GIT Micro Lab

parasitology Practical slides

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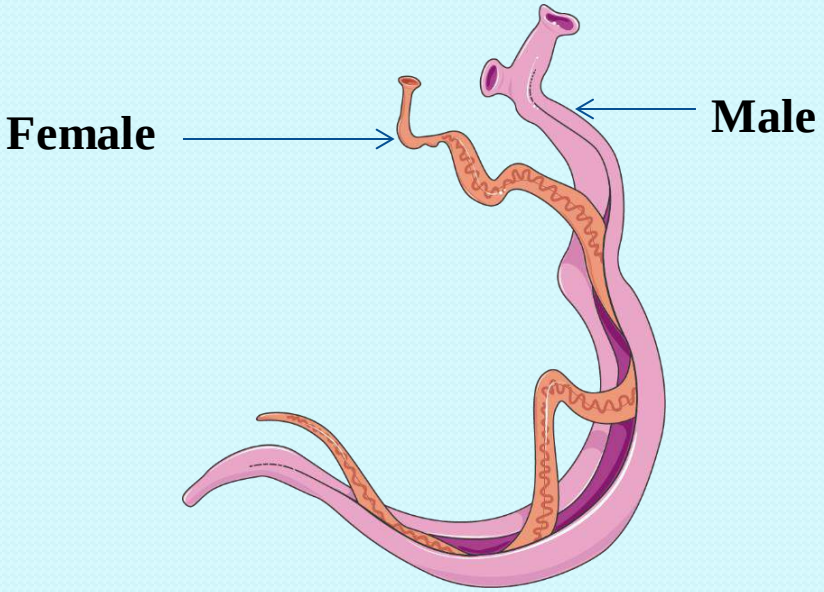
Schistosoma

Cylindrical worm (Not flat – leaf like).

Only trematode in which sex is separated while other trematodes are hermaphrodite (Monoecious)

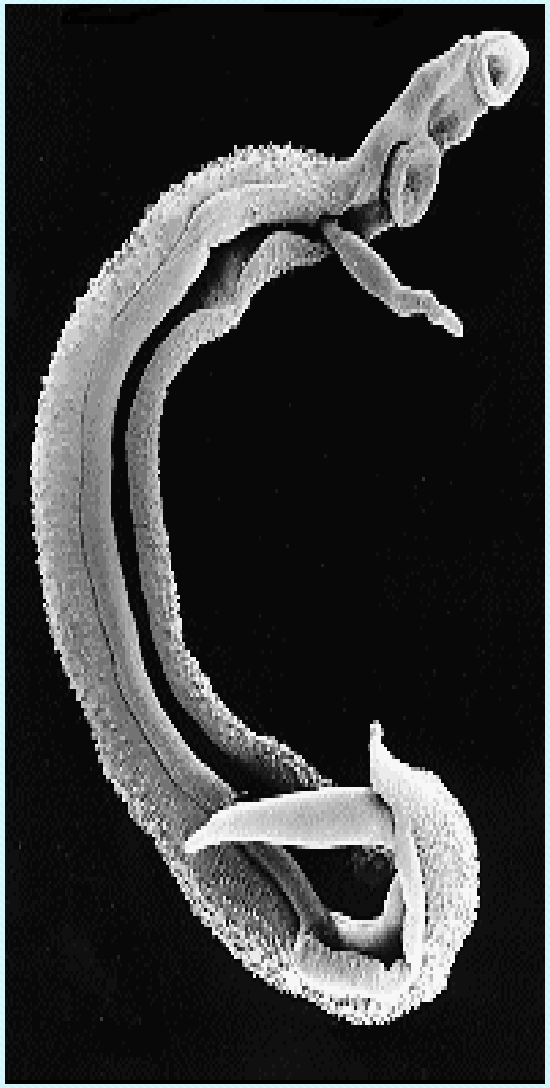
Trematoda (flukes)

