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# The Clinical Features Of Malaria In Pregnancy

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## ABSTRACT

Malaria is a global health problem affecting all age groups. Pregnant ladies are at high risk than the non pregnant ones. Malaria always presents with symptoms which enable us to have a high index of suspicion. Proper history and examination are important tools in excluding diseases simulating malaria. The common symptom of malaria is fever which usually occur during the erythorcytic cycle.

The clinical manifestation of malaria range from completely a symptomatic infection to a fatal severe disease.


**Introduction.** Malaria continues to be a major global health problem 40% of women are affected (Shulman CE,)[(1)]. The pregnancy is a high risk factor. Malaria with pregnancy is associated with an increase in the maternal and foetal mortality and morbidity. It is a major cause of miscarriages, stillbirths and perinatal deaths.

It is a preventable disease. The prognoses is excellent when the disease is diagnosed early and the treatment is started promptly.

**The clinical manifestations.** The clinical features of malaria with pregnancy may vary greatly according to the followings:

1- The type of the parasite and also the strain of parasite and the number of parasite .
2- The life cycle of the parasite.
3- The level of immunity. People who have been repeatedly exposed to malaria develop partial immunity. Women become resistant to malaria over successive pregnancies because they acquire intibodies

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that recognized placental parasite and this suggest a vaccine against malaria (Duffy PE)[2].

4- The severity of the disease. There is no (strong) positive correlation between the age of the mother and the gestational age primagravidae are more affected than multiprae

5- The physiological changes occurring during pregnancy.

6- The drugs used.

7- HIV infected mothers are more likely to develop malaria than sero-negative one's (Ticconi C.)[3].

The presentation of malaria is very variable and mimics that of many other infectious diseases. Nevertheless it enables us to have a high index of suspicion.

All symptoms of malaria are exclusively produced by those forms of parasite which invade the blood stream and hence the red blood corpuscles. When the infected anopheles mosquito bites a healthy person it injects the sporozoites and its salivary juice. Those sporozoites are taken by the capillaries of the skin before entering the general circulation. So the blood remain infectious for only half an hour after which the sporozoites are picked up by the parenchymal cells of the liver. This constitutes the pre-erythrocytic cycle which continues for 7 days (the incubation period). The sporozoites then change to liver shizonts which give rise to liver merozoites. Those merozoites then invade the blood stream giving rise to the trophozoites. Those are taken by the red blood corpuscles and hence the erythrocytic cycle starts. During this cycle the blood is infectious and all symptoms showed themselves. Those trophozoites give rise to blood shizonts which burst out to give the blood merozoites. Some of those merozoites develop into gametocytes. Those gametocytes cause no symptoms, they differentiate into male and female gametocytes. Those are taken by another anopheles mosquito where they develop into its stomach to sporozoites. Those sporozoites are stored in the salivary glands ready to infect another person.

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In P. vivax, P-ovale and P.malariae the liver merozoites not only invade the blood but might re-invade the parenchymal cells of the liver (exo-erythrocytic cycle) and this cycle is responsible for relapse of the disease. (Parises ME. )[4].

**Uncomplicated malaria in pregnancy:**

The clinical picture of such a condition depends on:-

1- **The history**: the history has got two objectives:

a. To look for clues to possible diagnosis other than malaria.
b. To assess the severity of the disease and any complication, when taking the history one should pay special attention to:
   i. Geographical history.
   ii. Drug taken by the patient.
   iii. Symptoms and their duration.
   iv. Previous illness.
   v. Previous blood transfusion.
   vi. Is your patient pregnant?
   vii. Other illness in the family.

**Symptom of malaria with pregnancy:**

1- Fever:- It is the common symptom. The old characteristic of the pattern of fever being Tertian in P-vivax and P-ovale, sub-tertian in P-falciparum and quartan in P-malariae is no longer there. The fever is usually persistent. The new attack of fever occurs (Starts) before the disappearance of the previous one. The fever is not caused directly by the parasite, but it is caused by cytokines produced by the host cells (Macrophages and endothelial cells in response to the parasite or products of red blood cells when shizonts rupture. The cytokines known to cause fever is tumour necrosis factor (TNF)(Maitra N,)[5].
2- Headache is not uncommon.
3- Aches and pains might be present.

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4- Gastro-intestinal manifestations (nausea, vomiting, diarrhoea and loss of appetite.) those are common during pregnancy.

**2- On examination:**

The physical examination aims to identify other differential diagnosis and to assess the severity of the disease and it's complications:

1- Temperature usually raised (ranging from 38 – 42°C).

2- Tachycardia is always there.

3- The blood pressure is usually low showing a systolic of 80 mmHg or ever less.

4- The liver and the spleen might be palpable mainly in the non endemic area.

**Complicated malaria with pregnancy.** This type of malaria occurs following plasmodium falicparum infection or chloroquine- resistant malaria. When uncomplicated malaria is not diagnosed early and treated promptly, the clinical picture may deteriorate at an alarming rate-changing to the complicated type of malaria with it's catastrophic consequences. Malaria is said to be severe where it became an emergency threatening the life of the patient.

Those severe manifestations can occur singly or, more commonly, in combination in the same patient. The complications of severe malaria include the following: -

1- Generalized convulsions. Those convulsions are associated with many of the other malarial complications.

2- Hypoglycaemia. It occurs at arrival or during the treatment with quinine which causes hyperinsulinaemia. Patients with hypoglycaemia usually present with:

i. Anxiety.
ii. Sweating.
iii. Breathlessness
iv. Feeling of coldness
v. Tachycardia.

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vi. Deterioration in the level of consciousness.
vii. Convulsions.

3- hyperpyrexia – associated with convulsions.

4- Normocytic anaemia resulting from destruction of infected red blood cells, normal red blood cells impairment of the function of bone marrow.

5- Metabolic acidosis (lactic acidosis) associated with adult respiratory distress. The condition is brought by lack of oxygen in tissue invaded by the parasite.

6- Cerebral malaria. This is a condition of unarousable coma. It makes the correct diagnosis with pregnancy difficult.

7- Fluid and electrolytes disturbances.

8- Acute renal failure. It is mainly continued to adult. It is brought by acute tubular necrosis. Resulting from reduction in the effective renal plasma flow. It is a reversible condition.

9- Acute pulmonary oedema, and adult respiratory distress syndrome. It usually occurs during the treatment or shortly after the treatment. Here the affected person presents with:

i. Increase respiratory rate.
ii. Cough.
iii. Chest pain.
iv. Haemoptysis.

10- Circulatory collapse, shock, septicaemia (Algid malaria).

11- Abnormal bleeding. This results from disseminated intravascular coagulation and thrombocytopenia. Patients with such complication might present with:

a. Pitichae.
b. Epistaxis.
c. Bleeding gums.

12- Jaundice. It due to intravascular haemolysis.

13- Hyperparasitaemia. )Placental parasitaemia) which results in

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parasitic embolism and low birth weight.

14- Haemoglobinuria (black-water fever). It leads to anaemia and renal failure.

15- Prostration. (Generalized weakness). The patient need assistance to walk or to sit.

16- Sequestration. In P. F the infected red blood cells accumulate in the deep capillaries and deep venules of the brain, lumps, the heart, bone marrow and the gut. They caused obliteration of the blood vessels, deprive the host cells from glucose and oxygen, they liberate lactose and they stimulate released of cytokines.

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