

Genus : Opisthorchis

Instructor:

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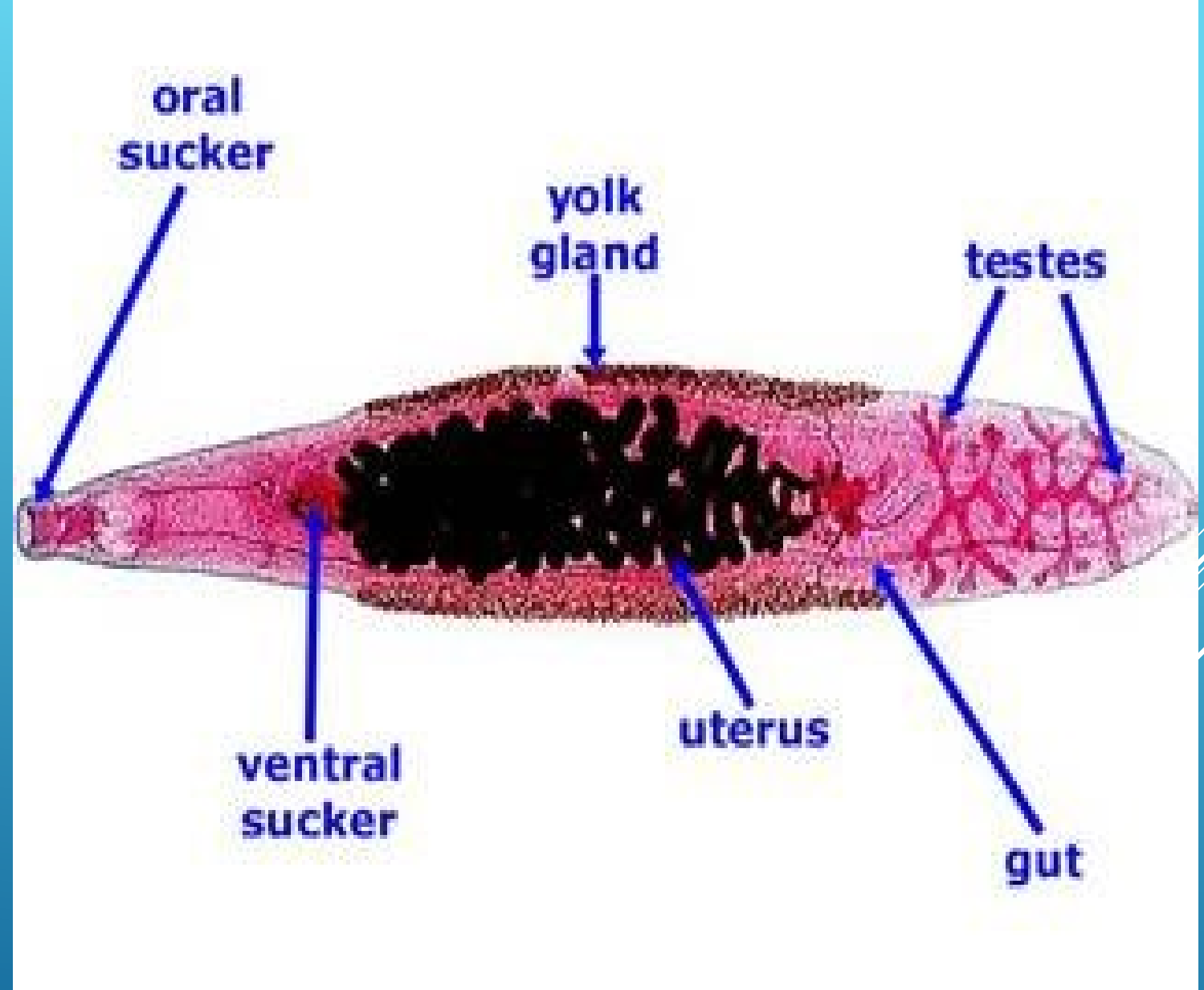
