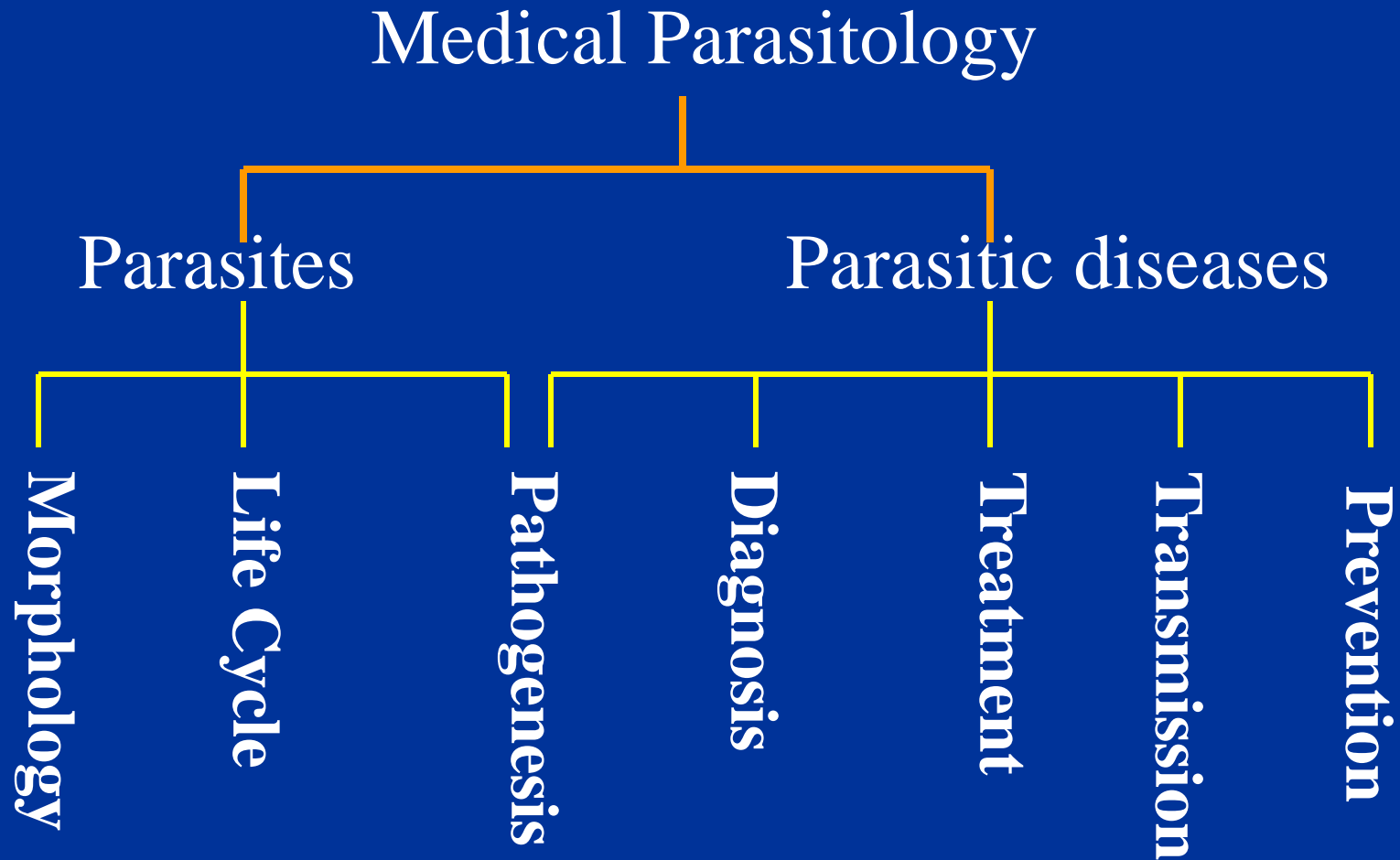


Introduction to Medical Parasitology

- **Definition of Medical Parasitology**
- **Conceptions related to medical parasitology**
- **Relationships between parasite and host**
- **The basic factors of transmission of parasitic diseases**
- **The preventive measures of parasitic diseases**

Definition of Medical Parasitology



Conceptions related to medical parasitology

- **Symbiosis**
- **Parasite and type of parasites**
- **Host and common type of host**
- **Life cycle and type of life cycle**

Symbiosis

-----The relationship between two living things (animals). Two living things live together and involve protection or other advantages **مميزة او منفعة** to one or both partner **شريك**.

