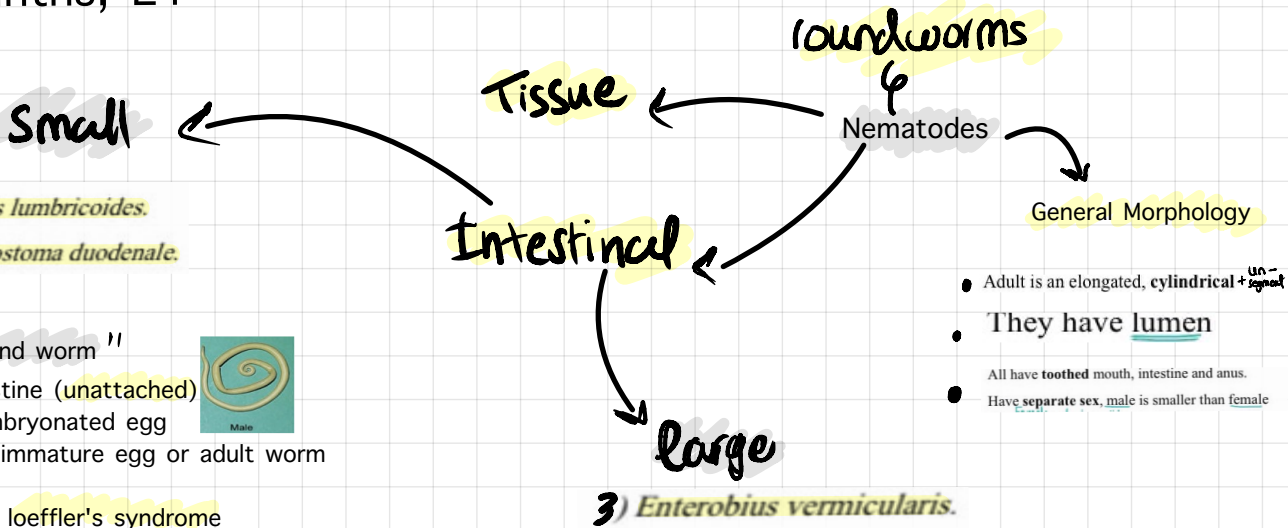




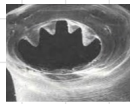
# Helminths, 21



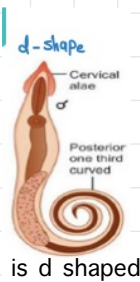
① "giant round worm"  
 habitat: small intestine (unattached)  
 infective stage: embryonated egg  
 Diagnostic stage : immature egg or adult worm  
 Disease -Ascariasis  
 \* Pulmonary phase loeffler's syndrome  
 \* Intestinal phase may be asymptomatic



② "Human Hookworm"  
 habitat: small intestine attached by teeth  
 Infective stage: filariform larva (L3)  
 Diagnostic: Egg (or L13 in sputum )  
 \* Mode of infection: Penetration of skin  
 Disease -> Ancylostomiasis  
 \* Cutaneous phase creeping eruptions  
 \* Pulmonary phase loeffler's syndrome  
 \* Intestinal phase Microcytic hypochromic anaemia &  
 Result from > 1 by feeding of worm &  
 2 by Continues blood loss (due to attachment)



Pinworm, Thread worm , oxiuris  
 \* habitat: unattached to large intestine  
 \* Infective stage: embryonate eggs  
 \* Diagnostic: by perianal swab  
 • Highly infections & By:  
 1 Ingestion of contaminated  
 2 Toilet seats  
 3 Inhalation & swallowing eggs  
 \* Disease -> Enterobiasis  
 • mainly in children  
 • causes severe nocturnal perianal pruritis



## Flukes ← Flatworms → Flat worms

### Termetodes

- 1- Blood flukes e.g. *Schistosoma mansoni* and *S. haematobium*.
- 2- Liver flukes e.g. *Fasciola gigantica* and *F. hepatica*.
- 3- Intestinal flukes e.g. *Heterophyes heterophyes*.
- 4- Lung flukes e.g. *Paragonimus westermani*.

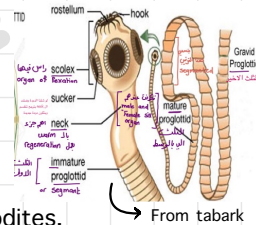


#Adult form: flat, unsegmented, they have suckers, all are hermaphroditic, there are exceptions for sure

except schistosomes have separate sexes. operculated except for schistosomes, except *H. heterophyes* which has extra genital sucker.

### General life cycle

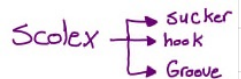
- a. Requires definitive host (vertebrate) and intermediate host (snail).
- Some trematodes may require two intermediate hosts, snail and fish.
- b. The eggs must reach water source (either fresh or brackish) to hatch.



\* Intestinal cestodes (definitives) & Tissue ones (Intermediate host)  
 • they are segmented, all are hermaphrodites, note that the neck is the dividing part

All medically important cestodes require:

- a. Definitive host (vertebrate).
  - b. Intermediate host:- Beef in *T. saginata*.  
Pork in *T. solium*.  
Cyclops and fish (two intermediate hosts) in *D. latum*.
- Mode of infection: By ingestion of infective stage in contaminated undercooked beef, pork or fish.



### Schistosoma

• Morphology -> egg with lateral spine in *S.mansoni* and terminal spine in *S.haematobium*, has bifurcated tail

\* life cycle :-

Habitat is around urinary track ( mesentric or vesical ) venous plexus

Intermediate host: snail , Infection is by skin penetration

Infective stage : forked tail cercaria

diagnostic stage: eggs in stool or urine



Disease is Bilharziasis :

- 1 intestinal ( mansoni ) : granulomata formed
- 2 urinary ( haematobium ) : dysuria

### Diphelobothriasis

Caused by *D. latum*.

➤ Macrocytic hyperchromic anemia as the adult worm absorbs large quantities of vitamin B12.

### Echinococcus granulosus

Adult: The smallest tapeworm of medical importance  
 Hydatid cyst: فيها آلاف كبري طفيليا scolexes رأس الديد.

### Hydatid disease

- It is a zoonotic disease in which adult *E. granulosus* inhabits the small intestine  
 Ingestion of eggs and consumption of accidental host.

The liver is the most common site of the hydatid cyst (