South Australian Perinatal Practice Guideline

Antepartum Haemorrhage (including Uterine Rupture)

Note:

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

Explanation of the aboriginal artwork:
The aboriginal artwork used symbolises the connection to country and the circle shape shows the strong relationships amongst families and the aboriginal culture. The horse shoe shape design shown in front of the generic statement symbolises a woman and those enclosing a smaller horse shoe shape depicts a pregnant woman. The smaller horse shoe shape in this instance represents the unborn child. The artwork shown before the specific statements within the document symbolises a footprint and demonstrates the need to move forward together in unison.

Australian Aboriginal Culture is the oldest living culture in the world yet Aboriginal people continue to experience the poorest health outcomes when compared to non-Aboriginal Australians. In South Australia, Aboriginal women are 2-5 times more likely to die in childbirth and their babies are 2-3 times more likely to be of low birth weight. The accumulative effects of stress, low socio economic status, exposure to violence, historical trauma, culturally unsafe and discriminatory health services and health systems are all major contributors to the disparities in Aboriginal maternal and birthing outcomes. Despite these unacceptable statistics, the birth of an Aboriginal baby is a celebration of life and an important cultural event bringing family together in celebration, obligation and responsibility. The diversity between Aboriginal cultures, language and practices differ greatly and so it is imperative that perinatal services prepare to respectfully manage Aboriginal protocol and provide a culturally positive health care experience for Aboriginal people to ensure the best maternal, neonatal and child health outcomes.

Purpose and Scope of Perinatal Practice Guideline (PPG)

This guideline outlines the management of bleeding from 20 weeks' gestation and up to the onset of labour, including Vasa Praevia, Placenta Praevia, Placental abruption and distal genital tract/gynaecological bleeding. It also includes the management of uterine rupture.

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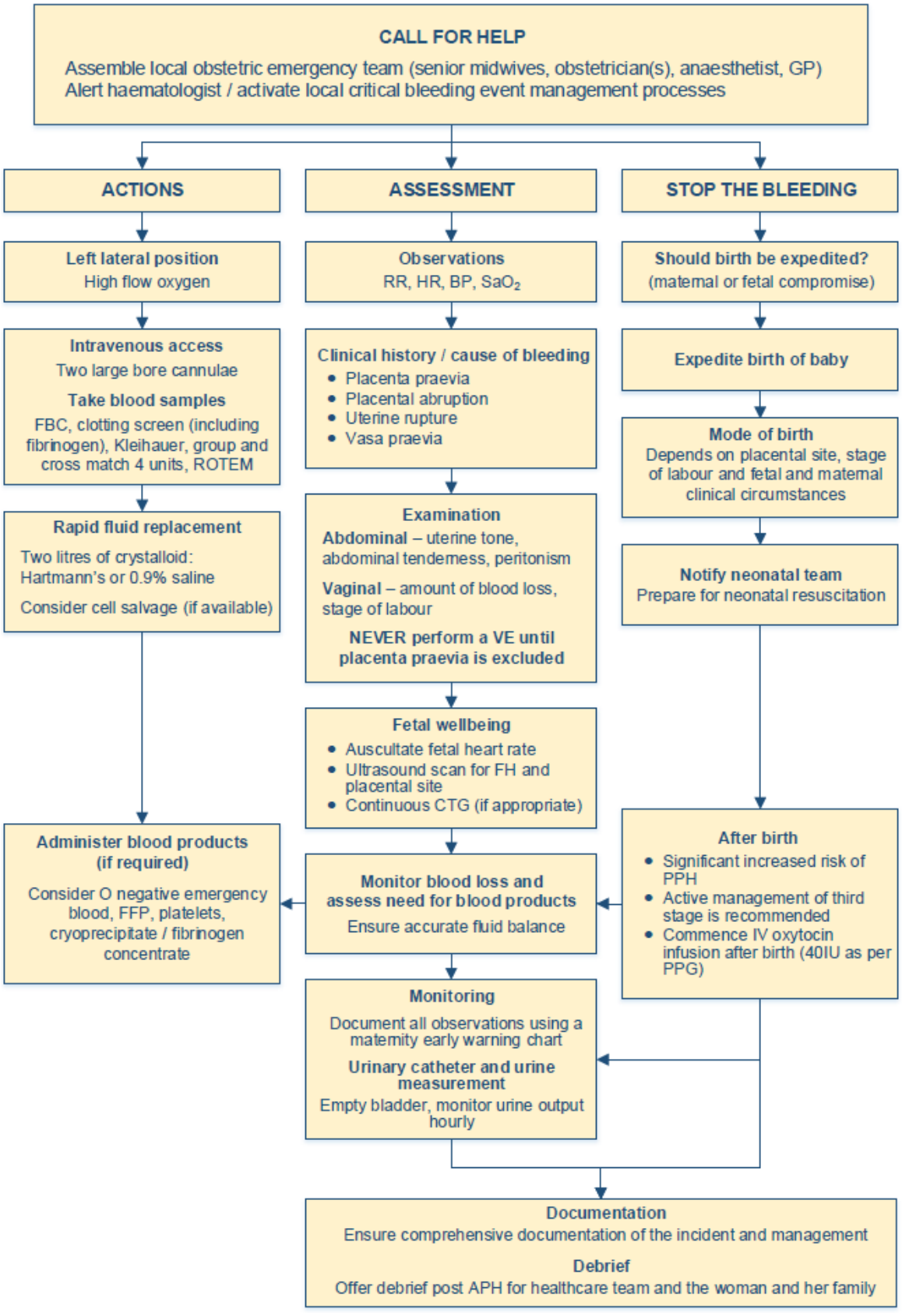
SA Health

