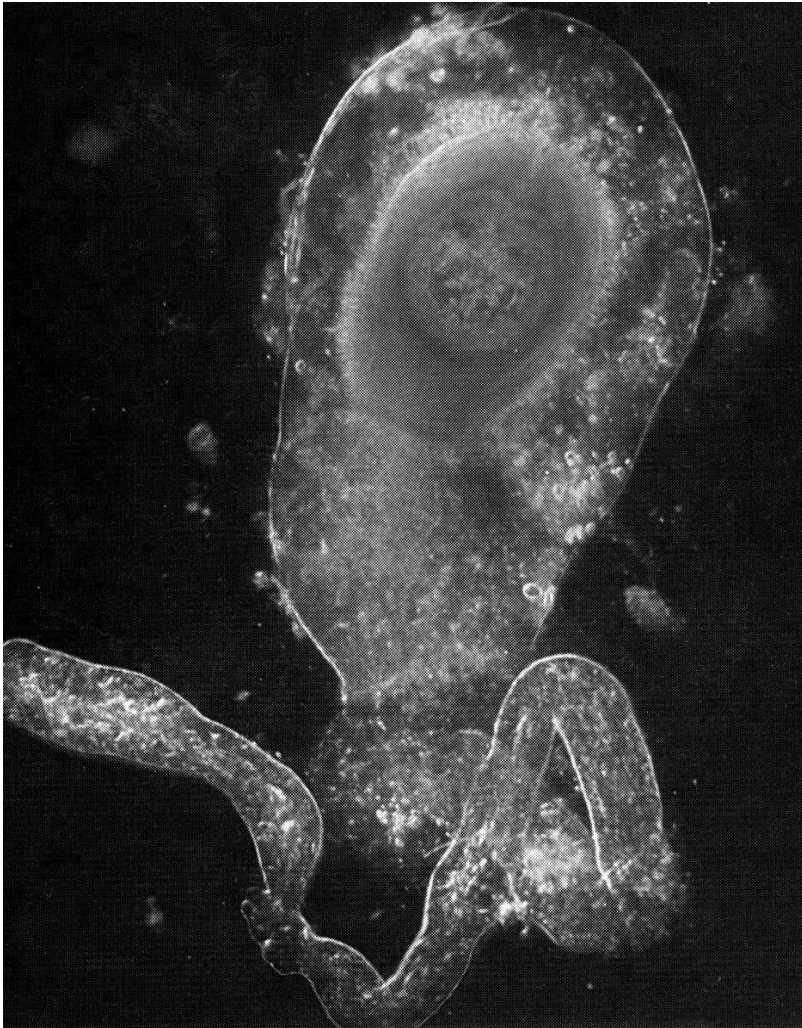


**CYSTICERKOID**(*H.nana*)



**COENURUS**(*T.serialis*)

# Typy metacestodů – cysticerkoid

