Parasitology

Sami Bdair

Science

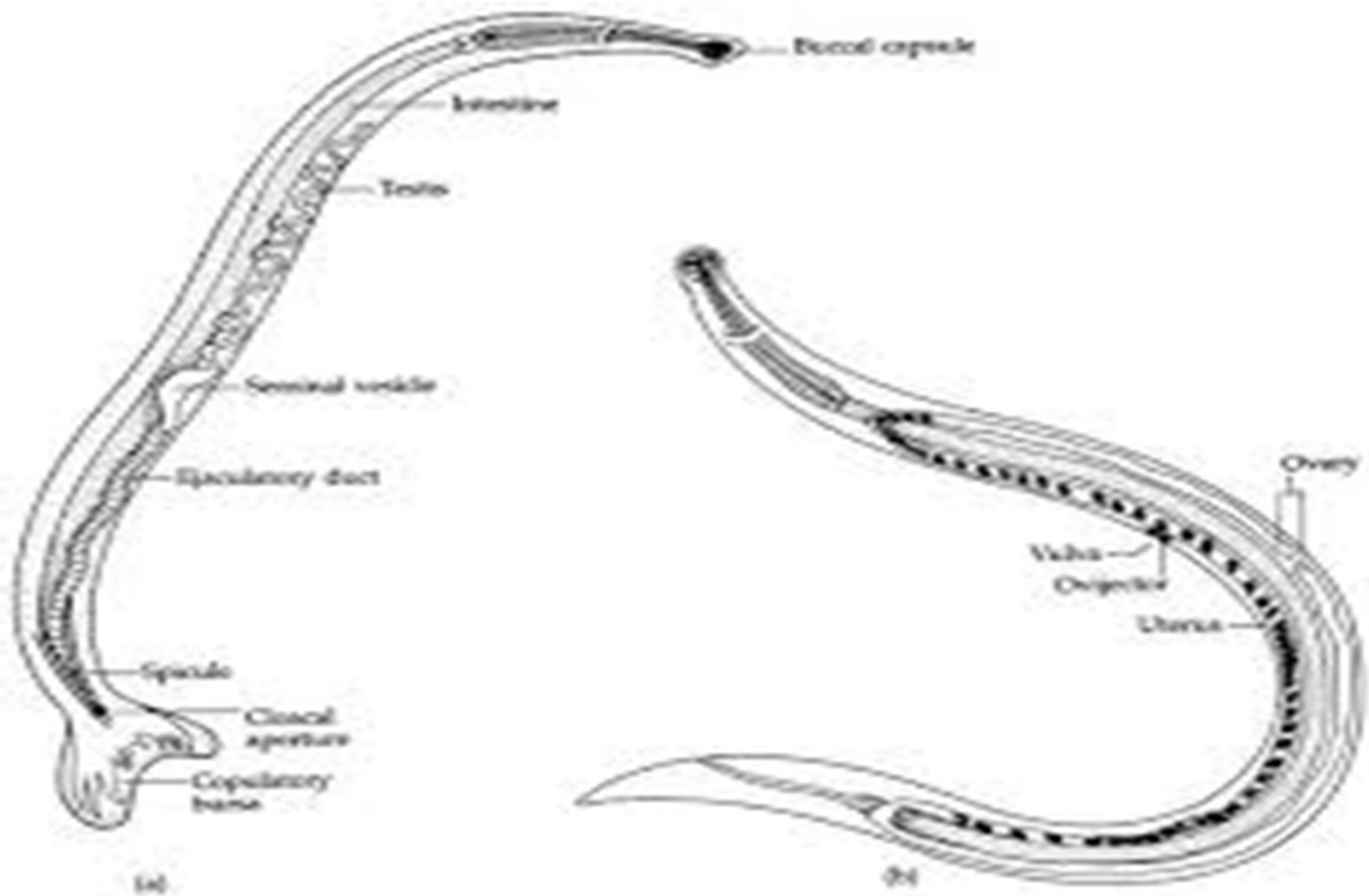
Ancylostoma duodenale

(Hookworm)

