Acute hepatic failure due to dengue: A case report
Subhash Giri, Mukul P Agarwal, Vishal Sharma* and Ankur Singh

Address: Department of Medicine, University College of Medical Sciences, Delhi, India
Email: Subhash Giri - goswami_subh@yahoo.co.in; Mukul P Agarwal - mukulpagarwal@gmail.com; Vishal Sharma* - docvishalsharma@gmail.com; Ankur Singh - drsinghankur@gmail.com
* Corresponding author

Abstract
Dengue is an arboviral disease endemic in many parts of the world. Although it is known to cause hepatic involvement commonly, it only occasionally results in acute hepatic failure. We present the case of a young male who developed acute hepatic failure due to dengue. The differentials and the management is discussed.

Background
Dengue is a common arboviral illness endemic in India. Hepatitis in patients of dengue is not uncommon. However dengue is only rarely considered as a cause of acute liver failure. We report a case of 22 year old male who developed deranged liver functions, coagulopathy and encephalopathy due to dengue.

Case report
A 22 year old male, resident of Delhi presented to us in the month of September with three day history of high grade fever associated with chills and rigors, severe headache, myalgias, nausea and vomiting. There was no history of bleeding from any site. There was no history of alcohol intake or abuse in past and he was not exposed to any hepatotoxic drugs. There was no other significant past medical or surgical history. At the time of presentation the patient was febrile (40°C) and had subconjunctival hemorrhages in both eyes 1. Systemic examination was essentially normal. Investigations revealed a Hb of 11.5 gm%, TLC-6450/mm^3 and thrombocytopenia (platelet count-32000/cu mm). Chest roentgenogram and ECG were normal. Ultrasonography of abdomen revealed gall bladder edema and mild ascites.

Two days later the patient developed hematuria but maintained a normal urine output. He became increasingly irritable and within a day developed disorientation to time, place and person. He had no neck rigidity or focal neurological deficit. The patient was anicteric but his liver dullness was reduced. Spleen was not palpable. His investigations at this stage revealed thrombocytopenia (platelet-18000/cu mm.) and coagulopathy (PT-22 seconds against control of 13 seconds), deranged liver functions (Serum Albumin-2.6, Total bilirubin-2.8, direct bilirubin-1.0, SGPT-868, SGOT-910, Alkaline Phosphatase-304). His renal functions and electrolytes were normal.

In view of deranged liver functions, evidence of coagulopathy and altered sensorium a possibility of acute liver failure was kept. Tests for viral serologies including IgM Anti HAV, HBsAg, IgM Anti HBe, Anti HCV and IgM Anti HEV were negative. Blood cultures revealed no growth. Serology for Leptospirosis and Widal test were negative. Peripheral smears for malaria and pLDH antigen for Plasmodium vivax and Plasmodium falciparum were negative. In view of endemicity of dengue in Delhi, thrombocytopenia, gall bladder edema and hepatitis a
The diagnosis of acute liver failure due to dengue should be considered in patients with evidence of acute onset alteration in sensorium and with feature suggestive of dengue (high grade fever, hemorrhagic manifestations, thrombocytopenia, plasma leak syndrome characterized by increasing hematocrit, gall bladder wall edema etc.). The differentials to be considered include acute viral hepatitis, malaria, leptospirosis, drug reactions (Table 1). In our patient the presence of a febrile illness, thrombocytopenia, liver enzyme elevations, and ascites were all consistent with possibility of dengue. The management of acute liver failure in dengue is primarily supportive (see Table 1).

Therefore our patient had evidence of dengue infection and developed acute liver failure during the course of his disease. Hence dengue should be considered as a possible cause of acute liver failure in endemic areas if other viral markers are negative.

**Competing interests**
The authors declare that they have no competing interests.

**Authors’ contributions**
SG and MPA were involved in conception and designing, revision of manuscript and final approval of manuscript. VS and AS were involved in data acquisition and manuscript writing, revision and final approval of the manuscript.

**Consent**
Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

**References**
1. Clinical diagnosis. In Dengue haemorrhagic fever: diagnosis, treatment, prevention and control 2nd edition. Geneva: World Health Organization; 1997:12-23.
2. Nguyen TL, Nguyen TH, Tieu NT: The impact of dengue haemorrhagic fever on liver function. Res Virol 1997, 148:273-7.
3. Itha S, Kashyap R, Krishnani N, Saraswat VA, Choudhuri G, Aggarwal R: Profile of liver involvement in dengue virus infection. Natl Med J India 2005, 18:127-30.

**Table 1: Differrentials of acute hepatic failure due to dengue**

| VIRAL       | MALARIA | LEPTOSPIROSIS | DRUG | DENGUE |
|-------------|---------|---------------|------|--------|
| HIGH GRADE FEVER | -       | +             | +    | -      | +     |
| HEMATOCRIT   | N       | FALLS         | N    | N      | RISES |
| SGPT        | +++     | +             | +    | +++    | +++   |
| ARF         | -       | +             | -    | -      | -     |
| PLASMA LEAK | -       | RARE          | -    | -      | ++    |
| PLATELET    | N       | FALLS         | N    | N      | FALLS |
4. Poovorawan Y, Hutagalung Y, Chongsrisawat V, Boudville I, Bock HL: Dengue virus infection: a major cause of acute hepatic failure in Thai children. *Ann Trop Paediatr* 2006, 26:17-23.

5. Kumar R, Tripathi P, Tripathi S, Kanodia A, Venkatesh V: Prevalence of dengue infection in north Indian children with acute hepatic failure. *Ann Hepatol* 2008, 7:59-62.

6. Gasperino J, Yunen J, Guh A, Tanaka KE, Kvetan V, Doyle H: Fulminant liver failure secondary to haemorrhagic dengue in an international traveller. *Liver Int* 2007, 27:148-51.