

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Parasites 1
Platyhelmin
thes
Trematodes

Medical parasitology is classified into

Medical helminthology

Deals with parasitic worms

**1-Phylum :
Platyhelminthes
(flat worms)**

**2-Phylum :
Nemathelminthes
(round worms)**

➤ **Class: Trematoda**
➤ **Class: Cestoidea**

➤ **Class: Nematoda**

Medical protozoology

Deals with unicellular parasites

1-Class: Rhizopoda:

(move by pseudopodia)

2- Class: Ciliata

(move by cilia)

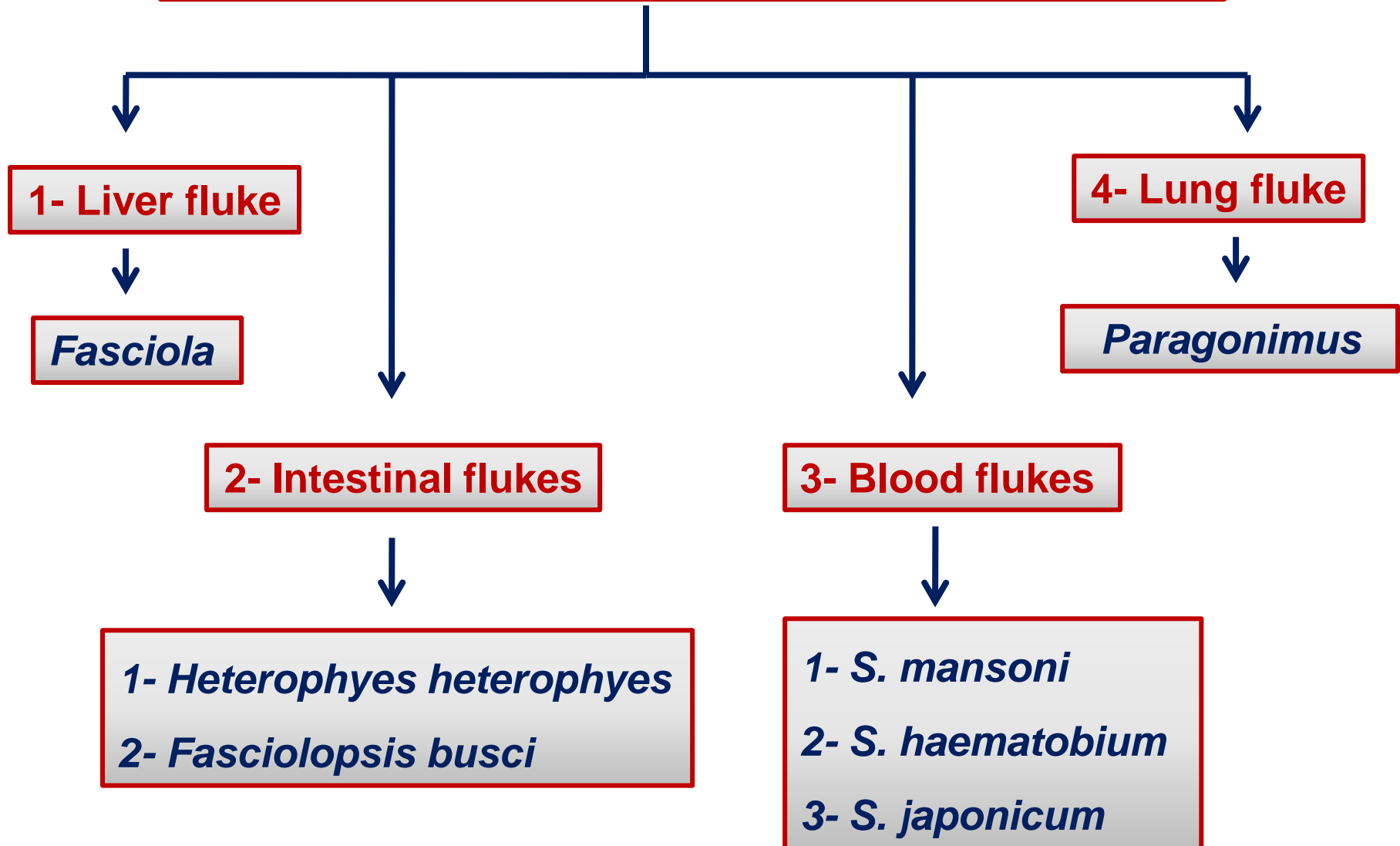
3-Class: Zoomastigophora

(move by flagellae)

4-Class: Sporozoa

(move by gliding movement)

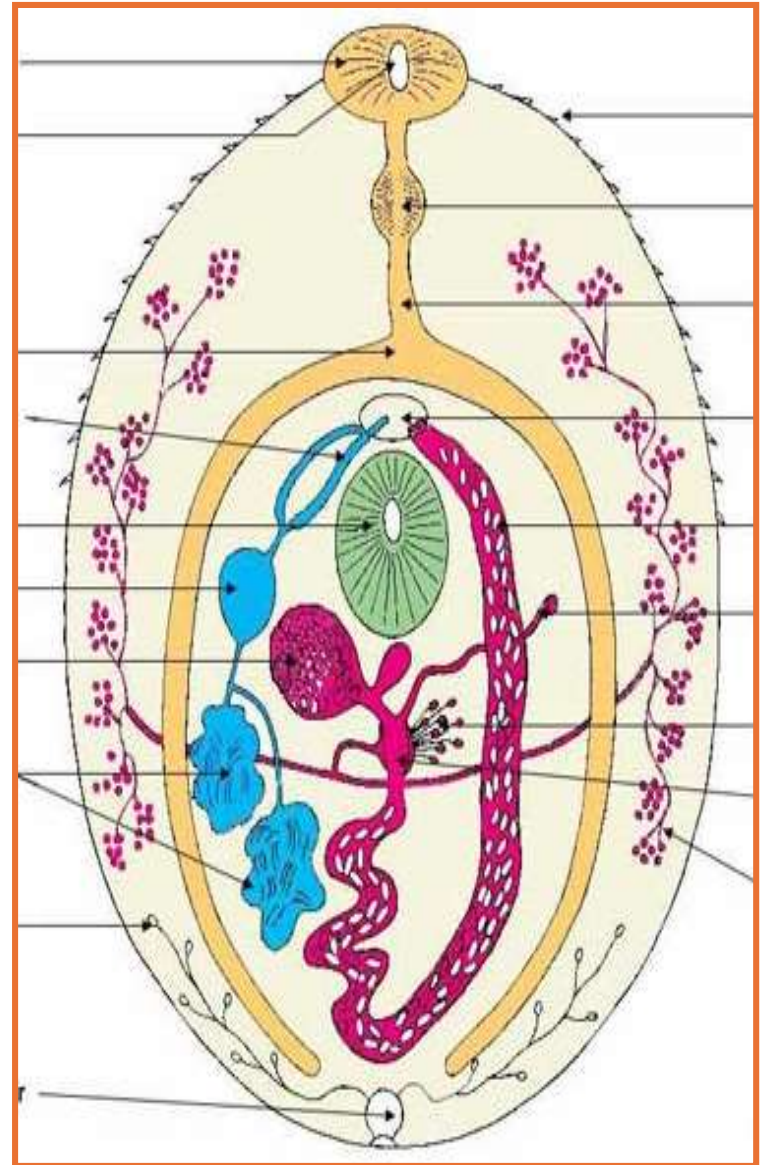
Class Trematoda (flukes) are classified into