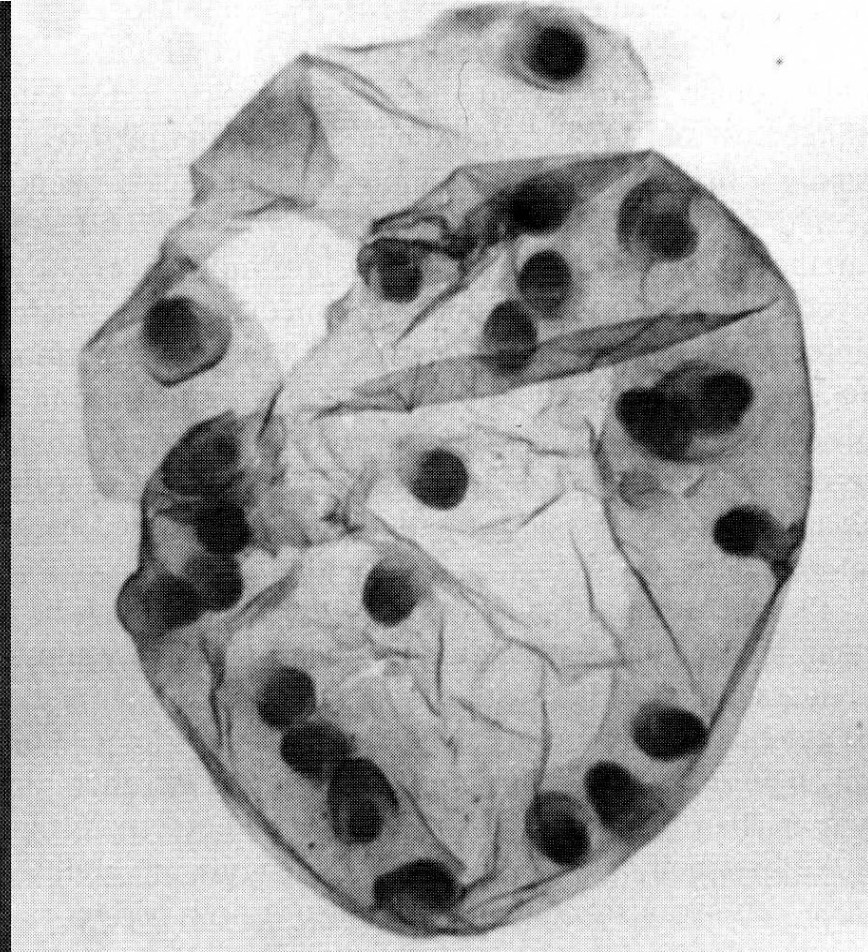


# Typy metacestodů

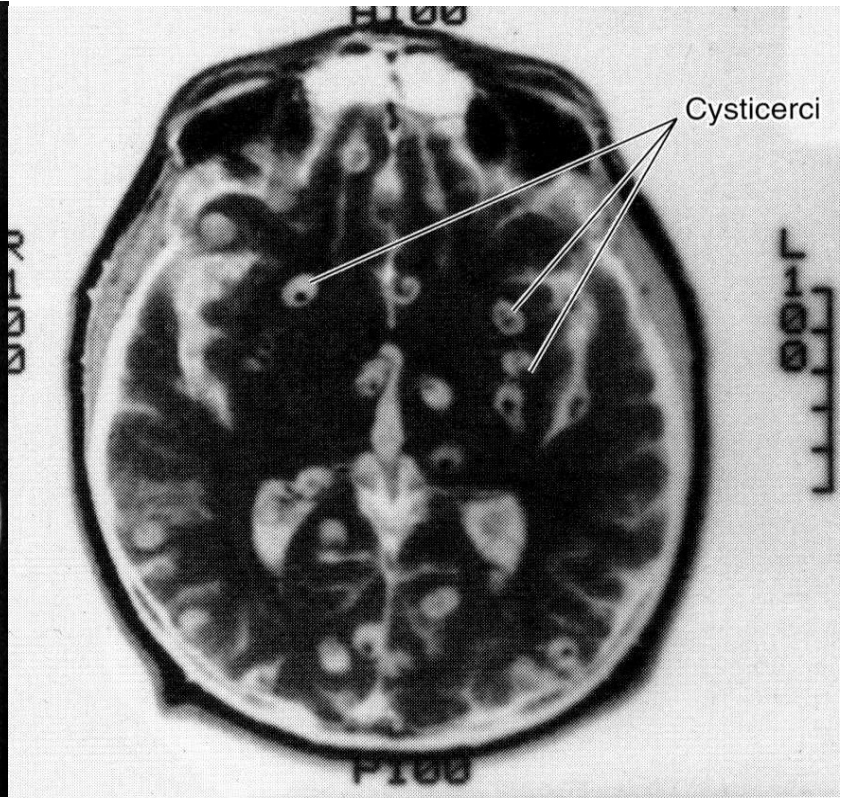
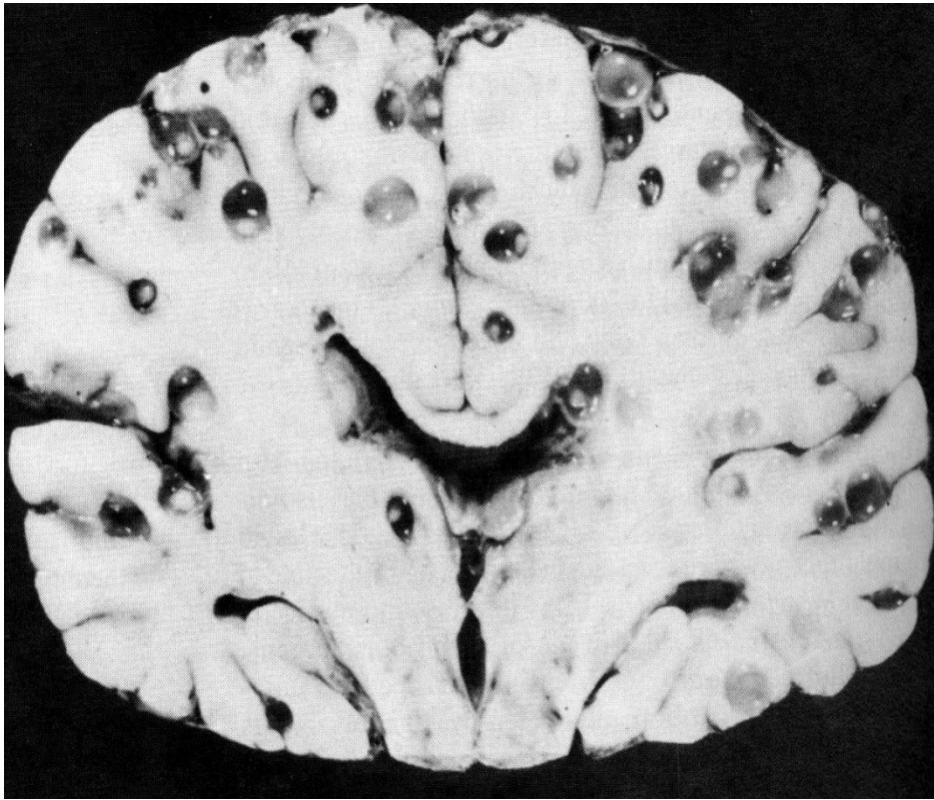
**Strobilocercus**



