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Second semester

Medical parasitology

First lecture 26-2-2023

Helminthology

Helminths

Helminths are worm-like parasites that survive by feeding on a living host to gain nourishment and protection, (or 'Helminth' is a general term meaning worm.) , sometimes resulting in illness of the host. There are a variety of different helminths from the very large to the microscopic.

General characters of Helminths

The helminths are invertebrates characterized by **elongated, flat or round bodies**. In medically oriented schemes the flatworms or platyhelminths (platy from the Greek root meaning "flat") include **flukes** and **tapeworms**.

Types of Helminths

1- Nematohelminths

2-Platyminthes (Cestodes orTape worm and Trematoda or Flukes).

Nematodes

Regarding to locations in human body

1-intestinal types

2-tissues types

3-blood types

Regarding to Reproduction

1-oviposition

2-larvipostion

3-ovi-larvipostion

Intestinal types

1-small intestinal types (Ascaris ,Hookworms)

2-Large intestinal types(Trichuris and Enterobius).

Ascaris lumbricoides (Giant worm or Snake)

Morphology

1-eggs

2-larva

3-adult

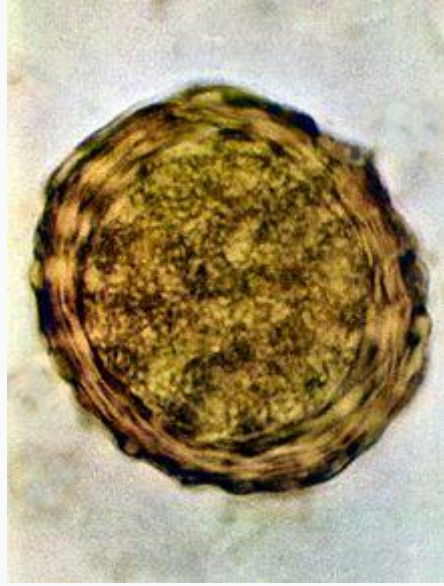
Egg

1-fertile (infective stage)

2-infertile (non infective stag)



Fertile egg as can be seen in a microscope



Fertile egg in human faeces

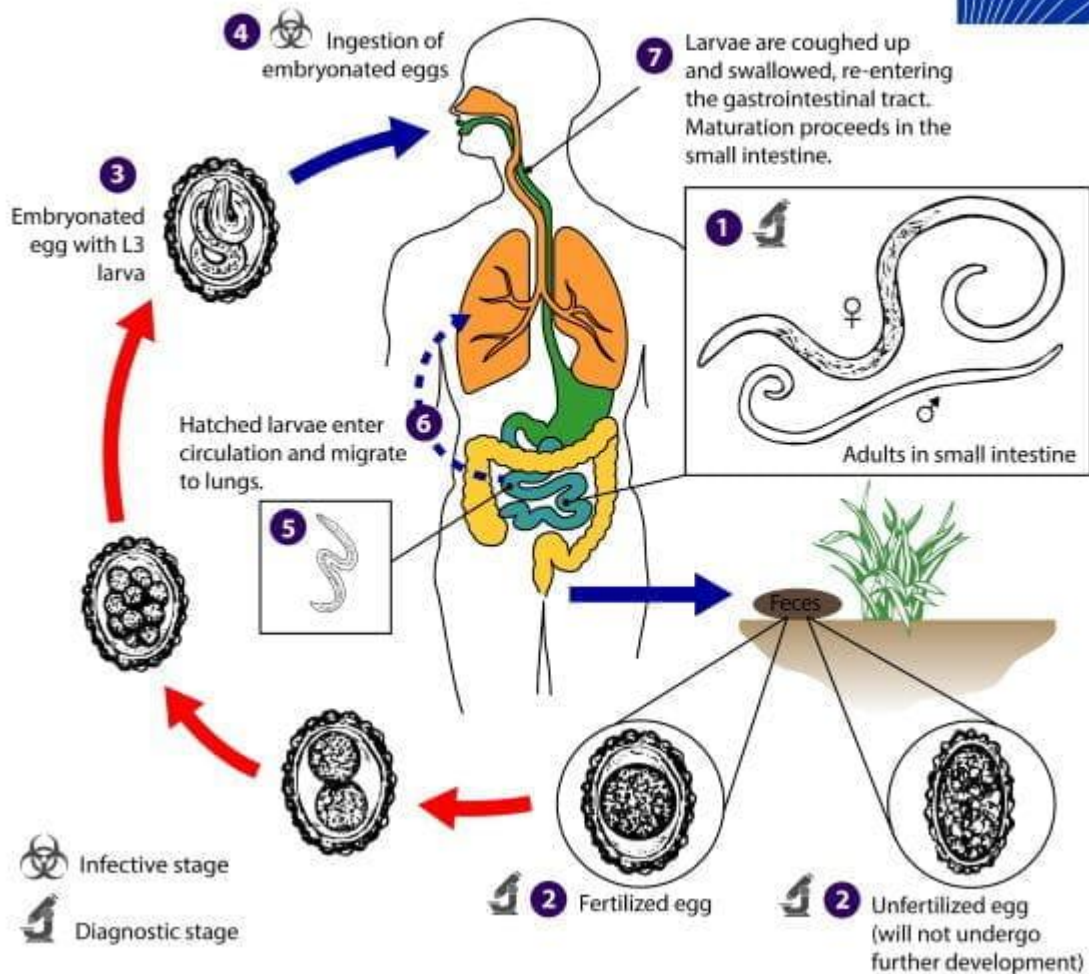


Infertile egg

The eggs have a [lipid](#) layer which makes them resistant to the effects of [acids](#) and [alkalis](#), as well as other chemicals. This resilience helps to explain why this [nematode](#) is such a ubiquitous [parasite](#).

Life Cycle of *Ascaris lumbricoides*

1. Adult worms live in the small intestine of people. There, females may produce about 200,000 eggs per day. The eggs are excreted with stool.
2. Only fertilized eggs cause infection.
3. The fertilized eggs develop in the soil. The eggs develop best in moist, warm, shaded soil.
4. People become infected when they swallow *Ascaris* eggs, often in food that came in contact with soil contaminated with human stool containing fertilized *Ascaris* eggs.
5. The eggs hatch and release larvae in the intestine.
6. The larvae penetrate the wall of the small intestine and travel through the lymphatic vessels and blood stream to the lungs.
7. Once inside the lungs, larvae pass into air sacs (alveoli) in the lungs, move up the respiratory tract and into the throat, and are swallowed. When the larvae reach the small intestine, they develop into adult worms.—



Symptoms

1-Respiratory phase

2-Intestinal phase

Often, no symptoms are presented with a minor *Alumbricoides* infection, the inevitable consequence being the e.g. once a year passage of such clearly visible worm(s) on close inspection. In the case of bad infections symptoms commonly include bloody sputum, cough, fever, abdominal discomfort, intestinal ulcer(s), as well as a less commonly missed passing of the quite long worms. Ascariasis is the most common cause

of [Löffler's syndrome](#) worldwide. Accompanying pathological symptoms include pulmonary infiltration, eosinophilia (symptoms of the overabundance of [eosinophils](#) in the blood such as asthma and allergic reactions)

Diagnosis:

1-clinical diagnosis

2-Lab.diagnosis

a-Macroscopic exam

b-microscopic exam

3-pcr