

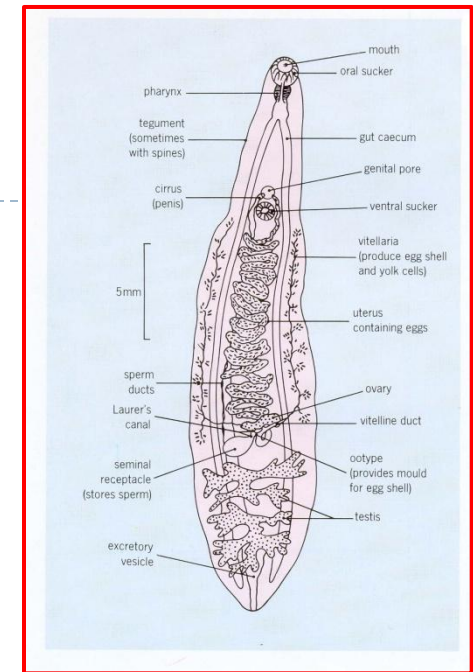


TREMATODES (FLUKES)

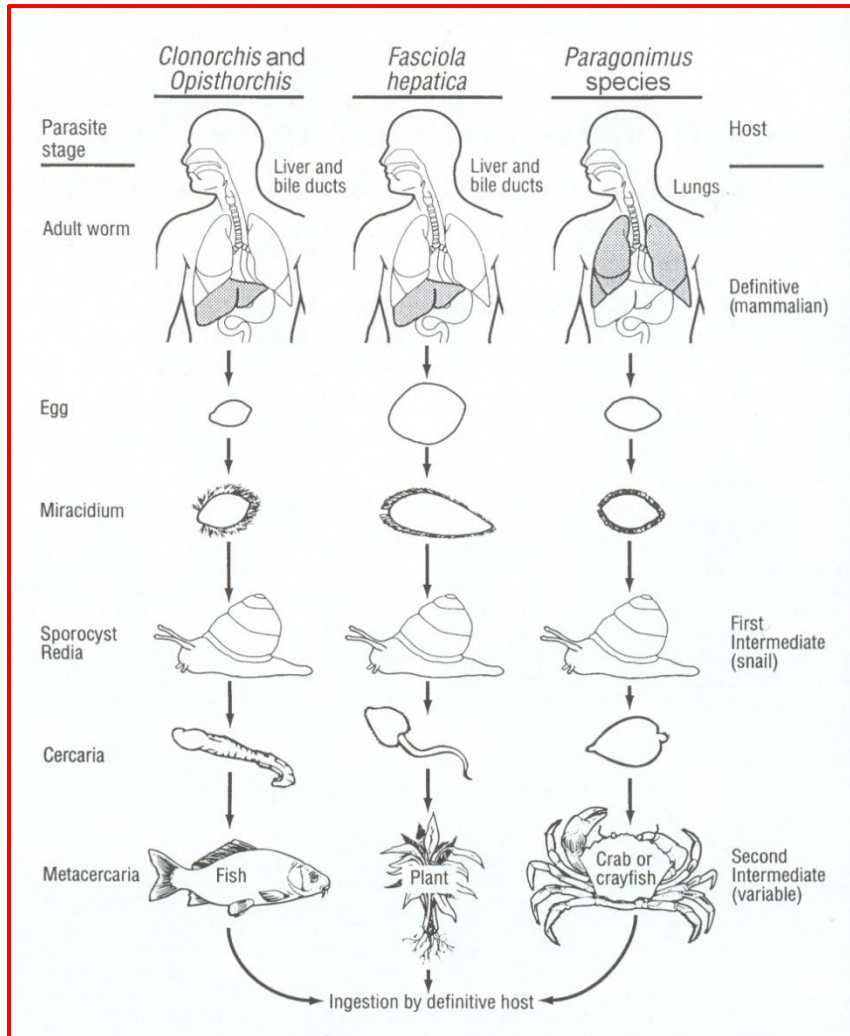


Morphology & biology

- Dorso-ventrally flattened
- Unsegmented
- Leaf-like
- Hermaphroditic except blood flukes
- Two radially striated suckers (ventral and oral suckers for attachment and sucking fluids from the host)
- Incomplete digestive tract
- Most of the body is occupied by reproductive organs
- Eggs (ova) are provided with opercilum (except in blood flukes)



