An unusual case of gestational thrombocytopenia: case report and review of the literature

V Soldo1*, N Cutura1, S Andjelic1, M Zamurovic1

Abstract

Introduction

Thrombocytopenia is the second most common blood disorder in pregnancy. It is encountered in 7–8% of all pregnancies. Gestational thrombocytopenia accounts for almost three-fourths of all cases of thrombocytopenia. It usually develops in the third trimester, detected incidentally, patients are asymptomatic with no prepregnancy history of low platelets or abnormal bleeding, it is mild thrombocytopenia (counts more than 70 000/µL) and the lower level has never been established. We present an unusual case of thrombocytopenia.

Case report

A pregnant woman aged 30 years was diagnosed with thrombocytopenia in the 38th week of gestation, and she was admitted to our hospital for delivery. The patient had visible bruises and haematomas on the skin of her body and arms, approximately 10, 3–5 cm in diameter. Complete blood tests were done immediately indicating severe thrombocytopenia, and with platelet count zero. During hospitalization, the patient was administered 14 300 ml of blood and blood derivatives. The entire team of experts participated in the diagnostics, treatment and delivery of this patient. On the eighth day after delivery, both the patient and her healthy baby were discharged from the hospital.

Conclusion

This is a unique case, and nothing similar was recorded in the available literature. We consider that diagnostic procedures and treatment, which we administered, resulted in positive outcome for both mother and the baby, representing a precious experience, which may help anyone dealing with this problem.

Introduction

Thrombocytopenia, or a low blood platelet count, is encountered in 7–8% of all pregnancies. It is the second most common blood disorder in pregnancy2,3. The first blood disorder is anaemia2. Platelets are non-nucleated cells derived from megakaryocytes in the bone marrow and normally live in the peripheral circulation for as long as 10 days. Platelets play a critical initiating role in haemostatic system1,4. The normal range of platelets in non-pregnant women is 150 000–400 000/µL.

Average platelet count in pregnancy is decreased. Change in platelet count is due to haemodilution, increased platelet consumption and increased platelet aggregation driven by increased levels of thromboxane A2. 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)1.

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 and severe thrombocytopenia is less than 50 000/µL.

The pathophysiology of gestational thrombocytopenia (GT) is unknown. It usually develops in the third trimester, detected incidentally, patients are asymptomatic with no prepregnancy history of low platelets or abnormal bleeding, it is mild thrombocytopenia (counts more than 70 000/µL)5–9. GT accounts for almost three-fourths of all cases of thrombocytopenia2,10.

Mode of delivery is determined by obstetric/maternal indications. Platelet counts normalize within 2–12 weeks following delivery10–12.

No pathological significance for the mother or foetus is noted. No risk for foetal haemorrhage or bleeding complications is observed13–17.

A low platelet count can also be associated with preeclampsia, HELLP syndrome or idiopathic thrombocytopenic purpura (ITP)18–22. The differential diagnosis between mild ITP and GT is very difficult during pregnancy23–27. The most common cause of significant thrombocytopenia in the first trimester24–27. Women with ITP often have a history of bleeding complications and have thrombocytopenia on a prepregnancy platelet count16,28. We present this rare case of GT in a pregnant 30-year-old woman.

Case report

The patient, aged 30 years with GT, was admitted at our clinic for delivery in the 38th gestation week of her second pregnancy.

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She was examined at admission and the results were as follows: the cervix was 0.5 cm long, it was possible for 3 cm, the amnion was intact, the head was at the entrance, and the baby’s heart beats were registered. The last period was on 28th August 2010, and expected delivery date was 5th June 2011.

The complete laboratory tests were done: WBC = 8.2 × 10⁹/L, RBC = 3.50 × 10¹²/L, Hg = 107 g/L, Hct = 33.8%, PLT = 0, PT = 1.09 seconds, APTT = 28 g/L, D-dimer = 2.54 mg/LFEU and coagulation time = 175 seconds.

Considering there were zero platelets, 15 doses of platelets were given, 10 doses of cryoprecipitate and one dose of fresh frozen plasma (SSP). After having reviewed the documents the patient had brought with her, we found that the number of platelets was 45 × 10⁹/L on the previous day, and 175 × 10⁹/L 10 days ago. During pregnancy her number of platelets had not decreased. Since five days ago she had developed bruises and haematomas on her skin that were visible in the moment of admission, approximately 10, 3–5 cm in diameter. Size of liver and spleen was normal, and lymph nodes were not enlarged. The patient was active, conscious, orientated, not febrile, euphoric, without neurologic symptoms, she was walking normally, did not have headache, vision problems or dizziness. Biochemical analysis did not indicate presence of neither syndrome HELLP nor disseminated intravascular coagulation.

Ultrasound scan registered vital pregnancy with eutrophic foetus growth, normally implanted placenta and adequate volume of amniotic fluid.

The patient was admitted at the high-risk pregnancy ward in order to correct the number of platelets before labour.

The next day, the patient was examined by the specialist for internal disorders, and the blood test was repeated with the following results: PLT = 17 × 10⁹/L, Hg = 101 g/L, PT = 12.2 seconds, APTT = 26 g/L, D-dimer = 2.54 mg/LFEU. The findings on the heart and lungs was normal, lumbar region was not sensitive to succussion, normal blood pressure 110/70 mmHg, heart rate 89/minute, no oedema, individual haematoma are still present. The doctor started treatment with two doses of SSP cryoprecipitate, with an 8-hour interval, 10 doses of platelets, Urbason 120 mg, 500 ml of 5% glucose solution, with vitamin C and B, and consulting haematologist was suggested.