Initial Management of major or massive APH



Flowchart based on the PROMPT management for major APH[1]

Antepartum Haemorrhage (including Uterine Rupture)

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Summary of Practice Recommendations

Antepartum haemorrhage should be managed in a systematic manner following four main steps:

1. Call for help
2. Immediate actions
3. Assessment
4. Stop the bleeding

Abbreviations

APH	Antepartum haemorrhage
BMI	Body mass index
BP	Blood pressure
CTG	Cardiotocography
DIC	Disseminated intravascular coagulation
FBC	Full blood count
FFP	Fresh frozen plasma
FHR	Fetal heart rate
G&H	Group and Hold
HR	Heart rate
IU	International units
IUGR	Intrauterine growth restriction
IV	Intravenous
mm	Millimetres
PPH	Post-partum haemorrhage
PROMPT	Practical Obstetric Multi-Professional Training
ROTEM	Rotational thromboelastometry
RR	Respiratory rate
SaO_2	Oxygen saturation
SAPPG	South Australian Perinatal Practice Guideline
TVS	Transvaginal Ultrasound scan
VE	Vaginal examination
VTE	Venous thromboembolism
%	Percentage

Definitions

Antepartum Haemorrhage	Any bleeding from the genital tract after twenty weeks' gestation and before the onset of labour.
Recurrent APH	Episodes of APH occurring on more than one occasion
Spotting	Staining, streaking or blood spotting on underwear
Minor haemorrhage	Blood loss less than 50mL that has settled
Major haemorrhage	Blood loss of 50-1000mL, with no signs of clinical shock
Massive haemorrhage	Blood loss greater than 1000mL and/or signs of clinical shock
Placental Abruption	Placental Abruption occurs when there is partial or total detachment of the placenta prior to the birth of the baby.
Placenta Praevia	Placenta Praevia occurs where the placenta covers the internal cervical os.
Vasa Praevia	Vasa praevia occurs when the fetal blood vessels transverse the placental membranes over or near the inner cervical os.
Uterine Rupture	Refers to a full thickness tear through the myometrium and serosa and may occur in a previously intact uterus or in one with a previous caesarean, myomectomy scar or perforation from a previous gynaecological procedure.

Antepartum Haemorrhage

Antepartum haemorrhage (APH) is any bleeding from the genital tract after twenty weeks gestation and prior to the onset of labour, and complicates between 2-5% of all pregnancies.[1] APH can contribute to maternal or neonatal morbidity/mortality.[1-3] A woman's condition can deteriorate rapidly even without external signs of blood loss.[1] Difficulties identified in management include delays in recognising the severity of the bleeding, underestimation of the blood loss, delays in commencing fluid resuscitation, delays in gaining senior obstetric assistance and uncertainty in knowing how to access blood products rapidly.[1]

APH can be concealed or revealed and management should always include the assessment of signs and symptoms of shock and the presence of fetal compromise no matter how much blood is visible.[1,4]

Causes, risk factors and complications

Causes of APH include:[1]

- marginal placental bleeds
- local vaginal causes: cervical ectropion, polyp, cervical dysplasia/carcinoma, trauma
- blood stained show
- placenta praevia
- placental abruption
- abnormal placentation
- abnormal placental shape
- vasa praevia
- uterine rupture
- non-gynaecological causes: urinary tract infection, urethral caruncle, haemorrhoids, inflammatory bowel disease

The most common causes of minor APH are marginal placental bleeds, bleeding cervical ectropion and blood-stained show. Major APH is most commonly caused by placental abruption, placenta praevia, vasa praevia and uterine rupture.[1] Women who have experienced a previous placental abruption are at increased risk of experiencing another APH in subsequent pregnancies.[4] Other risk factors for APH include:[4]

