

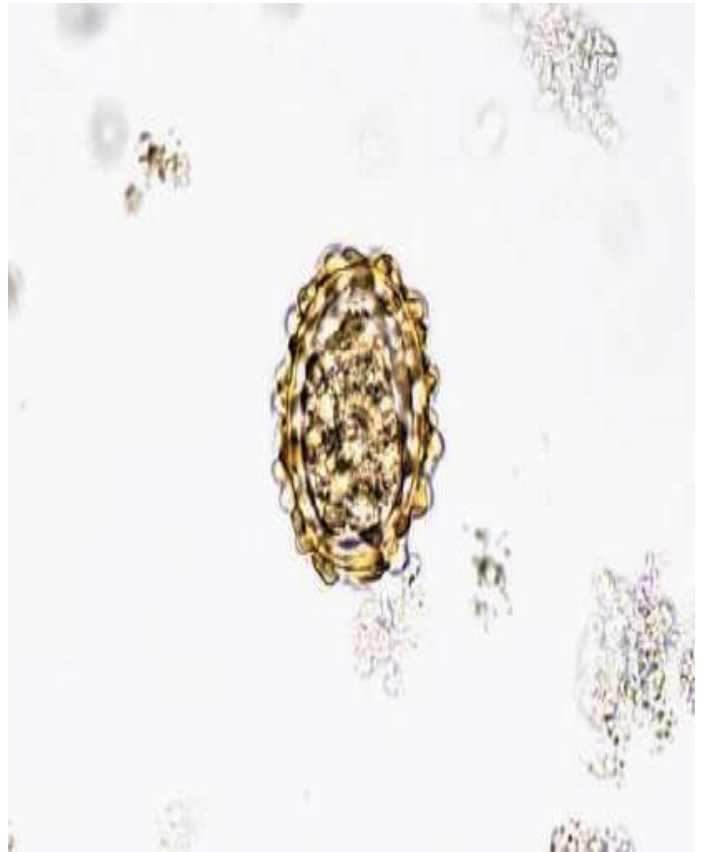
Parasitic infections of the GI tract

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ASCARIS LUMBRICOIDES

Morphology :

- Male adult worm measures 15-20 cm in length
- Female adult worm measures 20-40 cm in length
- The posterior end of male adult worm is curved while the female adult worm is straight
- Estimated prevalence more than 1 billion .



