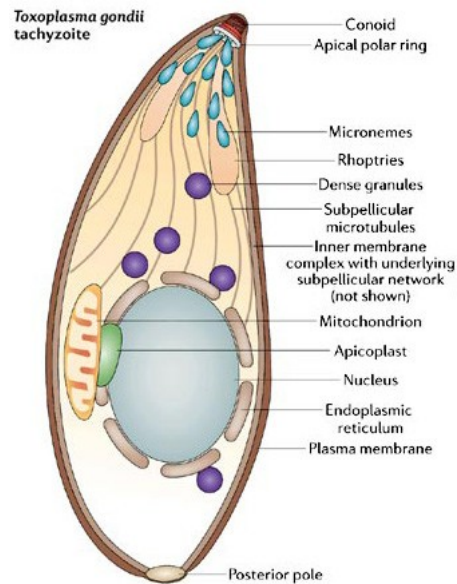


lecture -6- on malaria, covering its classification, causative agents, life cycle, clinical features, and diagnostic methods. Below is a summary of important points, supplemented with examples and illustrations where appropriate:

---

## 1. Classification of Malaria Parasites

- **Belongs to:** Phylum Apicomplexa, Class Sporozoa, Order Haemosporida, Genus Plasmodium.
- **Causative Agents:**
  - *Plasmodium vivax*: Benign Tertian Malaria.
  - *Plasmodium falciparum*: Malignant Tertian Malaria.
  - *Plasmodium malariae*: Benign Quartan Malaria.
  - *Plasmodium ovale*: Benign Tertian Malaria.



Malaria

## 2. Transmission and Vectors

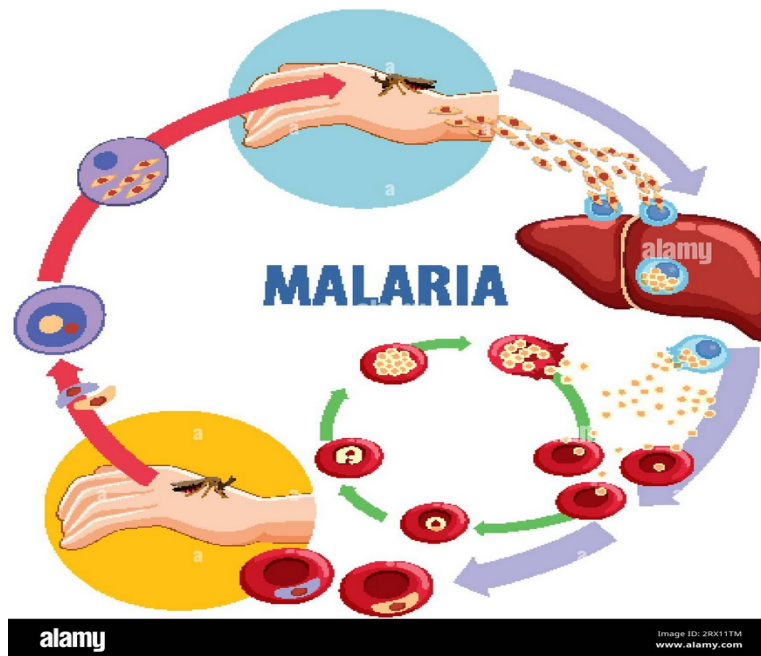
- Transmitted by female *Anopheles* mosquitoes.
- Over 60 species are vectors, with notable ones including *An. culicifacies* and *An. stephensi*.
- Female mosquitoes require at least two blood meals to lay eggs.



