



# Trematodes

## *Fasciola species*

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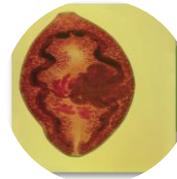
# Medical Helminthology



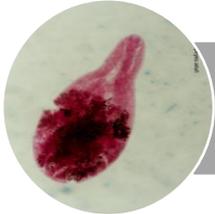
Trematodes are classified according to their habitat into:



Liver flukes



Lung flukes



Intestinal flukes



Blood flukes



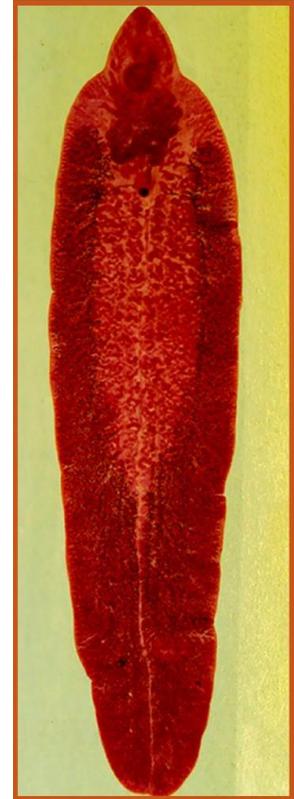
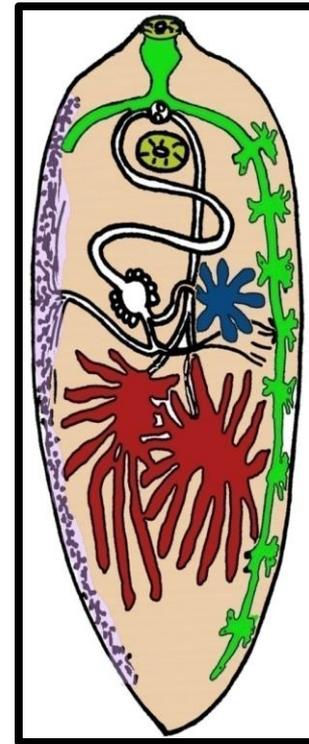
# *Fasciola gigantica*

