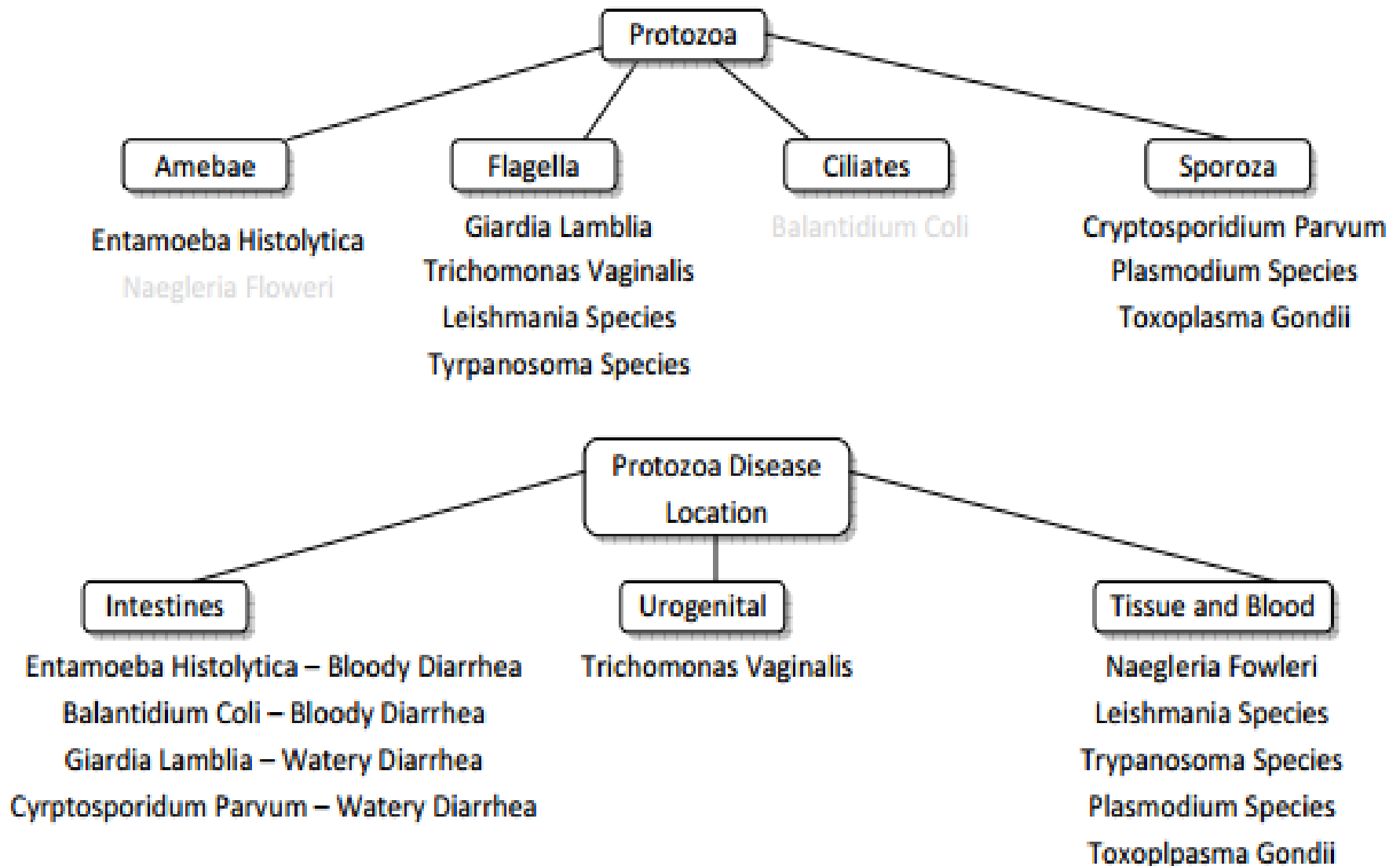


Activity

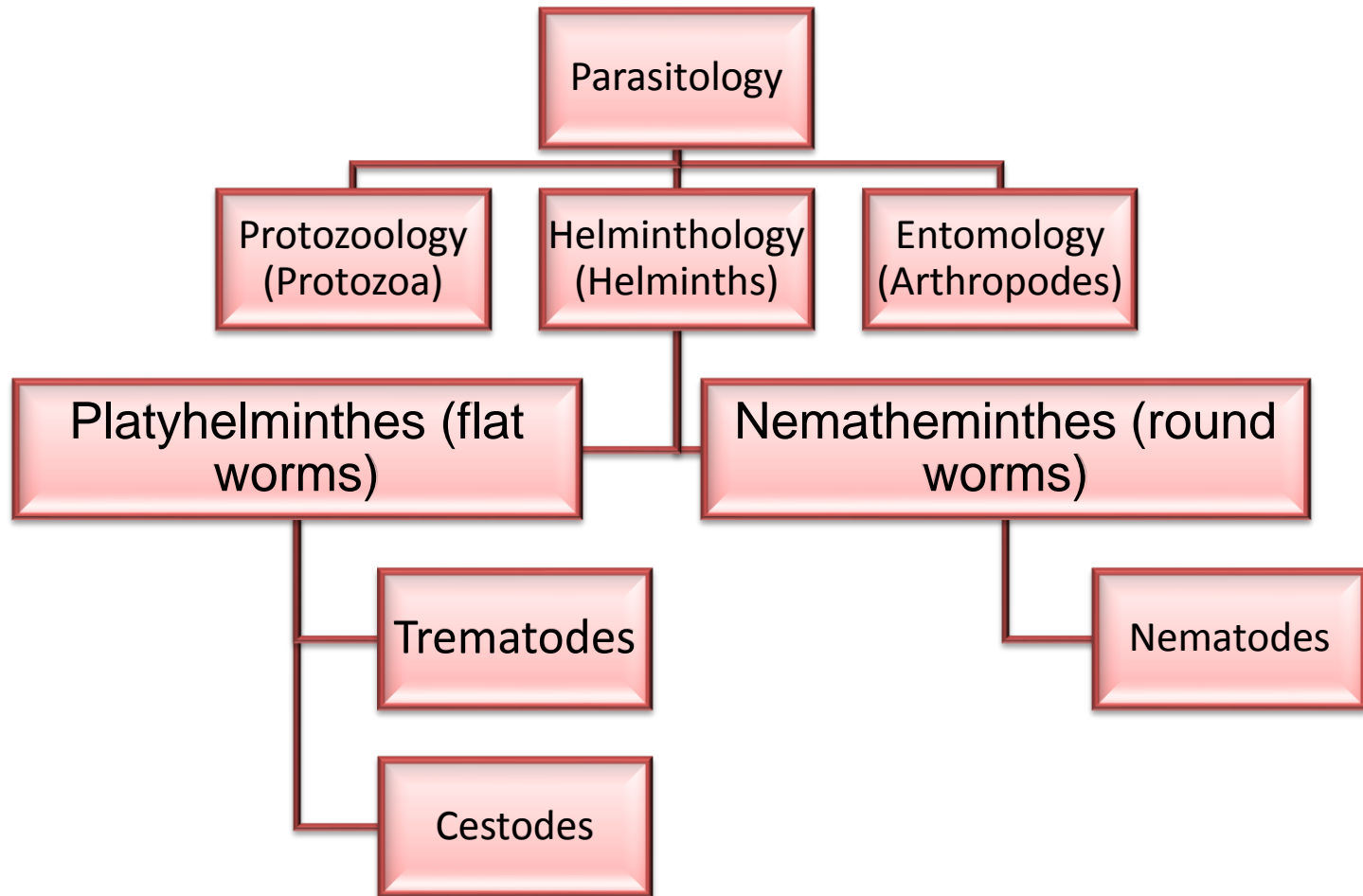
Protozoa classification



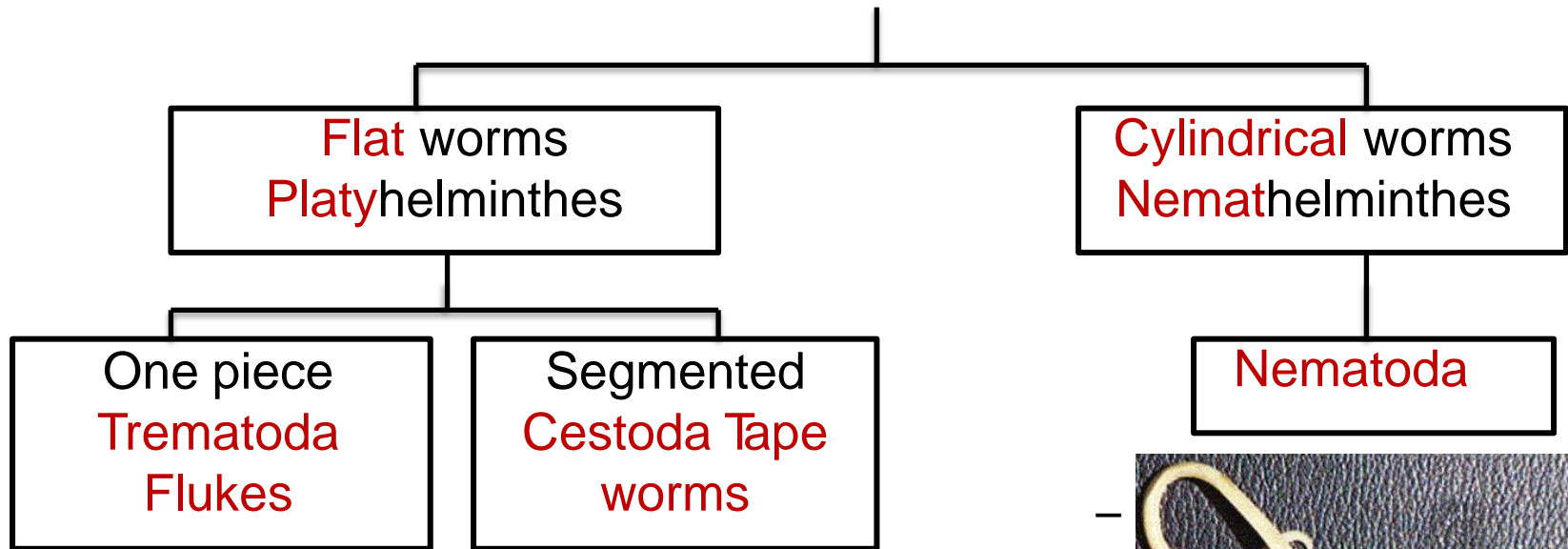
Helminths

Nematodes

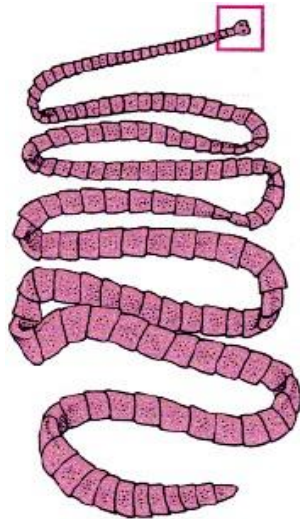
Classification



Helminths (worms)



