3centres Collaboration

Antepartum Haemorrhage (APH)
Including Placenta Praevia, Abruption, Vasa Praevia and Incidental Bleeding

Clinical Practice Guidelines 2010

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GUIDELINE PURPOSE
This guideline aims to provide consistent advice for the evidence-based management of antepartum haemorrhage (APH) across the three level six (tertiary) maternity services in Victoria. This will be of significant benefit to the women being treated and for the primary and secondary service providers, who receive advice and support from these tertiary maternity centres.

It is anticipated that this guideline will be used as a basis for the development of local guidelines, which will take into account local service provision and the needs of the local population.

COMPARISON OF INTERNATIONAL GUIDELINES
To compile this guideline, international guidelines from obstetric groups were used to compare facets of care pertaining to antepartum haemorrhage, diagnosis and treatment.

An evidence-based model has been extrapolated from the consensus of opinion between these international guideline groups. Where opinion was absent or equivocal, the highest level of evidence from systematic reviews has been used.

Published guidelines from each of the three tertiary centres, namely Mercy Hospital for Women, The Royal Women’s Hospital and Southern Health’s Monash Medical Centre were gathered, then compared and contrasted against the international model.

Following an iterative consultation process among key stakeholders, a consensus of opinion was gained in most instances. In cases of conflicting points of view, a variance process was initiated, whereby the Co-Chairs of the 3centres Collaboration made the final decision.

SEARCH AND APPRAISAL
The following methods of search and appraisal were used:
An Ovid platform database selection was made using Medline, Embase, Cochrane library and the Clinicians Health channel to access on-line journals and databases for systematic reviews of evidence or the results of randomised controlled trials.

Guidelines developed by specific, international guideline groups were also searched via the Internet. Search terms used were: “Guidelines”, “antepartum haemorrhage (hemorrhage)”, “placenta praevia (previa)”, “placental abruption”, “placentae abruptio”, “vasa praevia (previa)” and “vaginal bleeding”.

The basis of international guideline selection was: The publication after the year 2000 and international guidelines published by obstetric and gynaecology professional bodies.

The areas of clinical care covered in this guideline include:
• Definition and incidence of APH
• Causes of APH outlined
• Emergency management of a major APH
• Causes and specific management of APH
  o Placenta Praevia
  o Abruption
  o Vasa Praevia
  o Other causes of vaginal bleeding
• Quick reference guides.
DEFINITION AND INCIDENCE OF APH

Obstetric haemorrhage (both antepartum and postpartum haemorrhage) is one of the leading causes of maternal mortality in the developed world.

Antepartum haemorrhage (APH) is defined as any bleeding from the genital tract after the 20th week of pregnancy and before the onset of labour. Some of the causes of antepartum haemorrhage might also cause intrapartum bleeding, such as an abruption or placenta praevia.

Antepartum haemorrhage complicates 2-5% of all pregnancies. It is associated with increased rates of perinatal morbidity and mortality and contributes to significant healthcare costs.¹

CLASSIFICATION OF APH

Classification of an APH is according to the site of bleeding and is commonly defined as follows:

**Placenta Praevia** (Accounts for about 30% of APH cases) and it is bleeding from a placenta located in the lower uterine segment. Bleeding is commonly recurrent and painless.

As the placenta occupies the lower uterine segment, the presenting part may be high or the fetus may be a mal-presented, due to restricted descent into the pelvis.

**Placental abruption** (Accounts for about 25% of APH) is bleeding from a normally situated placenta. This may be a marginal bleed (bleeding from the placental edge or margin) or in association with significant placental separation.

**Vasa Praevia** is a rare condition in which umbilical blood vessels traverse the fetal membranes of the lower uterine segment, unsupported by the umbilical cord or the placenta. Bleeding from these vessels is almost always associated with rupture of the fetal membranes.

**Cervical and lower genital tract bleeding** (Accounts for about 45% of APH) includes bleeding from any site within the genital tract and include:

Cervical lesions such as an ectropion, dysplasia, cervicitis, polyps or carcinoma.

Cervical bleeding in pregnancy may occur spontaneously, or follow sexual intercourse, a clinical examination or Pap smear. Bleeding from the lower genital tract is uncommon.

On occasion, bleeding from the urinary tract (haematuria) or ano-rectum (e.g. haemorrhoids) may be confused with an APH. Taking a complete history and conducting an appropriate clinical examination will greatly assist the clinician in making the correct diagnosis.

Regardless of the site of bleeding, women presenting with an APH may be broadly divided into two groups: Those with a major haemorrhage and those with an APH where immediate resuscitative measures are not required.

EMERGENCY MANAGEMENT OF A MAJOR APH

The majority of women presenting with an APH will not require immediate resuscitation. However, the actual blood loss is often more than is immediately apparent from haemodynamic assessment (e.g. pulse and blood pressure). This is because otherwise healthy women are well able to compensate for acute loss without overt signs or symptoms of shock.

Early resuscitative measures are important, particularly if there has been substantive blood loss. These include control of bleeding, restoration of circulating blood volume for oxygenation of tissues and diagnosing and treating the underlying cause of the bleeding. The required urgency of assessment and the escalation of treatment will largely depend upon the amount of bleeding, haemodynamic stability of the woman, her degree of shock, gestation and general maternal and fetal wellbeing.

An important part of resuscitation in a major APH is replacing the blood cells lost, with the transfusion of blood products. All hospitals should have a massive transfusion protocol that may be initiated for women with a major APH. Also, all hospitals should have a protocol on the management of women who refuse blood products.

Prompt assessment is imperative. Members of the treating team including an experienced obstetrician, anaesthetist, haematologist and other assistance as needed may carry out the following actions simultaneously.