- Commensalism
- Mutualism
- Parasitism*

Commensalism

----- Both partners are able to lead independent lives, but one may gain advantage from the association when they are together and not damage to the other.

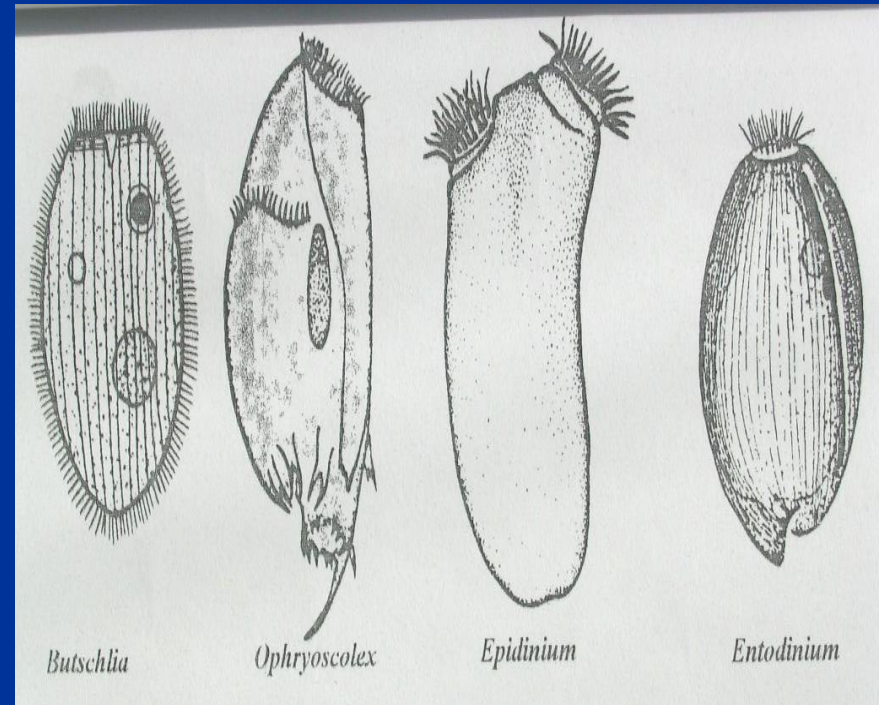


Fig. A female pea crab in the mantle cavity of its mussel host. The crab does not damage the mussel and uses its shell purely for protection

Mutualism

----- An association which is beneficial **الاستفادة** to both living things.

Fig. A selection of ciliates from the rumen. The rumen contains enormous numbers of ciliates that break down cellulose in the feed **الاعلاف.**



Parasitism

----- **An association which is beneficial to one partner and harmful to the other partner. The former that is beneficial to is called parasite, the latter that is harmful to is called host.**

Parasite and the type of parasites

- **Parasite:** It is an animal that is dependent on another animal (host) for its survival.
- **Type of parasites**



Endoparasite and ectoparasite

- ----A parasite which lives **in** or **on** the body of the host is called **endoparasite** (protozoa and helminthes) or **ectoparasite** (arthropods).

Host and type of host

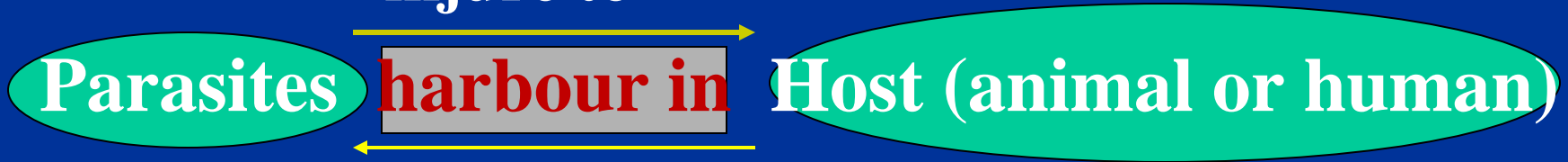
- **Host** : An organism that harbors the parasite usually larger than the parasite.
- **Intermediate host** : The host harboring the larvae or asexual stage of parasite.
- **Final host** : The host harboring adult or sexual stage of parasite.
- **Reservoir host** : Animals harboring the same species of parasites as man.
Potential sources of human infection.

