

LAB 8

Kingdom: Animalia

Phylum: Platyhelminthes

Class: Trematoda

Order: Prostomata

1-Family: Opisthorchiidae

Genus: Clonorchis sinensis

2-Family: Fasciolidae

Genus: Faschiola hepatica

3-Family: Troglotrematidae

Genus: Paragonimus westermani

The trematodes (or flukes) are leaf shaped with an outer cover called the tegument which may be smooth or spiny. There are two suckers or attachment organs, an anterior oral sucker and a posterior ventral sucker.

1- Clonorchis sinensis

Common name :chinese liver fluke

Man is the definitive hosts

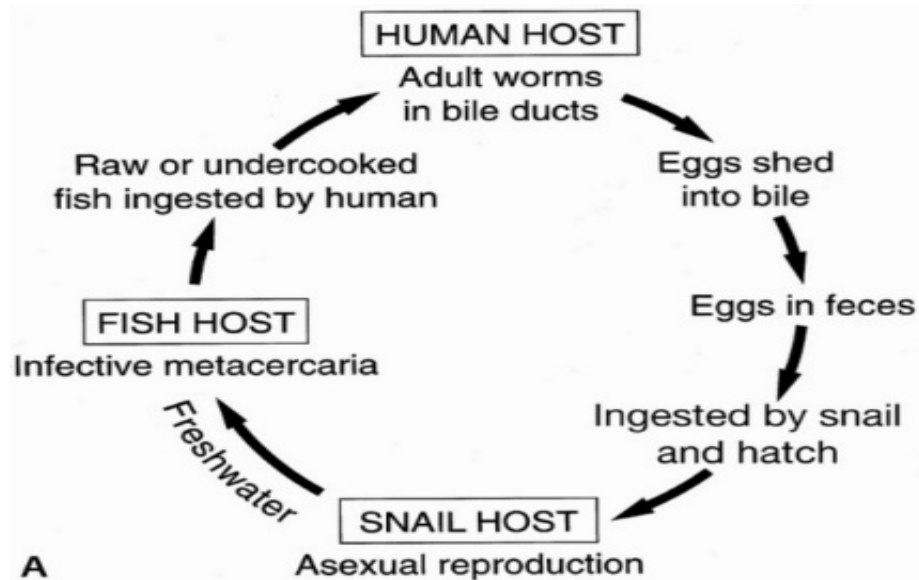
water snails and fish are the intermediate hosts.

Site of infection the biliary duct in humans who become infected by eating raw or undercooked fish. Dogs and cats are the most important reservoir hosts.

Morphology

The adult flukes measure 11–20µm by 3–4.5µm and are lanceolate in shape, translucent and brownish in color. hermaphroditic It have two suckers ,The oral sucker is larger than ventral sucker. The ova of *Clonorchis sinensis* small ovoidal or elongated with broad rounded posterior end and a convex opercular resting on shoulders (flask shaped egg),contains mature miracidium.

Life cycle



Symptoms:

The pathology is related to the number of parasites present. Light infections of up to 50 eggs or more are usually asymptomatic. A heavy infection of 500 or more eggs may cause serious illness. Acute infections may be characterized by fever, diarrhea, epigastric pain, enlargement and tenderness of liver and sometimes jaundice. The invasion by these worms in the gall bladder may cause cholecystitis, due to flukes becoming impacted in the common bile duct.

Laboratory Diagnosis

Microscopic identification of eggs in feces following an iodine stained, formol-ether concentration method of the feces or from duodenal aspirates when there is complete obstructive jaundice

Fasciola hepatica

Common name: sheep liver fluke

The eating of unwashed watercress (freshwater plants) appears to be the source of infection,

the definitive host: The most common host is sheep (herbivorous) and some time human.

intermediate host: snails

site of infection: liver or bile ducts

Morphology

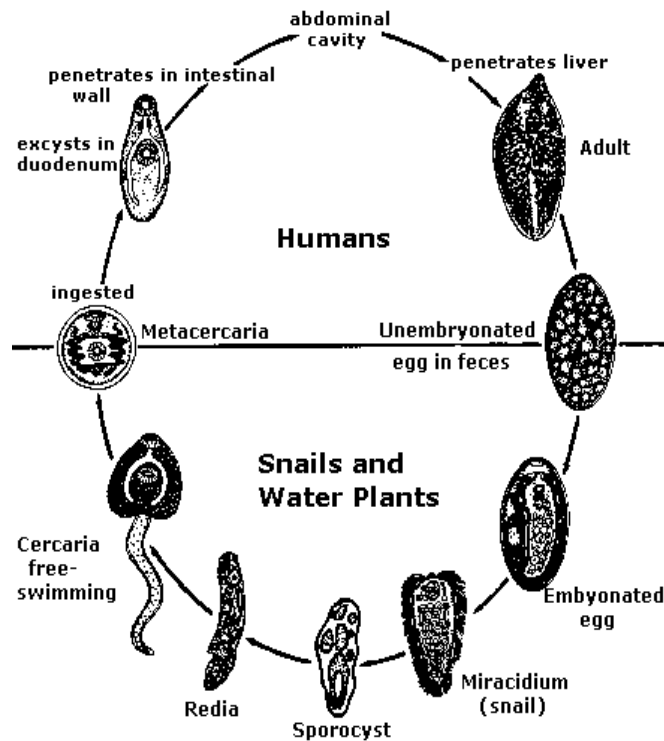
The adult flukes are large leaf-shaped parasites about 2–3cm long. There are two suckers, an anterior oral sucker surrounding the mouth and a ventral sucker on the ventral surface, oral sucker is smaller than ventral sucker