The following principles will assist in the prompt assessment and management of a major APH:

**History and initial assessment**

- Assess the woman's general condition - Record pulse, blood pressure, temperature, respiratory rate and oxygen saturation level. NB. A healthy adult may maintain vital signs within the normal range until shortly before a critical point is reached and then suddenly and rapidly deteriorate.
- Record history – Expected due date, history of any bleeding in pregnancy, other relevant history e.g. recent trauma.
- Check blood group, Rhesus and antibody screen, ultrasound scan results for placental site.
- Note blood loss (amount, consistency and colour). It has been shown that practitioners often underestimate the volume of blood loss, particularly when blood loss is large. ²
- Considerable blood loss may be contained within the uterus (concealed), therefore the volume of visible blood may not be an accurate representation of the total amount of blood being lost. A tense tender uterus may signify the presence of concealed blood.
- If there has been a severe abruption (tense, tender uterus with a fetal death in utero), consider an early blood transfusion.
- Additional support – Midwives, obstetric staff, anaesthetist, haematologist and neonatologist.

**Basic Life Support**

- If required, establish an airway and administer oxygen therapy or assist ventilation.

**Fluid replacement and fluid balance**

- IV access. One or two size 16 gauge or larger bore cannulae.

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• Infuse fluids at approximately the rate that blood is being lost. In initial resuscitation, fluid replacement with crystalloid is as effective as with colloid.  
• Insert an in-dwelling urinary catheter with urometer. Record hourly urine output.
• If blood component therapy is indicated and consented to, advice should be sought from a haematologist regarding appropriate therapy.
• In the absence of a massive transfusion protocol or specialist haematology advice, consider the following:

<table>
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<td>Warm packed Red Blood Cells</td>
<td>Replacement of oxygen-carrying capacity</td>
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| Platelets                | Improve coagulation             | 1. After every four units of red blood cells.  
                            |                                  | 2. Thrombocytopenia                   |
| Fresh frozen plasma      | Improve coagulation             | 1. After every four units of red blood cells.  
                            |                                  | 2. Coagulopathy                       |
| Cryoprecipitate          | Improve coagulation             | Coagulopathy with low fibrinogen       |

If maternal haemodynamic state can only be improved by delivery, this should be considered, irrespective of gestational age.

Major APH-Emergency management

• **Observations** – General maternal condition: pulse blood pressure, respirations, O₂ Saturation.
• **History** – Due date, pregnancy history, recent trauma. Note blood group, rhesus and antibody screen, scan reports, note amount of blood loss.
• **Call for help** – Additional staff.
• **Basic life support** – Airway, Breathing and Circulation.
• **IV access and fluid replacement** – A crystalloid or colloid solution via large bore cannulae.
• **Bloods** - For full blood count, group & crossmatch, coagulation profile, Kleihauer, arterial blood gas in severe cases. Consider giving blood products if bleeding is severe.
• **Palpation** - For fetal presentation & lie. Assess uterine activity, pain, tenderness.
• **Speculum examination** - To observe for amount and source of bleeding.
• **CTG and ultrasound scan** - To assess fetal well-being and placental localisation.
• **Consider delivery** - To improve maternal haemodynamics.
• **Medications** – If time permits. Corticosteroids for fetal lung maturation. Consider MgSO₄ for fetal neuroprotection if <30 weeks gestation and imminent delivery is likely. Anti-D if Rhesus negative. Analgesia if required.
• **Documentation** should be carried out contemporaneously.
• **Communication** with the woman and her family should be clear and unambiguous.

Evidence level: SOGC I-III

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APH WHERE IMMEDIATE RESUSCITATIVE MEASURES ARE NOT REQUIRED

Initial Assessment
The following history will be useful:

- Presenting Features
  - Timing and amount of blood loss – e.g. number of pads used with an estimation of the blood staining on each pad
  - Associated features – e.g. abdominal pain and contractions
  - Provoking factors – e.g. trauma or sexual intercourse
  - Fetal movements since the bleeding has started
- Current Pregnancy
  - Previous episodes of bleeding in the current pregnancy
  - Review of any ultrasound examinations performed earlier in pregnancy, particularly noting placental site recorded on a 20 week (or later) scan
- Past obstetric, gynaecological, medical and surgical history

Examination
An examination should be performed, checking the following:

- The woman's general condition - record pulse, blood pressure and temperature. For a non major APH, the vital signs should be within the normal ranges.
- Abdominal Palpation – checking for uterine tenderness and symphysis-fundal height, fetal lie and presentation.
- Vaginal examination with a speculum only, to assess the site of bleeding.

Blood investigations

- Collect blood for: Full blood count (FBC), blood group and cross-match at least two units in case the bleeding escalates to a major APH, coagulation profile to detect any unsuspected thrombocytopenia, Kleihauer-Betke test or flow cytometry for an estimation of feto-maternal haemorrhage and confirm amount of Anti-D immunoglobulin required if the woman is Rhesus negative.

Fetal well-being assessment

- Cardiotocograph (CTG) or hand held Doppler, if an appropriate gestation has been reached. If not reached, fetal well-being can be confirmed with an ultrasound scan.

Ultrasound scan

- Ultrasound scan for placental location, to exclude placenta praevia.
- An ultrasound scan is not the investigation of choice to diagnose a placental abruption. Unless there is substantive placental separation, and this will be clinically apparent, a placental abruption is not likely to be seen on ultrasound.

Medications

- The need for analgesia should raise concerns of a moderate or severe placental abruption, or that the woman is in labour. Offer analgesia and antiemetics if required.
- Give corticosteroids if gestation is less than 34 weeks. (Two doses of Betamethasone 11.4mg, 24 hours apart).
• Administer 625iu Anti-D, as an intramuscular injection, if the woman is Rhesus (D) negative. Additional doses of Anti-D immunoglobulin may be required if the Kleihauer-Betke test indicates a large feto-maternal haemorrhage.

• If delivery is imminent at a gestation less than 30 weeks gestation, consider a magnesium sulphate infusion for fetal neuroprotection.  

