LAB 7

Phylum: Platyhelminthes

Class: Cestoda

1-Order:Cyclophyllidea

1-Family:Taeniiadae

1-Taenia saginata

2- Taenia solium

3-Echinococcus granulosus

2-Family:Hymenolepidae

Genus: Hymenolepis nana

Genus: Hymenolepis diminuta

3-Family: Diplidae

Genus: Dipylidium caninum

2-Order:Pseudophyllidae

Genus: Diphyllobothrium latum

The Main charactarestic

Scolex :cotainhooks and sukers
Neck
Immature segment
Mature segment
Gravid (proglottide) segment

Taeniasaginata

Comman name: Beef tapeworm

Disease name:taeniasis
Defenitive host: human
Intermediate host:cattle

Morphology:

The length of the adult *T. saginata*is 4-8 meters usually have 1000-2000prglottids which may produce up to 100000 eggs per proglottid. Scolex is composedof 4 powerful sukersdon't have hooks and rostellum The mature segment cotain uterusunbranched, ovary, genital pores, testes and vitellinegland.In the gravid proglottide the uterus is branched 15-20 on each side filled with eggs. Ova of *Taenia*species are spherical, yellowish brown and measure 31-34µm in diameter. The shell is thick and radially striated. Within the shell, the oncosphere has 3 pairs of hooklets.

Site of infection: Muscle, viscera
Infective stage: cysticercusbovis
Diagnostic stage: egg

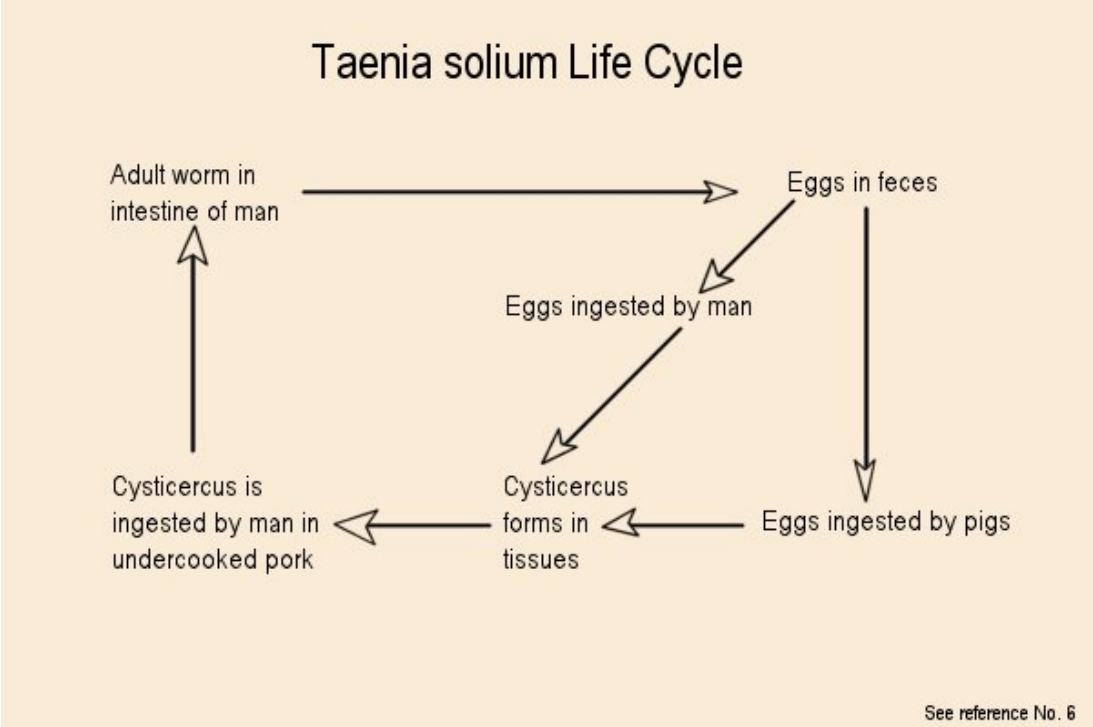
Taeniasolium

Comman name: Pork tapeworm
Disease name: cyticercosis
Defenetive host:human
Intermediate host: pigs
Site of infection: Brain, skin, muscle
Morphology:

Length of adult worms is usually 2-7 and have an average of 1000 proglottids which may produce 50000 eggs per proglottid respectively .The proglottids can be identified by the number or uterine branches which are(7-13). It also have four suckers on its scolex and rostellum surrounded by two rows of hooks.