Class : Trematoda (Flukes)

❖ General characters:

- Flattened, leaf-like **except** female of *Schistosoma*.
- Hermaphrodite.
- Bilaterally symmetrical.
- Has no body cavity.
- Variable in size. Large (*Fasciola*), very small (*Heterophyes*).
- Covered with cuticle(smooth, é spine or tubercle).
- **Organs of fixation:**
 - Oral sucker ⇨ anterior.
 - Ventral sucker ⇨ Larger on the ventral surface.
 - Genital sucker (present in some species).



Digestive system

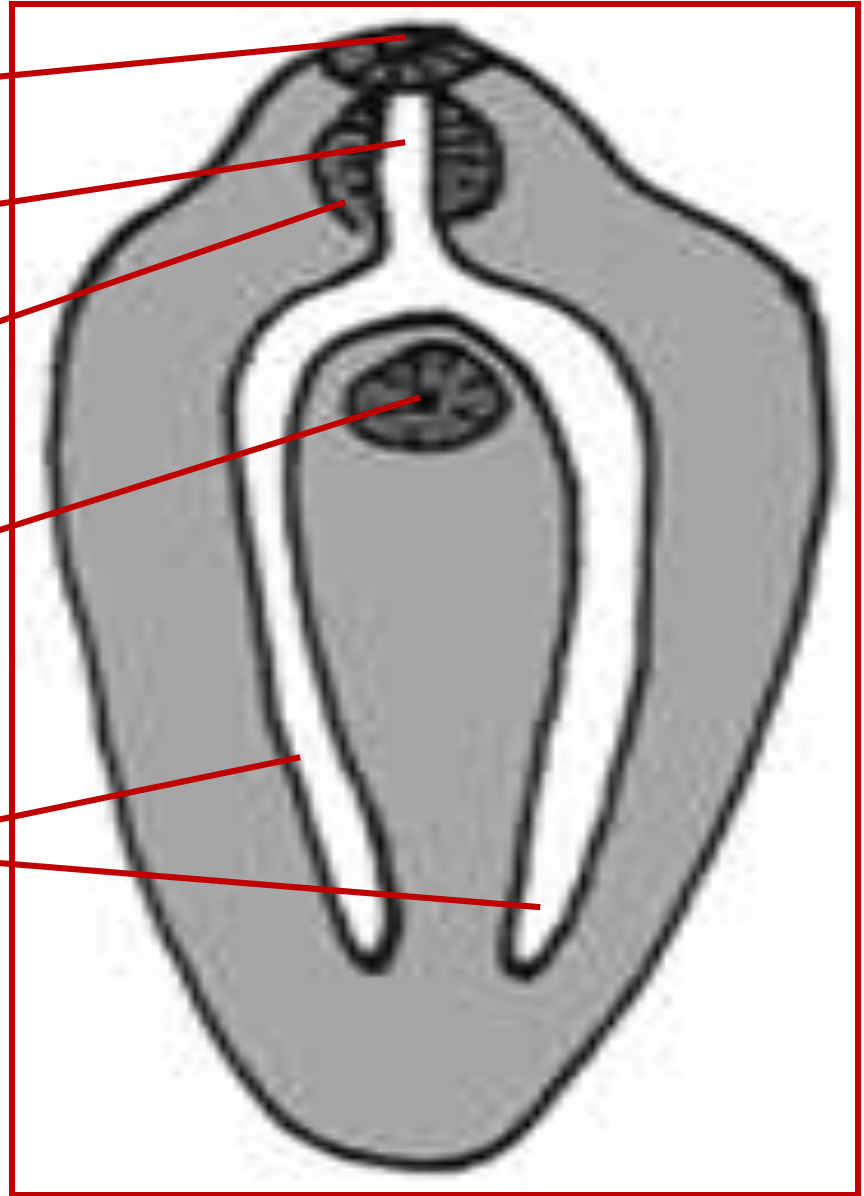
Mouth surrounded by oral sucker

Short oesophagus

Muscular pharynx
(absent in *Schistosoma*)

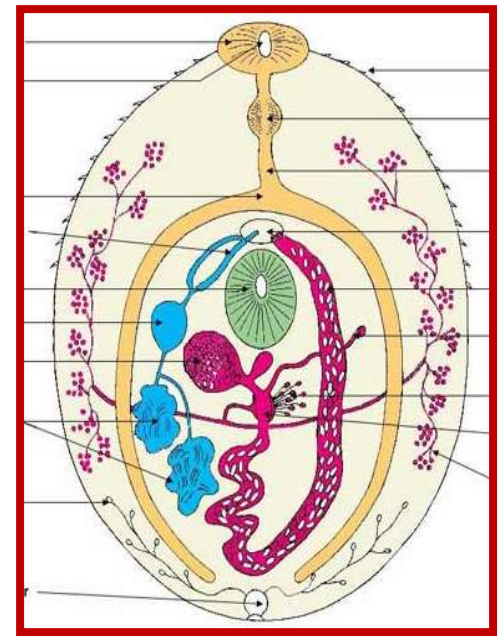
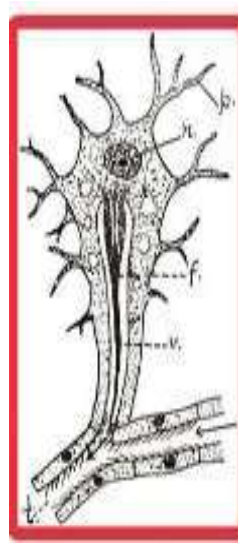
Ventral sucker