Mode of transmission

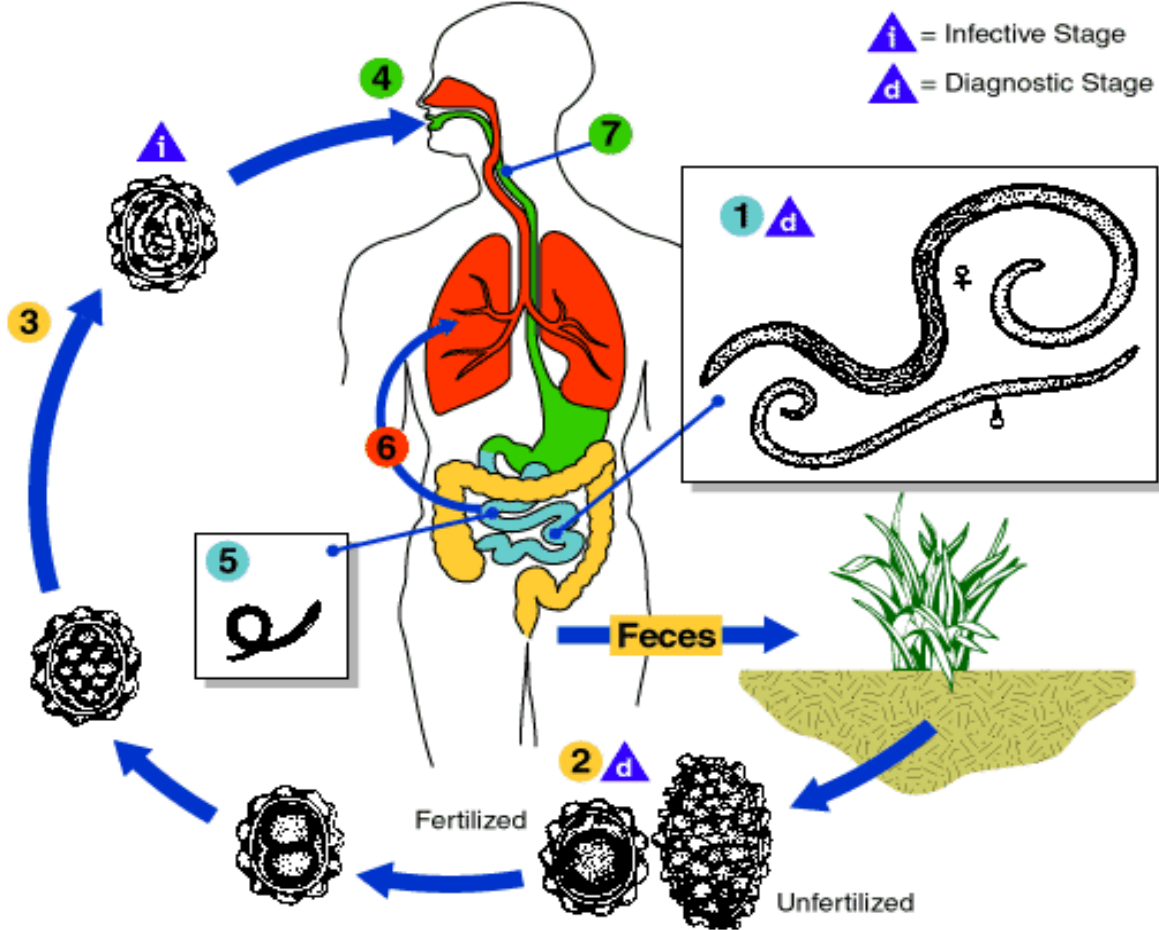
- Fecal – oral transmission
- Reinfection possible

Habitat

- small intestine

Infective stage

- Embryonated egg
- Each female produces 200,000 eggs a day
- Ascaris eggs are capable of survival within harsh environmental conditions, including dry or freezing temperatures.
- When ingested they hatch in small intestine , migrate through the venous system to lungs where they break into the alveoli then to the bronchial tree before they are swallowed and develop into mature worm in the intestine.



Pathogenesis and spectrum of disease

□ Disease is called **Ascariasis**

❖ Children and young adolescents have higher infection rate

□ Many *A. lumbricoides* infections are asymptomatic

□ Symptomatic:

➤ Pulmonary symptoms during migration (loeffler's syndrome which is respiratory symptoms, infiltrates and eosinophilia)

➤ GI manifestations: malnutrition, anemia, malabsorption, steatorrhea and intestinal obstruction, biliary obstruction and jaundice

Lab diagnosis

- Eosinophilia
- Microscopic examination (looking for eggs)
 - Direct smear (stool mixed with saline) identified for both (fertilized and infertile)eggs
- Adult worm may also be identified in feces
- Larvae may be found in sputum or gastric aspirates

THERAPY

oral Albendazole 400MG STAT

ENTEROBIUS VERMICULARIS (pinworm)

- ❑ Small, thin and white worm
- ❑ distributed worldwide and commonly identified in group settings of children ages 5 to 14 years
- ❑ The female worm measures 8 to 13 mm long with a pointed “pin” shaped tail (11000 ova and live for a month)
- ❑ The males measure only 2 to 5 mm in length, die following fertilization, and may be passed in feces.
- ❑ Habitat : large intestine (Caecum)