Malaria vector

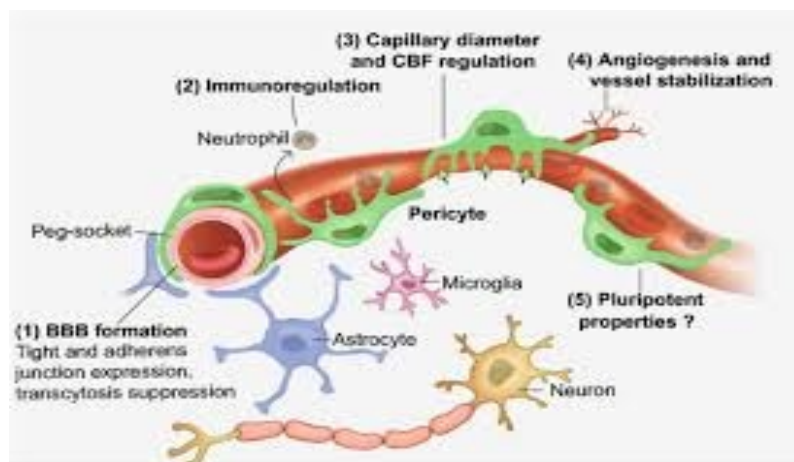
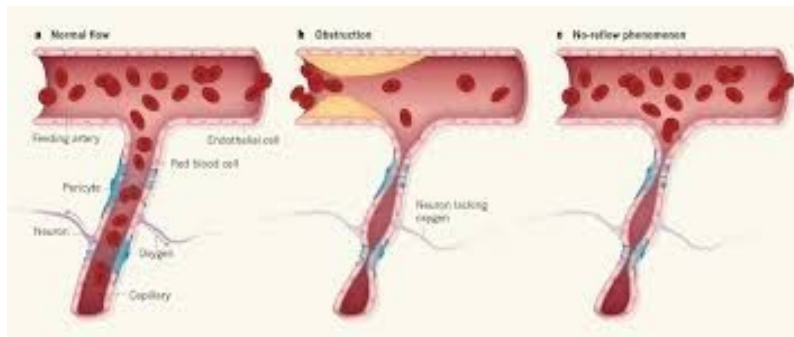
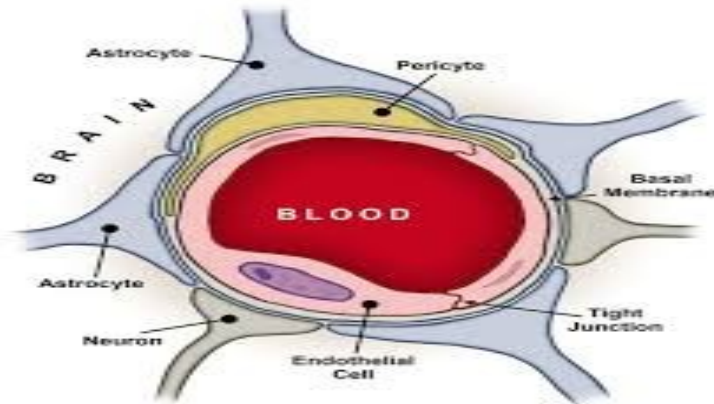
## 3. Life Cycle of Malaria Parasite

- **Hosts:**
  - Definitive: Female *Anopheles* mosquito.
  - Intermediate: Humans.
- **Stages:**
  - *Asexual (Schizogony)*: Occurs in humans.
  - *Sexual (Sporogony)*: Takes place in mosquitoes.



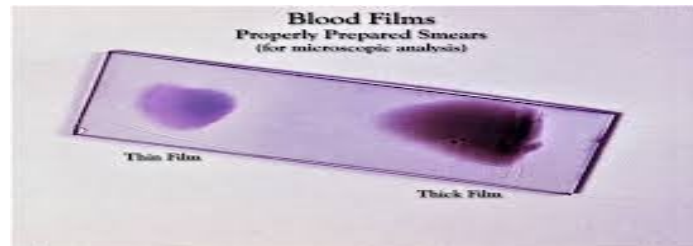
## 4. Pathogenesis

- Symptoms result from:
  - Tissue hypoxia caused by obstructed blood flow.
  - Host immune response to parasite antigens.
- Organ effects:
  - Enlarged liver and spleen.
  - Brain congestion in *P. falciparum* infections.