2 intestinal caeca end blindly
may be simple or branched



❖ **Excretory system:**

**Bilaterally symmetrical
flame cells → collecting tubules
which collect fluid → bladder
→ excretory pore posteriorly.**



❖ **Nervous system:** The nerve ganglia present around the pharynx and send nerve fibers to different body structures.

❖ **They do not have circulatory or respiratory systems.**

Genital system

All trematods are hermaphrodite except *Schistosoma*

Male G.System

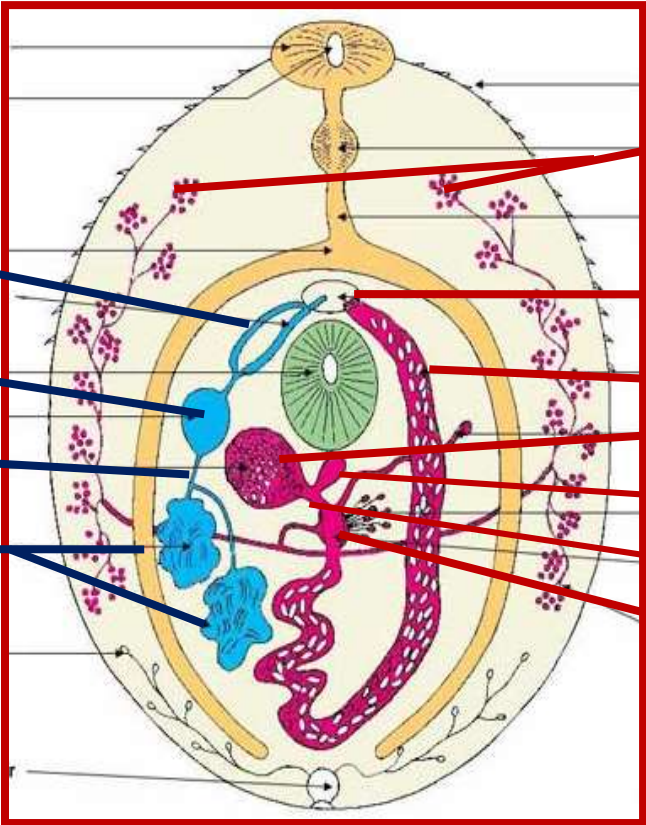
Female G.System

Cirrus sac
opens anterior in
CGP

Seminal vesicle

Vas deferens

2 testes
→ 2 →
vasa efferentia



Vitelline glands
in both sides