**(Giant liver fluke)**



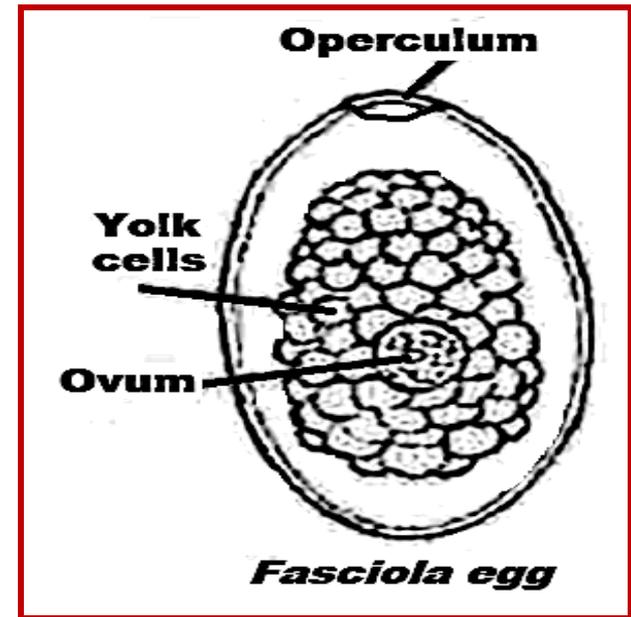
# Morphology

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

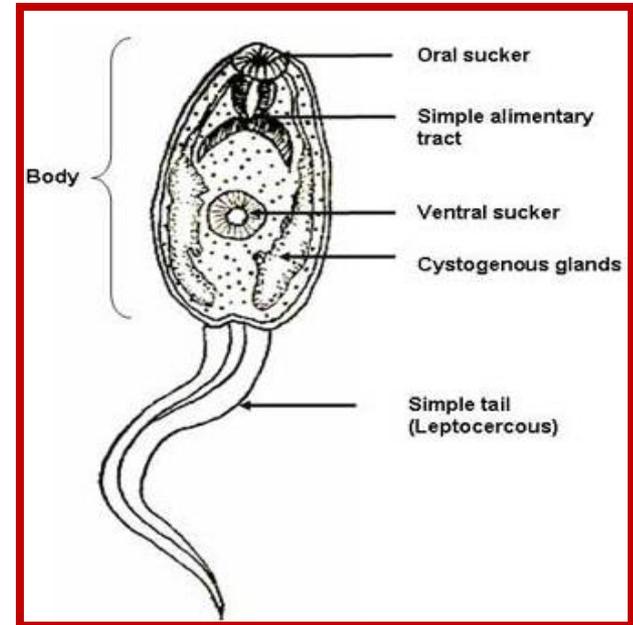
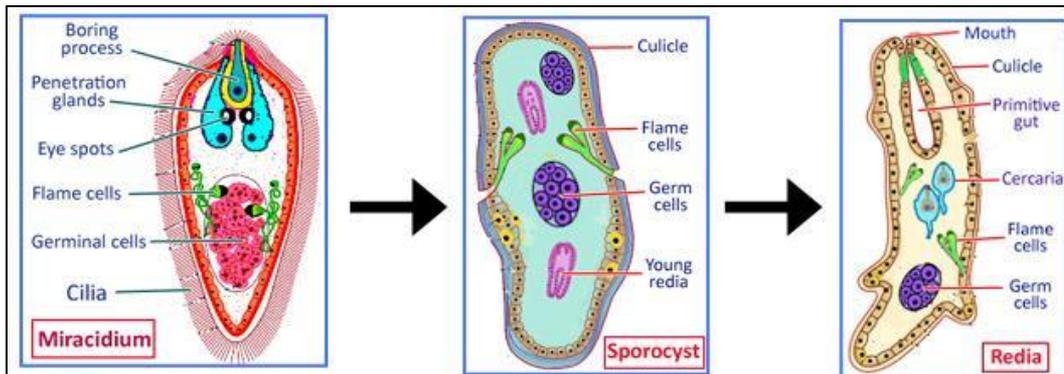


❖ **Egg (D.S):-**

- **Size** : 140 x 70  $\mu\text{m}$ .
- **Shape** : Oval.
- **Shell** : Thin operculated.
- **Color** : Yellowish brown.
- **Content** : Immature (ovum & yolk cells).



## ❖ Miracidium, Sporocyst & Redia:-



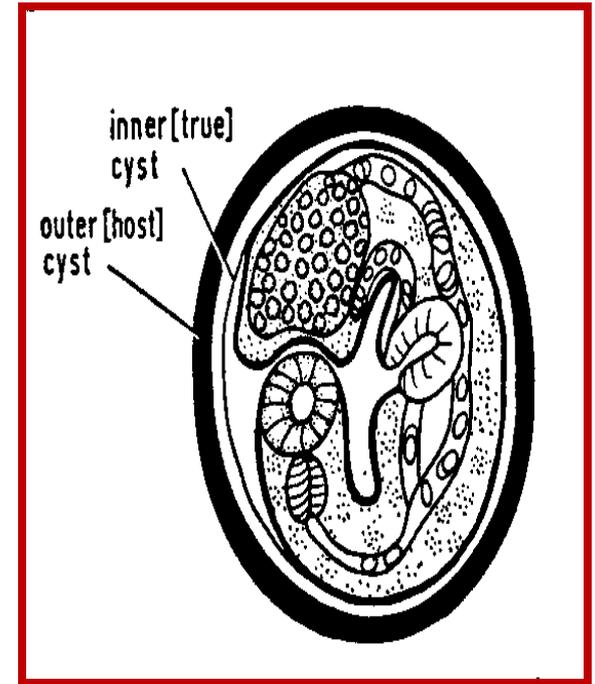
## ❖ Cercaria:-

- Formed of body and tail.
- Body with oral and ventral suckers, simple intestinal caeca & cystogenous glands.
- Tail : Simple (leptocercous cercaria).



