Dengue haemorrhagic fever complicated by eclampsia in pregnancy

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ABSTRACT

A 28-year-old primigravida presented at 36 weeks of gestation with a one-week history of fever with myalgia. Diagnosis of dengue fever was made based on viral polymerase chain reaction. She progressed to dengue shock syndrome by day nine and subsequently recovered. She delivered a healthy male baby by the vaginal route, but within 24 hours of delivery, had an eclamptic seizure, which was controlled with intravenous magnesium sulphate. Mother and the baby were well at discharge and on the follow-up visit at three months.

Keywords: dengue haemorrhagic fever, dengue shock syndrome, eclampsia, pregnancy complication

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INTRODUCTION

The global prevalence of dengue infection has grown dramatically in recent decades. It remains a major concern in public health, mainly in tropical and subtropical areas of the world. It is caused by four dengue virus serotypes of the genus Flavivirus, and transmitted by *Aedes aegypti* mosquitoes. Infection provides immunity against the infecting viral serotype, but not against the other serotypes. Clinical features of dengue fever vary according to the age of the patient. Infants and children may have a non-specific febrile illness with rash, whereas adults may have either a mild febrile syndrome or severe disease with abrupt onset of high fever, headache, muscle and joint pains, and a skin rash. The major complications include dengue haemorrhagic fever and dengue shock syndrome, with rare manifestations of encephalopathy and cardiomyopathy.[1] Pre-eclampsia is a mutisystem disorder and may cause thrombocytopenia, encephalopathy and cardiomyopathy. Concomitant dengue fever during pregnancy may give rise to a clinical dilemma in terms of diagnosis and the timing of delivery.

CASE REPORT

A 28-year-old primigravida presented at 36 weeks with irregular contractions, fever with myalgia, and dysuria of one-week duration. Her obstetrical history included an earlier admission at 35 weeks with threatened preterm labour, for which she had been treated with tocolysis, dexamethasone and was well at discharge. Apart from this, her antenatal follow-up was otherwise uneventful. On examination, she was febrile (38.4°C), had a pulse rate of 105/min, and blood pressure of 122/65 mmHg. Vaginal examination revealed a closed cervix. Cardiotocograph (CTG) was reactive and showed irregular contractions.

She was admitted to the labour ward and was started on intravenous ampicillin and gentamicin. Symptomatic and supportive treatment was initiated, and the diagnosis of dengue fever was subsequently confirmed by polymerase chain reaction (PCR). Her blood and urine cultures were negative. Platelet count was 258,000/uL. Her temperature rose to a maximum of 38.8°C and she was closely monitored with daily full blood counts, urea, electrolyte and liver function tests. On the fifth day of her admission, her platelet level dropped to 21,000/uL and her blood pressure fell to 74/47 mmHg, without evidence of active bleeding. A diagnosis of dengue shock syndrome was made, and she was transferred to the intensive care unit for monitoring. Platelet count dropped further to 15,000/uL, and prothrombin time was prolonged.

On day eight, she had vaginal bleeding of approximately 200 ml. Her abdomen was soft, non-tender, and her os cervix was 2 cm dilated and partially effaced. CTG was satisfactory. Normal vaginal delivery was planned as there was no obstetrical indication for surgical intervention. Her full blood count showed a haemoglobin level of 8.0 g/L, and prothrombin time/partial thromboplastin time (PT/PTT) values were prolonged. She was transfused with platelets and fresh frozen plasma. By day nine, her platelet count improved to 41,000/L and no further bleeding was noted. A total of nine units of platelets, eleven units of fresh frozen plasma and one unit of packed red blood cells were

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transfused during this time. Two days later she went into spontaneous labour and had normal vaginal delivery. A baby boy weighing 2,560 g, was born with an apgar score of nine at one and five minutes. She remained apyrexial, haemodynamically stable and was transferred to general ward.

22 hours after delivery, she developed generalised tonic-clonic seizures. She was intubated for airway maintenance and subsequently managed in the intensive care unit. Her blood pressure during the episode was normal but she was hyper-reflexic with clonus. Computed tomography (CT) of the brain was unremarkable, except for evidence of ischaemia in the parietal and bilateral frontal lobes. The neurological working diagnosis was posterior reversible encephalopathy secondary to eclampsia. Intravenous magnesium sulphate therapy was instituted. Platelet count was 87,000/uL and haemoglobin level was 10 g/L. Serum AST (66 mmol/L) and urinary total protein (0.77 g/day) were raised, although uric acid remained normal. Her blood pressure was elevated to 136/85 – 140/95 mmHg at 48 hours post-fit, and was controlled with nifedipine. She recovered with supportive care and the follow-up CT of the brain was normal. At the three-month follow-up visit, she had no neurological deficit, and the baby was well.

DISCUSSION

Dengue infection is prevalent in tropical Asia, and it is an important differential diagnosis in patients presenting with fever.[1] Early diagnosis of dengue fever is essential, as appropriate supportive treatment can be initiated early.[2] The pathophysiology of severe dengue fever (WHO classifies this as dengue haemorrhagic fever [DHF]) is a transient increase in vascular permeability resulting in plasma leakage. In severe cases, circulation is compromised, potentially resulting in hypovolaemic shock and even demise, without appropriate management. Patients with DHF can also have abnormal blood coagulation, but major haemorrhage is unusual except in association with profound or prolonged shock.[1]

The management of dengue infection in pregnancy is conservative, and intervention is needed only for obstetrical indications.[3] Previous case series on dengue fever in pregnancy reported complications of preterm labour, abruption and severe haemorrhage during caesarean section. Foetal problems include preterm birth, intrauterine death, and acute foetal distress during labour.[4] Vertical transmission has also been described.[4-6] Our patient had vaginal bleeding, without clinical or ultrasonographical evidence of placental abruption and was hence managed supportively with platelet and blood transfusions. Conservative management was continued in the absence of maternal or foetal compromise. She had an uneventful vaginal delivery on day 11 after the acute phase of dengue and increasing trend of platelet count. Dengue PCR of the baby was negative.

Pre-eclampsia has been reported previously in intrapartum dengue fever.[7] In the present case, the patient developed generalised tonic-clonic seizures within 24 hours of delivery. At that point, the possibility of encephalopathy (in relation to dengue) was considered, but encephalopathy usually occurs in the febrile stage.[8] Occasionally, it may occur as a consequence of intracranial haemorrhage, cerebral oedema or anoxia, micropapillary haemorrhage or even with release of toxic products.[9] CT of the brain, done after the seizure, revealed only focal ischaemic areas. Moreover, although the blood pressure was normal during the episode, hyper-reflexia and raised urinary proteins were present. The pathogenesis of a marginal rise in blood pressure, especially 48 hours after the eclamptic episode with other signs of eclampsia, remains unclear. The possible mechanism of the blood pressure response as well as the eclamptic fits may be the results of a residual post-dengue leaky vasodilatory state. Conventionally, eclampsia is diagnosed with hypertension, proteinuria and convulsions. However, signs may be wide, ranging from severe hypertension to even absent or minimal hypertension, no proteinuria and oedema.[10] In most cases, postpartum convulsions usually occurs within 48 hours, although in some patients, it may develop beyond 48 hours, requiring extensive neurological evaluation.[11-13]

To our knowledge, this is the first documented case of dengue fever complicated by eclampsia in pregnancy. As the average age of dengue infections increases, it is possible that more pregnant women will be exposed.[2] It is thus important for the obstetrician to be aware of the need for early diagnosis to initiate appropriate management.

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