

Schistosomatidae

	<i>S. mansoni</i>	<i>S. Mekongi</i>	<i>S. Japonicum</i>	<i>S. hoematobium</i>
Dist.	N. Africa and South America	Vietnam Mekong Laos	Japan and SE Asia	Africa
Snail	<i>Biomphalariae</i>		<i>Onchomelania</i>	<i>Bulinus physopsis</i>
Location	Lg. Intestine and veins around small intestine	Intestine	Small intestine, large intestine usually	Bladder (usually) urine

Eggs come out in the bloodstream → work through tissue of blood vessels → into muscularis mucosa of intestine → lumen of intestine → out with feces

- Low grade infection in Puerto Rico (.5% - 1% of people in fields). Schistosoma cases will increase in the next 2-5 years because of the unsanitary conditions there due to hurricanes.
- Snail in Brazil that is a good host is Tropicornus (spelling?)
- S. Mansoni – big spine on egg
- S. hoematobium – terminal spine
- S. Japonicum – little, tiny spine (hard to see)
- Frog on face: Eilaria (spelling?) larvae inside go into eye

Diagnosis

- Stool sample/urine sample
- Liver biopsy/immunological test
- Questions about frog on face. Don't eat things for dares or put frogs on your face

Astor (pacific northwest) 1920 – reports of people who gave salmon to their dogs → dogs died

- *Nanophyetes salmincola*
 - Have Rickettsia
 - Female dog lactins protect babies

- Carnivore → eggs → snail → redia (mother, daughter) → cercaria → cercaria penetrate salmonid fish

Tapeworms

Phylum: Platyhelminthes

Class: Cestoda

- Order – cyclophyllidea
- Family: Taenidae
 - Taenia spp – all use a carnivore as definitive host, herbivore as intermediate host.
 - Up to 25 meters long inside the intestine
 - T. solium – humans as definitive host. Pig intermediate
 - T. saginata – humans as definitive host. Cow intermediate
 - T. asiatica – humans as definitive host. Yak intermediate
 - Echinococcus -
 - Versteria spp -

Sharks have never undergone a massive extinction. Tapeworms in sharks have had time to diversify

Taenidae

- P. Platyhelminthes
- C. Cestoda
- F. Hymenolepididae:
 - *Hymenolepis diminuta*
 - Head end: scolex, suckers. No mouth, they are Platyhelminthes so they don't have a complete digestive system.
 - Tegument – microvilli to increase surface area of the tapeworm.

- Apical organ: In place of rostellum. No hooks.
- Uses a cycle with rats to beetles. Easily understood for study
 - Some can occur in birds, bats, and people
 - Humans get infected by eating beetles
- 3 testes per proglottid
- Protandrous
- Protandrous – testes develop first
- Protogynous – ovaries develop first
 - Ootype is where the egg shell is formed → uterus → embryo develops
- Isthmus of Panama
 - Suckers go into pockets
- Mexico – volcanic area, Irazu
 - *Lex irazuensis*

Hooks on rostellum have handle, guard, and blade

- Can lost hooks be regenerated?
- Taenia – 40 species
 - Life cycle of taenia solium vs taenia saginata

Taenia

- O. Cyclophyllidea
 - F. Taeniidae
 - G. Taenia – 40 species or more
 - *T. saginata*
 - *T. solium*

- *T. asiatica*
- Life Cycle: *Taenia saginata* ; no rostellum or hooks, more than 13 lateral branches of the uterus
 - → People poop out eggs and gravid proglottids (apolytic: segment comes off and crawls around)
 - → cattle ingest grass and feces, oncospheres inside cow
 - → oncospheres travel to intestine of cattle and circulate to muscle
 - → oncosphere develops into cystercerci (invaginated scolex)
 - → human ingests infected beef (**humans are definitive host**)
 - → scolex evaginates, travels to intestine and hooks on with suckers
 - → adults develop in small intestine
- Blade, guard, and handle on egg hooks
- Life Cycle: *Taenia solium* ; fewer than 13 lateral branches of the uterus
 - Same as *saginata*, but pigs are the intermediate hosts.
 - **Human does not have to be immunocompromised for this to take place**
 - One of the worst ones – easy to die from
- Life Cycle: *Taenia asiatica*
 - Same as *saginata*, but yaks are the intermediate hosts
 - Common ancestor with *saginata*
- If you're infected with *Taenia*, don't defecate in feed lots.
- Segment Drawing:
 - *Hymenolepis* do not have rostellum or hooks. Species *nana* does not exist in this genus
- Echinococcus
- Really small. Usually 3-4 segments; 8mm long maximum. Rostellum with hooks on the scolex.
 - 10-15 species
 - *E. granulosus*
 - *E. multilocularis*
 - *E. asiatica*

- *E. felidis*
- *E. oligarthrus*
- *E. vogeli*