

A Case of Dengue Fever in Pregnancy with Fatal Outcome

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Abstract: Dengue fever has become a major health problem especially in tropical countries. Nowadays, the incidence has been increasing among adults and more cases of dengue fever and dengue hemorrhagic fever in pregnancy are being reported. A sound knowledge of its diagnosis and management plays a vital role for an obstetrician, particularly regarding the mode of delivery. Supportive care with analgesics, bed rest, adequate fluid replacement and maintenance of electrolyte balance forms the main stay of treatment.

Keywords: dengue fever, dengue shock syndrome, pregnancy, mortality

I. Introduction

Dengue fever has become a major health problem especially in tropical countries. Nowadays, the incidence has been increasing among adults and more cases of dengue fever and dengue hemorrhagic fever in pregnancy are being reported.^[1,2]Dengue infection in pregnancy increases the risk of hemorrhage for both the mother and the newborn. Increased incidence of preterm births and fetal deaths has been reported due to dengue infection in pregnancy.^[3]In the literature only about 400 cases of dengue during pregnancy have been reported, mainly describing the maternal and fetal outcomes.^[4,5]Diagnosis of dengue infection affects obstetric management, particularly the mode of delivery due to the potential risk of hemorrhage secondary to thrombocytopenia. A sound knowledge of its diagnosis and management plays a vital role. We report a case of dengue fever in pregnancy who had a fatal outcome.

II. Case Report

A 22 year old para 2 living 1 who had undergone emergency cesarean section in private hospital, Kolar was referred to our tertiary centre on post operative day 1 in view of difficulty in breathing since 2 hours prior to admission. She was operated in view of severe oligohydramnios with fetal distress. She had history of high grade fever for 3 days associated with malaise. Intraoperatively, patient had atonic post partum hemorrhage which was controlled by medical management. She had history of severe pre eclampsia and intra uterine death in her first pregnancy.

On examination patient was conscious and oriented. Pallor was present. She was afebrile. Her heart rate was 150/min, blood pressure was 100/70mmhg, respiratory rate was 40 breaths/min, maintaining oxygen saturation at 95% with 5 litres o₂/min. Lungs were clear and no cardiac murmurs were noted. She had abdominal distension due to ascites with abdominal girth measuring 98cms. Immediately within 10 mins of admission, patient deteriorated and developed hypovolemic shock with drop in saturation. Patient was resuscitated immediately and transferred to ICU and was intubated for ventilatory support. She was started on ionotropes (noradrenaline and dobutamine), intravenous fluid replacement and higher broad spectrum antibiotics.

Her investigations showed hemoglobin was 8.8g/dl; Hct 27%; TLC 29,000cells/cumm; platelet count 53,000 cells/cumm; ESR 8mm/hr, markedly elevated SGOT(615U/L) and SGPT (216U/L); altered renal function tests, hypoalbuminemia; hyponatremia, hypocalcemia; deranged coagulation profile; D-dimer 2.40mcg/ml. Both NS1Ag and IgM for dengue were positive. Chest x-ray revealed bilateral pleural effusion. Ultrasound of abdomen and pelvis revealed intraperitoneal collection and moderate ascites.

She was transfused with 2 packed red cells, 2 pints of platelets and 4 pints of FFPs. Patient developed cardiopulmonary arrest after 4 hours of intensive management and succumbed to death secondary to dengue shock syndrome and multiorgan dysfunction syndrome.

III. Discussion

In the recent years, dengue fever has seen a great resurgence in varied regions especially in tropical countries.^[6]It is estimated that every year 100 million infections occur worldwide of whom 250-500 thousand

manifest severe disease, with the remainder being mild, nonspecific, or even asymptomatic.^[7-9] Dengue is a febrile illness caused by dengue virus serotypes 1,2,3 and 4, transmitted by *Aedes aegypti* mosquito.

According to WHO, the following criteria for diagnosis of dengue hemorrhagic fever should be fulfilled: fever, hemorrhagic tendency, thrombocytopenia and evidence of plasma leak as evidenced by haematocrit 20% higher than expected or a drop in haematocrit of 20% or more from the baseline following IV fluid therapy, pleural effusion or ascites. Dengue shock syndrome is characterized by dengue hemorrhagic fever along with a weak rapid pulse and a narrow pulse pressure or hypotension and cold clammy skin and restlessness.^[10] Clinical presentation of DHF in pregnancy might be confused with HELLP syndrome. Hence in endemic areas, diagnosis requires a high index of suspicion.

Studies have shown increased risk of haemorrhage, preeclampsia, increased rate of caesarean sections, miscarriages, fetal anomalies, low birth weight, premature births in dengue infection in pregnancy.^[5,6] Severe dengue has been associated with maternal deaths, with fatality rates ranging from 2.9%–22%.^[11] Vertical transmission of dengue has been reported in various studies.^[12] It is more often seen when mother is infected at or near term. This neonate although did not have any features suggestive of dengue infection, was kept under observation in sick NICU. Presence of dengue in baby could not be established as the baby was discharged against advice.

As there is a physiological increase in intravascular volume in third trimester, the identification of plasma leakage syndrome through the hemoconcentration or hypoproteinemia may be compromised which may underestimate the proportion of DHF.^[13] Sequential infection with different dengue serotypes predisposes to more severe forms of the disease (DHF/DSS). There is enhancement of the cross-reactive cascade of amplified non neutralising heterologous antibodies, cytokines and complement activation which causes endothelial dysfunction, platelet destruction and consumptive coagulopathy.^[14]

Diagnosis of dengue is confirmed by serology which depends on the presence of IgM antibody or a rise in IgG antibody titer in paired acute and convalescent phase serum. IgM capture ELISA is a rapid, simple and most widely used method. If sample is positive for IgM capture ELISA, it should be reported as a probable dengue since IgM antibody may persist at detectable levels for two or more months after infection.^[3] About 93% develop detectable IgM antibody 6 to 10 days after onset and 99% of patients tested between 10 and 20 days have detectable IgM antibody. The diagnosis is confirmed by a four-fold rise in antibody titer using a type-specific plaque reduction neutralization test, isolation of virus and immunohistochemistry in necrosing tissue.^[3,15]

Management depends on the period of gestation and the phase of dengue. There is highest risk of bleeding during the period of plasma leakage (critical phase). Dengue fever is usually self limited. There is no specific antiviral treatment available for dengue fever. Supportive care with analgesics, bed rest, adequate fluid replacement and maintenance of electrolyte balance forms the main stay of treatment.

Patients with dengue shock syndrome should be under intensive care with monitoring of hematological status and serum albumin levels at timely intervals. Isotonic saline or Hartmans solution is preferred over ringer lactate. Plasma expanders can be used. Prophylactic transfusion of platelets and fresh frozen plasma is not recommended due to the fear of volume overload. However, platelet transfusions may be required in a patient with severe thrombocytopenia or who requires surgery. FFP may be indicated in a dengue patient with hepatic encephalopathy and who has active bleeding.

Corticosteroids and non steroidal anti inflammatory drugs (NSAIDs) should be avoided. There is no role for termination of pregnancy before term unless there is an obstetric indication. As far as possible, induction of labour or caesarean section should be avoided during the critical phase. Ostronoff et al suggested a therapeutic benefit of gamma globulins in severe thrombocytopenia in DHF.^[16] However its role is yet to be evaluated in pregnant women.

IV. Conclusion

In the recent times, with the increase in outbreaks of dengue fever, pregnancies complicated by dengue are on the rise. Its clinical presentation in pregnancy may be confused with HELLP. Early diagnosis and prompt management is crucial for reducing the maternal and fetal morbidity and mortality.

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