Dengue Shock Syndrome Complicating High Risk Twin Pregnancy during Late Gestation: Extinguishing Fuel added Flames

Sparsh Madaan¹, Dhruv Talwar², Sunil Kumar², Arpita Jaiswal¹*, Neema Acharya¹ and Manila Reddy Eleti¹

¹Department of Obstetrics and Gynaecology, Jawaharlal Nehru medical college, Datta Meghe Institute of Medical Sciences (Deemed to be University), Wardha, Maharashtra, India.
²Department of Medicine, Jawaharlal Nehru medical college, Datta Meghe Institute of Medical Sciences (Deemed to be University), Wardha, Maharashtra, India.

Authors’ contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

ABSTRACT

Incidence of Dengue has been on the up rise ever since the second wave of the pandemic of COVID19 has ended introducing an old enemy on the frontline to the health care professionals. A 28 year old Gravida 2 Parity 0 Living 0 Abortion 1 with twin pregnancy presented with fever along with chills and retro orbital pain along with body ache since two days in the emergency department with the gestational age of 36 weeks. She tested positive for Dengue NS1 antigen. Patient was having thrombocytopenia and was managed with intravenous fluids, platelet and blood transfusion and was taken for caesarian section and she delivered twins with normal birth weight. During the post operative period the patient went into dengue shock syndrome and which was managed with fluids and inotropic support and patient ultimately recovered and was discharged on day seventeen of admission. This case report emphasises on the importance of prompt detection and management of dengue in a case of high risk pregnancy such as twin pregnancy. After extensive review of literature we found that this is the first case report to report the association of twin pregnancy with dengue shock syndrome making it an important topic of discussion.

Case Study

Received 28 June 2021
Accepted 08 September 2021
Published 13 September 2021

*Corresponding author: E-mail: drarpitajaiswal@gmail.com;
Keywords: Twin pregnancy; dengue shock syndrome; high risk pregnancy.

1. INTRODUCTION

Dengue fever is a tropical disease challenging the health care facilities after the second wave of COVID19 [1]. It is a flavivirus infection transmitted by Aedes mosquito [2]. It is endemic in India with increased incidence in the monsoon season owing to the rainfall pattern. Dengue has emerged as a major health issue in India with increasing mortality in all age groups ranging from paediatric to the elderly [3]. Dengue usually presents with high grade fever along with chills accompanied with headache or retro orbital pain. There may be leukopenia along with thrombocytopenia and bleeding manifestations such as petechial spots, ecchymosis or bleeding from the oral mucosa [4]. The management protocol for dengue fever remains same in pregnancy however certain physiological changes associated with pregnancy may pose a diagnostic challenge and may also complicate the management.

Dengue fever is associated with numerous complications in pregnancy ranging from maternal mortality to still birth, pre term deliveries, anomalies in the foetus and also neonatal deaths. There have also been reports showing vertical transmission of dengue further complicating the management of dengue fever in pregnant females [5]. In a study conducted in Brazil it was found that dengue in pregnancy is usually more severe than in other individuals [6]. However the complex pathophysiology behind this is yet to be understood and is a domain of further research.

Twin pregnancy in itself is a high risk pregnancy associated with preterm delivery, perinatal mortality, growth restriction of the foetus and congenital abnormalities. In this case report we postulate a relationship between severe dengue and twin pregnancy.

In this brief case report we report a case of 28 year old Gravida 2 Parity 0 Living 0 Abortion 1 with twin pregnancy who reported with dengue fever and thrombocytopenia and was taken for caesarean section and later developed dengue shock syndrome.

2. CASE REPORT

A 28 year old Gravida 2 Parity 0 Living 0 Abortion 1 with twin pregnancy and gestational age of 36 weeks presented to the emergency department with the chief complaint of high grade fever with chills along with retro-orbital pain and body ache with red coloured spots on the lower limb since two days. There was no history of any oral mucosal bleed. Patient had no history of dengue fever in the past. On General examination petechiae were present in the lower limb, there was no pedal oedema, jugular venous pressure was normal and there was no pallor, pulse was 102 beats per minute regular in rhythm and volume, blood pressure was 110/70 mm hg in right arm sitting position. On systemic examination heart sounds were normal with no murmurs heard. Chest was bilaterally clear with equal air entry. Per abdomen examination revealed overdistended uterus, both twins were cephalic in presentation, Multiple foetal parts were felt, foetal heart sounds 1 and 2 were present, regular, 142 and 156 beats per minute respectively. On per vaginal examination OS was 1 cm dilated, 25% effaced with leaking per vaginum. Patient was conscious and oriented with no neurodefect.

Fig. 1. Ultrasonography on Admission Showing Twin Pregnancy with gestational age of 36 weeks

Ultrasonography was done which showed diamniotic dichorionic twin with intra uterine live fetus F1 (maternal right) corresponding to average gestational age of 35.3 weeks with fundo anterior grade 2 placenta with effective fetal weight of 2.5kgs and F2 (maternal left) corresponding to average gestational age of 35.2 weeks with effective fetal weight of 2.4kgs with anterior grade 2 placenta (Fig. 1). Patients platelet count were low on admission (27000/dl) with evidence
of petechiae (Fig. 2). Blood investigations were
done which revealed Haemoglobin: 9.0gm/dl,
MCV:78 fl, Platelet count:27000/dl, White blood
cell count:7800/dl, Total Protein-6.2gm/dl,
Albumin3.0gm/dl,Globulin3.2gm/dl, aspartate
aminotransferase 23 units/l, alanine
aminotransferase 22 units/l, Alkaline
Phophatase 96 IU/l, Total Bilirubin :1.2mg/dl,
Creatinine:1.4mg/dl,Urea:20mg/dl,sodium:140me
q/l,Potassium:3.9meq/l and INR was 1.12.

