TERMINOLOGY - PARASYTOGY 6th Lecture

Dr. Mohammed AboKsour

Medical Parasitology: The branch of medical sciences that deals with parasites that cause or transmit disease to man.

Parasites: It is organisms that live in or on a host (temporarily or permanently) deriving food and shelter and causing harm to that host.

Hosts: They are animals (usually bigger) which provide food and shelter for parasite. Sometimes, they get sick.

- The general meaning of parasitology is that viruses, bacteria, fungi, and protozoa, (multicellular organisms) that infect their host species are all parasites. **But** because of their historical importance, the first three have become part of the field of microbiology. Therefore, Medical parasitology consists of :
  1. Protozoa (single celled animals) like Amoeba.
  2. Helminthes (worms) like Nematoda.
  3. Arthropods like Insecta.

Q: What are the most parasytic diseases in the world?

1. Malaria
2. Schistosomiasis.
3. Filariasis.
4. Leishmaniasis.
5. Trypanosomiasis.

Parasitism:

Symbiosis: Any two organisms living in close association, commonly one living in or on the body of the other.

Symbiosis may be:

1. Commensalism:
   Sharing the table. One partner benefits but the other is not hurt.

2. Mutualism:
   Both partners benefit.

3. Parasitism:
   One partner (the parasite) harms or lives on the expense of the other (host).

Classification of Parasites:

I. According to their habitat

- Endoparasite: Lives inside the body of the host, may be just under the surface or deep in the body like protozoans.
- Ectoparasite: Stays on outside surface of the host like leeches.

II. Based on dependency on the host

- Obligate Parasite: Requires finding and invading the host to complete its life cycle.
- Facultative Parasite: May become parasitic if it is given the chance but does not require a host.

III. Based on their life cycle

- Monoxenous parasites: Those with direct life cycles (with one host).
- Heterogeneous parasites: Those with indirect life cycles requiring an intermediate host (i.e., involves 2 or more hosts).

IV. Amount of time spent

- Permanent Parasite: Lives entire adult life stage on or in a host
- Temporary Parasite: Spends only a short time on a host

V. According to their Pathogenicity:

- Pathogenic parasites: Like most of the parasites.
- Non-Pathogenic (commensal): Doesn't effect on the host.
- Opportunistic parasites: Can be pathogenic in some critical case.

Types of Hosts: -

1. Definitive host:

- Where sexual reproduction takes place.
- Normally where the adult parasites live.
- Normally the larger of the hosts, usually a vertebrate.
- Convention, (parasites which only reproduce asexually)
- Specificity, a large number of host species can act as intermediate host and only one or a few can act as a definitive host

2. Intermediate host:

- Sexually immature or larval stage of a parasite
- Asexual multiplication takes place
- May have many immature stages of a parasite;
- Some parasites require more than one intermediate host which are then designated as first, second intermediate.

3. Transport Host

- No development occurs but parasite remains alive and infective to another host
- May cause damage
- e.g., Toxoplasm species in cattle.

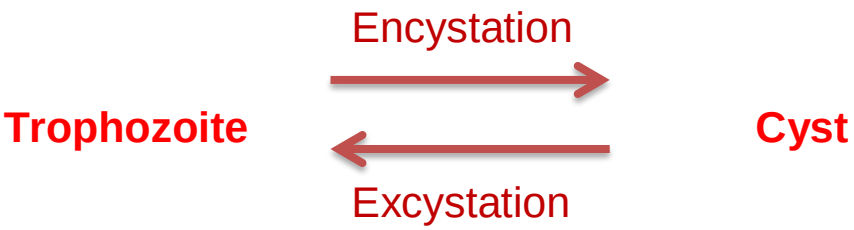
4. Accidental or Incidental Host

- Parasite is in the “wrong” species.
- Parasite usually wanders around and causes great damage because it doesn’t know where to go then dies.

Other terms:

Trophozoite: It is a living stage of protozoa when they can move, take food and reproduce. (It is usually the pathogenic stage)

Cyst: It is the resting stage of protozoa with a protective wall. It is usually the infective stage. Its functions are protection, transmission and multiplication.



Dangerous effects of parasitic infection :

- Parasitic toxic products: produce allergy or necrosis.
- Anemia.
- Loss of weight.
- Fever & eosinophilia.
- Mechanical pressure.
- Abortion or Congenital anomalies.

Mode of Transmission

I: Direct mode of Transmission:-

- **Horizontal Direct mode of transmission:**
    - Most intestinal parasites transmitted in this way.
    - Sexual ways.
    - Blood transfusion.
    - Direct skin penetration.
- **Vertical Direct Mode of Transmission:**
    - Transmission of the parasite is from the
    - Mother to child through:

II- Indirect Mode of Transmission:-

- If the parasite has complex life cycle
- If the parasite requires biological vectors and/or one or more intermediate hosts

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