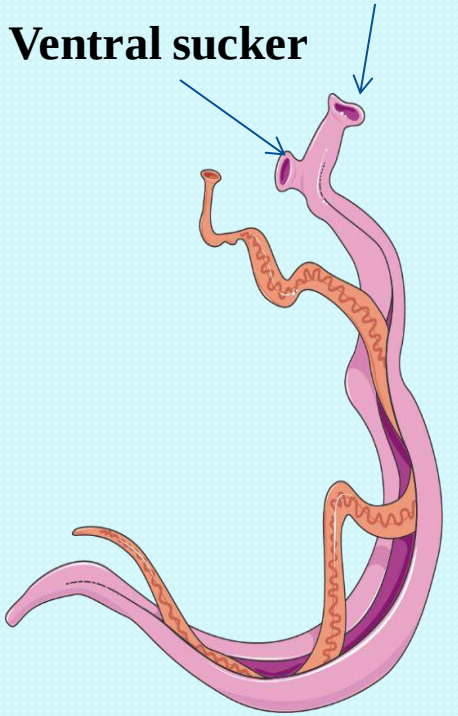


Schistosoma

Schistosoma mansoni male

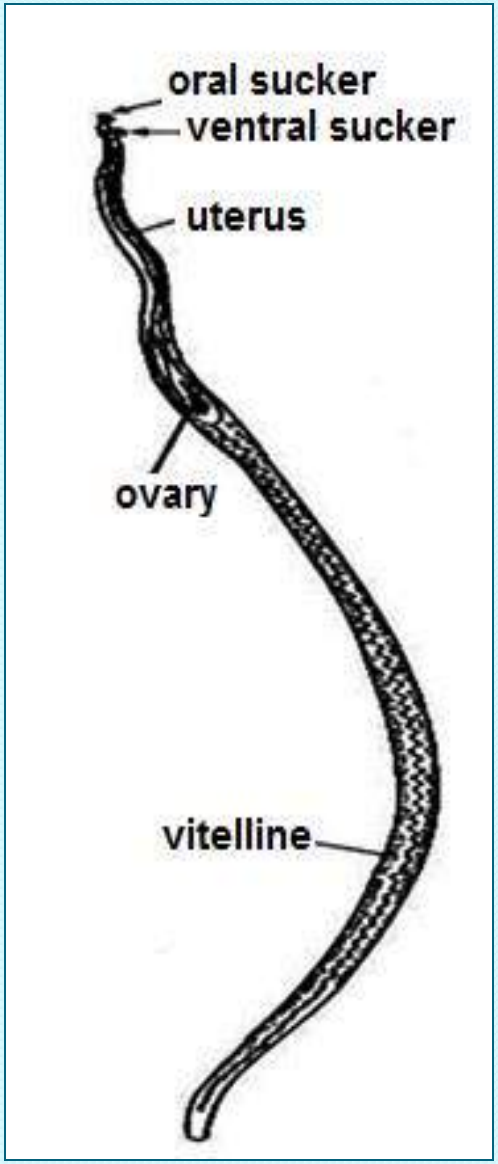
- **Size :** 8 x 1 mm.
- **Oral & Ventral suckers.**
- **Testes:** 6 - 9, small and lie in cluster.
- Gynecophoric canal in which female held during copulation





Schistosoma mansoni female

- **Size:** 14x 0.15 mm
- **Ovary:** Anterior 1/3 of the body
- **Uterus:** Short with 1-4 ova.



Egg of *S. mansoni*

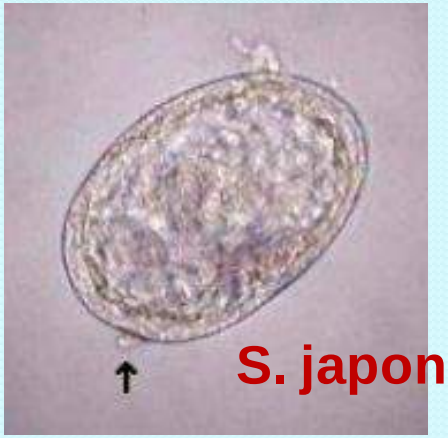
❖**Shape:** Oval with lateral spine

❖**Colour:** Translucent

❖**Content:** Mature (fully developed miracidium).

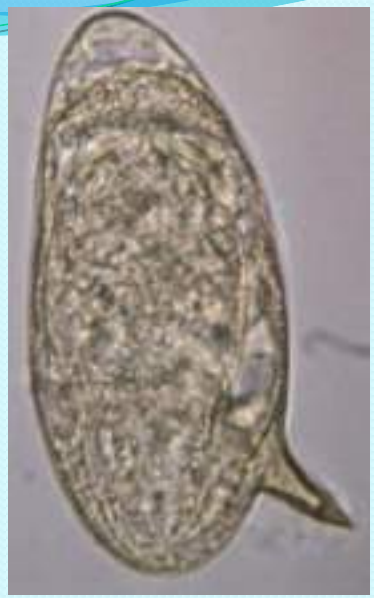
Egg of S. japonicum:

❖ eggs are more round with a small spine on the side.



S. japonicum

S. mansoni



Miracidium

Ciliated larva

Cercaria of *S. mansoni* (I.S)

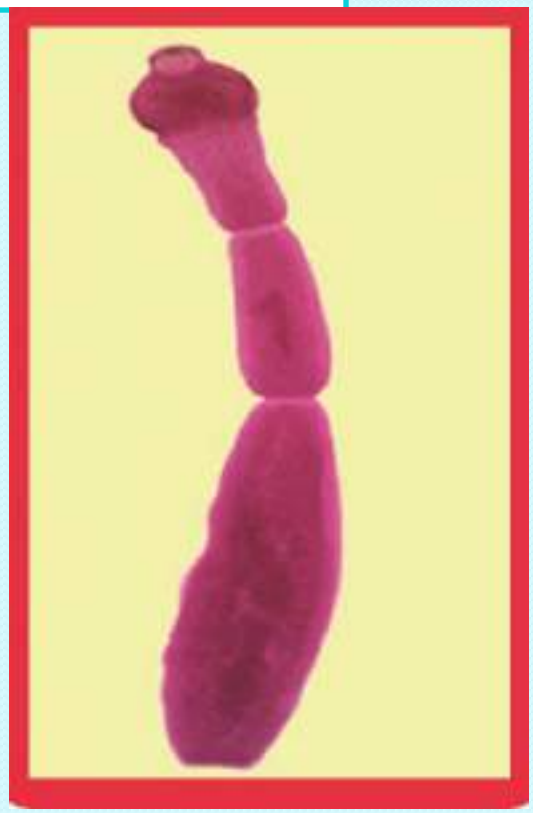
❖**Body :** Oral and ventral suckers, primitive gut and 5 pairs of penetration glands.

❖**Tail :** Forked (Furcocercuscercaria).

Echinococcus granulosus adult

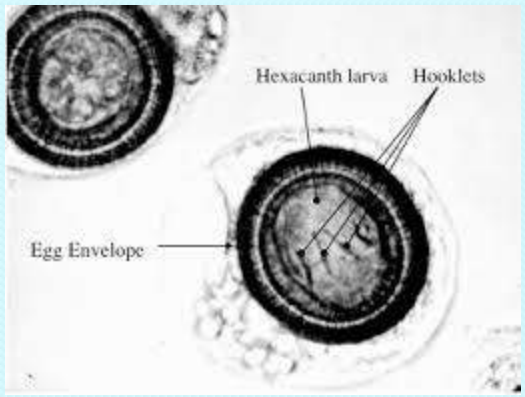
1) Adult:-

- Scolex:
  - Globular in shape.
  - 4 muscular suckers.
- Strobila : 3 segments : immature, mature & gravid.