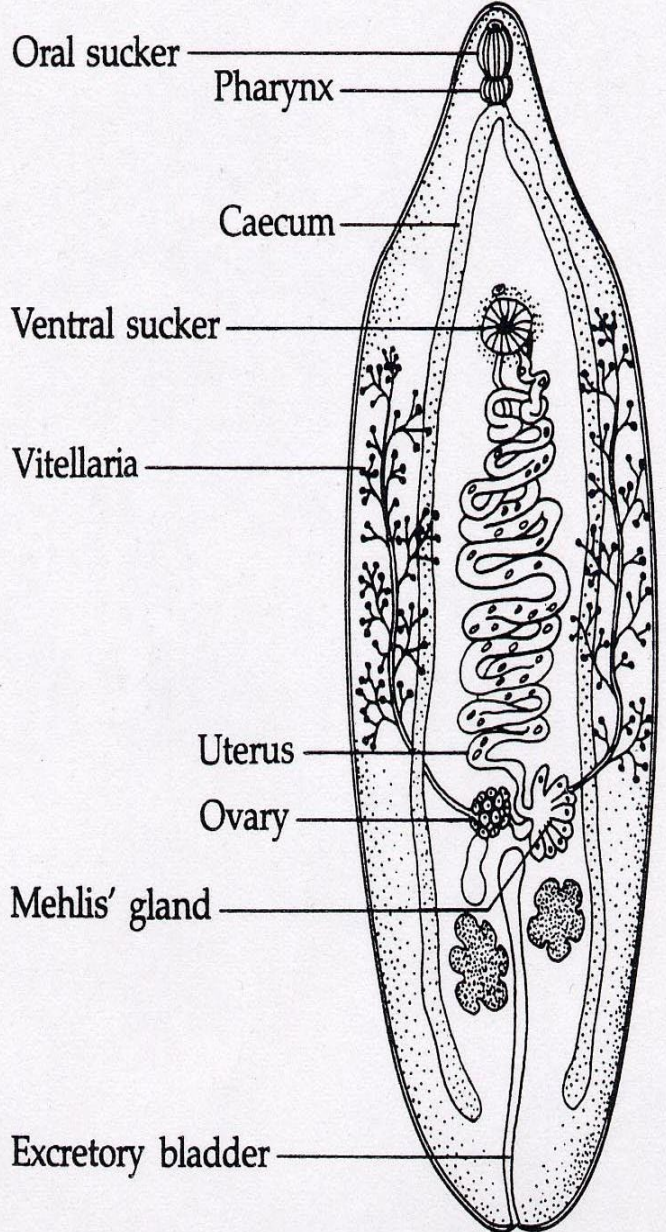
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Opisthorchis : Morphology