The patient was examined by a haematologist on the same morning, and the blood tests were done once again, and the results were the following: PLT = 10 × 10⁹/L, Hg = 103 g/L, PT = 12.9 seconds, APTT = 25.5 g/L, D-dimer = 2.05 mg/LFEU, INR = 1.16, WBC = 7.2 × 10⁹/L, with normal formula, bleeding time was 180 seconds. She was diagnosed with secondary thrombocytopenia, which started suddenly (in five days). Considering that the labour had started, and that there was no time for further diagnostic procedures, and vital indications required urgent treatment with Urbason 2 mg/kg of body weight pro dil i.v., vaginal delivery was suggested if there was no obstetric contraindication, and that the second dose pool and 500 mg of tranexamic acid (4 × 2) should have been given after delivery.

Following the haematologist’s examination, the patient was transferred to the delivery room where she delivered the baby vaginally. During the labour itself, she was administered a dose of concentrated platelets, and another one following the delivery. She gave birth to a baby girl, weight 3100 g, and 50 cm long, Apgar score 9/10. The placenta was adherent and was manually extracted, followed by two vials of prostin M 15, two pools of six doses of platelets, and vaginal tamponade was performed. Dual antibiotic therapy was administered following labour, as well as two doses of SSP at 8-hour intervals enriched with cryoprecipitate, Azeptil 500 mg 4 × 2 (two vials at 6-hour intervals), two doses of blood, Urbason 120 mg. The shock list was open, and the patient’s condition was monitored.

A day after delivery (the first day postpartum) the patient’s condition was good and there was no bleeding, PLT = 53 × 10⁹/L, she was again administered two doses of SSP at 8-hour intervals, enriched with cryoprecipitate and two doses of blood.

On the second day postpartum her platelets were 51 × 10⁹/L, and she was again administered two doses of blood. On the third day postpartum her platelets were 61 × 10⁹/L, and she was once again administered two doses of blood.

On the fourth day postpartum the patient was transferred from the intensive care department to puerperal department, and administration of the dual antibiotics was continued, together with analgesics and treatment for anaemia with oral iron preparations (PLT = 72 × 10⁹/L). On the fifth day postpartum (PLT = 83 × 10⁹/L) the same treatment was continued, as well as on the sixth and seventh day, with continual monitoring of platelet count increase.

As for the bruising and haematoma, which had been seen at the beginning of hospitalization, the withdrawal of these changes was noted following treatment, and after the platelet count had been corrected. The patient was administered a total of 14 300 ml of blood and blood derivatives. Blood test for the newborn child was done immediately after birth and all the tests for complete blood count, biochemical tests, coagulation factors, time of bleeding and coagulation were normal. Ultrasound scan of baby’s brain was also normal.

Both mother and baby were discharged on the eighth day after delivery.

Discussion
GT is detected incidentally. No diagnostic test exists to accurately distinguish GT from ITP. Silver et al. said that the degree of thrombocytopenia...
is usually mild to moderate, remaining greater than 70 000/µL and the lower level has never been established. James et al. said that in GT platelet count will not go below 40 000–50 000/µL.

In our case of GT, we had a patient with PLT = 0. The patient was healthy, and preeclampsia and HELLP syndrome were excluded after the blood and biochemistry tests had been done. Considering the fact that thrombocytopenia started in the third trimester of pregnancy, and that the patient’s platelet count was not decreased earlier during pregnancy, nor she had problems with bleeding, ITP was also excluded.

Federici et al. said that thrombocytopenia has many potential causes, but three are responsible for almost all cases: GT 74%, preeclampsia and HELLP syndrome 21% and ITP 4%. Some authors said that treatment is necessary for GT. In our case, the patient was administered 14 300 ml of blood and blood derivatives starting from the first until the fourth day after delivery. As it was demonstrated, there are extremely rare cases of GT requiring involvement of the entire team of experts (obstetrician, internal diseases specialist, haematologist and transfusion specialist), extensive treatment and monitoring of the patient.

Kadir and Mc Lintock said that the mode of delivery is determined by obstetric/maternal indication. In our case, the haematologist insisted on vaginal delivery if there was no obstetric contraindication. There were no complications during labour itself and the postpartum period due to intensive monitoring and active management of labour. In Burrow’s large 1993 study, 756 out of 1027 (73.6%) women who were thrombocytopenic had GT. Burrows concluded that GT is the most frequent type of thrombocytopenia and poses no apparent risks for either the mother or infant during delivery.

Blood test for the newborn child was immediately after birth and all the tests for complete blood count, biochemical tests, coagulation factors, time of bleeding and coagulation were normal. Ultrasound scan of baby’s brain was also normal. Samuels et al. evaluated 162 pregnant women and their infants with thrombocytopenia, 74 with presumed GT, no infant from a GT gravida had a platelet count less than 50 000/µL or intracranial haemorrhage.

Kamphuis and Oepkes said that there is no risk for foetal haemorrhage or bleeding complications in GT.

Both the patient and the child were discharged on the eighth day following the delivery. During the following eight weeks the patient had regular check-ups with a haematologist, and the platelet count was back to normal. Most authors said that the platelet count returns to normal within 2–12 weeks postpartum.

A rapid return to normal confirms the diagnosis of GT, where as continued thrombocytopenia after delivery gives diagnosis of ITP.

**Conclusion**

This is a unique case, and nothing similar was recorded in the available literature. We consider that diagnostic procedures and treatment which we administered, resulted in positive outcome for both mother and the baby, representing a precious experience which may help anyone dealing with this problem.

**Consent**

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

**References**


Case report