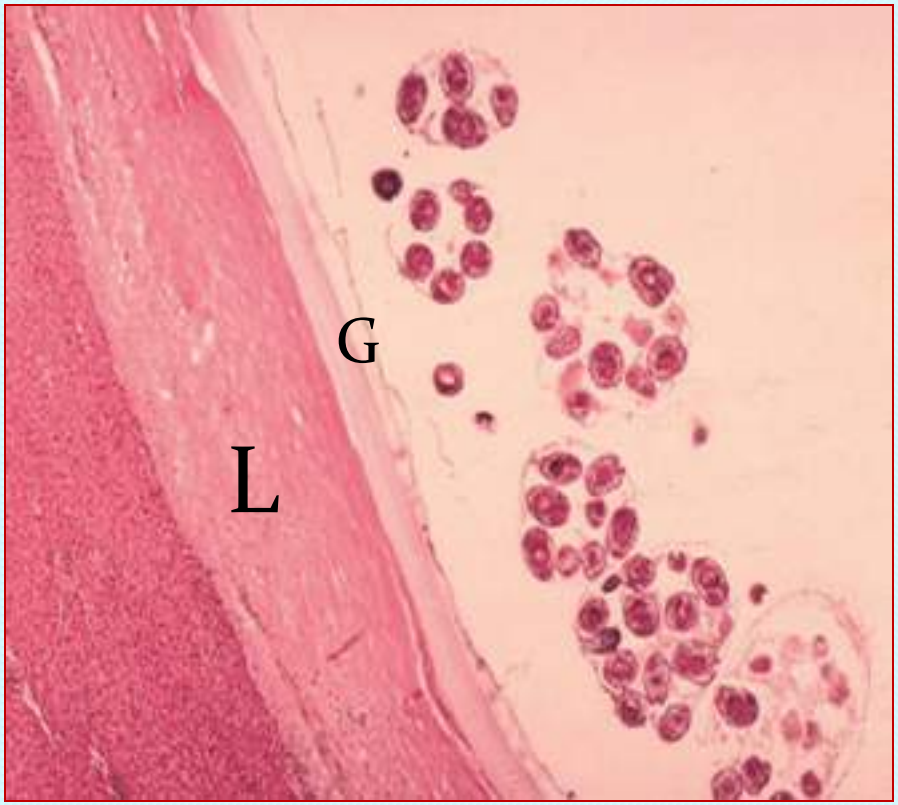
2) Egg(IS).

- small and round (30-43µm in diameter).
- thick-shelled.
- contain a hexacanth (6-hooked) embryo.



Hydatid cyst
(D.S in man and herbivorous)

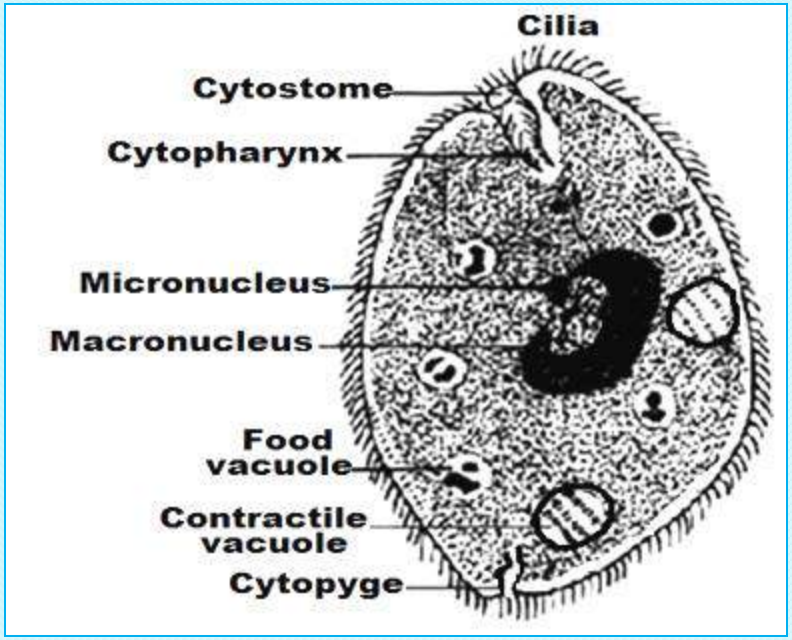
Simple unilocular hydatid cyst

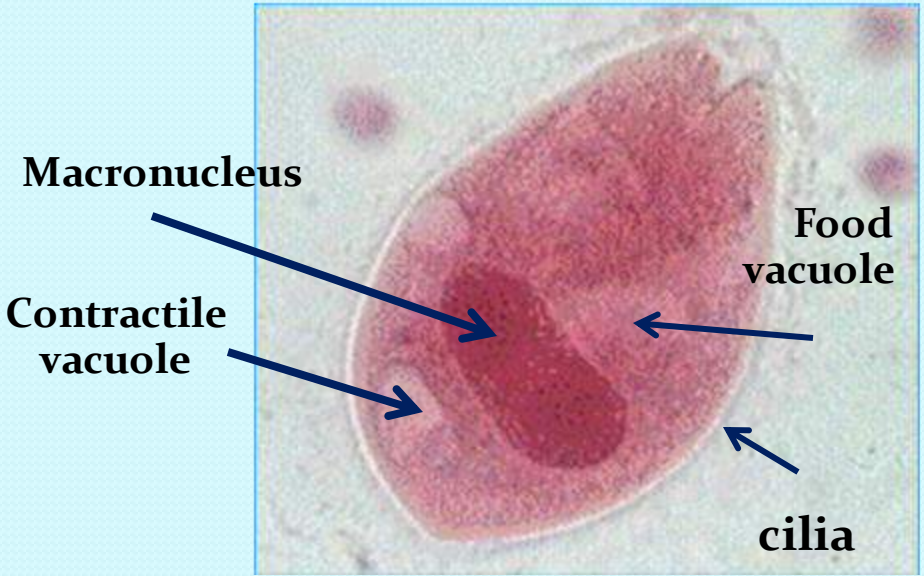


Balantidium coli

1-Trophozoite stage

- Oval with pointed anterior end and rounded posterior end.
- Contains numerous food vacuoles, 2 contractile vacuoles, macronucleous &micronucleus
- Cytostome & Cytopharynx

