

Hook worm and related parasites

The general features are:

- 1) Buccal capsule provided with dental apparatus.
- 2) The posterior end of the male bears copulatory bursa.

Ancylostoma duodenale

It is the old world hookworm.

- * Inhabit the small intestine of man & suck blood.
- * Ancylostomiasis or Hookworm disease.

Geographical distribution:

S. Europe, N. Africa, Middle east, N. India, N. China, Japan, West coast of S. America.

Morphology:

Adults are cylindrical in shape, pinkish in colour, have the head curved somewhat dorsally & club-shaped oesophagus.

Filariform larvae:

- 1- It is long and slender in shape. It has a cylindrical oesophagus which is shorter than that of S. stercoralis.
- 2- It has pointed tail.



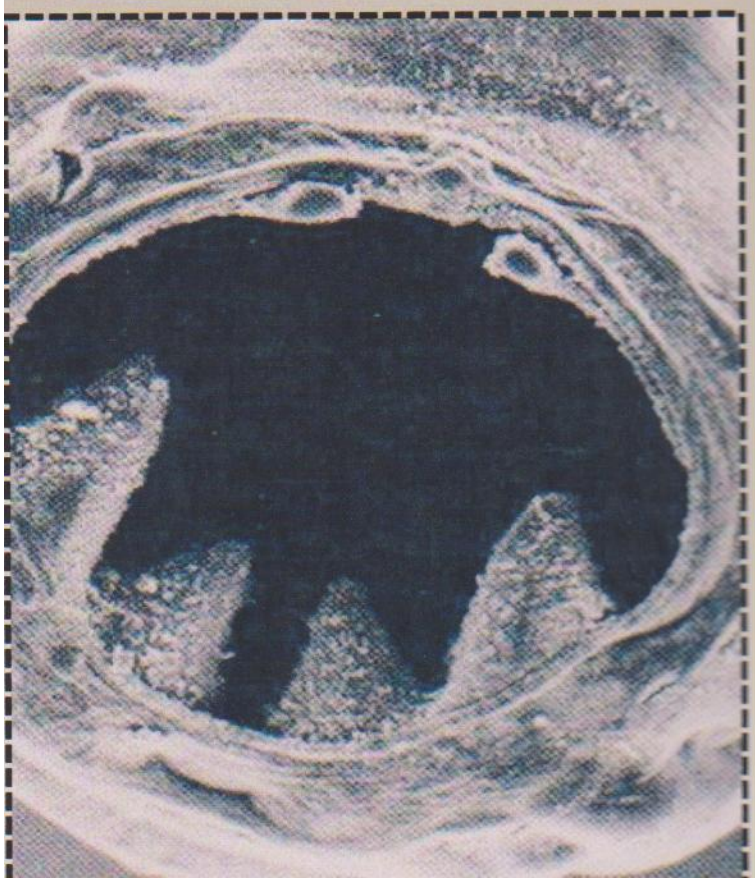
Hook worm egg:

- 1- Oval with broadly rounded ends, measure 60 μm long by 4 μm wide.
- 2- The eggs when passed the stool in are usually 4 or 8 cell stage embryo.
- 3- Clear space between the embryo and the egg shell. The shell is thin, smooth and colorless.



Mouth cavity:

- 1- Capsule is rather cup-shaped with an oral rim.**
- 2- On the ventral side of the rim there are 2 pairs of teeth, the inner smaller than the outer.**
- 3- In the depth of the capsule there is a pair of small teeth.**
- 4- Dorsally there is a plate with medium cleft.**



Copulatory bursa:

1- It is bell or umbrella in shape which is an extension of the body cuticle & is supported by 7 pairs of fleshy rays.

2- Two long spicules end freely and well separated (unfused spicules).



Necator Americanus

- * It is the new world or American hookworm.**
- * Inhabit the small intestine of man.**

Geographical distribution:

Adult is strongly reflexed dorsally at the anterior end.

Mouth cavity or buccal capsule:

It is cup-shaped. On the ventral side, there are 2 semilunar cutting plates, one on either side of the median line.

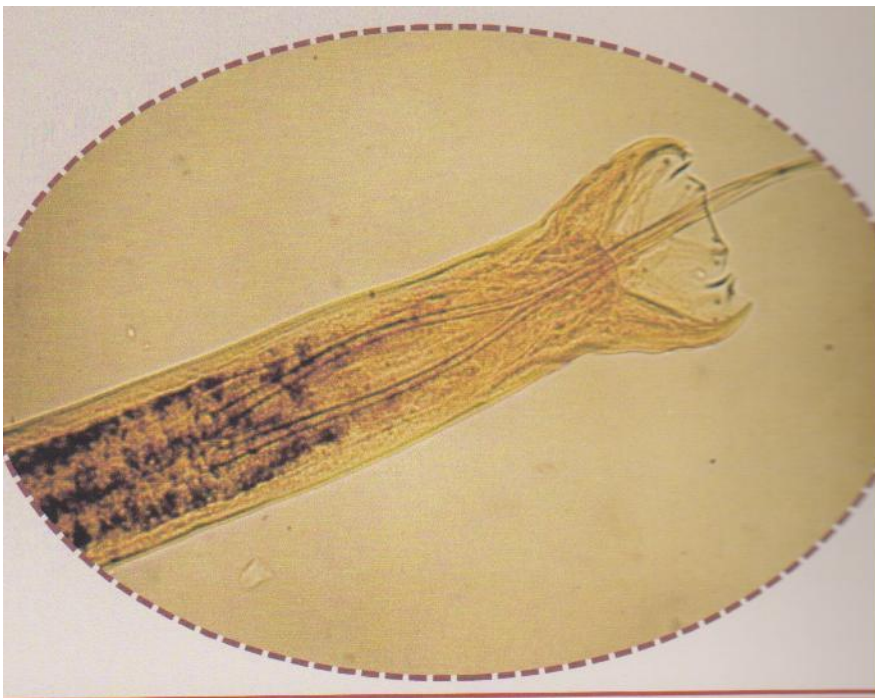
2- Two poorly developed dorsal plates and well developed median dorsal tooth.