- pre-eclampsia
- fetal growth restriction
- non-vertex presentations
- polyhydramnios
- advanced maternal age
- multiparity
- low BMI
- pregnancy following assisted reproduction
- intrauterine infection
- preterm rupture of membranes
- abdominal trauma (accidental and domestic violence)
- smoking and drug use (cocaine and amphetamines)

Complications of APH include:

- maternal mortality
- anaemia (see *Anaemia in Pregnancy* PPG available at www.sahealth.sa.gov.au/perinatal for further information[9]
- infection
- maternal shock
- renal tubular necrosis
- consumptive coagulopathy
- postpartum haemorrhage
- prolonged hospital stay
- psychological sequelae

- complications of blood transfusions
- fetal hypoxia
- small for gestational age and fetal growth restriction
- preterm birth
- fetal death

Placenta Praevia

Placenta praevia occurs when the placenta covers or is adjacent to the internal os.[5] In cases greater than 16 weeks of gestation and where the placental edge is less than 20 mm from the internal os, the term low-lying placenta should be used.[5]

Risk factors

- Previous caesarean birth
- Assisted reproductive technology / infertility treatment
- Maternal smoking
- Multiple pregnancy
- Previous placenta praevia
- Increasing parity
- Advanced maternal age
- Previous termination of pregnancy
- Previous uterine surgery
- Maternal cocaine use

Clinical features

- Painless vaginal bleeding, usually bright red, but variable quantity
- Uterine tenderness and irritability unusual (although uterine irritability can be present after the bleed)
- Fetal malpresentation or unusually high and mobile presenting part
- May be an incidental ultrasound finding

Expectant management

- Expectant management refers to delayed birth greater than 24 hours from the time of diagnosis. The objective being to prolong the pregnancy to achieve fetal maturity while minimising maternal and fetal risks.

Place of care

- If there is no or minimal bleeding the woman may be managed as an outpatient.
- If the woman is in a rural setting then liaison with metropolitan services through the pregnancy advice line (Phone: 137 827) needs to be initiated to discuss potential transfer to a metropolitan setting, provided that there is no urgent indication for birth
- Ensure women with active bleeding are admitted/transferred to a hospital with a suitable level neonatal unit to care for the baby should birth be required
- Explain that the frequency and severity of recurrent bleeding is unpredictable and carries the risk of maternal and fetal complications
- Counsel to seek urgent hospital care if contractions or vaginal bleeding occur. This includes any form of pain, bleeding, spotting and period like cramps[5]
- Placenta praevia and anterior low-lying placenta increase the woman's risk for massive obstetric haemorrhage and hysterectomy. Birth should be arranged for a maternity unit that has access to critical care and blood transfusion services[5]

Bloods

- If admitted, complete a weekly blood picture (CBP) and maintain current group and hold (G&H) as per local guidelines.
- For women with known blood group abnormalities in whom outpatient management is planned, liaise with local blood bank regarding the frequency of taking bloods for G&H.
- With any bleeding, the need for Anti-D in Rhesus negative women may be quantified with Kleihauer and flow cytometry. See *Anti-D Prophylaxis* PPG available at www.sahealth.sa.gov.au/perinatal

Correction of anaemia

- Consider iron supplementation (oral or infusion) for correction of anaemia and optimising haemoglobin levels.
- Stool softeners (e.g. docusate) and high fibre diets should be discussed to minimise constipation and avoid excess straining.
- Blood transfusion may be indicated.

Ultrasound

- Ultrasound scans every 2-3 weeks are recommended to assess fetal growth and placental location – colour Doppler ultrasound of the placenta and lower segment late in the third trimester is recommended to reassess the placental site and to exclude Vasa Praevia.
- Transvaginal ultrasound (TVS) for the diagnosis of Placenta Praevia or low-lying placenta is recommended over transabdominal and transperineal scans.[5]
- TVS can be used to measure cervical length in asymptomatic women with placenta praevia – short cervical length before 34 weeks increases the woman's risk of preterm emergency birth and haemorrhage.[5] Also see *Preterm Labour and Birth* PPG available at www.sahealth.sa.gov.au/perinatal.

Tocolytics

- The use of tocolytics is debated, with some medical experts considering APH as a contraindication to the use of tocolytics. However, when contractions are contributing to the bleeding from placenta praevia, tocolysis may have a role in supressing contractions. The use of tocolytics in this setting should be discussed with a consultant obstetrician before administration.
- Tocolysis for women who are symptomatic (of vaginal bleeding) and who have been diagnosed with either placenta praevia or low-lying placenta may be considered for 48 hours to facilitate administration of antenatal corticosteroids. See *Preterm Labour and Birth* PPG available at www.sahealth.sa.gov.au/perinatal.
- If birth is indicated for maternal or fetal reasons, there is no indication for tocolytics.[5]

Corticosteroids

- For women with a low-lying placenta or placenta praevia and active bleeding administration of steroids at the time of the bleed is recommended. Note: Steroids are not indicated after 37 completed weeks of gestation.
- Refer to *Preterm Labour and Birth* PPG available at www.sahealth.sa.gov.au/perinatal.

