



Microbiology sheet

TREMATODES

FASCIOLA SPECIES

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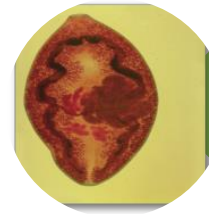
Medical Helminthology



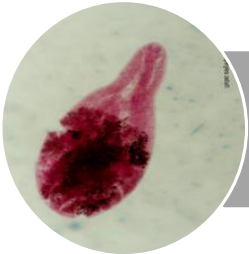
Trematodes are classified according to their habitat into:



Liver flukes



Lung flukes



Intestinal flukes



Blood flukes



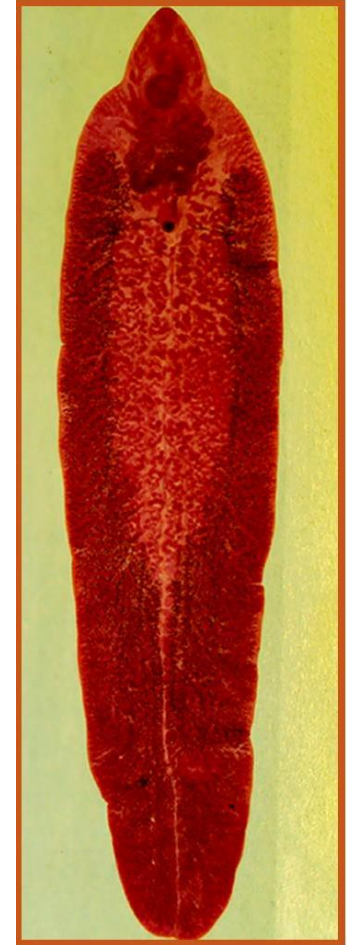
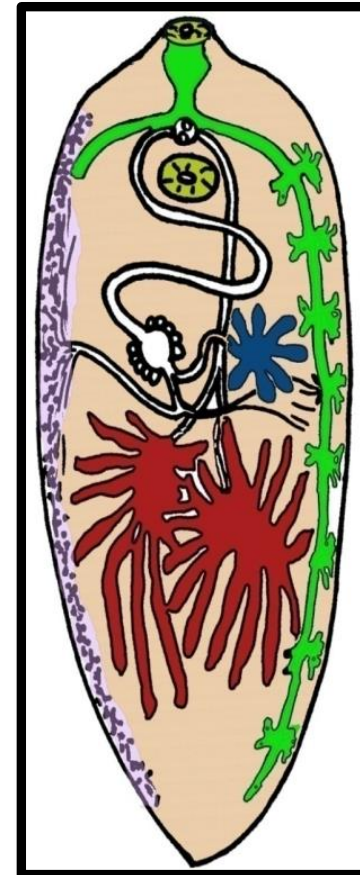
Fasciola gigantica

(Giant liver fluke)



Morphology

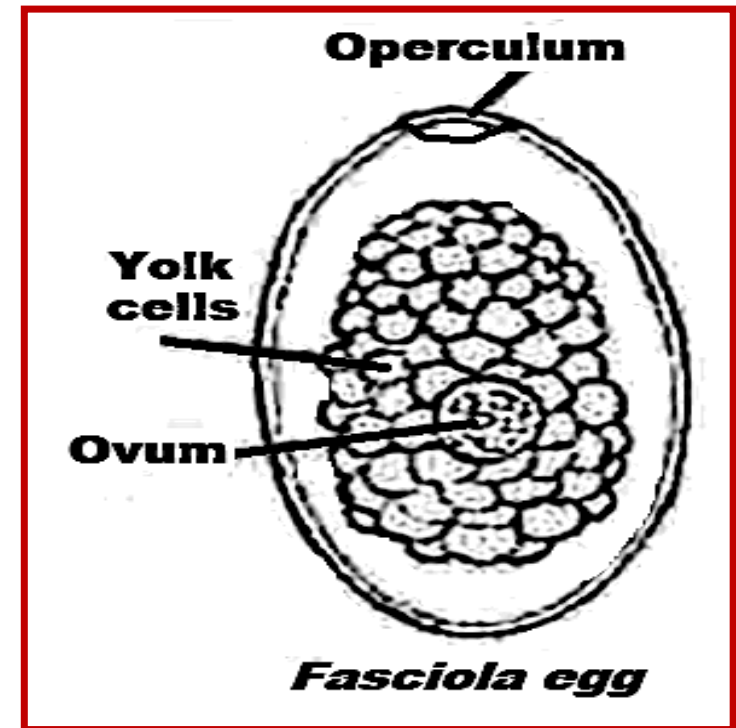
- **Disease:** Fascioliasis
- **Geographical distribution:** Egypt, Tropical Africa and many parts of the world especially cattle raising countries.
- **Size:** 60 x 15mm (you can see by naked eye)
- **Shape:** Oblong with the lateral borders of the body parallel to each other.



