Case Report

A rare case of severe anemia with gestational thrombocytopenia

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Abstract

Introduction: Pregnancy induces a number of physiologic changes that affect the hematologic indices, either directly or indirectly. Recognizing and treating hematologic disorders that occur during pregnancy is difficult owing to the lack of evidence available to guide for the diagnosis. 1) Anemia is the most common blood disorder in pregnancy. 2) Anemia secondary to iron deficiency is the most frequent hematologic complication, however care must be taken not to miss other causes of anemia, such as sickle cell disease and others. 3) The megaloblastic anemias due to folic acid deficiency, and to a lesser extent vitamin B12 deficiency, can also be a cause of anemia during pregnancy. 4) Thrombocytopenia is also a common reason for consulting the hematologist and distinguishing gestational thrombocytopenia from immune thrombocytopenia (ITP), preeclampsia, HELLP syndrome, or thrombotic thrombocytopenic purpura (TTP) is essential since the treatment differs widely. **Case Report:** 25 yrs old G4P2L2A1 with RH negative pregnancy came with a CBC report at 34 weeks showing severe anemia with normal platelet counts. Repeat investigations at 37 wks revealed severe anemia with thrombocytopenia. Patient had no signs of abnormal bleeding, petichae or bruises. Thorough investigations were done to rule out the causes like ITP, autoimmune haemolytic anaemia, HELLP syndrome, G_6PD, sickle cell anaemia. Patient was transfused with 3 PCV. Patient was started with steroids and inj. Vit. K for 3 days but the platelet count remained persistently low in range of 47,000 to 64,000. On 7 day of admission the patient delivered a healthy female baby by caesarean section. On second post natal day the platelet counts were reported to be normal (plt- 2,16,000) and subsequently thereafter remained within normal limits. Here we present a rare case of severe anemia with gestational thrombocytopenia. **Conclusion:** It is a unique case of severe anemia with gestational thrombocytopenia with atypical presentation in which the platelet counts were below 70, 000, which caused diagnostic delima. With the entire team of obstetricians, haematologists and internal medicine we were able to successfully diagnose and manage this rare case.

Key Words: Iron Deficiency Anaemia, Autoimmune Haemolytic Anaemia, Gestational Thrombocytopenia, Idiopathic Thrombocytopenic Purpura.

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INTRODUCTION

ANEMIA IN PREGNANCY

The most frequent hematologic complication during pregnancy is anemia[1]. A number of normal physiologic processes occur during pregnancy leading to the term "physiologic anemia of pregnancy". The plasma volume increases (40–50%) relative to red cell mass (20–30%) and accounts for the fall in hemoglobin concentration.[2] However, if the hemoglobin falls below 11 gm/dL an evaluation for iron deficiency anemia (IDA) should be initiated since iron deficiency is responsible for the majority of anemias diagnosed during pregnancy. The increased demand on the bone marrow requires women to increase their daily iron intake from 18 mg per day to 27 mg per day.[2] The risk of adverse pregnancy outcomes is highest when maternal anemia is detected early during pregnancy (first trimester) possibly owing to the difficulty in distinguishing physiologic anemia from IDA in late pregnancy (third trimester). The megaloblastic anemias due to folic acid deficiency, and to a lesser extent vitamin B12 deficiency, can also be a cause of anemia during pregnancy. The majority of folate deficiencies appear in

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the third trimester and treatment with oral folic acid at doses of 0.5 mg to 1 mg administered two or three times daily is usually adequate.[2] Other causes of hypochromic microcytic anemia should be sought. Specifically, even in asymptomatic women with sickle cell disease (SCD) or β-thalassemia, there are significant maternal and fetal complications that can arise during pregnancy.

THROMBOCYTOPENIA IN PREGNANCY

Thrombocytopenia, or a low blood platelet count, is encountered in 7–8% of all pregnancies.[3] It is the second most common blood disorder in pregnancy.[1] The normal range of platelets in non pregnant women is 150,000-400,000/μL. Average platelet count in pregnancy is decreased (213,000/μL vs 250,000/μL), and declines as pregnancy progresses. Change in platelet count is due to hemodilution, increased platelet consumption, and increased platelet aggregation driven by increased levels of thromboxane A_2. Thrombocytopenia can be defined as platelet count less than 150,000/μL or platelet count below the 2.5th percentile for pregnant patients (116,000/μL).[3] Classification of thrombocytopenia in pregnancy is arbitrary and not necessarily clinically relevant.

- Mild thrombocytopenia is 100,000-150,000/μL.
- Moderate thrombocytopenia is 50,000-100,000/μL.
- Severe thrombocytopenia is < 50,000/μL.

The most common causes of thrombocytopenia in pregnancy are as follows:

- Gestational thrombocytopenia (70%)
- Preeclampsia (21%)
- Immune thrombocytopenic purpura (3%)
- Other (6%)

Gestational Thrombocytopenia

The incidence of gestational thrombocytopenia is 5-11% of all pregnancies and accounts for more than 70% of cases of thrombocytopenia in pregnancy. [4]

Pathophysiology

2 main factors are associated with GT:

1. Accelerated platelet activation is suspected to occur at placental circulation.
2. Accelerated consumption of platelets is due to the reduced lifespan of platelets during pregnancy.

Diagnosis

- Usually develops in the mid second to third trimester.
- Asymptomatic patient with no history of abnormal bleeding.
- Mild thrombocytopenia (counts more than 70,000/μ L)[6,7,8]
- Usually detected incidentally on routine prenatal screening.
- No specific diagnostic tests to definitively distinguish gestational thrombocytopenia from mild ITP.