in different
areas

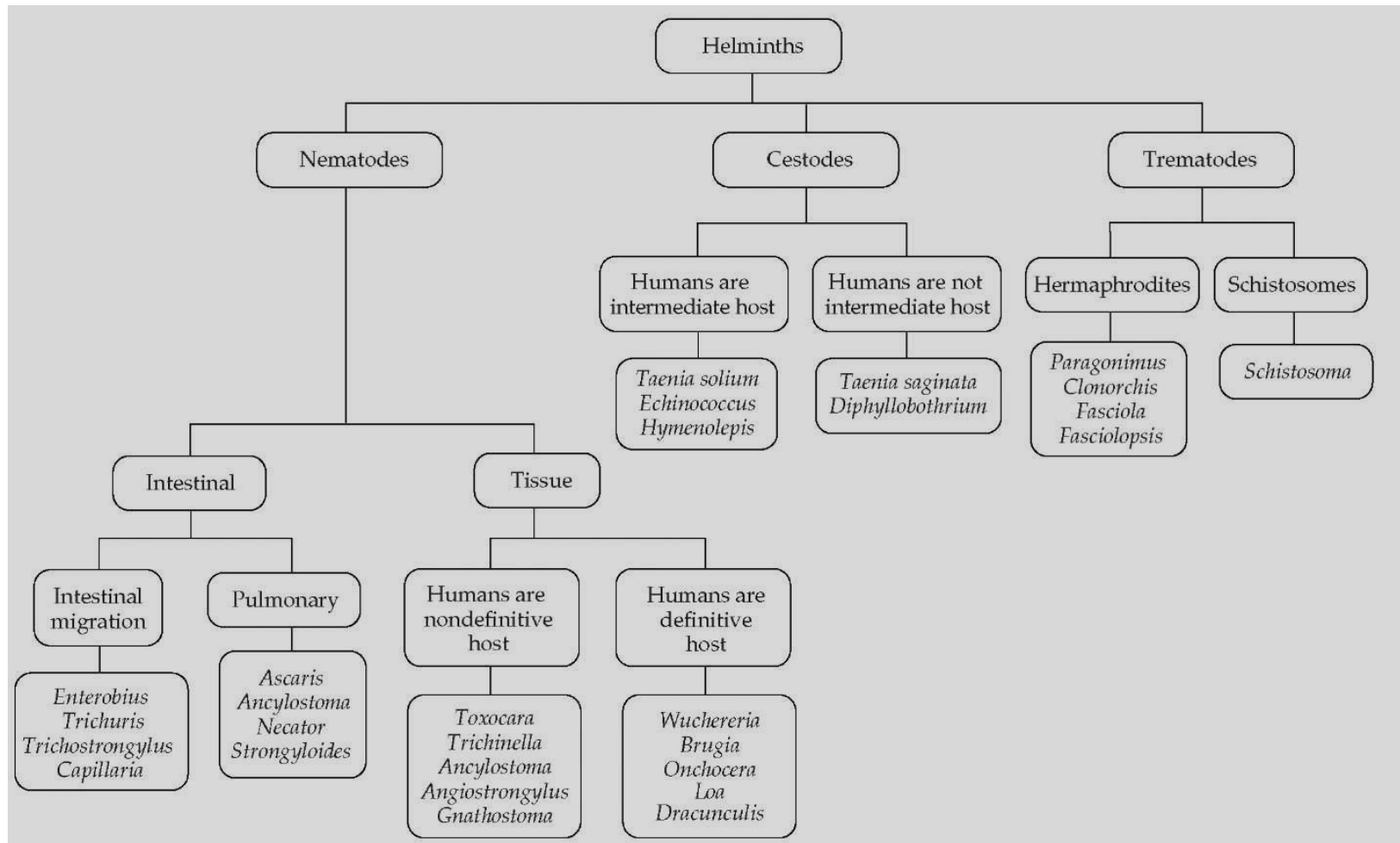


intestine & Tissue



Intestinal, Blood & tissue

Classification



Life cycle

Mode of Infection

Pathogenicity

Adaptation of Nematodes (within habitat)

Helminths (Roundworms-Intestinal Nematodes)-*Ascaris Lumbricoides*

CAUSATIVE AGENT

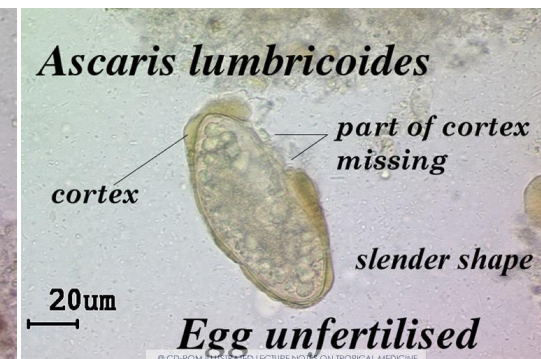
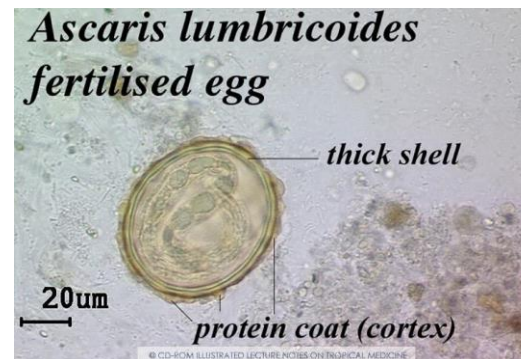
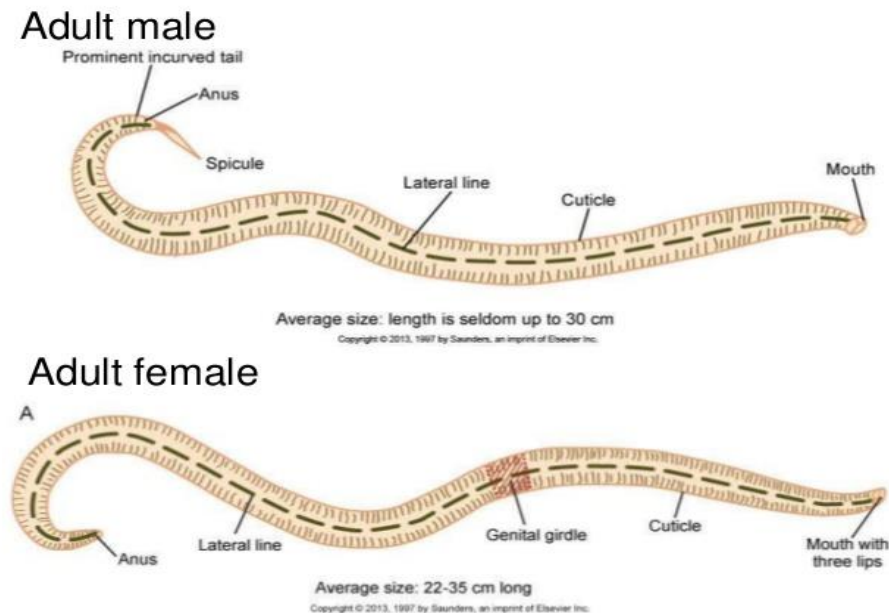
- *Ascaris lumbricoides* (called giant roundworm).
- Ascariasis occurs worldwide, mostly in tropical and subtropic