Vitelline gland part in digestive sys of female+ The lateral Bursal of Adult. the female System One ovary Branche. the male System (2-testes Branches found in the posterior part of the Body+ median Branch of the intestinal Sac+ Tor Y 4 Shape+ Lateral Branched Compound)

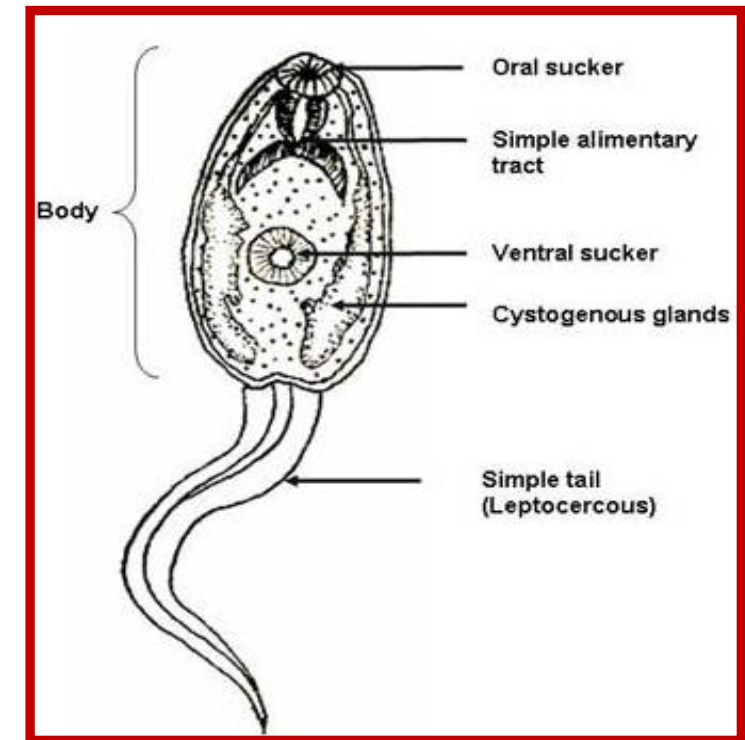
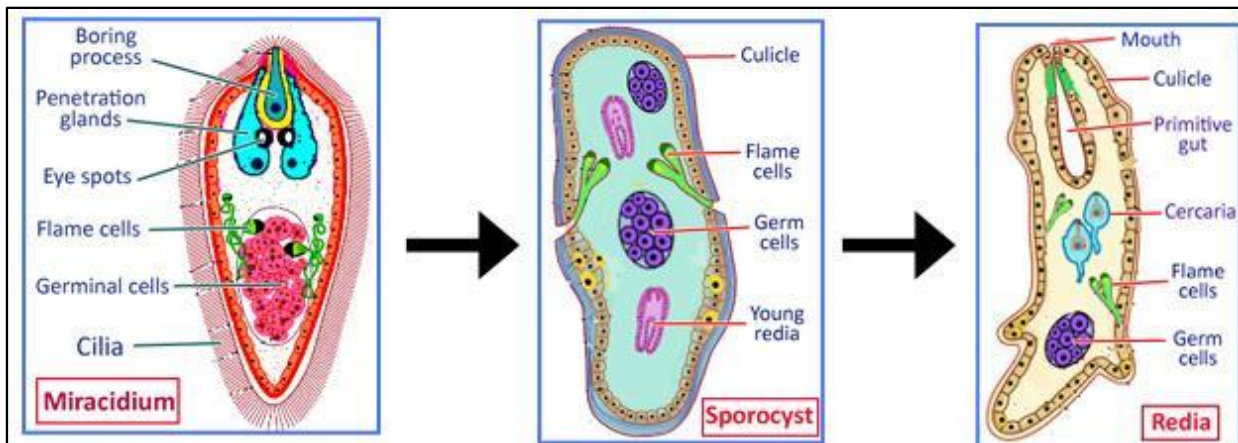
❖ **Egg (D.S):-**

