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

Sparsh Madaan[1], Dhruv Talwar[2], Sunil Kumar[2], Arpita Jaiswal[1*], Neema Acharya[1] and Manila Reddy Eleti[1]

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

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Case Study

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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.

**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,echymosis 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, anomalities 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 1cm dilated ,25% effaced with leaking per vaginum. Patient was conscious and oriented with no neurodefecit.

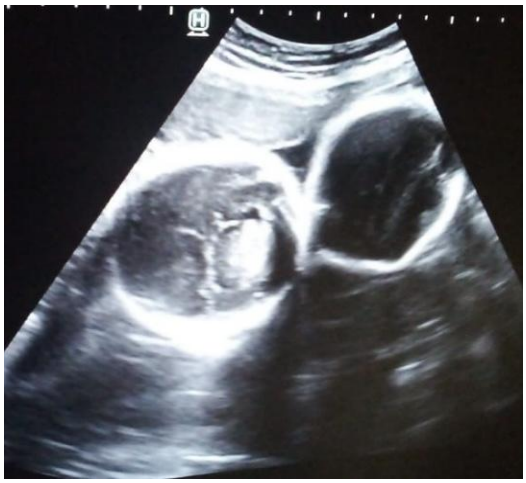

Fig. 1. Ultrasonography on Admission Showing Twin Pregnancy with gestational age of 36 weeks

Ultrasonography was done which showed diaminiotic 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 revelealed 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, Alkanline Phophatase 96 IU/l, Total Bilirubin :1.2mg/dl, Creatinine:1.4mg/dl,Urea:20mg/dl,sodium:140meq/l,Potassium:3.9meq/l and INR was 1.12.

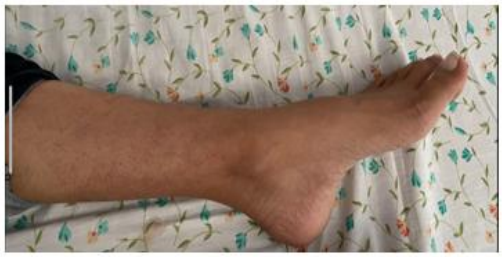

Fig. 2. Showing petechiae over lower limb

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 caesarian section and she was taken for caesarian 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 caesarian 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 caesarian 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].

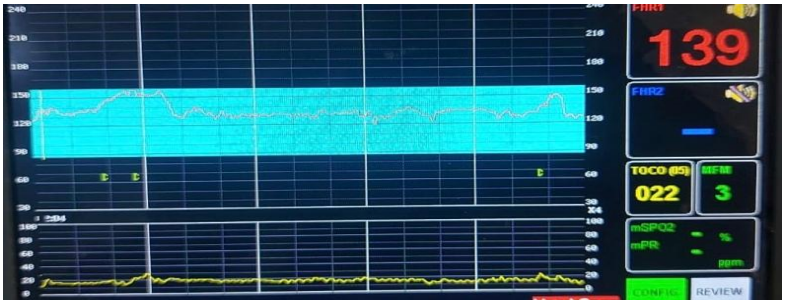

Fig. 3. Showing NST of First Fetus

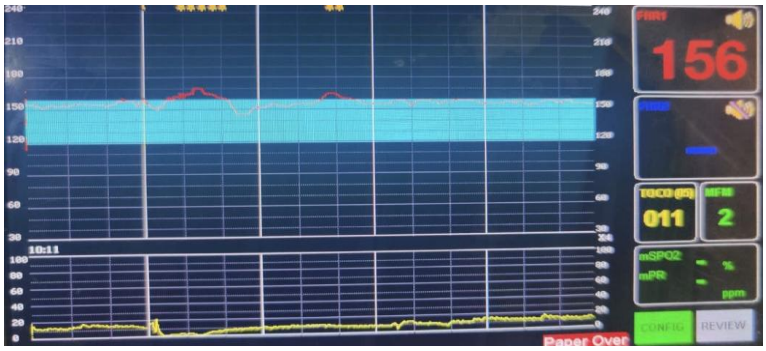

Fig. 4. Showing NST of second fetus

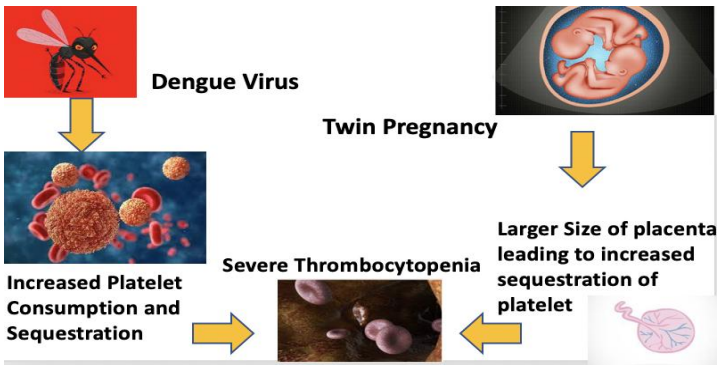

Fig. 5. Showing Pathophysiology of severe dengue in twin pregnancy

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.

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