Named for host tissues in which adult lives



▶ **Intestinal flukes**
(*Fasciolopsis*)

▶ **Liver flukes**
(*Clonorchis, Fasciola*)

▶ **Lung flukes** (*Paragonimus*)

▶ **Blood flukes** (*Schistosoma*)

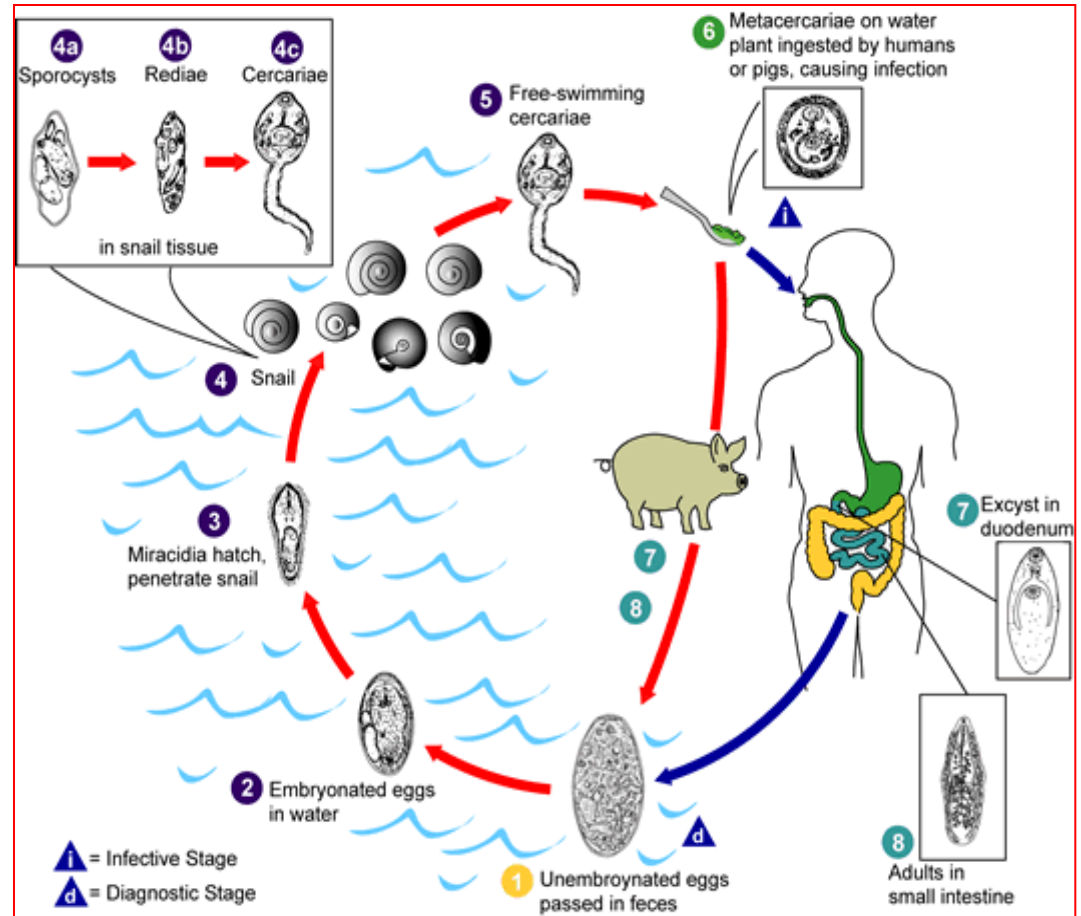
Fasciolopsis buski

- ▶ Giant intestinal fluke of man
- ▶ Parasite of the intestine of humans and pigs
- ▶ Mode of transmission is by ingestion of encysted metacercariae on aquatic plants
- ▶ The viable metacercariae excyst in the duodenum and becomes mature in about three months



