

الكلية: الطب

القسم او الفرع: الاحياء المجهرية

المرحلة: الثالثة

أستاذ المادة: م.م سارة أياد أحمد

اسم المادة باللغة العربية: الطفيليات الطبية

اسم المادة باللغة الإنكليزية: **Medical Parasitology**

اسم المحاضرة السادسة باللغة العربية: الديدان الاسطوانية

اسم المحاضرة السادسة باللغة الإنكليزية: **Nematodes**

محتوى المحاضرة السادسة

Dr. Sara Ayad  
Practical parasitology



**Phylum Nematoda**



# General Characteristics of Nematodes :

- Important human parasites of the phylum Nematelminths ➤
- Nematodes are elongated worm, cylindrical, unsegmented and tapering at both ends . ➤
- Long, thin thread like worms with a thick highly resistant coating (the cuticle) . ➤
- Their body has a cavity or pseudocoelom ➤
- They variable in size, measure <1 cm to about 100 cm . ➤
- Sex separate and male is smaller than female and its posterior end is curved ventrally . ➤
- They have complete digestive system consist of mouth part (may or may not contain teeth) , esophagus , Intestine and finally anus. ➤



# Classification of Nematodes

## Intestinal (small intestine)

- *Ascaris lumbricoides*
- *Ancylostoma duodenale*
- *Necator americanus*
- *Strongyloides stercoralis*
- *Trichinella spiralis*

## (large intestine)

- *Enterobius vermicularis*
- *Trichuris trichura*

# Classification of Nematodes

## Tissue nematodes(Adult forms) (Larval forms)

Wuchereria bancrofti ➤

Borgia malayi ➤

Loa loa ➤

Onchocerca volvulus ➤

Dracunculus medinensis ➤

Toxocara spp ➤

Trichinella spiralis ➤

# General Life Cycle of Nematodes

In most species, sexual reproduction by adult nematodes occurs within an infected definitive host

Eggs are laid by the female and pass from the host into the external environment

Embryonated eggs either become infectious or they hatch giving larva which passes through developmental stages (Eggs to Larva 1 –L2- L3 –L4 –Adult) (Rhabditiform larvae)

Human infection occurs by ingestion of eggs

# Trichuris Trichiura (Tricocephalus trichuris)

Geohelminths ➤

The soil-transmitted helminths ➤

Group of intestinal parasites belonging to the phylum nematode ➤

Transmitted primarily through contaminated soil . ➤

Disease : Trichuriasis ➤

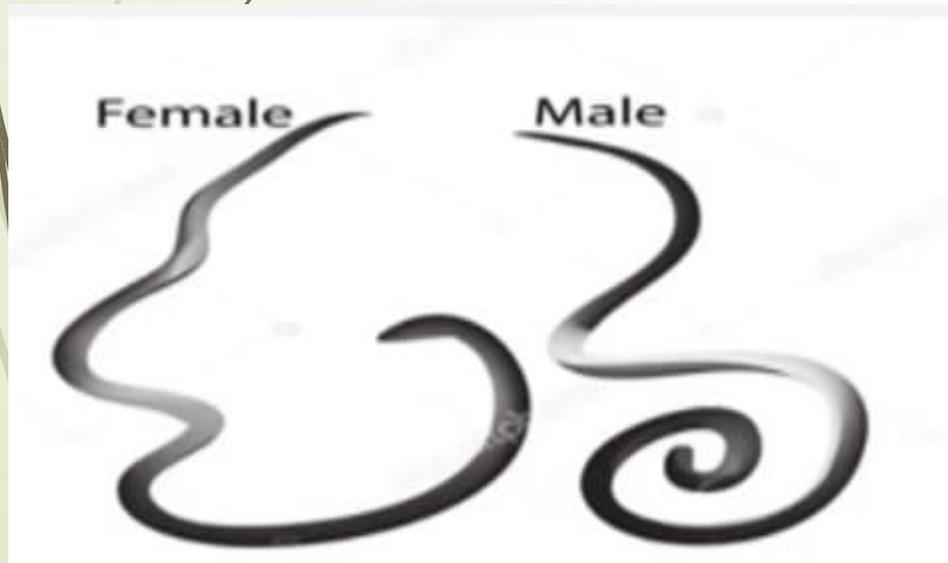
Geographical Distribution :cosmopolitan (worldwide distribution ). ➤

# Morphology

## Adult

The worm has a whip-like anterior end and thick posterior end

The male has a 360° at the posterior end.