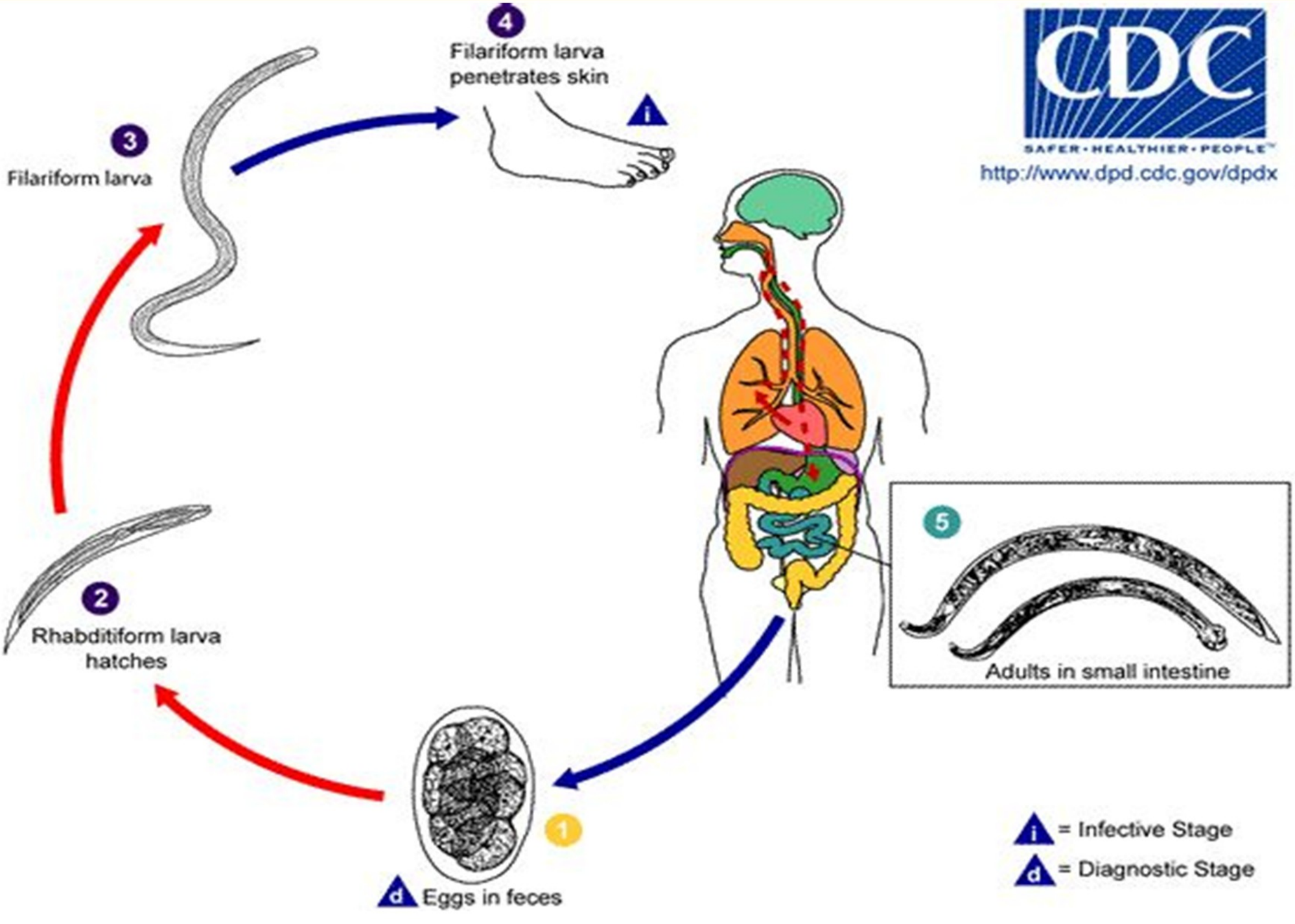
Objectives:

1. Study the morphology.
2. Study the life cycle.
3. Study the pathogenesis.
4. Study the diagnosis.
5. The treatment.

Morphology


Buccal capsule
Intestine
Testis
Seminal vesicle
Ejaculatory duct
Spicule
Cloacal aperture
Copulatory bursa
(a)
Ovary
Vulva
Oviduct
Uterus
(b)

Life cycle



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http://www.dpd.cdc.gov/dpdx

pathogenesis

1. Itching named (ground itch or dew itch).
2. Bronchitis or pneumonitis.
3. Anemia.
4. Loss appetite.
5. Hypertrophy of heart and rapid pulse.