Fasciolopsiasis - lab dg

- ▶ Detection of parasite eggs in stool



Clonorchis sinensis

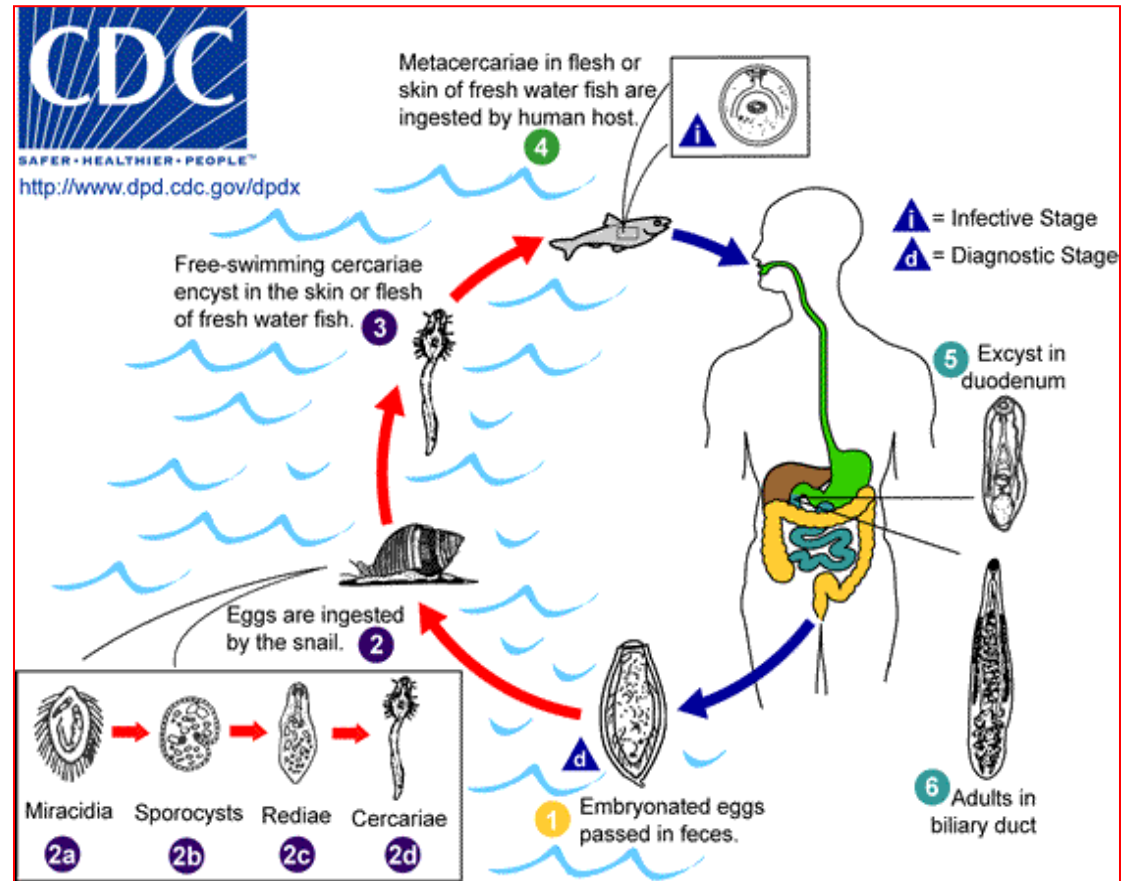
- ▶ Chinese liver fluke
- ▶ Oriental Liver Fluke

- ▶ 1st intermediate host:

Snail

- ▶ 2nd intermediate host:

Fish



Clonorchiasis

Symptoms

Acute stage

- ▶ Chills
- ▶ Fever

Chronic stage

- ▶ Liver cirrhosis
- ▶ Portal hypertension

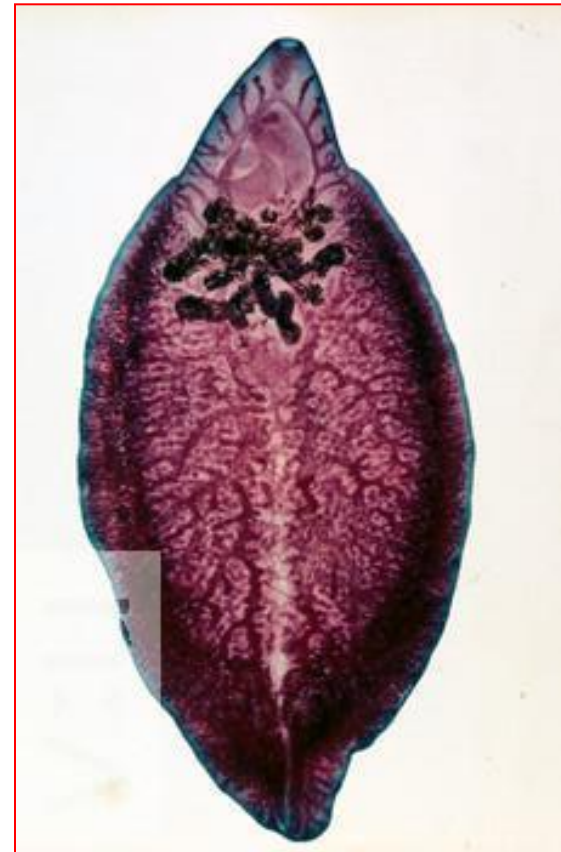
Lab dg

- ▶ Detection of parasite egg in stool
- ▶ ELISA for Abs



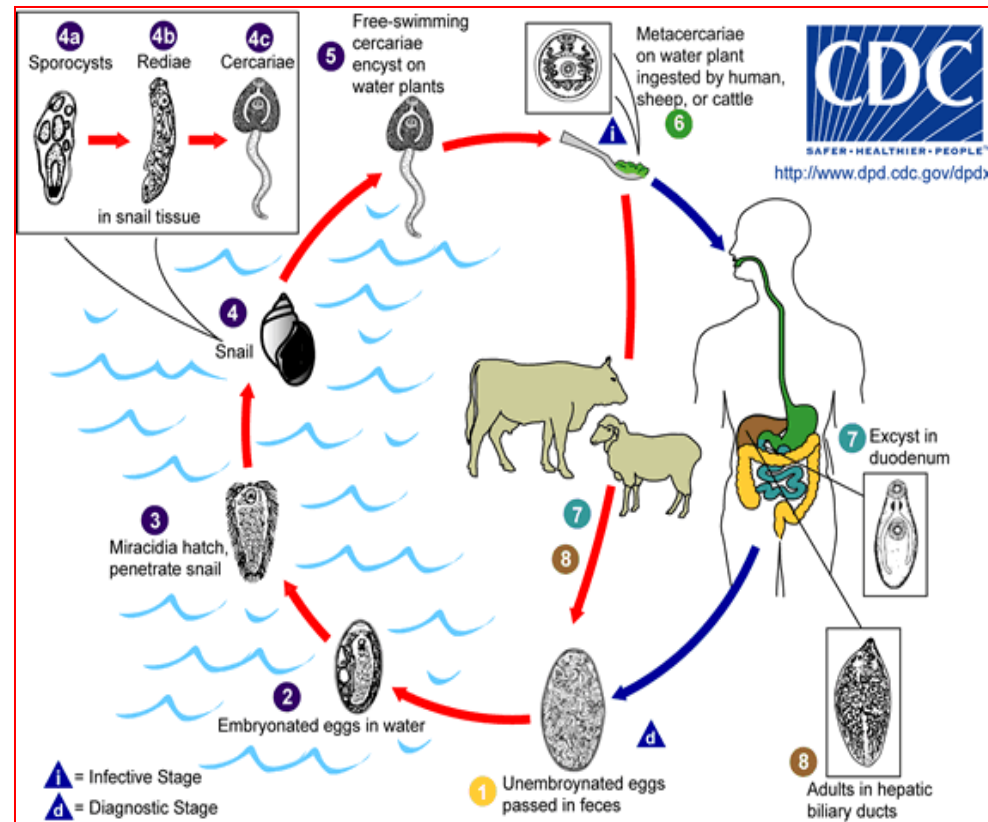
Fasciola hepatica

- ▶ Found in the liver and biliary passages of humans and ruminants
- ▶ Sheep liver fluke
Temperate liver fluke
- ▶ 1st intermediate host:
Snail (*Lymnaea*)
- ▶ 2nd intermediate host:
Watercress



Life cycle

- ✓ Mode of transmission is by ingestion of **metacercariae** found on **aquatic plants**
- ✓ Metacercariae excysts in the duodenum or jejunum and liberate the **juvenile fluke**
- ✓ Juvenile fluke **penetrates the intestinal wall** and reaches the liver capsule
- ✓ The parasite **burrows into the liver** parenchyma where it grows and develops
- ✓ It becomes sexually **mature in the bile ducts**