- The body of adult is dorsoventrally flattened like a leaf and transparent.
- A typical individual is 7 mm long and 1.5 mm wide.
- The anterior end is more pointed and marked by a mouth-like structure called **Oral sucker**.
- Behind the oral sucker is a similar structure called **Ventral sucker**. These suckers are the organs of attachment.
- The two testes are lobed and connected to the **Seminal vesicle**, which is a coiled tube running up to the ejaculatory duct, which in turn opens through a small opening called **Genital pore** just in front of the ventral sucker.
- Two ovaries are situated in front of the testes, and they form several lobes. The uterus runs along the ejaculatory duct and opens at the genital pore.
- A sac-like S-shaped tube called **Excretory bladder** is, in between the two testes.
- The remaining body spaces are mostly occupied by a highly branched glandular organ called **Vitellaria** or **Vitelline glands**.



Opisthorchis : Parts of the body

Opisthorchis : life cycle

- The adult worms primarily live in the bile duct, gall bladder, and sometimes in the pancreatic duct. Fertilized eggs are laid in the bile duct and are discharged into the intestine, and finally released in the environment along with the faeces. The lifespan is estimated to be more than 25 years.
- They are **hermaphrodite** liver fluke requires three different hosts to complete its lifecycle-

First intermediate host :

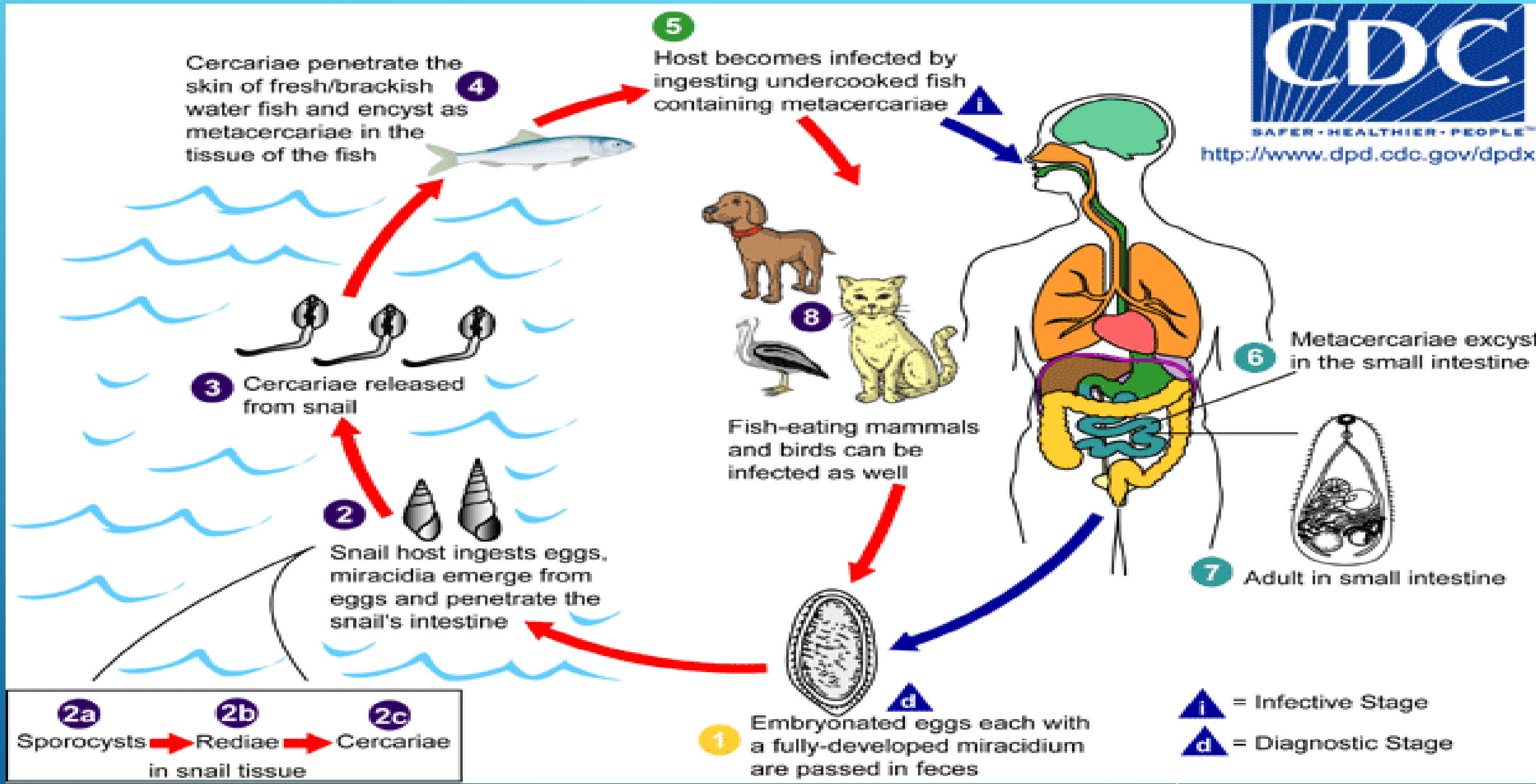
- Freshwater **snails** are the first intermediate hosts in which asexual reproduction takes place. Snails are infected by the free-swimming larvae called **Miracidia** . Inside the snail tissue, the miracidia grow into **Sporocysts**, that contain spore-like daughter cells. The daughter cells called **Rediae** multiply and develop into numerous larvae called **Cercariae**. The cercariae escape from the snail and actively search for a fish host.

Second intermediate host :