Diagnosis

1. By finding eggs in feaces.
2. Larva may be found in sputum.
3. Ab/Ag reaction.
4. PCR (polymerase chain reaction).

Treatment

Mebendazole.

At the end I hope that the previous objectives have been achieved.

Ae Flesh Eating Hookworm Yo

Parasitology

Sami Bdair

Science

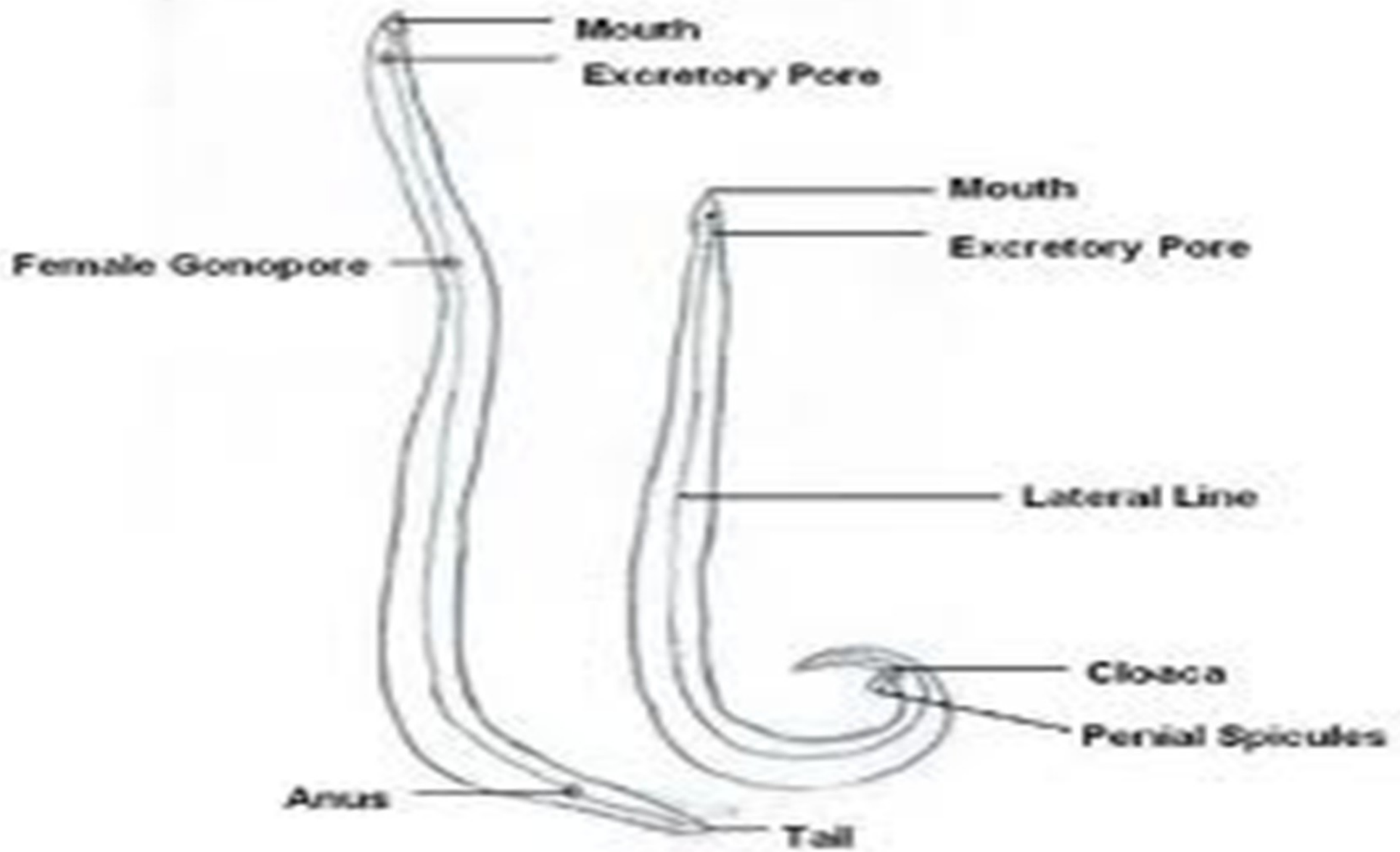
Ascaris lumbricoides

(Roundworm)

