Antepartum haemorrhage

Haemorrhage from the vagina after the 24th week of gestation is classified as antepartum haemorrhage. The factors that cause antepartum haemorrhage may be present before 24 weeks, but the original distinction between a threatened miscarriage and an antepartum haemorrhage was based on the potential viability of the fetus.

Vaginal bleeding may be due to:

- Haemorrhage from the placental site and uterine cavity
- Lesions of the vagina or cervix
- Fetal bleeding from vasa praevia.

UTEROPLACENTAL HAEMORRHAGE

The major causes of uterine bleeding are:

- Placenta praevia
- Abruptio placentae or accidental haemorrhage
- Uterine rupture
- Unknown aetiology.

Placenta praevia

The placenta is said to be praevia when all or part of the placenta implants in the lower uterine segment and therefore lies in front of the presenting part (Fig. 9.1)

**Incidence**

Approximately 1% of all pregnancies are complicated by clinical evidence of a placenta praevia. Unlike the incidence of placental abruption, which varies according to social and nutritional factors, the incidence of placenta praevia is remarkably constant.

Placenta praevia occurs more commonly in multiparous women, in the presence of multiple pregnancy and where there has been a previous caesarean section.

**Aetiology**

Placenta praevia is due to delay in implantation of the blastocyst so that this occurs in the lower part of the
uterus. It is commoner in high parity and in conditions where the placental area is large, such as multiple pregnancy or placenta membranacea.

**Classification**

From the point of view of management, there are three degrees of severity of placenta praevia (Fig. 9.1):

- **Lateral:** The placenta encroaches on the lower uterine segment but does not reach the internal cervical os
- **Marginal:** The placenta encroaches on or covers the internal cervical os before cervical dilatation occurs
- **Central:** The placenta completely covers the os even with cervical dilatation.

Classification is important in relation to management because spontaneous delivery is extremely rare where there is central placenta praevia but normal labour and delivery may occur with lateral or marginal implantation.

An alternative classification is based on grades, with grade 1 being defined by the placenta encroaching on the lower segment but not on the internal cervical os, grade II when the placenta reaches the internal os, grade III with the placenta eccentrically covering the os and grade IV as central placenta praevia. Grades II and III are equivalent to marginal placenta praevia and, as most women who have a marginal placenta are now delivered by caesarean section, there is probably little point in differentiating between grades II and III unless the mother is in labour when the diagnosis is made.

Bleeding results from separation of the placenta as the formation of the lower segment occurs and the cervix effaces. This blood loss occurs from the venous sinuses in the lower segment. Occasionally, fetal blood loss may occur, particularly where one of the placental vessels lies across the cervical os – a condition known as vasa praevia.

**Symptoms and signs**

The main symptom of placenta praevia is painless vaginal bleeding. There may sometimes be lower abdominal discomfort where there are minor degrees of associated placental abruption.

The signs of placenta praevia are:

- Vaginal bleeding
- Malpresentation of the fetus
- Uterine hypotonus.

Development of the lower uterine segment begins at 28 weeks gestation and thus bleeding is likely to occur from 28 weeks onwards. Bleeding is unpredictable and may vary from minor shows to massive and life-endangering haemorrhage.
Diagnosis

Clinical findings

Painless bleeding occurs suddenly and tends to be recurrent. When labour starts and the cervix dilates, profuse haemorrhage may occur, although sometimes in a lateral placenta praevia the presenting part compresses the placental site and bleeding is controlled.

Abdominal examination

- **Displacement of the presenting part**: The presence of the placenta in the lower segment tends to displace the presenting part and, when the placenta is posterior, the head is pushed forward over the pelvic brim and is easily palpable. When the placenta is anterior, the presenting part is difficult to feel. Lateral placement of the placenta results in contralateral displacement of the presenting part. Where there is a central placenta praevia, the fetal head is held away from the pelvic brim and the lie may be transverse or oblique. If the head does not approach the pelvic brim when the placenta is anterior, the presenting part is difficult to palpate.

- **Flaccidity of the uterus**: Uterine muscle tone is usually low and the fetal parts are easy to palpate.

Diagnostic procedures

- **Ultrasound scanning**: This is predominantly used to localize the placenta and has largely replaced other techniques. Errors in diagnosis are most likely to occur in posteriorly situated placentae because of difficulties in identifying the lower segment. Anteriorly, the bladder provides an important landmark for the lower segment and diagnosis is more accurate. Localization of the placental site in early pregnancy may result in inaccurate diagnosis, as fundal development may lead to an apparent upward displacement of the placenta.

- **Magnetic resonance imaging**: This is the most accurate method of placental localization because the internal cervical os can be clearly visualized. However, it is not as yet widely available or used and would only be relevant if the ultrasound image was inconclusive.