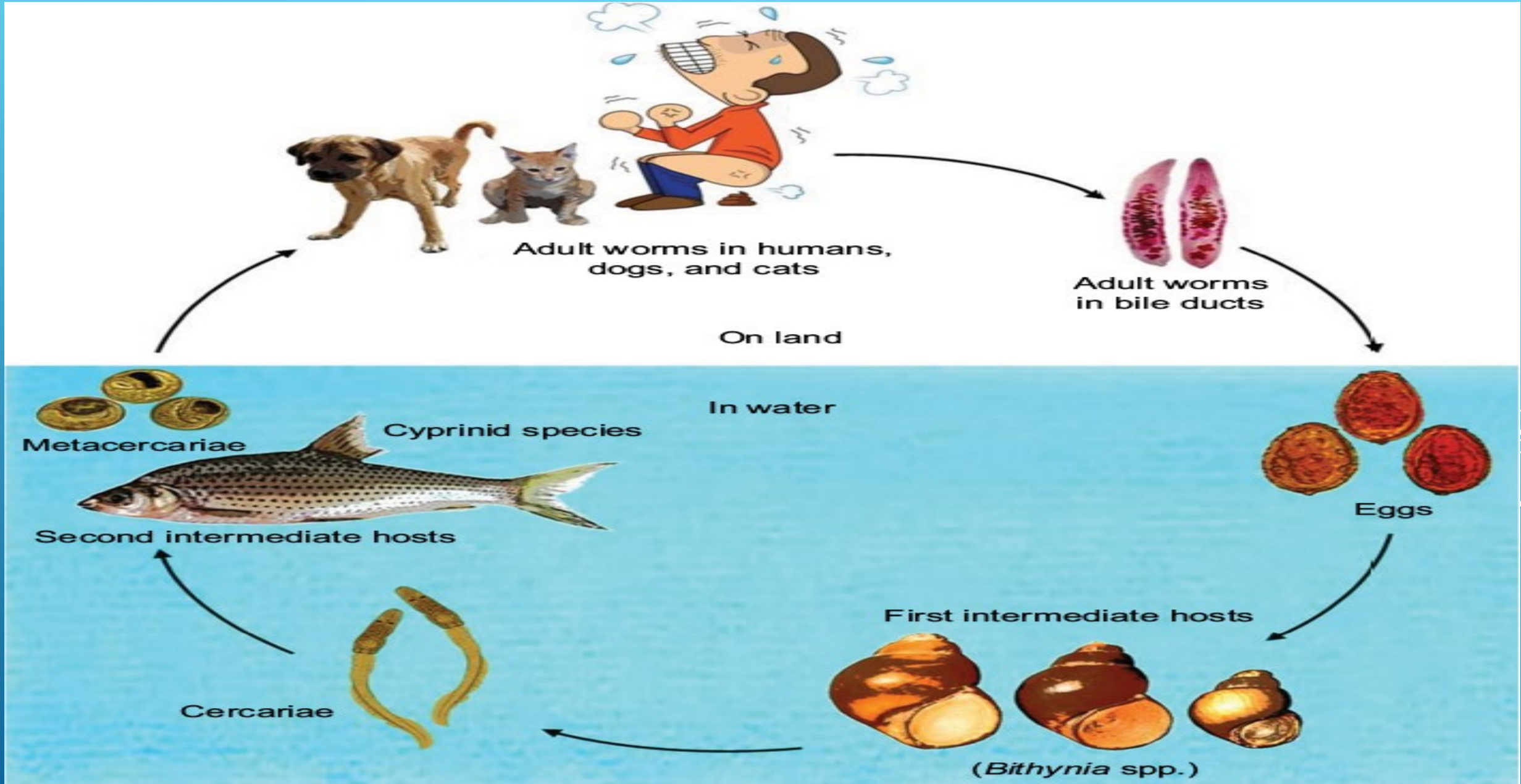
- The freshwater **fishes** are second intermediate hosts in which larval development occurs .In fish the cercaria becomes a **Metacercaria**.

Definitive host :

- **Fish-eating mammals**, including humans, dogs, and cats, act as definitive hosts, in which sexual reproduction occurs.



Opisthorchis : life cycle



Opisthorchis : Pathogenesis

- Initially there is gastrointestinal discomfort, diarrhea, and constipation, flatulence, anorexia, lassitude, weight loss and dullness.
- In chronic infection, symptoms may be more severe; hepatomegaly and undernutrition may be present.
- Rare complications include cholecystitis, cholangitis, gallstones, obstructive jaundice and cholangiocarcinoma (bile duct cancer)
- The pathogenesis is due to toxic substances produced by them. Lesions are mainly confined to the biliary system.
- In heavy and severe infections there are obstruction of the biliary tract, bile retention, extensive hyperplasia of the biliary system, cholangitis, round cells and fibrosis in the portal areas, necrosis and atrophy of hepatic cells.
- The bile ducts are dilated and in late cases saccular or cystic formations may develop into large cysts.
- The gallbladder may enlarge and contain **white bile** but liver profile is generally normal.
- Hot cutaneous sensation of the abdomen, and enlargement of the liver can be seen.
- There is relapsing cholangitis, the patient is seriously ill .

Opisthorchiasis

Caused by liver fluke -
Opisthorchis Viverrini

Cat ; Dog ; Human - Definitive Host



Hepatobiliary Diseases:
Cholangitis ;
Biliary lithiasis ;
Cholecystitis and
Cholangiosarcoma



