



Department of biology



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((علم الطفيليات))

Stage two

Lec 5

الملاريا

By

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محاضره 5 الملاريا \ طفيليات \ مرحله ثانيه \ قسم علوم الحياة \

Lecture 5 Malaria \ (Plasmodium)

Phylum Protozoa \ Class Sporozoa \ صنف البوغيات

Genus : Plasmodium

Malaria : An Italian word \ Mala = bad \ aria = air

1827 introduced this word .

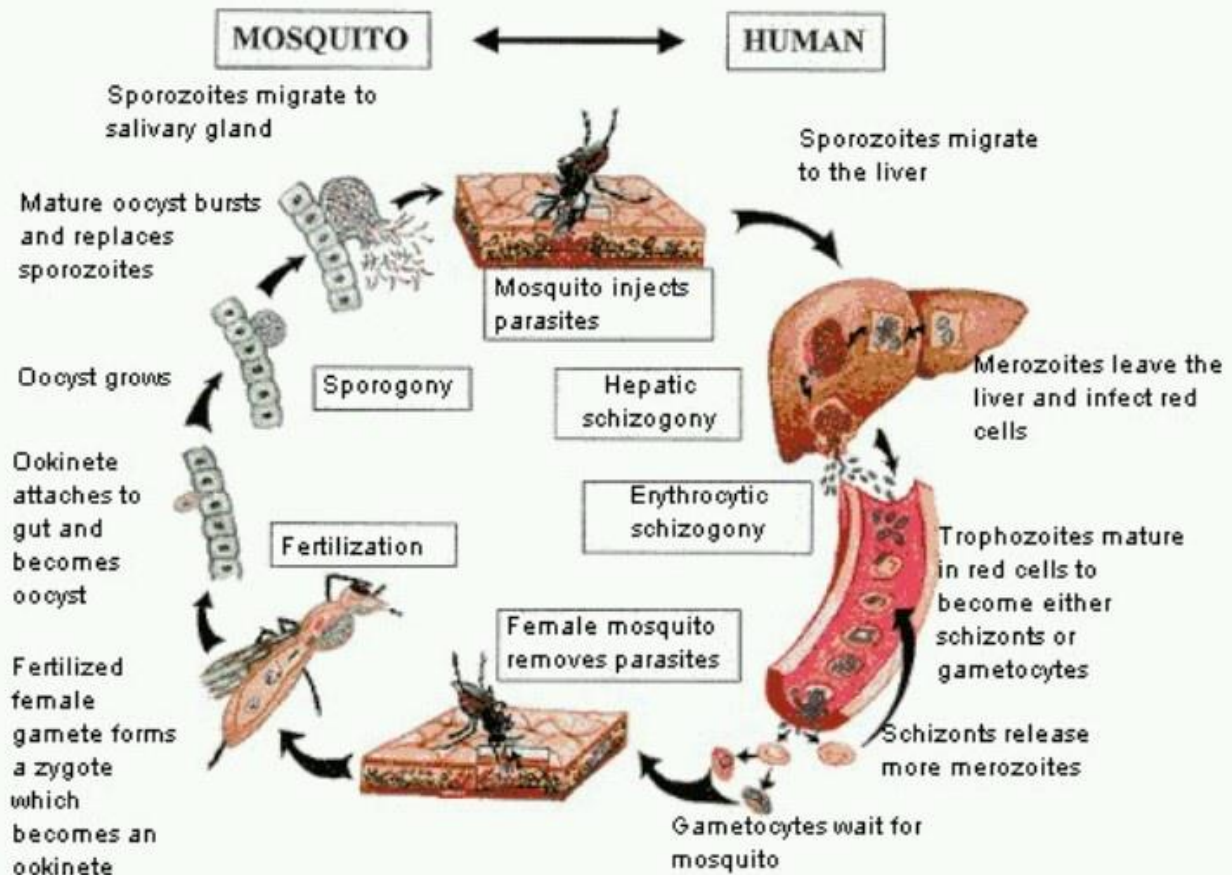
Species or Types of Malaria :