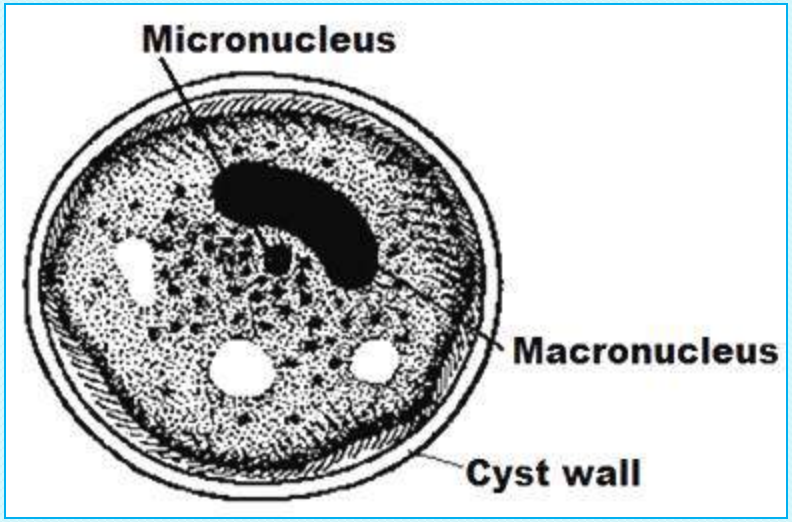


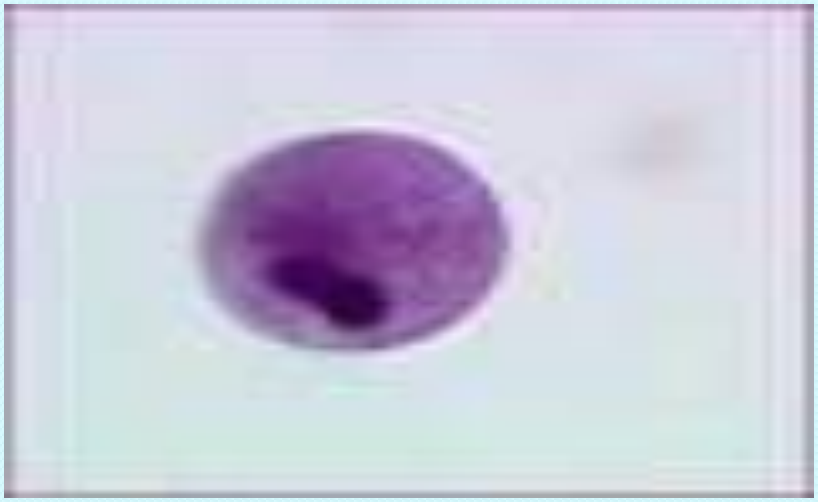


Balantidium coli cyst

Cyst (D.S&I.S)

- Rounded with thick double cyst wall.
- Contains a single parasite, food vacuoles, macronucleus and micronucleus

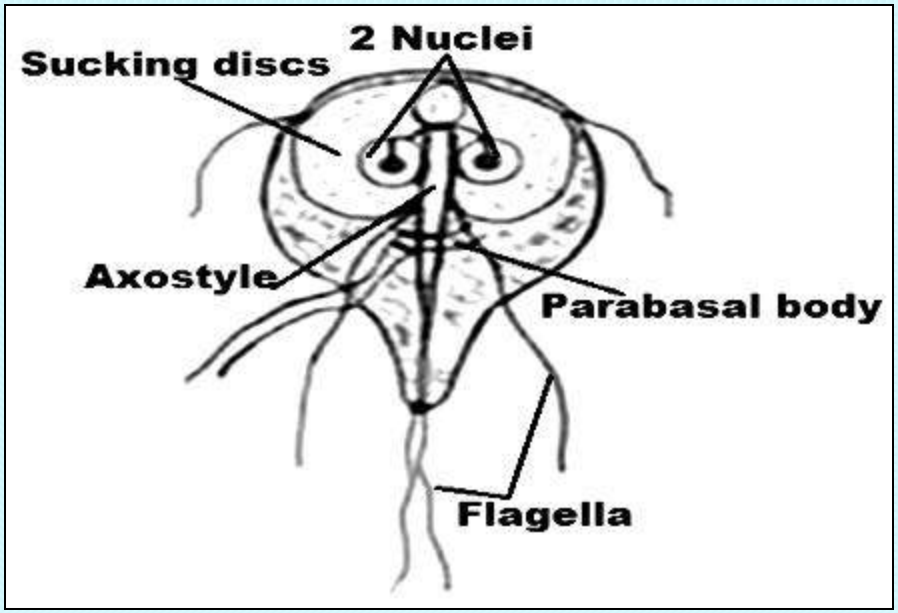




Giardia lamblia

1-Trophozoite stage

- Shape: pear in shape with convex dorsal surface & flat ventral surface
- 2 sucking discs for attachment.
- 2 oval nuclei with central karyosomes anteriorly.
- Four pairs of flagella.
- Axostyle: 2 central roes in the middle
- Parabasal body: 2 rods across the axostyle.