Documentation and communication
• Accurately document fluid input and output.
• Accurately document events and interventions performed, as contemporaneously as possible.
• Communication and explanations to the woman, her partner and family should be prompt, frequent and in a style and manner that they will understand.

While it has been common clinical practice to routinely admit women who have experienced an APH, there is no high level evidence to support this practice. Dependant upon the underlying cause of the bleeding, women who have experienced an APH that is non life-threatening, who are clinically stable, and dependant upon the underlying cause of the bleeding, may be discharged and reviewed on an outpatient basis. This decision will be based upon the judgement of an experienced clinician, in consultation with the woman and also in view of her individual circumstances. i.e. distance from an appropriate hospital, home support, telephone and transportation access. (See page 11)

References


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PLACENTA PRAEVIA

Definition and Diagnosis

Placenta praevia is when the placenta is inserted wholly or partly into the lower segment of the uterus in the third trimester of pregnancy.

The diagnosis of placenta praevia is made by transvaginal ultrasound, where the distance between the inferior edge of the placenta and the internal cervical os is measured.

If the placenta lies over the cervical os, it is considered a major placenta praevia; otherwise it is considered a minor placenta praevia. This diagnosis has evolved from the original clinical (I–IV) grading system.

Trans-vaginal or trans-labial ultrasound is the preferred method for localisation of a low-lying placenta. They have been shown to be significantly more accurate than using trans-abdominal sonography and it is safe to perform, even in the presence of bleeding. It is easier to identify an anterior than a posteriorly located placenta praevia. This is because the fetus often obscures the leading edge of a posterior placenta.

When a woman is found to have a low lying placenta that reaches or overlaps the cervical os at her 18-20 week morphology ultrasound scan, a further trans-vaginal ultrasound scan in later pregnancy is required, to confirm the diagnosis of placenta praevia. The timing of the second ultrasound scan for placental localisation should be:

- In cases of asymptomatic suspected minor placenta praevia - follow-up imaging can be arranged for 32 to 36 weeks. The earlier the ultrasound scan is performed the more likely it is to find an ongoing placenta praevia however, a later scan may lead to unnecessary clinical uncertainty.
- In cases with asymptomatic suspected major placenta praevia, a trans-vaginal ultrasound scan should be performed at 30-32 weeks. This is to clarify the diagnosis, to check for the presence of a vasa praevia, and to allow planning for third-trimester management and delivery.
- Women who are symptomatic - should be managed individually according to their needs.

Definition of placenta praevia

**Major placenta praevia** - Placenta lying over the cervical os.

**Minor placenta praevia** - Placenta not lying over the cervical os but encroaching on the lower uterine segment.

**Diagnosis of a suspected placenta praevia**

- Is by transvaginal ultrasound.
- In asymptomatic minor placenta praevia, a follow-up scan at 32-36 weeks.
- In asymptomatic major placenta praevia, a follow-up scan at 30-32 weeks.
- In symptomatic placenta praevia – manage on an individual basis.
- Consider placenta praevia in a woman with bleeding, high head or abnormal lie.

Evidence: RCOG-B, SOGC-II
Incidence

A low lying placenta occurs in 5% of pregnancies at 16-18 weeks gestation but are evident in only 0.5% pregnancies at term. The change of placental position results from the formation of the lower uterine segment and which moves the placenta upwards with the expanding uterus. The incidence of placenta praevia is higher in women with a previous caesarean section and increases in prevalence with each caesarean section.

Presentation

Women with a placenta praevia generally present in the following ways:
- With an antepartum haemorrhage.
- As a finding on ultrasound in an asymptomatic woman.
- With a fetal malpresentation or a high mobile presenting part in late pregnancy.
- With vaginal bleeding in labour

Effects of placenta praevia

The most common pregnancy complication arising from a placenta praevia is intermittent vaginal bleeding. About 70-80% of women with a placenta praevia will have at least one episode of vaginal bleeding, irrespective of whether the placenta praevia major or minor. Bleeding may also lead to maternal anaemia and so it is worthwhile ensuring and maintaining adequate maternal haemoglobin levels and iron stores. Bleeding is more likely to occur in the third trimester when the lower uterine segment is developing or during contractions with cervical dilatation, which is thought to cause shearing forces, leading to disruption of the placental attachment. Bleeding can also be provoked by a digital examination or intercourse.

From the second trimester, a placenta praevia may be associated with vasa praevia and therefore localisation of the fetal vessels on a follow up ultrasound scan is advised.

Bleeding caused by a placenta praevia may lead to maternal (as documented above) and fetal effects, such as hypoxia related to decreased blood supply to the placental bed, which leads to an abnormal cardiotocograph. Bleeding will lead to the need to deliver the fetus in a small number of cases.

Fetal effects of placenta praevia, that are seen in the longer term, may include intrauterine growth restriction (IUGR), due to abnormal placental implantation and vascularisation in the area of the uterus destined to be the lower segment; and a higher incidence of premature prelabour rupture of the membranes (PPROM), which is thought to be as a result of the blood affecting the integrity of the membranes.

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Triggers for delivery caused by placenta praevia (i.e. in addition to other routine reasons) can be summarised:

**Short Term**
- Maternal - Haemodynamic instability.
- Fetal – Abnormal CTG.

**Longer Term**
- Fetal – Progressive IUGR.
- Fetal – PPROM.
- Fetal – The presence of a vasa praevia
- Adequate gestation gained to balance the risk of further bleeding against prematurity.