The outer tegument is covered in tiny spines which face backwards enabling them to attach themselves along with their suckers to the tissues.

Life cycle

Infective stage :metacercaria

Diagnostic stage: egg



Symptoms:

Light infections due to *Fasciola hepatica* may be asymptomatic.

However, they may produce hepatic colic with coughing and vomiting; generalized abdominal rigidity, headache and sweating, irregular fever, diarrhea and anemia.

Laboratory Diagnosis

Microscopic identification of eggs in feces (ellipsoidal ,thin shell, small indistinct operculum, unembryonated).

Serological techniques

Paragonimus westermani

Common name: Oriental lung fluke

Site of infection: lungs and liver spleen

Morphology

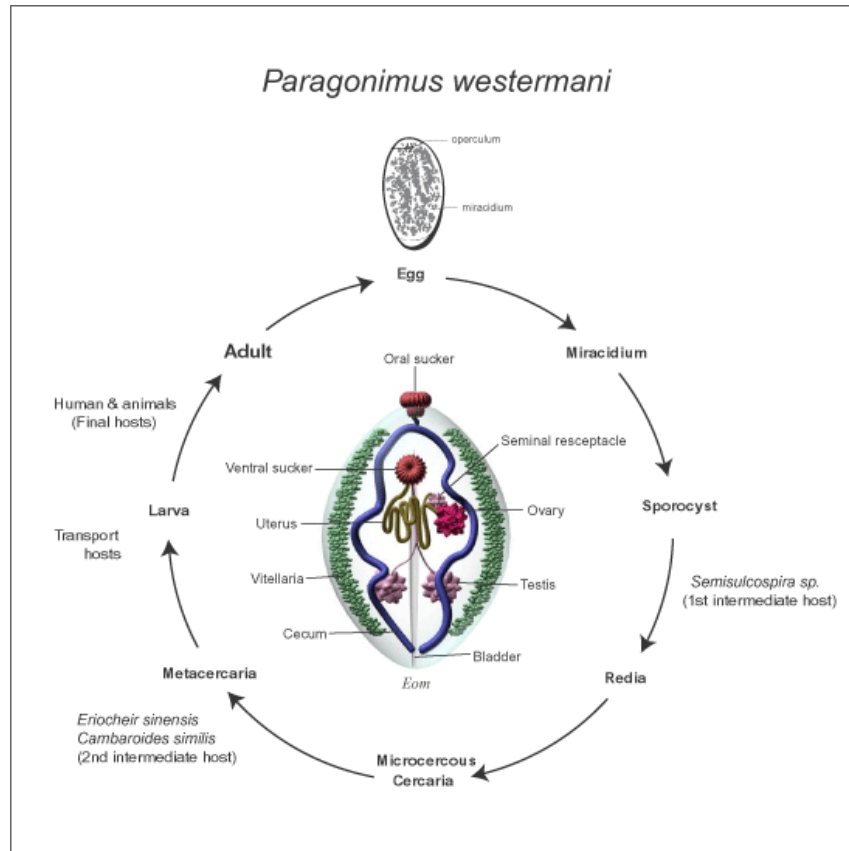
The adults are ovoid, reddish brown fluke 12µm long and are found in capsules in the lung. Oral and ventral suckers are equal in size

Life cycle

Definitive host: Human

Intermediate host 1- snail 2- crab or crayfish

Reservoir : pigs, dogs and variety of feline species



Symptoms:

As the parasites grow in the lung cyst, inflammatory reaction and fever occurs. The cyst ruptures and a cough develops resulting in an increase in sputum. The sputum is frequently blood tinged and may contain numerous dark brown eggs.

Hemoptysis may occur after paroxysms of coughing. Dyspnea and bronchitis develop with time. The disease resembles pulmonary tuberculosis. Cerebral calcification may also occur.

Laboratory Diagnosis

Diagnosis is based on finding the characteristic eggs in brown sputum. The eggs are ovoid, brownish yellow, thick shelled and operculated, unembryonated. The eggs can also be found in the feces due to swallowing sputum.

A chest x-ray may show cystic shadows and calcification.

