

Immune thrombocytopenic purpura in pregnant women

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Case report: Immune Thrombocytopenic Purpura (ITP) is the commonest autoimmune disorder occurring in pregnancy. This is a case of asymptomatic ITP diagnosed in a 21 years primigravida by doing platelet count during routine antenatal investigation at 27th week, who remained refractory to treatment with steroid and platelet transfusion, had to undergo emergency LSCS for low lying placenta, but both the intrapartum and the postpartum period remained uneventful. The baby was assumed to have neonatal alloimmune thrombocytopenia (NAIT) due to low platelet count of 10,000/ cumm and with clinical evidence of petechia on the trunk and hard palate, was later treated with platelet transfusion, intravenous immunoglobulin (IVIG) and steroids. Both the baby and the mother had an uneventful recovery following a multidisciplinary approach with the obstetrician, physician, neonatologist and the anaesthesiologist and both were discharged on steroids on the 10th post operative day.

Key Words: Pregnancy, Platelets, ITP

Introduction

Platelet count is not a part of routine antenatal investigation, but when done, a large number of cases of ITP have been diagnosed during the antenatal period. Thrombocytopenia usually occurs in about 10% of the pregnant women and may be caused by a variety of obstetric condition like HELLP, gestational thrombocytopenia, pseudo thrombocytopenia, (laboratory artifacts with EDTA anticoagulant), systemic lupus erythromatosus (SLE), antiphospholipid syndrome (APS), amniotic fluid embolism, disseminated intravascular coagulation, leukemia, drug induced etc. After excluding other causes of thrombocytopenia, marked reduction in platelet count distinguishes ITP from the more common gestational thrombocytopenia.

ITP has a marked female preponderance and is one of the most commonly occurring autoimmune diseases in pregnancy. It is caused by the occurrence of autoantibodies against the platelet membrane glycoprotein. This disease is of greater concern because of the active transport of these

antibodies across the syncytiotrophoblast that causes severe thrombocytopenia (platelet count < 50,000/ cumm) in about 30% of the newborns and bleeding in more than 10% of the newborns ¹.

The maternal consequence of ITP is usually haemorrhage. Bleeding from the episiotomy site or from the laceration may end up the patient with post partum haemorrhage (PPH), thus the platelet number must be maintained at 50,000/ cumm for delivery and if below 20,000/cumm, it has to be corrected by transfusion of platelets and drugs ².

The fetal risk is again haemorrhage mostly the intracranial bleeding which usually results from fetal thrombocytopenia secondary to maternal.

Thus it emphasizes that ITP in pregnancy is such a disease that requires management of 2 patients, the mother and her baby.

Case report

A young primigravida of 21 years of age, a resident of Kathmandu presented to the gynaecological out patient

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department (GOPD) at 27 weeks of gestation for her first antenatal checkup. She was not able to recollect her first day of the last menstrual period (LMP), though she had regular cycles of 28 ± 2 days with normal amount of flow and duration, but had come with an early scan, showing a single live fetus of 11 weeks with normal cardiac activity. She did not give any significant past family or personal history. On examination there was no pallor or oedema and the blood pressure was 110/70 mm Hg. Her fundal height was 26 weeks which corresponded to 27 weeks of period of gestation (POG) calculated from the first scan done at 11 weeks. The fetal parts were palpable and the fetal heart sound was 142 beats/ min and regular. She was immunized with the first dose of injection tetanus toxoid, 0.5 ml intramuscularly, was put on iron and calcium and was advised for routine antenatal investigations, platelet count and an anomaly scan.

Her antenatal period was uneventful subsequently for 2 following weeks after which she again came to the GOPD at 29 weeks with her antenatal reports which showed blood group to be B+, haemoglobin was 13.0gm%, random blood sugar was 4.0 and HIV, HBsAg and VDRL were negative. The anomaly scan done showed a single live fetus of 28-29 weeks with cephalic presentation with fundic and anterior placenta

The platelet count sent was only 16000/ cumm. Being confused with this platelet count an elaborate history with leading questions was taken this time. She denied of having gum or nasal bleeding, bruising or petechia in her body. There was no history of excessive per vaginal bleeding during the menstruation or even intermenstrually, or of prolonged or heavy bleeding following minor injury, no history of fever, infection or intake of any drugs.

Taking into consideration the faulty technique of platelet counting as well as the laboratory artifact with EDTA anticoagulant, repeat count was sent which again showed a count of 19000/cumm with giant platelets in the peripheral smear. Thus the patient was referred to the medical out patient department (MOPD) for further evaluation and better management.

However, the patient was so ignorant that she lost to follow up despite of being explained about the risk of such low platelet count both to her as well as to the baby, that she only came to GOPD after 5 weeks that is at $34+4$ weeks period of gestation.

She remained asymptomatic throughout and this time she was found to have a disparity of about 2-4 weeks, where the fundal height was only corresponding to 30-32 weeks. Suspecting IUGR and as because she needed further

evaluation for her low platelet, she was advised for admission.