- **Size : 140 x 70 μm .** (the Bige egg)
- **Shape : Oval.**
- **Shell : Thin operculated.**
- **Color : Yellowish brown.**
- **Content : Immature (ovum & yolk cells).**



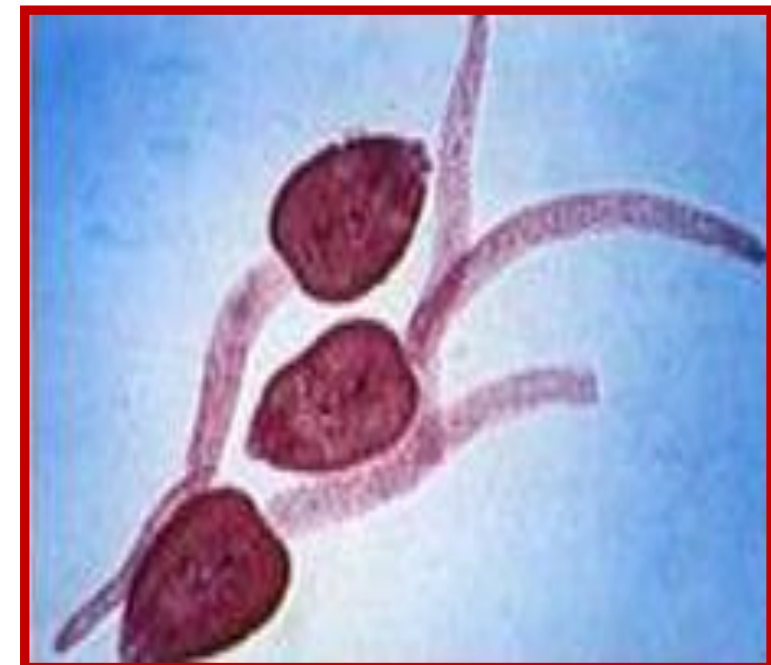
(cilia) (sac like full germinal cell) (have a projection at the end)

❖ Miracidium, Sporocyst & Redia:-



❖ Cercaria:-

- Formed of body and tail.
- Body with oral and ventral suckers, simple intestinal caeca & cystogenous glands. simple intestinal Seace the same of intestinal Seace but without branched
- Tail : Simple (leptocercous cercaria).

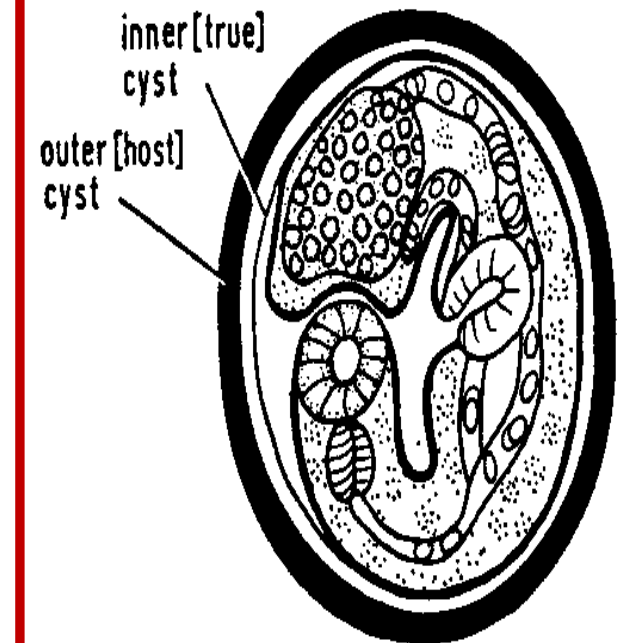


in the same host (water)