TRANSMISSION & POSSIBLE SOURCES OF INFECTION

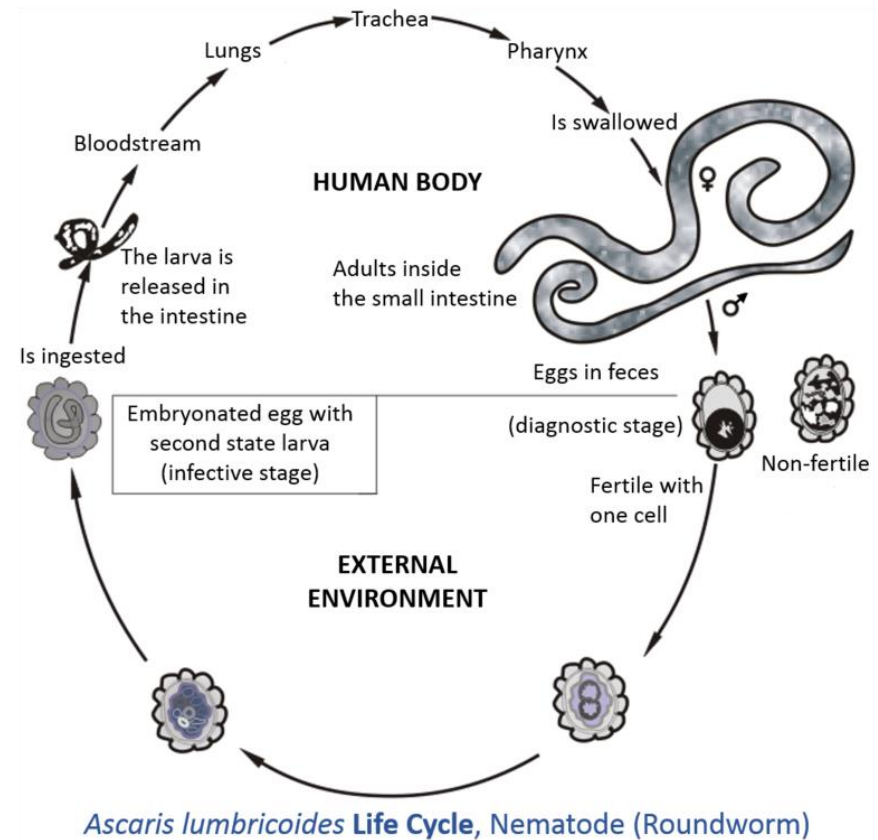
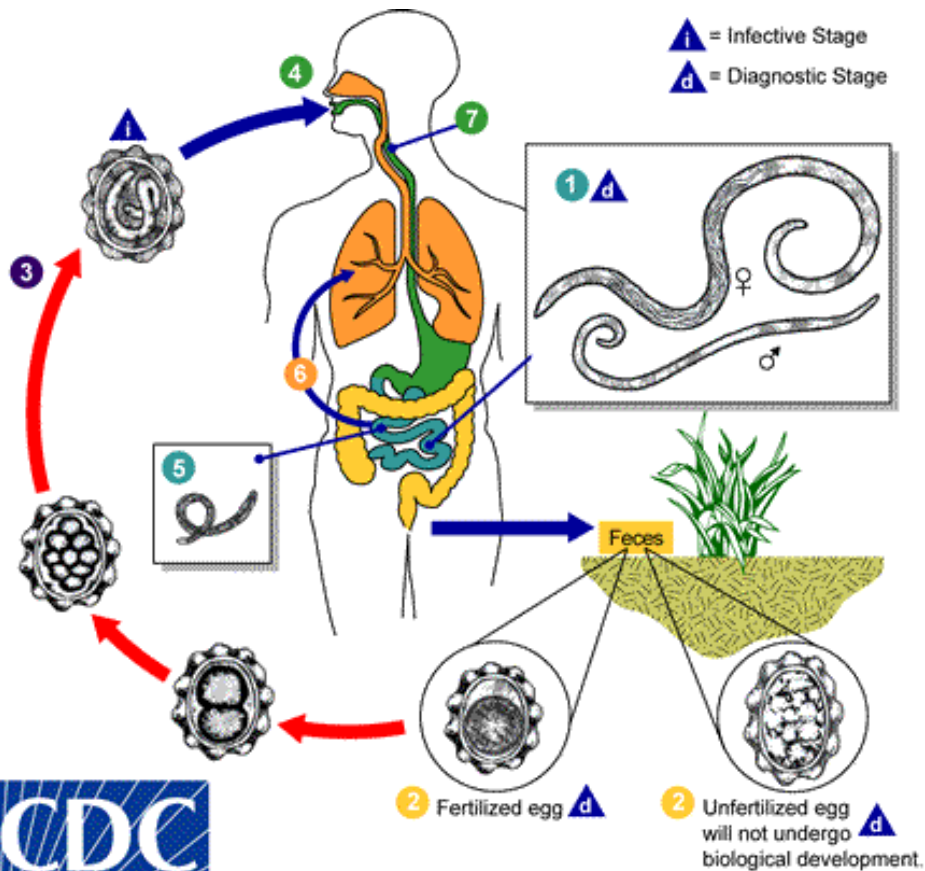
SYMPTOMS

DIAGNOSIS

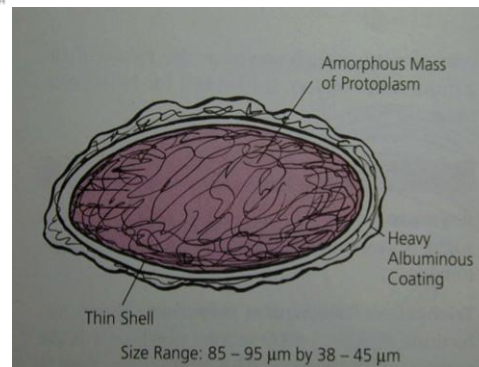
TREATMENT, PREVENTION & CONTROL



Lifecycle of *Ascaris Lumbricoides*



Ascaris lumbricoides Life Cycle, Nematode (Roundworm)



Helminths (Roundworms-Intestinal Nematodes)-Trichuris Trichiura

CAUSATIVE AGENT

–whipworm, is a very common in tropical Asia and, to a lesser degree, in Africa and South America.

TRANSMISSION & POSSIBLE SOURCES OF INFECTION

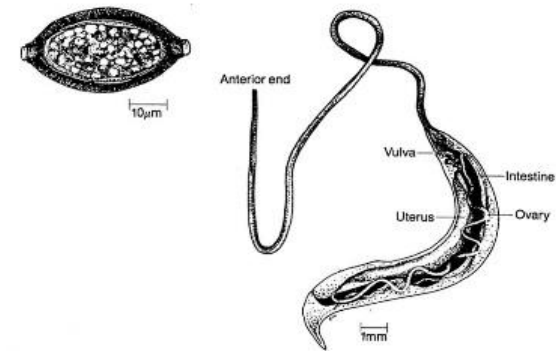
SYMPTOMS

DIAGNOSIS

TREATMENT, PREVENTION & CONTROL



Trichuris trichiura – Whipworm

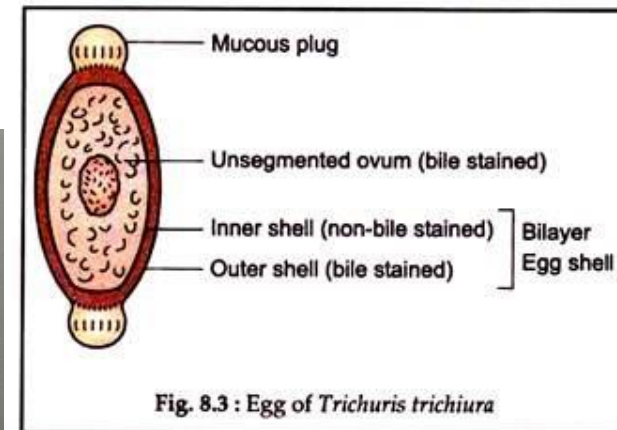
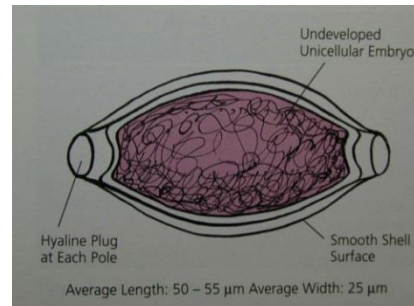
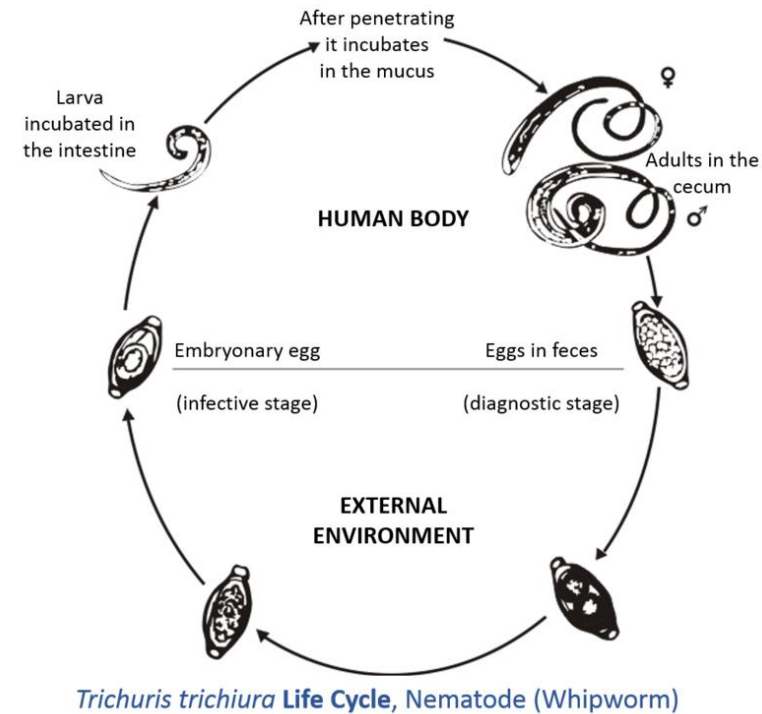
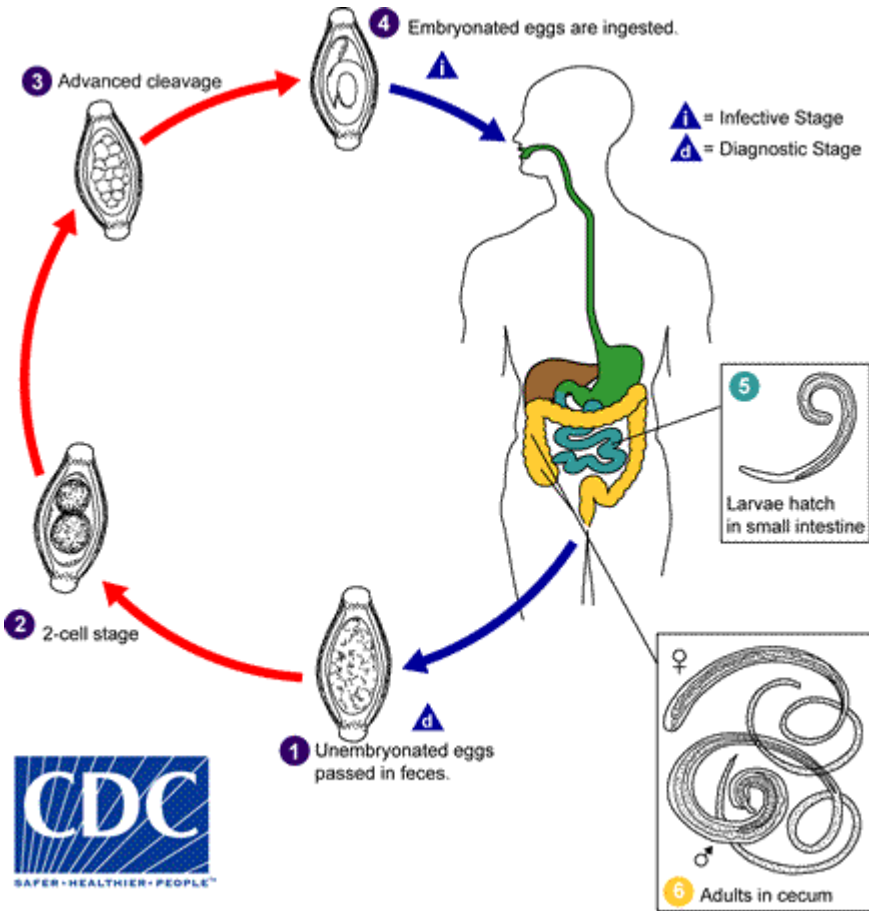


Female whipworm (*Trichuris trichiura*) and unembryonated egg.