## ❖ Encysted metacercaria (I.S):-

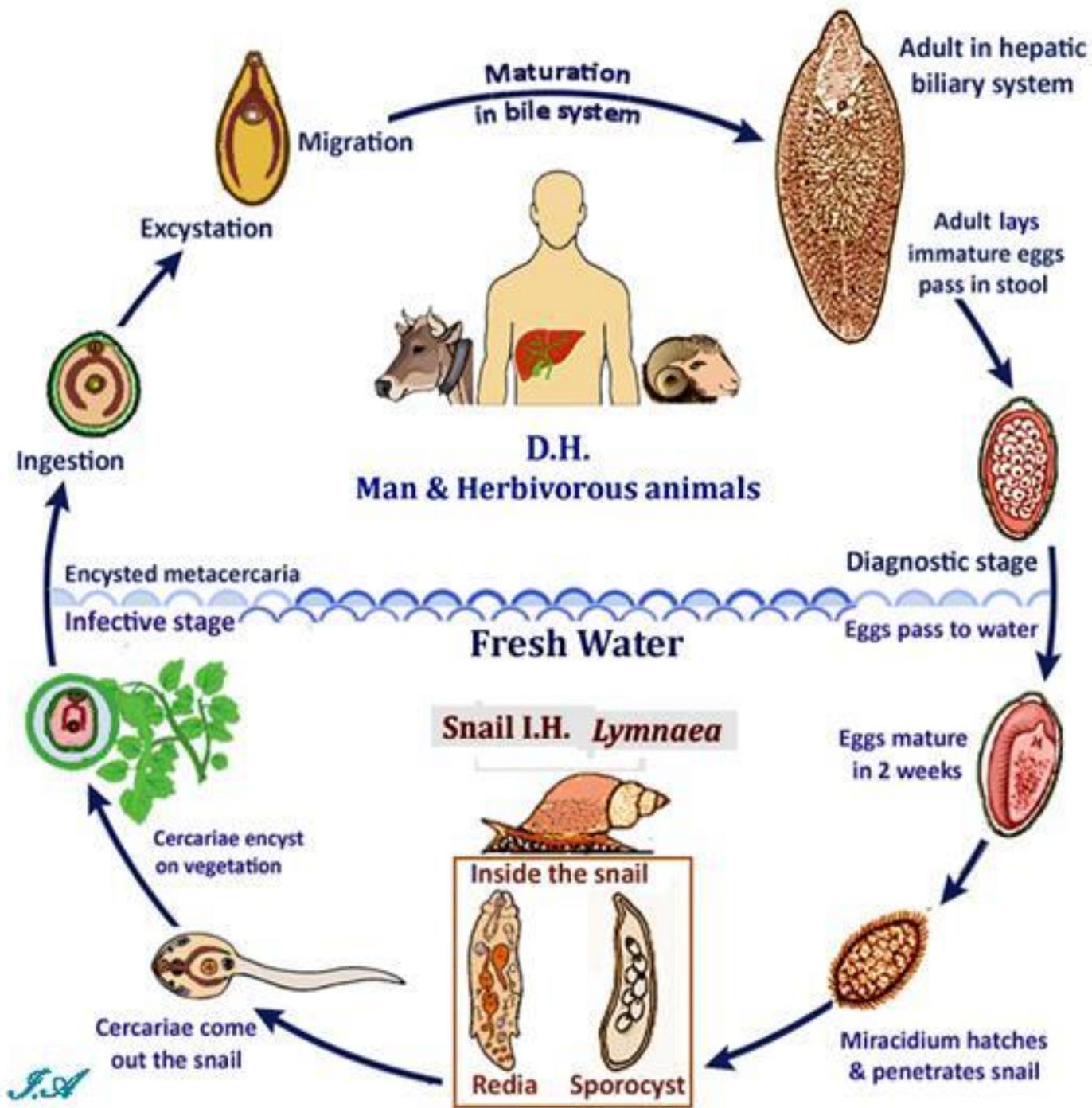
- Spherical in shape.
- The cercaria loses its tail and secretes a thick cyst wall.
- Present in green aquatic vegetations and water.

