

## CASE REPORT

# Mode of Delivery for Peripartum Dengue (Critical Phase): Two Case Reports

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## ABSTRACT

**Background:** Dengue is an important notifiable disease in tropical countries. Widespread capillary leakage poses big challenges in managing obstetrics population affected by dengue. Managing delivery during peripartum especially at a critical dengue phase is scarcely reported. We reported two peripartum dengue cases with two different modes of delivery.

**Conclusion:** Dengue in peripartum period is best managed by multidisciplinary input, particularly infectious disease experts and close monitoring involving ICU. Both modes of delivery are possible given that strict monitoring and mother optimization are put at prime.

**Keywords:** Dengue, Mode of delivery, Peripartum, Pregnancy.

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## BACKGROUND

Dengue has become a major public health concern in tropical countries. For instance, in Malaysia, the incidence of dengue increased from 32 cases per 100,000 population in 2000 to 361 cases per 100,000 populations in 2014.<sup>1,2</sup>

It is a vector-borne disease caused by bites of *Aedes aegypti* and *Aedes albopictus* mosquitoes. Dengue virus has 4 serotypes: DEN-1, DEN-2, DEN-3, and DEN-4. Infection of one type of serotype may produce lifelong immunity to that serotype, but it does not confer immunity to other serotypes.<sup>3,4</sup>

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Widespread capillary leakage poses big challenges in managing obstetrics population affected by dengue. Managing delivery during peripartum especially at critical dengue phase is scarcely reported. We reported two peripartum dengue cases with different modes of delivery, maternal, and fetal outcome. We highlight our management in lieu with WHO, local protocol, and current hospital best practices.

## CASE DESCRIPTION

### Case 1

Mrs NSA, 31 years old, G2P1 at 38 weeks Period of gestation (POG), complaining of fever since 4 days. It was associated with myalgia, arthralgia, low oral intake, and lethargy. She vomited twice a day with food particle vomitus, dysuria, and frequency. She denies any rashes, epigastric pain, or bleeding tendencies. She had previous uncomplicated caesarean in 2012 for failed induction of labor.

Her examination gave the following results: BP: 100/60, pulse: 108, weight: 77.7 kg, temp: 38.9°C. Transabdominal ultrasound revealed fetal parameters corresponding to 38 weeks, singleton, transverse lie, placenta anterior upper segment, estimated fetal weight: 3.09 kg, AFI: 12.4.

Her NS-1 antigen and dengue Ig M were negative, while dengue Ig G was positive. Her dengue PCR showed detection of dengue 1. She was reviewed by the medical team and transferred to ICU with the following impression: Dengue fever day 5 illness, in febrile phase, mild transaminitis, not in shock, with possible occult bleeding.

She developed an intense abdominal pain on day 1 of admission to the ICU. Repeated abdominal examination showed generalized tenderness, woody hard, but no scar tenderness. She was sent for emergency lower segment caesarean section in view of transverse lie in labor and suspected abruption. Prior to operation, two packs of platelets were transfused. She was electively intubated for hemodynamic control.

Intraoperative examination showed the following results: Retroplacenta clot 100 cc, ascites 200 cc, moderate adhesion, and intermittent uterine atony. Estimated blood loss: 1.6 L. She was transfused two packed cells, 11 cryoprecipitates, 8 platelets, and 4 FFP. Soft drain was inserted, and skin was closed with interrupted, nonabsorbable sutures.

Postoperatively, she was observed in the ICU, intubated, not sedated, and supported with low-dose dobutamine and noradrenaline. Four hours after the procedure, she was transfused another two packed cell and 4 units of platelets. Colloid transfusion including human albumin 20% and 5% were used as part of fluid resuscitation.

She was intubated for 3 days and then was transferred to the high-risk obstetrics ward after 5 days of ICU admission. She was discharged 3 weeks post operation. Her baby was admitted to NICU in view of neonatal dengue.

Graph 1 shows Mrs NSA's platelets, hematocrit, hemoglobin, and white cell count trend.

**Case 2**

Mrs Mar, 35-year-old woman, G5P4 at 37 weeks and 4 days POA with uneventful antenatal history was referred from clinic for oligohydramnios. Upon admission, she was complaining of myalgia, arthralgia, nausea and fever for 2 days duration. There were no associated diarrhea, vomiting, bleeding tendencies, or breathing difficulty.

Examination revealed the following: BP: 107/74, pulse: 96 bpm, temperature: 39°C, FHR: 140 bpm. Abdominal examination showed the following: Soft, nontender, abdomen distended with gravid uterus at 36 weeks gestation, cephalic presentation, engagement 3/5th, with estimation of 3 to 3.2 kg. Transabdominal scan done showed AFI: 6.4, NS-1 antigen positive, with dengue 2 detected (on dengue genome).

She was reviewed by the medical team and transferred to the HDW dengue ward as she entered critical phase. This was evidence by hemoconcentration and decreasing

platelet trend. Serial serum monitoring showed biochemical warning sign not in shock. USCOM, bedside ECHO, and scan showed collapsing IVS (1.02 cm) and right pleural effusion. She was resuscitated with sterofundin.

After 12 hours, she complained of contraction pain but denied leaking or show. Abdominal examination was normal with manual palpation done showed 2:10 mild contraction and normal CTG tracing. VE done showed Os 2 cm, cervix soft posterior, and station -2. Early labor (early latent phase) diagnosis was made.

Her latent phase of labor was managed conservatively. She successfully recovered from critical phase and went into spontaneous labor after 3 days in ICU. She had uneventful spontaneous vagina delivery (SVD) and was discharged well on day 2 post SVD.