Figure 5: *Trichuris trichiura*.



Lifecycle of *Trichuris Trichiura*



Helminths (Roundworms-Intestinal Nematodes)-Enterobius Vermicularis

CAUSATIVE AGENT

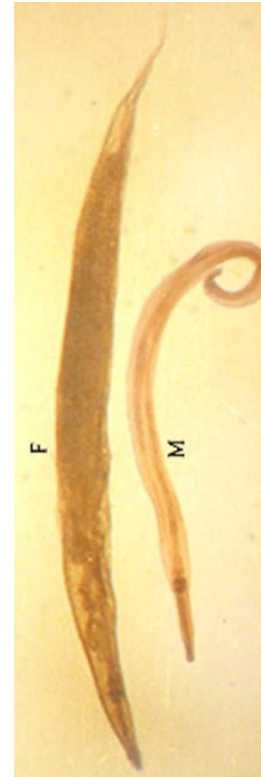
–Pinworm infection is primarily a pediatric condition

TRANSMISSION & POSSIBLE SOURCES OF INFECTION

SYMPTOMS

DIAGNOSIS

TREATMENT, PREVENTION & CONTROL



Enterobius vermicularis – Pinworm

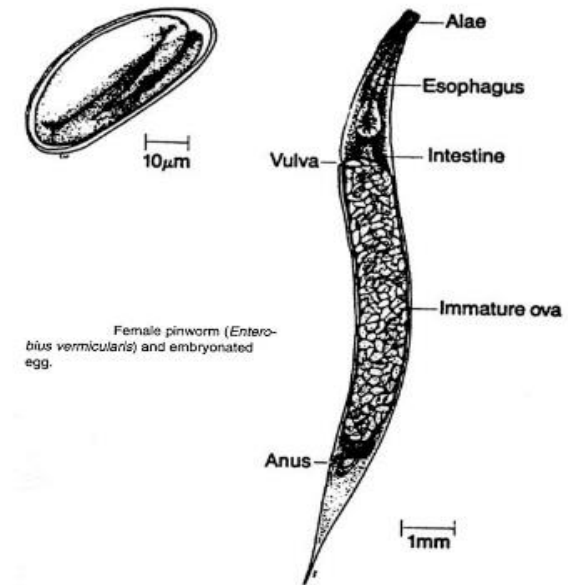
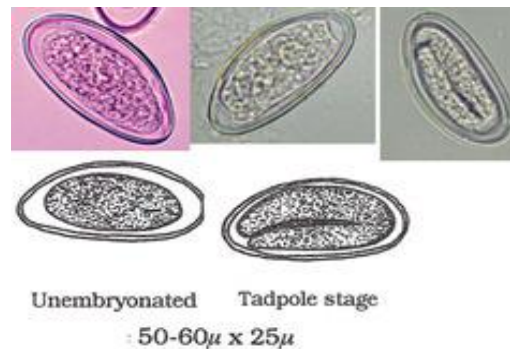


Figure 2: *Enterobius vermicularis*.



Lifecycle of *Enterobius Vermicularis*



i Embryonated eggs ingested by human

2

3 Larvae hatch in small intestine

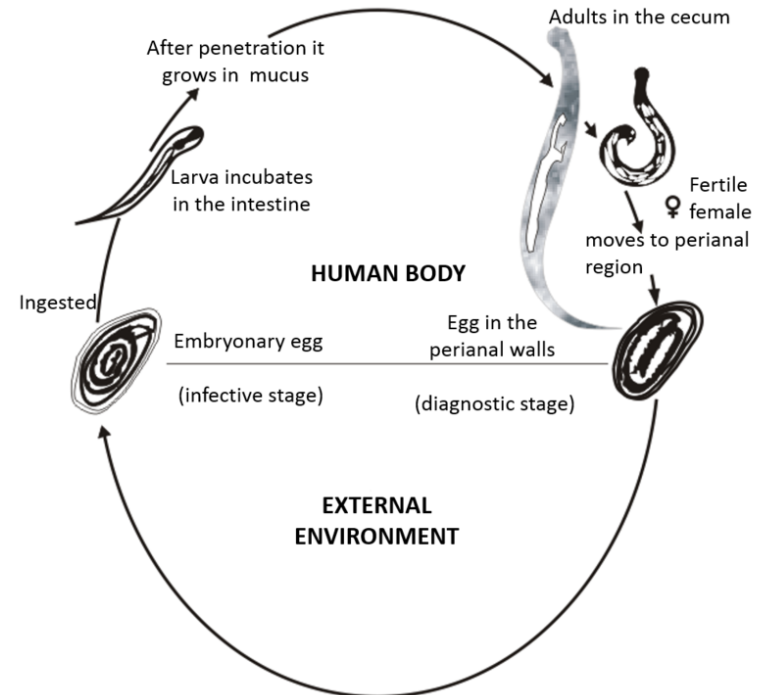
d Eggs on perianal folds
Larvae inside the eggs mature within 4 to 6 hours.

1

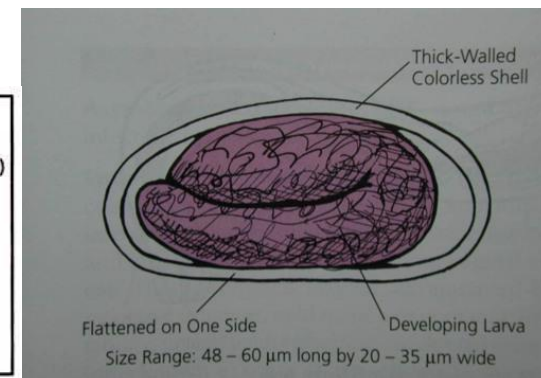
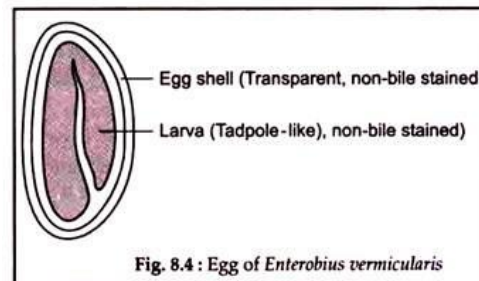
Adults in lumen of cecum **4**

5 Gravid ♀ migrates to perianal region at night to lay eggs

i = Infective Stage
d = Diagnostic Stage



Enterobius vermicularis Life Cycle, Nematode (Pinworm)



Helminths (Roundworms-Intestinal Nematodes)-Hookworm

CAUSATIVE AGENT

- bloodsucking roundworm infections include ancylostomiasis and necatoriasis.
- Habitat in the small intestine of their host, a bird or a mammal such as a dog, cat, or human.

TRANSMISSION & POSSIBLE SOURCES OF INFECTION

SYMPTOMS

DIAGNOSIS

TREATMENT, PREVENTION & CONTROL

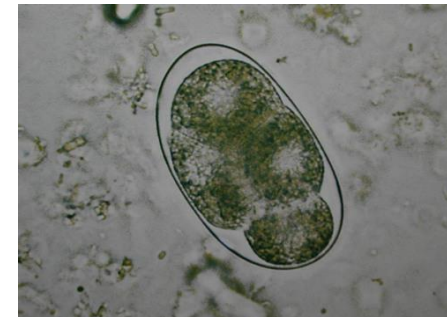
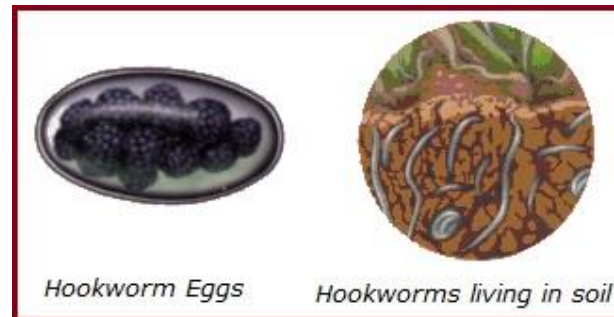
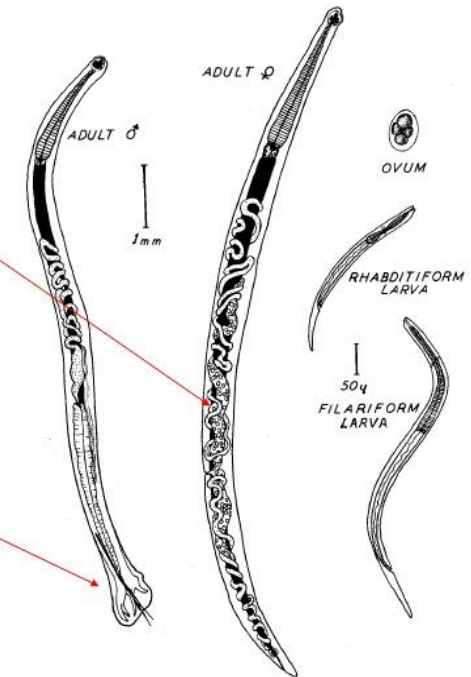
Females:

