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NEONATAL DENGUE: VERTICAL TRANSMISSION

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Abstract:

Objectives: Case report of vertical dengue infection in a newborn unit in a Tertiary Care Centre In India and review of literature in relation to this case.

Description: We here report a case of vertical dengue infection. A term male newborn of birth weight 3200 g, born out of a non consanguineous marriage, was admitted to a neonatal intensive care unit of our unit on 3rd day of life with complaints of fever and erythematous rash. Her mother had experienced acute febrile illness with headache and myalgia. Her investigations revealed dropping platelet count from 40000 to 20000. She did not have any evidence of bleeding including any skin hemorrhage, cerebral hemorrhages. Anti-dengue antibodies (IgM) were positive in the mother and infant. Polymerase chain reaction done revealed type 2 dengue in the infant.

Comments: This case report brings to notice the possibility and presentation of vertical dengue infection so that it can be diagnosed early and managed accordingly.

1. Introduction

Dengue infection has become a major public health problem in tropical regions**.** It is an acute febrile disease caused by a virus of the flavivirus genus that belongs to the family *Flaviviridae* It is an arboviral disease affecting humans and its dissemination is by mosquito *Aedes aegypti*, the main dengue vector. Although a rare clinical occurrence, transplacental transmission imposes adverse effect on the fetus. Therefore, the objective of this case report is to bring to notice, the possibility of vertical transmission of dengue, which can have a close presentation as neonatal sepsis, thus high index of suspicion is needed to timely diagnose and manage this condition.

2. Case Report

Term, male newborn (NB), birth weight 3,200 g, was admitted to the neonatal intensive care unit (NICU) on day 3 of life with complaints of fever, lethargy and erythematous rash.

The baby was delivered by normal vaginal delivery in the inborn maternity unit and was transferred to the NICU.

After admission to the NICU, the baby was assessed clinically, relevant blood samples for ruling out sepsis were taken and intravenous antibiotics (pipracellin-tazobactum and amikacin) were started.

The blood investigations revealed severe thrombocytopenia (15,000 platelets) with other blood lines within normal range. Repeat platelets dropped to 15,000. Liver function test was suggestive of raised hepatic transaminases (SGOT 1560, SGPT 1163, ALP 627).

As per the history given by mother, she had complaints of fever, muscle pain and headache at the time of admission to the hospital.

Blood samples taken from her revealed severe thrombocytopenia with platelet count of 40000, repeat investigations revealed dropping platelet counts to 20000.

Anti-dengue antibodies (IgM) analyzed using the ELISA (enzyme-linked immunosorbent assay) method, came out to be positive for both mother and infant.

Polymerase chain reaction (PCR) revealed Type 2 dengue in the infant.

The baby was managed accordingly, intravenous fluid was given and he also received a unit of platelets. Antibiotics were stopped after 5 days when blood culture report came out to be sterile and serology report confirmed dengue diagnosis. Repeat platelet count and Liver function test came out be normal. Rashes disappeared. Gradually breastfeeds and oral feeds were built and baby became hemodynamically stable and was discharged on day 10 of life.

The location of the hospital is in the northern part of India which falls in the geographical zone at risk for dengue infection. But as per investigations here was no other case at the time involving in-patients or hospital personnel. And the serology report confirmed the vertical transmission of dengue from mother to the infant.

3. DISCUSSION

Incidence of dengue infection in India is more and hence it is apparent that pregnant women could be infected.

Only few cases of vertical dengue infection have been published in the literature till date.

The severity of the clinical picture in pregnant woman varies in different case series but most of them have common finding of HELLP syndrome (hemolysis, elevated liver enzymes and low platelet count).

The immune mechanism leading to the pathogenesis of vertical dengue infection has not been well established yet; however, the newborns' clinical characteristics described in the previous reports were also found in our clinical case. In addition, severe hemorrhagic complications in newborns are uncommon, although there are reports of severe thrombocytopenia (most of them< 30,000).

In regard to the fetus, literature shows an increase in the incidence of neural tube malformation in NBs whose mothers had dengue in the first quarter of pregnancy during a dengue epidemic in India.

Many authors have reported higher incidence of preterm deliveries and low birth weight. But our case was a fullterm infant with weight appropriate for gestational age.

Reports by some authors suggests that severe dengue affects the NB only when the mother's symptoms occur close to term or delivery time, and there is insufficient time for mother to generate protective antibodies.

Vertical infection as opposed to the postnatal infection in our case was based on the below mentioned points:

(1) Immediate predelivery detection of maternal infection ; (2) Incubation period of 3 days; (3) absence of other proven dengue case in admitted patients or staff at that period of time; (4) absence of vector, *Aedes aegypti* focuses nearby the hospital.

When comparing our case to the series of cases involving newborns, we found that the incubation period, the clinical manifestation and the laboratory tests were similar. The time interval between the beginning of fever in the pregnant woman and NB in the cases mentioned above ranged between 1 to 13 days (mean time = 7 days), which is similar to our case.

Pregnant women and Newborns may have variable symptoms however the commonest symptoms are fever and thrombocytopenia. In our case, mother had similar symptoms.

Therefore, the most adequate management when there is diagnostic suspicion of dengue during pregnancy is conservative management, avoiding anticipating the delivery. When there is possibility of imminent delivery, the NB must be carefully followed-up regarding his/her clinical evolution up to the second week of life.

In dengue-endemic areas, there is a possibility that pregnant women may be infected with dengue virus. Therefore, obstetricians and pediatricians should be on alert to dengue disease and be prepared provide proper management for both mother and neonate.

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