opens in ootype

Vagina opens
posterior in CGP

Uterus

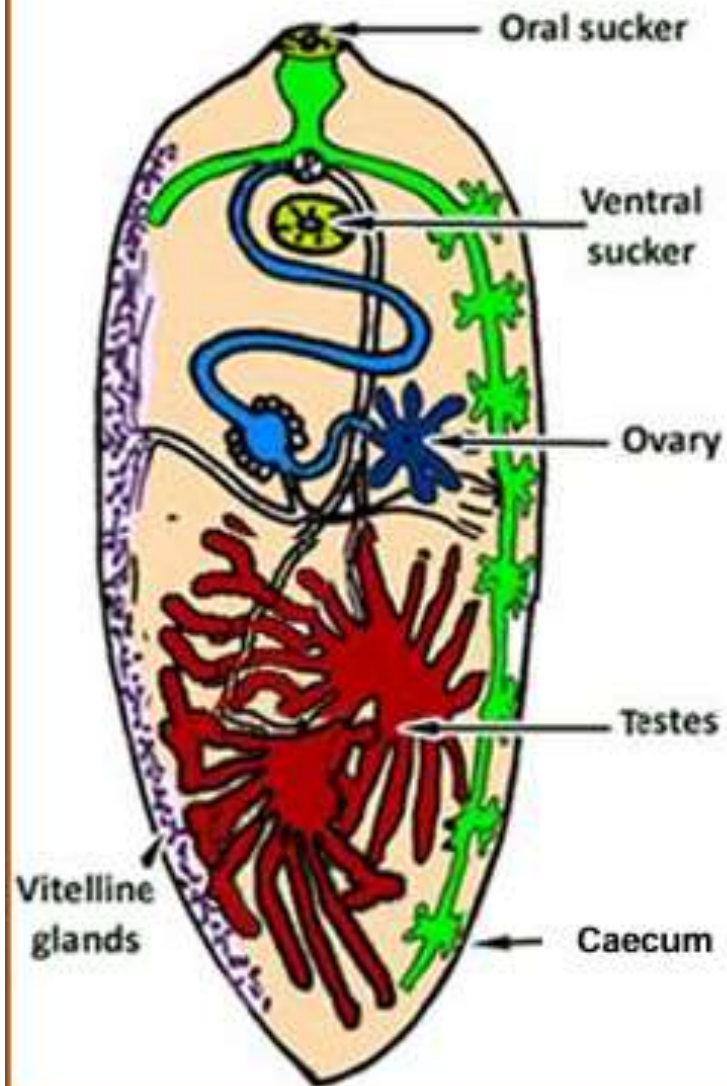
Ovary

Seminal receptacle

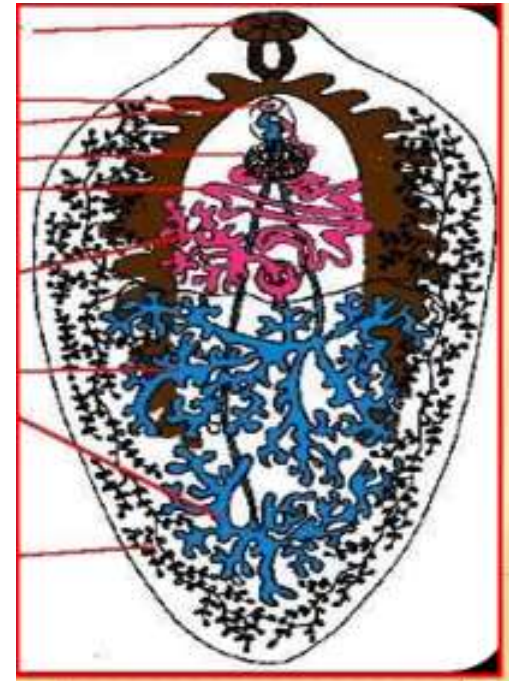
Short oviduct

Ootype
surrounded by
shell gland

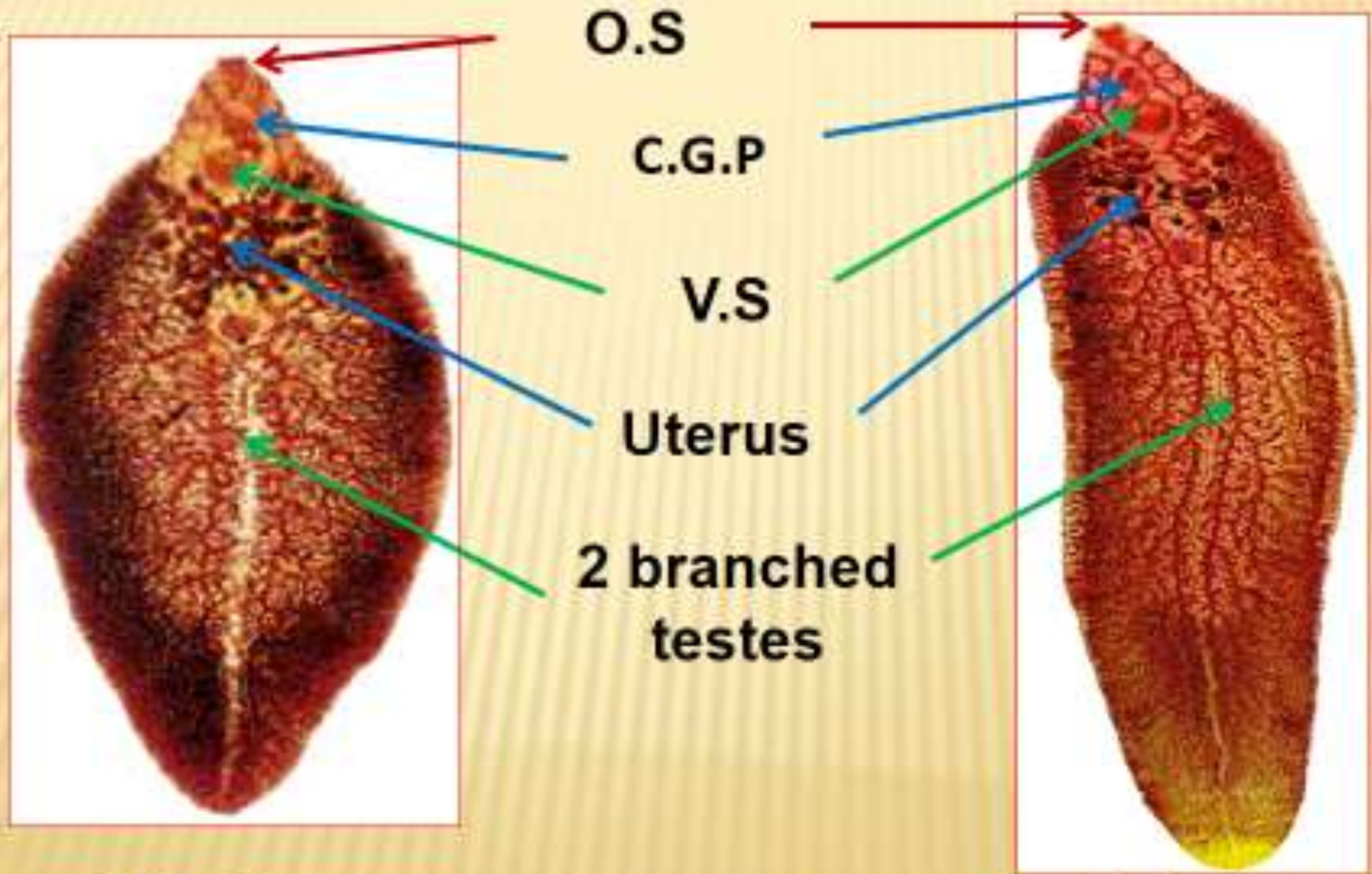
Fasciola gigantica



Fasciola hepatica



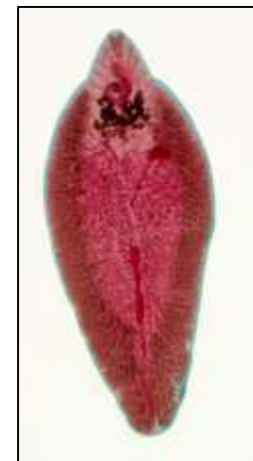
Fasciola adult



F. hepatica

F. gigantica

	<i>Fasciola gigantica</i>	<i>Fasciola hepatica</i>
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>



***Fasciola* egg (D.S)**

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



Lymnaea cailliaudi snail

I.H of *Fasciola gigantica*

Inside the snail :