9-13 mm long with egg-filled uterus

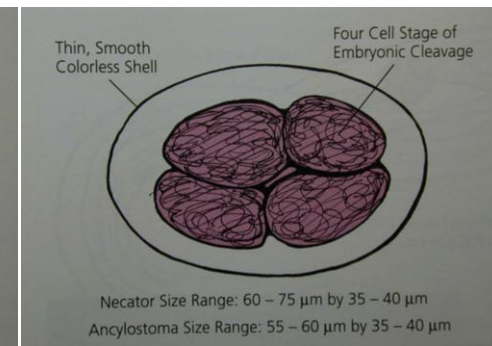
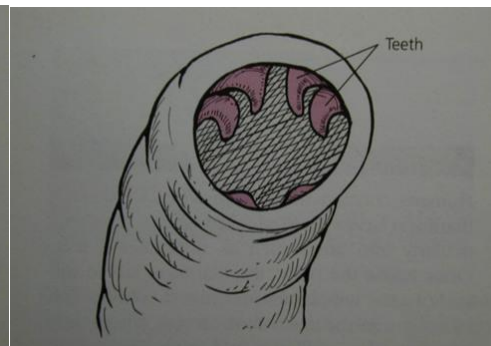
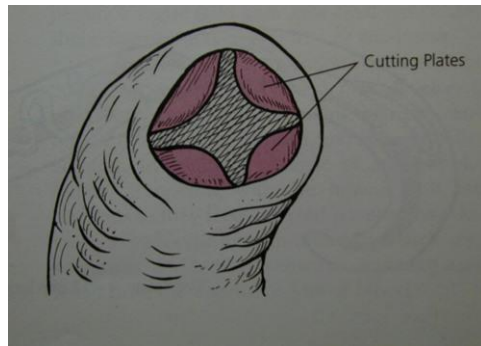
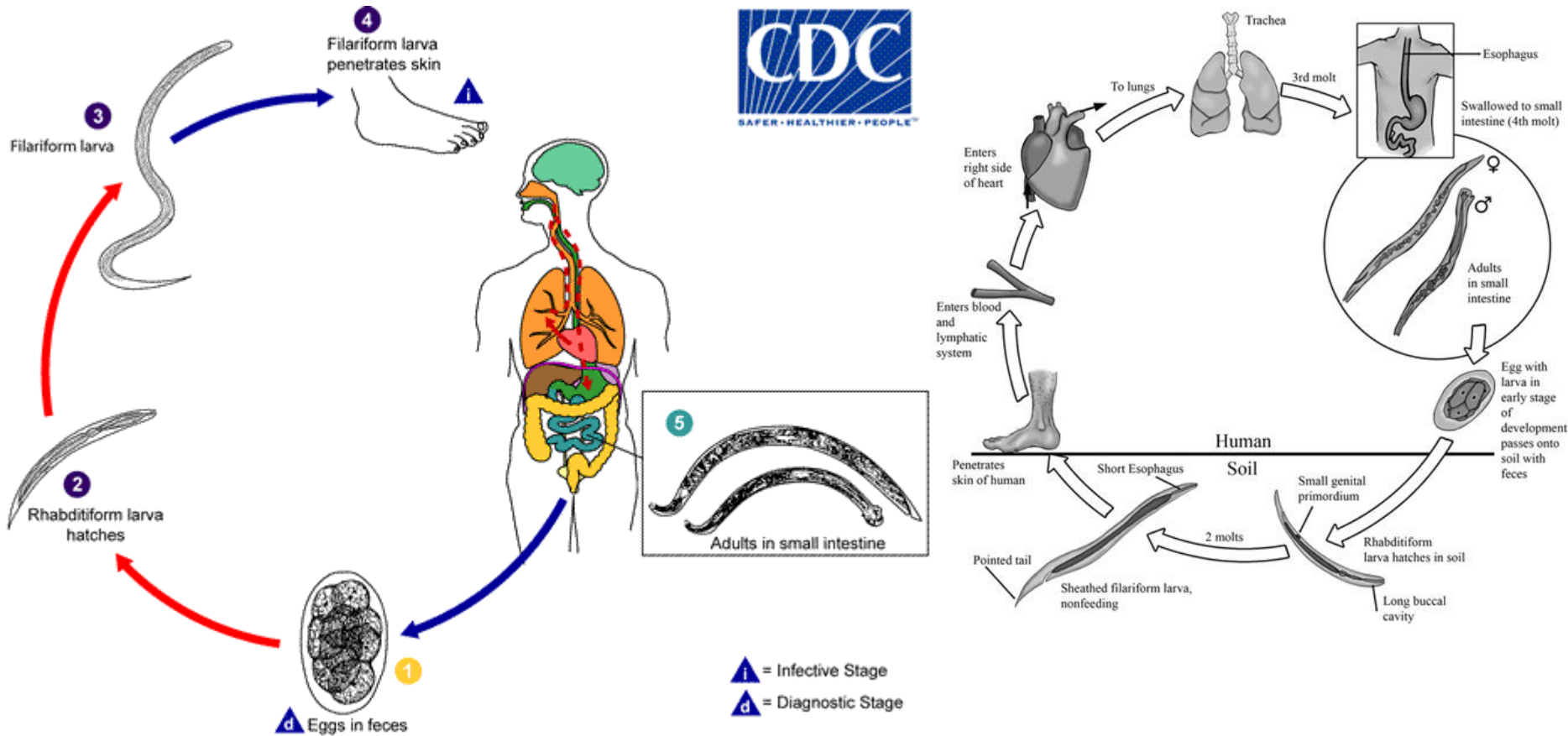
Male hookworms:

7-11 mm long

Posterior end forms a



Lifecycle of Hookworm



Helminths (Roundworms-Intestinal Nematodes)-Strongyloides Stercoralis

CAUSATIVE AGENT

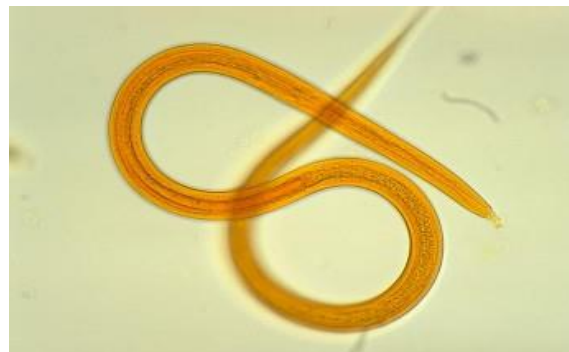
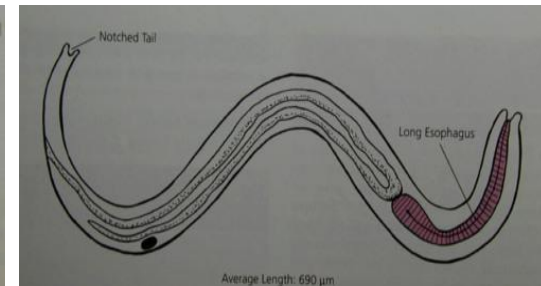
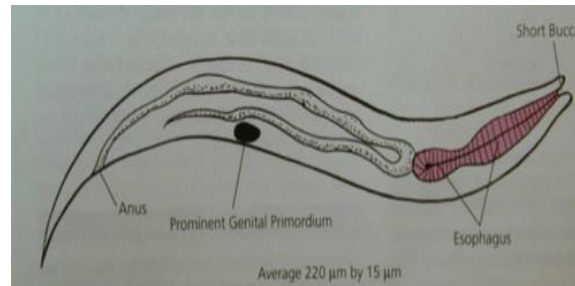
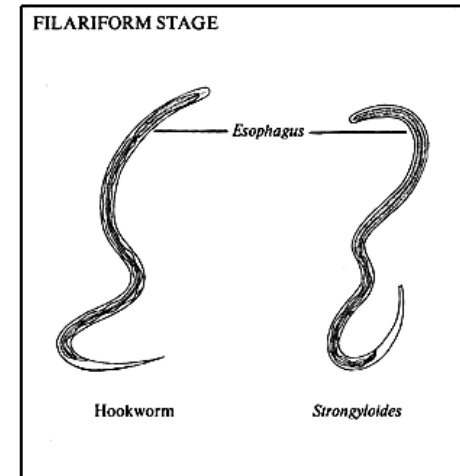
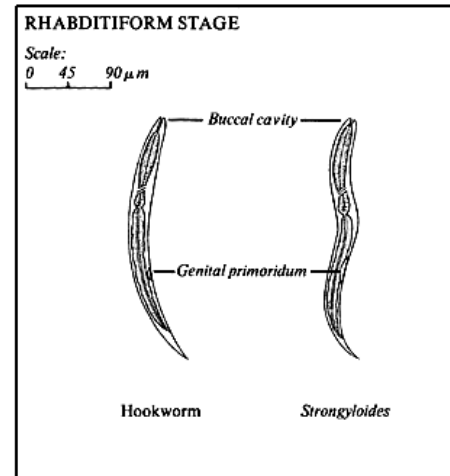
–Threadworm. In the UK and Australia,. The parasite has 2 species of the parasitic nematode Strongyloides Rhabditiform Larvae and Filariform Larvae.