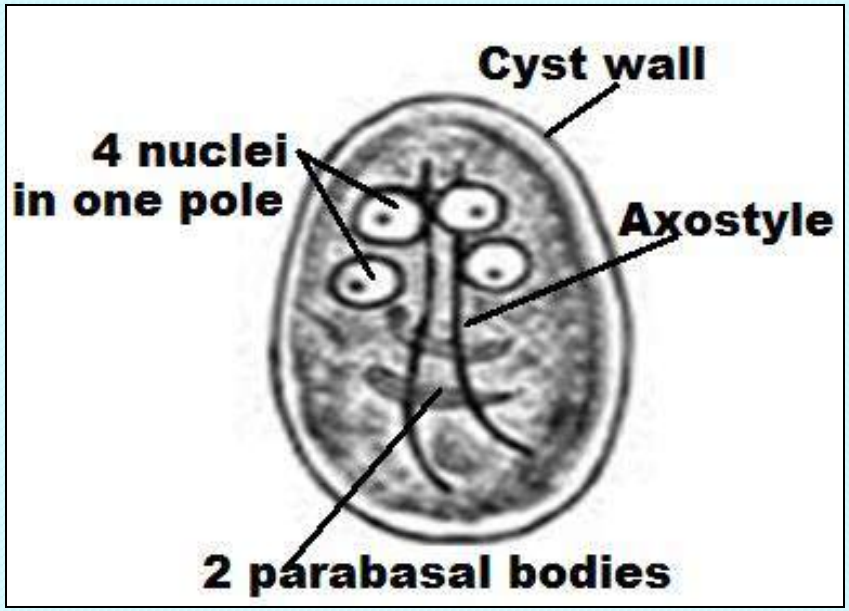
Giardia lamblia cyst

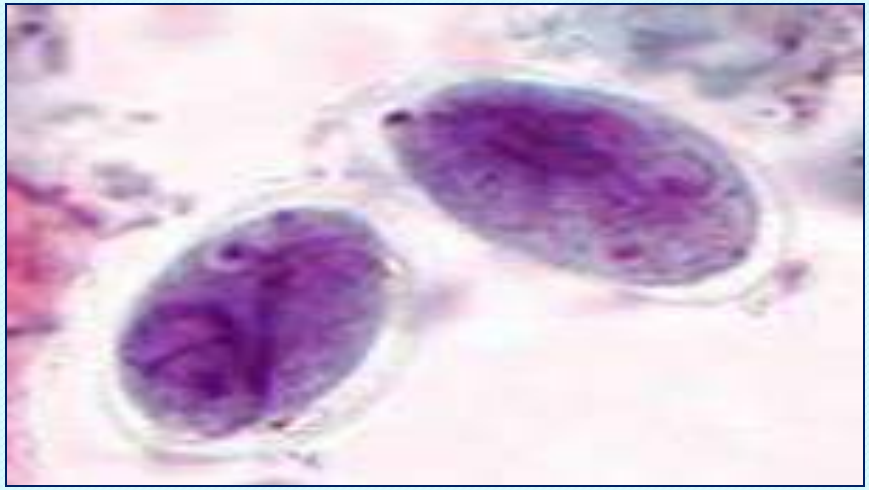
2- Cyst (I.S)

- Size: 12x 7 µm
- Shape: oval with thick cyst wall
- Contents:

-4 nuclei at one pole

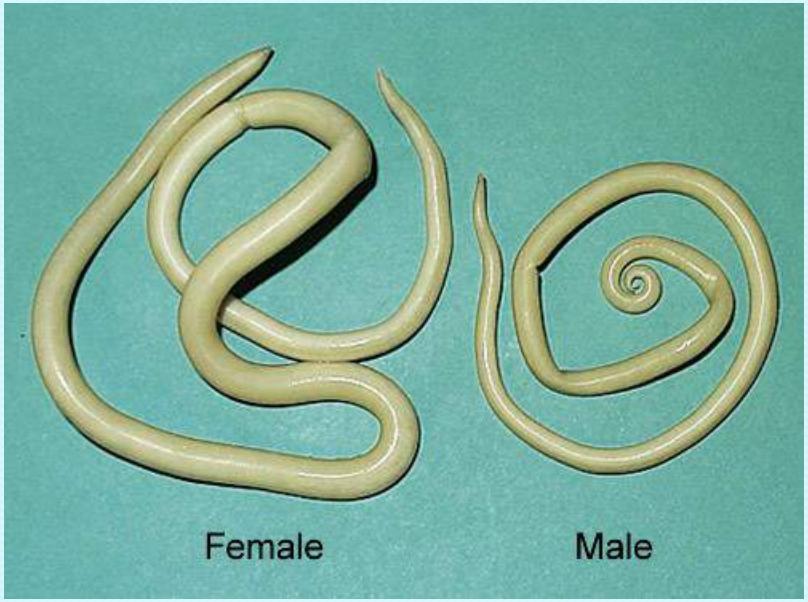
-Fine granular cytoplasm with remnants of flagella, axostyle & parabasal bodies

