

Malaria



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Introduction

- Malaria is a Mosquito-Borne febrile Disease caused by Malaria Parasites
- Malaria (Mala means Bad and Aria means Air) is a Protozoal Infection
- A disease caused by members of the protozoan genus *Plasmodium*, a wide spread group of sporozoans that Parasites affect the human liver and red blood cells.
- Humans are infected with *Plasmodium* protozoa when bitten by an infective **female Anopheles mosquito vector**.
- Symptoms may appear within weeks to months or even years.

Conti...

- There are 4 species of Malaria Parasites :
 - > plasmodium Falciparum
 - > plasmodium Vivax
 - > plasmodium ovale
 - > plasmodium Malariae
- Malaria Found in about 100 Countries in the World
- Maximum Prevalence of Malaria is found in Warm & Humid Environment and Mostly seen in July to November in India
- Optimal Temp & Humidity for the Development of Parasite is 20 to 30 F and about 60% Humidity.

Incubation Period

MALARIA PARASITE NAME	INCUBATION PERIOD
P.falciparum	9 to 14 Days
P. vivax	8-17 Days
P.ovale	16-18 Days
P.malariae	18-40 Days

Pathophysiology

1. Bite from an infected mosquito

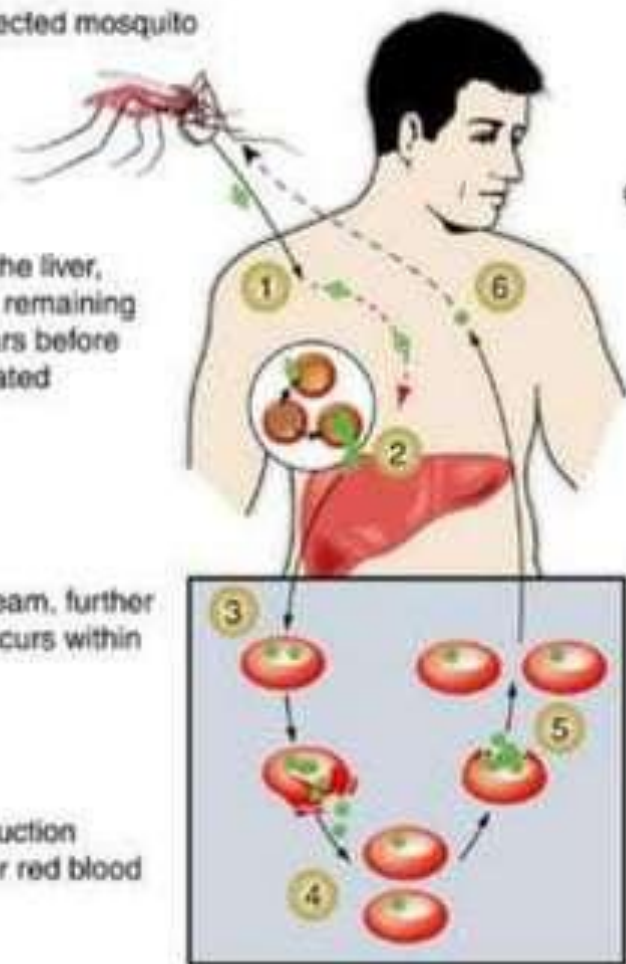
2. Parasite starts reproducing in the liver, some parasites remaining dormant for years before becoming activated