Miracidium → Sporocyst

→ Redia → Cercaria



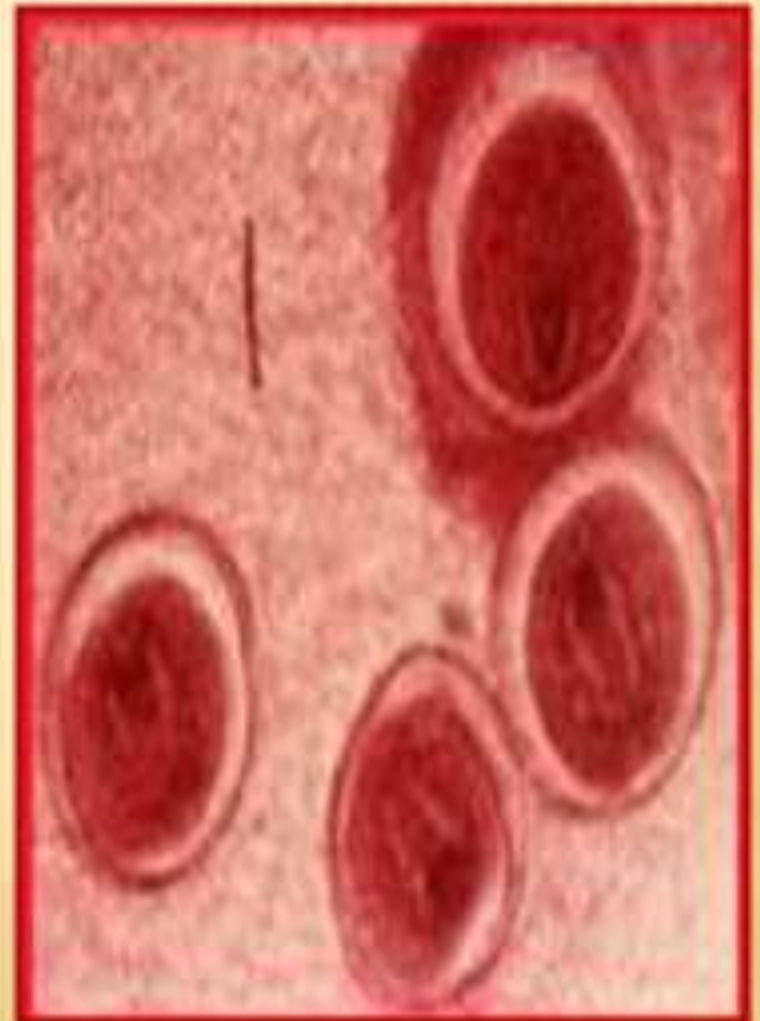
cercaria of *Fasciola* & *Fasciolopsis*

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

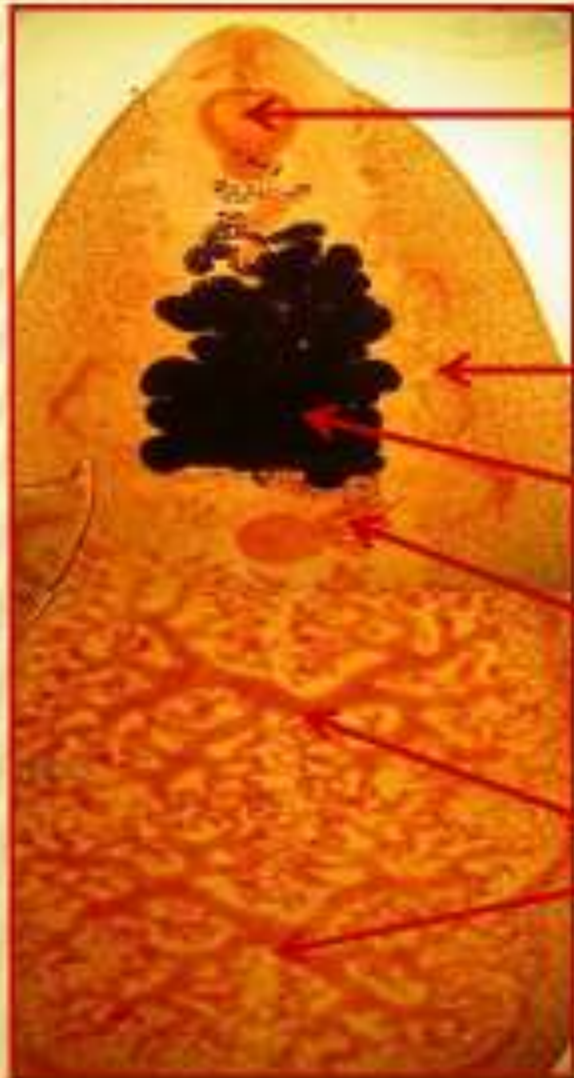


Encysted metacercaria (I.S) of *Fasciola & Fasciolopsis*

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



Fasciolopsis buski adult



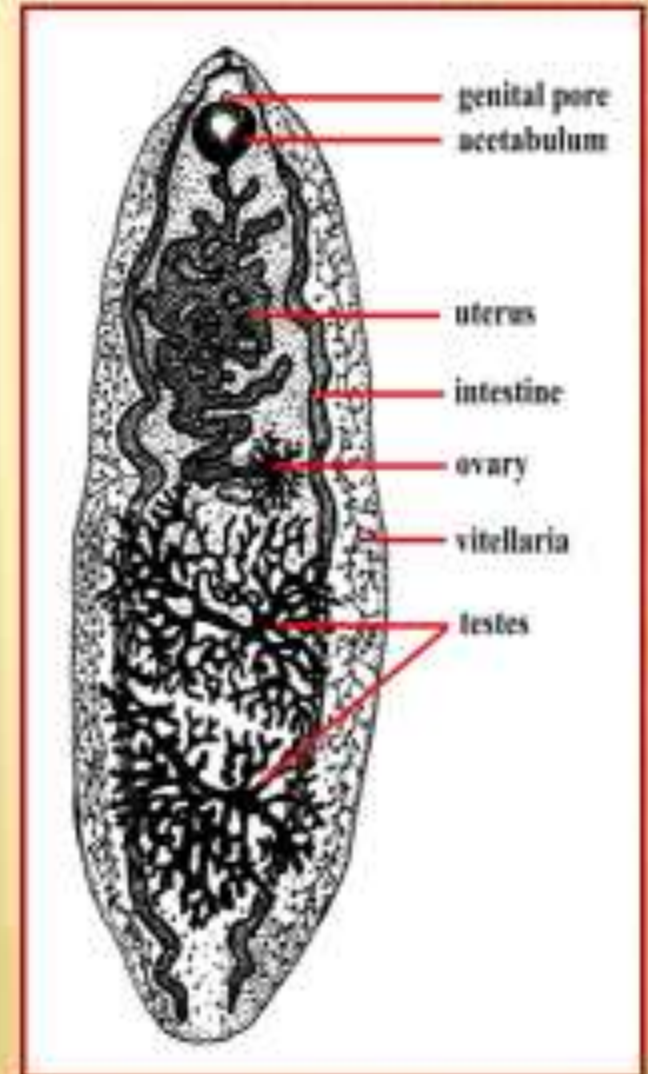
V.S

Simple Intestine

