South Australian Perinatal Practice Guideline

Morbidly Adherent Placenta Management

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 women. 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 respectively 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)

The purpose of this guideline is to aid in the work up, diagnosis and management of placenta accreta; including both antenatal and intrapartum diagnoses.

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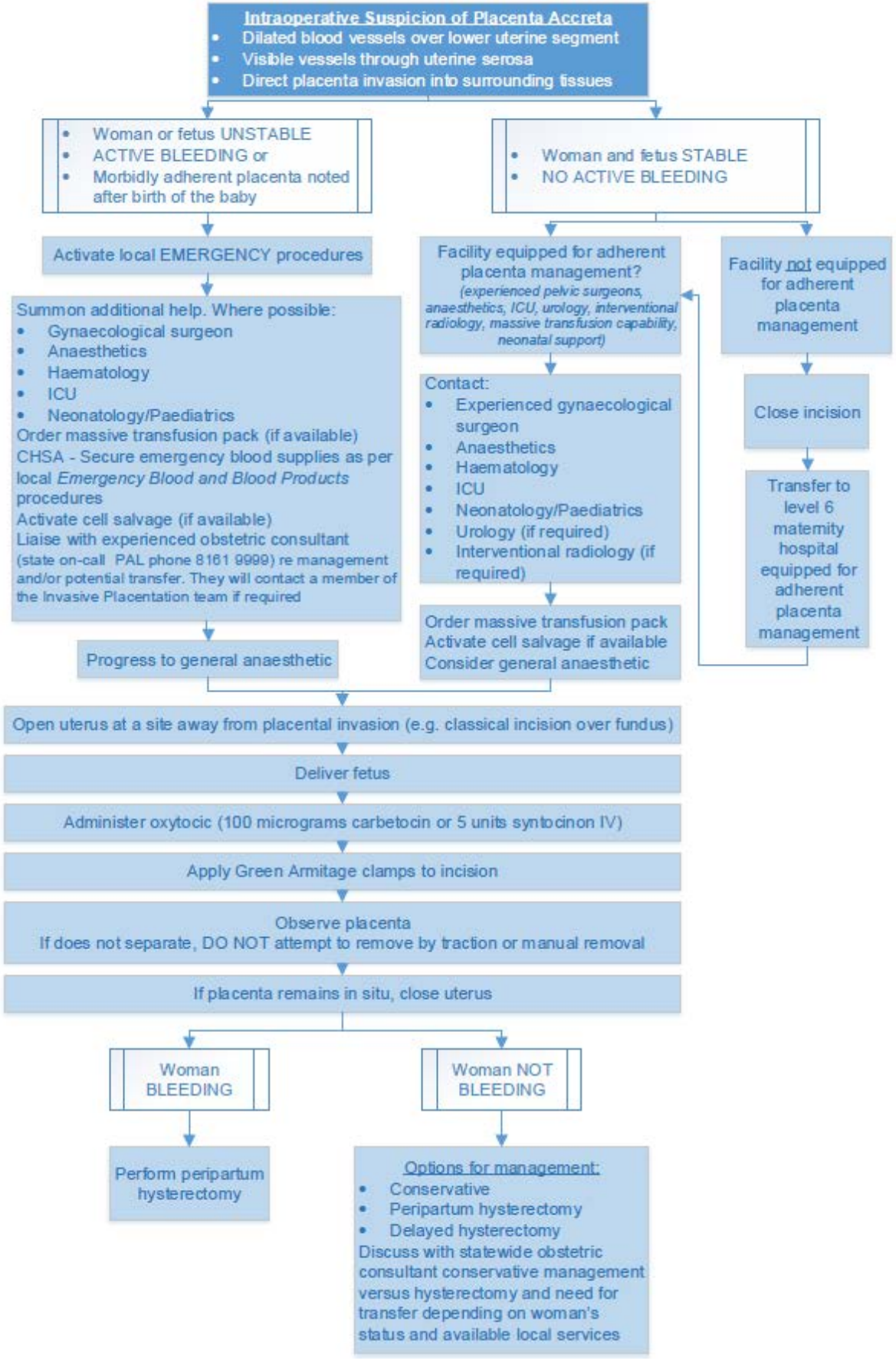
Flowchart: Intraoperative Suspicion of Adherent Placenta



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MRI may assist with detail regarding the depth and topography of invasion of a placenta

Any low lying placenta over a caesarean section scar should be considered for placental invasion and undergo appropriate imaging

Caesarean section should be planned in a level 6 maternity hospital with the required services and surgical teams to manage all potential complications

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.