❖ **Encysted metacercaria (I.S):-**

(absent of the tail and product of the cyst)

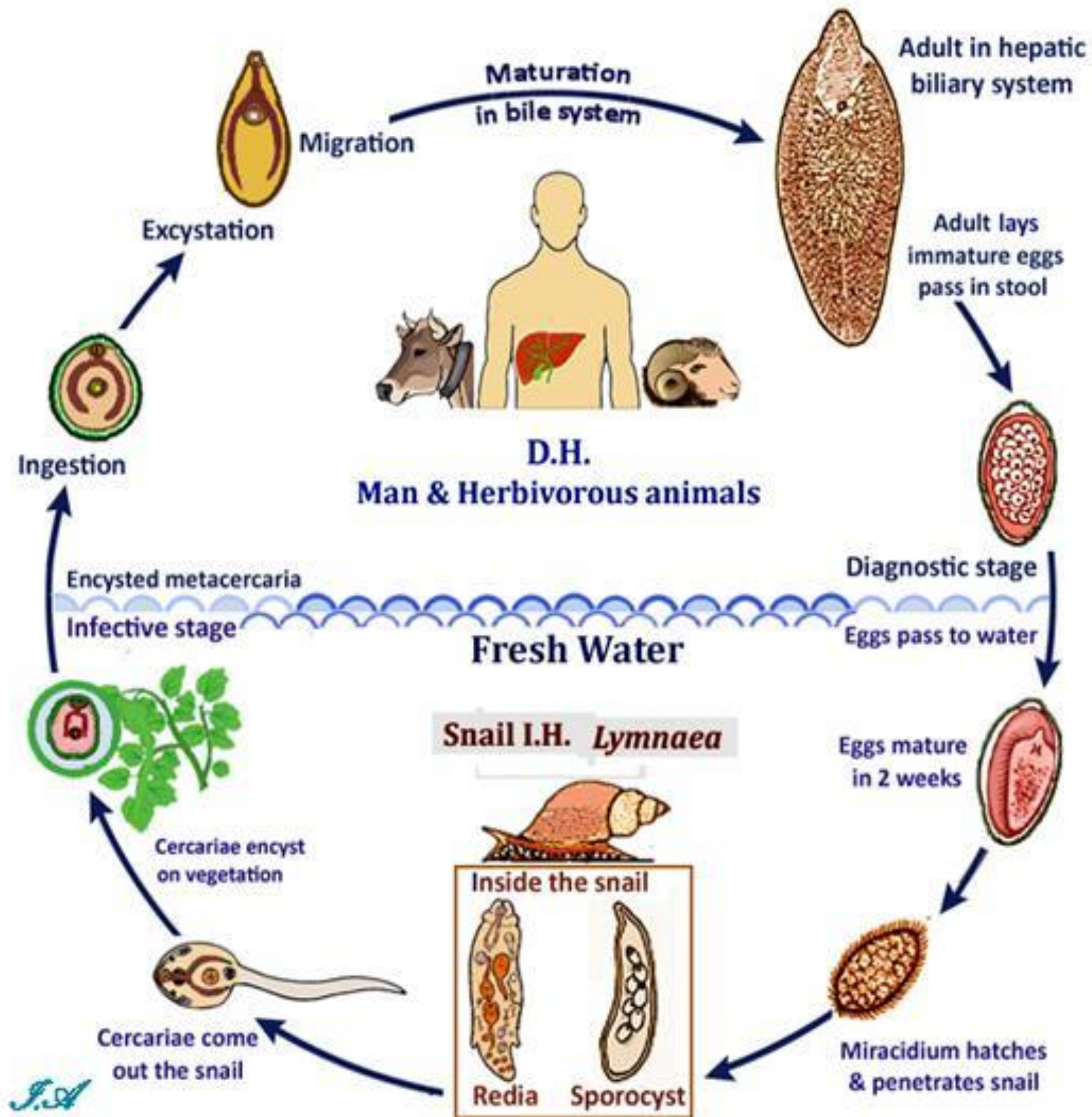
- **Spherical in shape.**
- **The cercaria losses its tail and secrete a thick cyst wall.**
- **Present in green aquatic vegetations and water.**