Fig. 2. Showing petechiae over lower limb

NST was reactive with beat to beat variability
with more than two accelerations and no
decelerations (Fig. 3 and 4) .Trial of labor was
given and due to non progression of labor
cesarean section was planned.

She was transfused with three single donor
platelets with a raise of platelet to 1.03lakh/dl and
as her hemoglobin was 9.0gm/dl she was
transfused with packed red cell as advised by the
anesthetist for performing cesarian section and
she was taken for cesarian section. Two baby
of weight 2.1kg and 2.2kg of male gender were
delivered and were stable. There was no
evidence of thrombocytopenia in the delivered
twins and they both tested negative for dengue
through NS1 antigen. Post cesarian section on
day two of admission patient developed dengue
shock syndrome with blood pressure of 70/50
mm hg and she was managed with rigorous
intravenous fluid therapy and was also started on
inotropic support.During the course of hospital
stay patient improved clinically and her inotropic
support was tapered and stopped on day five of
admission. Patient was ultimately discharged on
day seventeen of admission.

3. DISCUSSION

Twin pregnancy is a state of high risk with
associated complications like pre term labour,low
birth weight, growth retardation and post-partum
hemorrhage[7]. In our case this high-risk
pregnancy of twin conception was further
complicated due to contraction of dengue fever
which lead to thrombocytopenia. This
thrombocytopenia was managed with platelet
transfusion as patient had to be taken for
immediate cesarian section. The twins delivered
by our patient showed no evidence of vertical
transmission of Dengue fever and were stable.
However, during the post-natal period our patient
further deteriorated and contracted dengue
shock syndrome. This is consistent with studies
which found that pregnancy is usually associated
with more severe forms of dengue. During
pregnancy there is hemodilution along with
thrombocytopenia and the lowest platelet count
are witnessed usually near-term pregnancy. The
spleen size increases to about fifty percent
further leading to thrombocytopenia due to
pooling of platelets in the splenic sinusoids. The
placenta also contributes to gestational
thrombocytopenia. Platelets tend to accumulate
within the intervillous space of the placenta
further causing thrombocytopenia [8]. This
explains why twin pregnancy is more prone to
develop thrombocytopenia due to larger size of
the placenta or presence of two placentas both of
which are characteristic of twin pregnancy.

Dengue is a known aetiology for
thrombocytopenia [9]. Dengue causes increased
consumption of platelet during the coagulopathy
process along with activation of the complement
system and increased peripheral sequestration of
platelet [10].

Fig. 3. Showing NST of First Fetus
In our case the patient was in the third trimester when she contracted dengue in an already twin conception predisposing her to severe thrombocytopenia this caused her to develop dengue shock syndrome (Fig. 5). Therefore, it is important to screen for dengue in cases of twin pregnancies presenting even with a simple complaint of fever in regions endemic for dengue as contracting dengue in a twin pregnancy can be fatal owing to the patient being already predisposed to develop thrombocytopenia. Further Studies are needed to establish this relationship of severe dengue with twin pregnancy.

4. CONCLUSION

We conclude that a case of twin pregnancy may be more prone to develop thrombocytopenia due to larger size of placenta or presence of two placenta and contracting dengue in such a high-risk pregnancy may predispose the patient to develop severe dengue or dengue shock syndrome. However further studies are needed to establish this hypothesis.

CONSENT

Proper Informed Consent was taken from the patient for publishing this case report.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Harapan H, Ryan M, Yohan B. Covid-19 and dengue: Double punches for dengue-endemic countries in Asia. Rev Med Virol. 2021;31(2):e2161.
2. Htun TP, Xiong Z, Pang J. Clinical signs and symptoms associated with WHO severe dengue classification: a systematic review and meta-analysis. Emerg Microbes Infect. 2021;10(1):1116-1128.
3. Mwanyika GO, Mboera LEG, Rugarabamu S. Dengue Virus Infection and Associated Risk Factors in Africa: A Systematic Review and Meta-Analysis. Viruses. 2021;13(4):536.
4. Mahmood R, Benzadid MS, Weston S. Dengue outbreak 2019: clinical and
laboratory profiles of dengue virus infection in Dhaka city. Heliony. 2021;7(6):e07183.

5. Mota AK, Miranda Filho AL, Saraceni V, Koifman S. Maternal mortality and impact of dengue in Southeast Brazil: an ecological study, 2001–2005. Cad Saude Publica. 2012;28(6):1057–66

6. Machado CR, Machado ES, Rohloff RD. Is pregnancy associated with severe dengue? A review of data from the Rio de Janeiro surveillance information system. PLoS Negl Trop Dis. 2013;7(5):e2217.

7. Bhardwaj D, Chawla S, Sahoo I, Rathore P, Sharma A, Siddique N. Dengue in pregnancy. Med J DY Patil Vidyapeeth. 2020;13:264–7

8. Reese JA, Peck JD, Deschamps DR. Platelet Counts during Pregnancy. N Engl J Med. 2018;379(1):32–43.

9. Beig I, Talwar D, Kumar S, Acharya S, Hulkoti V. Post covid fatal antibody dependent enhancement of dengue infection in a young male: Double trouble. Medical Science. 2021; 25(114):1910-1914

10. Paixão ES, Campbell OM, Teixeira MG. Dengue during pregnancy and live birth outcomes: a cohort of linked data from Brazil. BMJ Open. 2019;9(7):e023529.