Other considerations

- With any bleeding, digital vaginal examination and sexual intercourse should be avoided
- Clinicians are reminded of the need for a venous thromboembolism (VTE) risk assessment for women who are managed as inpatients.[5] See *Thromboprophylaxis and Thromboembolic Disease in Pregnancy* PPG available at www.sahealth.sa.gov.au/perinatal.

Timing, location and mode of birth

- Women residing in a rural location with major placenta praevia need an individual plan made for transfer to an appropriate metropolitan setting prior to term.
- Planned late preterm birth (34^{+0} – 36^{+6} weeks) should be considered for those women who present with placenta praevia or low-lying placenta with a history of vaginal bleeding or who have other risk factors for preterm birth.[5]
- Timing of birth depends on the clinical scenario, but for women who present with uncomplicated placenta praevia, birth should be planned between 36^{+0} and 37^{+0} weeks.[5]
- For uncomplicated low-lying placenta in the third trimester, mode of birth should consider the woman's wishes, clinical history, distance between the placental edge and the position of the fetal head relative to placental position based on TVS.[5]

- Planned caesarean section for women with a placenta praevia should be performed by an experienced practitioner and in cases of unplanned or emergency caesarean birth for placenta praevia or low-lying placenta, a senior obstetrician and anaesthetist should be present or easily accessible.[5]
- Regional anaesthesia is safe and associated with a lower risk of haemorrhage than general anaesthesia for women experiencing placenta praevia or low-lying placenta.[5] Women should provide consent for the potential to convert to general analgesia if needed during the caesarean.[5]

Active bleeding

- Active bleeding should be managed as per APH management.

Placental Abruption or Abruptio Placenta

Placental abruption occurs when there is a partial or total detachment of the placenta prior to the birth of the baby, it is usually a sudden event and is an obstetric emergency.[4] Chronic pathologic vascular processes contribute to most cases of abruption.[6] Placental abruption is most often revealed but can be concealed. Where abruption has occurred with intrauterine fetal death there is an increased incidence of maternal coagulopathy .[4]

Risk factors[4,6]

- Previous abruption
- Pre-eclampsia
- Fetal growth restriction
- Non-vertex presentations
- Polyhydramnios
- Advanced maternal age
- Multiparty
- Low BMI
- Pregnancy following assisted reproduction
- Intrauterine infection
- Premature rupture of membranes
- Abdominal trauma
- Smoking & drug use
- Maternal thrombophilias

Clinical features[4]

- Continuous abdominal pain/ back pain
- Tense, 'woody' feel on abdominal palpation, so-called Couvelaire uterus
- Fetal heart rate abnormalities
- Blood loss can vary between mild to life-threatening
- Vaginal bleeding is often dark/non-clotting
- Signs of fetal compromise or uterine irritability (contractions >5 in 10 minutes)

Diagnosis

- Many women presenting with placenta abruption are in established labour
- Diagnosis is often made on clinical presentation and assessment
- Ultrasound may be helpful if there is a large retroplacental haematoma, however absence of ultrasound evidence of retroplacental clot does not exclude the diagnosis (performing an ultrasound to assess for abruption should not delay clinical management in an unstable patient)
- In mild cases the diagnosis may not be made until after the birth when a retroplacental clot is identified on placental examination
- In severe cases the woman may present with signs of shock
- Consider concealed abruption if abdominal or back pain is present

Management

Placental abruption is an obstetric emergency and should be managed as per APH management.

Women residing in a rural location who present with a large abruption should be delivered on-site and the woman and neonate transferred postnatally if clinically indicated. Liaison via the Pregnancy Advice Line (Phone: 137 827) at the earliest possible stage is essential.

Conservative management

Conservative management may be appropriate in cases of small abruptions (very preterm gestation) with no maternal or fetal compromise.