Life cycle:

Infective stage: cysticercus cellulose
Diagnostic stage:egg



Clinical symptoms:

Symptoms of *taenia spp.* include dizziness, abdominal pain, diarrhea, headaches, nausea and loss of appetite. There can be intestinal obstruction in humans and this can be alleviated by surgery.

Laboratory Diagnosis

Since it is difficult to diagnose using eggsEggs of *T.solium*and *T.saginata*areindistinguishableand species identification should be madefrom proglottidsor scolexs.alone looking at scolex or the gravid proglottids can help identify. When the uretus is injected with India ink,Its branches become visible.

3-Echinococcusgranulosus

Comman name:Hydatid cyst worm

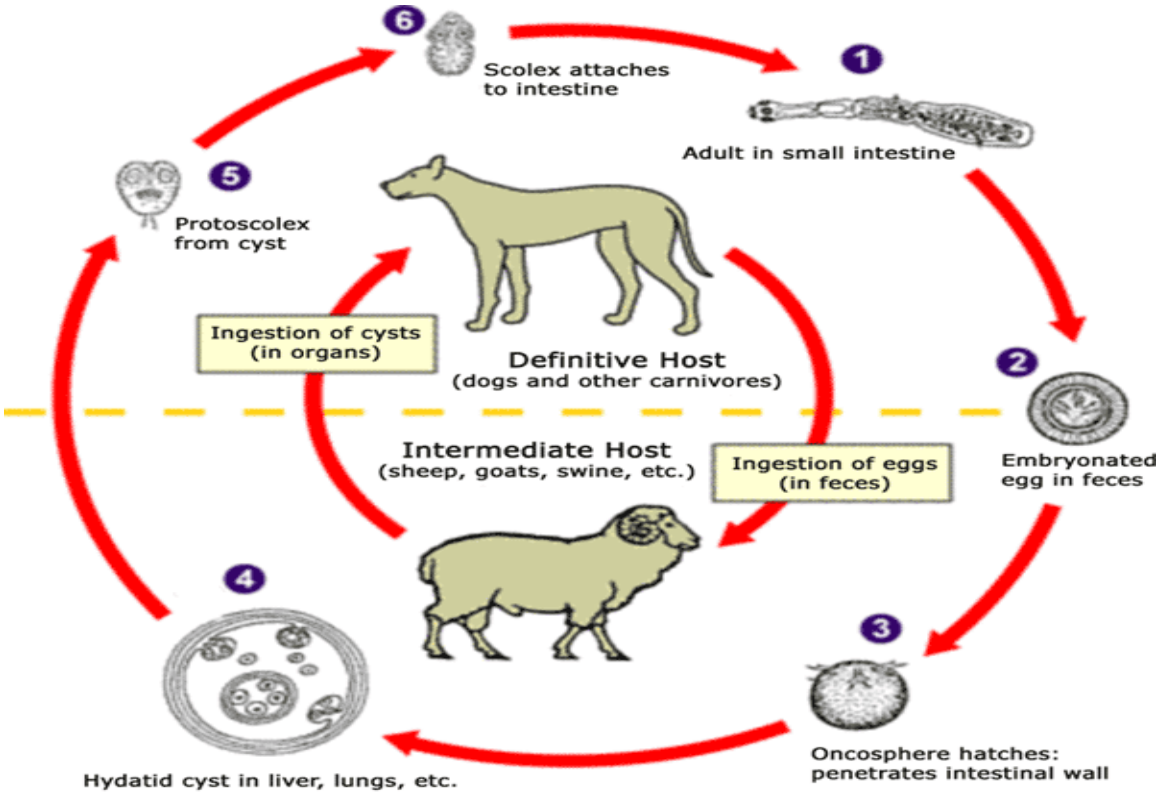
Disease name:Hydatidiosis, echinococcosis, hydatid disease

Morphology:

Its 2-7mm in length,The adult worm contain three proglottidsscolex ,neck and body(immature,mature,gravid).Scolex have rostellum surrounded with two rows of hooks(30-36).