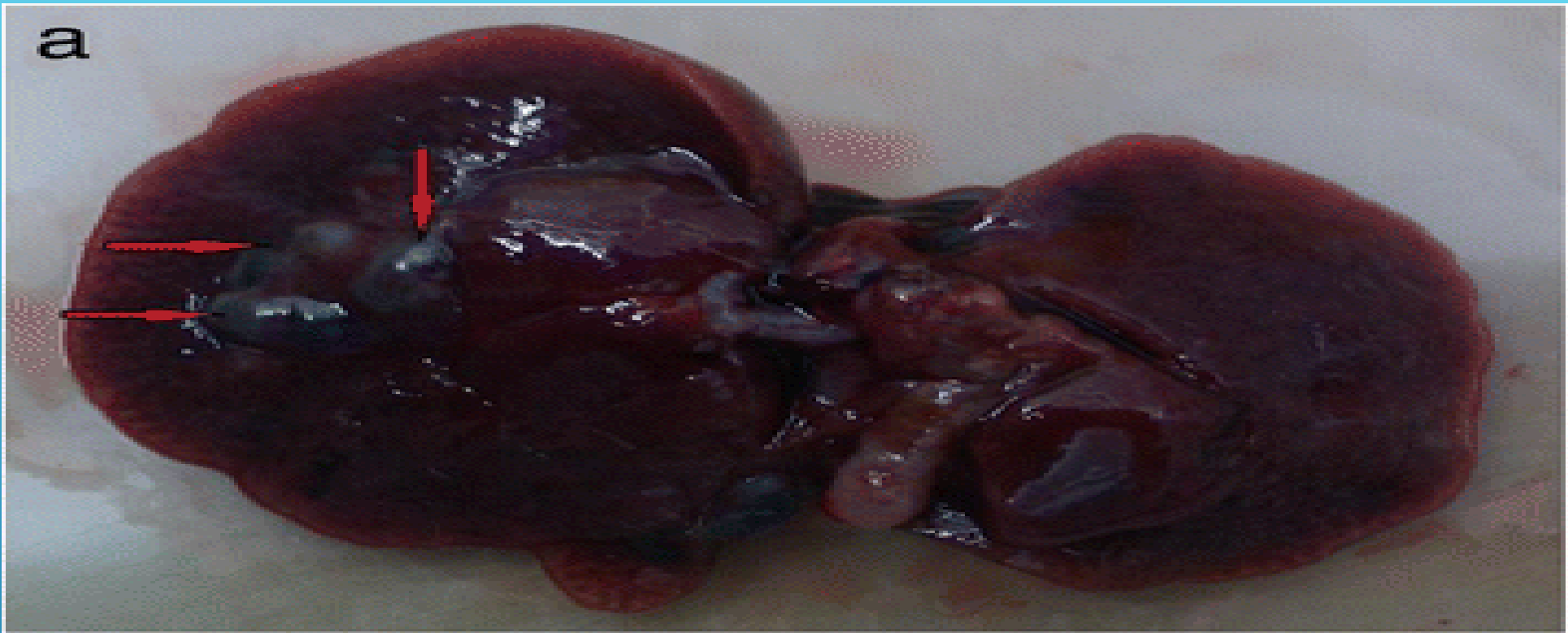
Snail -

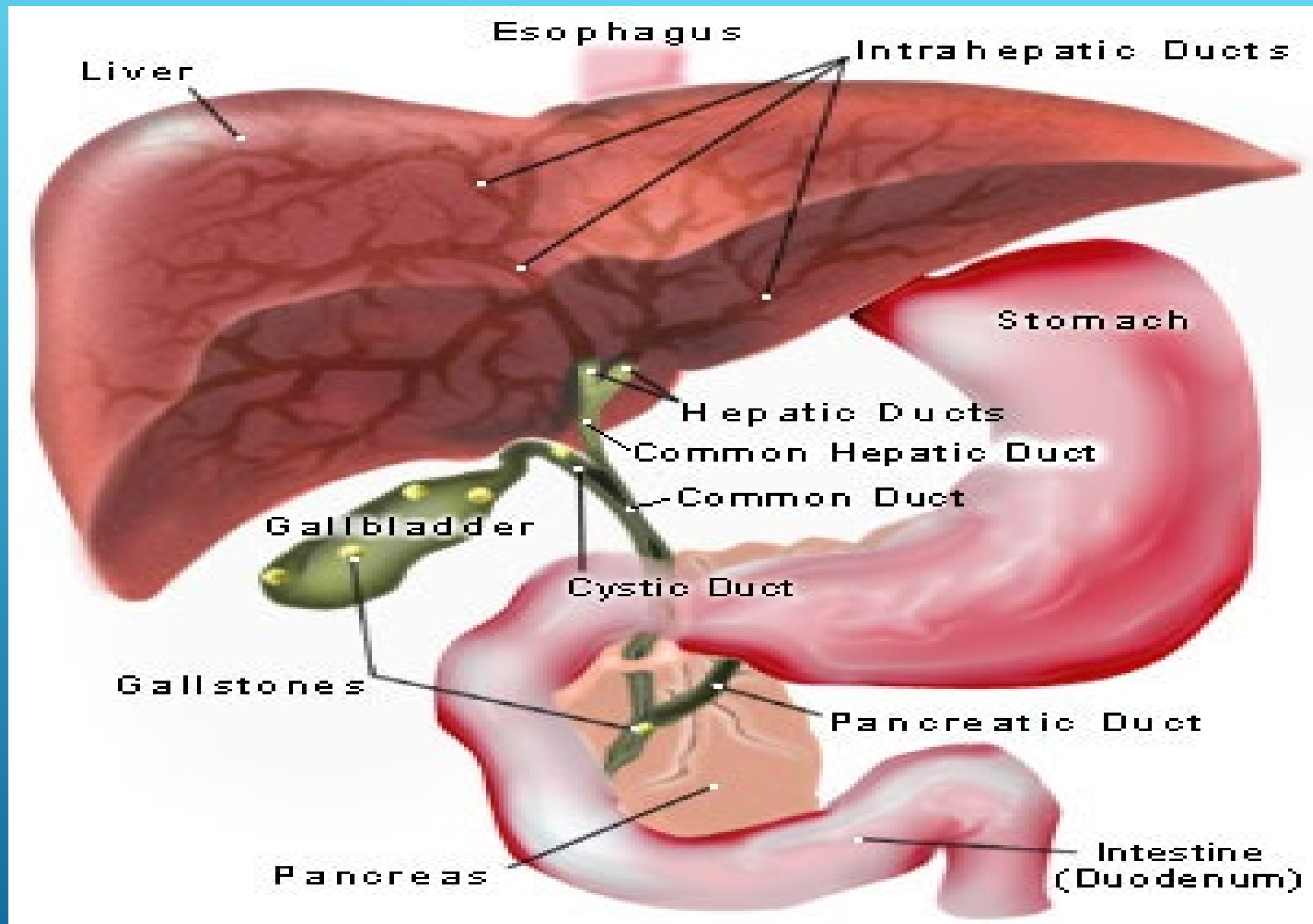