Ensure:

- administration of maternal corticosteroids (from 23 weeks' gestation)
- neonatology consultation
- observation for further bleeding
- maternal haemoglobin is maintained
- maternal and fetal monitoring
- monitoring for IUGR
- discussion with the woman to determine the appropriate place for management (i.e. home or hospital)
- Consideration of need for Anti-D in rhesus negative women

Other considerations

- Often labour is precipitous (especially if multiparous)
- Consider a urine drug toxicity screen
- Ensure placental examination for completeness, area of abruption, associated pathological findings, document findings and sent for histopathology (see *Histopathology Management of the Placenta* PPG available at www.sahealth.sa.gov.au/perinatal)

Vasa Praevia

Vasa praevia occurs when the fetal blood vessels transverse the placental membranes.[7] Type I vasa praevia occurs when the vessel is connected to a velamentous umbilical cord and type II occurs when the vessel connects the placenta with a succenturiate or accessory lobe.[7] Vasa praevia is likely to rupture either in active labour or when rupture of membranes occurs (especially if located near or over the cervix and under the presenting part).[7] Vasa previa should be considered where there is APH and no maternal compromise with the presence of spontaneous or artificial rupture of membranes.[4] There is high fetal mortality associated with vasa praevia and emergency birth should be expedited in suspected cases.[1,7]

Risk factors

- Low-lying placenta
- Succenturiate lobe
- Velamentous cord insertion
- Multiple pregnancy
- IVF

Incidence

Vasa praevia is uncommon with incidence of somewhere between 1 in 1200 and 1 in 5000.[7]

Clinical features[1]

- Fresh vaginal bleeding after rupture of membranes
- No maternal compromise
- Fetal compromise present (sinusoidal/bradycardic FHR on CTG)

Management

- Acute antenatal bleeding should be managed as per APH management.
- Women with confirmed vasa praevia should have an individually designed care plan where consideration has been made for prophylactic hospitalisation from 30-32 weeks and that considers factors such as singleton or multiple pregnancy, history of bleeding and/or threatened preterm labour.[7]
- Fetal exsanguination occurs very quickly and the mortality is high – if vasa praevia is suspected birth must be expedited.

Timing of birth

- The management goal is to plan birth prior to rupture of membranes and where the baby is of appropriate gestation.[7]
- Where there has been a diagnosis of vasa praevia planned caesarean section between 34-36 weeks is reasonable in asymptomatic women.[7]

Ultrasonography

- There is high diagnostic accuracy with a low false-positive rate with the use of ultrasound to diagnose vasa praevia with the routine fetal anomaly scan.[7]
- The use of both transabdominal and transvaginal colour Doppler imaging ultrasonography is recommended for diagnosis in suspected vasa praevia.[7]

Corticosteroids

- Consideration should be given to administration of corticosteroids from 32 weeks due to the increased risk of preterm birth.[7]

Other considerations

- Ensure placental histopathological examination to confirm vasa praevia, especially if there has been fetal death or significant fetal compromise.[7]

Uterine Rupture

Refers to a full thickness tear through the myometrium and serosa. Uterine rupture may occur in a previously intact uterus or in one with a previous caesarean, myomectomy scar or uterine perforation at a gynaecological procedure. By definition, it is associated with the following:

- clinically significant uterine bleeding
- fetal compromise
- protrusion or expulsion of the fetus and/or placenta into the abdominal cavity
- need for prompt caesarean delivery
- uterine repair or hysterectomy

Different terms may be used to describe partial separation (dehiscence) or healing defects (windows) of uterine scars. Uterine scar dehiscence occurs when there is a separation of a pre-existing scar that does not disrupt the overlying visceral peritoneum (uterine serosa) and that does not significantly bleed from its edges. In addition, the fetus, placenta, and umbilical cord must be contained within the uterine cavity.

Risk factors

- Previous uterine surgery (caesarean section, myomectomy, cornual/ectopic pregnancy, uterine perforation)
- High parity (≥ 4)
- Trauma
- Oxytocin infusion during labour for women with previous uterine surgery

The risk of uterine rupture in a woman with an unscarred uterus is extremely rare (2 per 10 000 (0.02%) births) and this risk is mainly confined to intrapartum multiparous women.[8]

Clinical features[1]

- Sudden onset of constant sharp pain
- Peritonism and tenesmus
- Abnormal or pathological CTG
- High presenting part, unreachable presenting part or loss of station of the presenting part
- Bleeding – intra-abdominal and / or vaginal unless the fetal head blocks the pelvis (blood may be retained within the broad ligament)
- Hypovolaemic shock
- Haematuria (suggests bladder involvement)
- Contractions may stop
- Palpable fetus ex utero
- Abdominal tenderness and or distension

- No fetal presentation on vaginal examination
- Maternal tachycardia
- Absent fetal heart activity
- Increasing requirement for intrapartum analgesia can indicate impending uterine rupture[8]

Rupture at the site of a previous uterine scar may occur with few warning signs. If there is an atypical pattern of pain, or pain previously controlled by analgesia (epidural or otherwise) which becomes more severe, complete clinical reassessment by an experienced obstetrician is required.[8] Shoulder tip pain may indicate peritoneal irritation and suprapubic pain may reflect local, including bladder irritation.

