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# A CASE REPORT OF CONGENITAL DENGUE INFECTION

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**ABSTRACT**

Congenital dengue is caused by trans-placental transfer of virus from the infected mother to the fetus. We are reporting a case of normal vaginally delivered male preterm, who was admitted at 1st Hour of life for respiratory distress. Mother had history of acute febrile illness and was Dengue NS-1 positive. Baby's serial laboratory investigation showed initial hemoconcentration followed by hemodilution. Looking at baby's serial hemogram and maternal history of dengue, Dengue NS-1 and Dengue IgM were sent which came positive. Though with thrombocytopenia, there were no bleeding manifestations or any severe manifestation in the baby. The baby recovered well and was discharged on 14th day of life. Close observation, symptomatic and supportive treatment are the mainstay of the management.

## INTRODUCTION:

Dengue is a major public health concern globally, a common cause of illness seen in primary care settings in tropical and subtropical countries. Every year, during the period of July – November, an upsurge in the cases of dengue/DHF has been observed in India. The disease has seasonal pattern; the cases peak after the monsoons. It is transmitted by Aedes aegypti and Aedes albopictus.

World Health Organization(WHO) defines dengue as an acute febrile illness associated with two or more of the following signs or symptoms: intense headache, retro-orbital pain, myalgia, arthralgia, skin rash, leucopenia and hemorrhagic manifestations. Congenital dengue infection is cause by direct transfer of virus across the placenta, when there is insufficient time for protective antibody formation and subsequent fetal transfer. This happens when the mother acquires infection in latter part of third trimester, near her expected date of delivery.[1]

Dengue in late pregnancy predispose the fetus into great risk as less maternal specific antibodies are passed through placenta. This is a major possibility of neonatal dengue infection. Today fetal or cord blood samples are considered as better source of qualifying intrauterine dengue infection.[2] In neonates, vertical transmission of dengue produce varying symptoms, from fever with thrombocytopenia to cerebral hemorrhage[1]. We report a case of prematurely delivered neonate with dengue illness vertically transmitted from the mother.

## Case Report:

24 year old female ($G_2P_1A_0L_1$) had uneventful antenatal progress until 34 weeks of gestation until she developed high grade fever with chills, headache and malaise. She consulted at private hospital and on investigations Dengue NS-1 was positive and hemogram is as follows: Hb- 6.1g/dl, total count 2100/mm$^3$ and platelet count was 42,000/mm$^3$. On second day of illness she had convulsion (GTCS) and was advised admission at private hospital. Due to monetary constraints patient came to tertiary care hospital for further management. On third day of illness repeat complete hemogram was done. Dengue NS-1 and IgM was also sent. Thrombocytopenia was seen on complete hemogram and both Dengue NS-1 and IgM was positive. On 4th day of illness mother was given 2 units of PCV. On following day antenatal USG was done which was suggestive of oligohydramnios and gestational age of 30 week 6 days. She developed uterine contraction on the same day and delivered premature baby boy by spontaneous vaginal delivery. Post -delivery 1 unit of PCV and 4 unit of PRC were given. Subsequent complete hemograms showed improvement and mother did not develop any post-partum complications.

Preterm 34 week (Ballard Score) vaginally delivered male child with a birth weight of 1920 gram was born on 16th September 2019. The baby was admitted in NICU on 1st hour of life for preterm low birth weight care and respiratory distress. The patient was nil by mouth for two days and supplemental oxygen was given. Broad spectrum antibiotics and intravenous fluids were started. Respiratory distress gradually improved, oxygen was weaned, and tube feeding was started from 2nd day of life. Serial hemogram's since birth showed increase in hematocrit with corresponding thrombocytopenia. Since CRP was negative and blood culture sensitivity showed no growth, cause of thrombocytopenia had to be ruled out. Dengue NS-1 and IgM was sent, the result of which was positive. Though baby had thrombocytopenia no bleeding manifestation was present. There were no significant clinical manifestation seen in the baby representing mild dengue illness. Close monitoring was done as per dengue protocol. Baby was gradually shifted to breast feeding and was discharged on 15th day of life.