## Egg

Oval, Thick-shelled

Barrel-shaped with bipolar plug like prominences

Bile stained; yellowish brown in color



# Morphology

Adult worm : ➡

Structure : ➡

Whip like appearance ➡

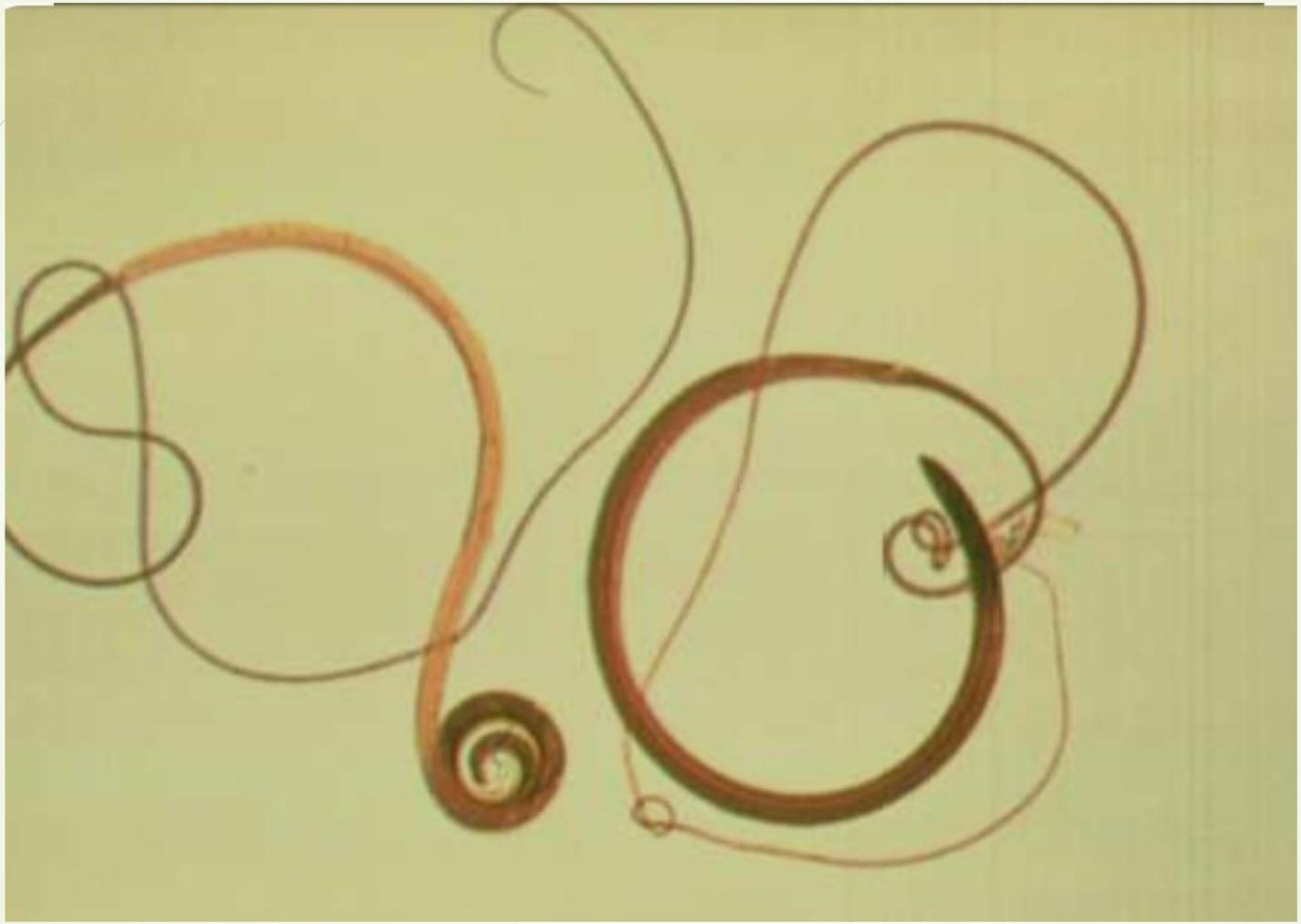
Narrow anterior esophageal end ➡

Shorter and thicker posterior end ➡

Attach to the host through the slender anterior end ➡

Feed on tissue secretions instead of blood ➡







# Clinical picture

Light infection : usually do not give rise to recognizable clinical manifestations. ➤

Patients with very heavy chronic Trichuris infection presents a characteristics clinical picture consisting of : ➤

Frequent, small, blood streaked diarrheal stools or dysentery ➤

Lower Abdominal pain and vomiting ➤

Anemia and weight loss ➤

Rectal prolapse ➤

Occasionally appendicitis ➤



Anterior ends lodge within the mucosa this leads to cell inflammation and irritation of mucosa with haemorrhage and hyperaemic.

Submucosal abscesses and ulcers due to secondary bacterial infection.

This leads to abdominal pain , rectal bleeding , diarrhea , rectal tenesmus ( feeling of incomplete defecation) and rectal prolapse.

Rectal bleeding leads to Anemia...due to blood loose from the colon.