**Hospital or home management for women with placenta praevia?**

Women with a placenta praevia and active vaginal bleeding require hospitalization. Traditionally women with an asymptomatic placenta praevia, that is without vaginal bleeding, have been admitted to hospital at 34 weeks gestation or earlier. However, several studies have suggested that, in the absence of active bleeding, it is safe and appropriate for women with a placenta praevia, either major or minor, to be managed on an outpatient basis and that inpatient care is not necessary.\(^{10,11,12}\)

Although not based on any high quality evidence, some clinicians make decisions regarding inpatient versus outpatient management on a variety of individualized factors, including:

- Gestation Age
- Bleeding History
  - Severity, frequency, how recent.
- Home Issues
  - Likelihood of obtaining rest, absence of sexual intercourse and trauma.
- Ability to obtain timely treatment in the event of catastrophic haemorrhage
- Hospital proximity with respect to:
  - Resuscitation and massive transfusion capability
  - Immediate caesarean section if needed
- Carer
  - Continuously in attendance.
  - Ability to transport immediately to hospital.

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\(^{10}\) Love CDB, Wallace EM. Pregnancies complicated by placenta praevia: what is the appropriate management? BJOG Sept 1996, vol 103, pp.864-867


Management of birth, route and timing

Management recommendations for women with placenta praevia are based upon clinical and ultrasound findings.

Where the placenta is not overlying the internal os, recommendations should consider:

- Likelihood of a placenta accreta (e.g. in cases of previous caesarean section)
- Considerations with respect to immediate caesarean section (birth within 15 minutes)
- Presence of a vasa praevia
- Placental edge proximity to the internal os
- Availability of high volume blood transfusion: this may be limited by local factors or the presence of anti-red cell antibodies
- Individual considerations such as acceptability of blood transfusion, acceptability of an elective caesarean section

Vaginal versus caesarean birth

When the placental edge lies greater than 20 mm away from the internal cervical os, women may be suitable for a trial of labour.

A distance of 0-20mm from the cervical os, does not absolutely preclude a vaginal birth but, because it is associated with a likelihood of significant intrapartum bleeding, an elective caesarean section should be considered in these women.16

Caesarean section for placenta praevia

Where possible and if the woman is clinically stable, the timing of a caesarean section should be deferred until after 39 weeks to improve neonatal morbidity. However, in a major placenta praevia, planning for a caesarean section at 37-38 weeks may avoid the possibility that an emergency caesarean may be needed due to the onset of labour before the scheduled caesarean section at 39+ weeks. About 25% women scheduled for a caesarean section at 39-40 weeks will present in labour before then17. This may present unacceptable risks of severe bleeding and subsequent maternal and neonatal sequelae in women with a placenta praevia.

It is imperative that the woman and her family are unambiguously counselled regarding the risks associated with having a placenta praevia, including the possible need and consent for blood transfusion and/or hysterectomy. Contemporaneous documentation to support the outcome of these discussions would be prudent.

Caesarean section procedure

Consultant obstetric staff should be in attendance in theatre, or immediately available, at the time of surgery as the risk of haemorrhage is greatest at this time.

Usually a routine Pfannenstiel skin incision is adequate for delivery.

17 Kirkeby Hansen et al, Risk of respiratory morbidity in term infants delivered by elective caesarean section: cohort study. Downloaded from bmj.com on 3 March 2009
If the lower segment has not developed or if there is a known placenta accreta, a vertical skin incision should also be considered, at the discretion of the experienced obstetrician involved.

If faced with a situation of massive haemorrhage at the time of caesarean section, clinicians may need to consider: bimanual compression, hydrostatic balloon catheterisation or uterine packing. Additional surgical techniques to consider include compression sutures such as the B-Lynch suture, uterine or internal iliac artery ligation or hysterectomy. Arterial embolisation has been reported and is useful in selected cases, as long as the iliac vessels have not been ligated during surgery. The choice of these techniques will be dependant upon the resources and specific expertise available at the time of the operation.

**Anaesthesia**
The type of anaesthesia will be made in consultation with the anaesthetist, obstetrician and the woman. The safety of regional anaesthesia has been proven and is widely practiced.

When prolonged surgery is anticipated in women with prenatally diagnosed placenta accreta, general anaesthesia may be preferable.

**Thromboprophylaxis**
As with any pregnant woman who is hospitalised for lengthy periods, these women are at a greater risk of thromboembolism. Regular mobilisation is encouraged and the use of thromboembolic stockings is advised. Prophylactic anticoagulation should be reserved for those at high risk of thromboembolism.

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**Management of birth, route and timing**

**Vaginal-v-caesarean birth:** Consider resources, expertise, individual circumstances.
- Placental edge to cervical os > 20mm: a trial of labour may be suitable.
- Placental edge from 0mm to 20mm does not preclude a vaginal birth but an elective caesarean section is advised.

**Caesarean section timing:** 39 weeks is optimal for neonatal morbidity but weighed against the risk of massive haemorrhage and emergency caesarean, the timing of an elective caesarean for major praevia should be at 37-39 weeks.

**Caesarean procedure:** Experienced obstetrician must be available should a decision to utilise various surgical techniques be required.

**Anaesthesia:** The type of anaesthesia used will be in consultation with all parties concerned. Regional anaesthesia is often used.

**Thromboprophylaxis:** Mobilisation and thromboembolic stockings are recommended. Anticoagulation therapy for those at highest risk.

Placenta accreta, percreta, increta

When placenta accreta is thought to be likely, consultant anaesthetic and obstetric input are vital in planning and conducting the delivery. The place of delivery should be in a level 6 (Tertiary) hospital or where adequate resources and expertise are available. Cross-matched blood should be available and colleagues from other specialties/subspecialties such as neonatology, urology, gynaecological oncology, intensive care and interventional radiology, may be alerted to be on standby or to attend as needed.

Surgical management choices to be considered:

1. Vaginal delivery of the baby and awaiting spontaneous delivery of the placenta while giving the usual regimen of oxytocics. If this option is chosen, the woman must have been previously counselled, and the surgeon must be prepared to proceed promptly to hysterectomy if needed and the anaesthetist prepared for massive transfusion in the event of possible heavy bleeding while the hysterectomy is being undertaken.

2. Delivery of the baby via a uterine incision distant from the placenta, full repair of the uterus and conservative management.

