Medical Parasitology Lecture 2

Parasites with man as intermediate or secondary host

Plasmodium spp.

Babesia spp.

Toxoplasma gondii

Echinococcus granulosus

Echinococcus multilocularis

Taenia solium

Spirometra spp.

Zoonosis

The diseases shared in nature by man and animals.

It is of following types:

Protozoal zoonoses, e.g. toxoplasmosis, leishmaniasis, balantidiasis, and

cryptosporodiasis

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Helminthic zoonoses, e.g. hydatid disease, taeniasis

Anthropozoonoses: Infections transmitted to man from lower vertebrate

animals, e.g. cystic echinococcosis

Zooanthroponoses:

Infections transmitted from man to lower vertebrate animals, e.g. human

tuberculosis to cattle.

Host-parasite Relationships

Host-parasite relationships are of following types

*Symbiosis تكافل

*Commensalism تغذية

*Parasitism. تطفل

Life Cycle of Parasites

Direct life cycle:

When a parasite requires only single host to complete its development, it
is called as direct life cycle, e.g. Entamoeba histolytica requires only a human host to complete its life cycle.

Indirect life cycle:

When a parasite requires 2 or more species of host to complete its development, the life cycle is called as indirect life cycle, e.g. malarial parasite requires both human host and mosquito to complete its life cycle.

Host-parasite relationships

Sources of Infection

Contaminated soil and water:

Soil polluted with embryonated eggs (roundworm, whipworm) may be
ingested or infected larvae in soil, may penetrate exposed skin (hookworm).

Food:

Ingestion of contaminated food or vegetables containing infective stage
of parasite (amoebic cysts, Toxoplasma oocysts, Echinococcus eggs)
Ingestion of raw or under-cooked meat harboring infective larvae (measly

pork containing cysticercus cellulosae, the larval stage of Taenia solium).

Insect vectors:

Vectors can be:

Biological vectors:

The term biological vector refers to a vector, which not only assists in the transfer of parasites but the parasites undergo development or multiplication in their body as well. They are also called as true vectors.

Example of true vectors are:

***Mosquito: Malaria, filariasis**

***Sandflies: Kala-azar**

***Tsetse flies: Sleeping sickness**

*** Reduviid bugs: Chagas' disease**

***Ticks: Babesiosis.**

Mechanical vectors:

The term mechanical vector refers to a vector, which assists in the transfer of parasitic form between hosts but is not essential in the life cycle of the parasite. Example of Mechanical vectors is: Housefly: amoebiasis.

Animals:

Domestic:

***Cow, e.g. T. saginata, Sarcocystis**

***Pig, e.g. T. solium, Trichinella spiralis**

***Dog, e.g. Echinococcus granulosus**

***Cat, e.g. Toxoplasma, Opisthrorochis.**

Wild:

*** Wild game animals, e.g. trypanosomiasis**

***Wild felines, e.g. Paragonimus westermani**

***Fish, e.g. fish tapeworm**

*** Molluscs, e.g. liver flukes**

***Copepods, e.g. guinea worm.**

Other persons:

Which may be carriers of the parasite or patients, e.g. all anthroponotic.

Infections, vertical transmission of congenital infections.

Self (autoinfection)

Finger-to-mouth transmission, e.g. pinworm internal re infection, e.g.

●●Strongyloides.asites causing autoinfection

●●Hymenolepis nana

●●Enterobius vermicularis

●●Taenia solium

●●Strongyloides stercoralis

●●Capillaria philippinensis

●●Cryptosporidium parvum

Modes of Infection

Oral transmission:

Infection with E. histolytica

Skin transmission:

Schistosomiasis

Vector transmission:

female Anopheles mosquito, filariasis is transmitted by bite of Culex mosquito. A vector could be a biological vector or a mechanical vector.

Direct transmission:

person-to-person contact in some cases, e.g. by kissing in the case of gingival amoebae and by sexual intercourse in trichomoniasis.

Vertical transmission:

Mother to fetus transmission may take place in malaria and toxoplasmosis.

Iatrogenic transmission:

It is seen in case of transfusion malaria and toxoplasmosis after organ transplantation.