Considerations

In developing countries, lower uterine segment caesarean sections are often performed with a midline skin incision. If this can be identified from the history, these cases can be managed in the same manner as other lower segment caesarean sections.

Management

Management as per APH management with the additional considerations below;

- In the case of uterine rupture early involvement of senior experienced staff, including obstetrician/gynaecologist, anaesthetist, midwife(s), paediatrician, and haematologist and intensivist as required (if available).
- Resuscitate while arranging urgent laparotomy / caesarean section
- The most senior person should take charge and assign roles and responsibilities to all other individuals
- If major blood loss, recruit additional staff to assist during resuscitation e.g. to record events, medications given, someone to make urgent phone calls, to organise transport of laboratory samples, to bring blood (products) to the site of resuscitation, and additional staff to support family members and significant others
- Repair of the uterus is preferable, but in some cases, hysterectomy may be required
- Provide standard post-operative and post-natal care
- Provide adequate counselling as soon as possible, document this, and arrange further follow-up

Additional counselling recommendations

- If tubal ligation was not performed at the time of laparotomy, explain the increased risk of rupture with subsequent pregnancies, and discuss the option of permanent contraception
- If the defect is confined to the lower segment, the risk of rupture in a subsequent pregnancy is similar to that of someone with a previous caesarean section
- If there are extensive tears involving the upper segment, future pregnancy may be contraindicated
- Women with a history of uterine rupture should have a planned elective caesarean section (37 to 38 weeks' gestation) in their next pregnancy.[8]

Distal genital tract/gynaecological bleeding

- Speculum examination is indicated to inspect the genital tract
- A colposcopy examination may be useful in cases of suspected invasive cervical neoplasm
- Swabs for infective pathogens and cervical cytology may be helpful in diagnosis

Cervical bleeding

Clinical considerations include:

- heavy show/onset of labour
- carcinoma - requires consultation with a gynaecological oncologist to plan timing of birth
- benign polyps
- ectropion/inflammation/infection

Vaginal bleeding

Clinical considerations include:

- tumours (e.g. condylomata)
- inflammation
- trauma *consider domestic violence

Vulval bleeding

Clinical considerations include:

- varicosities
- trauma
- tumour
- inflammation

Non-genital tract

Clinical considerations include:

- haematuria
- rectal

Unclassified bleeding

- More often painless
- Can be due to a marginal haemorrhage from the edge of the placental insertion site (marginal haemorrhage)
- Sometimes related to a circumvallate placenta (see below)
- Monitor fetal growth by ultrasound

Abnormal placentation

Placenta accreta spectrum refers to abnormally adherent or invasive forms of accreta placentation.[5] Women with these conditions are at increased risk of life threatening bleeding at birth.[5] Women who experience placenta accreta syndrome are more likely to birth early and in most cases of increta or percreta there is a need for complex surgical intervention.[9]

PLACENTA ACCRETA

Abnormal adherence of chorionic villi to the myometrium with no plane of separation

PLACENTA INCRETA

Abnormal invasion of chorionic villi penetrating into the myometrium

PLACENTA PERCRETA

Abnormal invasion of chorionic villi through the whole thickness of myometrium up to the serosal surface or beyond with potential involvement of surrounding structures

Causes

- Implantation over previous caesarean section scar
- Manual removal of placenta after a previous pregnancy
- Placenta praevia
- Previous vigorous or repeated curettage (particularly postpartum)
- Previously treated intrauterine synechiae (adhesions)
- Presence of submucous myomata
- Pregnancy in uterine diverticulum

Management

Management of APH is as per APH management with the following considerations:

- Caesarean section should be planned in a level 6 maternity hospital with the required services and surgical teams to manage all potential complications (Note: Flinders Medical Centre is the preferred referral centre for placenta accreta)
- If diagnosis is made intraoperatively and the woman and fetus are stable with no active bleeding, close incision and transfer to a level 6 maternity hospital (if not already there)

- If diagnosis made intraoperatively and the woman or fetus is unstable or the woman is actively bleeding, activate local emergency procedures with emphasis on securing emergency blood supplies, and if necessary, appropriate external expertise, such as a gynaecological oncologist or appropriate staff from a level 6 maternity hospital.

See *Morbidly Adherent Placenta Management* PPG available at www.sahealth.sa.gov.au/perinatal for detailed information on diagnosis, plan for birth and management following suspected adherent placenta following vaginal birth or intra-operatively.

ABNORMAL PLACENTAL SHAPE

Circumvallate placenta

Abnormality of placental shape resulting from chorioamniotic membrane insertion toward the centre rather than the edge of the placenta.