❖ **Mode of infection:**

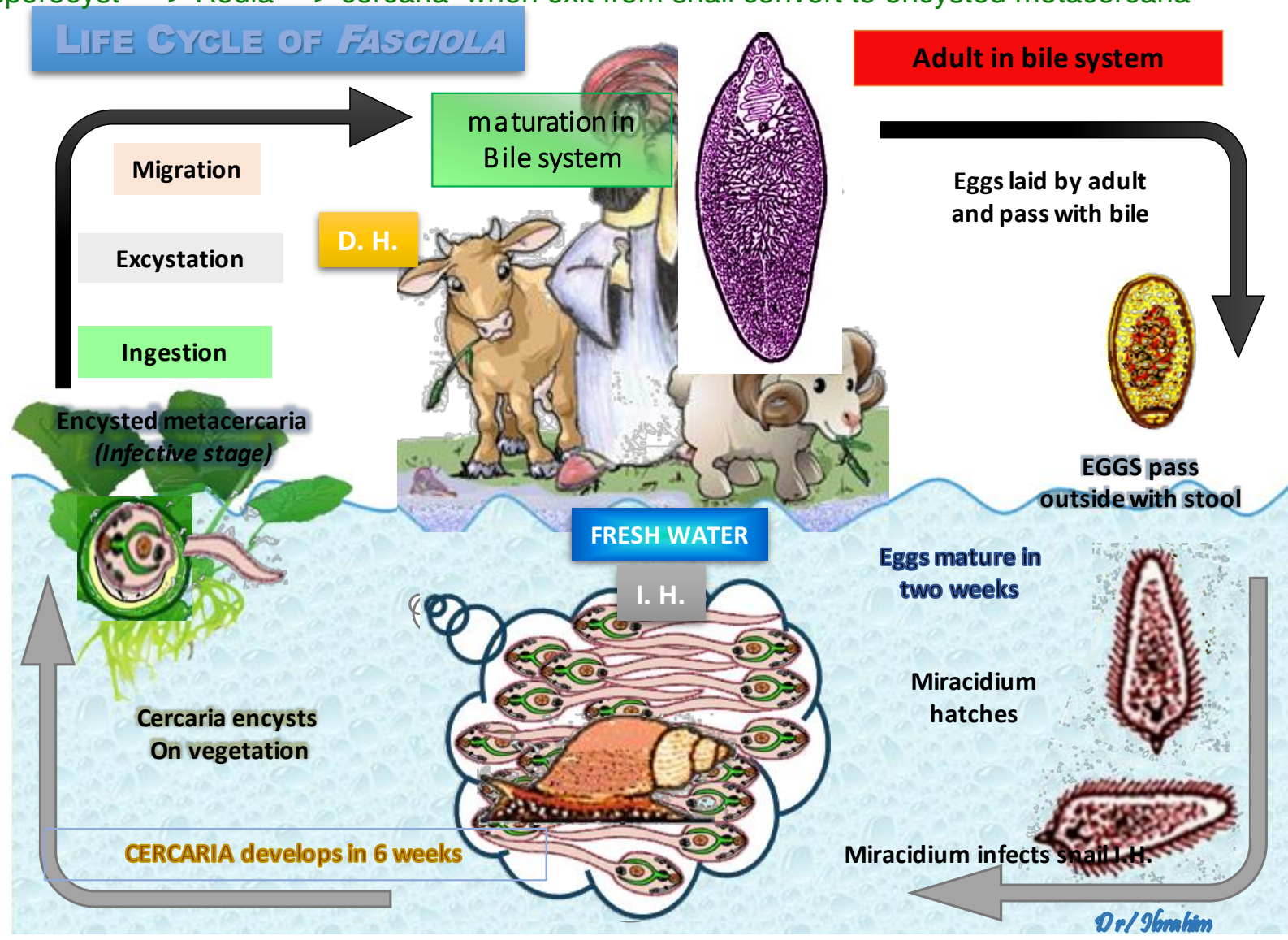
- 1- Ingestion of water plants infected with encysted metacercaria.
- 2- Drinking water contaminated with encysted metacercaria.