Serological tests, in particular, the ELISA method, are useful diagnostic tests

LAB 9

Kingdom: Animalia

Phylum: Platyhelminthes

Class: Trematoda

Order: Prostomata

Family: Schistosomatida-4

Genus:1-Schistosoma haematobium

Schistosoma mansoni-2

Schistosoma japonicum-3

The Schistosomes are blood flukes. They differ from other trematodes in that they have separate sexes. The cuticle of the male is covered with minute papillae While the female only possesses these at the anterior and posterior end as the middle section being covered by the male body. Oral and ventral suckers are present, with the ventral one being larger serving to hold the worms in place.

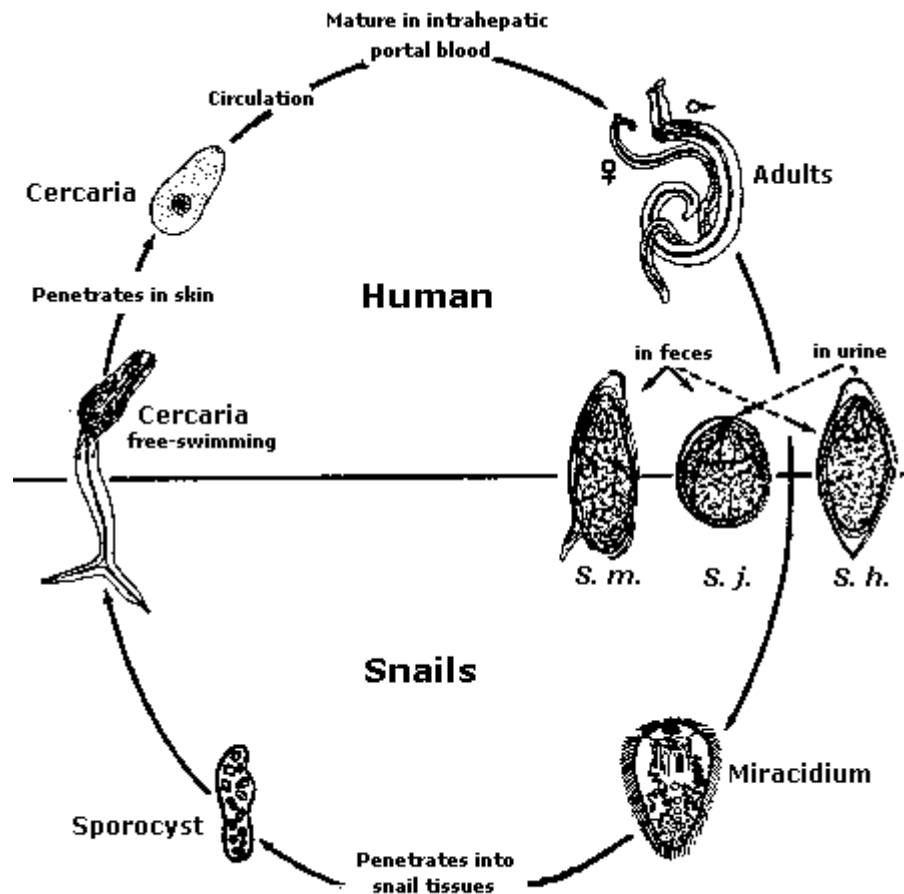
Definitive host: Human

Intermediate host: snail

Infective stage: cercaria (forked tailed)

Diagnostic stage:egg

the schistosome life cycle is very similar, with the exception that different species differ in the final location where the adult worms prefer to reside within the human body.



Schistosoma heamatobium-1

Disease name: urinary schistosomiasis

Site of infection: bladder, ureters or kidneys

Morphology:

The adult males measure up to 15 millimeters in length and females up to 10µm. The male is actually flat has 5-3 testes but the sides roll up forming the canal in which the slender female resides the female has ovary in the dorsal part The ova are relatively large, They have an elongated ellipsoid shape with a prominent terminal spine.

Schistosoma mansoni-2

Disease name: Intestinal schistosomiasis

Site of infection: Large intestine (the plexus of veins draining the rectum and colon, and in branches of the portal vein in the liver

Morphology: male has 7-8 testes and female ovary in the front part The ova of *S. mansoni* are light yellowish brown, elongate and possess a lateral spine.

3-Schistosoma japonicum

Disease name: Oriental schistosomiasis

Site of infection: small intestine

Morphology

The adult worms are longer and narrower than the *S. mansoni* worms males have 6-7 testes females ovary in the center. The oval is more round with a minute lateral spine or knob (vague spine).

Symptoms

The main lesions are again due to the eggs, occurring in the intestine and liver. The eggs which are sequestered in the intestine mucosa or submucosa granulomatous reactions, resulting in the formation of pseudotubercles

Laboratory Diagnosis

Microscopy

Laboratory confirmation of infection can be made by finding the eggs in the feces after an iodine stained, formol-ether concentration method for *Schistosoma mansoni* and *Schistosoma japonicum* When eggs cannot be found in the feces, a rectal biopsy can be examined, While *Schistosoma hematobium* found in urine or feces.

Serology

Serological tests are of value in the diagnosis of schistosomiasis when eggs cannot be found. An enzyme linked immunosorbent assay (ELISA) using soluble egg antigen.