Parasitology
Lab 2

AL-Farahidi University / college of pharmacy / second stage
2022-2023

Sources of infection

1. Contaminated soil
2. Freshwater fishes
3. Raw or undercooked meat
4. Blood-sucking insects
5. Housefly (mechanical carrier)
6. Dogs & Cats

A parasite may live in or on the tissues of its host without causing evident harm. However, in majority of cases the parasite has the capacity to produce damage. Following are the ways in which the damage may be produced by the parasites:

- Traumatic damage
- Mechanical blockage
- Lytic necrosis
- Physiological effects
- Competition for specific nutrients
- Inflammatory reaction
- Allergic manifestations
- Neoplasia
- Secondary infection

Pathogenicity

- **1. Traumatic damage**

-Relatively slight physical damage is produced by entry of larvae of *Strongyloides stercoralis*, produces traumatic damage of pulmonary capillaries leading to extravasation of blood into the lung.

- **2. Mechanical blockage**

- Helminthic parasites cause direct damage, resulting mechanical blockage of internal organs. Large adult Ascaris organisms can physically block the intestine and the bile ducts.

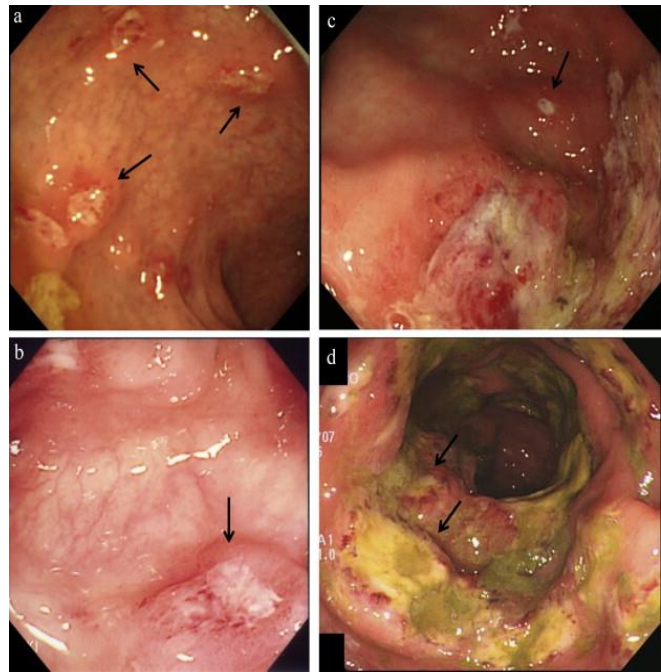
Pathogenicity

- **3. Lytic necrosis**

-Entamoeba histolytica **secretes lytic enzyme which lyses tissues for its nutritional needs.**

- **4. Physiological effects**

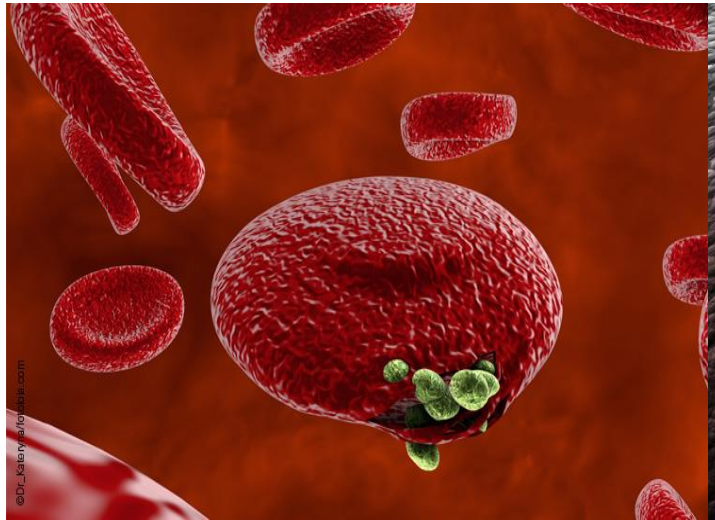
- Large numbers of *Giardia lamblia* covering the walls of the small intestine can lead to malabsorption, especially of fats.