Life cycle and type of life cycle

- **Life cycle** : The whole process of parasite growing and developing.
- The direct life-cycle : Only one host (no intermediate host).
- The indirect life cycle : Life cycle with more than one host (intermediat host and final host).

Relationship (Effect) between parasite and host

injure to



to response immune produce

- Effects of the parasites on the host
- Effects of the host on the parasites
- ???

Effects of parasites on the host

- Depriving حرمان the host of essential substance

Hookworm → Suck blood → Anemia

- Mechanical effects of parasites on the host

Ascaris → (ثقب) Perforate/Obstruction

- Toxic and allergy effect

E.h Proteolytic enzyme Necrosis

Parasite antigen → Immune system

Immune response

e.g Anaphylaxis الحساسية المفرطة

Allergy/
Hypersensitivity

Effects of the host on the parasites

----The host can produce certain degree resistance to parasites in human body or re-infection. The resistance (Immunity) is not very strong. In general, It don't wipe out(تمحو) parasites completely, but may limit the number of parasites and establish balance with parasites.

- Innate immunity
- Acquired immunity

Innate immunity

- **Barrier** : Prevent parasites to invade in certain degree. Skin/Mucous membrane/Placenta.
 - **Acid** in skin or stomach can cause damage of the parasites.
 - **Phagocytosis** of phagocyte.
- Non-specific/effective against a wide range of parasitic infection/controlled by genetical factors. But not very strong!

The basic factor of transmission of parasitic diseases

Parasitic diseases ▶ Infectious diseases ▶ Transmission

- The source (مصدر) of the infection
- The routes (طرق) of transmission
- The combined effect of those factors determine the dispersebility and the prevalence of the parasites at a given time.

The source of the infection

- **Patient** : Persons who have parasites in their body and show clinical symptoms.
- **Carrier** : Persons who have parasites in their body, not show symptoms.
- **Reservoir host** : Animals that harbors the same species of parasites as man.
Sometimes, the parasites in animals can transmit into human.

The routes of transmission I

- **Congenital (فطری) transmission** : From mother to infant. Toxoplasmosis
- **Contact transmission** : Direct contact---
Trichomonas vaginalis; Indirect contact--
-Ascaris lumbricoides
- **Food transmission** : The infective stage of parasites contaminated food / The meat of the intermediate hosts containing infective stage of parasites.

The routes of transmission II

- **Water transmission** : Drink or contact the water contaminated the infective stage of parasites.
- **Soil transmission** : Contamination of the soil by feces containing the certain stage of parasites and this stage can develop into adult stage.
- **Arthropod transmission** : Vectors of certain parasitic diseases.

The avenues (سبيل-وسيلة) of invasion

- **Digestive tract** : Most common avenue of entrance. (Food/ Water transmission)
- **Skin** : Infective larvae perforate skin and reach to body and establish infection. (soil/ water transmission)
- **Blood** : Blood-sucking insects containing infective parasites, bite the skin and inject parasites into human blood. (Arthropod transmission---malaria).

The prevention measures of the parasitic diseases

- **Controlling the source of the infection.**
 - Treatment of the patients, carriers and reservoir hosts.
- **Intervention at ~~التدخل~~ في the routes of transmission**
 - ~~Managing feces and water resource,~~controlling or eliminating vectors and intermediate hosts.
- **Protecting the susceptible hosts.**
 - ~~Paying attention~~ ~~الاهتمام~~ ~~نعطى~~ to personal hygiene, changing bad eating habit, taking medicine.

THANK YOU FOR YOUR ATTENTION!

