

ABC of labour care

Obstetric emergencies

Geoffrey Chamberlain, Philip Steer

The management of emergencies is usually the responsibility of hospital obstetricians. As more maternity care is now given in the community, however, midwives, general practitioners, and paramedics may be involved and must know the outlines of management of emergencies and the possible side effects. If such a situation occurs outside the hospital then arrangements must be made to transport the woman to the obstetric unit safely and promptly.

All emergency protocols should have been considered beforehand and mutually agreed by obstetricians, midwives, general practitioners, and paramedics. Everybody then knows their immediate priority, and hazards to the woman can be minimised.

Abruption of the placenta

An abruption is a death threat to the fetus and a hazard to the mother. When the placenta separates from its bed (probably because of the rupture of a malformed blood vessel), the damage to the fetus follows not just because of the barrier that the clot makes between the placental bed and villi but also because the release of prostaglandins causes a major degree of uterine spasm. This interferes with perfusion of the placenta, which remains attached. Blood tracking into the myometrium often goes as far as the peritoneum over the uterus, causing much pain and shock, with spasm of the uterine muscle.

In major degrees of placental abruption the woman is shocked well beyond the apparent amount of blood loss and needs urgent transport into hospital. A wide bore intravenous line should be set up and blood sent for cross matching of at least six units of blood. Until this blood arrives, other plasma expanding fluids, such as Haemaccel, should be used.

If the fetus is still alive and gestation sufficiently advanced, caesarean section is the best management. However, if the fetus is dead, conservative management can be pursued provided that the woman does not continue deteriorating—for example, by developing a coagulopathy. Most women with a severe abruption that kills the fetus will go into spontaneous labour soon and have an easy delivery, but caesarean section is occasionally necessary for maternal indications alone. Treatment must be aimed at the shock and at preventing disseminated intravascular coagulopathy.

Usually the placenta is implanted on the anterior wall of the uterus, but sometimes it is posterior when the abruption is less painful and not so severe that the mother is shocked; the fetus may still be at risk, however. Diagnosis in these cases is by recognition of the excessively frequent contractions produced by the prostaglandin release and the abnormal pattern of the fetal heart rate secondary to fetal hypoxia; these are best shown with cardiotocography, a priority investigation in all women admitted with abdominal pain in pregnancy.

Placenta praevia

The blastocyst occasionally implants in the lower part of the uterus. Stretching and thinning of the uterine muscle of the lower segment in the third trimester may shear off part of the placental attachment. This is accompanied by painless bleeding.

The first principles of dealing with obstetric emergencies are the same as for any emergency (see to the airway, breathing, and circulation), but remember that in obstetrics there are two patients; the fetus is very vulnerable to maternal hypoxia

Clinical features of abruption of the placenta

Symptoms

- Abdominal pain
- Severe shock with symptoms beyond vaginal blood loss
- Vaginal bleeding—usually old blood

Signs

- Shock
- Spasm of uterus—described as woody
- Tender uterus
- Fetal parts hard to feel
- Often no fetal heart is heard

Emergency treatment of abruption

Treat the shock

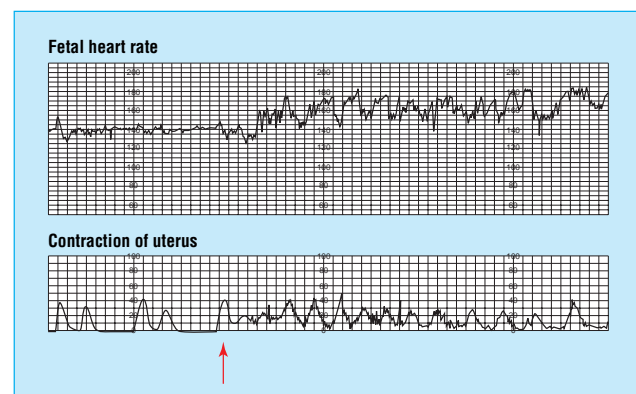
- Give oxygen
- Insert intravenous lines
- Arrange a cross match of 6 units of blood
- Give morphine (if fetus dead)

Deliver the fetus

- By caesarean section (if fetus is alive and gestation is mature)
- By rupturing membranes (if cervix is ripe or fetus is dead)