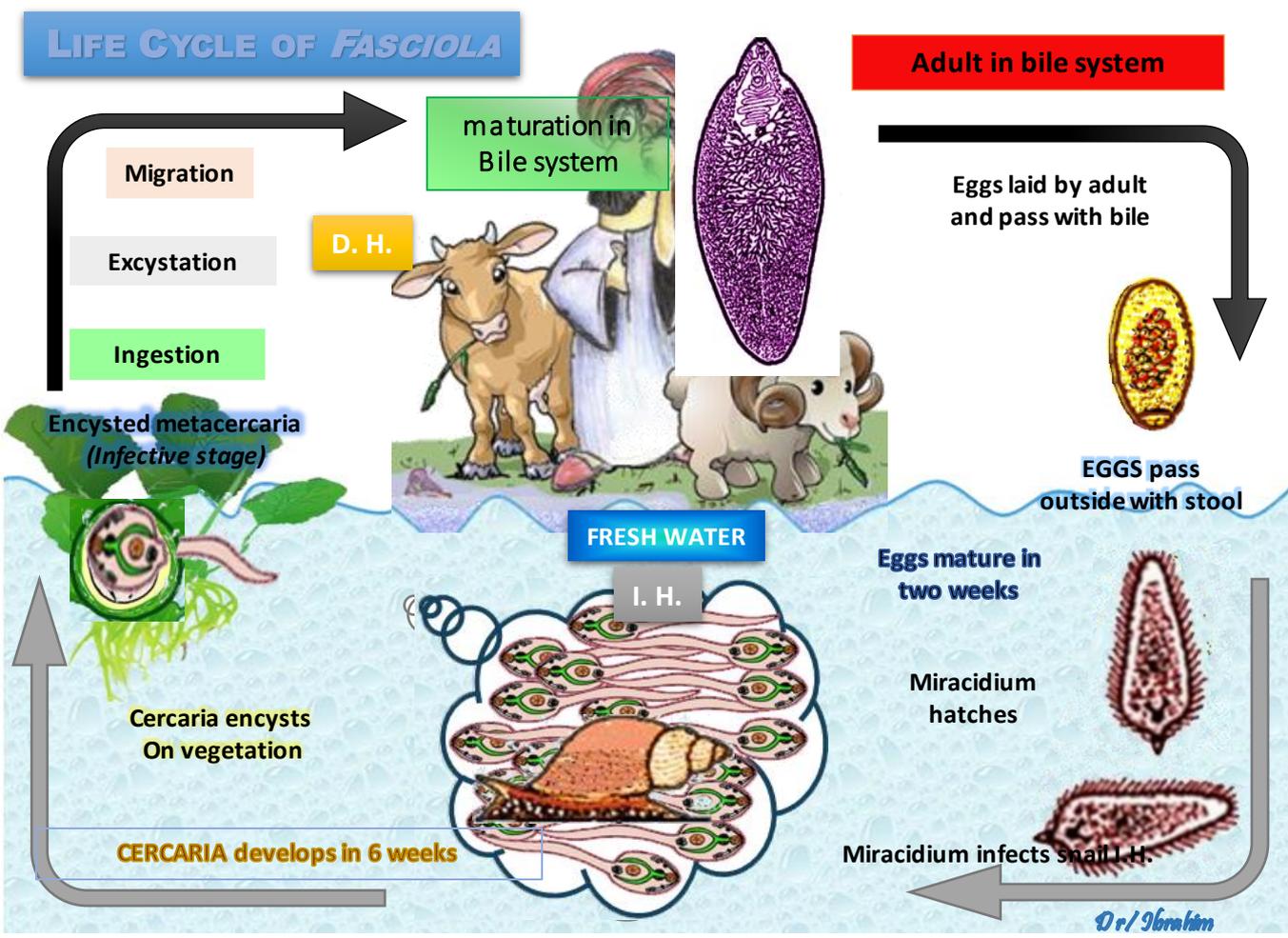


## ❖ Mode of infection:

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







Habitat

Host

- **Definitive host**
- **Intermediate host**
- **Reservoir host**

Diagnostic stage

Infective stage

Mode of infection

# Pathogenesis

- **Acute (migratory) phase:**

- 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.
- **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.
  - 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
- **Pharyngeal fascioliasis (Halzoun):**
  - 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

- Coproantigen detection in serum or 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.