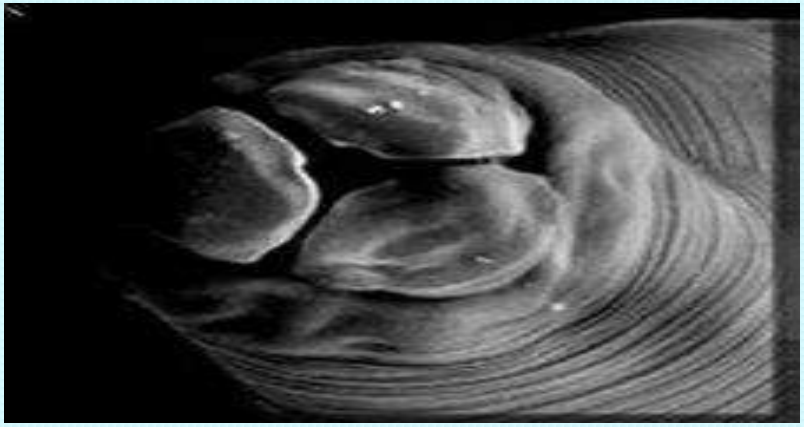




Ascaris lumbricoides adult

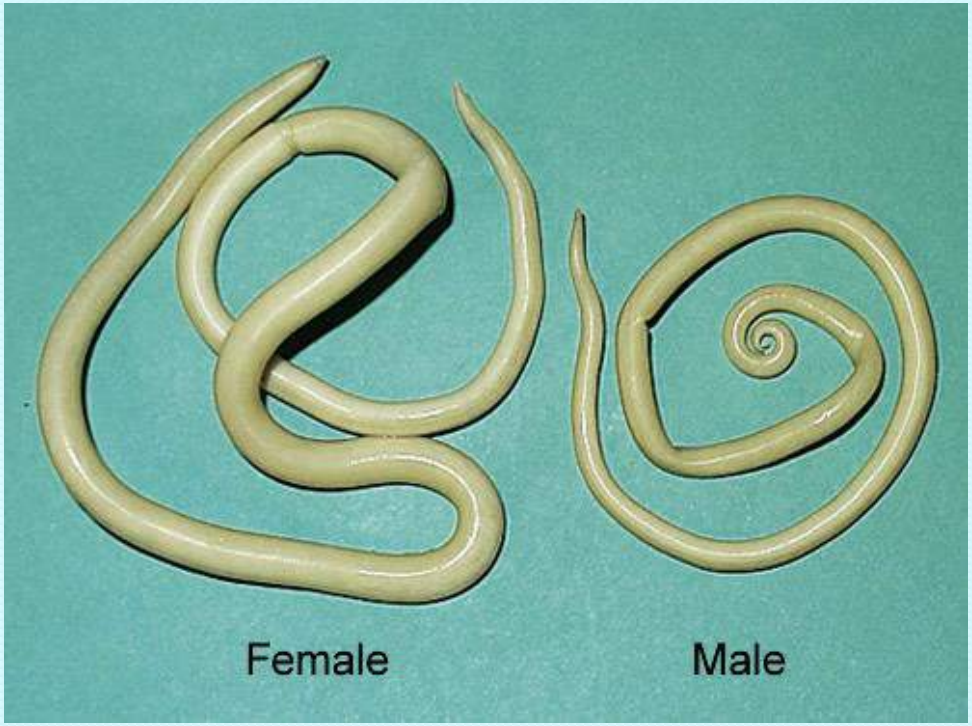
- Long, cylindrical with tapering ends.
- Creamy or pink in color.
- Mouth surrounded by 3 lips, one dorsal and 2 subventral.
- Each lip is provided with 2 sensory papillae and fine teeth.
- Club-shaped oesophagus.





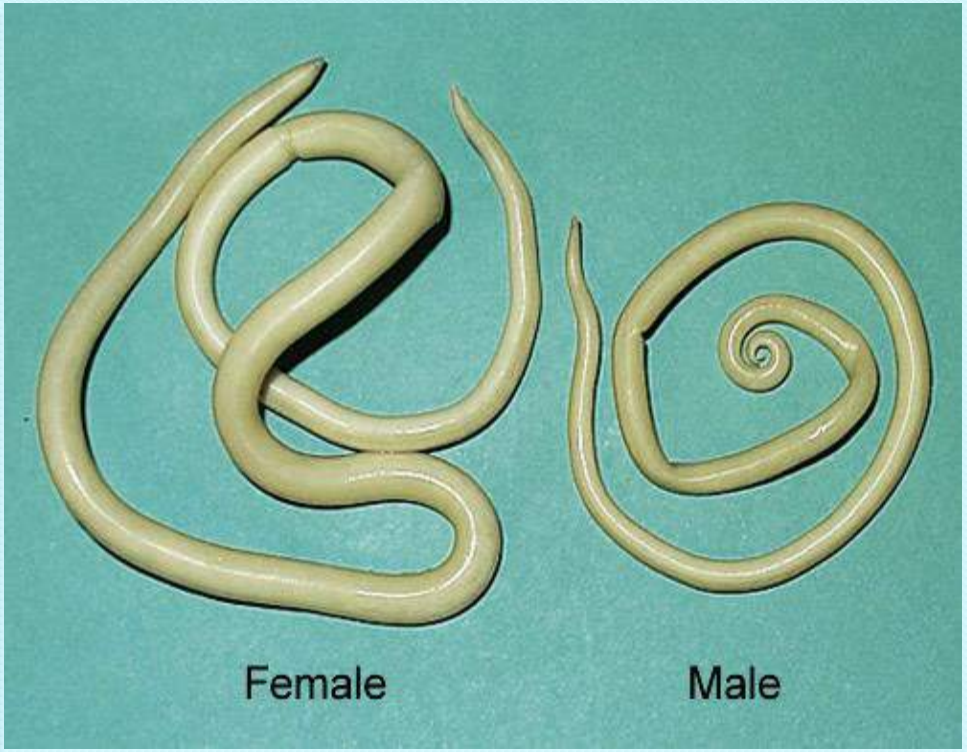
Ascaris lumbricoides adult female

- **Female:**
  - ❖ **Straight posterior end.**
  - ❖ **2 sets of genitalia.**
  - ❖ **Each female lays about 200.000 eggs / day (oviparous).**

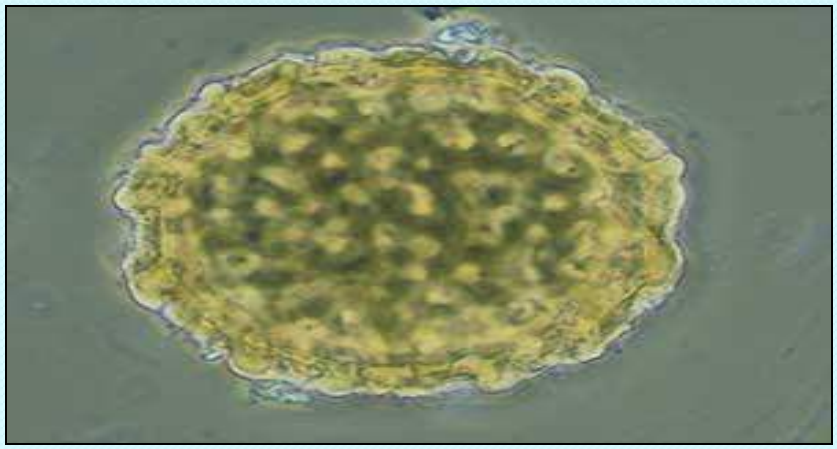


Ascaris lumbricoides adult male

- **Male:**
  - ❖ **Shorter than female.**
  - ❖ **The posterior end is curved ventrally**
  - ❖ **2 equal spicules.**



Eggs of *Ascaris lumbricoides* (D.S)



Fertilized egg

-Size: 60 × 45 µm
-Shape: Oval to round.
-Shell: Inner thick shell & outer mamillated coat.
-Color: Golden brown (bile stained).
-Content: Immature (one- cell stage).