TRANSMISSION & POSSIBLE SOURCES OF INFECTION

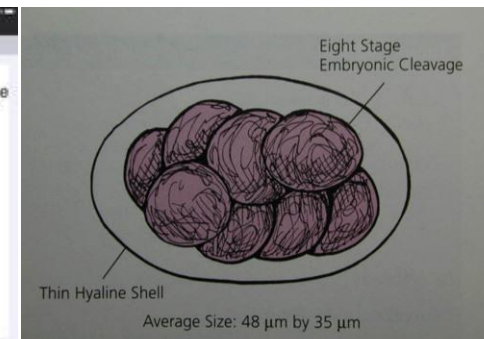
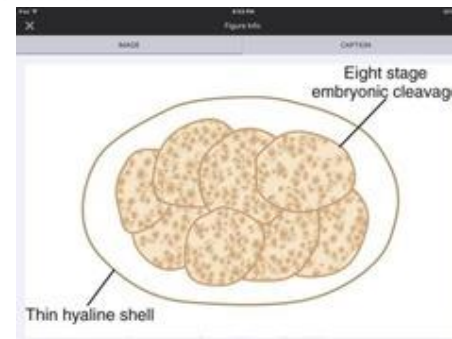
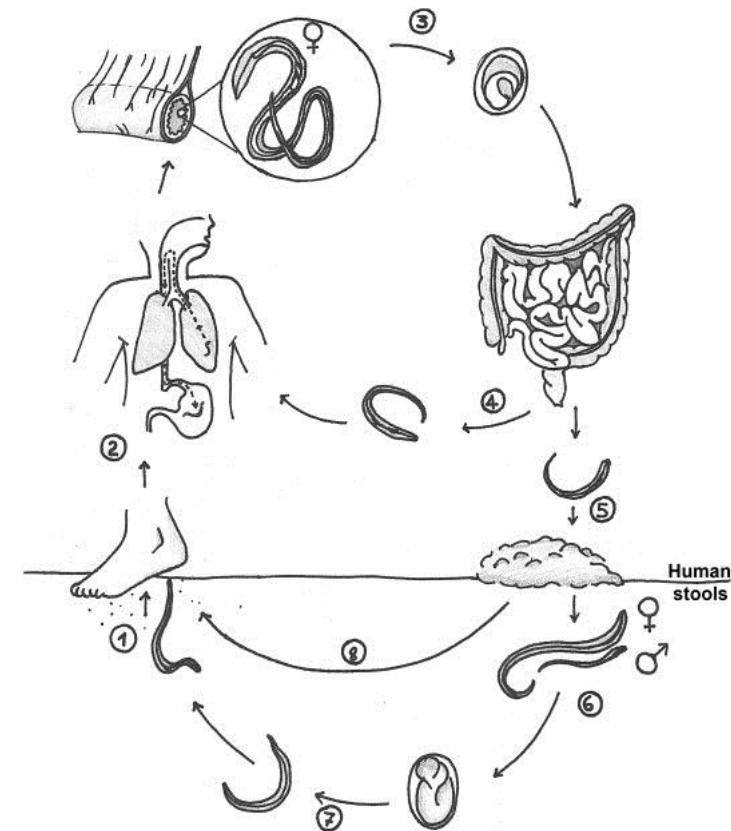
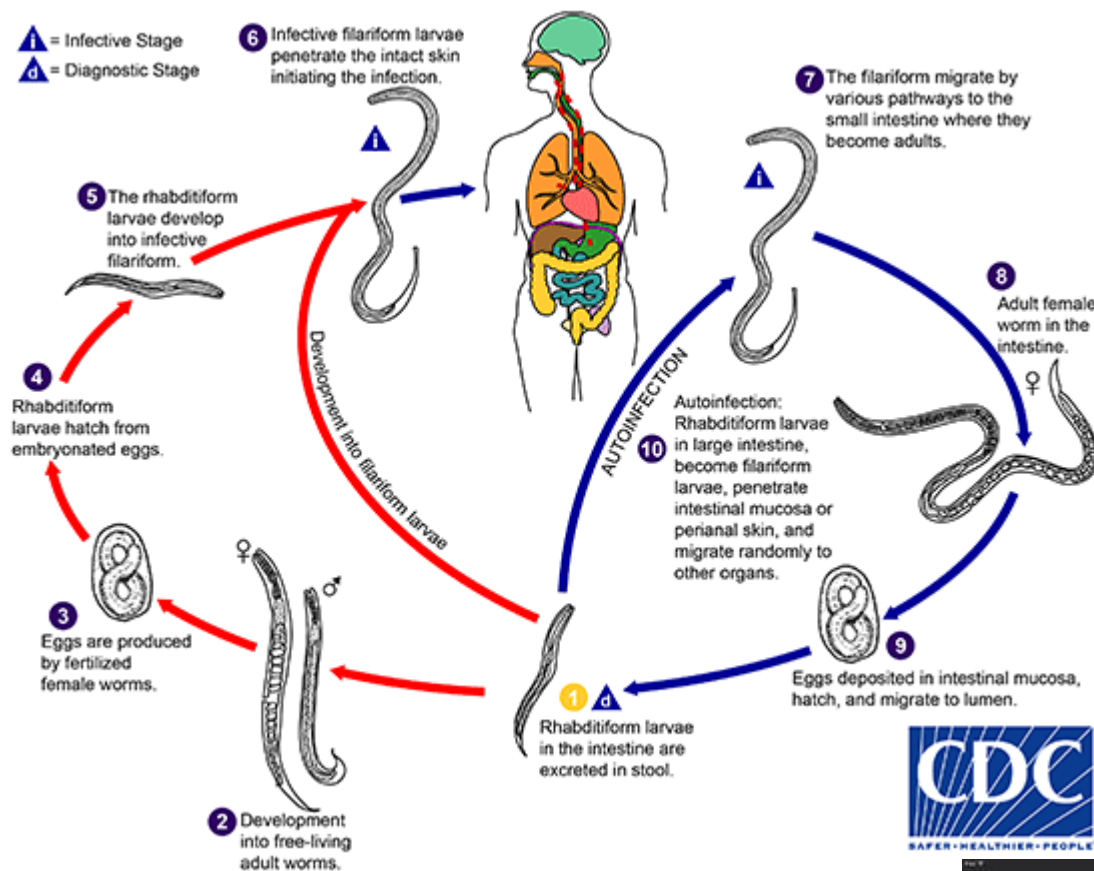
SYMPTOMS

DIAGNOSIS

TREATMENT, PREVENTION & CONTROL



Lifecycle of *Strongyloides Stercoralis*



Helminths (Roundworms-Tissue Nematodes)-*Dracunculus medinensis*

CAUSATIVE AGENT

– *Dracunculus medinensis* or Guinea worm is a parasite of the dog, horse, cow, wolf, leopard, monkey, and baboon that also commonly infects man. The majority of human infections occur in parts of West Africa, East Africa, and India. The disease is caused by female.

TRANSMISSION & POSSIBLE SOURCES OF INFECTION

SYMPTOMS

DIAGNOSIS

TREATMENT, PREVENTION & CONTROL

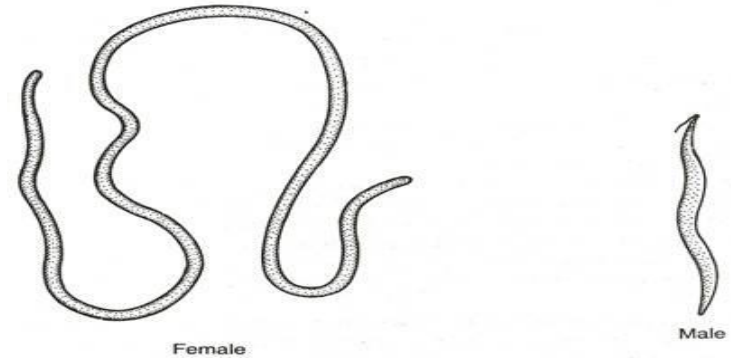
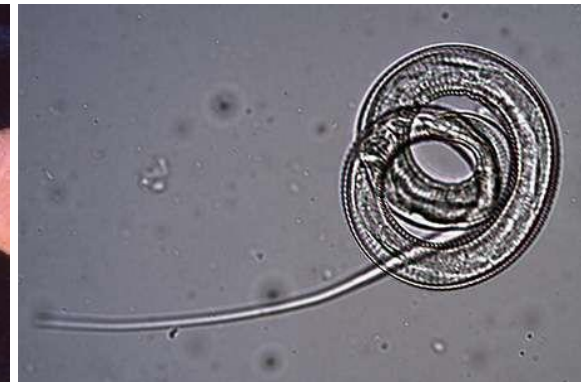
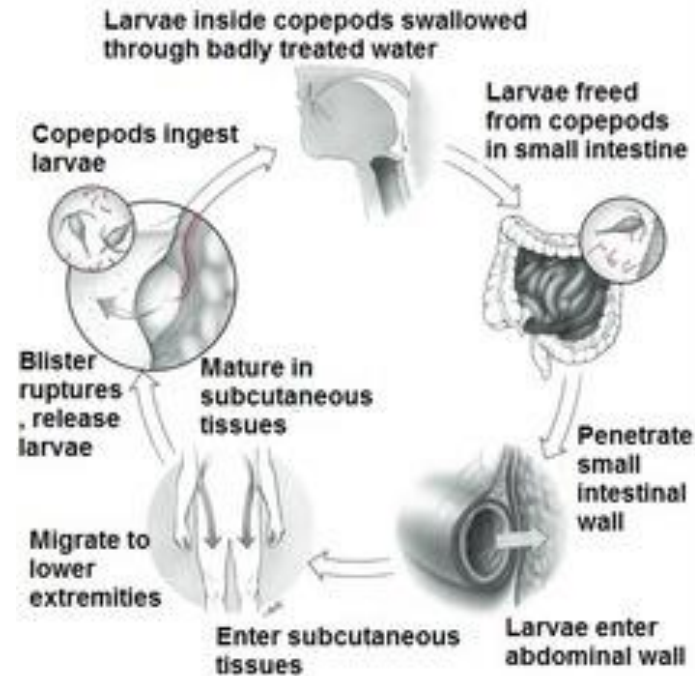
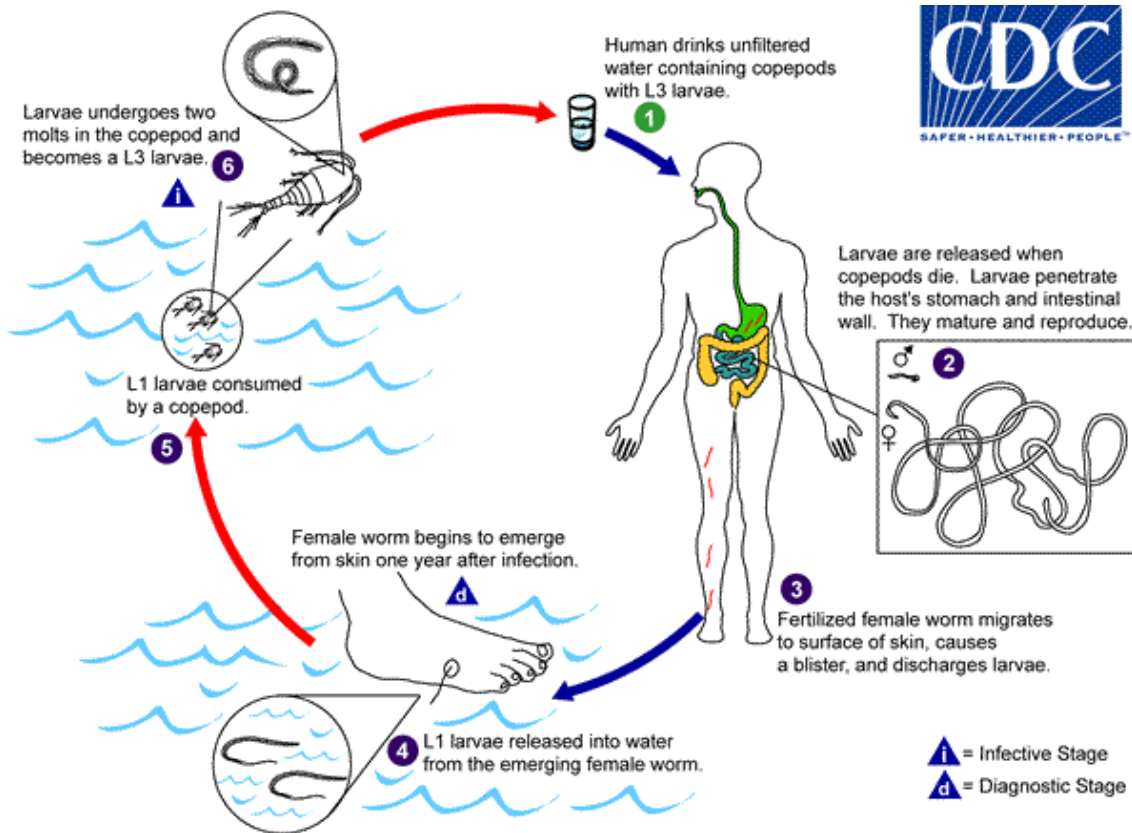