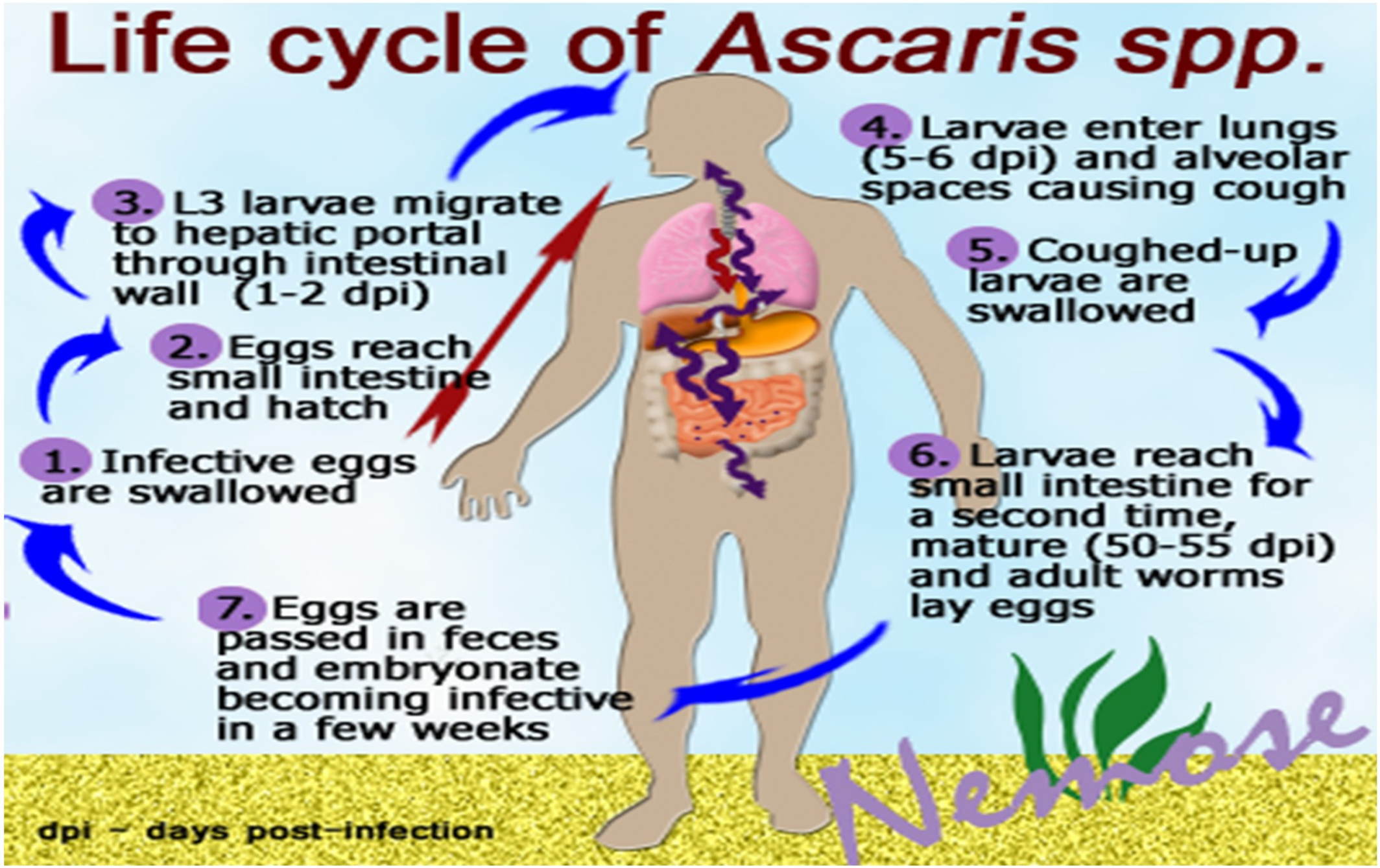
Objectives:

1. Study the morphology.
2. Study the life cycle.
3. Study the pathogenesis.
4. Study the diagnosis.
5. The treatment.

Morphology


Mouth
Excretory Pore
Female Gonopore
Mouth
Excretory Pore
Lateral Line
Cloaca
Penial Spicules
Anus
Tail