3- In the depth, there is a pair of short triangular lancet.

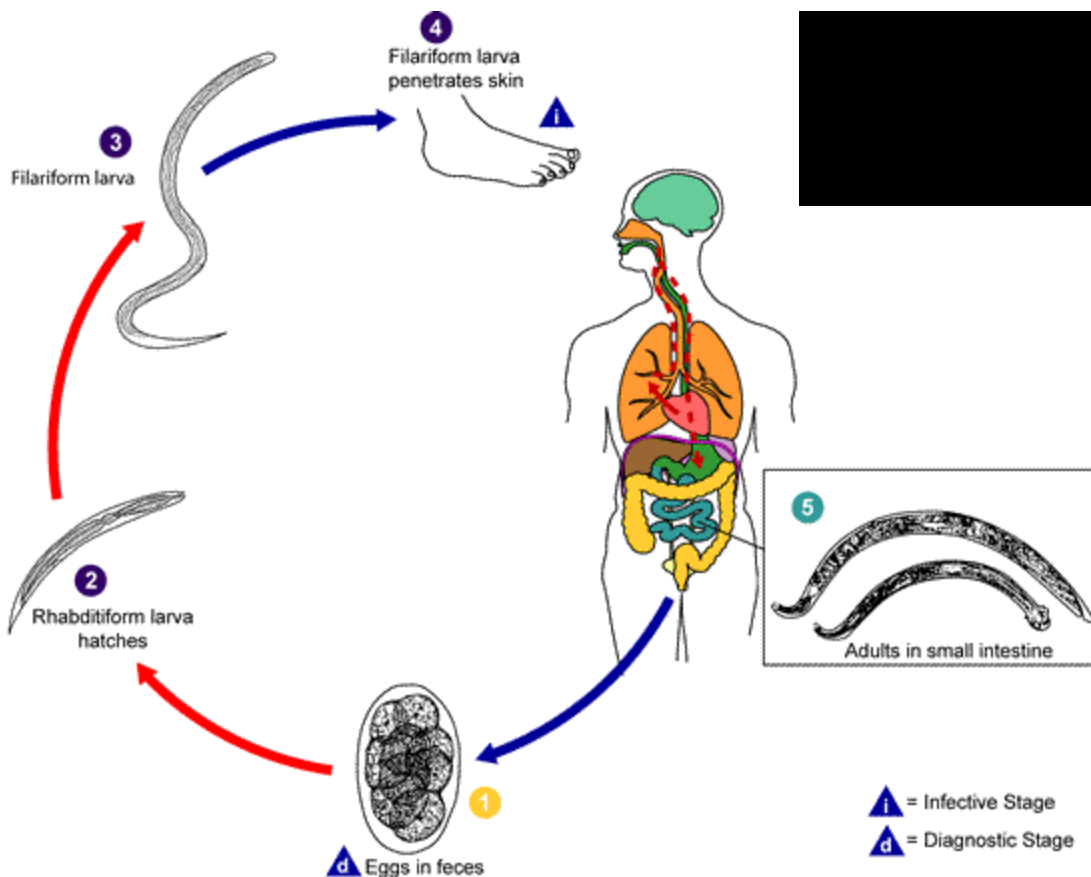


Copulatory bursa:

It is similar to that of A. duodenale except that the 2 spicules are fused at their ends terminating in a barb.



Life cycle:



Pathogenesis:

I. Skin stage: Papular eruption at the site of entry on the skin. Penetration dermatitis --- itching --- oedema --- erythema --- papule --- vesicle --- pustule (this is called ground itch).

II. Migration stage:

- * Petechial haemorrhages in the air sacs.**
- * Bronchial pneumonitis.**

III. Intestinal stage:

- * Erosion of the tissues & ulceration.**
- * Blood is sucked out of the intestinal mucosa.**
- * Haemorrhage at the sites of attachment.**

Etiology of Hookworm disease:

- 1. Haemorrhage from the intestinal wall.**
- 2. Parasite sucks 0.5 c.c blood/worm/day.**
- 3. Microcytic & hypochromic anaemia.**
- 4. Malnutrition.**

Diagnosis:

- 1) Clinical picture.**
- 2) Stool examination by either direct or concentration methods for the detection of eggs.**

Trichostrongylus colubiformis

- **Species are typically attached to the small intestine of ruminants & are incidental parasites of man.**
- **It has been reported from many countries including Iraq specially in agricultural areas.**

Morphology:

Adults are delicate thread-like nematodes without buccal capsule & dental apparatus.

Male is possessing a relatively large copulatory bursa provided with 2 spicules:

Egg:

Oval-elliptical in shape, with one pole rounded and the other pointed. It measures 70-90 μm by 40-50 μm .

2- It contains a morula stage (16-32 cells) when evacuated in the stool.



Pathogenesis and symptoms:

- * Traumatic damage to the mucosa.
- * Desquamation & hyperaemia with haemorrhages at the site of attachment.
- * They may suck blood.

Symptoms: Emaciation, intestinal disturbances, transient eosinophilia & mild anaemia.

Diagnosis:

Stool examination --- typical eggs.

Treatment:

- * Pyrantel pamoate.

*** Bephenium compound.**

Control:

- 1. Avoid drinking contaminated water.**
- 2. Vegetables should be properly washed**