**Coenurus**



# Typy metacestodů – cysticercus

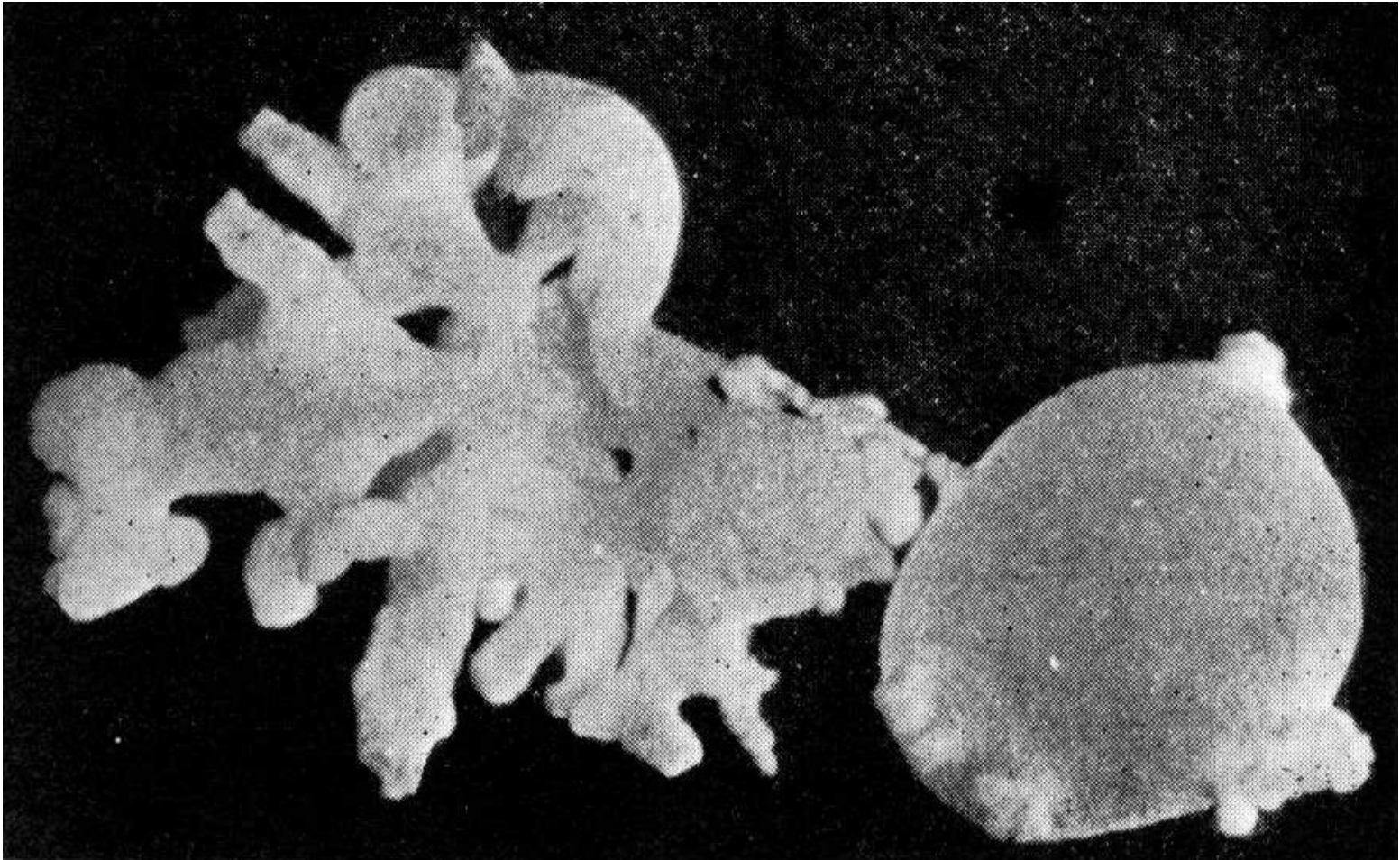




# Typy metacestodů - cysticercus



# Alveolární cystické stadium



# Coenurus – cystické stadium

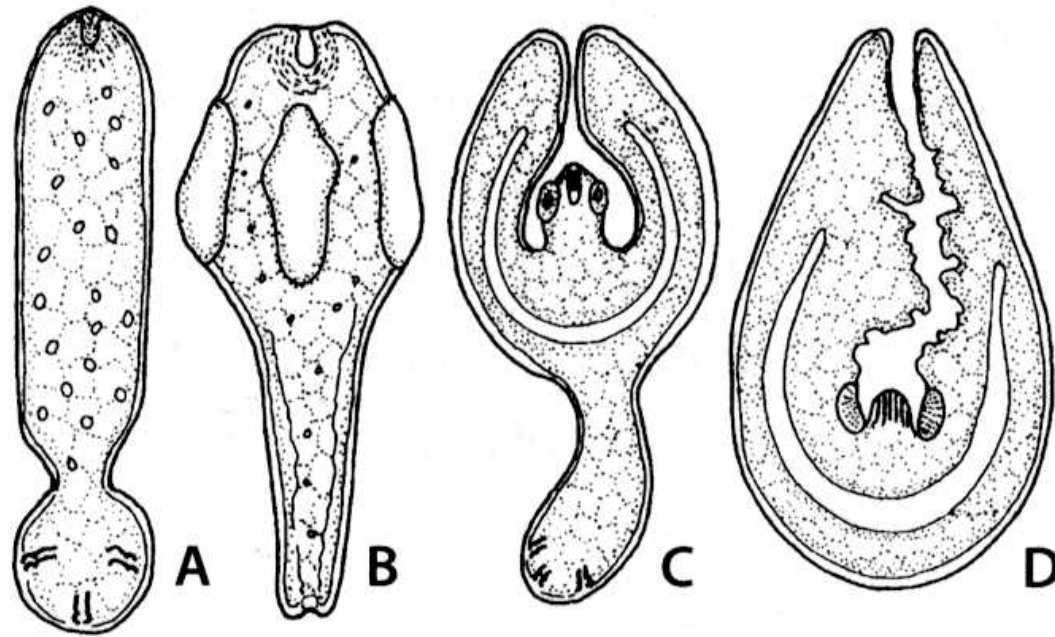


# Typy vývojových cyklů

- **Jednohostitelský** – monoxenní – *Archigetes sieboldi*
- **Dvojhostitelské** - dixenní – *Taenia saginata*