Fig. 201. Morphology of *Dracunculus medinensis*



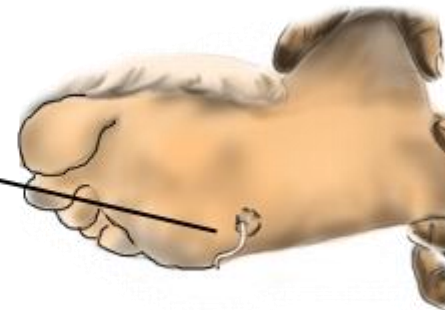
Lifecycle of *Dracunculus medinensis*



Dracunculus medinensis Vector :
Cyclops (water flea).



Dracunculus worm seen exiting from foot to release larvae



Helminths (Roundworms-Tissue Nematodes)-Wuchereria Bancrofti

CAUSATIVE AGENT

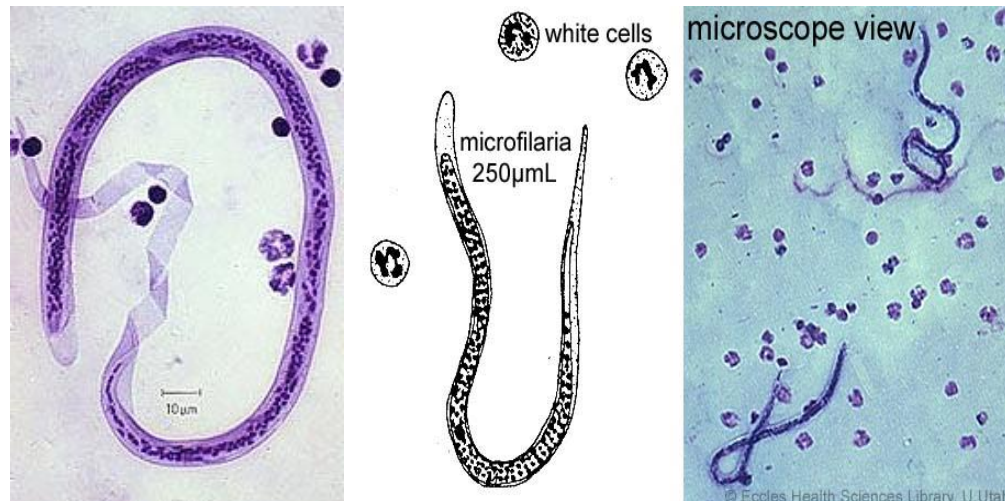
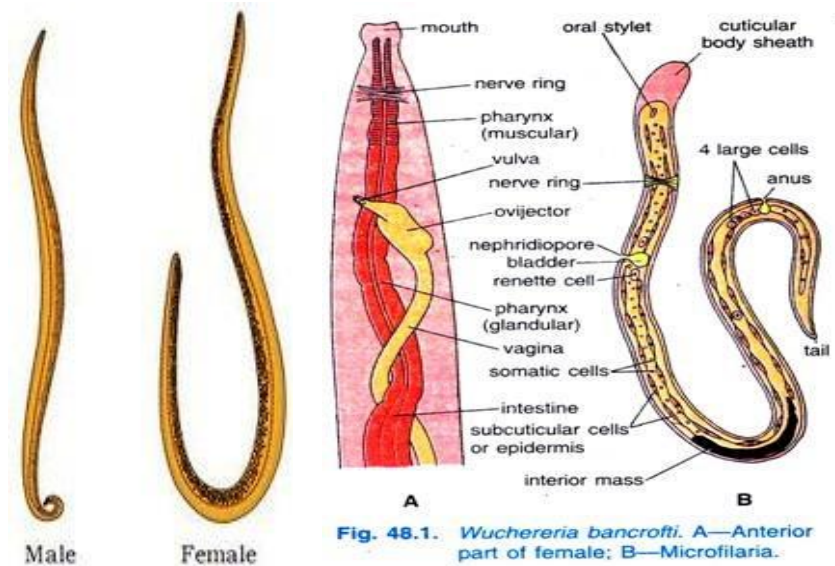
- a major cause of lymphatic filariasis. It is one of the three parasitic worms, together with *Brugia malayi* and *B. timori*, that infect the lymphatic system.
- primarily in Central Africa and the Nile delta, South and Central America, the tropical regions of Asia including southern China, and the Pacific islands.

TRANSMISSION & POSSIBLE SOURCES OF INFECTION

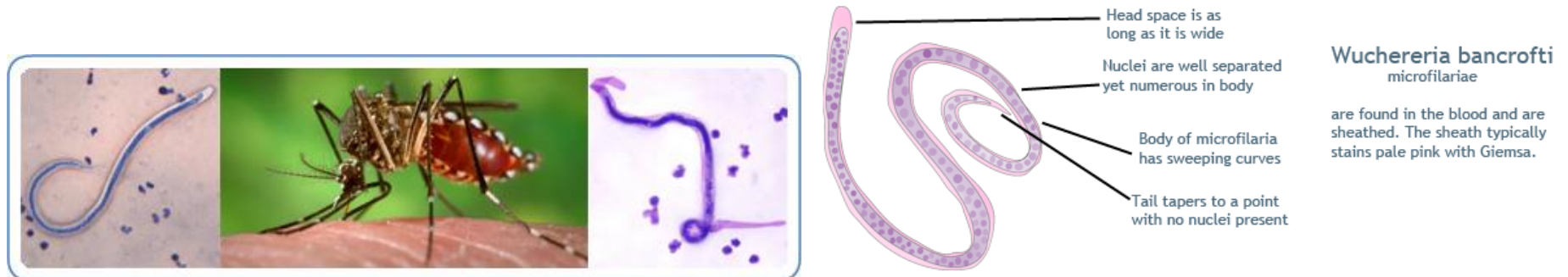
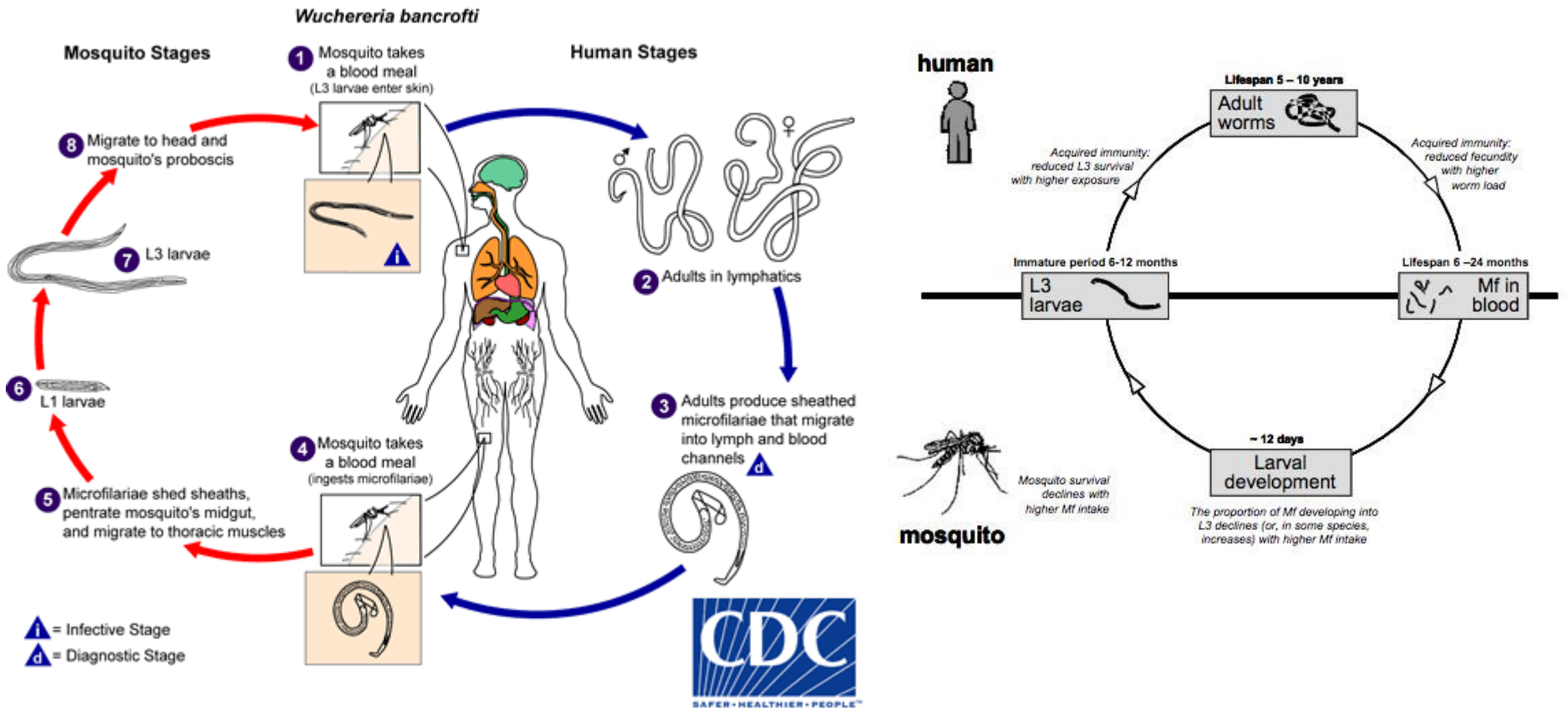
SYMPTOMS