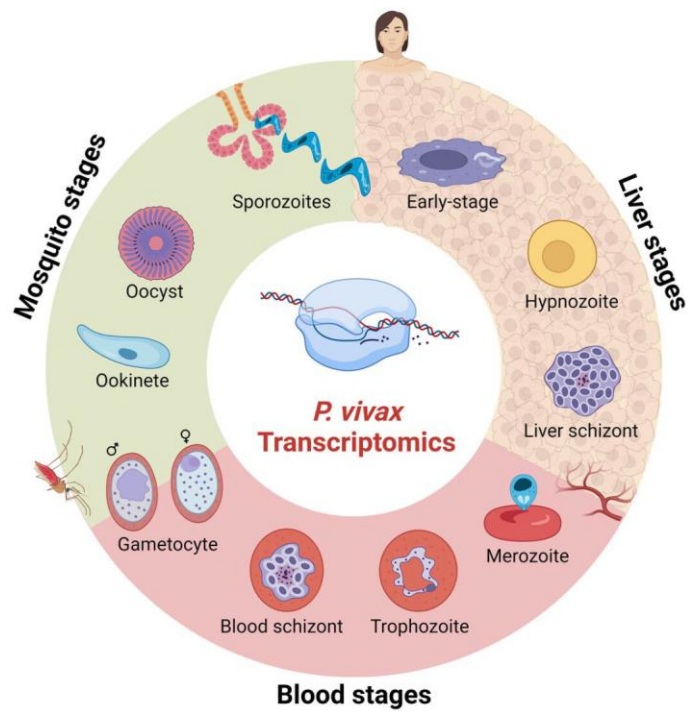
- 1 – Plasmodium falciparum : Found mainly in Africa .
- 2 – Plasmodium vivax : found in Asia and south America
- 3 – Plasmodium ovale : found in west Africa .
- 4 – Plasmodium malariae : found in Africa .
- 5 – Plasmodium Knowlesi : found in south and east Africa .

Transmission : Malaria transmitted by

Mosquitoes (Females of Anopheles) , Culex found in Iraq but not transmit malaria , Aedes not found in Iraq .

THE LIFE CYCLE OF MALARIA

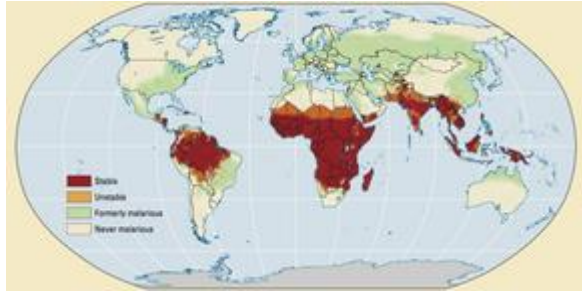




Malaria is an infectious disease spread in tropical countries by Mosquitos (by female of Anopheles) .

Malaria also transmitted by blood transfusion .





Life Cycle \\ Stages of this parasite

In Human : Asexual reproduction

Sporozoites ----- Merozoites (in liver cells) ----- infect red blood cells , Trophozoites (in blood) ----- Schizontes (in blood) ----- Gametocytes (in blood)

In Mosquitos : Sexual Reproduction

Gametocytes ----- male and female gamet (in stomach of insect) ----- Zygote (in stomach) ----- Ookinete (in stomach) ----- OOCyst (in Gut \ intestine) ----- Mature OOCyst bursts to sporozoites (in Gut) ---- move to Salivary glands

Clinical Signs , Symptoms and pathologic effects :

1 - 10 - 15 days after Mosquitoes bite , Fever (Marsh fever) Shivering , convulsion , Headache , Vomiting , yellow skin (Jaundice) ,

2 - Complications : Seizures fever , Coma , (Hemolytic Anemia) , diarrhea in Children , heart failure , kidney failure , Cerebral malaria .