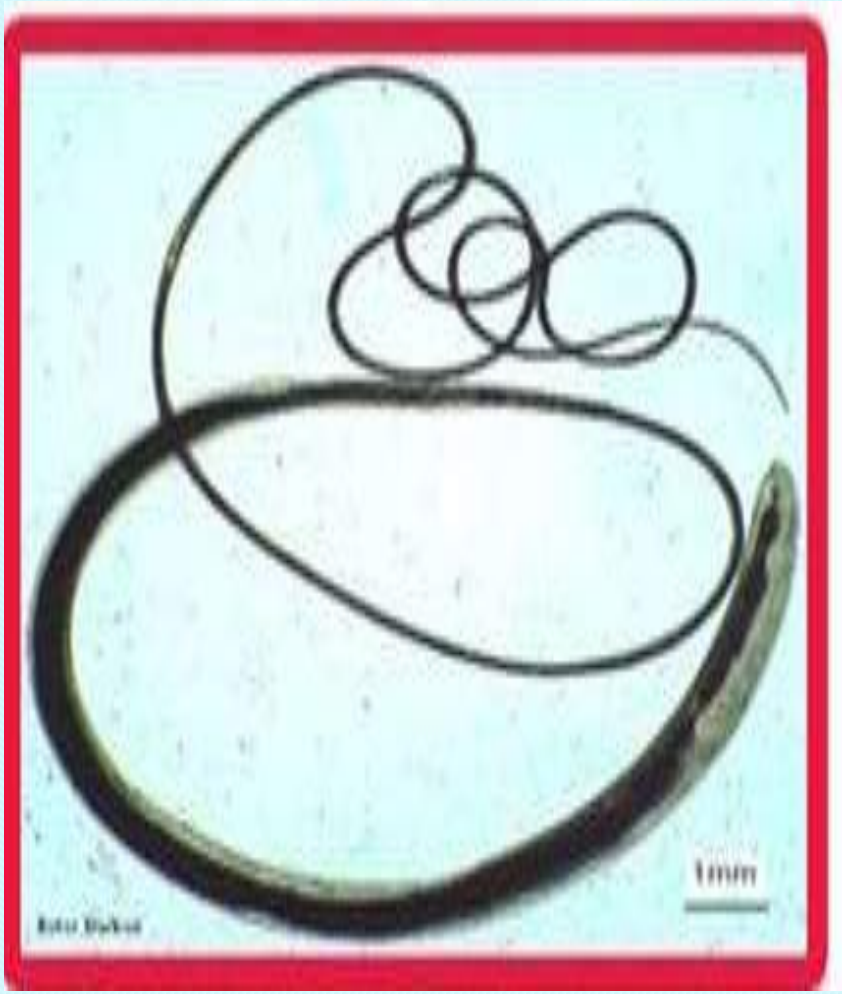
Unfertilized egg

-Size: 90 × 45 µm.
- Shape: Elongated.
- Shell: Thinner with ill developed mamillated coat
- Color: Golden brown.
- Content: Multiple granules.

Tichuris trichiura adult female

Female:

- **Straight posterior end.**
- **One set of genitalia.**
- **Vulva opens at junction of narrow thin and broad parts.**
- **Oviparous (3000-10000 eggs/day).**



Tichuris trichiura adult male

Male:

- **Shorter than female**
- **Posterior end curved ventrally.**
- **One spicule inside a retractile sheath.**

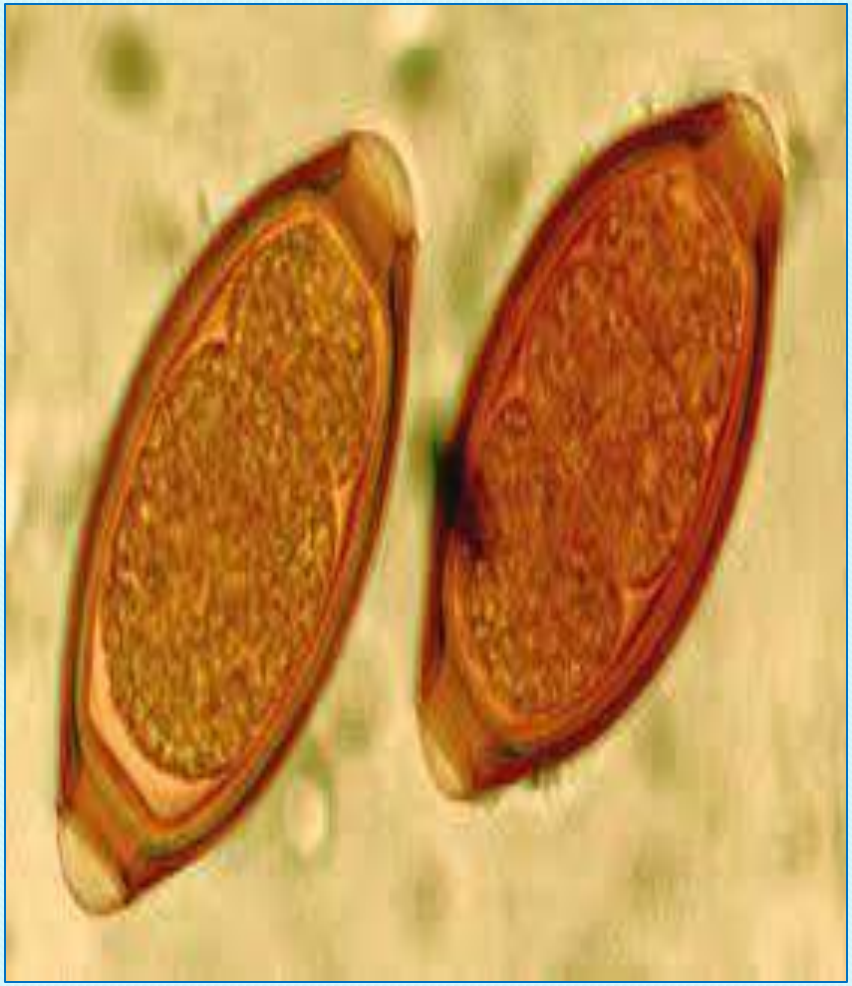
Egg of *Trichuris trichura* (D.S)

Shape: Barrel shaped.

