

Kingdom: Protista

Phylum: Protozoa

Sub Phylum: Apicomplexa

Class: Telospora

Order: Haemosporida

Family: Plasmodiidae

Genus: *Plasmodium*

- *Plasmodium falciparum*: malignant tertian malaria
 - *Plasmodium vivax*: benign tertian malaria
 - *Plasmodium ovale*: benign tertian malaria
 - *Plasmodium malariae*: quartan malaria (72 hr.)
- } (48 hr.)

Habitat: All are intra erythrocytic parasites, some with portion of life cycle in hepatic cells.

Definitive host: Invertebrate host (Anopheles Female Mosquito- Sexual reproduction)

Intermediate host: Vertebrate host (Humans- Asexual reproduction)

Infective stage: sporozoites

Diagnostic stage: all stages

Disease: Malaria

Diagnosis:

1. Microscopic identification
2. Rapid diagnostic tests
3. Polymerase-chain reaction (**PCR**)

Life cycle

1. Schizogony (Asexual stage in man):

A) Exo-erythrocytic cycle (liver stage): schizont produces merozoite

B) Erythrocytic cycle: merozoites reinvade the blood stream, the Trophozoite here are described as the ring stage, amoeboid stage and the schizont. By the schizont producing merozoites some causes new infection to new RBCs, and others develop into gametocytes with in the erythrocytes.

2- Gametogony (sexual stage in mosquito)

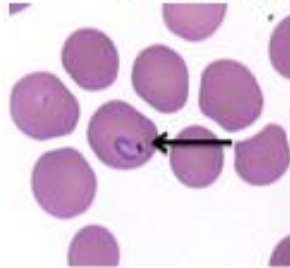
A- In the stomach, the gametocytes develop into gametes microgametes and macrogametes

B- Fertilization of a macrogamete by one microgamete results in the formation of motile, elongate zygote called ookinete, this penetrate the cells of stomach and it develops and encysts to form an oocyst .

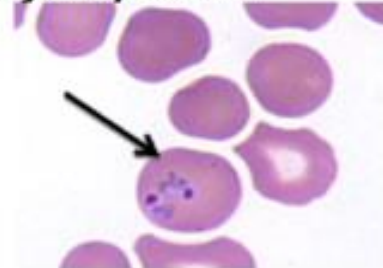
3- Sporogony :(a sexual stage in mosquito)

- A) The oocyst divides and produces a number of sporoblasts (sporozoites).
- B) When oocyst bursts releasing the sporozoite some of them penetrates salivary gland of mosquito and are injected with saliva into the blood stream and cause new infection.

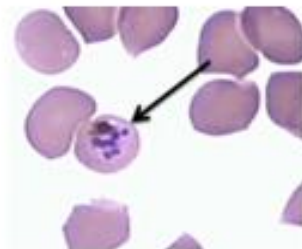
Plasmodium falciparum



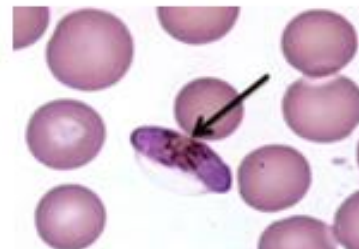
Ring stage
Round R.B.C



Trophozoite stage small ring, applique
chromatin dot: often double

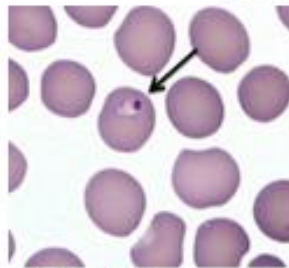


schizont stage
12-30 merozoites



gametocyte
crescent shape

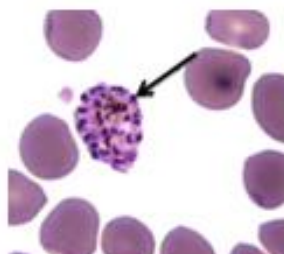
P. vivax



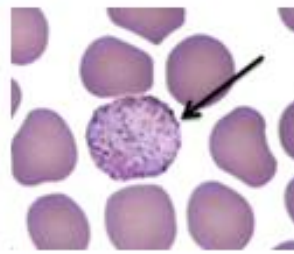
Ring stage
Enlarged infected RBC,
round, distorted



Trophozoite stage: Amoeboid shape
Schuffner's spots, large ring, amoeboid
Chromatin dot: single

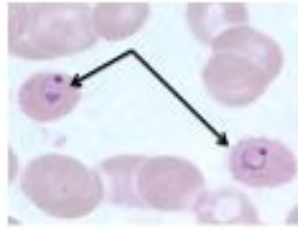


schizont stage
12-24 merozoites

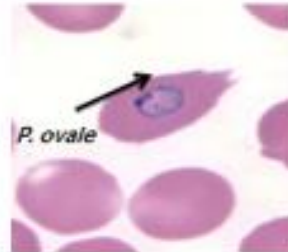


Gametocyte
large, round

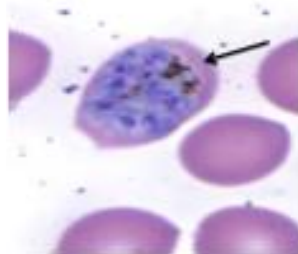
Plasmodium ovale



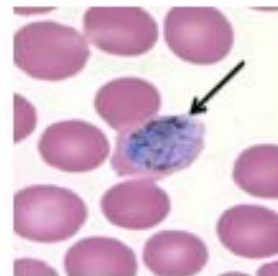
Ring stage
 oval, fimbriated
 Enlarged infected RBC



Trophozoite stage
 large ring, compact
 spindle shape, Schuffner's dots
 Chromatin dot: large, single

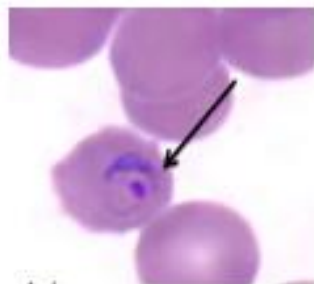


schizont stage
 4-12 merozoites (scattered)



gametocyte
 large, round

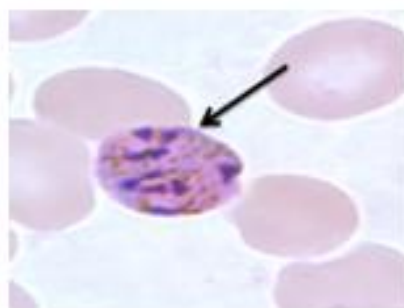
Plasmodium malariae



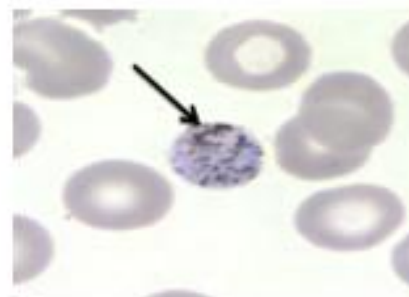
Ring stage
 Round R.B.C



Trophozoite stage
 small ring, compact
 Chromatin dot: single



schizont stage
 6-12 merozoites (rosette)



gametocyte
 compact, round