Management

When antepartum haemorrhage of any type occurs, the diagnosis of placenta praevia should be suspected and hospital admission advised. The diagnosis should be established by ultrasound imaging. Vaginal examination should be performed only in an operating theatre prepared for caesarean section, with blood cross-matched. There are only two indications for performing a vaginal examination:

- When there is serious doubt about the diagnosis
- When bleeding occurs in established labour.

It is, in fact, often difficult to establish a diagnosis of placenta praevia by vaginal examination where the placenta is lateral, and there is a serious risk of precipitating massive haemorrhage if the placenta is central.
If the placenta is lateral, then it may be possible to rupture the membranes and allow spontaneous vaginal delivery.

Conservative management of placenta praevia involves keeping the mother in hospital with blood cross-matched until fetal maturity is adequate, and then delivering the child by caesarean section. Providing there is no active bleeding, there is no need to keep the mother in bed and she should remain ambulant, as she is as likely to bleed lying supine. Blood loss should be treated by transfusion where necessary so that an adequate haemoglobin concentration is maintained.

Postpartum haemorrhage is also a hazard of the low-lying placenta, as contraction of the lower segment is less effective than contraction of the upper segment.

There is an increased risk of placenta accreta where placental implantation occurs over the site of a previous uterine scar.

Out of 7.5 million pregnancies in the USA, the incidence of placental abruption has been recorded as 6.5/1000 births with a perinatal mortality of 119/1000 births.

The incidence of placental abruption is increased in the presence of pre-eclampsia or essential hypertension. It must be remembered that hypertension and proteinuria may develop as a result of abruption.

Whatever factors predispose to placental abruption, they are well-established before the abruption occurs. The fetus is more likely to be male and the birthweight is often low, indicating pre-existing growth retardation. A history of a placental abruption in a previous pregnancy is a predictor for a further abruption. The prognosis for fetal survival is significantly worse in those women who smoke cigarettes during pregnancy. Trauma is a relatively uncommon cause of abruption and in the

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**Abruptio placentae**

Abruptio placentae or accidental haemorrhage is defined as haemorrhage resulting from premature separation of the placenta. The term ‘accidental’ implies separation as the result of trauma, but most cases do not involve trauma and occur spontaneously.

**Aetiology**

Placental abruption tends to occur more frequently under conditions of social deprivation in association with dietary deficiencies. Folic acid deficiency, in particular, has been implicated.

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**Case study**

**Abruptio placentae**

Mandy, a 23-year-old primigravida, was admitted to hospital at 35 weeks gestation with a complaint that she had developed severe abdominal pain followed by substantial vaginal bleeding. On examination, she was restless and in obvious pain. Her blood pressure was 150/90 and the uterus was rigid and tender. Her pulse rate was 100 bpm and she looked pale and tense. The uterine fundus was palpable at the level of the xiphisternum. The fetal lie was longitudinal, with the head presenting. The fetal heart beat could not be detected. An intravenous line was established and blood cross-matched as a matter of urgency. Mandy was given pain relief and her blood picture and clotting profile were examined. Vaginal examination showed that the cervix was effaced and 3 cm dilated and the membranes were bulging through the os. A forewater rupture was performed and blood-stained amniotic fluid was released. Labour ensued and Mandy was delivered 3 hours later of a stillborn male infant. A large amount of clot was delivered with the placenta, and some 50% of the placenta appeared to have been avulsed from the uterine wall.
majority of cases no specific predisposing factor can be identified for a particular episode.

**Clinical types and presentation**

Three types of abruption have been described (Fig. 9.2):

- Revealed
- Concealed
-Mixed, or concealed and revealed.

Unlike placenta praevia, placental abruption presents with pain, vaginal bleeding and increased uterine activity.

**Revealed haemorrhage**

The major haemorrhage is apparent externally, as haemorrhage occurs from the lower part of the placenta and blood escapes through the cervical os. Under these circumstances the clinical features are less severe.

Abruption tends to occur after 36 weeks gestation, with the fetal lie longitudinal and the presenting part sitting well into the pelvic brim. In revealed placental abruption, uterine activity may be increased, but this finding is not consistent.

**Concealed haemorrhage**

In this case the haemorrhage occurs between the placenta and the uterine wall. The uterine content increases in volume and the fundal size appears larger than would be consistent with the estimated date of confinement. Uterine tonus is increased and pain and shock are common features. The uterus may become rigid and tender.

In some severe cases, haemorrhage penetrates through the uterine wall and the uterus appears bruised. This is described as a Couvelaire uterus. On clinical examination the uterus will be tense and hard and the uterine fundus will be higher than is normal for the gestational age. The patient will often be in labour and in approximately 30% of cases the fetal heart sounds will be absent and the fetus will be stillborn. The prognosis for the fetus is dependent on the extent of placental separation and is inversely proportional to the interval between onset and delivery.

**Mixed, or concealed and revealed haemorrhage**

In most cases the haemorrhage is both concealed and revealed. Haemorrhage occurs close to the placental
edge and, after an interval when the haemorrhage is concealed, blood loss soon appears vaginally.