J.S.

the egg found in the bile and exited through genital pore to reach to intestine and dedendum finally reach to the stool
 the most important stage in parasite live reach to the water(freash water) to be mature
 how the egg reach to the water? by two way 1) animal can datafication in water 2) some in developed contrary the man will defecation in water
 in side the water the egg need 2 week to maturation to product the embryo (miracidium) which go to the snail(lymnaea caillaudi)
 which convert to sporocyst ----> Redia----> cercaria when exit from snail convert to encysted metacercaria



Habitat in liver(biliary sys)

Host

- **Definitive host** adult in man
- **Intermediate host** snail
- **Reservoir host** animal

Diagnostic stage immature egg in stool

Infective stage encysted metacercaria in water

Mode of infection

Pathogenesis

- **Acute (migratory) phase:** hepatitis
 - Young migrating worms lead to enlarged tender liver, eosinophilia and fever
 - Dramatic liver inflammation, frequently resulting in death
- **Latent phase:**
- The patient is asymptomatic for months or years. However, eggs of *Fasciola* could be detected in the stool.
- **Chronic (obstructive) phase:**
 - More common and rarely fatal
 - Adults in bile duct leads to inflammation, fibrosis and obstructive jaundice

Clinical aspects

- **Acute (migratory) stage:** Fever, abdominal pain, vomiting, hepatomegaly, and allergic manifestations. upper right quadrant
- **Chronic (obstructive) stage:** Enlarged tender liver, biliary colic, obstructive jaundice, dyspepsia, and anaemia
- **Complications**
 - Secondary biliary cirrhosis.
 - Cholecystitis, cholangitis, cholelithiasis, and possibly pancreatitis.
 - Haemorrhage due to mechanical injury by the flukes. caused anemia
 - Ectopic Fascioliasis: Metacercariae which migrate through the peritoneal cavity may become lodged in different organs such as intestinal wall, pleura, CNS, skin, and subcutaneous tissues leading to abscess formation if fasciola go to the site another to liver= no accur maturation = abscess in this site
- **Pharyngeal fascioliasis (Halzoun):** result from eating liver contaminated by adult fasciola so no fascioliasis
 - Eating raw, infected liver
 - Infects pharynx
 - Causes swelling and obstructs breathing (pharyngitis and laryngeal oedema)

Diagnosis

Clinically

Laboratory

Patient presented with prolonged fever, hepatomegaly and high eosinophilia (clinical triad in endemic areas).

Direct

- Finding the eggs in the patient stool
- Duodenal aspirate (entero-test)
- Endoscopy

Indirect

detect by Ag +Ab can found in stool or serum

- Coproantigen detection in serum or stool.
detection of parasitic Ag in stool
- Serological tests: **I.H.A, C.F.T, ELISA.**
- PCR.
- High eosinophilia.

❖ **False Fascioliasis or spurious infection:** The presence of **eggs in the stool** not resulting from an actual infection but from recent ingestion of infected liver containing eggs. This can be **avoided by** stop eating liver several days (3 - 7 days) before a repeat of stool examination.

true infection: not by eating liver contaminated so infection doesn't from liver ---> have a disease