Avoid removal of the morbidly adherent placenta if diagnosis made intraoperatively

Abbreviations

ACOG	American College of Obstetricians & Gynecologists
DIC	Disseminated intravascular coagulation
CI	Confidence Interval
ICU	Intensive care unit
FMC	Flinders Medical Centre
GONC	Gynaecology oncology
MFM	Maternal fetal medicine
NICU	Neonatal intensive care unit
OR	Odds ratio
RANZCOG	Royal Australian & New Zealand College of Obstetricians & Gynaecologists

Definitions

Morbidly adherent placenta	Any abnormal placentation involving the accreta spectrum, including placenta accreta, increta and percreta
Placenta accreta	Abnormal attachment of the chorionic villi to the myometrium[1]
Placenta increta	Abnormal invasion of the chorionic villi into the myometrium[1]
Placenta percreta	Abnormal invasion of the chorionic villi through the myometrium, with potential involvement of surrounding structures[1]

Background

Morbidly adherent placentation is a disorder affecting approximately 1:533 pregnancies[2]. It is generally thought to arise following uterine trauma (e.g. caesarean section scarring), with a loss of the decidua basalis layer and direct placental invasion into the local myometrium at the time of the next pregnancy.

The condition results in a placenta that may not separate following the birth of the infant, and is associated with a mortality rate up to 7%[1]. Management of the condition comes with significant morbidity, and accounts for 47% of all peripartum hysterectomies[3].

Other morbidity includes [1,5,6]

- Major postpartum haemorrhage
  - Average blood loss 2000-5000mL
  - Transfusion up to 90%
  - Acute transfusion reactions
  - Electrolyte imbalance
  - Renal failure
- DIC
- Acute respiratory distress syndrome
- Hysterectomy
- Surgical morbidity: ureters, bladder, bowel or neurovascular
- ICU admission 50%
- Psychosocial implications for patient and family

Risk Factors

The two major confounding risk factors for morbidly adherent placentation include increasing caesarean sections (>2) and placenta praevia. The table below shows the increasing risk of abnormal placentation with an increased number of prior caesarean sections with and without a diagnosis of placenta previa.[6]

Any low lying placenta over a caesarean section scar should be considered for placental invasion and undergo appropriate imaging.

Other risk factors include[1,6]:

- Advanced maternal age
- Parity more than 5
- Myomectomy
- Uterine curettage
- Endometrial ablation
- Hysteroscopic surgery
- Pelvic irradiation
- Uterine embolization
- Uterine anomalies
- Smoking

Table 1: *Odds ratios with 95% CIs for placenta accreta and hysterectomy by number of caesarean births compared with first caesarean birth*[6]

No of Caesarean Births	Accreta n (%)	OR (95% CI)	Hysterectomy n (%)	OR (95% CI)
First	15 (0.2)	-	40 (0.7)	-
Second	49 (0.3)	1.2 (0.7-2.13)	67 (0.4)	0.7 (0.4-0.97)
Third	36 (0.6)	2.4 (1.3-4.3)	57 (0.9)	1.4 (0.9-2.1)
Fourth	31 (2.1)	9.0 (4.8-16.7)	35 (2.4)	3.8 (2.4-6.0)
Fifth	6 (2.3)	9.8 (3.8-25.5.)	9 (3.5)	5.6 (2.7-11.6)
≥6	6(6.7)	29.8 (11.3-78.7)	8 (9.0)	15.2 (6.9-33.5)

Diagnosis

First Line – Ultrasound

Ultrasound should be the first line investigation when looking for morbidly adherent placentation. It has a high degree of sensitivity and specificity (see below). If suspicion is raised on ultrasound, the patient should be discussed with a tertiary referral centre and further imaging comprising of repeat ultrasound studies or MRI initiated.

Initial findings suspicious for placenta accreta may be reported at the morphology ultrasound, with either placental implantation over the caesarean scar or other features indicative of abnormal placentation (see below). Follow up ultrasound is indicated at 28 weeks, with consideration of MRI if features for invasive placentation are seen at this time. MRI should be arranged after consultation with a tertiary obstetric unit.