**Table 1: Serial blood profile of mother**

| Date | 12/9 | 14/9 | 15/9 | 16/9 | 20/9 | 23/9 |
|---|---|---|---|---|---|---|
| Hemoglobin(g/dl) | 6.1 | 8 | 9.1 | 10.9 | 10.6 | 12 |
| Total count/mm$^3$ | 2100 | 4630 | 10470 | 15170 | 8580 | 7740 |
| Hematocrit (%) | - | 27.4 | 31 | 36.2 | 32.7 | 38.1 |
| Platelet count/mm$^3$ | 42000 | 39000 | 95000 | 1,43,000 | 1,45,000 | 2,28,000 |
| Dengue NS-1 | +ve | +ve | | | | |
| Dengue IgM | | +ve | | | | |

**Table 2: Serial blood profile of neonate**

| Date | 16/9 | 18/9 | 20/9 | 22/9 | 24/9 | 26/9 | 29/9 |
|---|---|---|---|---|---|---|---|
| Hemoglobin(g/dl) | 15.7 | 19.2 | 18.2 | 15.9 | 13.4 | 13.5 | 13 |
| Total count/mm$^3$ | 5180 | 8170 | 10260 | 3820 | 17650 | 11010 | 11820 |
| Hematocrit (%) | 52 | 57.4 | 58.4 | 50.2 | 42.2 | 42.2 | 41.7 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Platelet count/mm$^3$ | 1,69,000 | 1,00,000 | 1,36,000 | 1,33,000 | 99000 | 1,01,000 | 2,31000 |
| Blood CS | No growth | | | | | | |
| CRP | | - ve | | | -ve | | |
| Dengue NS-1 | | | | | +ve | | |
| Dengue IgM | | | | | +ve | | |

## DISCUSSION:

Dengue fever is endemic in India and although exact prevalence is difficult to calculate, several epidemics have been described. Vertical transmission of dengue is not so uncommon rather its misdiagnosis causes health care system in a state of negligence to report. This under reporting could also be due to asymptomatic infection as the symptoms are almost similar to other viral infections[3].

Dengue infection is possible in all three trimesters of pregnancy. Wadgue et.al. reports the incidence rate as 3.8% in the first, 7.7% in second and 77% in third trimester and 11.5% during the immediate post-partum period[4]. The incubation period of dengue virus in humans is 3 to 10 days and half life in neonates is 40 days[5,6]. The gestational age of the fetus at presentation of maternal dengue fever is an important predictor of fetal outcome. An early or late onset in pregnancy has poor prognosis. Maternal infection early in pregnancy has been shown to increase risk of abortion whereas infection beyond 31 weeks of gestation has been associated with premature delivery. Tan et.al in a study of prospective cohort, described the vertical transmission incidence rate as 1.6%[7]. A review made by Sirinavin in 2004 finds the onset of fever in congenital dengue fever varies from day 1 to day 11 after birth and the signs and symptoms lasting for 1 to 5 days[8]. Few case reports have described a mild presentation in which the newborn presented with fever, rash, thrombocytopenia, respiratory distress and hepatitis in early neonatal period which was followed by spontaneous recovery[9-12]. In our newborn case mild illness was seen in form of thrombocytopenia and respiratory distress followed by spontaneous recovery of the baby.A systemic review conducted by Sawyer et.al indicates higher incidence of cesarean deliveries, pre-eclampsia and preterm birth. Eclampsia and preterm birth were seen in our case report.

## CONCLUSION:

Vertical transmission of dengue is highly significant especially in endemic areas. As the complications of dengue are not uncommon, early diagnosis of congenital dengue is important and will significantly reduce maternal and neonate mortality. Stringent monitoring with proper fluid management in conjugation with proper laboratory investigation is the key for early and uneventful recovery.

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