Life cycle


Life cycle of Ascaris spp.
1. Infective eggs are swallowed
2. Eggs reach small intestine and hatch
3. L3 larvae migrate to hepatic portal through intestinal wall (1-2 dpi)
4. Larvae enter lungs (5-6 dpi) and alveolar spaces causing cough
5. Coughed-up larvae are swallowed
6. Larvae reach small intestine for a second time, mature (50-55 dpi) and adult worms lay eggs
7. Eggs are passed in feces and embryonate becoming infective in a few weeks
dpi = days post-infection
Nemrose

pathogenesis

****Due to larvae:

1. Dry cough.
2. Asthma.
3. Pneumonitis.
4. Fever.
5. Eosinophilia.

****Due to adults:

1. Loss of appetite.
2. Abstraction of intestine.
3. Weight loss.

Diagnosis

1. By finding eggs in feaces.
2. Larva may be found in sputum.
3. Ab/Ag reaction.
4. PCR (polymerase chain reaction).

Treatment

Peperazine.

At the end I hope that the previous objectives have been achieved.

Parasitology

Maram Basim

Science

Nematoda (Round worms)

Contents :

1. characteristics and morphology.
2. Example of Nematoda (*Entrobius vermicularis*).
3. life cycle of *Entrobius vermicularis.*
4. pathogenesis.
5. diagnosis.
6. The treatment.

Characteristics and Morphology :

1. The most abundant organisms on earth.
2. Bilaterally symmetrical.
3. Pseudocoelomates.
4. Range in size from 1mm. to over meter.
5. Mostly are dioecious (separate sexes), some species are hermephrodite.
6. Complete digestive system.

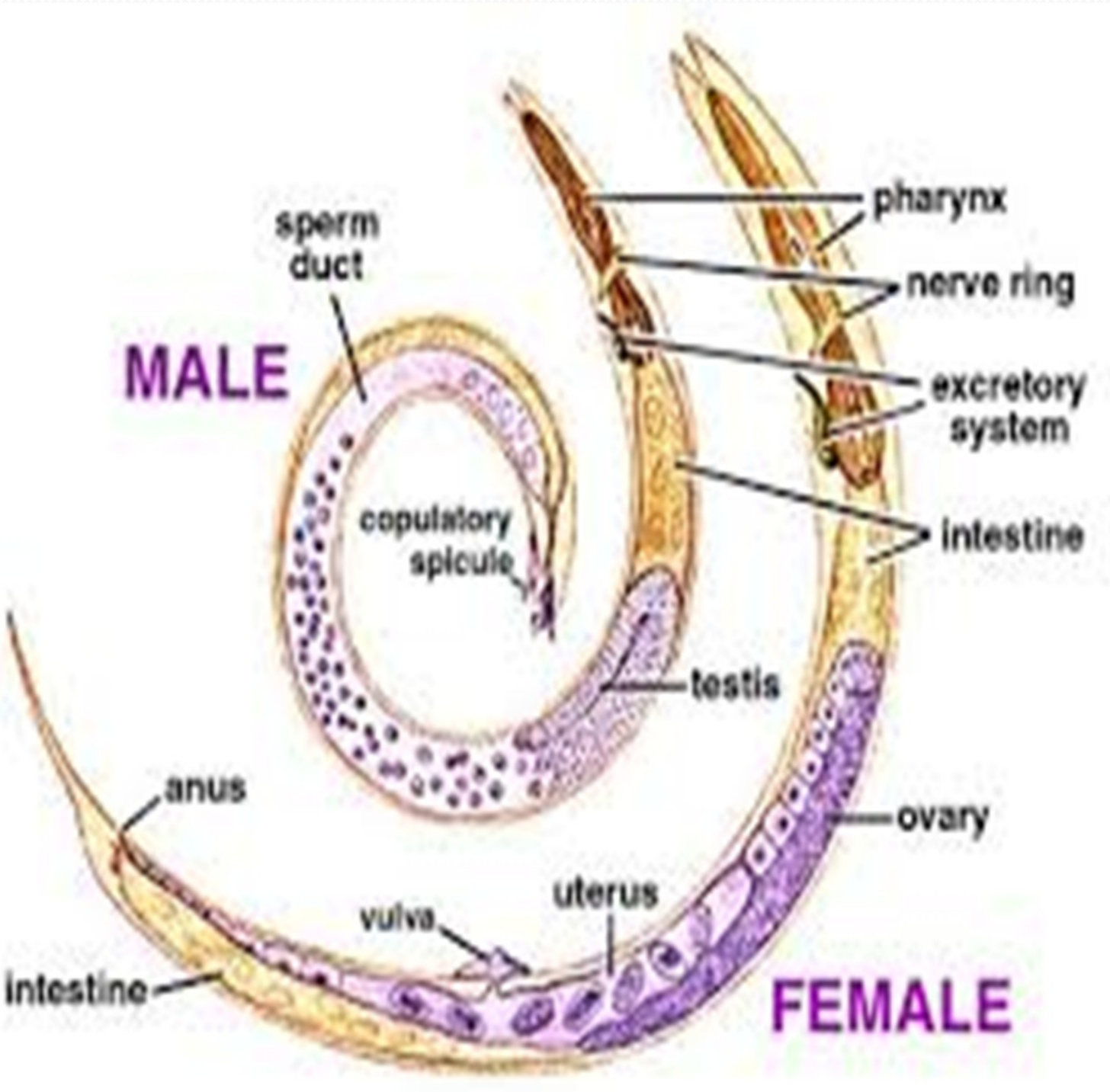
7. Free living and paresitic.