   In approximately 75% of women, the placenta will be successfully reabsorbed. One quarter will still require a hysterectomy because of uncontrollable bleeding, which may be delayed up to several weeks. This has serious implications if the woman is returning to a remote area with little facility to cope with sudden severe haemorrhage.  

3. Further surgical options for the experienced clinician to consider are:
   - Ureteric stents: In women with suspected placenta accreta for whom a caesarean hysterectomy is planned, ureteric stent placement is associated with reduced ureteric injury.  
   - Vascular occlusive balloon catheters: The placement of vascular occlusive balloon catheters in the common iliac arteries (under radiological guidance) may offer good haemostatic control during a caesarean hysterectomy and thereby reduce maternal blood loss and morbidity.

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Placenta accreta

- Higher prevalence in previous caesarean section
- Multidisciplinary approach
- Rapid infusion of warm blood products
- Additional surgical procedures may need to be employed
- Conservative management may be considered to preserve fertility.

Evidence level RCOG B, SOGC II

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References


PLACENTAL ABRUPTION

Definition

Abruption is an antepartum haemorrhage from placental separation from the myometrial wall. The bleeding may be revealed, when blood escapes through the vagina, or concealed, when the bleeding occurs behind the placenta, with no evidence of bleeding from the vagina. When there is revealed bleeding it is also likely that there is a significant concealed proportion of bleeding. There are degrees of abruption that will reflect the range of maternal and fetal compromise. Placental abruption is associated with a high maternal and neonatal morbidity and mortality.

Incidence

Placental abruption complicates around 1% of pregnancies.

Risk factors

Risk factors for placental abruption include:

• Factors predisposing to an abruption such as chronic hypertension, preeclampsia, thrombophilia, previous placental abruption, smoking, cocaine use.

• Chorioamnionitis

• Sudden reduction in size of an over-distended uterus e.g. rupture of the membranes in association with polyhydramnios, between births of multiple pregnancies

• Trauma e.g. motor vehicle accident. A woman involved in trauma, such as an MVA, should be evaluated for abruption. An abruption may occur in the absence of direct abdominal trauma or, an abruption may become apparent several hours or days after the trauma.

Diagnostic features

A placental abruption most commonly presents with bleeding associated with a variable degree of abdominal pain. This is in contrast to the painless bleeding of placenta praevia or bleeding from the cervix or lower genital tract. However, some placental abruption can also be painless. Abruption should be high on the differential diagnosis list whenever abdominal pain occurs in the second half of pregnancy. Back pain may also be another common symptom.

Where the abruption is substantive, the uterus may be tender on palpation or may feel hard or tense. Fetal parts might not be felt through the tense uterus. Symptoms, signs and clinical examination finding of preterm labour may also coexist with abruption.

In some cases fetal demise may be the only indication of an abruption or could be accompanied by any of the previously listed symptoms.

Initial management

A detailed history should be taken if possible, to ascertain if the woman has any risk factors for abruption, including predisposing factors for placental insufficiency or any recent trauma. A detailed routine history should be taken.
The revealed blood loss should be estimated and clinical signs (blood pressure, pulse) evaluated. Urine output should be at least 30 mL/hour. An indwelling urinary catheter with a urometer will assist with accurate measuring of output.

The following principles should guide the need for blood transfusion:
- Revealed loss is likely to underestimate total blood loss
- In the presence of a typical severe abruption (with fetal death), the woman may require 4-6 units of blood due to the concealed haemorrhage.
- Considerable further blood loss should be anticipated around the time of birth. Blood replacement should be directed towards stabilising the maternal condition so that the woman is capable of sustaining further blood loss. (See management of a major APH)

An abruption should be considered if there has been recent abdominal trauma. In this situation, fetal monitoring should be carried out for a minimum of 4 hours. If there are uterine contractions, abnormal fetal heart rate tracings, vaginal bleeding, uterine tenderness, or rupture of the membranes, further evaluation and/or delivery are indicated as determined by gestational age and individual circumstances.

**Investigations**

**Maternal investigations:**
- Palpation: Contractions are often frequent with a short resting period between the contractions.
- Haemoglobin, coagulation studies to exclude disseminated intravascular coagulopathy as a consequence of large blood loss. Note that Fibrinogen levels rise in pregnancy therefore ‘normal’ or low fibrinogen levels and a prolonged prothrombin time are suggestive of disseminated intravascular coagulation (DIC).
- Ultrasound: In severe abruptions, there may be evidence of a retroplacental haematoma, increased placental thickness or echogenicity however, ultrasound is not the investigation of choice as there may be no ultrasound findings in the presence of an abruption.
- Kleihauer –Betke test or flow cytometry as a measure of feto-maternal haemorrhage.

**Fetal investigations:**
- Cardiotocograph.

**Immediate management and investigations**
- Take a detailed history.
- Intravenous access with wide-bore cannulae.
- Full blood count for evidence of anaemia and thrombocytopenia.
- Coagulation profile, altered fibrinogen levels and a prolonged PT are suggestive of DIC.
- Kleihauer-Betke or flow cytometry to assess feto-maternal transfusion.
- Monitoring of vital signs, urine output by hourly urometer. Fluid balance input/output chart
- Continuous electronic fetal monitoring for a minimum of 4 hours in the event of trauma.
- Anti-D immunoglobulin in Rhesus negative women.
- Fluid, blood, or blood product replacement, as indicated.
On-going management

Corticosteroids and Magnesium Sulphate
Should be given for fetal lung maturation in pregnancies less than 34 weeks gestation, Two doses of Betamethasone 11.4mg, 24 hours apart, if delivery is not planned within the next 12 hours. Magnesium sulphate should be considered for neuroprotection in pregnancies where delivery is planned at less than 30 weeks’ gestation.

Timing of Birth
Factors that should be taken into consideration:
• Gestational age
  o Severity of abruption as judged by: The volume of revealed blood loss and clinical signs and symptoms of haemorrhagic shock.
  o Features of concealed blood loss such as abdominal pain & tenderness
• Fetal well-being e.g. cardiotocography
• Co-existent conditions that may have be associated with the abruption such as preeclampsia or placental insufficiency of unknown origin.