- **Trojhostitelské** – trixenní – *Hymenolepis nana*
- **Čtyřhostitelské** – tetraxenní –  
*Diphyllobothrium latum*



# Larvální stadia - metacestod



**Obr. 3–38 Cestoda. Některá další larvální stadia tasemnic – metacestodi. A – procerkoid, B – plerocerkoid, C – cysticerkoid, D – cysticerkus (dle Chervy, 2002, upraveno).**

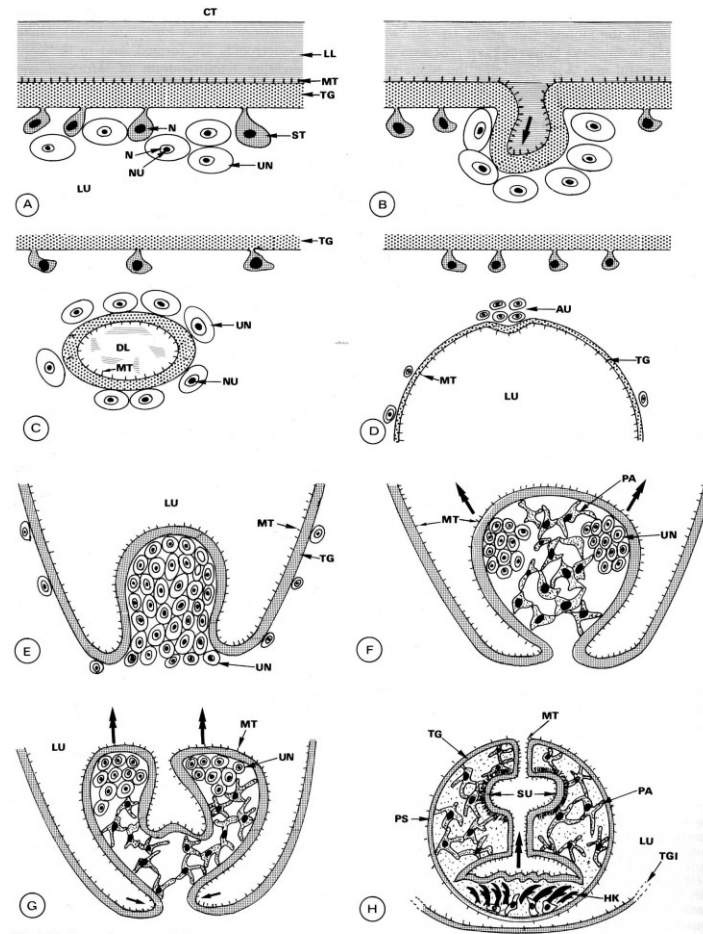
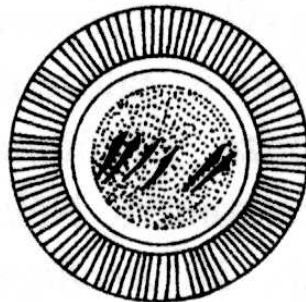