3 - Liver and spleen are enlarged

4 – Cough and Odema in the Lungs

5 - Kidney failure , Black water fever (Hemoglobin in urine , Lysed red blood cell)

6 - If the patient Pregnant woman , abortion occur .

7 - Relapse or reinfection of malaria occur after first infection and curing .

8 - Retinal damage .

Symptoms of **Malaria**

Central

- Headache

Systemic

- Fever

Muscular

- Fatigue
- Pain

Back

- Pain

Skin

- Chills
- Sweating

Respiratory

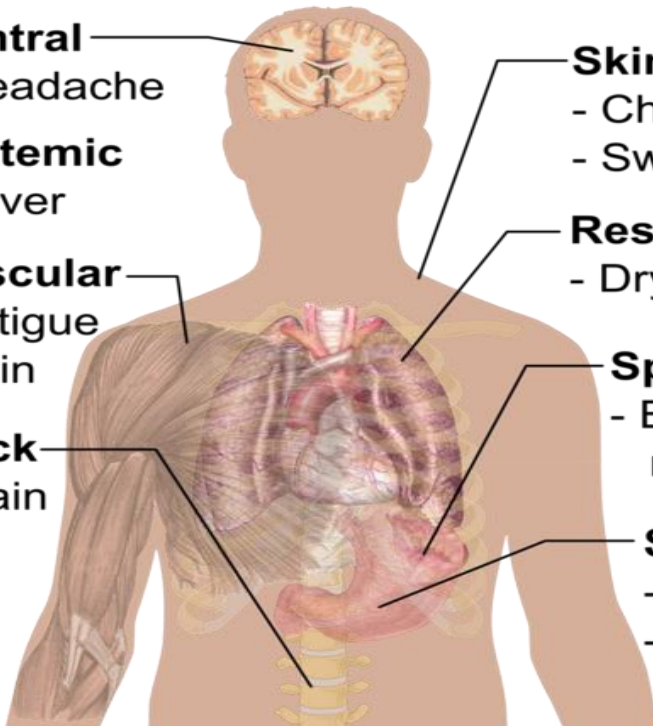
- Dry cough

Spleen

- Enlarge-
ment

Stomach

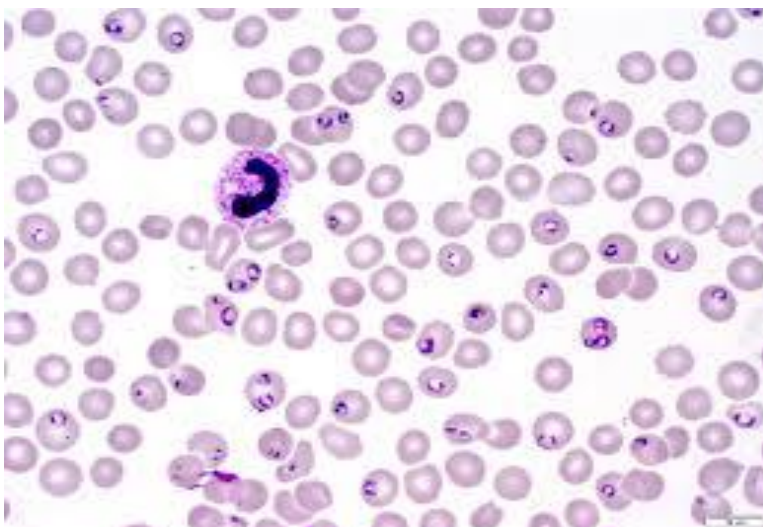
- Nausea
- Vomiting



Diagnosis ; 1 - From clinical signs , symptoms , skin color , smell of volatile materials . 2 – Blood Smear



Malaria present in red blood cells



3 - Serological tests to detect Antibodies of malaria .

Treatment : Sulfadoxine and Pyrimethamine

Quinine \ Chloroquine

Control and prevention :

1 - Eradication of mosquitoes by insecticide .

2 – Eliminate malaria by treating patients by antimalarial drugs .