Diphyllobothrium latum
Dipylidium caninum
Diphyllobothrium latum

• **Common Name:**
  - Fish Tapeworm
  - Broad Tapeworm

• **Morphology**
  - Adult worm is yellowish grey in color
  - Dark central markings in the strobila are due to the egg-filled uterus
  - Measures 3 to 10 meters in length
  - Life-span is for a period of 5 to 15 years
Scolex

- Scolex is spoon-shaped or spatulate
- Scolex bears 2 slit-like grooves called bothria (1 on the dorsal surface and 1 on the ventral surface)
- Scolex has no rostellum and no hooklets
- Neck is thin and unsegmented and is much longer than the head
Diphyllobothrium latum
• Ova

  • Passed out in the host’s feces in large numbers
  • Oval
  • Bile stained
  • Contains abundant granules and unsegmented ovum
  • Inconspicuous operculum at one end and a small knob at the other end
  • Does not float in saturated solutions of common salt
  • A single egg gives rise to a single larva
  • Not infective to man
• **larva**
  • Passed first in water and then in the respective intermediate hosts
  • 3 stage
    – First stage larva
      » Coracidium
      » Ciliated oncosphere that develops from egg in water
    – Second stage larva
      » Proceroid
      » Spindle-like solid body with cephalic invagination
      » Found inside the cyclops (the first intermediate host)
    – Third stage larva
      » Plerocercoid
      » Head is invaginated in the neck
      » Found in the fresh water fish, the second intermediate host
Diphyllobothrium latum

1. Unembryonated eggs passed in feces
2. Eggs embryonate in water
3. Coracidia hatch from eggs and are ingested by crustaceans
4. Procercoid larvae in body cavity of crustaceans
5. Infected crustacean ingested by small freshwater fish
6. Procercoid larva released from crustacean, develops into plerocercoid larva
7. Human ingests raw or undercooked, infected fish
8. Adults in small intestine
9. Proglottids release immature eggs
**Diphyllobothrium latum**

- **Final Host**
  - Man, dog, cat
  - Small intestine
- **1st I.H.**
  - Cyclops
- **2nd I.H.**
  - Fresh water fish, pike, trout, salmon, perch
- **Mode of Infection**
  - Ingestion of imperfectly cooked infected fish or roe containing plerocercoid larvae
- **Infection**
  - Diphyllobothriasis
  - G.I. disturbances and anemia
- **Diagnosis**
  - Microscopic examination of feces for the characteristic operculated eggs
Dipylidium caninum

- Double Pored Dog Tapeworm
- Presence of bilateral genital pores in each segment (di: 2; pylis: gate): 2 entrances
- Common intestinal parasite of dogs
Dipylidium caninum

• Adult
  • 10-70 cm in length
  • Pale reddish
• Scolex
  • Small and globular
  • 4 deeply cupped elliptical suckers
  • Protrusible/retrac tile rostellum
  • Rostellum has 1-7 rows of rose thorn shaped hooklets
Dipylidium caninum
- **Strobila**
  - 200 proglottids
  - narrow
• Mature proglottids
  • 2 sets of male and female reproductive organs
  • Bilatera genital pores
• Gravid proglottids
  • Have size and shape of pumpkin seeds
  • Filled with capsules or packets of 8-15 eggs enclosed in an embryonic membrane
Dipylidium caninum

1. Eggs passed in feces
2. Ingested by an arthropod intermediate host
3. Oncospheres hatch and penetrate intestinal wall
4. Cysticerci in body cavity of insect ingested by rodent or human
5. Scolex
6. Adults in small intestine
7. Gravid proglottids

i = Infective Stage
d = Diagnostic Stage
Proglottids
Dipylidium caninum
Dipylidium caninum

• Ova
  • Passed out in the feces along with the proglottids
  • Released by contraction of proglottids or disintegration outside the host
  • Spherical
  • Thin shelled
  • With a hexacanath embryo
• **Pathogenesis**
  
  • Rarely multiple

  • **Symptoms are minimal**
    
    » Slight intestinal discomfort
    
    » Epigastric pain
    
    » Diarrhea
    
    » Anal pruritus
    
    » Allergic reactions
Dipylidium caninum

- Treatment
- Praziquantel
- 5-10 mg/kg body weight single dose
- Epidemiology
- USA
- Rhodesia
- Argentina
- China
- Philippines