8. Basic life history

* Individuals molt four times to reach adulthood.

* Egg ⟶ hatch ⟶ L1⟶ L2⟶ L3 ⟶ L4 ⟶ adult.

In most species (L3) juvenile is infective to host.


MALE
sperm duct
copulatory spicule
testis
pharynx
nerve ring
excretory system
intestine
anus
vulva
uterus
ovary
intestine
FEMALE

Types of Nematoda :

1. Ascaridis
2. Filarias
3. Hook worms
4. Pin worms
5. Whip worms

Pinworms
Enterobius vermicularis

Taxonomical position

- Phylum : Nematoda
- Class : Secernentea
- Order : Oxyurida
- Super family : Oxyuroidea
- Family : Oxyuridae
- Genus : Enterobius
- Species : vermicularis

Common names:

- *Pin worm*
- *Thread worm*
- *Seat worm*

History:

- 'Leukart' – first described the complete life cycle in 1865


12
13
14
Centrum voor Infectieziekten
Afdeling Parasitologie
E.A.T. Brienen
LUMC

Distribution:

- Cosmopolitan
- More common in temperate and cold climate than warm climate

Habitat:

LARGE INTESTINE

- Caecum
- Appendix
- Ascending colon

Morphology:

ADULT:

- Short, white, fusiform
- Pointed ends
- Resemble white threads

Cervical Alae:

- At the anterior end
- Three in number
- Wing like cuticular expansions
- Transversely striated

MALE WORM:

- Posterior end is curved
- Copulatory spicule
- Length : 2-5 mm
- Thickness : 0.1- 0.2 mm
- Life span : 7 weeks

FEMALE WORM:

- Thin, pointed, pin like tail
- Reproductive organs
  - T shaped
  - paired

✓ OVIPAROUS

- Length : 8 - 13 mm
- Thickness: 0.3 - 0.5 mm
- Life span : 5 - 13 weeks

EGG:

- Colourless, non-bile stained
- Shape: Planoconvex
- Shell : Double layered
  Transparent
- Sticky outer albuminous layer