## 5. Diagnosis

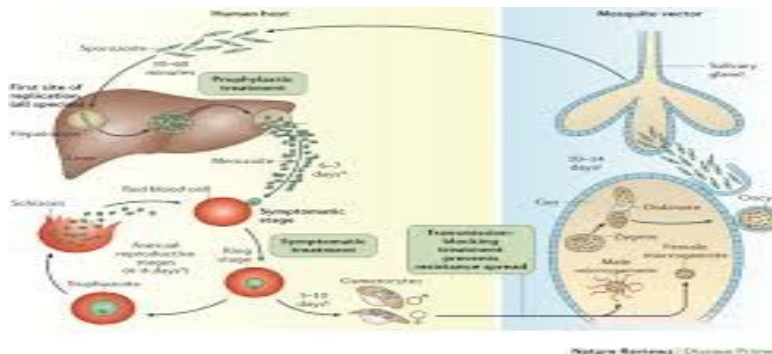
- **Microscopy:**
  - *Thin Smears:* Used for species identification.
  - *Thick Smears:* More sensitive, suitable for low parasite levels.
- **Quantitative Buffy Coat Test:**
  - Detects fluorescent parasites using acridine orange.
  - Advantages: Faster and more sensitive.
  - Disadvantage: Expensive and less sensitive than thick smears.



---

## 6. Clinical Features

- Common symptoms include fever, chills, and anemia.
- Complications (especially in *P. falciparum*):
  - Cerebral malaria.
  - Blackwater fever.
  - Pulmonary edema and renal failure.



---

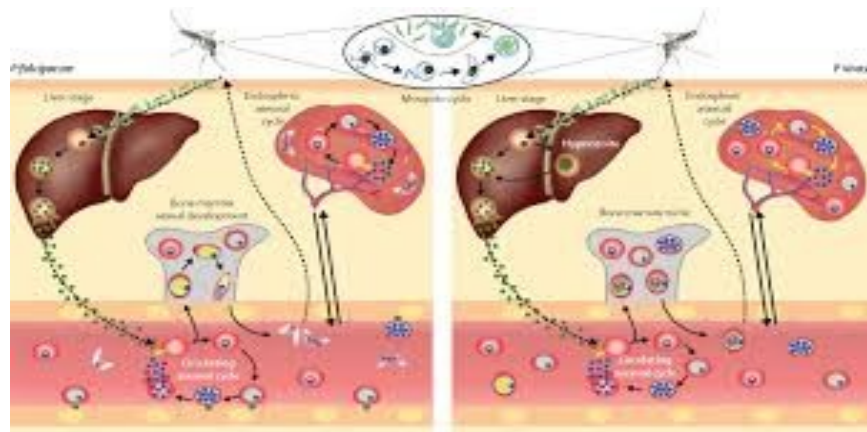
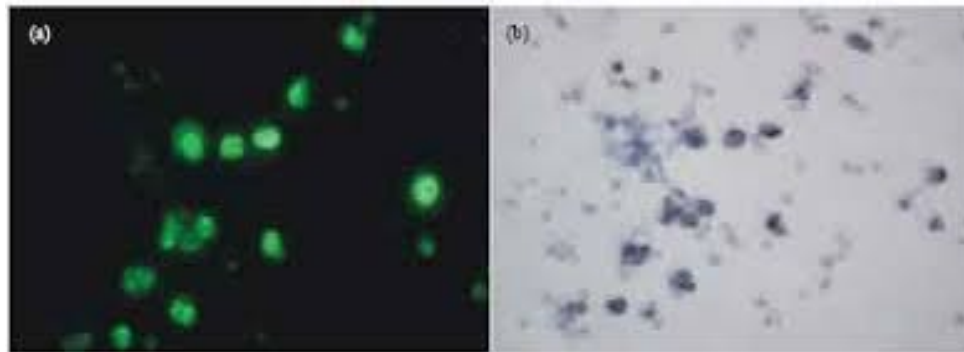
## 7. Laboratory and Advanced Techniques

- **Microconcentration:** Improves positivity rate but distorts parasite morphology.
- **Culture:**

- Continuous culture developed in 1976 allows study of drug sensitivity and antigens.

## 8. Serodiagnosis

- Used for epidemiological surveys, not for distinguishing active from past infections.
- Techniques: ELISA, IFA, and IHA.



This structured breakdown ensures clarity on the biology, transmission, effects, and diagnostic strategies of malaria, complemented by visuals to aid understanding.