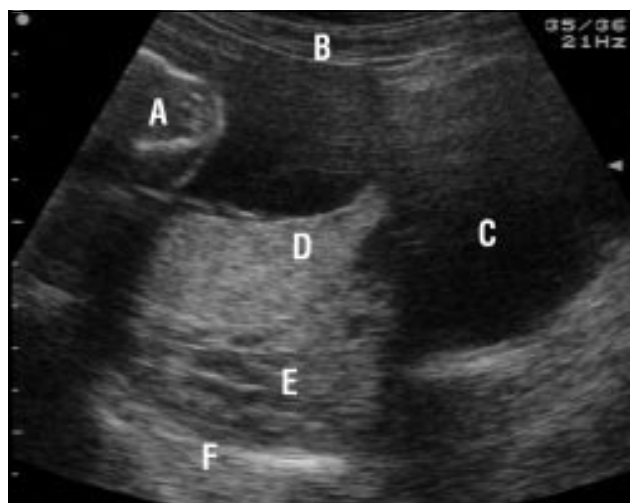
Treat disseminated intravascular coagulopathy

- Urgent haematological consultation
- Check platelet count
- Give cryoprecipitate (fresh frozen plasma)
- Transfuse with fresh blood if available



Cardiotocograph during an abruption of placenta (arrow indicates sudden abdominal pain)

Often the fetus is not affected by the first small bleeds, but they should be taken seriously for there is a risk that the mother could have a much larger bleed. Hence, women with bright red, painless vaginal bleeding are considered to have placenta praevia until proved otherwise and should be admitted to hospital. Vaginal ultrasound examination is the best technique for investigating possible placenta praevia, but, although it has a high sensitivity and specificity for central placenta praevia in the third trimester, it is much less precise in the late second trimester or for marginal placenta praevia. Management should therefore always be based on appropriate clinical judgment.



Ultrasound picture of placenta praevia. A=fetal head; B=anterior uterine wall; C=full bladder; D=placenta; E=placental lakes; F=cervical canal

If placenta praevia is confirmed the woman should stay in hospital for at least 48 hours after the bleeding has stopped. Management is conservative, even to the level of giving blood transfusions for severe bleeds, until the fetus is mature (at about 36 weeks). Studies do not show any benefit in keeping women in hospital until delivery, provided that they have a telephone at home and live close enough to the hospital to be brought in by the emergency services within 20 minutes if they start bleeding again (Love et al, 1996). Unless it is very obvious—for example, a complete placenta praevia on ultrasound examination, together with a transverse lie of the fetus—placenta praevia is sometimes confirmed by examination under general anaesthesia in theatre, proceeding in most instances to caesarean section performed by a senior obstetrician. Occasionally, if the placenta is anterior and only just engaging in the lower segment, the membranes may be ruptured and a vaginal delivery expected, as the head coming down into the mother's pelvis will compress the bleeding placental bed against the back of the pubis symphysis. The same cannot be said for any degree of posterior placenta praevia.

After delivery, a postpartum haemorrhage is likely because the placental bed is situated over less well contracting uterine muscle and may well bleed despite oxytocic stimulation. This often requires blood transfusion.

Postpartum haemorrhage

After a normal delivery a woman commonly loses up to 300 ml of blood. As her blood volume has increased because of fluid retention during pregnancy, this is a loss which can be coped with readily. However, a loss of > 500 ml measured clinically in the first 24 hours is considered to be a primary postpartum