Fig.4.27 Legend see page 341

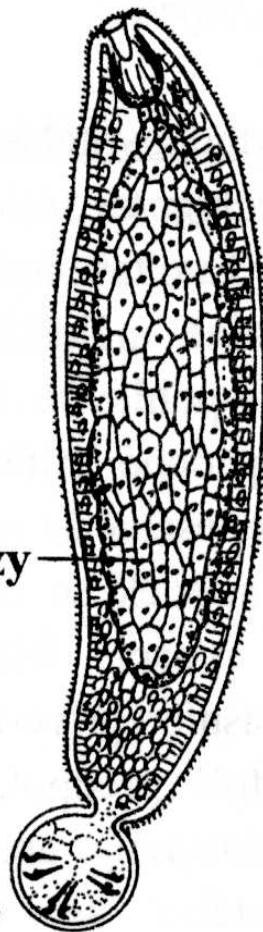
**koracidium**  
(obrvená onkosféra)



**onkosféra**  
(ve vajíčku)

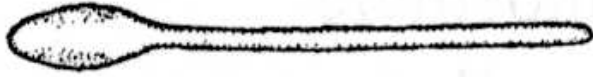


žlázy

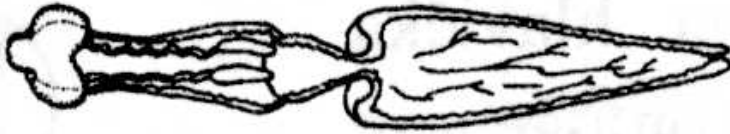


