Current Obstetrics & Gynaecology (2006) **16**, 79–83

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Antepartum haemorrhage

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KEYWORDS
Pregnancy complications;
Placenta previa;
Abruptio placentae;
Placenta diseases

Summary
Antepartum haemorrhage is bleeding from the genital tract in the second half of pregnancy. It continues to be an important cause of maternal and fetal mortality and morbidity. In those cases where a cause is identified, placental abruption and placenta praevia are two common responsible conditions. In the remaining half, the cause remains unidentified even after investigations. Placental abruption is diagnosed clinically, and is unpredictable. The management has changed little over the recent past. Availability of ultrasound has radically changed screening, diagnosis and management of women with placenta praevia. The frequency of placenta accreta appears to be increasing, and ultrasound can be useful for antenatal identification. Prenatal diagnosis dramatically improves the perinatal mortality associated with vasa praevia. Massive haemorrhage is still responsible for maternal deaths. A clear protocol for massive haemorrhage should be available in all units, be regularly updated and rehearsed.

Antepartum haemorrhage (APH) defined as bleeding from the genital tract in the second half of pregnancy, remains a major cause of perinatal mortality and maternal morbidity in the developed world. In approximately half of all women presenting with APH, a diagnosis of placental abruption or placenta praevia will be made; no firm diagnosis will be made in the other half even after investigations. In cases presenting with APH, the evaluation consists of history, clinical signs and symptoms and once the mother is stabilized, a speculum examination and an ultrasound scan.

Causes include:

- Abruptio placentae
- Placenta praevia
- APH of indeterminate origin
- Vasa praevia
- Bleeding from the lower genital tract

Placental abruption

Usually the placenta is situated in the upper uterine segment. Placental abruption is the premature separation of a normally situated placenta from the uterine wall, resulting in haemorrhage before the delivery of the fetus. It occurs in around one in 80 deliveries and remains a significant source of perinatal mortality and morbidity.

Incidence

Recent large epidemiological studies report an incidence ranging from 5.9 to 6.5 per 1000 singleton births and 12.2 per 1000 twin births. Perinatal mortality is reported

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0957-5847/$ - see front matter © 2006 Published by Elsevier Ltd.
doi:10.1016/j.curobgyn.2006.01.003

to be 119 per 1000 births complicated by abruption. The risk of abruption recurring in a subsequent pregnancy is increased as much as 10-fold.

Pathology and aetiology

The precise cause of abruption is unknown. Abruption arises from haemorrhage into the deciduas basalis of the placenta, which results in the formation of haematoma and an increase in hydrostatic pressure leading to separation of the adjacent placenta. The resultant haematoma may be small and self-limited or may continue to dissect through the decidual layers. However, the bleeding may be in whole or in part concealed, if the haematoma does not reach the margin of the placenta and cervix for the blood loss to be revealed. Therefore the amount of revealed haemorrhage poorly reflects the degree of blood loss. The bleeding may infiltrate the myometrium resulting in so-called Couvelaire uterus.

A causal relationship between hypertension and abruption is controversial. Most explanations implicate vascular or placental abnormalities, including increased fragility of vessels, vascular malformations, or abnormalities in placentation. The absence of transformation from muscular arterioles to low-resistance, dilated vessels as in normal pregnancy and the lack of trophoblastic invasion of uterine vessels is thought to result in decreased placental blood flow and dysfunctional endothelial responses to vasoactive substances. These abnormal placental vessels may predispose to ischaemia and rupture of involved vessels, thus causing placental abruption.

Placental abruption is seen more often in gestational hypertensive disease, advanced maternal age, increasing parity, the presence of multiple gestations, polyhydramnios, chorioamnionitis, prolonged rupture of membranes, trauma, and possibly thrombophilias. Potential preventable risk factors include maternal cocaine and tobacco use. Unexplained elevated maternal serum alpha-fetoprotein (MSAFP) levels in the second trimester is associated with pregnancy complications such as placental abruption.

Clinical presentation

The diagnosis of placenta abruption is made clinically and then confirmed by evaluation of the placenta after delivery. It presents classically with vaginal bleeding, abdominal pain, uterine contractions and tenderness. On clinical examination, the uterus is irritable, with increased baseline tone. There may be evidence of fetal distress. In severe cases, the mother may show cardiovascular decompensation with evidence of hypovolaemia. The fetal heart may be absent, and there is a serious risk of development of coagulopathy in the mother due to consumption of clotting factors. The clinical signs of blood loss are out of proportion to the amount of vaginal bleeding. Ultrasound is an insensitive and unreliable tool for detecting or excluding placental abruption, as negative sonographic findings are common with clinically significant abruptions. The diagnosis may be confirmed postpartum on gross examination of the placenta, which reveals a clot and/or depression in the maternal surface, known as a delle.

In less severe cases, the diagnosis of placental abruption may not be obvious, particularly if the haemorrhage is largely concealed and it may be misdiagnosed as idiopathic preterm labour. The majority of fetal morbidity is thought to be due to prematurity, with low birth weight, fetal growth restriction, anaemia, and hyperbilirubinaemia significantly more common. Placental abruption cannot be eliminated as a potential diagnosis in the absence of vaginal bleeding, as haemorrhage may be retroplacental and concealed. Placental abruption is concealed in 20–35% and revealed in 65–80% of cases.

In severe abruption, complications include haemorrhage requiring transfusion, disseminated intravascular coagulopathy (DIC), infection and rarely, maternal death. Couvelaire uterus may occur and occasionally may require hysterectomy. The incidence of stillbirth is related to the size of the abruption. Separation exceeding 50% of the placenta causes a marked elevation in stillbirth rate.

Management

Once placental abruption has been suspected, action should be swift and decisive because the prognosis for mother and fetus is worsened by delay. Treatment consists of initial resuscitation and stabilization of the mother, treatment of the abruption, and recognition and management of complications. It is individualized based on the extent of the abruption, maternal and fetal reaction to this insult, and gestational age of the fetus. Maternal resuscitation and treatment of hypovolaemic shock are a subject of a review in its own right, and will not be discussed further. For the purpose of management or abruption, Sher and Statland divided placental abruption into three degrees of severity. These are mild (grade 1): not recognized clinically before delivery and usually diagnosed by the presence of a retroplacental clot; moderate (grade 2): intermediate, the classical signs of abruption are present but the fetus is still alive; and severe (grade 3): the fetus is dead and coagulopathy may be present.

There are three practical options for management:

- Expectant: in the hope that the pregnancy will continue
- Immediate caesarean section
- Rupture the membranes and aim at vaginal delivery

In mild placental abruption, the bleeding may stop and the symptoms gradually resolve with satisfactory fetal monitoring and the patient can often be managed as an outpatient. The management of moderate or severe placental abruption is resuscitation, delivery of the fetus and observation for and correction of any coagulation defect that arises. This requires management in the labour ward with intensive monitoring of both mother and fetus. A trial of labour and vaginal delivery is recommended whenever tolerated by the maternal–fetal pair. Labour is usually rapid and progress should be monitored with continuous fetal heart rate assessment. If fetal distress is present then delivery should be expedited in the form of Caesarean section.

Major abruption should be regarded as an emergency, requiring multidisciplinary input from the obstetrician,