Clinical aspects of placenta praevia

Symptoms

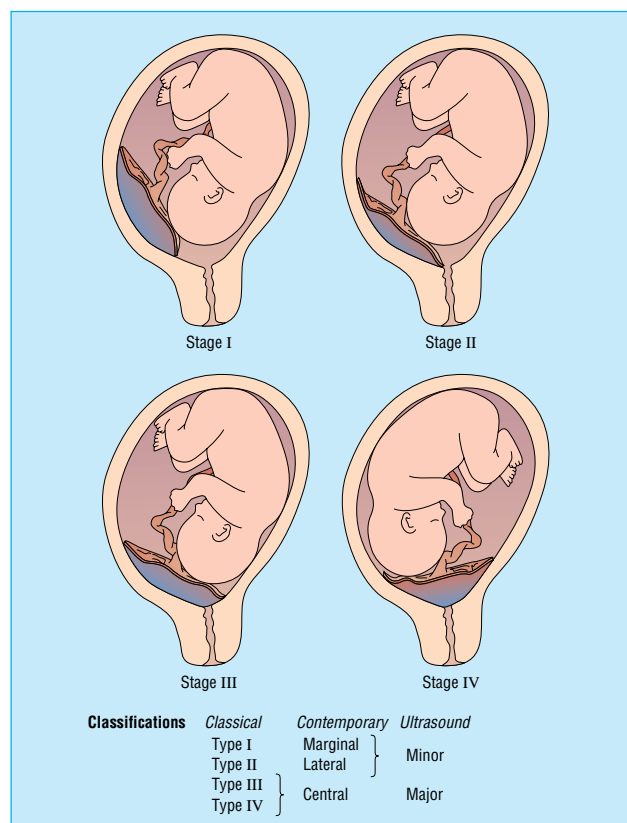
- Vaginal bleeding—bright red, painless, recurrent

Signs

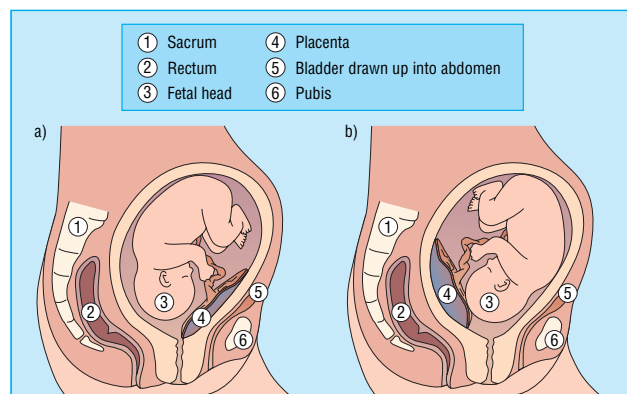
- Soft, pain free uterus
- Easy to feel fetus—often high head, breech, or transverse lie
- No fetal distress

Do not do a digital vaginal examination

A speculum examination in an inpatient to exclude any local bleeding is acceptable



Four stages of severity of placenta praevia: I—placenta encroaches on lower segment but does not reach internal os; II—placenta reaches internal os but does not cover it; III—placenta covers internal os before dilatation but not when dilated; IV—placenta completely covers internal os even when dilated



Descending head can compress anterior placenta praevia against pubis (left) but not posterior sited placenta (right) as too much soft tissue intervenes

haemorrhage. Blood loss is commonly underestimated by the attending practitioners. The mother should be watched carefully and treatments given to prevent any further loss.

If the uterus has not contracted firmly, manual stimulation may work by rubbing up a contraction, and a further oxytocic is given. If the placenta is incomplete the uterine cavity is explored for the remaining lobules whose presence in the uterine cavity may prevent the organ contracting down. If neither of these conditions exists, trauma to the lower uterus, cervix, or upper vagina may be the cause of the bleeding. Such traumas should be looked for (in theatre with a good light) and sutured appropriately. A rare cause of continuing primary postpartum haemorrhage is a rupture of the uterus. This needs diagnosis and treatment with either hysterectomy or abdominal resuturing.

After the first 24 hours, any bleeding is a secondary postpartum haemorrhage. It is commonly associated with infection, which should be treated vigorously with intravenous antibiotics. If it persists, suction evacuation of the uterus should be undertaken by a senior obstetrician; perforation of the soft uterus is a major risk in this situation.

A complication of severe and prolonged blood loss is a consumptive coagulopathy, when the mother's blood does not clot owing to interference with the clotting cascade. The continuing cooperation of a senior haematologist is essential. The mother continues to bleed not just from the placental bed but from other sites in the body. This needs firm and prompt correction so that full coagulation can be restored. Giving cryoprecipitate (frozen precipitate) provides the missing components.

Amniotic fluid embolism

Occasionally, when the uterus is contracting strongly and there is an opening between the amniotic sac and the uterine veins, a bolus of amniotic fluid is pumped into the circulation. This passes through the heart, and an accumulation of amniotic cells becomes trapped in the pulmonary circulation. The amniotic fluid may cause local disseminated intravascular coagulation, which may spread. This rare condition can occur late in the last trimester or during labour.