3. In the blood stream, further reproduction occurs within red blood cells

4. Parasite reproduction results in further red blood cell infection

6. Dormant versions of the parasite are ingested by another parasite

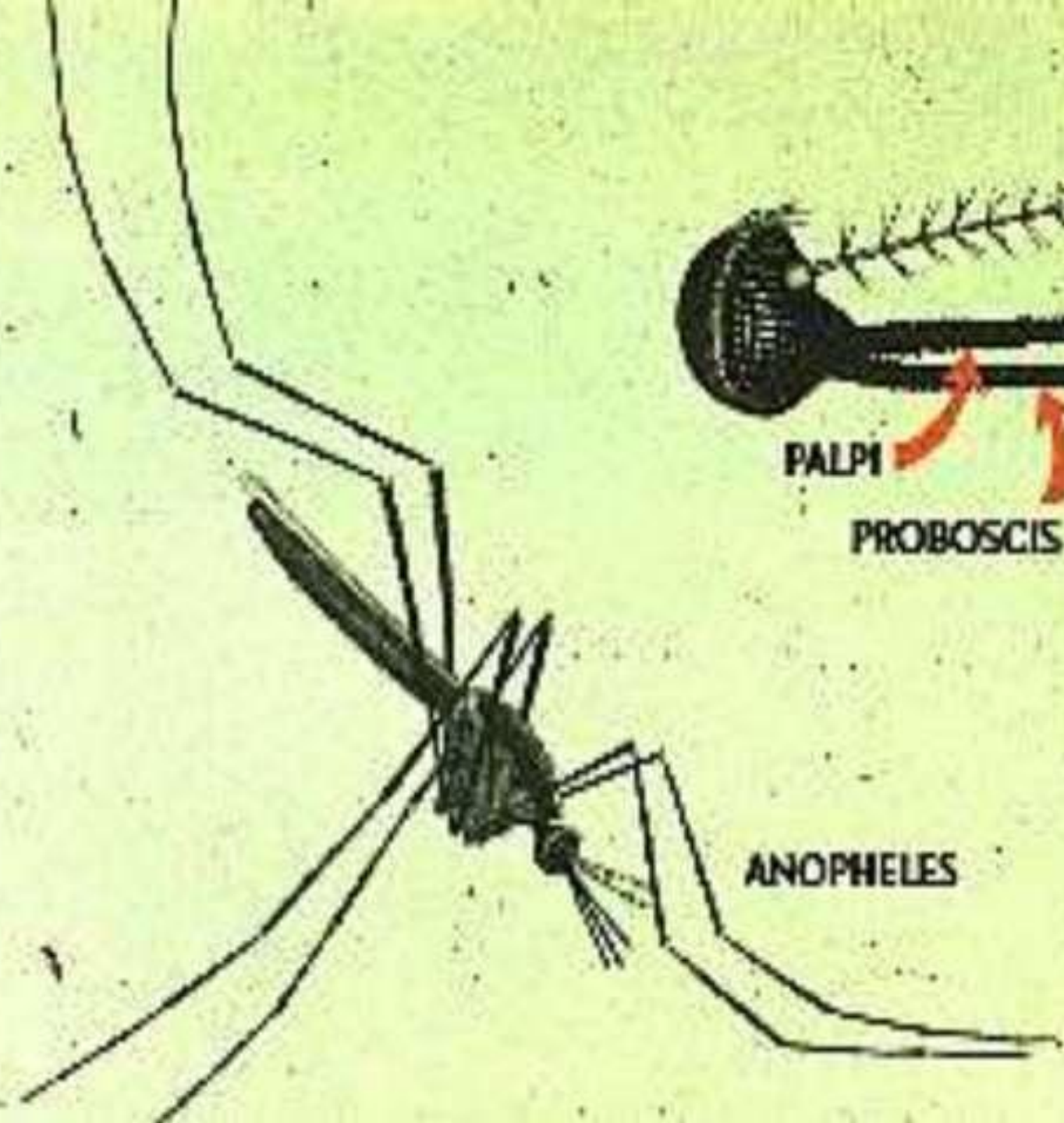
5. Cycles of red blood cell infection and destruction coincide with fever and chills





PALPI

PROBOSCIS



ANOPHELES

Investigations

- All clinically suspected malaria cases require laboratory examination and confirmation.
- History Collection
- Physical Examination
- M.P.(Malaria Parasite) Test
- The Peripheral Smear
- Bone Marrow Smear
- CBC,TC,DC

Differential diagnosis for uncomplicated malaria

Consider other illnesses, such as:

- **Upper respiratory tract infection (Pharyngitis, tonsillitis, ear infection), pneumonia, measles, dengue, influenza, typhoid fever.**

Remember that the patient may be suffering from more than one illness.

Conti...