Life cycle:

Defenitive host: Dogs and canids
Intermidiate host: Human,sheep,pigs,kamel (carnivorus)
Infective stage: Embryonated egg
Diagnostic stage: Hydatid cyst



Hymenolepis nana:

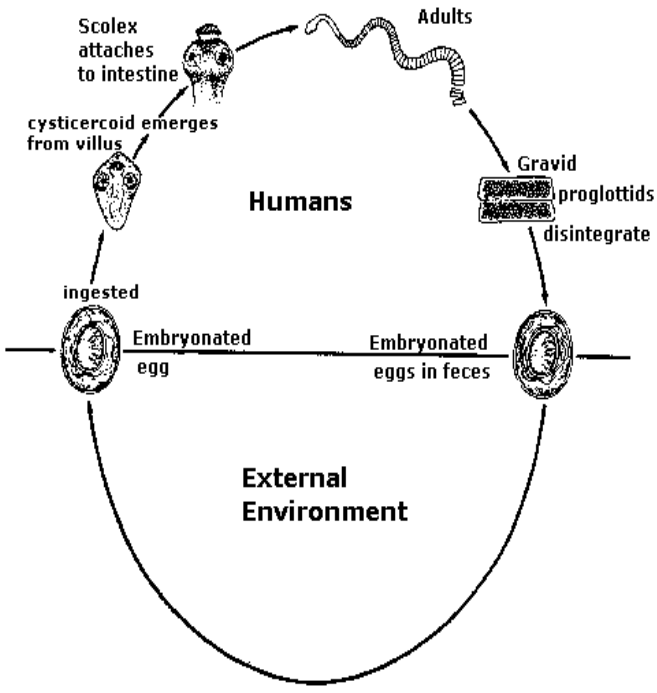
Comman name: Drawf tapeworm

Morphology

Smallest tapeworm to infect humans, seldom exceeding 40mm long and 1mm wide. The scolex bears a retractable rostellum armed with a single circle 20-30 hooks.Thescolex also has four suckers.The neck is lond slender and the segments are wider than long.

Life cycle

Infective stage: cycticercoid infected arthropods, embryonated egg
Diagnostic stage:Embryonated egg
No intermediate host
Defenetive host: human
Site of infection: small intestine



Symptoms:

Restlessness, enteritis, anorexia, abdominal pain,vomiting,nausea and diarrhea bloody diarrhea.

Laboratory Diagnosis Diagnosis is based on recovery and identification of the characteristic ova in a formol-etherconcentrate of feces. Adult worms and proglottids are rarely seen in stool samples.

Hymenolepisdiminuta

Defenetive host*:* rats and mice and human.

Morphology

The ova are large, ovoid and yellowish with a moderately thick shell. They contain anoncosphere with six hooklets and a clear area between the oncosphere and the shell. Theymeasure 70-85µm by 60-80µm. The adult worm is a small tapeworm 20–60cm long. It has a knob like scolex with a rostellum but no hookletsand four suckers (in contrast to *H. nana*). The rostellum can be withdrawn into a rostellarsac.The tapeworm contains about 1000 proglottids, each of which is wider than long.

Life cycle and

Site of infection :Uppersmall intestine

The life cycle of *H. diminuta*requires an intermediate arthropod host e.g. earwigs, larval fleasand various beetles. Human infection occurs by the accidental ingestion of an infectedarthropod, which contains the cysticercoids.

Clinical Disease

The symptoms associated with *H. diminuta*infections are few if any.

Laboratory Diagnosis

Diagnosis is based on recovery and identification of the characteristic ova in a formol-etherconcentrate of feces. Adult worms and proglottids are rarely seen in stool samples.

Dipylidiumcaninum

Comman: Cucumber tapeworm, double-pore tapeworm

Morphology:

Adult is long flat worm ,around 40-50cm.The body is made up of the scolex, neck and segmented section called the strobilus. The scolex has hooks for attachment.Aproglottid is one set of reproductive organs, two genital pores located laterally on each segment,with two progllotids per segment.

