Occult Fetomaternal Haemorrhage, The Silent Cause of Perinatal Morbidity and Mortality

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Summary

Three cases of occult fetomaternal haemorrhage are presented and the clinical features discussed. Recognition of sinusoidal fetal heart pattern is important to detect this disorder, which is potentially lethal to the fetus.

Key Words: Fetomaternal haemorrhage, Sinusoidal fetal heart pattern, Kleihauer's test

Introduction

Hemorrhage of the fetoplacental system into the maternal circulation, resulting in severe or fatal fetal compromise has been reported since 1954. This is an infrequent occurrence, but the magnitude of the problem is probably underestimated and the diagnosis overlooked. Obstetricians should be aware of such a problem and be able to recognize it early in order to reduce both the fetal and occasionally maternal complications. We report 3 such cases and discuss the management.

Case Reports

Case No 1

A 27-year-old lady was followed up since the first trimester of her third pregnancy. The antenatal progress was uncomplicated except for a previous lower segment Caesarean section, and she was planned for a trial of vaginal delivery. However at the 39 weeks of pregnancy, she complained of decreased fetal movements and intermittent lower abdominal pain. The physical examination was unremarkable and the cervix was closed. Cardiotocograph(CTG) showed sinusoidal pattern, together with occasional late deceleration. An emergency Caesarean section was performed and a baby girl weighing 2910g was delivered. Her apgar score was 1 at the first minute and 4 at the fifth minute. She was pale and hypotensive. The hemoglobin level was 4.8g%. Kleihauer's test showed 173ml of fetal blood in the maternal circulation. The baby recovered after resuscitation and several days of treatment in the intensive care unit. She was last seen at 2 years of age with a normal development.

Case No 2

A 29-year-old primigravida who had an uneventful antenatal history was seen at 38 weeks of her pregnancy at the outpatient clinic. Clinical examination was normal and the patient had no complaints at all. Antenatal CTG incidentally showed sinusoidal pattern, which persisted. The uterus was soft and non tender and the cervix was closed. Kleihauer's test revealed 150ml of fetal blood in the maternal circulation. An emergency Caesarean section was performed. A pale baby girl was delivered, who had an apgar score of 4 at the first minute and 7 at the fifth minute. She was hypotensive. The birth weight was 3040g. Her hemoglobin level was 3.8g%. She was successfully treated and recovered after several days of intensive care. She was last seen at 4 years of age and had a normal milestone.

Case No 3

The third patient was a 25-year-old lady in her second

pregnancy. She was a known case of alpha 1 thalessemia. Her antenatal period was uneventful but at 36 weeks of pregnancy, she felt that the fetal movements had decreased significantly. Clinical examination was unremarkable and the cervix was closed. CTG revealed sinusoidal pattern, which later on was complicated with late decelerations as well. The baby was delivered abdominally. The apgar score was 2 at the first minute and 7 at the fifth minute. The birth weight was 2295g. He was pale and hypotensive. The hemoglobin level was 5.9g%. The Kleihauer's test was positive with estimated 45ml of fetal blood in the maternal circulation. The baby recovered well.

Discussion

It is not uncommon to find the presence of fetal erythrocytes in the maternal circulation during pregnancy. The frequency increases towards the end of gestation. Small volume transfusion manifests mainly as isoimmunisation problem, as evidently seen in the Rhesus incompatable patients. However, it is the larger volume loss that is responsible for the severe fetal anemia, shock or death as reported in the above cases. Renaer defined a fetomaternal hemorrhage of 10ml or more as macrotransfusion[1].

The incidence of antepartum fetomaternal macrotransfusion ranges from 0.14% to 0.5%. The true incidence of perinatal mortality associated with this condition is difficult to assess, and the published figures are undoubtedly an under-estimation. Renaer reported a frequency of about one fetal death in 1000 deliveries, whilst if both perinatal mortality and severe morbidity are considered together, the frequency was estimated at 1 in 800 deliveries[1].

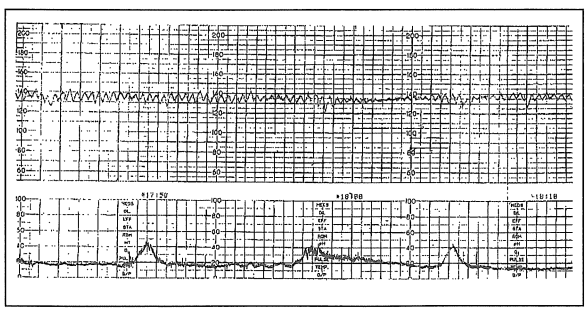

Fig. 1: Sinusoidal fetal heart tracing

Majority of the cases of massive fetomaternal transfusion have no identifiable causes and occur spontaneously. Some known contributing factors are related to placental abruptions, caused by the usual causes like abdominal trauma, external cephalic version etc. Rare causes are placental tumours like chorioangioma and choriocarcinoma.

The fetal outcome depends on the amount and rate of the hemorrhage and the severity of the resulting anemia. If isoimmunisation is present, then sensitization and its sequelae may occur too. The possible complications hence include hydrops fetalis, intrauterine death or a newborn in hemorrhagic shock. Rarely the mother may be affected too, due to transfusion reaction as a result of incompatable fetal blood, the severity of which depends on the amount of hemorrhage.

Diagnosis of this condition needs a high index of suspicion, since the majority have no antecedent precipitating events. The likely clinical presentations were as illustrated in our case reports. Reduced or cessation of fetal movement and revelation of sinusoidal heart pattern on the fetal heart tracing should prompt the clinician to perform a Kleihauer test on the mother. The presence and amount of the fetal blood in the maternal circulation may then be confirmed.

Recognition of the sinusoidal fetal heart pattern is crucial to early recognition of this condition. A typical sinusoidal pattern is as illustrated in Fig. 1. Modanlou and co-workers considered the following criteria important in the definition of sinusoidal patterns[2]:

1. Stable baseline heart rate of 120-160 bpm with regular oscillations from above or below the baseline
2. Amplitude of 5 - 15 bpm
3. Frequency of 2 - 5 cycles / minute
4. Fixed or flat short term variability
5. Absence of accelerations.

We believe that Kleihauer's test should be done in all cases of fetal distress due to hemorrhagic shock without obvious precipitating events, unexplained stillbirth or neonatal anemia. Laube and Schauberger estimated that

13.8% of the so called 'unexplained fetal death' in their series of 9223 deliveries might in fact be due to fetomaternal haemorrhage[3].

The management depends on the gestational age of the fetus when the problem is detected. Viable fetuses are perhaps best served by immediate delivery. Neonatologists should be present at delivery and be alerted regarding the nature of the problem and be prepared to transfuse the babies promptly as otherwise, resuscitative attempts may prove ineffective.

Conclusion

Occult fetomaternal haemorrhage should be considered in all unexpected cases of stillbirths or intrauterine death, and Kleihauser's test should be incorporated into the panel of investigations. Reduced fetal movements and presence of sinusoidal fetal heart tracing should alert the obstetrician on the possibility of this serious condition. This poorly studied disorder certainly warrants further research in future with regards to its pathogenesis and management.

References

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Repeated Paracetamol Overdosage in Children

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Summary

Paracetamol (pcm) is widely used in children as a safe analgesic and antipyretic. Repeated pcm overdosage in children resulting in hepatotoxicity occurs when doses of pcm are given in excess of 150mg/kg/day for 2-4 days. This is a less well recognised entity and this paper reports 3 such cases in Malacca Hospital in the last 2 years.

Key Words: Paracetamol overdosage, Hepatotoxicity