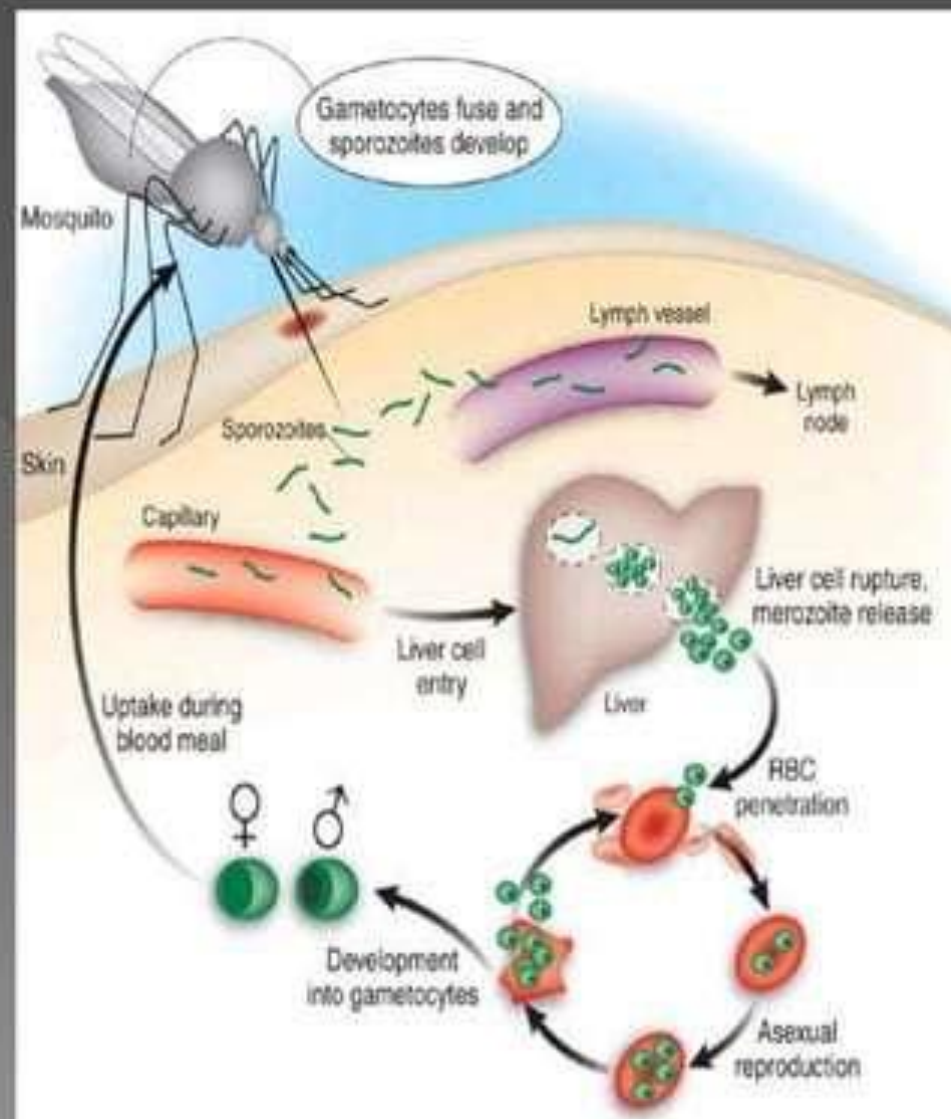
Consider other illness, such as:

- ❑ measles, meningitis, tonsillitis,, dengue, otitis media (ear infection), influenza, pneumonia, typhoid fever, tuberculosis, hypoglycemia.