Table 2: *Diagnostic performance of different imaging modalities*[7,8]

Modality	Sensitivity %	Specificity %	Positive Predictive Value %
Greyscale US	95	76	82
Colour Doppler US	92	68	76
3D Power Doppler	100	85	88
MRI	94	84	85-90

US Findings of Placenta Accreta[8]

- Myometrial thinning
  - Suggestive when <1mm
- Lacunar spaces
  - 'Swiss cheese appearance'
- Loss of the retroplacental clear space
- Irregular bladder wall with increased vascularity
- Doppler assessment
  - Presence of turbulent flow in lacunar spaces
  - Increased vascularity and varicosities around myometrium, particularly in relation to bladder

Second Line – MRI[9]

Whilst MRI has a similar specificity and sensitivity for diagnosing placenta accreta, it may provide greater detail regarding the depth and topography of invasion of a placenta. MRI may also provide a greater level of information with a posterior placenta or in the obese patient.

MRI Findings of Placenta Accreta:

- Dark intraplacental bands
- Placental or uterine bulging
- Placental heterogeneity
  - Due to haemorrhage or lacunae
- Focal interruption of the myometrium
- Placental extension beyond uterus
  - Tenting of bladder
  - Direct invasion of adjacent structures

Reducing Morbidity

There are several key steps to reducing the morbidity from placenta accreta

1. Antenatal diagnosis
   - Early diagnosis is the greatest factor for reducing morbidity
   - Planned elective surgery by an appropriately skilled team is associated with:
     i. Reduced mean blood loss (2750 vs 6100ml)
     ii. Reduced attempts to remove placenta (59 vs 93%)
     iii. Reduced transfusion requirements (57 vs 86%)[10]
2. Appropriate referral[6]
   - Planned surgery at a facility with the required services and surgical teams to manage all potential complications
3. Intraoperative management if diagnosis unknown
   - Avoiding manual removal of the morbidly adherent placenta (this will result in massive haemorrhage)
   - See flow chart

There are additional surgical aids used in some locations at the time of caesarean section, including ureteric stenting and common or internal iliac balloons. Current RANZCOG guidance recommends the use of ureteric stents in cases of placenta percreta and recognises interventional radiology may result in reduced postpartum haemorrhage. Evidence for each of these interventions is limited and further studies are awaited. Currently, each intervention is utilised at the discretion of the treating surgical team.[11]

Planning for Birth

Caesarean Section should be planned in a level 6 maternity hospital with access to appropriate obstetric and gynaecological surgeons, adult and neonatal intensive care units, interventional angiography and on site transfusion. See ACOG guidance below.

ACOG Guidance

It is recommended that elective caesarean section take place in an appropriate tertiary institution with access to the following services:[6]

- Multidisciplinary team
  - Experienced MFM physician or obstetrician
  - Imaging experts
  - Pelvic surgeon (GONC, Urogynaecology)
  - Obstetric anaesthetists
  - Urologist
  - Trauma or general surgeon
  - Interventional radiologist
  - Neonatologist
- Intensive care unit and facilities
  - Interventional radiology
  - 24 hour ICU support
  - Gestational age-appropriate NICU
- Blood services
  - Massive transfusion capabilities
  - Cell salvage and autotransfusionists
  - Experience and access to alternative blood products
  - Guidance of transfusion medicine specialists or blood bank pathologists

Timing of Birth

Timing of elective caesarean section needs to be individually based on each woman's case, taking into account type and location of placental abnormality, maternal and fetal wellbeing, gestation and the occurrence and frequency of any antepartum haemorrhages throughout the pregnancy.

The timing of birth needs to balance the risk of preterm birth for the fetus against the risk of antepartum haemorrhage or labour, resulting in emergency delivery and increased morbidity to the mother.

Birth is generally recommended between 34 and 36 weeks gestation with steroid cover in the uncomplicated woman, with extension up to 37 weeks recommended in the UK for uncomplicated women with no history of antepartum haemorrhage.[6,8]

Suspected Adherent Placenta following Vaginal Birth

Adherent placenta should be suspected for women requiring manual removal of placenta

- Inability to separate placenta
- Inability to find planes

If active bleeding or woman unstable

- Manage as per Postpartum Haemorrhage PPG (see A-Z listing at www.sahealth.sa.gov.au/perinatal)
- Consider activation of Adherent Placenta flowchart

If no active bleeding, woman stable and retained adherent placenta

- Discuss with experienced or statewide obstetric consultant (via Pregnancy Advice Line (Phone 8161 9999), conservative management versus hysterectomy and need for transfer depending on woman's status and available local services
- Follow-up at discretion of experienced tertiary centre

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