Shell: Thick with two polar plugs.

Color: Brownish.

Content: Immature (one cell stage).



Hookworm

	Ancylostoma duodenale	*Necator americanus*
Common name	Old world hookworm	New world hookworm
Size	Larger ♀ 12mm ♂ 10mm	Slightly smaller ♀ 10mm ♂ 8mm
Anterior end	Slightly bent dorsally	Strongly bent dorsally
Daily egg output	20.000 eggs / female	10.000 eggs / female
Pathogenesis	-More pathogenic due to higher blood loss by feeding worm (0.5 cc of blood daily/parasite)	-Less pathogenic, blood loss is lower (single worm can consume 0.03 cc of blood/ day)

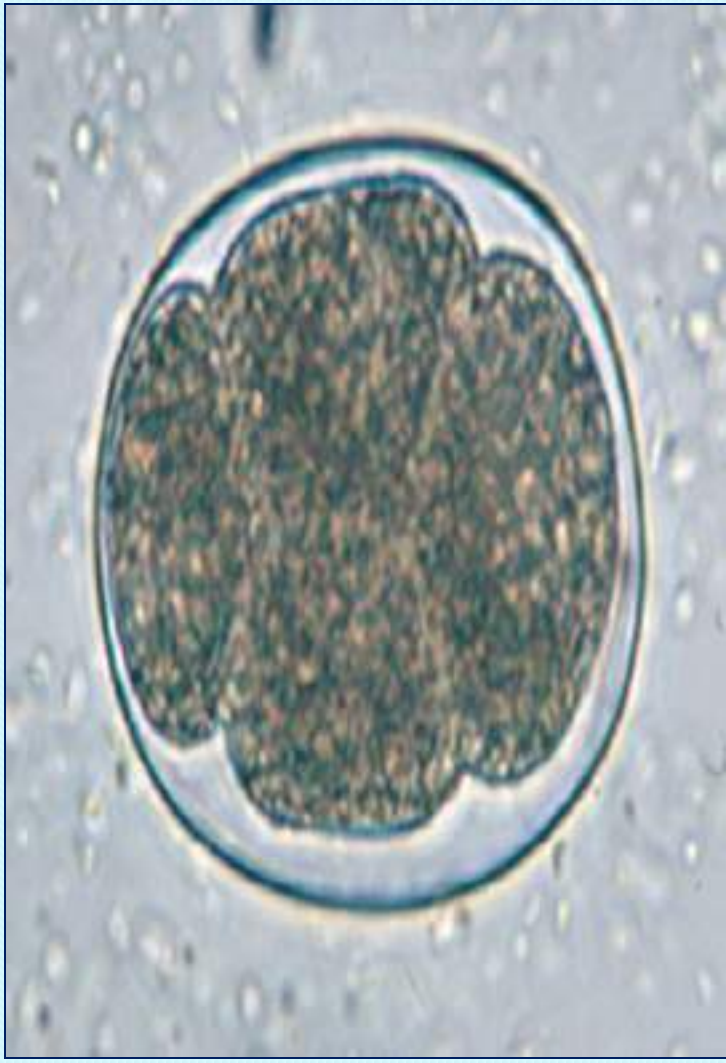
Egg of Ancylostoma duodenale (D.S)

Shape: Oval with blunt rounded poles.

Shell: Thin.

Color: Translucent.

Contents: Immature (4-cell stage) with empty space between the shell and contents.



Ancylostoma rhabditiform larva

-Smaller.

-Rhabditiform oesophagus.

-Pointed tail end.

Ancylostoma filariform larva (I.S)

-Longer.

-Cylindrical oesophagus.

-Pointed tail end.

-Sheathed.

Strongyloides stercoralis

Rhabditiform larva (D.S)

Shorter.

Rhabditiform oesophagus.

Blunt end.

Filariform larva (I.S)

-Larger.

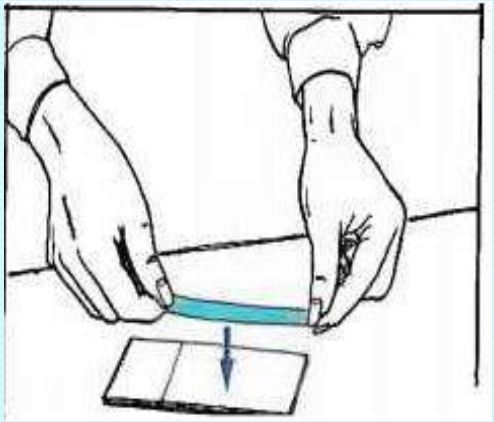
-Cylindrical oesophagus.

-Non sheathed.

Enterobius vermicularis (pin worm)

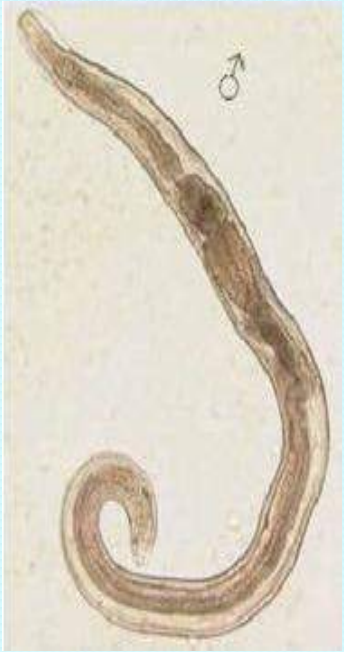
Diagnosis

- Recovery and identification of eggs or adults from the perianal region utilizing the cellophane tape preparation.
- Specimens must be collected the first thing in the morning upon waking, especially before bathing or bowel movements.
- Eggs are rarely found in fecal samples because release is usually external to the intestines.



Laboratory Diagnosis-
Enterobius vermicularis (Pin Worm)

Female (10mm) Posterior end is straight with long pointed tail (4X)



Male (5mm): Posterior end is curved with one spicule

Egg:(IS/DS) Planoconvex or D-shaped egg. embryonated (contain a larva).