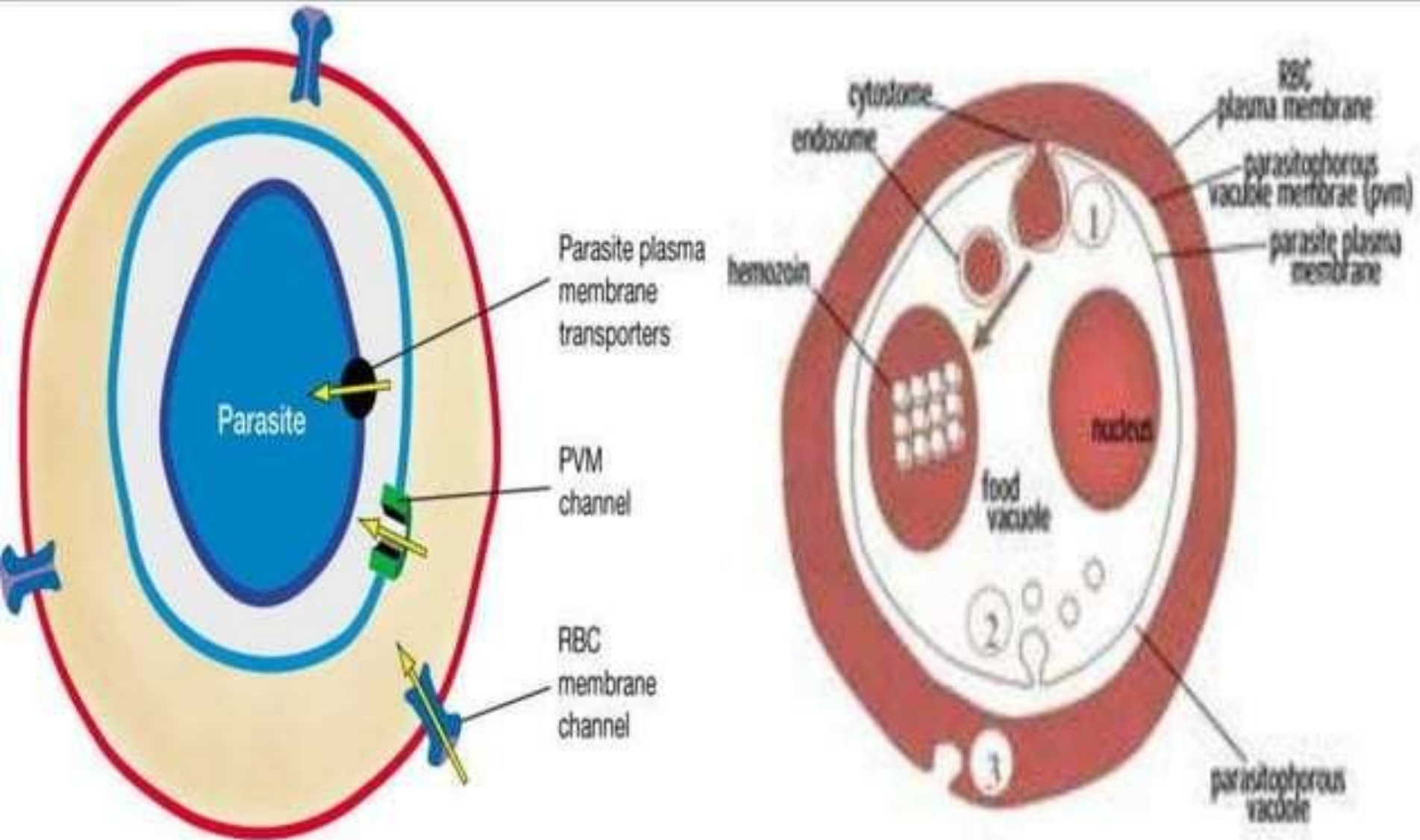


Events in Humans start with Bite of Mosquito

- Man – Intermediate host.
- Mosquito – **Definitive host**
- **Sporozoites are infective forms**
- Present in the salivary gland of female anopheles mosquito
- After bite of infected mosquito sporozoites are introduced into blood circulation.



