

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

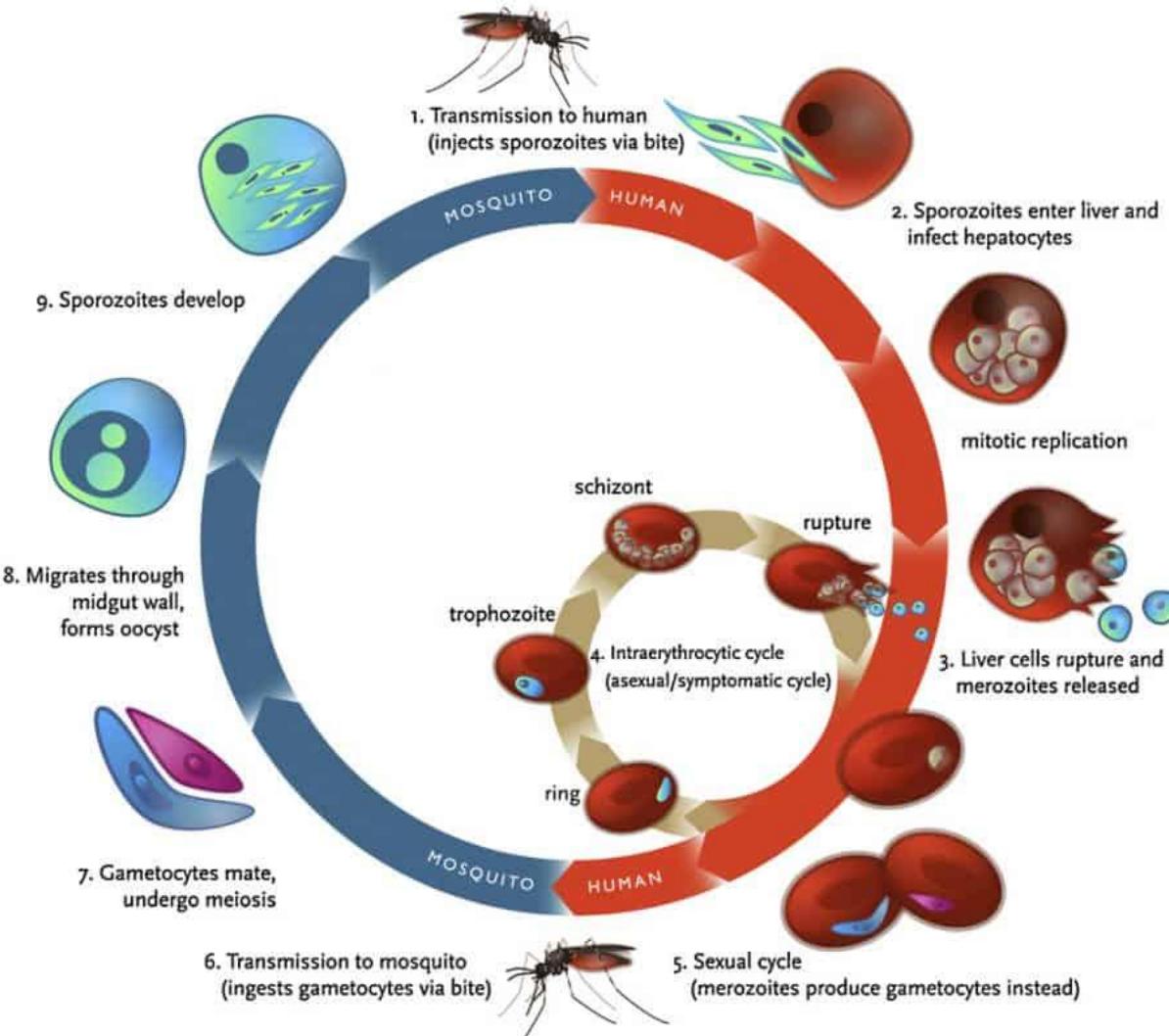
A- Gametogony •

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.

