



## Placental Abruption Diagnosed by the Lab Technician

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### Abstract

Placental abruption is the separation of the placenta from the uterus. Diagnosis of placental abruption is largely a diagnosis of exclusion and ultrasound is not diagnostic. A case of a placental abruption diagnosed by the presence of two blood types in the group and save sample is presented. A thorough search of the relevant databases would suggest that this is the first reported case of such.

### Placental Abruption

Placental abruption occurs in approximately one in 150 deliveries, causing fetal mortality in approximately one in 800 [1]. The exact cause of placental abruption is normally hard to determine, there are however a large number of risk factors including diabetes, hypertension and previous obstetric history of placental abruption.

Placenta praevia classically presents with sudden onset abdominal pain, a tense and rigid abdomen, and tenderness on palpation of the uterus. However, in the early stages placental abruption may be symptom-free. Diagnosis of placenta praevia is however problematic. Ultrasound is not diagnostic of placental abruption and there are no specific laboratory tests. Placental abruption has effects on both the mother and the fetus and must be classed as an obstetric emergency.

### Case

GM, a 20 year old para 0+0, presented to maternity triage at 38 weeks gestation with reduced fetal movements for two days, following an uncomplicated pregnancy. She was noted to have labile blood pressure with a frontal headache and increased peripheral oedema. Blood samples were sent for full blood count, liver function tests and a group and save. Cardiotocography (CTG) was non-reassuring secondary to fleeting unprovoked decelerations but with a reassuring base rate and accelerations present. The patient remained on continuous fetal monitoring.

Shortly after admission of blood transfusion contacted labour ward highlighting that there were two blood types detected in the group and save sample. Abruption was therefore considered. A repeat group and save sample and a Kleihauer test were requested. Vaginal examination highlighted an unfavourable cervix posterior, 3 cm long and 1 cm dilated. An assisted rupture of membranes (ARM) was performed with pinky liquor. TAUSS was unremarkable with normal liquor volumes and placenta, but minimal fetal movement noted.

The repeat group and save samples confirmed a population of both A and O blood. There was also a strongly positive kleihauer test. CTG remained similarly non-reassuring and GM continued to experience no fetal movements. Liver function tests and urate were normal.

Decision was made to deliver by emergency caesarean section under general anaesthesia. A baby girl was delivered. She was pale and floppy at delivery with Apgars of 4 and 5 at one and five minutes respectively. She required intubation and transfer to the neonatal unit. On delivery of the placenta and membranes there was approximately 1.5 litres of blood found within the membranes. Following admission to the neonatal unit the baby was found to have a HB of 51g/l. She received a blood transfusion and was discharged 48 hours later.

### Discussion

A search of relevant databases has not revealed a similar report. The conclusion is that, this must be the first report of an abruption being diagnosed upon finding two blood types within a group and save sample.

The commonly used Kleihauer-Betke (KB) test has limited usefulness for detecting an abruption. It can however be used as a guide for the dose of Rh-immunoglobulin to administer in Rh negative women, as it is a test that detects the amount of fetal hemoglobin in the mothers blood and thus assess fetal-maternal hemorrhage (FMH) [2]. If the mother and fetus are ABO incompatible, as in our case, it is crucial to quickly perform the KB stain. The fetal red blood cells will be eliminated from the maternal bloodstream very quickly, causing the KB stain to underestimate the degree of FMH, if any. Therefore the detection of the fetal blood type on the mothers G&S specimen was fortunate for both the mother and the infant resulting in an overall good outcome for both.

### References

1. Cunningham FG, Leveno KJ, Bloom SL, Spong CY, Dashe JS, et al. (2014) *Williams obstetrics 24<sup>th</sup> (edn)*. McGraw-Hill Education/Medical, USA.
2. Kim YA, Makar RS (2012) Detection of fetomaternal hemorrhage. *Am J Hematol* 87: 417-423.