Structure of Malarial parasite



Signs and symptoms

Symptoms of **Malaria**

Central

- Headache

Systemic

- Fever

Muscular

- Fatigue
- Pain

Back

- Pain

Skin

- Chills
- Sweating

Respiratory

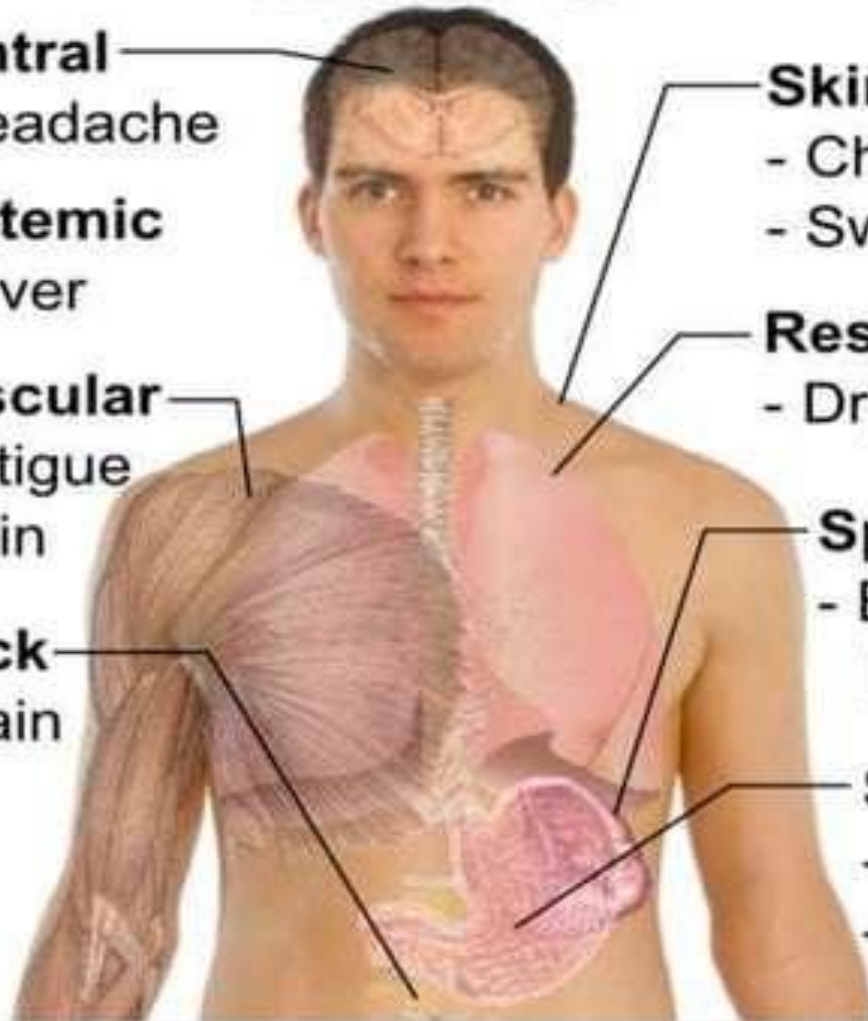
- Dry cough

Spleen

- Enlarge-
ment

Stomach

- Nausea
- Vomiting



Cont...

- High fever with Headache
- Restlessness , Anorexia ,Diarrhoea
- arthralgia (joint pain)
- vomiting, anemia (caused by hemolysis)
- Chills with Rigors
- Hepatosplenomegaly
- Convulsions
- Coma (If Severe)

Conti....

- Typically Paroxysmal Attack of Malarial Fever found in Three Stages .
- ***Cold Stage***
- ***Hot Stage***
- ***Sweating Stage***



CHLOROQUINE

(150 mg base/tab) 25 mg base/kg divided over 3 days

PRIMAQUINE

(7.5 mg base/tab)

Day 1

Day 2

Day 3

10mg base/kg stat, then 5mg base/kg

5mg base/kg Q24H

5mg base/kg Q24H

- **Start concurrently** with **CHLOROQUINE** 0.5 mg base/kg Q24H for 2 weeks
- Take with food
- Check G6PD status before start primaquine
- In mild-to-moderate G6PD deficiency, primaquine 0.75 mg base/kg body weight given once a week for 8 weeks.
- In severe G6PD deficiency, primaquine is contraindicated and should not be used.

1 tab of chloroquine phosphate 250mg equivalent to 150mg base. Calculation of dose for chloroquine is based on BASE, not SALT form. 1 tab of primaquine phosphate contains 7.5mg base.

Malaria Management

- Management of Malaria includes Following Measures..
 1. Early Detection & Early Treatment
 2. Mosquito Control Measures
 3. Community

