ORIGINAL RESEARCH PAPER

Paediatrics

A SNOW-WHITE BABY: SPONTANEOUS MASSIVE FETOMATERNAL HEMORRHAGE – A CASE REPORT

KEY WORDS:

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ABSTRACT

A 22 year old, 2nd gravida mother with 'A positive' blood group with normal antenatal history & antenatal scans delivered a female baby weighing 2.76kg via emergency cesarean section due non reassuring NST. On examination, Baby appeared pale and lethargic & was started on noninvasive respiratory support. On Systemic examination, no organomegaly was noted. Baby's blood group is O positive. CBC revealed low Hb of 5.3g%, PCV- 18.1 with other normal cell lines. Ruling other relevant causes, Kleihauer- Betke's test was done on maternal serum which reported significantly positive. Baby was transfused with PRBC and other supportive treatment was given. Baby was discharged following a 7-day hospitalization with a normal follow up examination.

INTRODUCTION

Fetomaternal hemorrhage (FMH) is fetal blood leak into the maternal blood circulation that can result in fetal blood loss. In a limited volume it is considered as physiological event without any clinical features. Only when blood loss reaches a significant volume, such as 20% of fetal blood volume, or a rapid blood loss it becomes symptomatic.[1] Spontaneous massive FMH is characterized by transfer of blood volume without any notable antecedent history of trauma, external cephalic version and placental abnormalities like abruption, chorioangiomas or pre-eclampsia.[2] Most cases of massive FMH are reported to occur during the second or third trimesters. The symptoms and signs of spontaneous FMH are subtle and prenatal diagnosis is difficult. FHM adverse outcomes, include fetal anemia, neurologic injury, fetal hydrops or neonatal death.

CASE

A 22 year old booked case in a tertiary center, 2nd gravida mother with h/o previous 1st trimester abortion presented at 38+3 weeks of gestation for safe confinement. Antenatal history was uneventful & Antenatal scans reported to be normal. Mother's blood group is A positive. Her ultrasonography done at 37 weeks of gestation showed singleton fetus with no fetal abnormalities or polyhydramnios. No H/o significant leak PV or bleed PV. The placenta appeared normal in size and location. Baby was born via emergency cesarean section due non reassuring NST.

At delivery, Placenta weighed normal, all cotyledons present, 2 arteries and 1 vein noted, no focal thrombi or calcifications seen. A Female baby weighing 2.76kg with APGAR of 8 and 9 at 1 and 5 minutes respectively. On general examination, Baby appeared pale and lethargic. Her HR was 116bpm, RR was 50bpm with oxygen saturation of 88% on RA. Baby was shifted to NICU and started on non-invasive respiratory support. Cord blood gas analysis showed metabolic acidosis and Cord blood bilirubin was 3mg/dl.

On arrival to NICU, baby was pale and lethargic. On Systemic examination, no organomegaly was noted. B/L lung fields were clear. Baby was hypoglycemic and managed with 10% dextrose of GIR 6mg/kg/min. Repeat GRBS after 1hour was normal. Blood investigations reveal low Hb of 5.3g%, PCV-18.1 with normal red cell indices (MCV-108.4, MCH-31.7, MCHC-29.3) and increased RDW-26 and reticulocyte count of 15%. Peripheral smear showed severe anisopoikilocytosis with macrocytes, normocytes, microcytes, polychromatophils, tear drop cells and a few schistocytes. Baby's blood group is O positive. Sepsis screening was negative. DCT reported negative. Ultrasound abdomen done to rule out adrenal hemorrhage and organomegaly which reported normal. Neurosonogram was done to rule out Any intracranial bleed, reported normal. Baby was transfused O positive PRBC within few hours of birth with repeat Hb 7.8 gm% next day. Suspecting Spontaneous fetomaternal hemorrhage after ruling other relevant causes, Kleihauer- Betke's test was done on maternal serum which reported significantly positive, 179ml of fetal blood. The neonate required 2 more PRBC transfusions during the NICU stay. Repeat Hemoglobin reported to be 13g/dl. Reticulocyte count was 10.2.

Baby was off respiratory support after 48 hours with normal blood gases. Baby was monitored for bilirubin levels at regular intervals and was given phototherapy accordingly.

Baby started on direct breast feeding and tolerated feeds well. Baby was discharged following a 7-day hospitalization with a normal follow up examination. Neurosonogram was repeated before discharge, reported normal and planned for repeat scan at follow up.

DISCUSSION & CONCLUSION

Massive fetomaternal hemorrhage is a rare and serious event. Most spontaneous massive FMH's are unexpected and clinically silent. Presenting signs and symptoms of significant FMH usually include decreased or absent fetal movements, hydrops fetalis, and non-reassuring fetal tracing. Studies have reported a link between intrauterine growth restriction and massive FMH. Also, the infant's pallor is a subtle but important sign of massive FMH. FMH can be confirmed and quantitatively assessed using laboratory techniques such as the Kleihauer-Betke test, flow cytometry and liquid chromatography. Kleihauer-Betke test is based on principle of acid elution technique. Fetal RBC's are resistant to acid elution and remain intact as dark refractile bodies while maternal RBC's undergo elution leaving behind RBC membrane (ghost like appearance).[3] Intrauterine blood transfusion can correct fetal anemia of prenatally diagnosed FMH. Since most cases of FMH occur trans placentally, the placenta is thought to demonstrate gross and microscopic changes. Macroscopically, pallor of the placental parenchyma tends to occur in cases of FMH in which a large volume of blood is lost. Pallor is associated with decreased perfusion of the chorionic villi followed by fetal placental blood loss or decreased blood flow. Acute FMH occurs may lead to hemodynamic changes in the placenta, such as thrombosis and vasoconstriction. In contrast, chronic FMH is often less visible on placental examination. In some cases, the placenta may become swollen and oedematous, resulting in increased placental weight.[1] When the maternal and fetal blood types are compatible, there can be ABO incompatibility leading to fetal hemorrhage. In a fetus with severe anemia, respiratory distress and shock at birth in absence of hemolytic setting a

diagnosis of FMH's should be considered.

Pallor evidenced clinically at birth. Comparison after 3 transfusions.

Test Description	Value	Unit	Biological Ref Range	Methodology
Sample No :2410093975	**Sample Type :BLOOD**			
Acid Elution Test	179 ml	**ml fetal blood**		Acid Elution

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