Case Study 13 – Pregnancy

[26-year-old]

Dengue Clinical Management

Acknowledgements

This curriculum was developed with technical assistance from the University of Malaya Medical Centre. Materials were contributed by the Ministry of Health, Singapore, the United States Centers for Disease Control and Prevention, and the University of Malaya Medical Centre.
**26-year-old, 67 kg (BW)**

G1P0 at 35 weeks, booked at 32 weeks, LMP: 29.6.05, EDD: 5.4.06

**History**

Fever x 1 day
Chills & rigors
Frequency
No body ache, headache, abdominal pain, diarrhoea, vomiting, bleeding

**Physical examination:**

BP: 150/90
HR: 140/min
Temp: 39.4°C
PA: 34/52 gravid uterus, cephalic
Others: unremarkable

**FBC:**

- Hb: 9.4
- HCT: 0.29
- WBC: 13.8
- Plt: 238

**Urine**

- Protein: 1+
- Ketone: 3+
- WBC: 35
- RBC: 24
- Bacteria: +
- Leucocyte esterase: +

**Diagnosis:**

1. Pregnancy-induced hypertension
2. Urinary tract infection
Management
IV ampicillin 1 gm qid
IVD 2 pints NS + 3 pints D5% / 24hrs (104ml/hr)

Day 2
Still febrile
Temperature: 38.2°C
Developed vomiting, poor appetite
Blood pressure: 136/70
Pulse rate: 116/min
Changed to IV cefuroxime 750mg tid

I/O: 4100ml/1500ml for Day 2

Day 3, 01:00
Developed shortness of breath and desaturated to 86% on room air
Repeated vomiting and cough since evening
No abdominal pain
Temperature: 38.6°C
Blood pressure: 148/78
Pulse rate: 124/min
Respiratory rate: 22
SaO₂: 98% on 10L/min O2
RS: crepitations heard up to mid-zone mainly on the left side
DAY 3: Medical review at 04:00

Mildly dehydrated
Temperature: 38.8°C
Blood pressure: 120/90
Pulse rate: 120
Respiratory rate: 36/min
Tachypnoeic
Mild bilateral pitting edema
JVP not elevated
RS: Crepitations over left lung
No calf swelling

Chest X-ray:
Opacities over left mid-zone and lower zone
ECG: sinus tachycardia, T inversion in lead III

1. What are the possible reasons to account for her desaturation?
   - Pneumonia
   - Pulmonary embolism
   - Fluid overload

2. What investigations should be done?
   - FBC
   - Septic workout
   - ABG
   - D-dimer
   - CXR
   - ECG
   - Spiral CT thorax
   - ECHO
What is the diagnosis?

Dengue haemorrhagic fever

Fever
Thrombocytopenia
Evidence of leakage:
  pleural effusion clinically and radiologically
HCT has increased (from baseline 0.29 to 0.32)
**DAY 5**

<table>
<thead>
<tr>
<th>Time</th>
<th>Blood Pressure</th>
<th>Pulse Rate</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>03:55</td>
<td>170/110</td>
<td>96/min</td>
<td>Blood pressure: 170/110 Pulse rate: 96/min Nifedipine 10mg stat</td>
</tr>
<tr>
<td>14:30</td>
<td>120/60</td>
<td>94/min</td>
<td>Developed generalized maculopapular rash Fever settled Petechiae noted over right upper limb</td>
</tr>
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</table>

**Management:**

500ml NS infusion over 2 hours Maintenance: 4 pint NS/24hrs (83 ml/hr) Change to IVI ceftriaxone

**Dengue IgM & IgG: negative (D4)**

<table>
<thead>
<tr>
<th>Day</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>22:44</td>
<td>15:17</td>
<td>07:19</td>
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<tr>
<td>&gt;48hrs</td>
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<table>
<thead>
<tr>
<th></th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>HB</td>
<td>9.5</td>
<td>10.4</td>
<td>11.2</td>
</tr>
<tr>
<td>HCT</td>
<td><strong>0.30</strong></td>
<td><strong>0.32</strong></td>
<td><strong>0.35</strong></td>
</tr>
<tr>
<td>WBC</td>
<td>8.8</td>
<td>10.7</td>
<td>9.4</td>
</tr>
<tr>
<td>PLT</td>
<td>126</td>
<td>99</td>
<td>43</td>
</tr>
<tr>
<td>TCO2</td>
<td>20.5</td>
<td>22.5</td>
<td>18.1</td>
</tr>
</tbody>
</table>
3. **Why is there acute breathlessness during the febrile phase of dengue?**

   Vascular permeability gradually increases and usually reaches its peak during the critical phase of dengue; hence, clinically significant plasma leakage usually will be observed during critical phase.