DIAGNOSIS

TREATMENT, PREVENTION & CONTROL



Lifecycle of *Wuchereria Bancrofti*



Helminths (Roundworms-Tissue Nematodes)-Loa Loa

CAUSATIVE AGENT

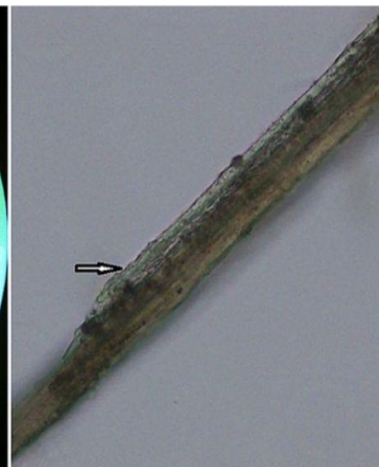
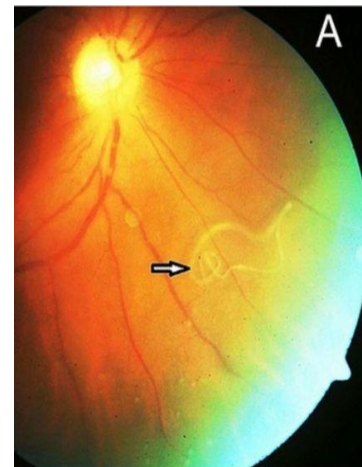
- African eye worm, inhabit the lymphatics and subcutaneous tissues of humans).
- It is transmitted through the repeated bites of deerflies (also known as mango flies or mangrove flies) of the genus Chrysops.

TRANSMISSION & POSSIBLE SOURCES OF INFECTION

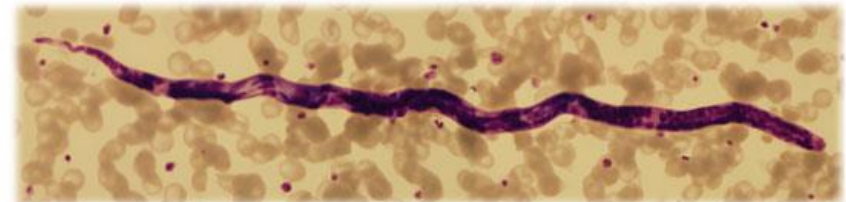
SYMPTOMS

DIAGNOSIS

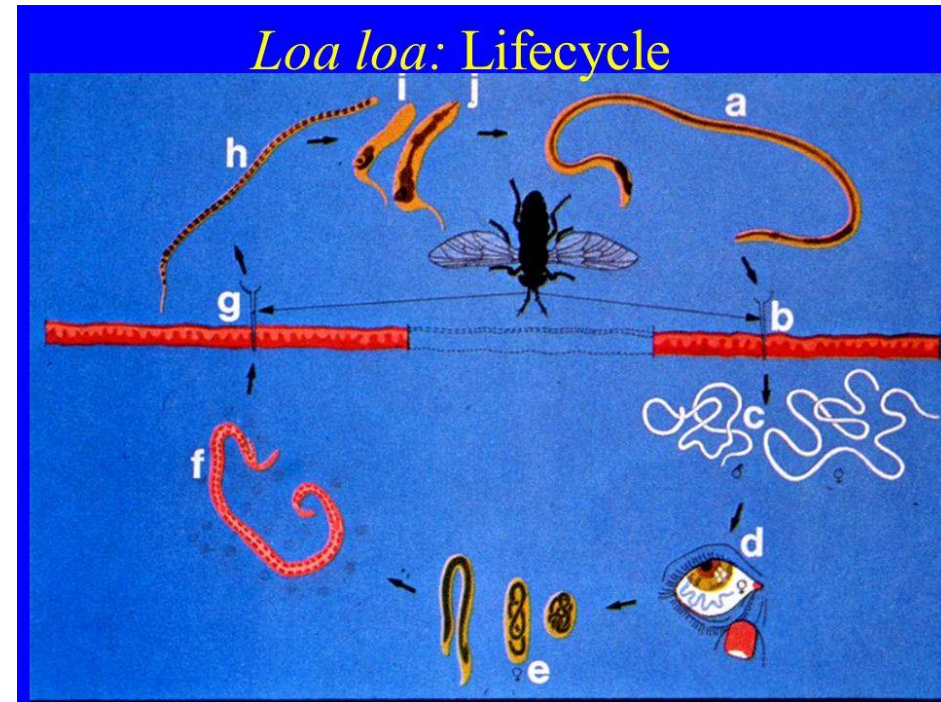
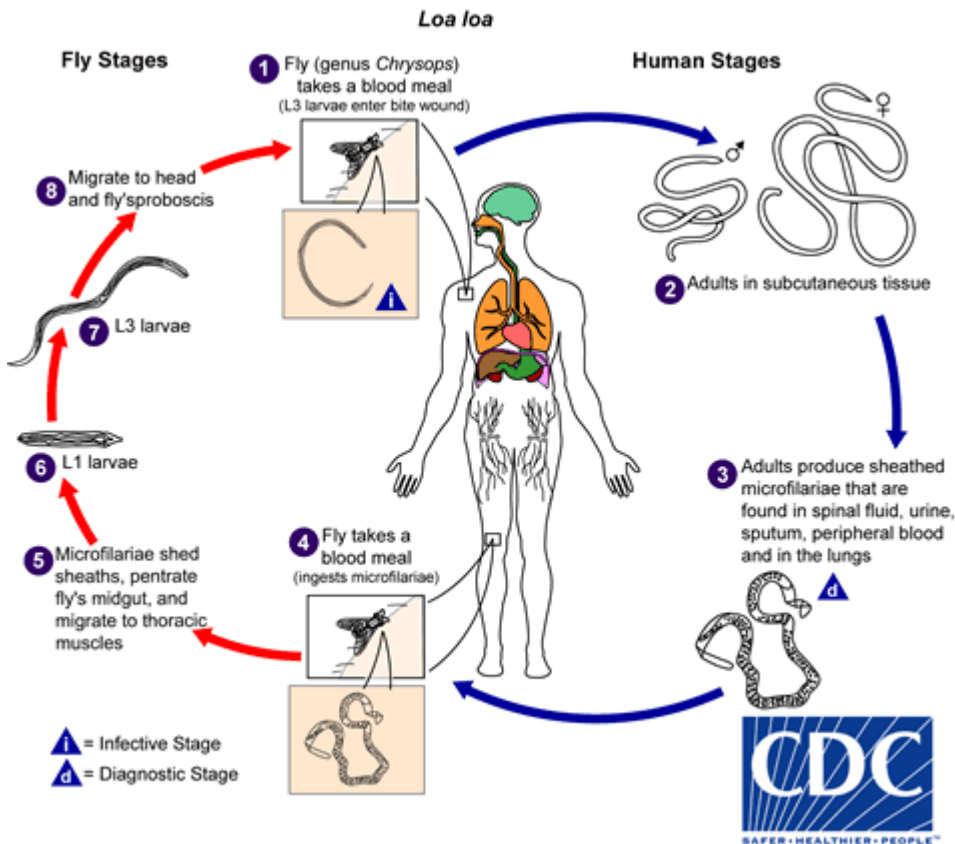
TREATMENT, PREVENTION & CONTROL



Loa loa microfilaria in peripheral blood smear - Geimsa stain



Lifecycle of *Loa Loa*



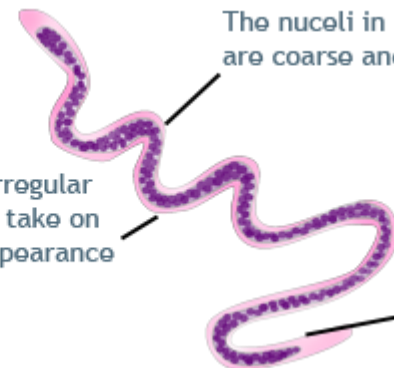
Loa Loa
microfilariae

Sheath stains lightly or not at all

The nuclei in the body are coarse and crowded at all

The body has irregular curves and can take on a corkscrew appearance

Nuclei extend to tip of tail



Helminths (Roundworms-Tissue Nematodes)-Onchocerca volvulus

CAUSATIVE AGENT

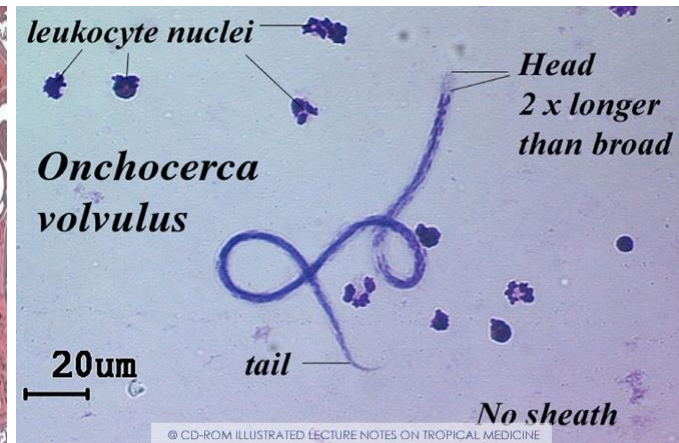
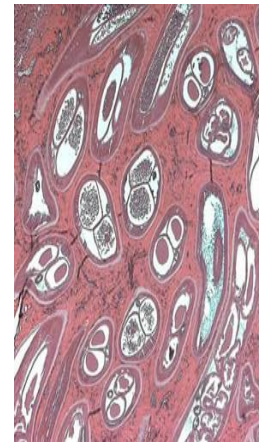
- Onchocerciasis, or African River Blindness, is a neglected tropical disease (NTD)

TRANSMISSION & POSSIBLE SOURCES OF INFECTION

SYMPTOMS

DIAGNOSIS

TREATMENT, PREVENTION & CONTROL



Lifecycle of *Onchocerca volvulus*