**procerkoid**

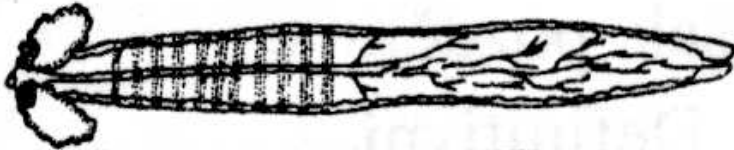




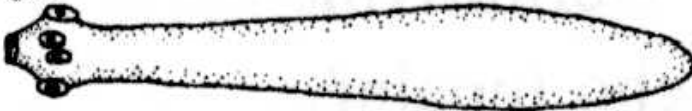
**Pseudophyllidea  
(sparganum)**



**Trypanorhyncha**

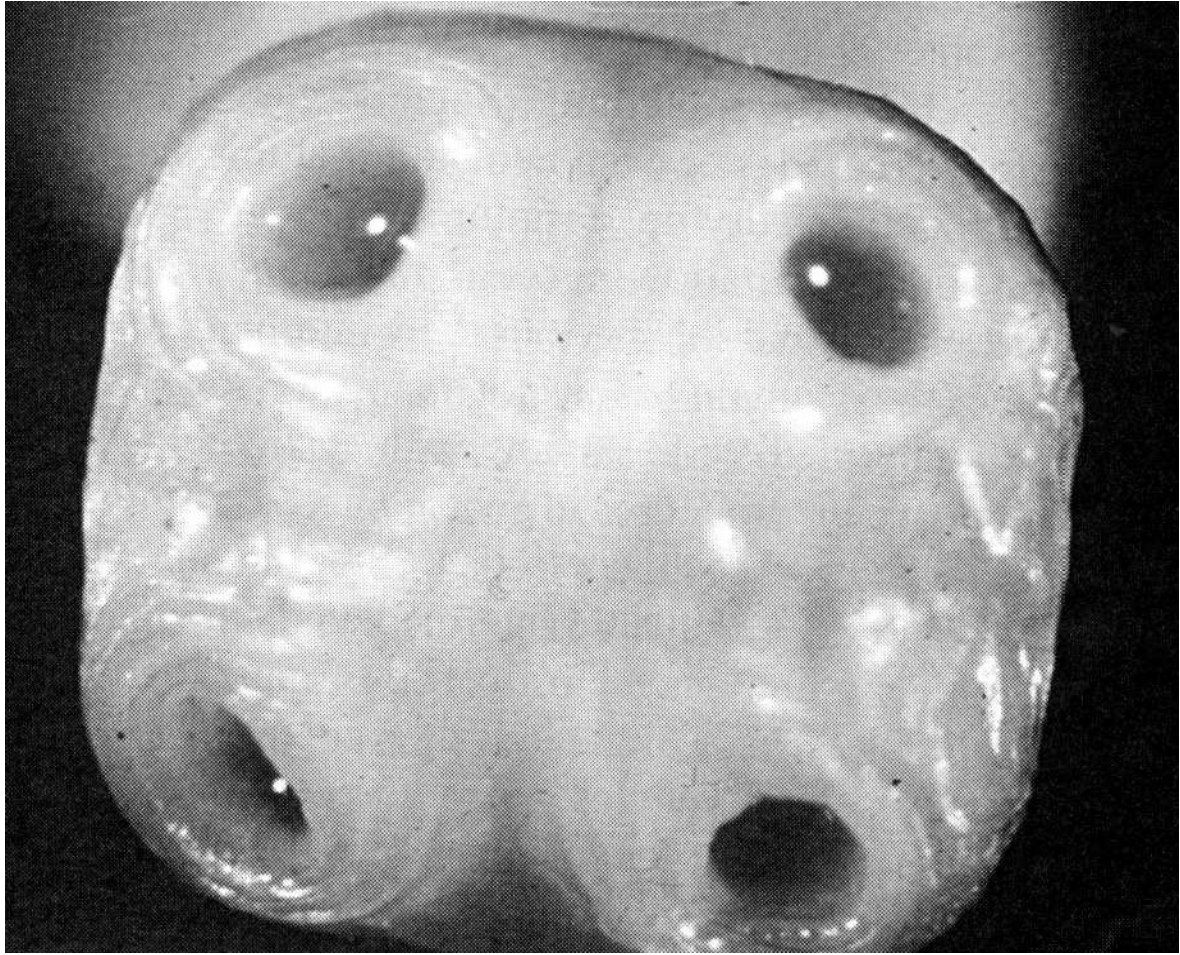