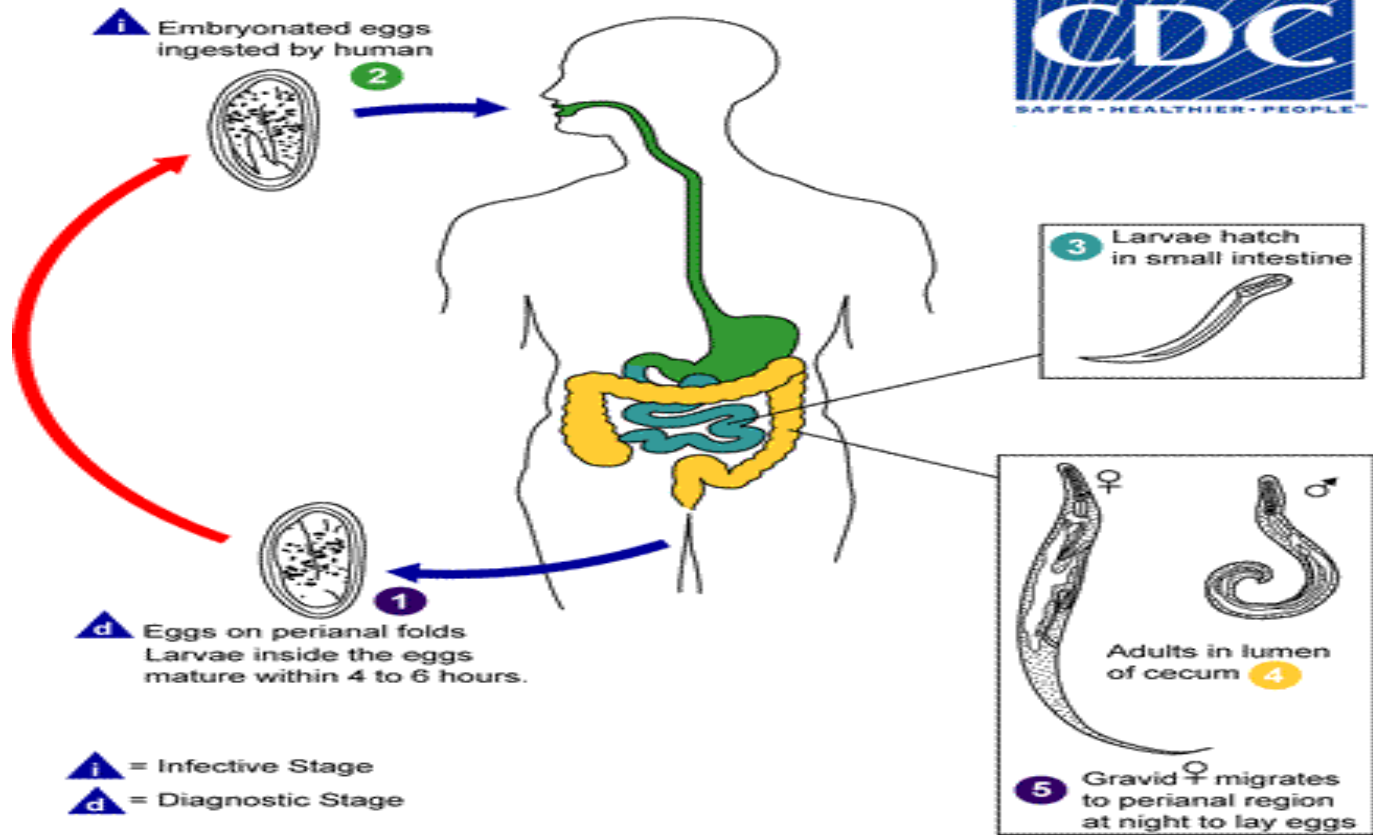


Mode of transmission

- Fecal-oral or inhalation (autoinfection)
- Sexual transmission has been reported
- direct; transmission occurs from an infected host to another
- Infections are associated with institutional crowding and families