Fresh Water Fish

First Intermediate Host

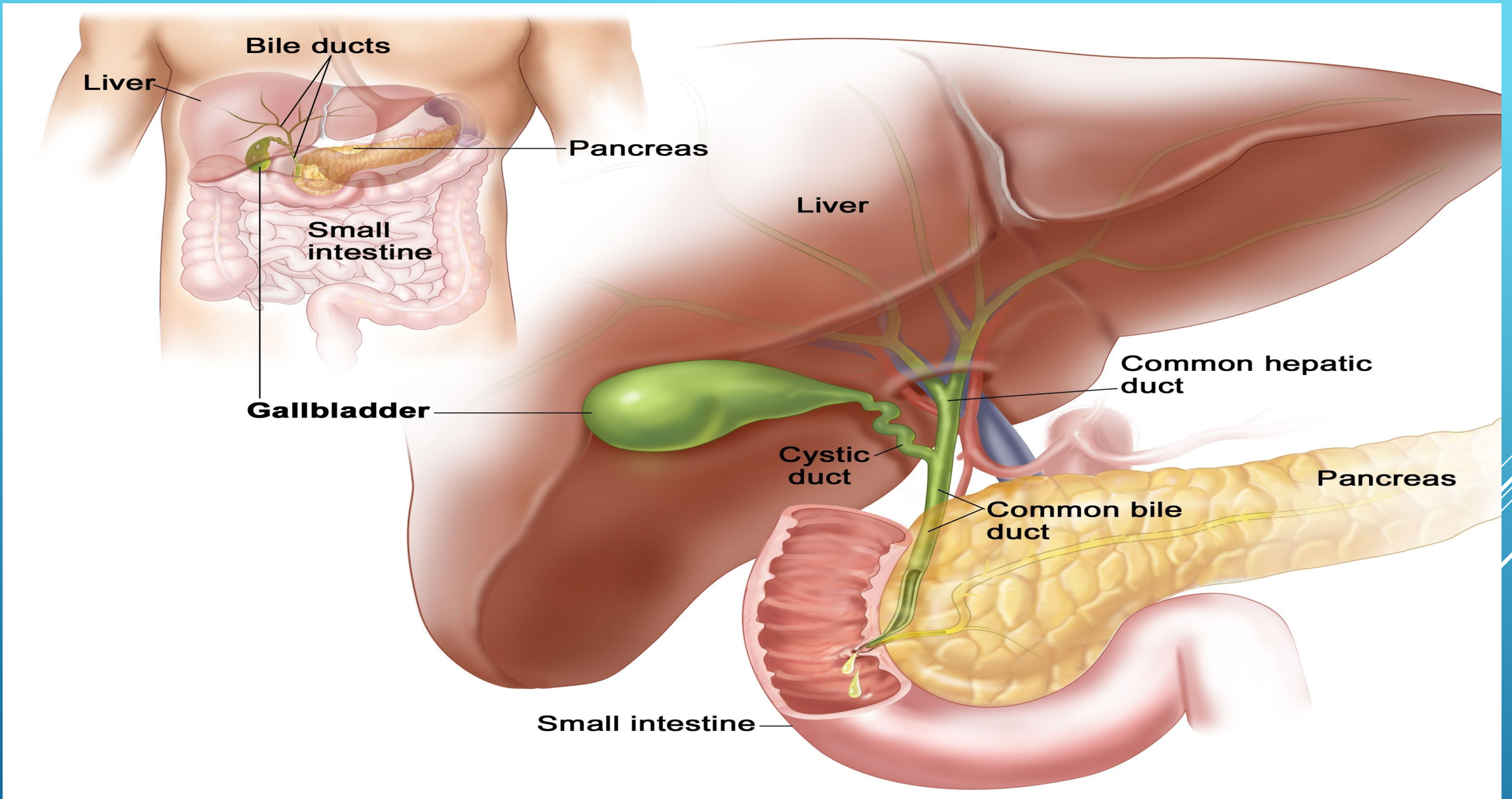
Second Intermediate Host

