

Protozoa

Class Sporozoa (Plasmodidae)

plasmodium 4 species in human

1-p.vivax _____ benign malaria

2-p.falciparum _____ malignant malaria

3-p.ovale _____ tertian malaria

4-p.malaria _____ Quartan malaria

General information's

- 1-life cycle: in direct life cycle •
- 2-final host: Mosquito(female Anopheles) in •
vertebrate
- 3-Intermediat host : man(vertebrate) •
- 4-infective stage :Sporozoite which develops in •
the salivary gland of anopheles.
- 5-Disease name: Malaria disease •
- Note:There are two types of multiplication •
 - a-Sexual reproduction : occurs in stomach of •
anopheles
 - b-Asexual reproduction: occurs in the blood and •
tissue of the Intermediate host (man).

There are other types of reaction of parasite

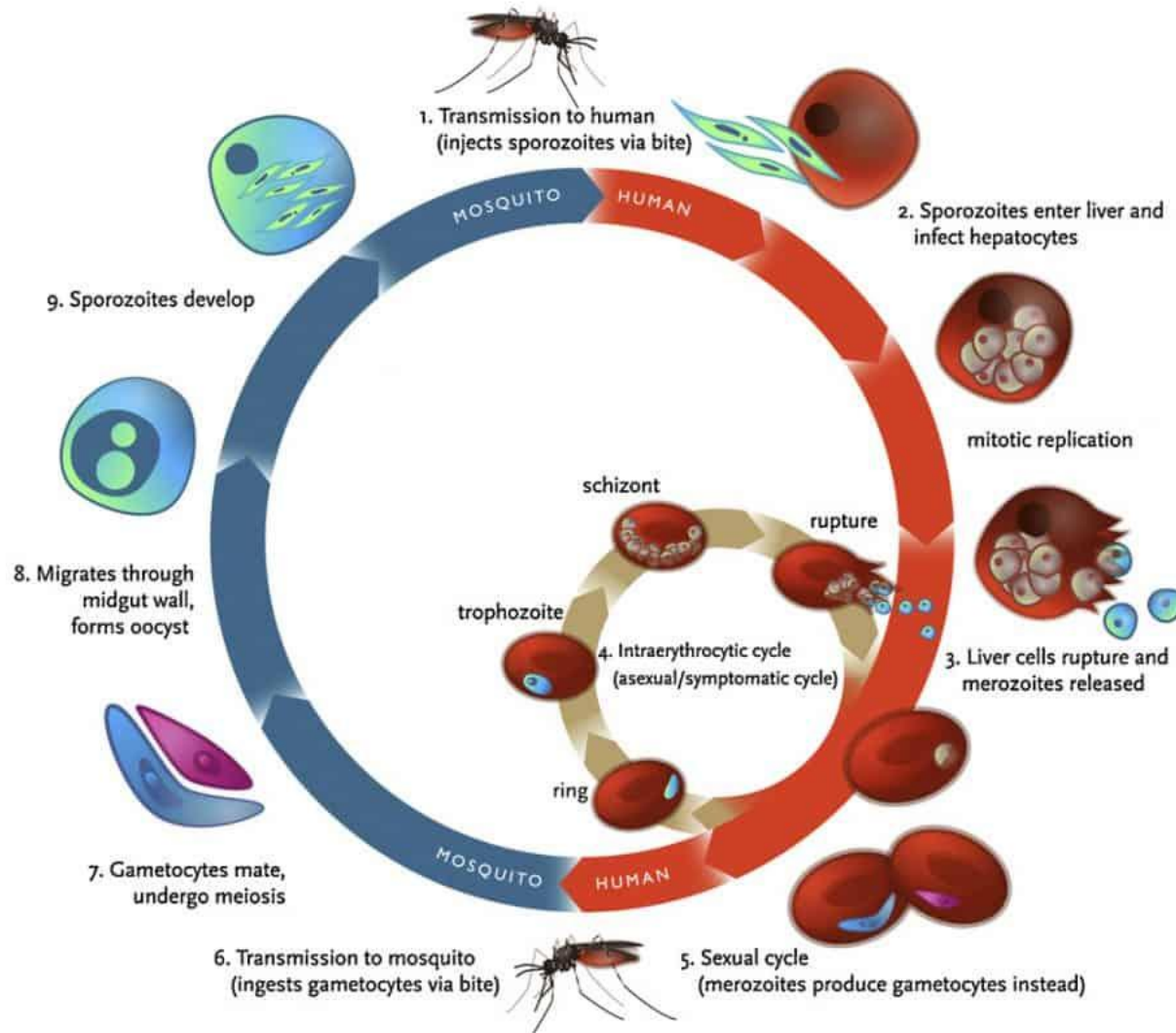
A- Gametogony •

Formation of gametocytes which occurs in the blood of man •

B- Fertilization •

Which occurs in the stomach of anopheles •

Life Cycle of the Malaria Parasite



Source: Klein EY. Antimalarial drug resistance: a review of the biology and strategies to delay emergence and spread. *Int J Antimicrob Agents* (2013), <http://dx.doi.org/10.1016/j.ijantimicag.2012.12.007>

Pathogenesis:

- the clinical manifestation of malaria may be attributed to many factors:

- 1-Host inflammatory and Immunological response ;

Which are responsible for chills , fever and other lesion

- 2-Anemia: which occurs due to massive destruction of erythrocytes

- 3-the severity of the diseased depends on the species of Plasmodium.