Life cycle

- The female migrate at night to the perianal area where they deposit eggs.
- Eggs embryonate within hours and transferred from their by above mentioned routes

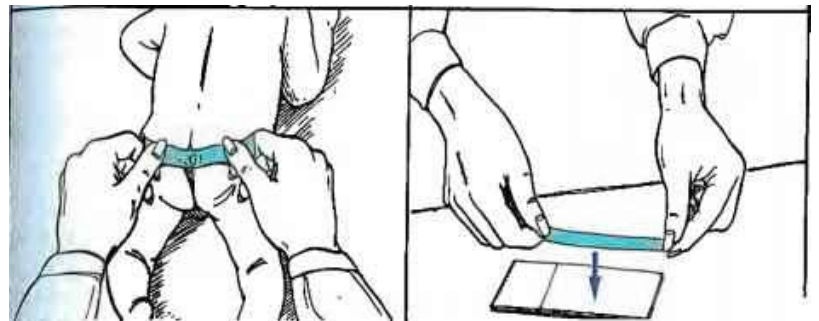
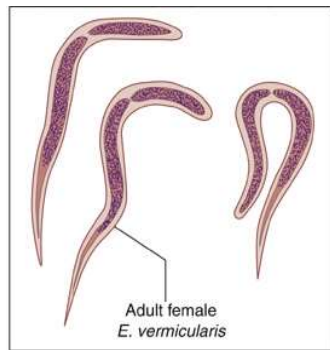
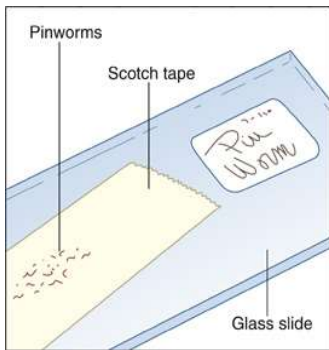


- **Clinically:**

- ❑ Infections with *E. vermicularis* are typically asymptomatic
- ❑ The most common complaint is perianal pruritus (itching)
- ❑ the parasite may migrate to other nearby tissues, causing appendicitis, oophoritis, ulcerative bowel lesions..
- **Diagnosis** is typically by microscopic identification of the characteristic flat-sided ovum
- the method that used for diagnosis of pinworm is a cellophane (Scotch) tape
- **Treatment:** albendazole 400 mg stat repeated at 2w



Enterobius vermicularis eggs



▪ **Hydatid cysts (*Echinococcus granulosus*):**

- Echinococcus is **the smallest** of all tapeworms (3 to 9 mm long)
- E. granulosus is a tapeworm found in the small intestine of the **definitive host**, the **canine**.
- Eggs are ingested by the **intermediate hosts** and include a variety of mammals including **sheep, cattle and humans**.
- **Humans** are typically **accidental hosts** and are considered a deadend since the life cycle of the organism is unable to continue in a human host leading to **hydatid cysts**

- Hydatid cysts (*Echinococcus granulosus*):

- Hydatid disease in humans is potentially dangerous depending on the size and location of the cyst.
- Majority occurs in liver and lungs and usually asymptomatic
- Some cysts may remain undetected for many years until they grow large enough to affect other organs.
- **Diagnosis:** incidentally by radiology , serology
- **Treatment:** surgery, albendazole

Cyst structure

At gross examination, the vesicles resemble a bunch of grapes



- ▶ Sites of hydatid cyst: liver (65%), lungs(25%), muscle, spleen, kidney, heart, bones, brain etc
- ▶ Hydatid cysts – slow growing : 2–3cm/yr

SCHISTOSOMIASIS

Is a human disease syndrome due to infection by *Schistosoma*

Most human schistosomiasis is caused by

1. *Schistosoma mansoni* (mainly GIT).
2. *Schistosoma japonicum* (mainly GIT).
3. *Schistosoma haematobium* discovered by Theodor Bilharz in Cairo in 1861 (mainly UTS).