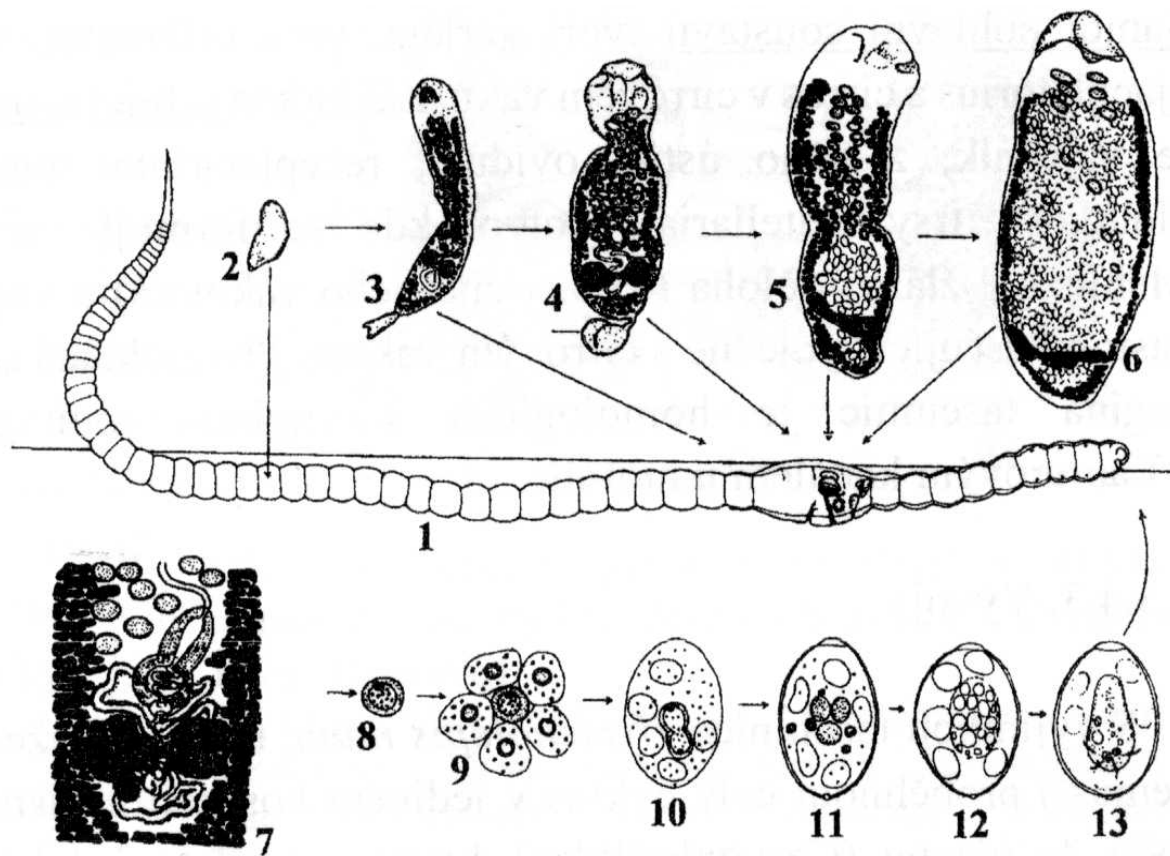
**Tetraphyllidea**



**Cyclophyllidea  
(rod Paruterina)**

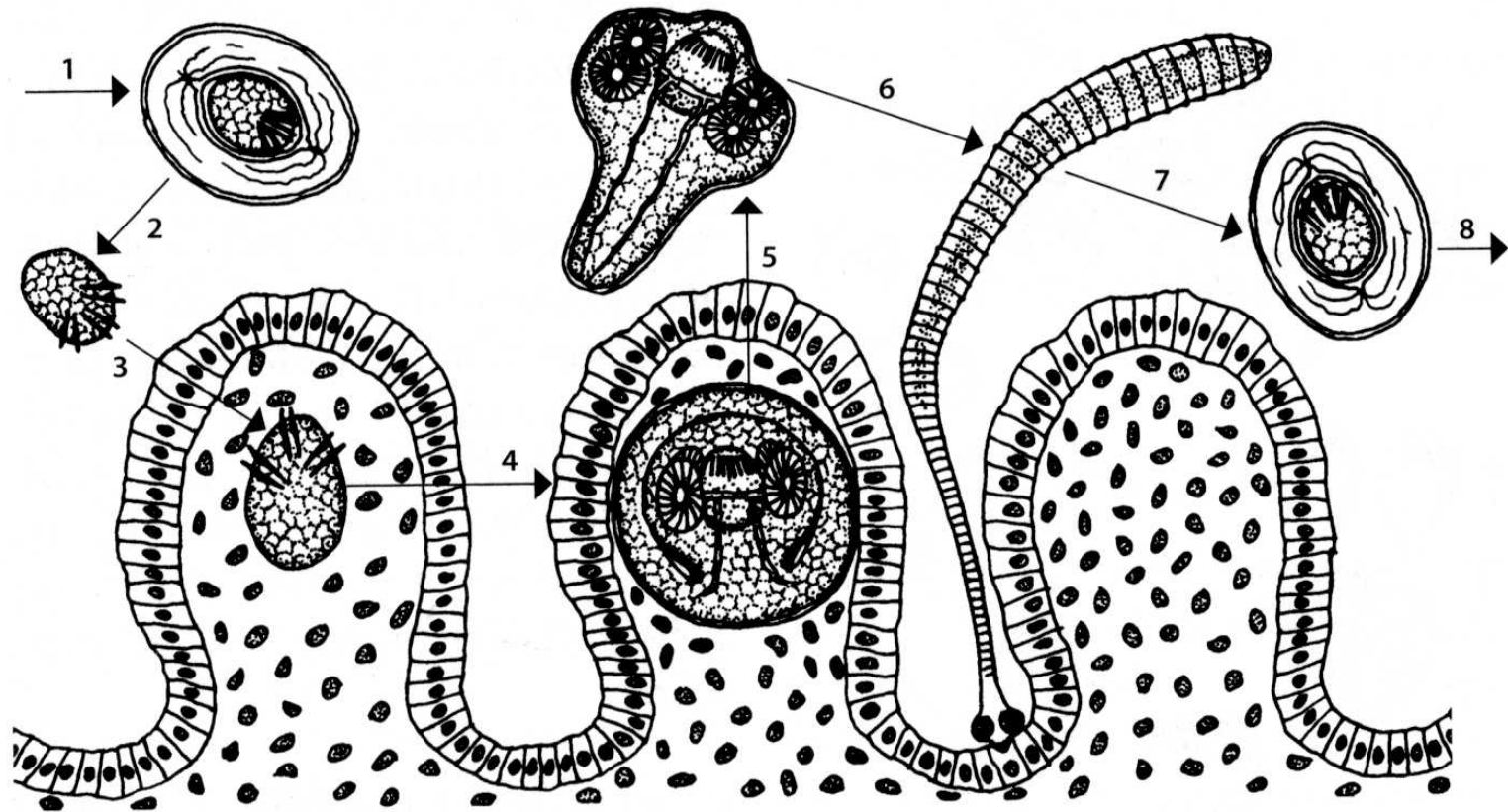
**PLEROCERKOIDY**



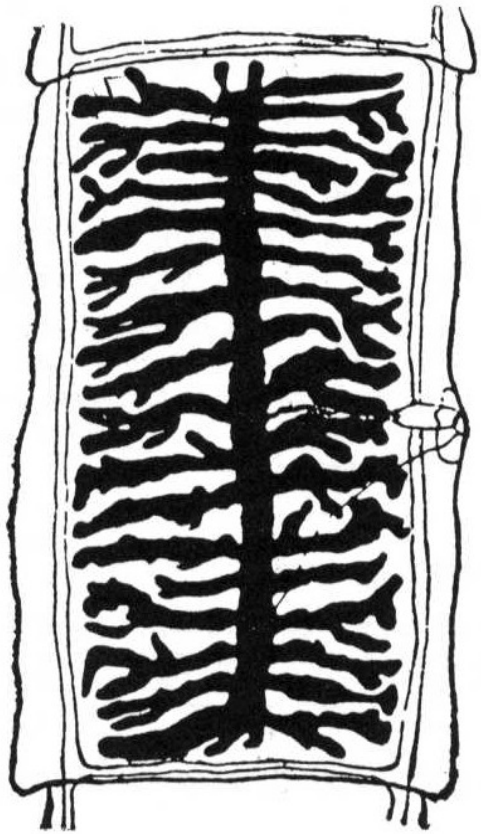
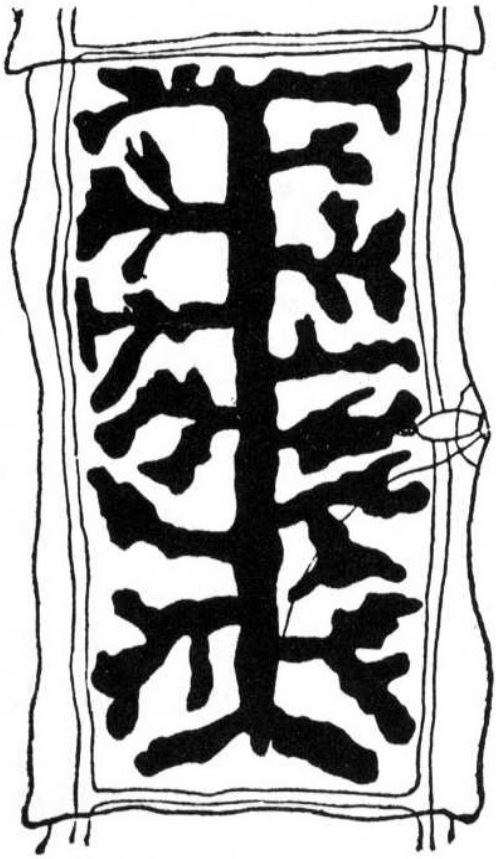