Amniotic fluid embolism used to be diagnosed on histology only after a postmortem examination but is now sometimes diagnosed before death. The symptoms include collapse while having strong contractions, shock without any blood loss, sudden dyspnoea, and the production of frothy sputum. Treatment is supportive, with steroids, intravenous plasma expansion, and urgent delivery. This obstetric emergency is rare and has a bad prognosis for both mother and fetus, usually owing to delay in diagnosis.

Inversion of uterus

Very rarely, if misapplied pressure has been used on the uterine fundus or traction on the cord of a non-separated placenta in a multiparous woman, the uterus can dimple and invert. This is a very shocking event as the fundus turns inside out and goes through the cervix into the vagina. Treatment requires an experienced obstetrician, who will try to return the uterus under general anaesthesia. This can be very difficult.

Infection

After delivery the genital tract has several sites of potential ingress of bacteria. The placental bed itself is a large raw area,

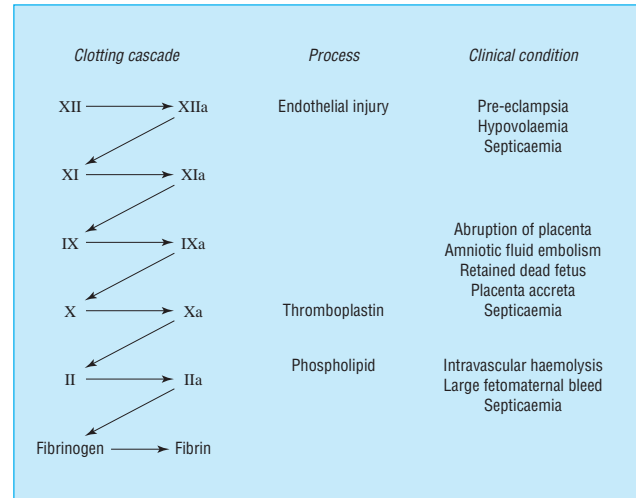
Management of primary postpartum haemorrhage

Preventive

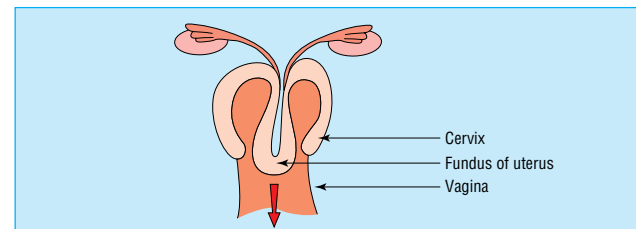
- Intramuscular oxytocin at the end of the second stage of labour

Curative

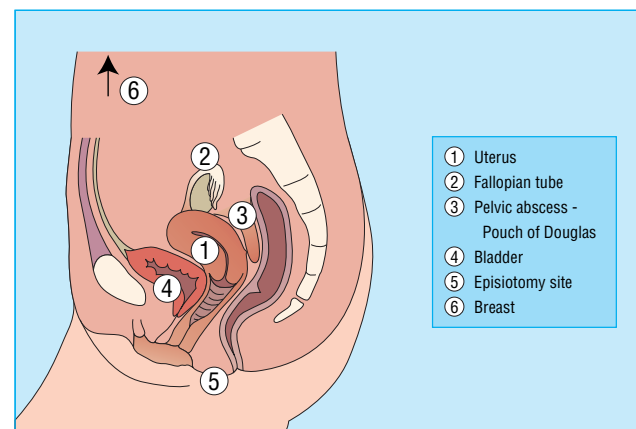
- Repeat oxytocic administration
- Rub up a contraction
- Check completeness of the placenta—if it is not delivered or a lobule is missing, prepare for manual removal
- Bimanual compression
- Intramyometrial prostaglandin E₂ or carboprost
- Surgical ligation—uterine arteries, internal iliac arteries, or braces (or Lynch) suture of uterus
- Hysterectomy



Mechanisms of blood clotting, and some of the clinical conditions that act at various points of the cascade to interfere with clotting



Acute inversion of uterus



Commonest sites of postpartum infection

and ascending infection from the lower genital tract may be assisted by previous intrauterine procedures—for example, forceps delivery. Infection of the cervix or, uncommonly, of the episiotomy site, may also occur; the breast can also be a site of infection in the puerperium.