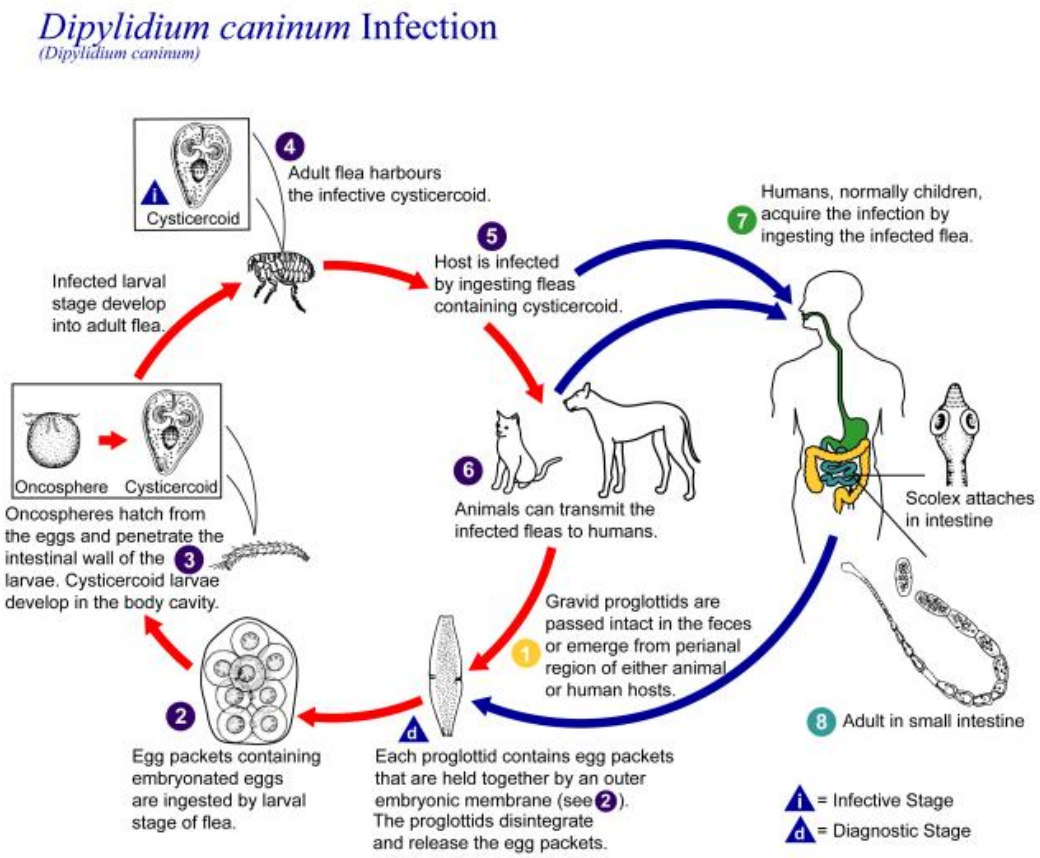
Life cycle

Intermediate host :Flea

Defenetive host: Human pet owners especially childern, canids

Infective stage: cysticercoid larvae

Defenetive stage: egg



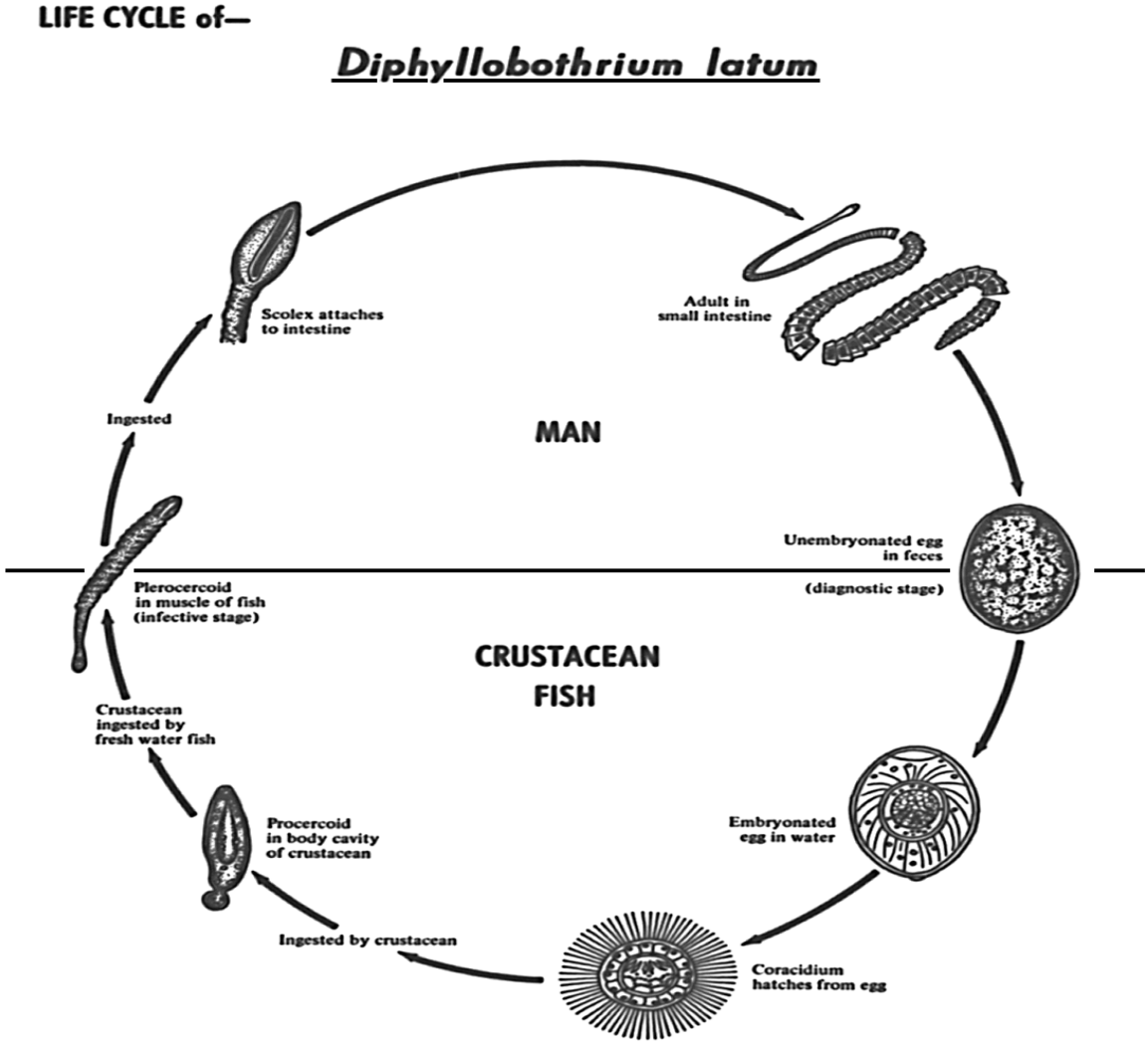
Diphyllobothriumlatum

Comman name: broad fish tapeworm.
Site of infection: small intestine
Disease name:Diphyllobothriasis
The infection caused by *D. latum*is due to the ingestion of raw, poorly cooked or pickled fresh water fish.

Morphology
The egg is usually ovoid and has a small knob at the opercular end and is yellowish-brown incolor with a smooth shell, of moderate thickness. They measure 58-75µm by 40-50µm in sizeAdult worms can reach up to a length of 10 meters or more and may contain up to 3,000
proglottids. The scolex is spatulate with no rostellum or hooklets. It has two shallow grooves or bothria, which are unlike the typical four suckers seen on the *Taenia*species. The proglottids measure 3µm long and 11µm wide and have a rosette shaped central uterus..

Life Cycle

The life cycle of this tapeworm requires two intermediate hostsCopepodscrustaceans , fish
Defenetive host: human,dog, cat and pig
Transimitission to human is by eating uncooked or partly cooked fish.
Infective stage:plerocercoid larvae
Diagnostic stage: unembryonated egg



Clinical Disease

Theinfection may be absent or minimal with eosinophilia. There may be occasional intestinal obstruction, diarrhea, and abdominal pain.The most serious symptom is the onset of pernicious anemia. This is due to a vitaminB_{12}deficiency.

Laboratory Diagnosis Laboratory diagnosis depends on the recovery of characteristic eggs from a formoletherconcentrate of feces. Proglottids may also

be seen in fecal samples usually in a chain of segments from a few centimeters to about half of a meter in length.