A multidisciplinary approach was taken. The medical team evaluated the patient and advised for random blood sugar, urea, creatinine, sodium, potassium, uric acid, haemoglobin, PCV, total count, BT, CT which were all within the normal limits but the platelet count was 37000/cumm. Bone marrow aspiration showed hypercellular marrow with erythroid hyperplasia with increased megakaryocyte compatible with ITP. Cardiotocography (CTG) done was reassuring.

She was then started on intravenous methyl prednisolone, 1gm daily for 3 days. Tablet prednisolone, 60 mg once daily was then started from the 4th day onwards. Following the therapy, repeat platelet count done was 48000/cumm. She was then discharged at $35+4$ weeks with iron calcium, H_2 blocker and tablet prednisolone 60 mg once daily to continue.

Suspecting IUGR at 36 + weeks ultrasonography was done that revealed a single live pregnancy of 34 weeks with cephalic presentation, with AFI of 12 cms and the placenta was anterior right sided 3 cms away from the cervix. The estimated fetal weight was 2429 Gms. Repeated platelet count was 65000/cumm.

As she had a low lying placenta with IUGR and as because her platelet count was coming up with the steroid treatment, she was planned for elective LSCS at 37 completed weeks.

She was admitted at 37 weeks, 2 days prior to her elective section for the evaluation that she needed before going for the section. On admission she was found to have fundal height corresponding to 34 weeks POG with a single live fetus, longitudinal lie, cephalic presentation, with relaxed uterus and fetal heart sound was 146 beats/ min and regular. Per speculum and per vaginal examination were not done as she had low lying placenta.

The very next day, early morning at around 2.30 am, she started to complain of per vaginal bleeding. Two sanitary pads were already soaked with blood. Urgent CTG done was reassuring. Emergency ultrasonography was also done that revealed low lying placenta anterolateral and more on the right side almost 3 cm away from the internal os with a single live fetus, cephalic presentation and with regular cardiac activity with no retroplacental clots. The estimated fetal weight was 2547 Gms.

Thus she was planned for an emergency section. Platelet count was again sent that was 36000/ cumm and so she was transfused with 4 units of platelet rich plasma (PRP) and was prepared for emergency section with more PRP and fresh blood products kept in hand.

Under general anesthesia, emergency caesarean section was performed and the peroperative findings were, lower uterine segment was not well formed and thick, placenta was low lying and anterior (Type II A). Baby was delivered by cutting through the placenta, liquor was clear and adequate and bilateral tubes and ovaries were normal. Manual removal of placenta was done and the uterus was closed in 3 layers. Abgel was kept at the uterine incision line. Haemostasis was maintained. She received a total of 5 units of PRP and 1 pint of fresh blood during the intraoperative period and the blood loss was estimated to be 300 ml. She also received 2 units of fresh frozen plasma (FFP) post operatively.

Despite of receiving so much of blood products the platelet count sent on the 2nd post operative day was only 15000/cumm, thus she was again started on steroids that she was taking preoperatively. The platelet count varied from 15000-36000/cumm postoperatively.

The baby too was admitted in the neonatal unit after the section and was investigated for thrombocytopenia. On the 2nd postoperative (i.e. the 2nd day of life), the platelet count was found to be 10,000/cumm and the peripheral smear also showed giant platelets. He started to develop petechia, about 10 in number on the lower back and about 2-3 in the interscapular region. There was bleeding in the hard palate too. So the baby was planned for platelet transfusion at the rate of 10 ml/ Kg. He received 25 ml of PRP over 2-3 hours, twice. Despite of this as the platelet count still remained low, intravenous immunoglobulin (IVIG) was also given, 1gm once daily over 1 hour. A total of 5 doses of IVIG were given for 5 days. On the 5th day of life again repeat platelet count was sent and despite such vigorous treatment with PRP and IVIG the baby's platelet count was found to be only of 15000/cumm, so he too was started on the steroids, 2.5 mg orally twice daily.

The baby's platelet count ranged between 9000- 25000/cumm and on the day of discharge, it raised to 1.05, 000/cumm. The rest of the investigations that is the haemoglobin level, reticulocyte count and the total serum bilirubin were also normal.

The mother was doing fine throughout with no complaints regarding bleeding neither from the operative site nor per vaginum. Medical team followed her up and was further advised to do ANA and ds DNA on her 6th POD, as well as the platelet count that was still persistently on the lower side.

She waited on her baby for 9 days; the sutures were removed on the 10th POD, and both the mother and the baby were discharged on tablet prednisolone on the same day.

Discussion

Platelet count during routine antenatal investigation has always remained controversial. Should it really be included in the antenatal investigation that we perform or should it be excluded from our antenatal record card, though universally this investigation has not been included as one of the antenatal investigations.

Then what is the point of doing it? It has helped us to diagnose the very few cases of ITP during pregnancy that might end up with complication that this baby of ours had.

This case makes us to think, whether performing the platelet count is really necessary during the routine antenatal investigation, because if we had not done this platelet count, probably we would have missed this case of neonatal alloimmune thrombocytopenia (NAIT) that might have caused one more neonatal morbidity and mortality.

