

General Parasitology

Parasitology

- The science which deals with interaction between host population and parasites of human/animals
- Host
the host is an island invaded by strangers for food, shelter and raising their progeny

Parasite

organisms which live on the expense of others for their food and shelter

Symbiosis

- Symbiosis -----“living together”
- *all cases where dissimilar organisms or species (e.g., heterogenetic associations) live together in an intimate association.*
- Any two organisms living in close association, commonly one living in or on the body of the others, are symbionts.

Interactions of Symbionts

- The 4 types of associations that have been identified are:
 1. Phoresis
 2. commensalism
 3. Mutualism
 4. parasitism

Phoresis (Phoresy)

- The term phoresis means “to carry”
- A type of symbiotic relationship in which one organism (the smaller--phoront) is mechanically carried on or in another species (host)
- In this relationship, there is no physiological or biochemical dependency on the part of the host or symbiont
- Bacteria on legs of fly or fungal spores on the feet of beetles
- *Dermatobia hominis* --- beneath the skin of warm blooded animals. The females does not attach her eggs directly to the host of the larva---insect

Mutualism

- This occurs when each member of the association benefits the other
- The mutuals are metabolically dependent on one another; one cannot survive in the absence of the other
- Obligatory-----survival
- Termites and their intestinal fauna
- Leeches----blood bacterial organism (Wolbachia)

Commensalism

- One partner benefits from the association, but the host neither helped nor harmed.
- “*Eating at the same table*”
- Commensal mostly involve feeding on wasted food or food not consumed by their host
- Human beings harbor *Entamoeba gingivalis*
- Remoras-dorsal fin modified into an adhesive organ which is attach with large fish or turtles etc.
- Facultative in nature

Parasitism

- It is a relationship in which one of the participant, the parasite, either harms its host or in some sense live at the expense of the host.
- Parasite may cause mechanical injury like;
 - Boring a hole into the host
 - Digging into its skin or other tissue
 - Stimulate a damaging inflammatory or immune response
 - Simply rob the nutrition of host

Ectoparasites

- If a parasite lives on the surface of its host. Ticks, mites



Endoparasites

- If a parasite lives internally in its host
- Ascaris



Obligate parasite

- Parasite which cannot complete its life cycle without spending at least part of time in a parasitic relationship.
- However, many obligate parasites have free-living stages outside any host, including some periods of time in the external environment within a protective eggshell or cyst e.g. oocysts of coccidia



Facultative Parasites

- These are not normally parasites but they become so when they accidentally eaten/enter a wound or other body orifice
- *Naegleria fowleri*, free-living protozoa-diphasic ameba, flagellate in water, if enter in nasal passage, cause death

Accidental/Incidental parasite

- When a parasite enters/attaches to the body of a species of host different from its normal one
- These parasites cannot survive in wrong host but may cause extremely harm to it
- Toxocara in man (OLM and VLM)

Permanent Parasite

- Parasite which spends its whole adult life time on/in the body of the host e.g. head louse

Temporary/Periodic/Intermittent Parasites

- Only visits to host to feed on it and then leave.
- Mosquitoes, Bed bugs etc.

Erratic/Aberrant Parasite

- Found unusual site of its normal host

Pseudo-Parasites

- Those structures in the excretions or secretions or in the tissue of a host which are not parasites or their stages but only show resemblance with them and create doubts about the presence of the parasites