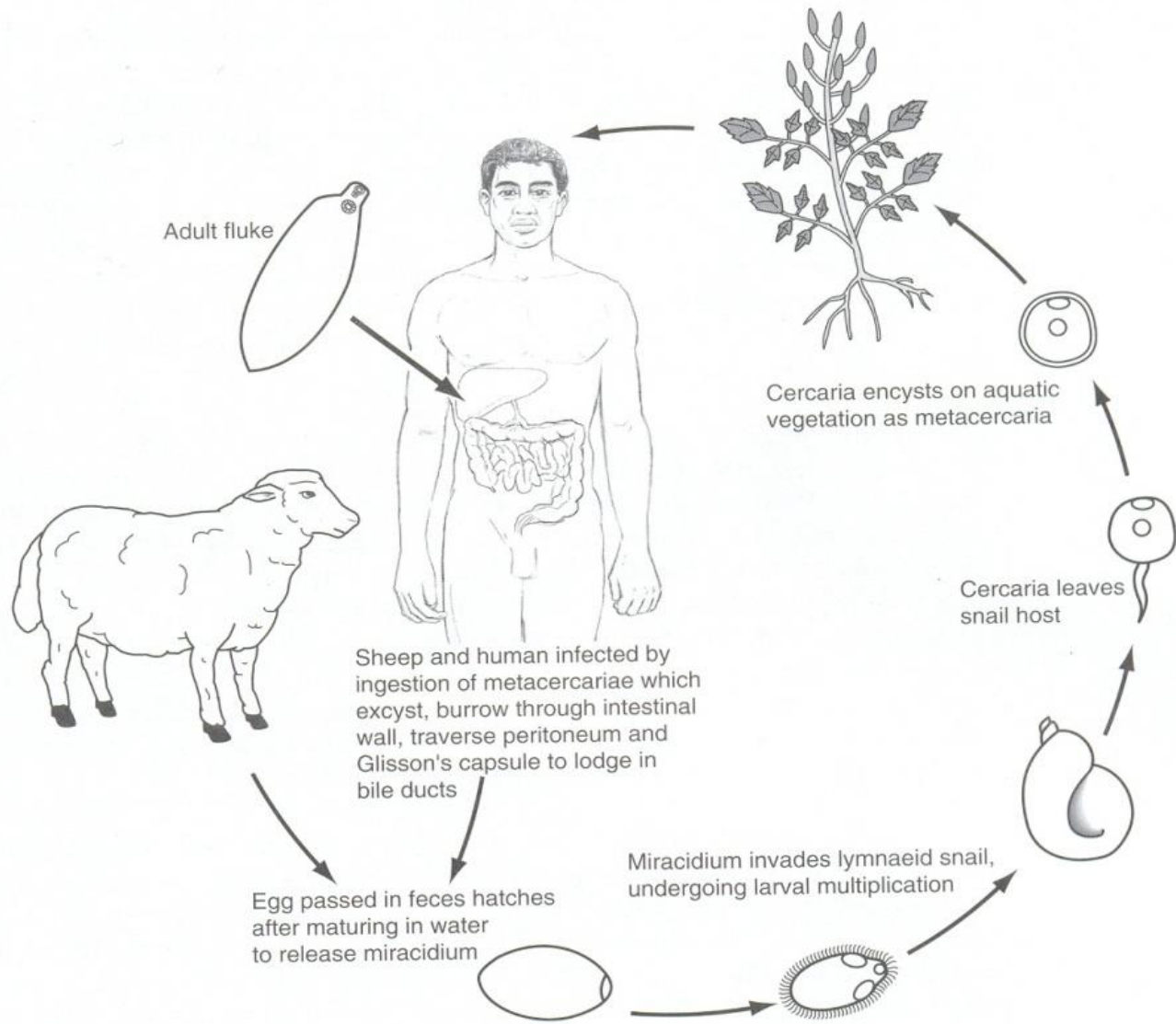


FIGURE 6-15

Life cycle of *Fasciola hepatica*.

Fascioliasis

- ▶ Asymptomatic
- ▶ Fever
- ▶ Right upper quadrant abdominal pain
- ▶ Hypereosinophilia

- ▶ Acute or invasive phase
 - ▶ Migration from intestine to liver
 - ▶ Traumatic and necrotic lesions in liver parenchyma

- ▶ Chronic or latent phase