For women at or near term, even if the current abruption appears to be minimal, delivery is recommended in view of fetal maturity. This is due to the risk of further, possibly catastrophic placental abruption.

At premature (32-37 weeks’) gestations, conservative management can be considered for what appears to be only a minor placental abruption. However, if there is substantive revealed blood loss, significant uterine tenderness, evidence of coagulopathy or fetal compromise, delivery should be expedited.

At very premature (28-32 weeks) and extreme preterm (less than 28 weeks) gestations, conservative management may considered, even in the presence of substantive revealed bleeding or significant uterine tenderness – but only if both maternal and fetal conditions are stable. The timing of birth must weigh the risks of the maternal condition and prematurity, against those of continuing the pregnancy.

Mode of birth
If either the fetus or woman are unstable, delivery should take place promptly, with concurrent stabilisation of both. This is usually by caesarean section unless vaginal delivery is imminent and can be achieved safely. In significant abruptions, neonatal morbidity is improved if the decision to delivery time for caesarean section is less than 20 minutes, therefore unnecessary delay should be avoided.

If the abruption is significant but the woman is stable and the CTG is normal, then vaginal delivery can be attempted. Often the woman is having contractions, but if she is not in active labour, induction usually results in delivery. Continuous electronic fetal heart rate monitoring is strongly recommended, as is the availability of blood products in the event of catastrophic bleeding.

Tocolysis
For women with abruption who are bleeding and contracting, tocolysis is controversial and should only

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21 Oyelese, Yinka MD. ACOG, Obstetrics & Gynecology: October 2006 - Volume 108 - Issue 4 - pp 1005-1016

Printed in November 2010. Please refer to the website for updates to this guideline. www.3centres.com.au
be used with caution by experienced clinicians.

Conservative management after a placental abruption

Place of Management
In all cases, the woman will be initially admitted to hospital and many will remain as inpatients until birth. However, after a period of assessment, some women may be discharged home and monitored as an outpatient providing that:
- The initial bleeding has completely abated and there is no evidence of ongoing haemorrhage.
- Clinical features were those of a minor placental abruption (low volume revealed blood loss and minimal uterine tenderness)
- Fetal well-being is reassuring

Fetal Surveillance
All pregnancies that have had a placental abruption require intensive fetal surveillance. The woman should be carefully advised with respect to the observation of fetal movements and the reporting of any decrease in fetal activity.
A regimen of regular cardiotocography and serial ultrasound scans is appropriate and should be tailored according to the clinical condition.

Fetal demise following a severe placental abruption

If the woman is not in active labour, the labour can be induced by routine methods, providing her condition remains stable. If the maternal condition is worsening, caesarean delivery may be indicated.
In a woman refusing the administration of all blood products but without overt DIC, a caesarean section may avoid the catastrophic situation of a later vaginal birth with massive haemorrhage, DIC and a patient refusing all blood products. In contrast, if DIC is already established, the conventional wisdom is to avoid adding to the risk of bleeding at the surgical site to the risk of bleeding at the placental site.

Fetal demise
- If fetal demise is due to abruption, DIC is highly likely and delivery should be expedited.
- Induction is preferable. Caesarean may be necessary if the woman’s condition is worsening.

Evidence level – BMJ Best Practice

Postpartum Haemorrhage following a Placental Abruption

Postpartum haemorrhage is relatively common following a placental abruption and may occur as a consequence of both a bleeding disorder (thrombocytopenia +/- DIC) and uterine atony. The latter may occur in association with a “couvelaire” uterus – where blood has suffused into the myometrium, giving the serosal surface a mottled black appearance. Utero-tonic agents such as oxytocin, ergometrine and prostaglandin analogues may be given, according to the usual contraindications. Platelets and clotting factors should be replaced.

In severe cases, where bleeding is unresponsive to delivery, utero-tonic administration, platelet and clotting factor replacement surgical measures can be life saving. The following can be considered, according to individual circumstances and local expertise:
• Balloon tamponade (e.g. Bakri)
• Compression sutures (e.g. B-Lynch)
• Surgical ligation of the uterine arteries or the hypogastric arteries
• Selective embolisation of these vessels may arrest this life-threatening haemorrhage.
• Hysterectomy

### Post partum haemorrhage management

- Judicious use of uterotonic agents.
- Surgical intervention by suitably experienced personnel.
- Correction of coagulopathies.

### Follow-up

Placental pathology may help elucidate the aetiology and pathophysiology of the abruption. Abnormalities such as placental thrombosis, perivillous fibrin deposition, infarction and decidual abnormalities may be found.

Women who have had a placental abruption should be screened for both congenital and acquired thrombophilias. If the Protein S level is low, it should be repeated after an interval of 6 weeks, as the abnormally low level may be a transient impact of pregnancy. Women who smoke or engage in recreational drug use, should be advised of the strong association with placental abruption.

### Follow-up

- Send placenta for pathological examination.
- Maternal screen for thrombophilias.
- Advise cessation of drug use and smoking.

### References

VASA PRAEVIA

Definition

Vasa praevia is a condition in which the umbilical vessels, unsupported by either the umbilical cord or placental tissue, traverse the fetal membranes of the lower segment above the cervix.

Incidence

The reported incidence varies from 1 in 1275 to 1 in 5000 (0.08% - 0.02%).

Vasa praevia usually occurs in association with velamentous insertion of the umbilical cord, bipartite placenta or succenturiate lobe. In the presence of a velamentous insertion of the cord with the placenta in the lower uterine segment, the incidence of vasa praevia has been reported to be 1 in 50.

Risk factors

Placenta praevia, low-lying placenta, and bilobate or succenturiate placenta.