Uterus

Ovary

2 testes



genital pore
acetabulum

uterus

intestine

ovary

vitellaria

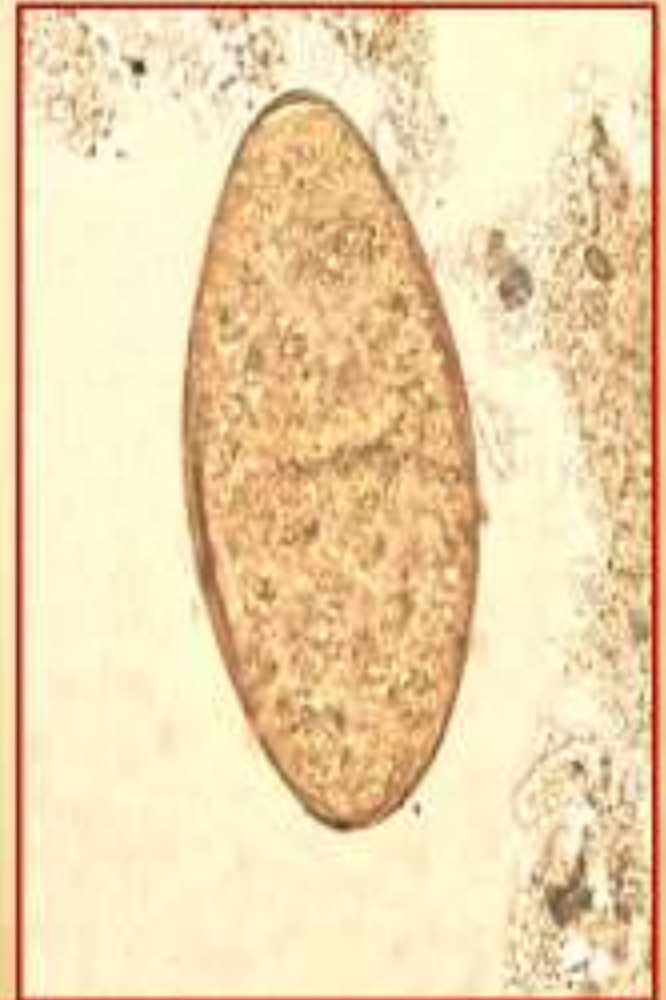
testes



Fasciolopsis buski adult

***Fasciolopsis buski* egg (D.S)**

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



Segmentina snail

❖ I.H of *Fasciolopsis buski*

(miracidium



sporocyst



redia

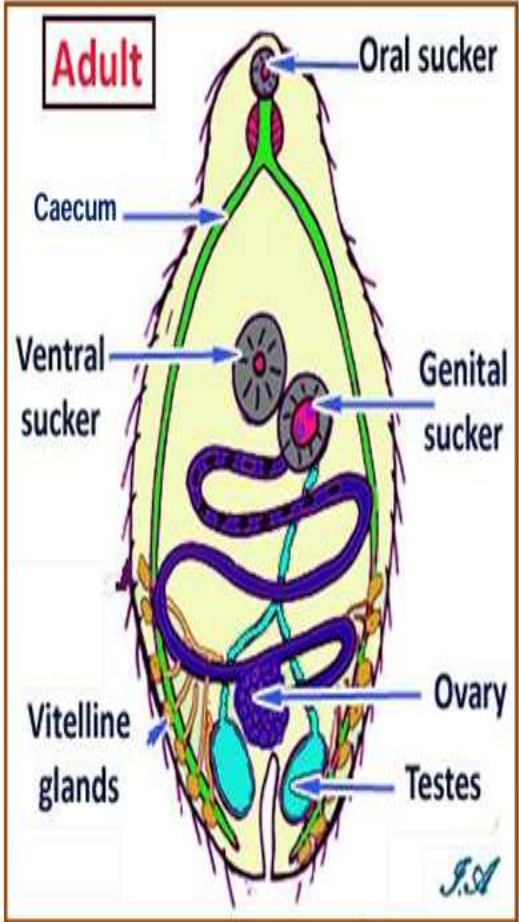
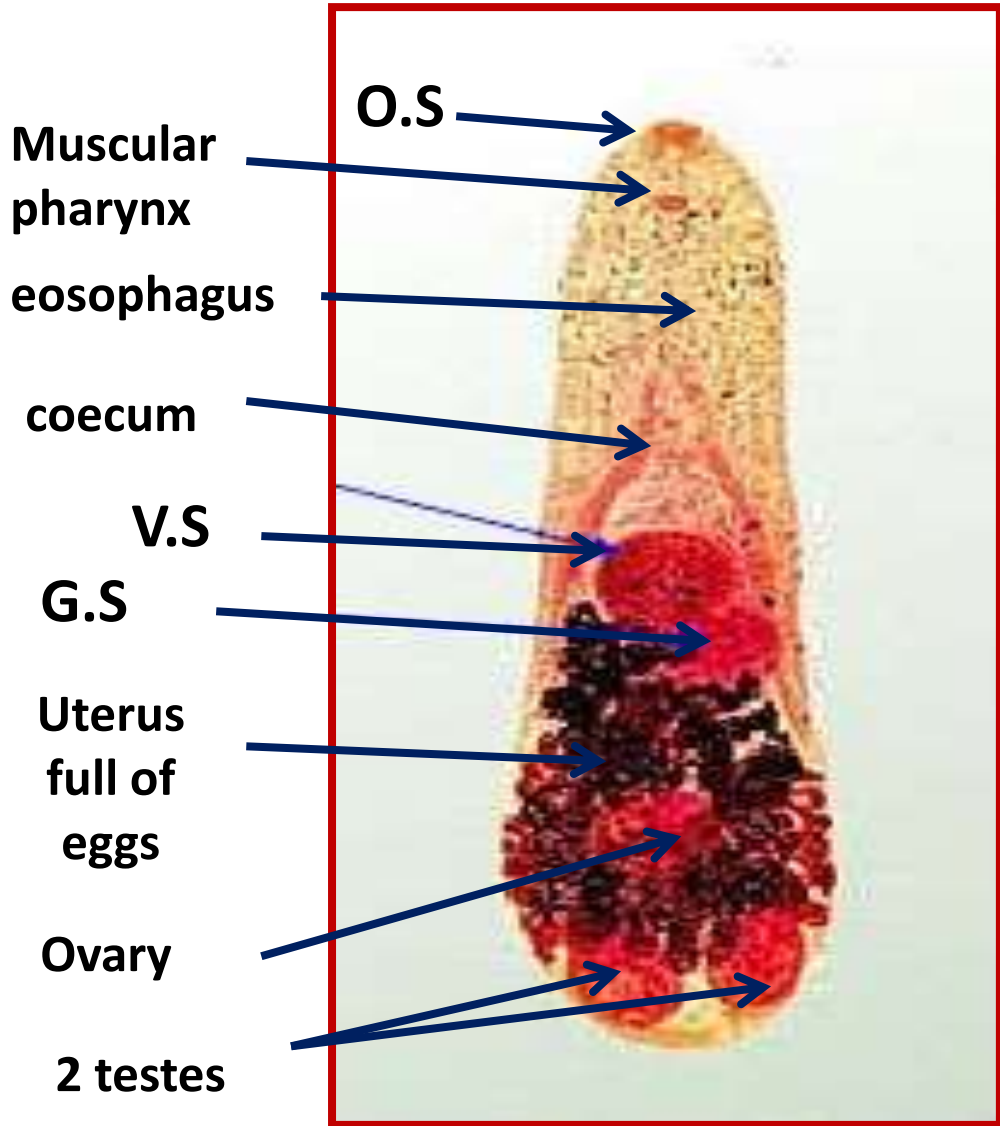