# Treatment

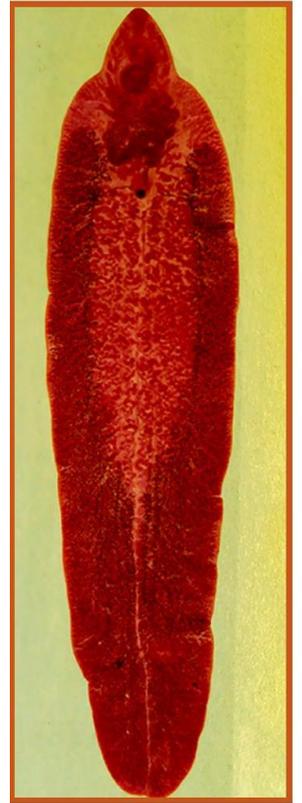
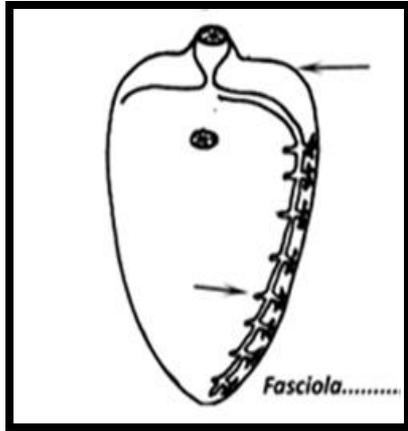
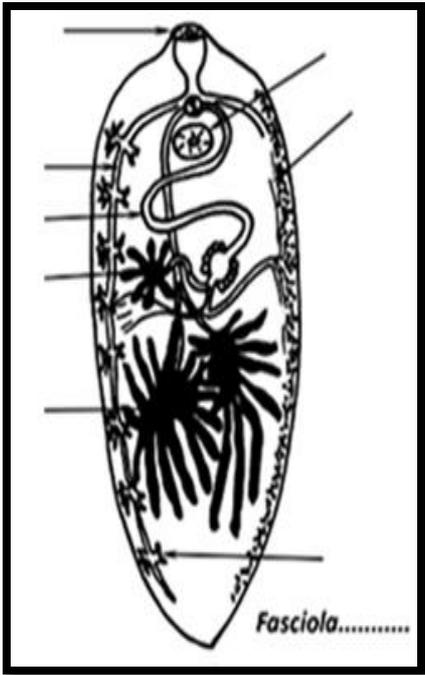
- **Triclabendazole (Fasinex).**
- **Dichlorophenol (Bithionol)**
- **Surgical** for **ectopic flukes** or **biliary obstruction.**

## ❖ Treatment of halzoun:-

- Gargling with strong alcoholic drink ⇒ 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*



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



Test Knowledge

# Post lecture quiz ????

- Halzoun syndrome
- Spurious Fascioliasis
- Give reason:
  1. stool examination is not always conclusive in the diagnosis of fascioliasis
  2. Anaemia in fascioliasis.