importantttttt

Treatment

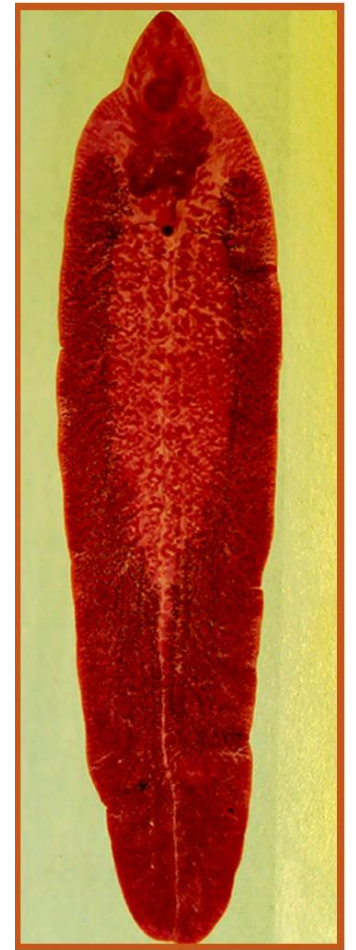
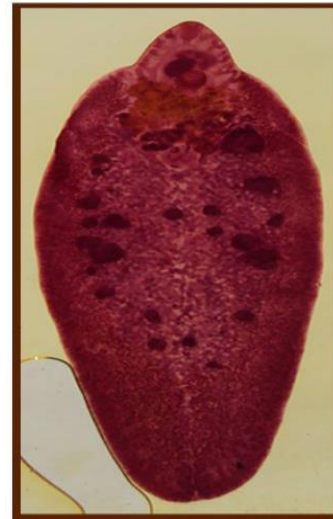
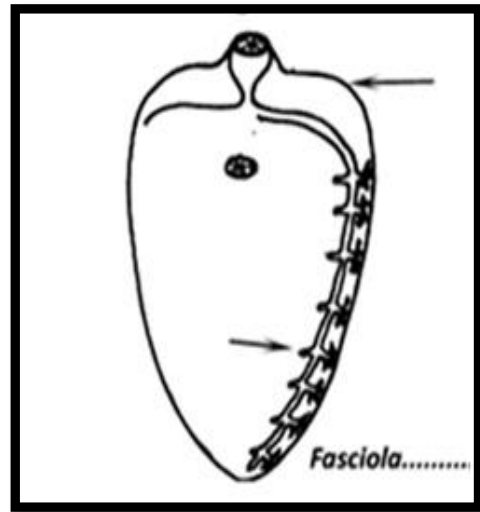
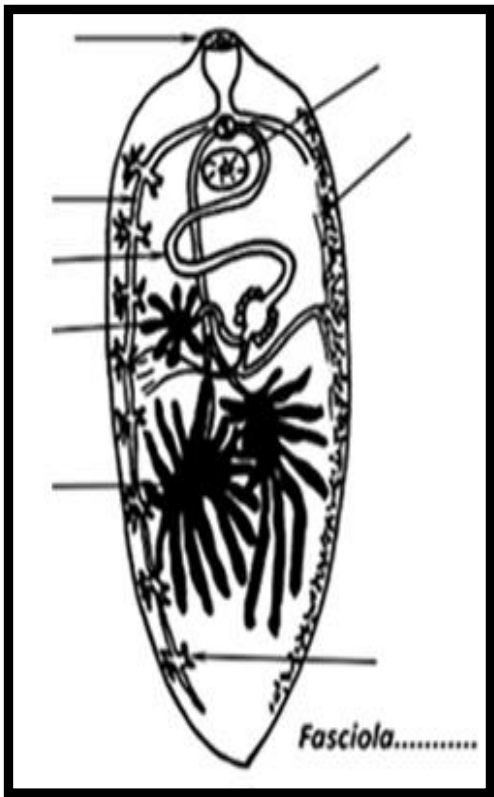
- **Triclabendazole (Fasinex).**
- **Dichlorophenol (Bithionol)**
- **Surgical for ectopic flukes or biliary obstruction.**

❖ Treatment of halzoun:-

- Gargling with strong alcoholic drink ^{remove the scare} ⇒ paralysis of the adult *Fasciola* or ⇒ separate from the mucous membrane of the pharynx.
- Administration of emetics.
- Tracheostomy is indicated in laryngeal obstruction.



Fasciola hepatica



	Fasciola gigantica	Fasciola hepatica
Geographical distribution:	Egypt, West Africa	Egypt, Europe, Asia, Africa
Size:	Larger 60 ×15 mm	Smaller 30 ×12 mm
Shape:	Oblong	Triangular
Suckers:	Oral one is smaller	Equal
Caeca:	Medial T or Y branches	Simple medial branches
Snail intermediate host:	<i>Lymnaea cailliaudi</i>	<i>Lymnaea truncatula</i>



Test Knowledge

Post lecture quiz ????

- Halzoun syndrome pharyngitis +linguistics edema result from ingested of liver contaminated in adult treated by alcohol
- Spurious Fascioliasis False fascioliasis---> egg in stool result from ingested of contamination liver not by infected by this
- Give reason:
 1. stool examination is not always conclusive in the diagnosis of fascioliasis false fascioliasis patient infected by fasciola but not have egg in stool because have obstructed of biliary duct(very late phase)
 2. Anaemia in fascioliasis.