Clinical presentation

When performing a third trimester ultrasound on a woman with a suspected placenta praevia, it is recommended that colour Doppler imaging is also performed specifically to detect the presence of fetal vessels.

Vasa praevia will extremely rarely present with an “antepartum” haemorrhage. Detection is more likely on vaginal examination with palpation of fetal vessel, vaginal bleeding at amniotomy or sudden severe abnormalities of the fetal heart rate in labour are more usual presentations.

Management

Antenatal diagnosis and prompt neonatal resuscitation have shown to improve outcomes and the safest form of delivery is caesarean section, prior to the onset of labour.

The optimal gestational age at delivery has not been established. Due to the high rate of fetal mortality, it has been recommended that delivery be considered by 35-36 weeks but expert clinical judgement for individualized care is necessary.

In the event of vaginal bleeding with a known vasa praevia, if time permits, a rapid biochemical test for fetal haemoglobin could be conducted, followed by an urgent caesarean section if a confirmed result is returned. However, performing a CTG or listening to the fetal heart rate may be a quicker way in many situations, to infer the diagnosis and institute appropriate management. There is typically an initial tachycardia as the fetus first becomes hypovolaemic, soon followed by a sustained bradycardia and then fetal demise if delivery by caesarean section is not immediate.

References


OTHER CAUSES OF VAGINAL BLEEDING

Other causes of vaginal bleeding in late pregnancy include:

Heavy show / onset of labour – Bleeding associated with labour is not traditionally considered an Antepartum Haemorrhage. If the cervix is effaced or a dilated and other causes of bleeding are excluded, the bleed is likely to be a "show".

Cervical ectropion / dysplasia/ - Bleeding from the surface of the cervix caused by contact with the speculum and may indicate cervical pathology and warrant further investigation i.e. pap smear, colposcopy.
Bleeding from the walls of the vagina may indicate a severe vaginitis.

Genital Tract Polyps - Cervical polyps are usually apparent upon speculum examination. Vulval or vaginal varices - Will be apparent upon speculum examination. Trauma - Consider victims of domestic violence and sexual assault. Non genital tract causes: Haematuria, anal or rectal bleeding.
Unexplained bleeding.

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<tr>
<th>Other causes of vaginal bleeding</th>
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<tr>
<td>• Show</td>
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<tr>
<td>• Cervical ectropion, dysplasia</td>
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<td>• Cervicitis, vaginitis</td>
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<td>• Polyps</td>
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<td>• Trauma</td>
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<td>• Unspecified</td>
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<td>• Non vaginal – Haematuria, anal / rectal bleeding</td>
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References


# 3CENTRES COLLABORATION ANTEPARTUM HAEMORRHAGE GUIDELINE

## APH - QUICK REFERENCE GUIDE

### APH DEFINITION
Bleeding from the genital tract after the 20th completed week of pregnancy

### APH CAUSES
- Placenta Praevia – 31%
- Abruption – 27%
- Vasas Praevia – Rare
- Unclassified – 47%

### APH EMERGENCY MANAGEMENT
Control bleeding, restore circulating blood volume, diagnose and treat the underlying cause of the bleeding.
- Obs. Pulse, B/P, Resps, O₂ saturation.
- Call for help --additional staff.
- Bloods-BFE, group & crossmatch, coagulation profile, Kleihauer, consider arterial blood gas and blood products.
- Gentle palpation for presentation and lie. Assess uterine activity and pain.
- Speculum to observe bleeding.
- CTG and scan to assess fetal well being and possible cause of bleeding.
- Corticosteroids if < 34 weeks.
- Give Anti-D if required.
- Consider MgSO₄ for fetal neuroprotection if <30 weeks.
- Give Analgesia if required.
- Consider expediting delivery.
- Documentation completed as contemporaneously as possible.
- Communicate clearly with woman and her attendants.

### VASA PRAEVI A
The umbilical vessels, unsupported by either the umbilical cord or placental tissue, traverse the fetal membranes of the lower segment above the cervix.

### VASA PRAEVIA PRESENTATION
- Detected by transvaginal ultrasound
- Bleeding on amniotomy or spontaneous rupture of membranes
- Palpable vessel on vaginal examination
- Abnormal CTG.

### VASA PRAEVIA MANAGEMENT
- Antenatal diagnosis is the ideal.
- Consider hospitalisation from 32 weeks, according to individual circumstances.
- Test vaginal blood for fetal Hb.
- Elective caesarean section 35-36 weeks. (Experienced clinician’s judgement)
- Urgent caesarean section as indicated.
- For fetal demise - induction and vaginal birth is appropriate.

### PLACENTA PRAEVIA
Major praevia- Placenta lying wholly over the cervical os. Minor praevia – Placenta not lying over the cervical os but encroaching on the lower uterine segment.

### PLACENTA PRAEVIA DIAGNOSIS
- Is by transvaginal ultrasound.
- In minor praevia, scan at 36 weeks.
- In asymptomatic major praevia, scan at 32 weeks.
- In symptomatic praevia – manage on an individual basis.
- Consider praevia in a woman with bleeding, high head or abnormal lie.

### HOSPITAL ADMISSION CRITERIA
- Women with a major praevia who are symptomatic –inpatient care
- Women with a major praevia who have not bled – outpatient care within defined parameters, or inpatient care.
- Women with a minor praevia who have bled – inpatient care.
- Women with a minor praevia who are asymptomatic – Outpatient care

### PRE-DELIVERY PLAN
- Discuss blood transfusion and surgery.
- If placenta >20mm after 35 weeks – Trial of labour.
- If placenta 0-20mm – Possible trial of labour but high chance of caesarean.
  - If placenta at or encroaching over the os – Caesarean section.

### TOCOLYSIS
Tocolysis for women who are bleeding and contracting is controversial and should currently not be recommended.

### THROMBOPROPHYLAXIS
Thromboembolic stockings and heparin is advised for long-term hospital patients.

### ANAESTHESIA
Regional anaesthesia is an acceptable choice in consultation with anaesthetist, obstetrician and the woman.