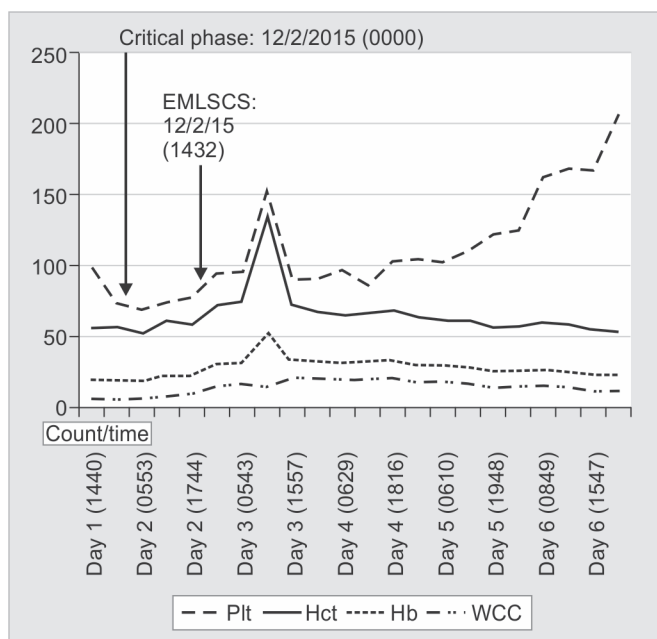
Graph 2 shows Mrs Mar's platelets, hematocrit, hemoglobin, and white blood cell count trend.

**DISCUSSION**

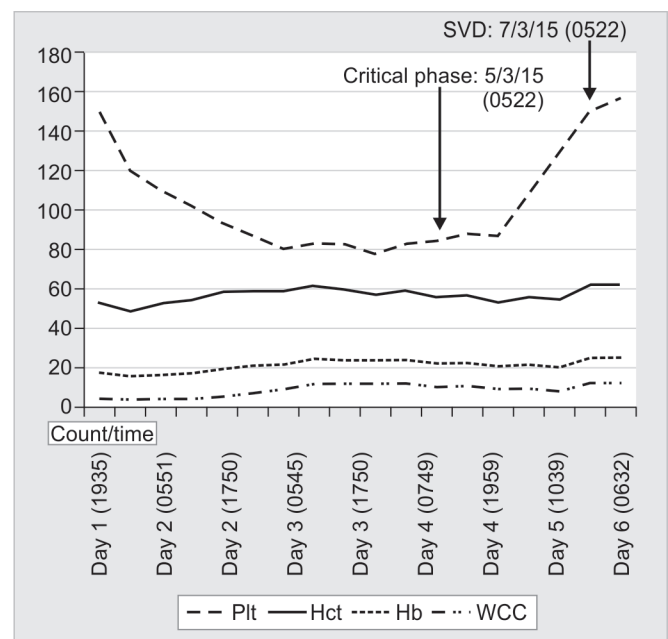
In Malaysia, prevalence of dengue (based on IgM positive serology) was 2.5%.<sup>5</sup> In a study conducted in 2014, 3.4% of SVD mother had recent infection (IgM positive) while 32.4% were seropositive IgG (past infection).<sup>4</sup>

In the largest data from Sri Lanka, 6 out of 26 parturients were diagnosed with dengue at term. Of those, 50% delivered via cesarean section while another 3% via vagina. In both groups, 2/3rd were admitted to the ICU for monitoring, and in both group 2/3 recorded platelet level <100,000.<sup>6</sup>

Study from Tan PC et al recorded 3.2% of preterm delivery and majority (71.4%) achieved SVD. The cesarean



**Graph 1:** Mrs NSA's platelets, hematocrit, hemoglobin, and white cell count trend



**Graph 2:** Mrs Mar's platelets, hematocrit, hemoglobin, and white blood cell count trend

section rate was 22% (both planned and unplanned). The rate of postpartum hemorrhage was 9.5%. There was no significant difference between dengue negative and dengue positive mother.<sup>5</sup> General anesthesia may be a safer option due to fluctuating platelet level.<sup>7</sup>

The main treatment is aimed at adequate fluid therapy, analgesia, antipyretic, and close monitoring. Correct and timely diagnosis and adequate treatment institution decrease dengue fatality to less than 1%.<sup>8,9</sup>

The Malaysian protocol acknowledges the risk of bleeding during critical phase, avoidance of surgical intervention or induction during plasma leakage phase, and avoidance of any procedure or maneuvers that may provoke labor. All pregnant women with suspected dengue must be admitted.<sup>8</sup>

The most important element is to provide intensive care monitoring of blood pressure, hematocrit, platelet count, urine output, consciousness level, and hemorrhagic manifestation with appropriate replacement of blood product if needed.<sup>10,11</sup>

Conservative obstetrics management is the treatment of choice for pregnant patients who develop dengue.<sup>12</sup> Cesarean section is done only for absolute obstetrics reason. Fetal monitoring depends on the severity of dengue, phases of dengue, gestation or viability, maternal comorbidity, and neonatal support.

Our center has a dedicated ICU Dengue Team that uses USCOM as an adjunct to conventional monitoring. Its use in pregnancy in assessing the hemodynamic status is no different with other adult populations. Inputs from Intensivists and infectious disease physicians are paramount imperative in reducing the morbidity and mortality in dengue patients during critical phase.

## CONCLUSION

Both modes of delivery are safe, but the option should consider individual circumstances. Attempt must be made to remote from critical phase of dengue. Dengue in peripartum period is best managed with multidisciplinary input, particularly infectious disease expert and close monitoring involving ICU.

## CLINICAL SIGNIFICANCE

Our cases showed that the option for the mode of delivery in dengue during peripartum is based on the critical

evaluation of patients and dengue phases. Cesarean section is only for obstetrics indication.

Management of dengue during pregnancy is no different from that in adult population, and local protocol can help in detection, delivery of treatment, and monitoring.

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