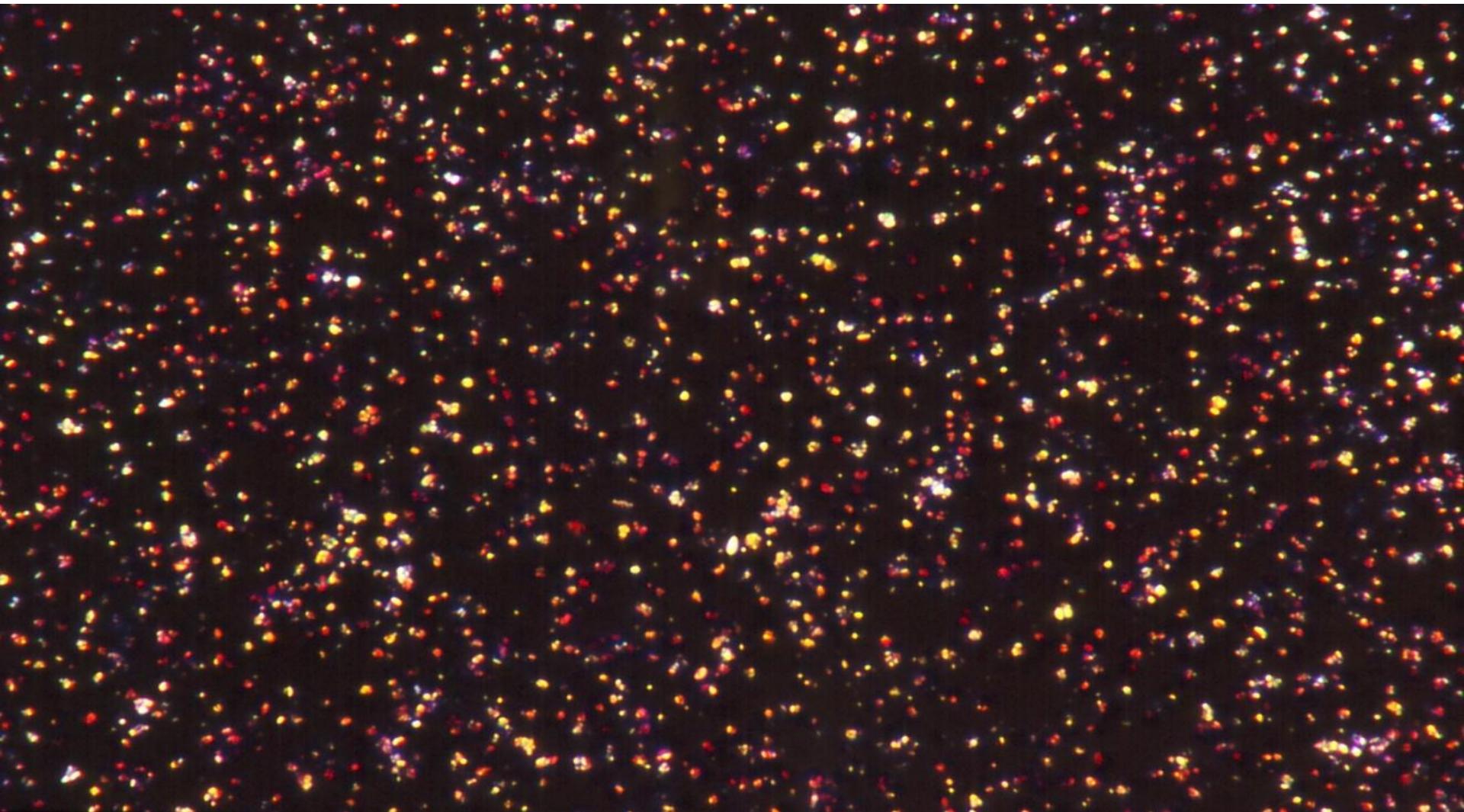
According to these point some symptoms and lesion may occurs : •

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. •

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-Quantitive Buffy Coat Test. by using Uv light.

4-PCR techniques.