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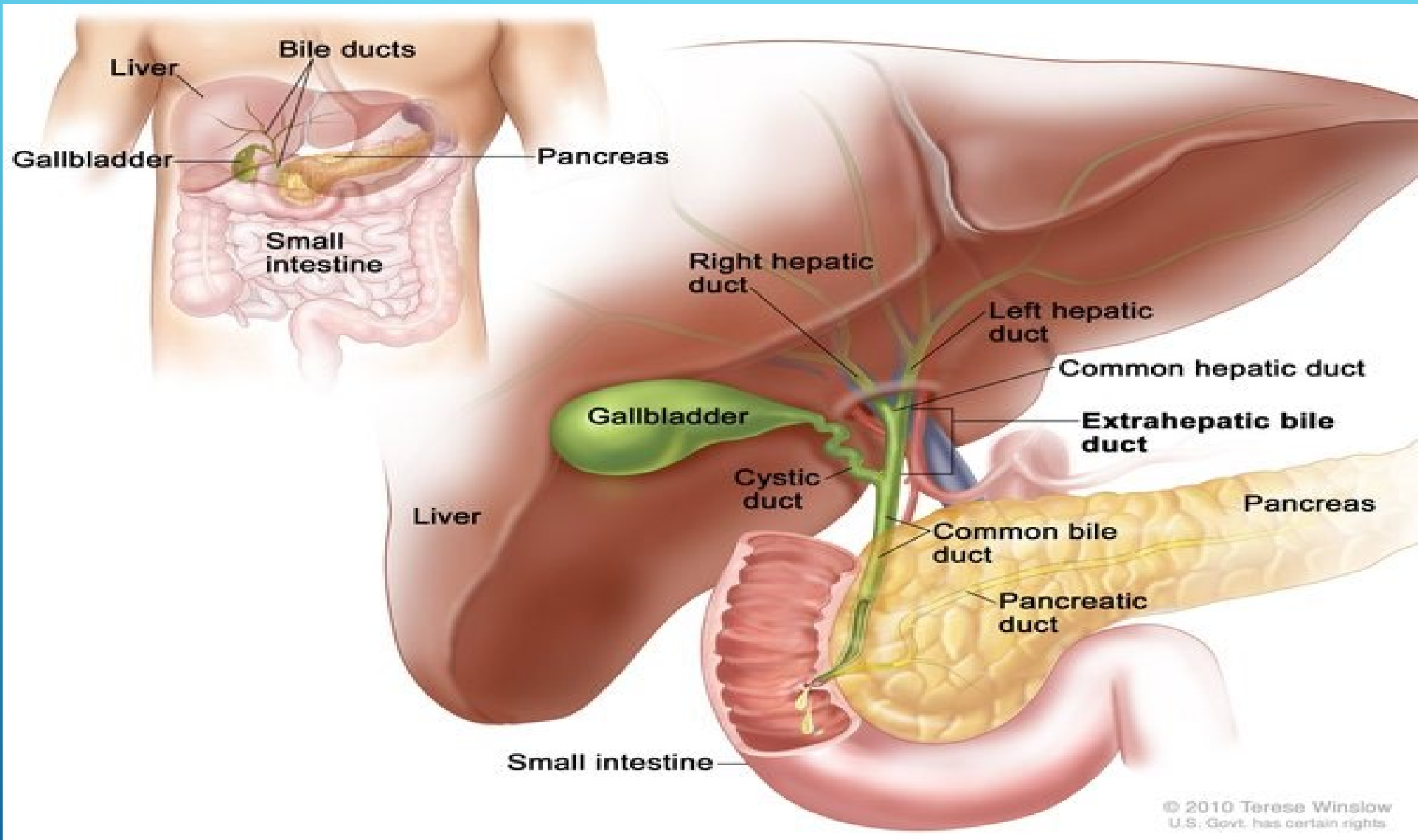