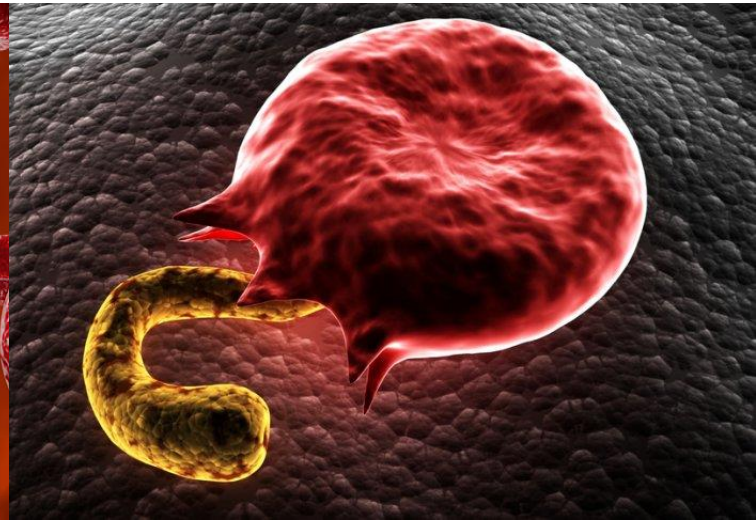


Pathogenicity

- **5. Competition for specific nutrients**

-*Diphyllobothrium latum* competes with the host for vitamin B12 leading to parasite-induced pernicious anaemia. Other forms of anaemia result from blood loss, especially in hookworm infection, and from red blood cell destruction in malaria.





Pathogenicity

- **6. Inflammatory reaction**

-Most of the parasites cause cellular proliferation and infiltration at the site of their location. In many cases, the host reaction walls off the parasite by fibrous encapsulation. *E. histolytica* may produce inflammation of the large intestine.

- **7. Allergic manifestations**

-In certain helminthic infections, the normal secretions and excretions of the growing larvae and the products liberated from dead parasites may give rise to various allergic manifestations, e.g.: Schistosomes cause cercarial dermatitis and eosinophilia.

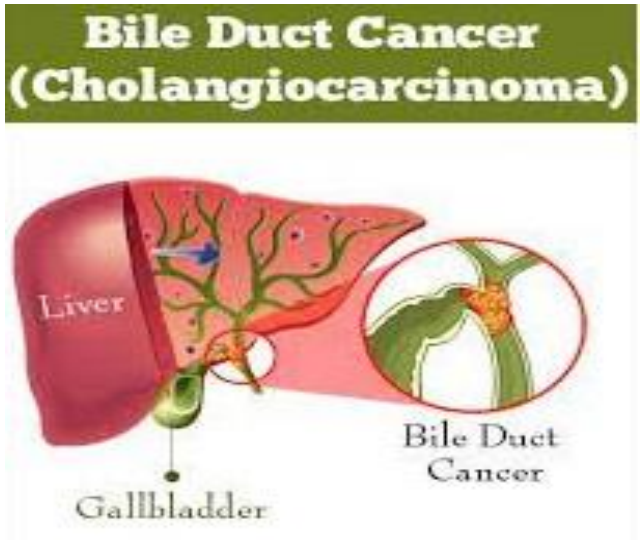
Pathogenicity

- **8. Neoplasia**

-The parasitic infection may contribute to the development of neoplastic growth, e.g., *Schistosoma haematobium* have been associated with vesical carcinoma.

- **9. Secondary infection**

-In some helminthic infections e.g., trichinosis , the migrating larvae may carry bacteria and viruses from the intestine to the blood and tissues leading to secondary infection.



Epidemiology

- **Epidemiology** it is the science concerned with the factors that determine the prevalence of infection and the incidence of a disease. It is the history of the disease, including infection in human and animals and agents that serve as reservoirs and vectors.
- **The prevalence** is the number of infected individuals at a given time in a designated area.
- **Incidence** is the rate or frequency with which a disease (or new infection) occurring.
- If the infection maintains itself in a human community, it is called **endemic**; if there is a high prevalence, it is **hyperendemic**; if it appears irregularly in scattered individuals, it is **sporadic**; and if it develops a high prevalence through unusually rapid transmission, it is called **epidemic.**

Protozoa

Protozoa are single-celled animals; each cell performs all of the necessary functions of life.

Classification of the protozoa: Human parasites in the kingdom Protista, subkingdom Protozoa are classified under four phyla:

1- Sarcomastigophora (containing amoeba and flagellates)

2- Apicomplexa (containing Sporozoa)

3- Ciliophora (containing Ciliates)

4- Microspora

Protozoa

- 1- Sarcomastigophora This phylum is subdivided into two subphyla:
- 1- Sarcodina
- 2- Mastigophora

- Sarcodina (Amoebae): Amoeboid organisms using pseudopodia for both locomotion and feeding. Only *Entamoeba histolytica* is of medical importance.

Thank You For Attention