   However, large volumes of oral fluid intake coupled with large volumes of intravenous fluid during the febrile phase could result in an excessive increase in intravascular hydrostatic pressure and aggravate plasma leakage with excessive fluid extravasated into the pulmonary interstitial space.
21:45
Temperature: 37.2°C
Blood pressure: 118/74
Pulse rate: 108/min
Urine output: ~70ml/hr
Increase IVD to 110ml/hr NS

23:30
Temperature: 37.0°C
Blood pressure: 132/78
Pulse rate: 98/min
CTG reduced variability

Decision:
Not to provoke delivery
Avoid LSCS
Increase IVD to 125ml/hr NS
Transfuse 4 units platelet concentrate

What is the risk of delivery at this stage?
Risk of bleeding is very high whether it is a spontaneous or LSCS delivery.
**DAY 6**

13:45  
**Blood pressure:** 160/120 \(\times 3\)  
Nifedipine SR 20mg bd

15:30  
**Afebrile**  
**Blood pressure:** 140/110  
**Pulse rate:** 120/min  
Another 500ml NS bolus  
Continue maintenance 125ml/hr NS  
**Change antibiotics to Tazosin**

16:00  
Transfer ICU for BIPAP

### Laboratory Values

<table>
<thead>
<tr>
<th>Day</th>
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<tbody>
<tr>
<td></td>
<td>09:31</td>
<td>14:05</td>
<td>18:44</td>
<td>&gt;96h</td>
</tr>
<tr>
<td>Hb</td>
<td>15.0</td>
<td>15.4</td>
<td>16.3</td>
<td>15.2</td>
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<tr>
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<td>0.47</td>
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<tr>
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<td>15.2</td>
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<tr>
<td>Plt</td>
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<td>9</td>
<td>8</td>
<td>14</td>
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19:17  
**Blood pressure:** 140/90  
**Pulse rate:** 92/min  
**Urine output:** 40ml/hr  
Transfuse 4 units platelet concentrate
08:00
HCT improving and stabilizing
Still acidotic
Bilirubin rising, WBC rising
IUD
Continue maintenance

09:45
6 units platelet transfusion

11:15
In established labour (os: 4cm)
Alerted blood bank on blood/blood products

14:10
High flow mask
Reduce fluid regime to 1L/24hrs

Day 7

<table>
<thead>
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<th>06:11</th>
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<td>0.33</td>
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<td>42</td>
<td>41.2</td>
<td>39.9</td>
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<td>20</td>
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16:35
Contraction 3:10 lasting 30 seconds
Membrane bulging
Blood transfusion
(4 units platelet + 2 units FFP with frusemide 10 mg bolus)
IVI oxytocin

Delivered at 17:30
No active bleeding post-delivery
20:00
Febrile with chills and rigors
Tachycardic
Deterioration in mental state, more obtunded
No focal neurological deficit

Diagnosis:
Transfusion reaction?
Sepsis?
Intracranial bleed?

22:00
Developed generalized tonic–clonic seizure while preparing her for elective intubation
CT-scan: no intracranial bleed

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Diagnosis: Eclampsia?
3 units packed cells transfusion
Change to IVI meropenem
IV Mg sulfate bolus
Extubated
Regained conscious level
FBC continues to improve

Discharged on Day 18
Pregnancy may alter the course of dengue illness

- Clinical presentation can easily be confused with other illnesses
- Lower HCT level is seen at a later stage of pregnancy and may “mask” plasma leakage. Serial HCT therefore is more important to guide us on dengue disease progression.
- Intravenous fluid administration in a well-hydrated patient during the early phase of dengue could result in early onset of severe plasma leakage

Dengue infection can potentially affect both the fetus as well as the mother

Avoid LSCS or do not provoke labour during leaking phase if possible