 - ▶ Asymptomatic
 - ▶ Parasite has reached the bile ducts
 - ▶ Obstruction
 - ▶ Stimulates inflammation in the biliary epithelium leading to fibrosis

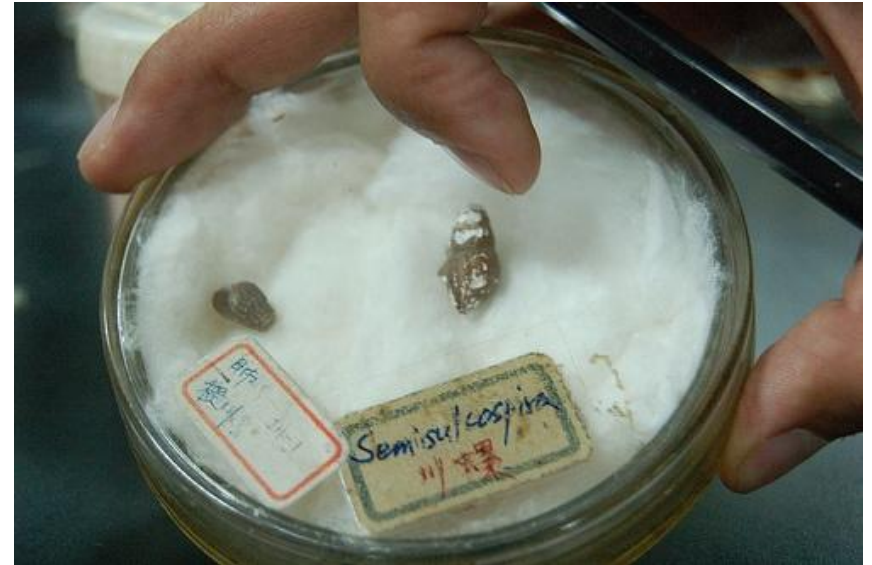
Lab dg

- ▶ Microscopy (ova in stool)
- ▶ Serologic tests
 - Low specificity because of cross reactivity with Ags of other parasites