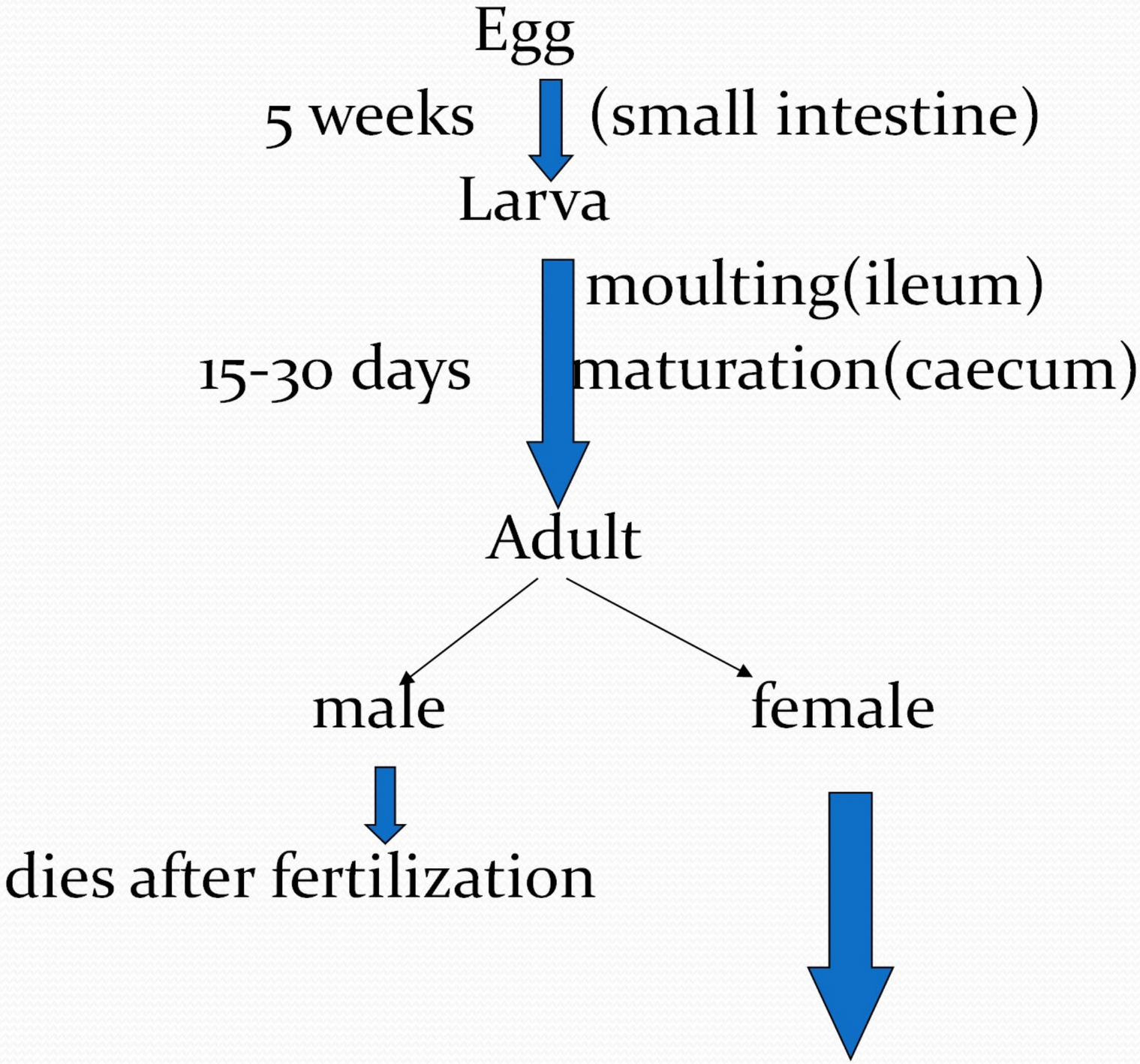
- Contains ‘tadpole shaped’, coiled larva
- Viable up to 2 weeks

LIFE CYCLE

Life cycle:

- Simplest of all the intestinal worms
- D.H : Human
- Infective form: embryonated egg
- Route: Faeco-oral transmission
- Eggs transform in to larvae in 5 weeks in small intestine
- Larva undergo moulting in ileum and finally mature in to adult in caecum with in 15 to 30 days
- Male dies after fertilization

Conti…


Egg
5 weeks
(small intestine)
Larva
moulting(ileum)
15-30 days
maturation(caecum)
Adult
male
female
dies after fertilization

