Case Study

An Interesting Case Of Complicated Falciparum Malaria And Hepatitis E Virus Co-Infection

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Abstract
Falciparum malaria and Hepatitis E virus infections are common in tropical countries like India. But coexistence of both the diseases is rare. We report a case of 60 year old female who presented with fever, pain abdomen, jaundice and altered sensorium. Investigations showed conjugated hyperbilirubinemia with raised transaminase levels. Peripheral smear was positive for Plasmodium falciparum and IgM anti HEV was positive. Diagnosis of complicated falciparum malaria with hepatitis E virus infection was made. In spite of treatment with intravenous artesunate and supportive treatment patient succumbed to the infection on the tenth day of hospitalization.

Keywords: Falciparum malaria; Hepatitis E

Introduction
Plasmodium falciparum is endemic in India. Patients with complicated falciparum malaria can present with malarial hepatopathy. Jaundice in malaria can be due to coexistent viral hepatitis.\(^1\) We report a case of complicated falciparum malaria with hepatitis E virus infection.

Case report
A 60 year old female patient presented to M S Ramaiah hospital, Bangalore with intermittent fever associated with chills and right upper quadrant pain abdomen. Patient had yellowish discoloration of sclera and urine and altered sensorium since 2 days. On examination patient had pallor and deep icterus. On per abdomen examination patient had tender hepatomegaly with liver span of 16cms. Neurological examination revealed that patient was in altered sensorium, restless, and irritable. Respiratory and cardiovascular examination was unremarkable.
Haematological investigations showed that patient had anaemia (Hb - 8.4gm/dl), leukocytosis (Total count- 23690/cumm) and thrombocytopenia (platelet count- 39000/cumm). Renal function tests revealed that patient was in acute renal failure (BUN- 117.1mg%, serum creatinine- 4.04mg%). Liver function tests were grossly deranged (Total bilirubin- 19.67mg%, direct bilirubin- 15.39mg%, total proteins- 8.4gm%, serum albumin- 1.9gm%, A/G ratio- 1:3, SGOT- 170 U/L, SGPT- 231 U/L, ALP- 241 U/L, PT- 16.5 secs, aPTT- 60.1 secs, INR- 1.13, serum ammonia- 40.3). Peripheral blood smear was positive for Plasmodium falciparum. Serum was positive for IgM anti HEV; and negative for HBsAg, HCV, HAV, HIV, Dengue, and Leptospirosis. Blood and urine cultures were sterile. Ultrasound abdomen showed gall bladder sludge and minimal ascitis. Computed tomography of brain was normal. Cerebrospinal fluid analysis showed glucose- 92mg%, protein- 69.5mg%, 4 cells, 100% lymphocytes.

The patient was treated with intravenous artesunate, meropenem, rifaximin and lactulose. On the seventh day patient became tachypneic and chest X-ray showed features of ARDS. Hence patient was put on mechanical ventilator. On day 8 patient developed hypotension and was started on ionotropic support. Inspite of above measures patient continued to deteriorate and expired on the tenth day. Final diagnosis of complicated falciparum with hepatitis E virus infection was made.

Discussion
Falciparum malaria is endemic in India. Jaundice in malaria can occur because of various mechanisms. Malarial hepatopathy is one of the complications of Plasmodium falciparum infection. Diagnosis of malarial hepatopathy is made by following criteria 1

1. Demonstration of Plasmodium falciparum infection by peripheral smear examination or antibody based rapid diagnostic testing.
2. Atleast threefold rise in transaminase levels with or without conjugated hyperbilirubinemia.
3. Absence of clinical or serological evidence of viral hepatitis.

Hepatitis E virus is one of the most common causes of acute viral hepatitis in India. 2

Hepatitis E virus is a hepatotropic RNA virus. The course of the disease is generally self limiting and outbreaks of infection are common in tropical counties. 3

India is endemic for both Plasmodium falciparum malaria infection and Hepatitis E virus infection. To the best of our knowledge only one such case of coexistence of both the infections has been reported in India. Ghosal et al reported a case of 20 year old girl who presented with fulminant hepatic failure because of coexistence of these infections. 4 A case of Plasmodium vivax malaria and Hepatitis E virus infection has been reported by Bansal R et al. 5
**Conclusion**
Jaundice in a patient suffering from Plasmodium falciparum infection could be due to coexistent Hepatitis E virus infection. Hence in tropical countries like India which is endemic for both Plasmodium falciparum infection and Hepatitis E virus infection, coexistent Hepatitis E virus infection should be ruled out by serological studies in all patients of Plasmodium falciparum malaria with jaundice.

**References**