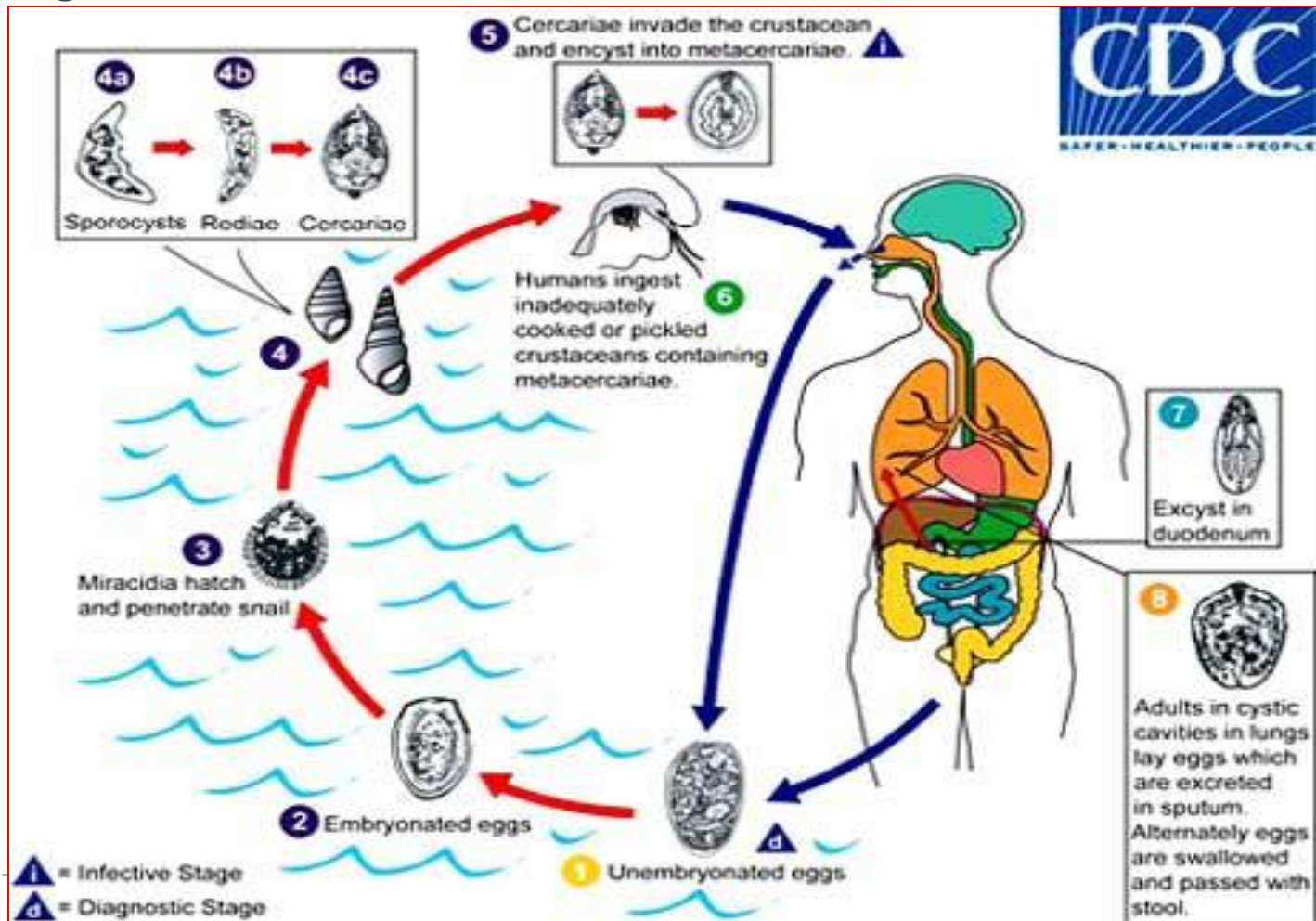
Paragonimus westermani

- ▶ Oriental Lung Fluke
- ▶ 1st Intermediate Host
Snail
- ▶ Second Intermediate Host
Crab
Harbors the metacercaria that is infective to man
- ▶ Adult worms are found in pairs in fibrotic capsules or cysts in the lungs



Life cycle

Man gets infected after ingestion of raw or insufficiently cooked crabs harboring the metacercariae



Paragonimiasis

- ▶ Cough
- ▶ Hemoptysis
- ▶ Symptoms consistent with pulmonary tuberculosis
- ▶ Misdiagnosed as TB



Lab dg

- ▶ Röntgen
- ▶ Finding of ova in the sputum, stool
- ▶ ELISA