Gall stones



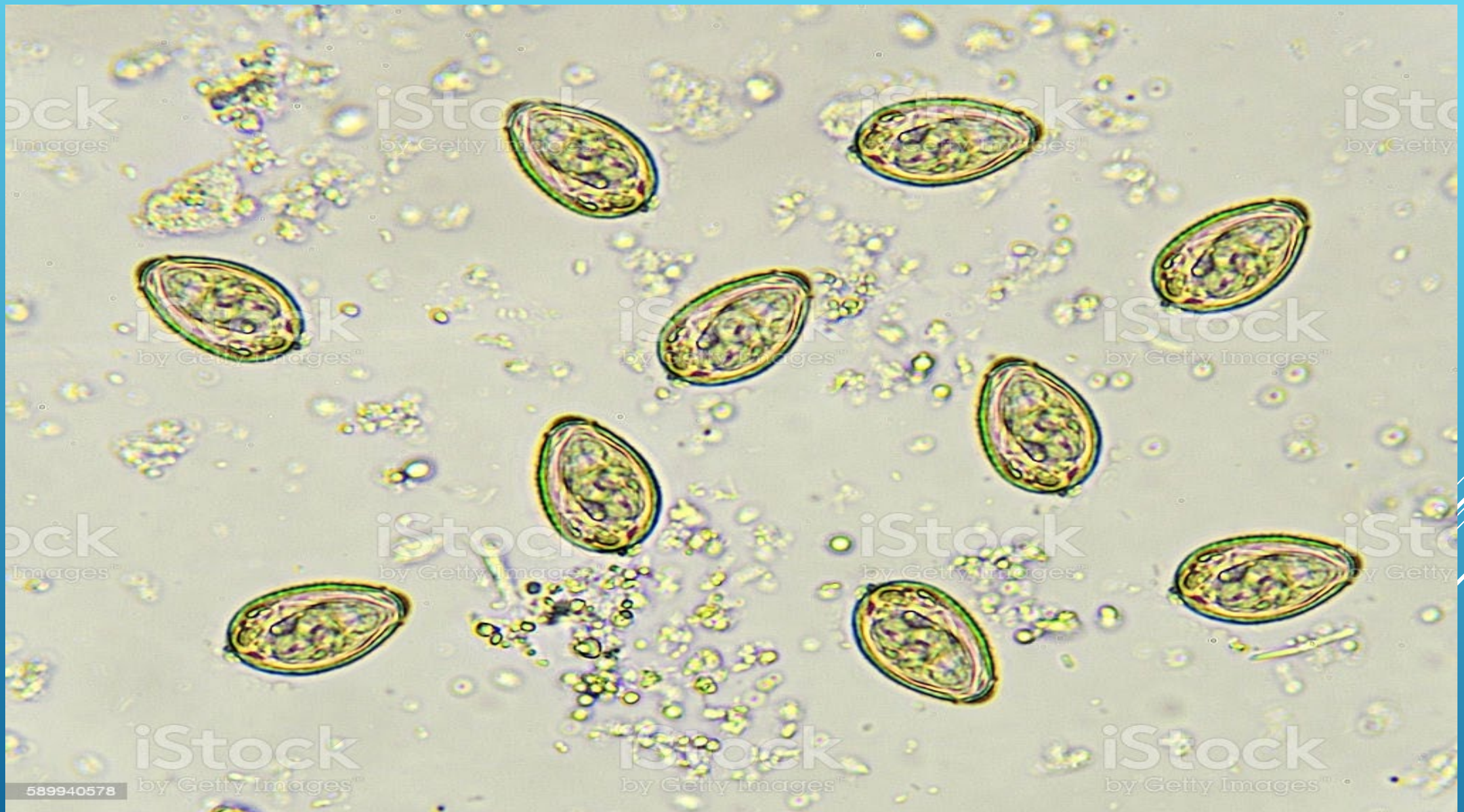
Gall bladder problem



Cholangitis

Opisthorchis : Diagnosis

- Diagnosis of *Opisthorchis* infection is based on microscopic identification of fluke eggs in feces.
- Adequately freezing or cooking fish will kill the parasite.
- The cysts containing the parasite can sometimes be detected by ultrasound, CT, or MRI.
- Testing the blood for *Opisthorichis* is not useful for patient management.
- No blood test to detect infection is available till date.



Opisthorchis : Eggs

Opisthorchis : Prevention & control

- Effective prevention could be readily achieved by consumption of properly cooked fish.
- Currently, there is no effective chemotherapy to combat cholangiocarcinoma, such that intervention strategies need to rely on the prevention and control of *Opisthorchis* spp. infection/disease.
- Cooking or deep-freezing (-20 °C for 7 days) of food made of fish is sure method of prevention.



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Avoid consumption of half cooked fish