1. Early Detection

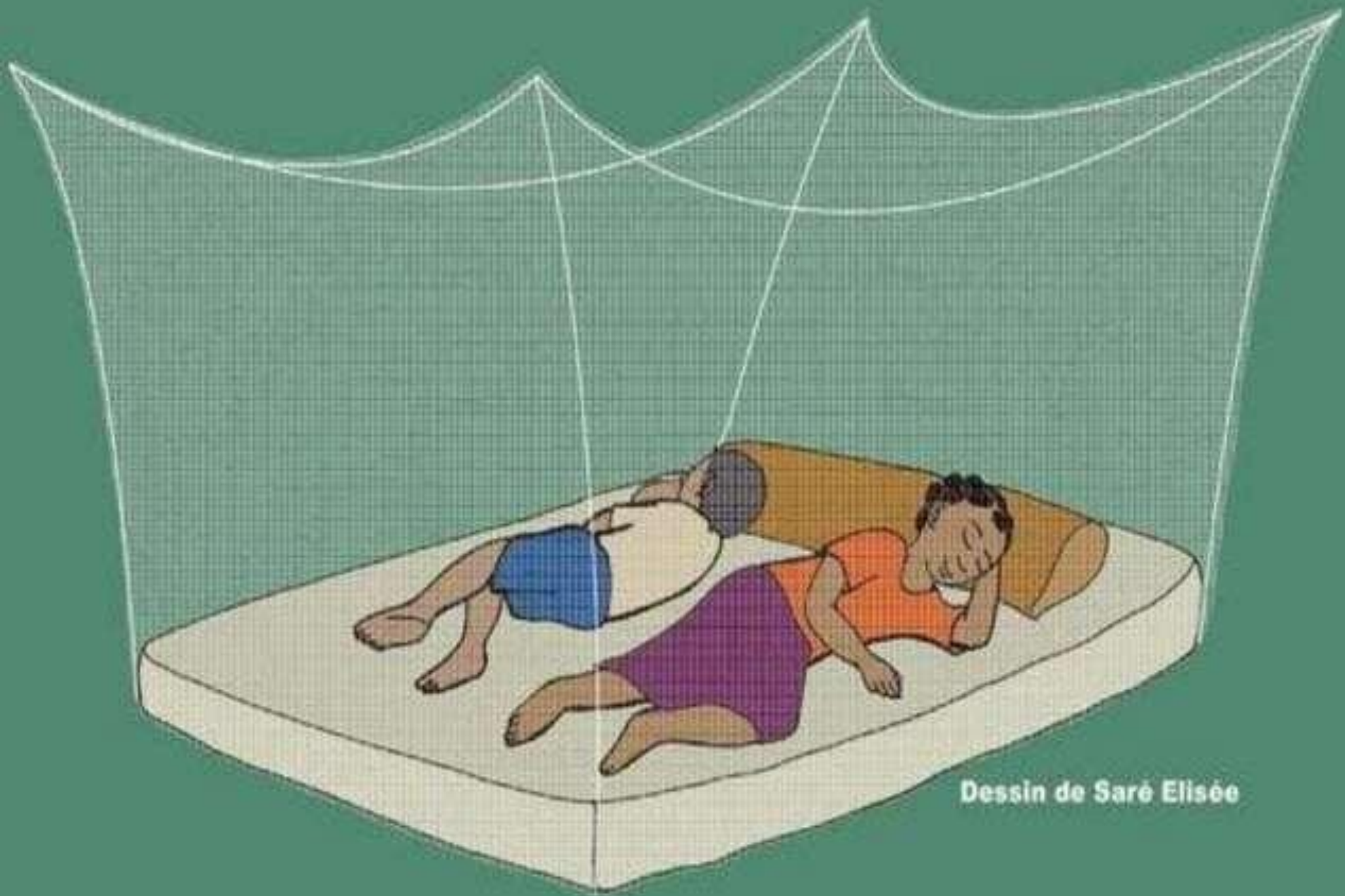
- Early Detection of Fever Cases in the Community by House to House Visit by the Health Workers in Every 15 Days
- Early Administration of Chloroquine(CHQ) to All Fevers
- Collection of Blood Films(Thick & Thin) from Fever Cases & Laboratory Examinations for Malaria Parasite
- Administration of Medical Treatment to All Positive Cases of Malaria



2. Mosquito Measure

- *Anti Adult Measure (DDT Spraying)*
- *Anti Larval Measures (Larvicidal Operations)*
- *Protection Against Mosquito Bites e.g.-Mosquito Nets , Repellent Creams etc)*





Dessin de Saré Elisée

Methods Of Control

- removing or poisoning the breeding grounds of the mosquitoes or the aquatic habitats of the larva stages, for example by filling or applying oil to places with standing water
- spraying with DDT .
- early management and disease surveillance
- monitoring and evaluation – drug and insecticide resistance monitoring





Mosquito net

+



Use insect repellents

+



Close windows

=



Risk of getting bitten reduced



Preventing malaria Mind before Madness

**YOUR
ABCD
AGAINST
MALARIA**



A

Awareness:



**RECOGNIZING
MALARIA!**

B

**Bite
prevention:**



**CONTROLLING
MOSQUITOES!**

C

**Chemo-
prophylaxis:**



**USE PREVENTIVE
MEDICATION!**

D

Diagnosis:



**EARLY
RECOGNITION!**

National Malaria Eradication Programme

- *Gov of India Launch this Programme in 1953*
- *The National Eradication Programme consists various Measures*
- Administering Anti Malarial Drugs
- Chloroquine 10mg/kg for 3 days
- Amodiaquine with 500 mg Sulfamethopyrazine (5 mg)
- 25 mg Pyrimethamine with 500 mg Sulfadoxine
- The Programme Achieved Good Success.



Cartoon
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