

## A CASE OF BLACK-WATER FEVER

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### Abstract

*A case of a 10 year old boy who came to us with fever and passing “cola coloured” urine. Thorough investigations showed a picture of Plasmodium falciparum malaria with hemoglobinuria and the diagnosis of Black-water fever was made which is a rare but potentially fatal condition, however prompt and timely management was initiated which saved a life without any complications.*

**Key words:** Hemoglobinuria, Black-water fever.

### CASE

A 10 year male child was brought with complaints of high grade, intermittent fever of 5 days duration, associated with chills and rigors. He was passing “cola coloured” urine since about 2 hours. The patient was earlier being managed by a private practitioner who had administered Inj Quinine after a positive blood test for malaria. There was no past history of edema, headache, convulsion, oliguria, pain abdomen, burning micturition. No history of similar episodes in the past either in relation to some drug intake or food substance. No history suggestive of tuberculosis.

On examination the child was febrile with temperature of 101<sup>o</sup>f with Pulse rate: 130/min, BP 100/60 mmHg, Respiratory rate: 26/min, weight-25kg. He was pale, icteric and had moderate dehydration. Abdominal examination showed hepatosplenomegaly (liver 2 cm below right costal margin and spleen was palpable 1cm)

### INVESTIGATIONS

Urine examination revealed positive HAEM test without presence of Red Blood Cells, suggestive of HEMOGLOBINURIA. Blood hemoglobin on admission was 6.3g/dl. Serum bilirubin was

2.4mg /dl (T) and 0.7 mg/dl(D). There was renal dysfunction with urea 82mg/dl. Reticulocyte count was 3.1%. G6PD enzyme assay was normal. WBC count was raised (32,432/Cu mm).

### MANAGEMENT

In view of hemoglobinuria following quinine administration and positive blood smear examination for malarial parasite the patient was diagnosed as a case of Blackwater fever. He was started with intravenous fluids followed by whole blood transfusion. Inj Artesunate 4mg/kg /day was given for 3 days. As secondary infections are common in falciparum malaria, antibiotic cover was given for 7 days.

Urine became clear by 4<sup>th</sup> day. HAEM test for hemoglobinuria was repeated and was normal. Fever subsided by 5<sup>th</sup> day post admission and Renal Function Test became normal by 7<sup>th</sup> day (urea-33, creatinine-0.8). Patient remained stable and was discharged after 10 days.

### DISCUSSION

Black-water fever is now a days a rare complication of Falciparum malaria. It manifests with intravascular hemolysis, hemoglobinuria and also with systemic fatal complications like renal and hepatic failure<sup>[1]</sup>. The exact causative factor though remains unanswered, antimalarials and also autoimmune mechanism have been blamed. There is presence of blood pigment in urine in this disease. It is also characterized by intravascular hemolysis, hemoglobinuria and kidney

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failure. Black-water fever is caused by heavy parasitization of red blood cells with *Plasmodium falciparum*<sup>[2]</sup>.

Black-water fever causes destruction of the red blood corpuscles, resulting in hemoglobinemia (hemoglobin in blood but outside RBC'S) and hemoglobinuria (hemoglobin in urine) with urine turning a dark red colour. It is an acute disease and generally occurs in tropical countries<sup>[3]</sup>.

The cardinal symptoms of blackwater fever are fever ranging from 40-40.6°C, rigor or shivering, nausea, bilious vomiting, gastric discomfort, jaundice and passage of blackish or brownish urine due to the presence of blood pigment in the urine<sup>[4]</sup>. Both the spleen and liver are enlarged and may be tender. The temperature of Blackwater fever falls after a few hours. It is preceded by profuse sweating and the skin becomes pale. The treatment is antimalarial chemotherapy, intravenous fluids and sometimes supportive care such as intensive care and dialysis<sup>[5]</sup>. Mild cases may recover in a couple of days but if there is delayed diagnosis, the fever may last for many days and can be fatal.

Hemoglobinuria can also be caused by other conditions which have to be differentiated. They are-

1) G6PD deficiency.

This enzyme is deficient in RBC'S of some individuals. On exposure to certain drugs/substances hemolysis occurs like: Primaquine, nitrofurantoin, furazodilone, sulfonamide, probenecid, nalidixic acid, fava beans.

2) Paroxysmal cold hemoglobinuria.

3) Paroxysmal nocturnal hemoglobinuria

4) March hemoglobinuria.

These conditions should be excluded in a case of Hemoglobinuria to confirm diagnosis of "Black-water Fever".

## References

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