Genus: *Plasmodium* **By: Dr.Sanku**

This genus contains the malarial organism of man and other mammals and vertebrates. Schizogony occurs in RBC also in endothelial cells of inner organs, while the sexual phase of the cycle occurs in blood-sucking insects: for mammalian form these are anopheline mosquitoes and for avian forms, culicine mosquitoes play an important role.

Avian malaria:

Different spp: (**with round or irregular gamonts which displace the nucleus of the host cell**)

Plasmodium cathemerium
P.gallinaceum
P.juxtanucleare
P.griffithsi

Species with elongate gamonts which do not usually displaced the host cell nucleus:
Plasmodium circumflexum
P.durae
P.elongatum
P.fallax
P.hexamerium
P.lophurae
P.polare
P.rouxi
P.vaughani

Developmental cycle *of A*vian malaria:
Infective sporozoite before entering in to erythrocyte, it developed as exoerythrocytic form in the cells of the reticuloendothelial system prior to invasion of the erythrocytes.Following the introdictionof sporozoites from infected culicine mosquitoes, numerous pre-erythrocytic schizonts are found in the macrophages and fibroblast of the skin near the entry point. These are referred **as Cryptozoites.** Merozoites from the 1st generation of preerythrocytic schizont form a 2nd generation of pre-erythrocytic schizont and they are called as **Metacryptozoites**. Merozoites from metacryptozoites enter erythrocytes and other cells of the body and in latter form **Exoerythrocytic schizont** . The erythrocytic cycle is initiated 7-10daysafter infection by merozoites from metacryptozoites. On entering to the RBC, the merozoite rounds up to form a trophozoites.This is a small form (round), containing a large vacuole which displace the cytoplasm of the parasite to the periphery. The nucleus is situated at one of the poles, giving the young form a ‘signet ring’ (appears on Romanowsky stain). Then trophozoite will undergo schizogony process. Haemoglobin is digested and residual haematin pigment is deposited in granules within the food vacuoles. After a asexual division, some merozoites undergo sexual development with the formation of microgamont and macrogamont. The zygote form from fertilization is motile and is called ookinete. This ookinete penetrate the

mid gut mucosa and lie on the outer surface of the stomach. When mature, oocyst rupture, it release sporozoite in the body cavity of mosquitoe. Then goes to salivary duct of mosquitoe. Now the mosquitoe is ready to give infection to the host.

Therapy for avian malaria:
Chloroquine @5mg/kg.

Malaria parasite of man:
Plasmodium falciparum: Malignant tertian malaria, falciparum malaria
P.malariae: Quartan malaria
P.ovale: Mild tertian malaria, parasitized red cell appears as Schuffner,s dot
P.vivax: Benign tertian malaria
Following the bite of mosquitoe, sporozoite remain in blood for a short period of time. After an hour, blood is no longer infective for another host. Sporozoite enter to the parenchyma cell of the liver and develope to pre erythrocytic schizont. The exoerythrocytic form are confind to the liver of mammalian malaria.