Conti…

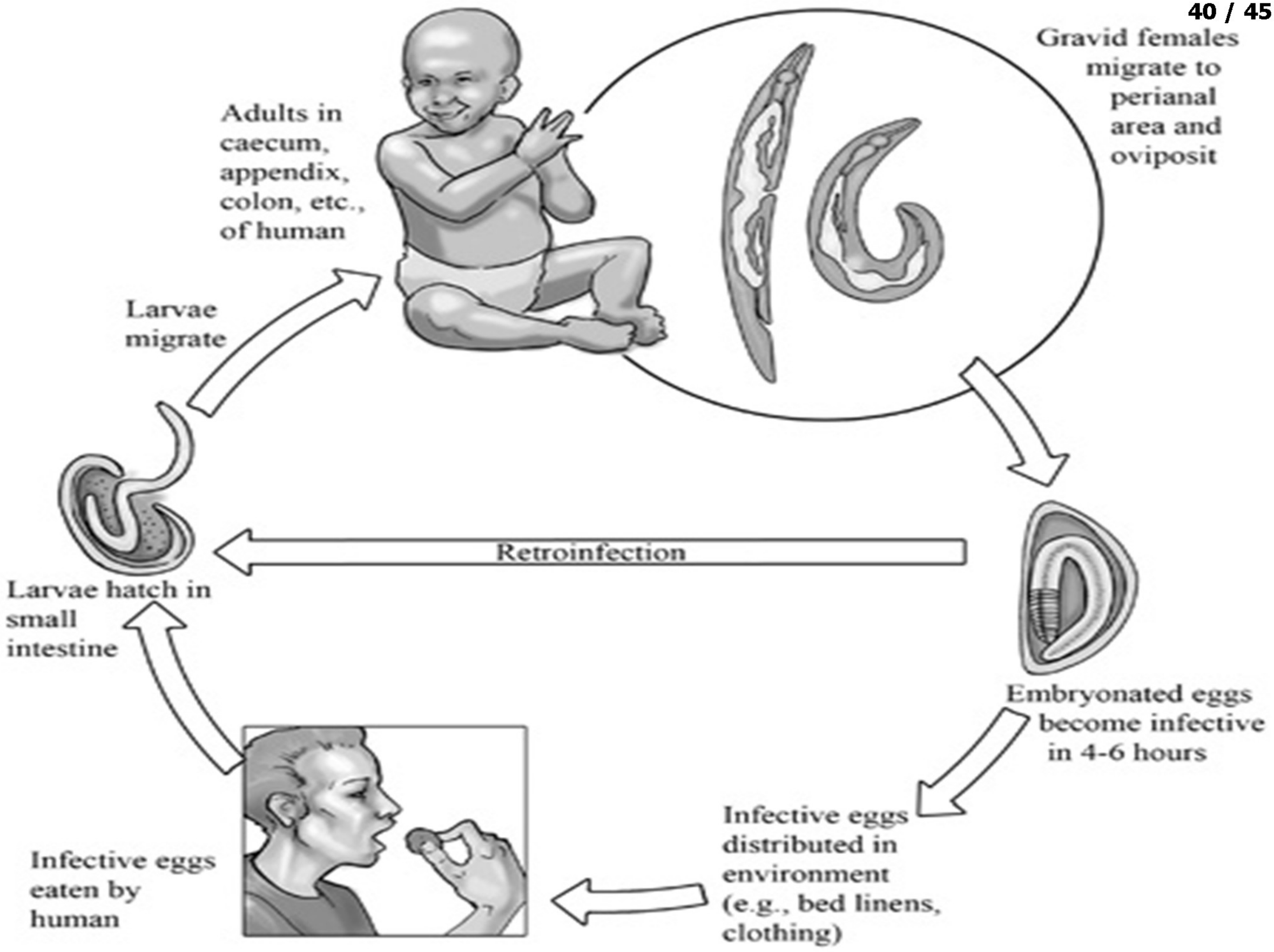
migrate to rectum

come out through anus during night time

Eggs laid on perineal, peri anal skin

Conti…

- 1 worm = 5000 – 17000 eggs
- Become infective in 6 hrs
- Completes life cycle in 2 weeks – 2 months


Adults in caecum, appendix, colon, etc., of human
Gravid females migrate to perianal area and oviposit
Larvae migrate
Larvae hatch in small intestine
Retroinfection
Embryonated eggs become infective in 4-6 hours
Infective eggs distributed in environment (e.g., bed linens, clothing)
Infective eggs eaten by human

pathogenesis

1. Poor appetite, loss of sleep, weight loss, abdominal pain and vomiting.
2. Slight eosinophilia has been reported.
3. Severe irritation in the perianal area.
4. In girls female worms move to the vagina and cause valva irritation.

Diagnosis

1. By finding the adult on the faces or in the irritatior perianal region.
2. By finding eggs in the faces.
3. Ab/Ag reaction.
4. PCR (polymerase chain reaction)
5. Scotch tape swab :

At least 3 specimen collected

in 3 consecutive days.

Treatment:

- Single dose:

  Pyrantel

  Mebendazole

  Albendazole

- Piperazine

Thanks