Psychological conditions

Pregnancy and childbirth are times of high psychological stimulation. Any pre-existing psychological disorder may be exaggerated at this time and requires treatment. Many women go through mood swings (blues) in relation to childbirth, which can usually be managed by sympathetic support. If postnatal depression persists for a week or so, mild antidepressants may be needed, and the Edinburgh postnatal depression questionnaire may be helpful in diagnosing the condition. If the condition continues, formal psychiatric help is needed.

At the extreme of the spectrum of disease a puerperal psychosis may occur; both the mother and her baby should be admitted to a dedicated maternity/psychiatric unit as both are at risk. Here the mother can have expert psychiatric nursing and medical care while looking after her own baby. There is a 25% risk of recurrence in a future pregnancy.

Stillbirth and intrauterine death

In Britain 3-4 babies per 1000 are stillborn and another 3-4 per 1000 die in the first week of life. The grief reactions in both the woman and her partner need careful management by the midwifery and medical staff. The couple may go through a phase of anger; all hospital and community staff should be trained to cope with this. Midwifery and medical staff must be prepared to listen and offer their sympathies without attributing blame.

Parents should be encouraged to agree to a postmortem examination of the fetus and placenta by a skilled paediatric pathologist. Getting permission for this from the couple requires sensitivity. If a full postmortem examination is declined, a limited examination of the baby may be acceptable (x ray examination, computed tomography, blood samples from the heart area for chromosome analysis, and bacteriological swabbing of the relevant areas of the body).

Cultural attitudes of the parents influence these decisions and must be respected. It is probable that the couple will not object to full histological examination of the placenta.

Key references

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Philip Steer is professor of obstetrics and consultant obstetrician at Imperial College School of Medicine, Chelsea and Westminster Hospital, London.

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Treating infections

- Infections manifest themselves by local inflammation (swelling and tenderness) and a raised temperature
- Treatment is local heat to the area, analgesia, and broad spectrum antibiotics until the results of bacteriological swabs are available
- Co-amoxiclav and erythromycin are both good choices because they deal with penicillinase-producing staphylococci and streptococci, especially group B
- Metronidazole is often added for uterine infections
- If the infection persists, anaemia may follow, which may ultimately require a blood transfusion

Three levels of psychiatric state associated with childbirth

Postpartum blues (1 in 5 mothers)

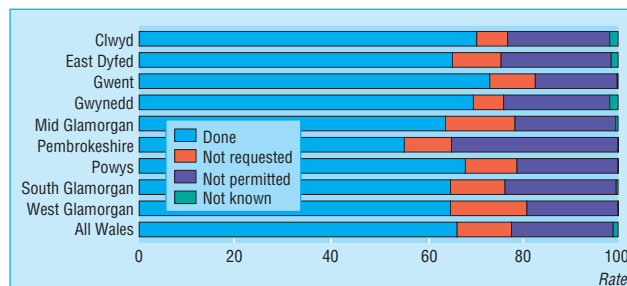
- Transient and treatable by reassurance

Puerperal depression (1 in 10 mothers)

- Low mood, lack of energy, guilt, irritability, and insomnia
- Treated by counselling (midwives and health visitors)
- Antidepressants—refer to GP if depression continues

Puerperal psychosis (1 in 500 mothers)

- Affective, depressive, or manic behaviour; insomnia; confusion; perplexity
- Refer to psychiatrist and admit to mother and baby unit



Example of health district data on frequency of perinatal postmortem examinations and consent sought (data from the Welsh confidential inquiry into stillbirths and deaths in infancy, 1996)



Radiograph of intrauterine death showing overlap of cranial bones after collapse of fetal skull. Ultrasound changes after death are of a more functional nature (lack of movements or fetal heart beat) but not so helpful at showing structural changes

Professor Robert Kendell provided help with the section on psychological and psychiatric conditions. The table showing presenting symptoms in fulminating pre-eclampsia is adapted from Sibai et al (*Am J Obstet Gynecol* 1993;169:1000-6). The cardiocotograph is adapted from Ingemarsson et al (*Fetal heart rate markings*. Oxford: Oxford Medical Publications, 1993). The drawing showing mechanisms of blood clotting is adapted from Letsky (*Obstetrics*. London: Churchill Livingstone, 1995).

The ABC of Labour Care is edited by Geoffrey Chamberlain, emeritus professor of obstetrics and gynaecology at the Singleton Hospital, Swansea. It will be published as a book in the summer.