Caecum filled with adult worm (*Trichuris trichura*)





# Life cycle

**Habitat ...** Caecum and adjacent parts ➤

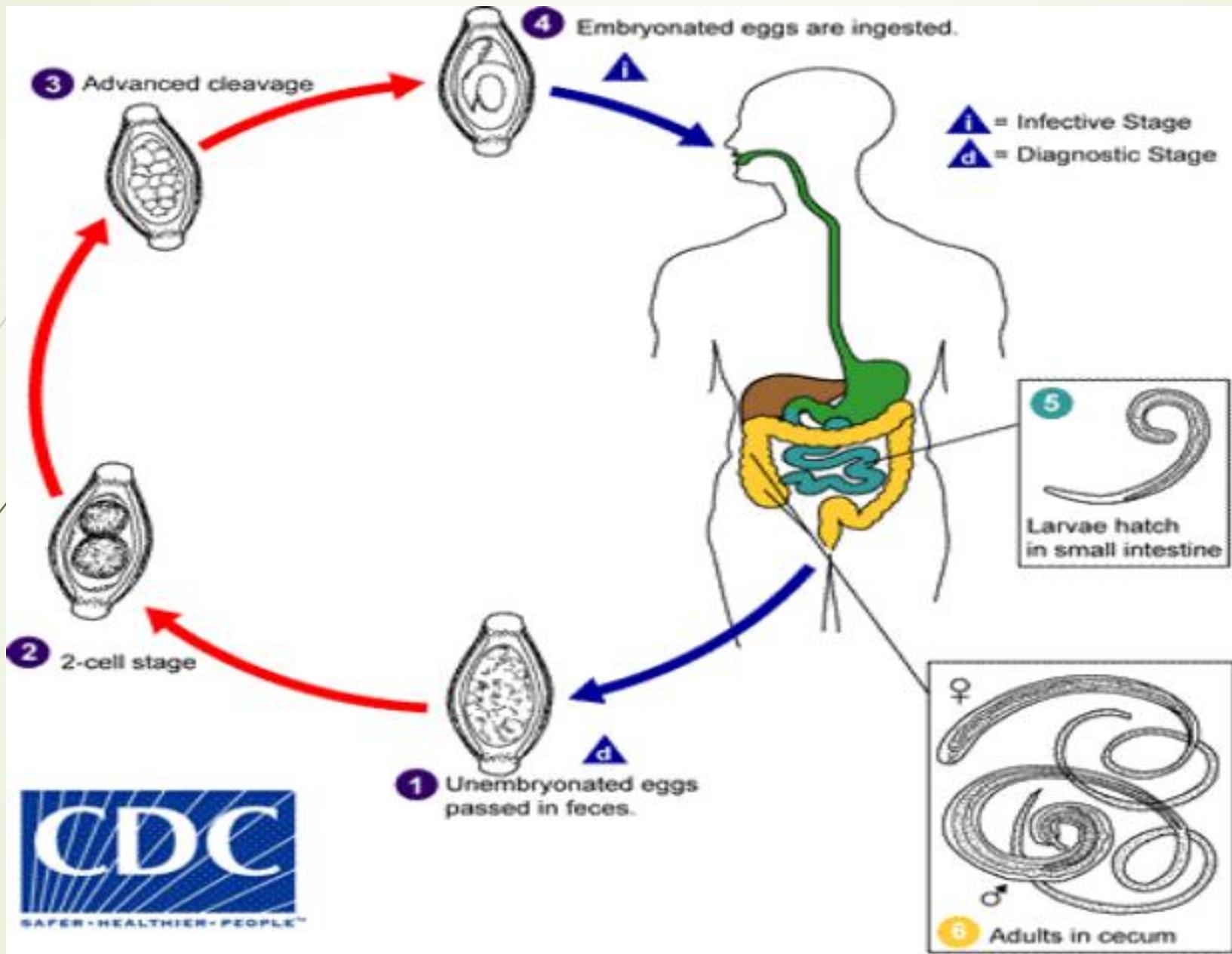
Adult worm  
attached to the wall of large intestine ,head(thin part)embedded in mucosa ,posterior part(thick part) lie free in the lumen .

**Definitive host...**man only ➤

**Infective stage...**embryonated eggs ➤

**Mode of infection...**ingestion of embryonated eggs in contaminated food or drink. ➤

Hand contact with contaminated soil with eggs ➤





# Diagnosis

## Stool Examination

Finding the eggs and/or  less commonly adult worm in the feces .

## Proctoscopy

For examination of rectal  mucosa during prolapse to see worms .

## Transmission ➤

Via feco-oral route ➤

Touching the soil ➤

## Human cycle ➤

Female begins to oviposit 60 to 70 days after infection ➤

Releases thousands of fertilized eggs daily (3,000 to 20,000 egg per day) ➤

## Treatment ➤

Mebendazole is very effective . ➤

Iron supplement for anemia **Prevention** ➤

1-treatment of infected patient ➤

2-proper disposal of human feces and personal hygiene ➤

3-Avoid children playing with soil



Answer the question:

**Trichuris is specific with : ➡**

- A. Diarrhea ➡
- B. Abdominal pain ➡
- C. Rectal prolapse ➡
- D. Anemia ➡



Answer the question:

**Head of trichuris stay free in the lumen of large intestine?**

True or False

