



Introduction to Medical Parasitology

**College of Health Sciences
Department of Medical Laboratory
Analysis**

**Medical Parasitology
3rd Stage/ first semester
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Lecture: 1**

Ahmed E. Fakhruddin

Introduction

Medical Parasitology is the study of parasites which cause **human** infections and the diseases they produce.

Classification of medical parasitology

1. Medical Protozoology - study of medically important **protozoa**.

Ex. *Entamoeba histolytica*, *Giardia lamblia*

2. Medical Helminthology - study of **helminthes (worms)** that affect human.

Ex. *Fasciola hepatica*, *Ascaris lumbricoidis*.

3. Medical Entomology - study of **arthropods** which cause or transmit disease to man. **Ex. Mosquito, Ticks.**

Some terminology in medical parasitology

- **Prevalence:** Is define as the **number** of infected individuals at a given time in a **designated area**.
- **Epidemiology:** Is science dealing with **factors** which determine the prevalence of infection & incidence of disease.
- **Incidence:** Is the **rate or frequency** with which a **disease (new infection)** occurs.
- **Endemic:** Infections maintained at a stable rate (**regularly occurring**) of prevalence within the human population of an area.

- **Sporadic:** appears **irregularly in scattered** individuals.
- **Epidemic:** it appears in **high prevalence** in unusual transmission.
- **Sign:** is an objective, **observable** phenomenon that can be identified by another person.

Example skin rash, rasping sound, cough, etc.

- **A symptom** is the subjective experience of a potential health issue, which **cannot be observed** by another person.

Examples stomach cramps, headaches, and fatigue.

The doctor cannot see, hear, feel, or smell any of these issues. The patient is the only person who can describe them.

PATHOGENESIS

- Parasitic infections may remain **inapparent** or give rise to **clinical disease**. A few, such as *Entamoeba histolytica* may live as surface commensals, multiplying in the lumen of the gut for long periods without invading the tissues. Some parasites may lead to completely asymptomatic infection even though they live inside tissues.
- Many persons with filarial infection **may not** develop any clinical illness though microfilariae are demonstrable in their blood.

Sources of parasitic infection

- 1. Soil:** Embryonated eggs which are present in soil may be ingested, Ex. roundworm, whipworm.
- 2. Water:**
 - Swallowing water contains cysts, Ex. **cysts** of amoeba and giardia.
 - Infective **larvae** in water may enter by penetrating exposed skin, Ex. cercariae of schistosomes.
 - Free-living parasites in water may enter through vulnerable sites, Ex. Naegleria may enter through nasopharynx and cause meningoencephalitis.
- 3. Food:** Contamination of human or animal feces, Ex. amoebic cysts. echinococcus eggs or Meat containing infective larvae.

Sources of parasitic infection, cont.

4. Insect Vectors: Mosquito—malaria, filariasis (Biological vectors) or Housefly—amoebiasis (Mechanical vectors).

5. Animals: Cat, e.g. toxoplasmosis Dog, e.g. hydatid disease, leishmaniasis

6. Other Persons: Carriers and patients, e.g. all anthroponotic infections, vertical transmission of congenital infections.

7. Self (autoinfection): Finger to mouth transmission e.g. pinworm