cercaria

(leptoceous cercaria).



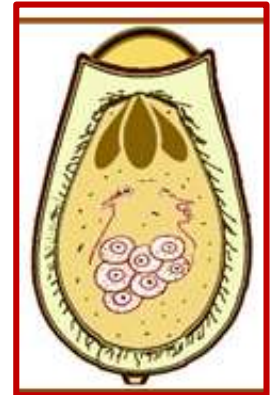
Heterophyes heterophyes Adult



Heterophyes heterophyes Egg

❖ Eggs (D.S) :-

- **Size** : 30 x 15 μm .
- **Shape** : Oval.
- **Shell** : Thick with anterior operculum and a small knob at posterior end.
- **Color** : Yellowish brown.
- **Content** : Mature (miracidium).



Heterophyes heterophyes

a



Pirenella conica snail

Inside the snail:

Miracidium



Sporocyst



Cercaria



Redia



1st I.H
of *H. heterophyes*

H. Heterophyes miracidium

❖ **Miracidium:-**

- **Pyriform ciliated larva.**
- **Germinal cells develops into sporocyst.**



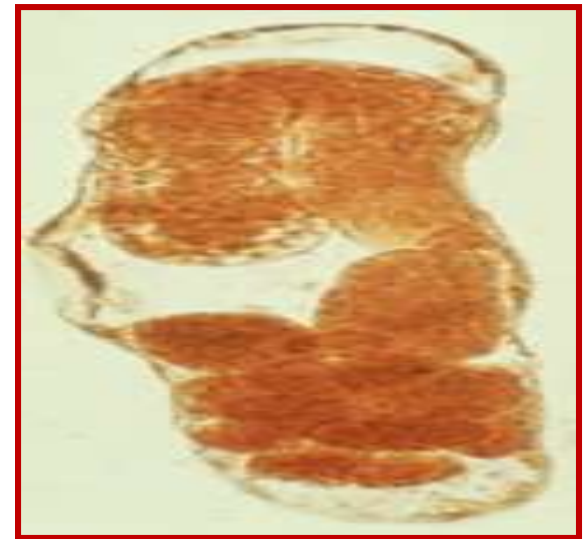
❖ **Sporocyst:-**

Simple elongated sac filled with germ cells. sporocyst develops into rediae.