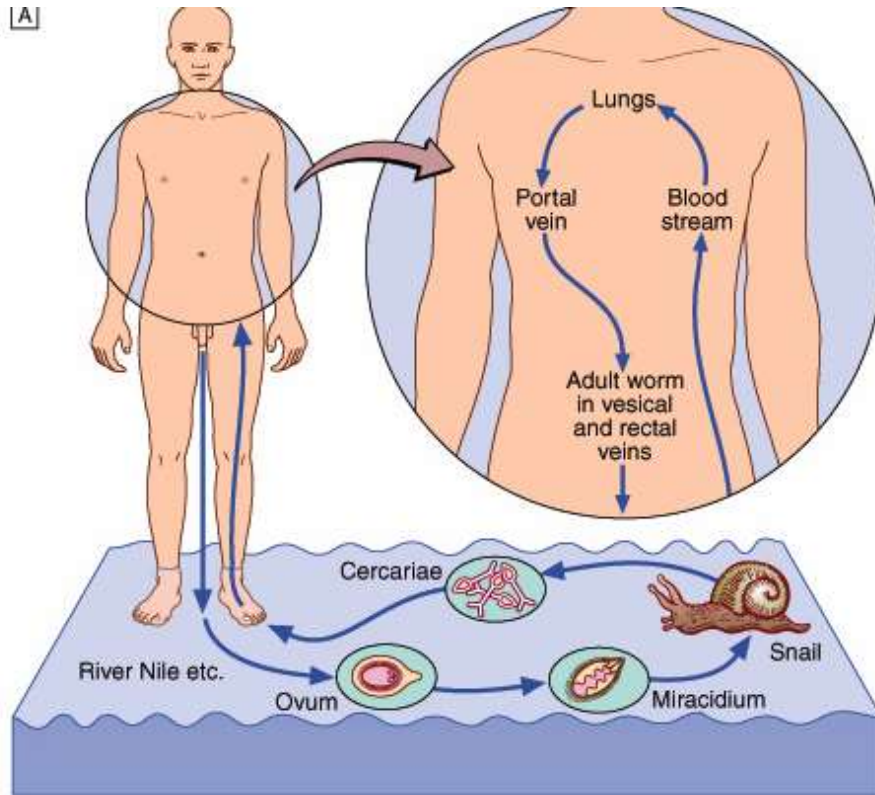
- It is estimated that than 200 million are infected all over the world & about 500-600 million are exposed to infection..
- Adult worm inhabits the portal venous system.

LIFE CYCLE

- The ovum is passed in the faeces of infected individuals and gains access to fresh water where the ciliated **miracidium** inside it is liberated; it enters its intermediate host, a species of freshwater **snail**, in which it multiplies .
- Large numbers of tailed **cercariae** are then liberated into the water.
- Infectious cercariae penetrate human skin and migrate through the lung and the liver to reach portal venous system

LIFE CYCLE

[A]



- ***Morphology***
- Adult male & female have oral sucker surrounding the mouth anteriorly & ventral Sucker on the ventral surface with which it attaches itself to the wall of the vessel in which it lives.
- **The male** worm is flat, leaf like & folded to form the gynacophoric canal which enfolds the slender female for almost its entire length.
- testes
- ovary



Pathogenesis and manifestations

- Skin penetration causing itchy rash
- Travel via lung causing respiratory manifestations
- Production of eggs causing granulomatous reaction and sclerosis in portal venous system to eggs deposited in tissues. This may lead to portal hypertention, esophageal varices, HSM and liver failure



DIAGNOSIS

1. CLINICAL
2. HEMATOLOGICAL, BIOCHEMICAL
3. CONFIRMED BY

Detection of ova in STOOL or tissue biopsy



Treatment

Praziquantel 40mg /kg for all types and as a single dose is treatment of choice

The End

Thank you