Features include:

- An irregular edge.
- An uplifted margin or a placental sheet or shelf resulting from the infolding of the fetal membrane upon the fetal surface of the placenta (plication) during the middle of the second trimester.
- The thickened ridge of tissue can be accompanied by haemorrhage or infarction.
- Associated with increased risk of APH, preterm birth, low birth weight, oligohydramnios, congenital malformations and perinatal mortality.[10]

Circummarginate placenta

- Similar to circumvallate placenta but with no prominent fold or central depression.[10]

MULTILOBATE PLACENTAS

Bilobed placenta

- Two near equal sized placental lobes that are usually associated with velamentous cord insertion.[11]
- There are always membranous vessels connecting the two lobes. If one lobe is much smaller than the other, the placenta is said to have a succenturiate or accessory lobe.
- Associated with first-trimester bleeding, polyhydramnios, placental abruption and if unrecognised, a retained placenta.[12]

Succenturiate lobe

- The presence of one or more small lobes of placental tissue located in the membrane at a distance to the main placenta. The umbilical cord most commonly inserts into the dominant lobe. A placental artery and vein extend from and within the membrane of the main placenta to each lobe then divide into smaller vessels supplying individual cotyledons.
- They differ from bilobed placentas only in the size and number of accessory lobes.
- Approximately one half are associated with infarction or atrophy of the succenturiate lobe/s.
- Increased incidence of velamentous insertion of the umbilical cord, vasa praevia. and retained placenta.[12]
- Bilobed and succenturiate lobe placentas are more common in twins and multiparous women and in pregnancies conceived via assisted reproductive technology.

APH Management

Major APH is an obstetric emergency that requires immediate assistance from the multidisciplinary health care team.[1] Blood loss is often underestimated but accurate measurement can assist in earlier recognition and instigation of fluid resuscitation.[1] Fluid resuscitation is a priority in the management of obstetric haemorrhage.[1] Management of major APH is based upon the guidance provided by PROMPT and other emergency drill training.

Call for help[1]

Call for help and commence emergency management response.

The emergency team includes a senor midwife, experienced obstetrician, anaesthetist and neonatologist and additional support staff. Notify the consultant obstetrician and neonatologist if not already aware.

Alert the haematologist, blood bank technicians, theatre and orderly staff to be aware that the major obstetric haemorrhage protocol may be activated and theatre to be on standby.[1]

Immediate actions

- Lie the woman supine with left lateral tilt/uterine displacement and administer high-flow oxygen via a non-rebreather mask
- Assess airway and breathing
- Collect clinical observations and communicate them with the health care team (blood pressure, pulse, capillary refill, respiratory rate and oxygen saturations).
- Intravenous access x 2 (16 gauge)
- Collect urgent blood samples: full blood count, Kleihauer (to detect maternofetal haemorrhage), coagulation studies (including fibrinogen), ROTEM, cross match 4 units of blood, renal and liver function tests
- Rapid fluid resuscitation with 2 litres of crystalloid (Hartmanns or 0.9% saline, preferably warmed)
- Assess the need for appropriate blood products, optimally using ROTEM as guidance.
- Use O-negative blood if there is a life-threatening haemorrhage and consider the early use of coagulation products (particularly if operative birth indicated)
- Assess fetal wellbeing – establish presence of a fetal heart rate and commence cardiotocography (CTG) (depending on gestation). Ultrasound as a primary tool for the assessment of fetal wellbeing is not appropriate
- If fetal demise is confirmed with an abruption, there is a high risk of a major APH and disseminated intravascular coagulation (DIC). The woman will need critical care management with close clinical observation. Additionally, the woman and her partner will need bereavement support and an appropriate level of medical / MFM follow-up.

Assessment[1]

Rapid assessment of the maternal and fetal condition is indicated. This assessment includes:

- Determine relevant obstetric and clinical history including
  - Gestational age
  - Presence of previous uterine surgery/caesarean section
  - Position of placenta (refer to antenatal scans)
  - Presence of abdominal pain (include site, commencement, frequency, strength and duration)
  - Establish if history of blood loss in this pregnancy is present
- Examination
  - Estimated blood loss, note the colour, consistency, pattern and time of bleeding. Weigh pads, linen for more accurate measures. Document ongoing blood loss

- Uterine palpation for tone and tenderness (soft, tense, tender or non-tender). Assess if tightenings or contractions are present.
  - Abdominal palpation for peritonism and ex-utero fetal parts
  - Assess placental site using ultrasound (point of care and/or formal depending on woman's condition and assessment)
  - Once placenta praevia has been excluded a speculum exam is indicated to assess the degree of bleeding and identify any local causes (trauma, polyps, ectropion)
  - Consider a vaginal examination to establish cervical dilatation. Do NOT perform a vaginal examination without first excluding placenta praevia

Stopping the bleeding

In most cases of massive APH, expediting birth is an effective measure to control bleeding.[1] Birth should be via Category One Caesarean Section (See *Category One Caesarean Section Standards for Management* Clinical Directive and *Caesarean Section* PPG at www.sahealth.sa.gov.au/perinatal) unless birth can be expedited vaginally (cervix is fully dilated and vaginal birth can be achieved within a short timeframe).