❖ **Redia:-**

➤ **Cylindrical larva.**

➤ **Germ cells develop into cercariae.**



H. Heterophyes sporocyst

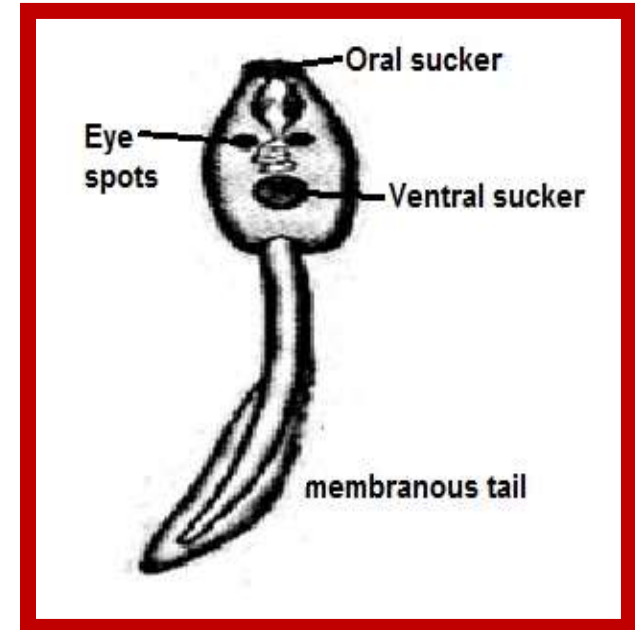


H. Heterophyes Redia

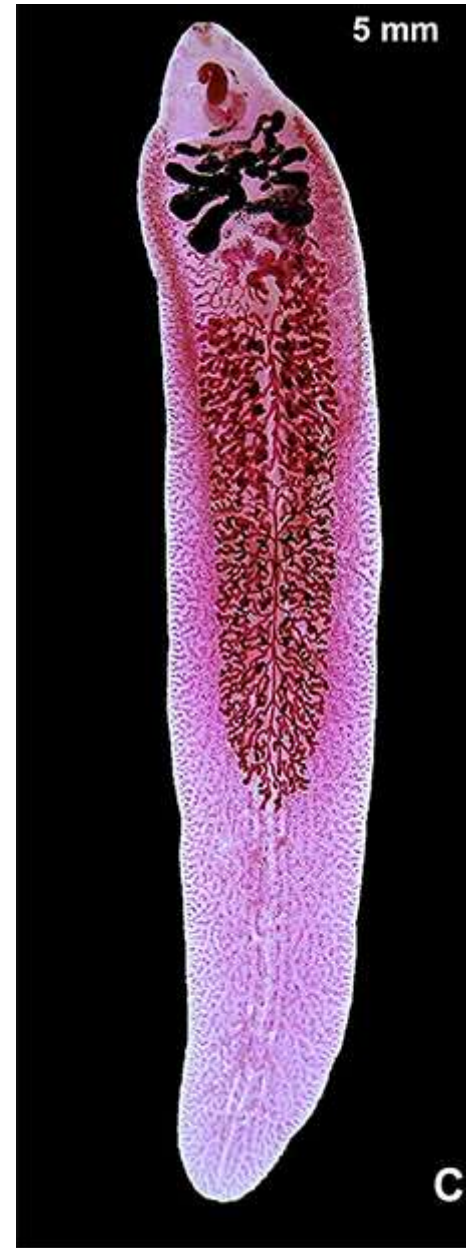
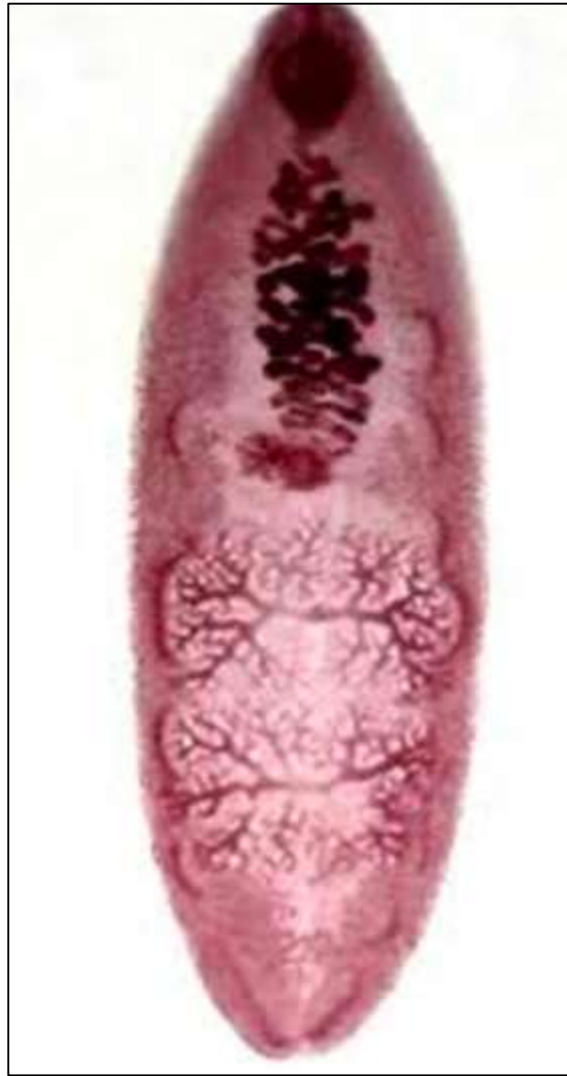
Lophocercous cercaria of *H. heterophyes*

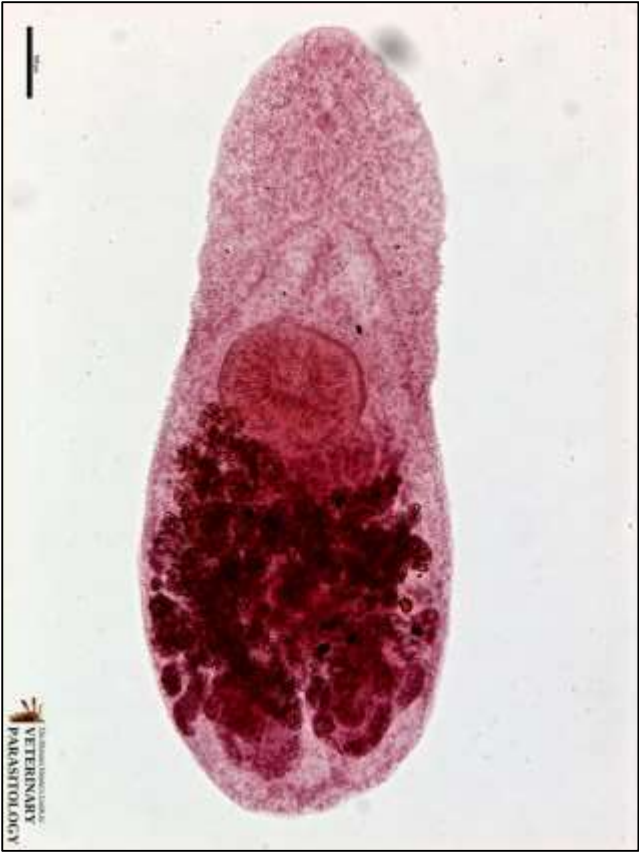
- Has body and membranous tail

(I.S)
Encysted metacercaria
of *H. heterophyes* in
fish (2nd I H)



Identify ?????







Thank You

The image features the words "Thank You" in a large, 3D, pink, sans-serif font. The letters are arranged in a slightly staggered manner. Two monarch butterflies with orange and black wings are positioned on the letters: one is perched on the 'a' and the other on the 'o'. The text is surrounded by a cluster of green, leafy plants at the base, giving it a natural, garden-like appearance.