According to these point some symptoms and lesion may occurs : •

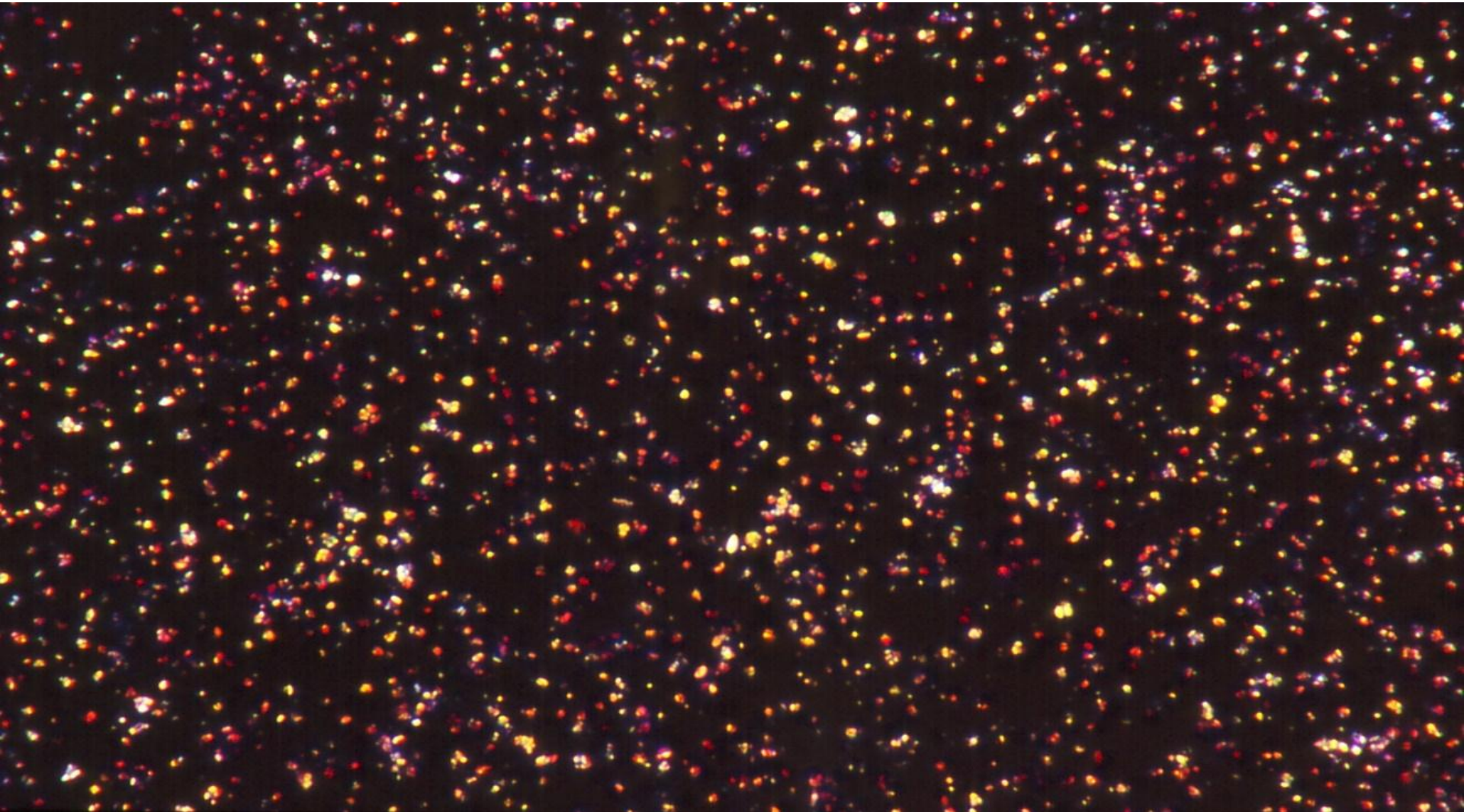
- A-Ruptured of erythrocyte stimulate Thermoregulatory Center in the Hypothalamus •
to reproduce fever and heat.

- B-Hemozaine:is a disposal product formed from the digestion of blood by some •
blood-feeding parasites

- It will deposited in liver,spleen and bone marrow resulted for that Blackish color. •

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Plasmodium falciparum hemozoin crystals under polarised light.



Anemia may occurs due to the following causes:

- 1- direct massive destructions of erythrocytes(which occur in 42-72 hour
 - 2-Splenomegaly.which causes by destruction of infected erythrocytes.
 - 3-In ability of the body to re-utilized the Iron.
 - 4-hemorrhage and congestion of the liver.
 - 5-P.falciparum is more sever and dangerous
- Why????

Diagnosis

1-Microscopic examination: can be demonstration of malaria in blood by

A-Thick

B- Thin

Blood smear that prepared on the same or different slides.

2-Rapid Diagnostic Test: are based on detection of antigen of malaria by using Immuno-chromatographic methods.

3-Quantitative Buffy Coat Test.by using Uv light.

4-PCR techniques.