### PLACENTA ACCRETA
Higher prevalence in previous caesarean section.
- Multidisciplinary approach.
- Rapid infusion of warm blood products.
- Additional surgical manoeuvres or procedures may need to be employed.
- Conservative management may be considered to preserve fertility.

### PLACENTAL ABRUPTION
The premature separation of a placenta from the uterine wall that occurs before delivery of the fetus.

### PLACENTAL ABRUPTION DIAGNOSIS
Typically, abdominal pain with or without bleeding. Uterus tender or tense on palpation. Preterm labour may co-exist. Fetal demise may be evident.

### TESTS AND INVESTIGATIONS
- CTG: Abnormal tracing.
- Ultrasound: Haematoma, increased echogenicity or placental thickness.
- Bloods: Hb, Hct, coagulation profile may be deranged.

### INITIAL MANAGEMENT
- Detailed medical and obstetric history.
- IV access with 2 wide-bore cannula’s.
- FBE for evidence of anaemia. Hct and Hb levels may be low.
- Coag. profile. Low fibrinogen levels and a prolonged PT suggest impaired coagulation may be due to DIC.
- Monitor pulse, blood pressure, fluid intake, and urine output.
- Continuous electronic fetal monitoring.
- Anti-D in Rh-negative women.
- Fluid, blood, or product replacement.

### TOCOLYSIS
For women with abruption who are bleeding and contracting, tocolysis is controversial and should only be used with caution by experienced clinicians.

### LIVE FETUS > 34 WEEKS
- If unstable - expedite delivery by LSCS, unless vaginal birth is imminent.

### LIVE FETUS < 34 WEEKS
- If stable with a normal CTG, induction with continuous monitoring.

### FETAL DEMISE
- If demise is due to abruption, DIC is likely and delivery should be expedited.
- Induction is preferable but LSCS may be necessary if unstable and worsening.

### POSTNATAL
- Judicious use of uterotonic agents.
- Surgical intervention by suitably experienced personnel.
- Correction of coagulopathies.

### FOLLOW-UP
- Send placenta for pathological exam.
- Maternal screen for thrombophilias
- Advise cessation of drug use and smoking.
APPENDIX 1. CLINICAL EVIDENCE TABLES

American College of Obstetricians and Gynecologists (ACOG)
Practice Bulletins summarise current information on techniques and clinical management issues for the practice of obstetrics and gynaecology. Practice Bulletins are evidence-based documents, and recommendations are based on the available evidence. ‘The diagnosis and management of preeclampsia and eclampsia’ practice bulletin was published in the International Journal of Gynecology and Obstetrics in January 2002.
The summary of recommendations contains evidence levels and there are 63 references. The levels of evidence used are as follows:

- Based on the highest level of evidence found in the data, recommendations are provided and graded according to the following categories:
  - Level A - Recommendations are based on good and consistent scientific evidence.
  - Level B - Recommendations are based on limited or inconsistent scientific evidence.
  - Level C - Recommendations are based primarily on consensus.


Royal College of Obstetricians and Gynaecologists (RCOG)
Green-top Guidelines provide systematically developed recommendations, which assist clinicians and patients in making decisions about appropriate treatment for specific conditions. Green-top guidelines are concise documents, providing specific practice recommendations on focused areas of clinical practice. The Green-top guidelines are produced under the direction of the Guidelines and Audit Committee of the RCOG.
The Management of Severe Preeclampsia/Eclampsia is a RCOG Green Top guideline number 10a and was published in March 2006. It contains evidence levels and 52 references. The levels of evidence used are as follows:

RCOG evidence grades
- Level A: Requires at least one randomised controlled trial as part of the body of literature of overall good quality and consistency addressing the specific recommendation.
- Level B: Requires availability of well-conducted clinical studies but no randomised clinical trials on the topic of recommendation.
- Level C: Requires evidence from expert committee reports or opinions and/or clinical experience of respected authorities. Indicates absence of directly applicable studies of good quality.

- ✓ Good practice point. Recommended best practice based on the clinical experience of the guideline development group.

Classification of evidence levels
- Level Ia: Evidence obtained from meta-analysis of randomised controlled trials.
- Level Ib: Evidence obtained from at least one randomised controlled trial.
- Level Ia: Evidence obtained from at least one well designed controlled study without randomisation.
- Level Ib: Evidence obtained from at least one other type of well-designed quasi-experimental study.
- Level III: Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies.
- Level IV: Evidence obtained from expert committee reports or opinions and/or clinical experience of respected authorities.
The Society of Obstetricians and Gynaecologists of Canada (SOGC).
The guideline ‘Diagnosis, Evaluation, and Management of the Hypertensive Disorders of Pregnancy has been
reviewed and approved by the Hypertension Guideline Committee and approved by the Executive and Council of
the Society of Obstetricians and Gynaecologists of Canada.
It was published in the Journal of Obstetrics and Gynaecology in March 2008. It contains 397 references and the
levels of evidence are described as:

Key to evidence statements and grading of recommendations, using the ranking of the Canadian Task Force on
Preventive Health Care
I: Evidence obtained from at least one properly randomized controlled trial
II-1: Evidence from well-designed controlled trials without randomization
II-2: Evidence from well-designed cohort (prospective or retrospective) or case-control studies, preferably from
more than one centre or research group
II-3: Evidence obtained from comparisons between times or places with or without the intervention. Dramatic
results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be
included in this category
III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert
committees.

A. There is good evidence to recommend the clinical preventive action
B. There is fair evidence to recommend the clinical preventive action
C. The existing evidence is conflicting and does not allow to make a recommendation for or against use of the
clinical preventive action; however, other factors may influence decision-making
D. There is fair evidence to recommend against the clinical preventive action
E. There is good evidence to recommend against the clinical preventive action
I. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may
influence decision-making