Our patient too had all the features that led to the diagnosis of ITP. The four consistent features that are associated with ITP are persistent thrombocytopenia (platelet count < 100,000/cumm) with or without peripheral megathrombocytes; normal or increased number of megakaryocytes detected by bone marrow aspiration; absence of splenomegaly; and exclusion of systemic disease or drugs that are known to cause thrombocytopenia ².

The incidence of ITP is 1-2 in 10,000 and accounts for 3% of the cases of thrombocytopenia at delivery. The fetal risk of severe thrombocytopenia is 5-10% and the neonatal nadir occurs between day 2 and 5 after the delivery ³.

ITP occurs quite frequently in young women and that too in their reproductive age and many a times it is the obstetrician who has the opportunity to diagnose it for the very first time while performing the antenatal investigations, as happened in our case.

This probably was a case of neonatal alloimmune thrombocytopenia (NAIT), which is a serious fetal disorder that does not have any maternal significance. It complicates about 1 in 1000-5000 pregnancies. In NAIT, the fetal platelets are the target of alloantibody, thus causing their destruction. The chances of the baby to have intracranial haemorrhage (ICH) in NAIT are about 15-20%. Usually it is the 1st baby that is affected, that also happened in our case ⁴.

Could we have diagnosed this case of NAIT earlier in the antenatal period?

Definitely it is difficult in our setting because it is done by fetal blood sampling from the umbilical cord (cordocentesis)

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which is not done in our hospital. Cordocentesis is responsible for diagnosing severe thrombocytopenia as early as 20 weeks. The diagnosis of ICH with porencephaly is only possible with ultrasonography during the last trimester. The neurological sequelae following NAIT and ICH are seen in 25% and mortality in 15% cases.

Probably doing platelet count on the mother in our case was of much help because though the mother was asymptomatic and had an uneventful recovery in her postpartum period, the diagnosis of thrombocytopenia in the baby was also detected timely and was treated with PRP, IVIG and steroids.

The majority of neonatal thrombocytopenia, (> 75%) presents during the first 72 hours of life and the first symptom that is usually seen is the petechia on the trunk⁵. Similarly our case too had petechia on the back on his 2nd day of life.

Women diagnosed to have ITP should be dealt cautiously because the patients who have a platelet count below 20,000/cumm (severe thrombocytopenia) are at the risk of spontaneous bleeding both antenatally as well as during delivery. Thus raising the platelet count to at least 50,000/cumm even in asymptomatic patient, as in ours, is very much necessary to facilitate safe delivery³.

She was fortunate enough not to bleed both antenatally, intraoperatively as well as post operatively even with such low platelet count.

Platelet count of at least 80,000/cumm is required for epidural and spinal anaesthesia to prevent the complication of epidural haematoma and as our patient had a count of only 36000/cumm with low lying placenta, caesarean section was performed under general anaesthesia.

Controversy still surrounds the mode of delivery that is to be opted in such patients because of the fear of fetal thrombocytopenia leading to ICH, which is higher if the fetal platelet count is less than 50,000/cumm. In ITP complicated pregnancy, there is active transport of the antiplatelet antibody through the placenta that may cause fetal/neonatal passive immune thrombocytopenia, which in turn is thought to increase the risk for ICH, especially during vaginal delivery. It is usually detected by umbilical cord blood sampling (cordocentesis) in developed settings. The tendency in such cases should be to deliver by caesarean section. This approach will avoid the possibility of ICH, which might occur during vaginal delivery^{4,6}.

This baby was fortunate enough not to have ICH because the low lying placenta was probably a boon in disguise that saved him from having intracranial bleed even with such a

low platelet count of only 10,000/cumm. If the placenta was not at this location and would not have bled we might have opted for vaginal delivery considering the risk of bleeding in the mother with such a low platelet count of 36,000/cumm. The chances of having thrombocytopenia in the newborn are high even in the mothers cured by medical or surgical treatment⁷.

Cases where splenectomy had been done during pregnancy or caesarean section, in order to decrease the platelet destruction in patients who are refractory to steroid and immunoglobulin therapy have also been reported⁸.

High doses of intravenous anti-D immunoglobulin infusion have been recommended very recently in refractory cases of ITP that does not respond to steroids or high doses of immunoglobulin^{3,9}.

Thus with the close collaboration of multidisciplinary team of the physician, anaesthesiologist, neonatologist and the obstetrician were able to take care of both the mother and the baby by doing a simple and inexpensive investigation of platelet count during the routine antenatal check up.

Conclusion

Controversy whether or not to perform the platelet count still persists in our minds when a pregnant woman comes to us for her 1st antenatal check up. Doing such a cheap and inexpensive investigation helped us to save both the mother and the baby, who probably would have had a fatal consequence with such a low platelet count had we not opted for this investigation. Neonatal mortality would have been unavoidable as the baby would have succumbed to death following ICH due to NAIT. However larger studies are necessary before we can conclude to say that routine platelet count during antenatal period is necessary

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