A caesarean section that is performed for major APH requires the most experienced obstetrician available[1] Where the woman has experienced a massive abruption clinicians should be aware that coagulopathy might be present. The maternal condition should take precedence over fetal condition in the case of a massive APH, and birth should not be delayed for fetal reasons.[1]

Preparation for Postpartum Haemorrhage

An APH is a major risk factor for a postpartum haemorrhage (PPH).[1] As such, a PPH should be anticipated and acted on immediately. Active third stage management is strongly advised, with a low threshold for additional prophylaxis. See *Postpartum Haemorrhage* PPG available at www.sahealth.sa.gov.au/perinatal for further information.

Preparation for Neonatal Resuscitation

The need for Neonatal Resuscitation following a massive APH is likely and should be anticipated. The neonatal team should be notified early to enable the appropriate team to assemble for optimal newborn resuscitation and preparation of neonatal resuscitation equipment.[1] Neonatal anaemia can be present in cases of APH especially where there has been a vasa praevia or an abruption.[1] See *Newborn Life Support Algorithm* available at www.sahealth.sa.gov.au/perinatal for further information.

Documentation

Contemporaneous records of the emergency should be maintained. The woman's clinical response to haemorrhage and resuscitation response documented and shared with the health care team. If a centralised CTG monitoring system was in use (such as OBTraceVu or Philips IntelliSpace Perinatal) the event should also be recorded in the system.

Open Disclosure, Debriefing and Ongoing Support

All major APH cases should be managed as per the SA Health Patient Incident Management and Open Disclosure Policy

Considerations include:

- Clear communication is vital during the emergency both to the woman, her family and the healthcare team.
- After the birth, the woman and her support persons should be offered opportunities to discuss the birth and the management of the emergency.
- Counselling should be offered.
- A social work referral should be offered.
- Arrange a clinical review postnatally to further debrief and discuss the recommended approach to future pregnancy.
- All staff working in birth suites should participate in regular practical based simulated obstetric haemorrhage training.
- Attending a major APH can be distressing for all staff involved. If possible, a staff multidisciplinary meeting should occur after the emergency to debrief regarding the events and discuss management of the case as a team.

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Acknowledgements

The South Australian Perinatal Practice Guidelines gratefully acknowledge the contribution of clinicians and other stakeholders who participated throughout the guideline development process particularly:

Write Group Lead

Dr Angela Brown

Write Group Members

Dr Asha Short
Keera Laccos Barrett
A/Prof Rosalie Grivell
Dr Michael McEvoy
Dr Anupam Parange
A/Prof Chris Wilkinson

Other major contributors

Catherine Leggett

SAPPG Management Group Members

Sonia Angus
Lyn Bastian
Dr Elizabeth Beare
Elizabeth Bennett
Dr Feisal Chenia
John Coomblas
Dr Danielle Crosby
Dr Vanessa Ellison
Jackie Kitschke
Dr Kritesh Kumar
Catherine Leggett
Dr Anupam Parange
Rebecca Smith
A/Prof Chris Wilkinson

Document Ownership & History

Developed by: SA Maternal, Neonatal & Gynaecology Community of Practice
Contact: HealthCYWHSPerinatalProtocol@sa.gov.au
Endorsed by: Commissioning and Performance, SA Health
Next review due: 25/02/2026
ISBN number: 978-1-76083-342-8
PDS reference: CG354
Policy history: Is this a new policy (V1)? **N**
Does this policy amend or update and existing policy? **Y**
If so, which version? V7
Does this policy replace another policy with a different title? **Y**
If so, which policy (title)? **Merged with Uterine Rupture**

Approval Date	Version	Who approved New/Revised Version	Reason for Change
25/02/21	V7	Deputy CE, Commissioning and Performance Division, SA Department for Health and Wellbeing	Reviewed and merged with Uterine Rupture
29/04/13	V6	SA Health Safety & Quality Strategic Governance Committee	Minor Update
06/08/12	V5	South Australian Maternal and Neonatal Clinical Network	Minor Update
20/02/12	V4	South Australian Maternal and Neonatal Clinical Network	Minor Update
17/01/12	V3	South Australian Maternal and Neonatal Clinical Network	Reviewed in line with scheduled review date
01/09/08	V2	South Australian Maternal and Neonatal Clinical Network	Reviewed in line with scheduled review date
07/06/04	V1	South Australian Maternal and Neonatal Clinical Network	Original