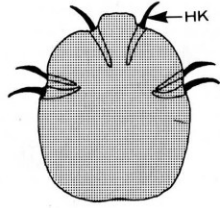
Obr. 61. Příklad jednohostitelského cyklu - *Archigetes limnodrili*

- Eggs of *Hymenolepis nana* are immediately infective when passed with the stool and cannot survive more than 10 days in the external environment . When eggs are ingested by an arthropod intermediate host (various species of beetles and fleas may serve as intermediate hosts), they develop into cysticercoids, which can infect humans or rodents upon ingestion and develop into adults in the small intestine. A morphologically identical variant, *H. nana* var. *fraterna*, infects rodents and uses arthropods as intermediate hosts. When eggs are ingested (in contaminated food or water or from hands contaminated with feces), the oncospheres contained in the eggs are released. The oncospheres (hexacanth larvae) penetrate the intestinal villus and develop into cysticercoid larvae . Upon rupture of the villus, the cysticercoids return to the intestinal lumen, evaginate their scoleces , attach to the intestinal mucosa and develop into adults that reside in the ileal portion of the small intestine producing gravid proglottids . Eggs are passed in the stool when released from proglottids through its genital atrium or when proglottids disintegrate in the small intestine . An alternate mode of infection consists of internal autoinfection, where the eggs release their hexacanth embryo, which penetrates the villus continuing the infective cycle without passage through the external environment . The life span of adult worms is 4 to 6 weeks, but internal autoinfection allows the infection to persist for years.

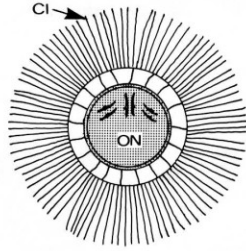


Obr. 3-42 Cestoda, Cyclophyllidea, Hymenolepididae, *Hymenolepis nana*. Zkrácená

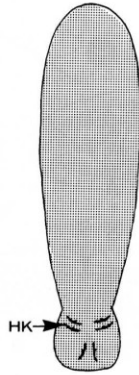




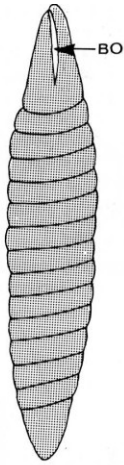
A: ONCOSPHAERA



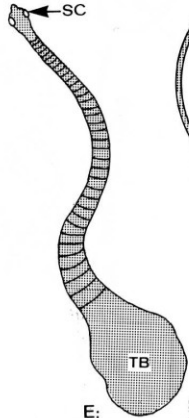
B: CORACIDIUM



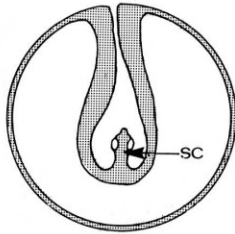
C: PROCERCOID



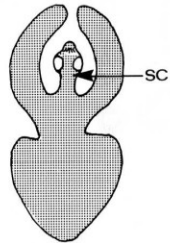
D: PLERO-CERCOID



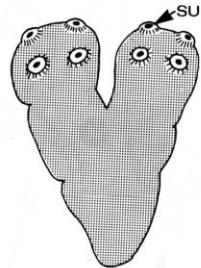
E: STROBILOCERCUS



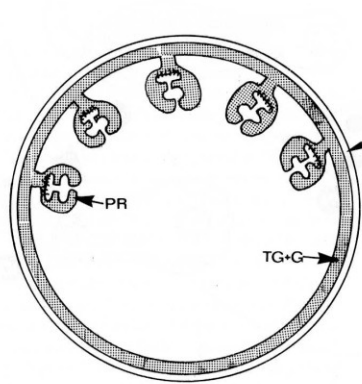
F: CYSTICERCUS



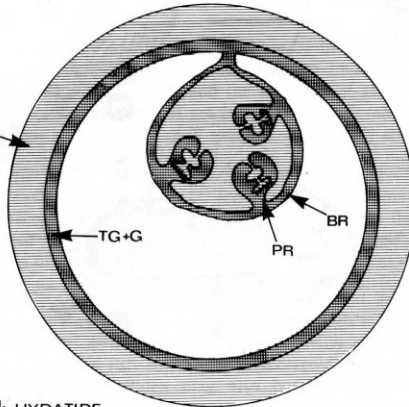
G: CYSTICERCOID



H: TETRATHYRIDIDIUM



I: COENURUS



J: HYDATIDE