Clinical manifestations

- No pre pregnancy history of low platelets or abnormal bleeding is noted.
- No confirmatory test available to diagnose.
- Platelet counts normalize within 1- 2 months following delivery.[4]

Fetal/neonatal risks

No pathological significance for the mother or fetus is noted. No risk for fetal hemorrhage or bleeding complications is observed.[5]

Management Considerations

Antepartum

Monitor platelet count periodically. No treatment is necessary for gestational thrombocytopenia. Invasive approaches to fetal monitoring (fetal blood sampling) are not indicated. *Labor and delivery* Mode of delivery is determined by obstetric/maternal indications.

CASE REPORT

25 yrs. Old female G4P2L2A1 with previous LSCS (4 yrs back) with Rh negative pregnancy(BG : O negative) 37 wks reported to the OPD with CBC report done at 34 wks showing severe anaemia (Hb – 6.4, TLC- 10,000 and PLT - 2,10,000). Patient was asymptomatic and was admitted for further evaluation. Patient had normal regular menstrual cycles. She was married for 8 yrs. In her obstetric history she had 2 previous deliveries, 1st was normal vaginal delivery which was uneventful throughout, baby blood group was O +ve for which she received anti –D imunoglobulin. 2nd by LSCS 4 yrs. back in view of breech presentation, baby BG was O-ve, anti – D immunoglobulin was not taken. She had history of severe anaemia in this pregnancy, for which she received 3 PCV. 1 spontaneous abortion at 2nd month gestation, anti – D immunoglobulin not taken. At present she was registered ANC case and fully immunized. Pt was non compliant to iron and calcium. She did not take any medication till 8th month of gestation. On examination, patient had marked pallor and bilateral pedal edema was present. Per abdominally the size of uterus corresponded to gestational age of the fetus. Patient was thoroughly investigated and repeat CBC of 37+4 wks revealed severe anemia with moderate thrombocytopenia (Hb – 5.3, tlc – 7600, Plt. – 67,000). Her stool r/m was normal. Blood sugars and Urine analysis were normal. Retic count was raised 3%. Liver function and renal function tests were normal. Her coagulation profile was within normal range.Thyroid profile was normal. IgG and IgM for

dengue were negative. Indirect and direct coomb's test was negative. Sickling test was negative.G_6PD levels were normal. USG of abdomen and pelvis showed normal liver and spleen and no other abnormality. Biochemical analysis did not indicate the presence of HELLP syndrome or DIC. Her USG OBS showed normal fetal growth and Doppler parameters. Serum iron studies revealed depleted iron stores and Sr. Folic acid were also low, Sr. Vit B_{12} was normal. Haemoglobin electrophoresis was done which showed normal levels of fetal Hb and adult Hb. Patient was transfused with 3 PCV. Platelet was not transfused as she had no signs of abnormal bleeding. She was started with steroids and inj. vit. K for 3 days but the platelet counts remained persistently low. CBC was repeated on day 6 revealed Hb- 10.2, TLC – 13,800, PLT. – 64,000. The patient was planned for elective LSCS, with the outcome of a healthy female baby of 3.2 kg. Baby blood group was O + ve and DCT and ICT were negative. Baby's CBC, coagulation profile were with in normal limits. On 2nd day post delivery repeat CBC counts revealed normal platelet counts. Hb- 10.9, TLC- 24,100, PLT. – 2,16,000. Her platelet counts subsequently remained normal. Patient was discharged on 7th post operative day on haematinics and folic acid. On her follow up visits her Hb and platelet count were normal. It was a rare case of severe anemia with gestational thrombocytopenia in which the platelet counts were below 70,000 making the diagnosis ambiguous and difficult.

DISCUSSION

The serum iron studies revealed depleted iron stores. Serum folic acid was also decreased. Considering all the parameters CBC had a dimorphic picture. The most probable cause of anaemia is nutritional. The diagnosis of autoimmune haemolytic anaemia was excluded as it usually starts early in pregnancy.DCT and ICT were negative. LFT were normal and there was no evidence of haemolysis.USG abdomen and pelvis showed no hepatospleenomegaly.USG obstetrics showed no fetal affection. It did not respond to steroids. Pre eclampsia and HELLP syndrome were ruled out after blood and biochemichal tests. Gestational thrombocytopenia will become evident during the mid-second trimester through the third trimester of pregnancy and its diagnosis is based on exclusion.[9] Patients with low platelet counts, lower than 70,000 / μL, will be difficult to diagnose. The reason is because low platelet counts maybe due to gestational thrombocytopenia or immune thrombocytopenia.[10] In such cases, a treatment of immune thrombocytopenia therapy (corticosteroids or iv immunoglobulins) will be instructed.[10] If there is an improvement in the platelet levels, the patient will be diagnosed with immune thrombocytopenia, and if not the patient will be diagnosed with severe gestational thrombocytopenia[9] Considering the fact that thrombocytopenia started in 3rd trimester of pregnancy and platelet count was not decreased earlier during the pregnancy nor she had bleeding episodes. Thrombocytopenia did not improve even after administration of steroids. The platelet count spontaneously returned to normal level 2nd day after delivery and thereafter remained normal. Therefore, the diagnosis of ITP was also excluded. Thus, it was a case of severe anaemia with severe gestational thrombocytopenia.

CONCLUSION

It was an unique case of severe anaemia with gestational thrombocytopenia with atypical presentation in which the platelet count was below 70,000, making the diagnosis ambiguous. With the entire team of obstetricians, haematologists and internal medicine we were able to successfully diagnose and treat this rare case. The diagnostic procedures and treatment which we administered resulted in a positive outcome for both the mother and the baby. It was a precious experience which may help anyone dealing with a similar problem.

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