**Differential diagnosis**

The diagnosis is made on the history of vaginal bleeding, abdominal pain, increased uterine tonus, proteinuria and the presence of a longitudinal lie. This must be distinguished from placenta praevia, where the haemorrhage is painless, the lie unstable and the uterus hypotonic. Occasionally, some manifestations of placental abruption may arise where there is a low-lying placenta. In other words, placental abruption can arise where there is low placental implantation and, on these occasions, the diagnosis can only really be clarified by ultrasound location of the placenta.

The diagnosis should also be differentiated from other acute emergencies such as acute hydramnios, where the uterus is enlarged, tender and tense but there is no haemorrhage. Other acute abdominal emergencies such as perforated ulcer, volvulus of the bowel and strangulated inguinal hernia may simulate concealed placental abruption, but these problems are rare during pregnancy.

**Management**

The patient must be admitted to hospital and the diagnosis established on the basis of the history and examination findings (Fig. 9.3). Mild cases may be treated conservatively and the placental site localized to confirm the diagnosis. If the haemorrhage is severe, resuscitation is the first prerequisite.

It is often difficult to assess the amount of blood loss accurately and intravenous infusion should be started with normal saline, Hartmann’s solution or blood substitutes until blood is cross-matched and transfusion can be commenced. Fluid replacement should be monitored by the use of a central venous pressure line. Unlike placenta praevia, any significant abruption should be treated by delivering the fetus as soon as possible.

If the fetus is alive and there are no clinical signs of fetal distress, or if the fetus is dead, surgical induction of labour is performed as soon as possible and, where necessary, uterine activity is stimulated with a dilute Syntocinon infusion. If the fetus is alive, it should be monitored and caesarean section should be performed if signs of fetal distress develop. If induction is not possible because the cervix is closed, then delivery should be effected by caesarean section. Pain relief is achieved by the use of opiates. Epidural anaesthesia should not be used until a clotting screen is available.

**Complications**

The complications of placental abruption are summarized in Figure 9.4.

**Afibrinogenaemia**

In afibrinogenaemia, severe placental abruption results in significant placental damage and the release of thromboplastin into the maternal circulation. This in turn may lead to intravascular coagulation and to defibrination, with the development of hypo- and afibrinogenaemia. The condition may be treated by the infusion of fresh frozen plasma, platelet transfusion and fibrinogen transfusion but can only be reversed by delivering the fetus. It may lead to abnormal bleeding if operative delivery is attempted or may result in
uncontrollable postpartum haemorrhage unless the clotting defect has been corrected.

Renal tubular or cortical necrosis
This is a complication that must always be considered as a possibility and it is essential to keep careful fluid balance charts and to take particular note of urinary output. This complication may, on occasion, necessitate haemodialysis or peritoneal dialysis, but it is becoming increasingly rare.

**OTHER CAUSES OF ANTEPARTUM HAEMORRHAGE**

These are summarized in Figure 9.5.

**Unexplained antepartum haemorrhage**
In many cases, it is not possible to make a definite diagnosis of abruption or placenta praevia.

These cases involve a significant increase in perinatal mortality and it is therefore important to monitor placental function and fetal growth. The pregnancy should not be allowed to proceed beyond term.

Rarely, the bleeding may be fetal in origin and arises from the rupture of an aberrant placental vessel known as a vasa praevia. The only way that this can be diagnosed is by detecting the presence of fetal haemoglobin in the vaginal blood loss.

**Vaginal infections**
Vaginal moniliasis or trichomoniais may cause blood-stained discharge and, once the diagnosis is established, should be treated with the appropriate therapy.

**Cervical lesions**
Benign lesions of the cervix such as cervical polyps are treated by removal of the polyp. Cervical erosions are best left untreated.

Carcinoma of the cervix is occasionally found in pregnancy. If the pregnancy is early, termination is indicated. If the diagnosis is made late in pregnancy, the diagnosis should be established by biopsy and the lesion treated according to the staging.
**ESSENTIAL INFORMATION**

- Vaginal bleeding after 24 weeks.

### Placenta praevia

- Lower segment implantation
- Incidence 1%
- Classification – marginal, central and lateral.
- Diagnosis – painless loss, unstable lie, soft uterus.
- Diagnosis confirmed by ultrasound or MRI
- Management – conservative until 37 weeks
- Hospital admission for all major degrees
- Blood held – cross-matched
- Caesarean section unless marginal
- Prognosis for the fetus – good.

### Placental abruption

- Incidence 0.5–1.0%
- Diagnosis – uterus hypertonic
- Normal fetal lie
- Commonly associated with maternal hypertension
- Management – replace blood loss
- Check for DIC
- Deliver the infant if abruption severe
- Prognosis for fetus poor
- Maternal complications
  - Afibrinogenemia
  - Renal tubular necrosis
  - Scar dehiscence and uterine rupture

### Unexplained causes

- Cervical and vaginal lesions
- Vasa praevia