
Consider using preoperative and/or intraoperative ultrasonography to precisely determine placental location and the optimal place for uterine incision. [New 2018]

D

If the placenta is transected during the uterine incision, immediately clamp the umbilical cord after fetal delivery to avoid excessive fetal blood loss. [New 2018]

D

If pharmacological measures fail to control haemorrhage, initiate intrauterine tamponade and/or surgical haemostatic techniques sooner rather than later. Interventional radiological techniques should also be urgently employed where possible. [New 2018]

C

Early recourse to hysterectomy is recommended if conservative medical and surgical interventions prove ineffective. [New 2018]

D

Antenatal diagnosis and outcome of women with placenta accreta spectrum

What are the risk factors for women with placenta accreta spectrum?

The major risk factors for placenta accreta spectrum are history of accreta in a previous pregnancy, previous caesarean delivery and other uterine surgery, including repeated endometrial curettage. This risk rises as the number of prior caesarean sections increases. [New 2018]

B

Women requesting elective caesarean delivery for non-medical indications should be informed of the risk of placenta accreta spectrum and its consequences for subsequent pregnancies. [New 2018]

✓

How can placenta accreta spectrum be suspected and diagnosed antenatally?

Antenatal diagnosis of placenta accreta spectrum is crucial in planning its management and has been shown to reduce maternal morbidity and mortality. [New 2018]

D

Previous caesarean delivery and the presence of an anterior low-lying placenta or placenta praevia should alert the antenatal care team of the higher risk of placenta accreta spectrum.

D

Ultrasound screening and diagnosis of placenta accreta spectrum

Ultrasound imaging is highly accurate when performed by a skilled operator with experience in diagnosing placenta accreta spectrum. [New 2018]

C

Refer women with any ultrasound features suggestive of placenta accreta spectrum to a specialist unit with imaging expertise. [New 2018]

B

Women with a history of previous caesarean section seen to have an anterior low-lying placenta or placenta praevia at the routine fetal anomaly scan should be specifically screened for placenta accreta spectrum. [New 2018]

D

Is there a role for magnetic resonance imaging (MRI) in the diagnosis of placenta accreta spectrum?

Clinicians should be aware that the diagnostic value of MRI and ultrasound imaging in detecting placenta accreta spectrum is similar when performed by experts. [New 2018]

C

MRI may be used to complement ultrasound imaging to assess the depth of invasion and lateral extension of myometrial invasion, especially with posterior placentation and/or in women with ultrasound signs suggesting parametrial invasion.

✓

Where should women with placenta accreta spectrum be cared for?

Women diagnosed with placenta accreta spectrum should be cared for by a multidisciplinary team in a specialist centre with expertise in diagnosing and managing invasive placentation. [New 2018]

✓

Delivery for women diagnosed with placenta accreta spectrum should take place in a specialist centre with logistic support for immediate access to blood products, adult intensive care unit and neonatal intensive care unit by a multidisciplinary team with expertise in complex pelvic surgery. [New 2018]

D

When should delivery be planned for women with placenta accreta spectrum?

In the absence of risk factors for preterm delivery in women with placenta accreta spectrum, planned delivery at 35⁺⁰ to 36⁺⁶ weeks of gestation provides the best balance between fetal maturity and the risk of unscheduled delivery. [New 2018]

✓

Planning delivery of women with suspected placenta accreta spectrum

Once the diagnosis of placenta accreta spectrum is made, a contingency plan for emergency delivery should be developed in partnership with the woman, including the use of an institutional protocol for the management of maternal haemorrhage. [New 2018]

✓

What should be included in the consent form for caesarean section in women with suspected placenta accreta spectrum?

Any woman giving consent for caesarean section should understand the risks associated with caesarean section in general, and the specific risks of placenta accreta spectrum in terms of massive obstetric haemorrhage, increased risk of lower urinary tract damage, the need for blood transfusion and the risk of hysterectomy.

✓

Additional possible interventions in the case of massive haemorrhage should also be discussed, including cell salvage and interventional radiology where available. [New 2018]

D

What healthcare professionals should be involved?

The elective delivery of women with placenta accreta spectrum should be managed by a multidisciplinary team, which should include senior anaesthetists, obstetricians and gynaecologists with appropriate experience in managing the condition and other surgical specialties if indicated. In an emergency, the most senior clinicians available should be involved.

✓

What anaesthetic is most appropriate for delivery?

The choice of anaesthetic technique for caesarean section for women with placenta accreta spectrum should be made by the anaesthetist conducting the procedure in consultation with the woman prior to surgery.

✓

The woman should be informed that the surgical procedure can be performed safely with regional anaesthesia but should be advised that it may be necessary to convert to general anaesthesia if required and asked to consent to this. [New 2018]

D

Optimising the delivery of women with placenta accreta spectrum

What surgical approach should be used for women with placenta accreta spectrum?

Caesarean section hysterectomy with the placenta left in situ is preferable to attempting to separate it from the uterine wall.

C

When the extent of the placenta accreta is limited in depth and surface area, and the entire placental implantation area is accessible and visualised (i.e. completely anterior, fundal or posterior without deep pelvic invasion), uterus preserving surgery may be appropriate, including partial myometrial resection. [New 2018]

✓

Uterus preserving surgical techniques should only be attempted by surgeons working in teams with appropriate expertise to manage such cases and after appropriate counselling regarding risks and with informed consent. [New 2018]

D

There are currently insufficient data to recommend the routine use of ureteric stents in placenta accreta spectrum. The use of stents may have a role when the urinary bladder is invaded by placental tissue (see section 8.4.2). [New 2018]

C

What surgical approach should be used for women with placenta percreta?

There is limited evidence to support uterus preserving surgery in placenta percreta and women should be informed of the high risk of peripartum and secondary complications, including the need for secondary hysterectomy. [New 2018]

D

Expectant management (leaving the placenta *in situ*)

Elective peripartum hysterectomy may be unacceptable to women desiring uterine preservation or considered inappropriate by the surgical team. In such cases, leaving the placenta in situ should be considered. [New 2018]

D

When the placenta is left in situ, local arrangements need to be made to ensure regular review, ultrasound examination and access to emergency care should the woman experience complications, such as bleeding or infection. [New 2018]

D

Methotrexate adjuvant therapy should not be used for expectant management as it is of unproven benefit and has significant adverse effects. [New 2018]

C

When is interventional radiology indicated?

Larger studies are necessary to determine the safety and efficacy of interventional radiology before this technique can be advised in the routine management of placenta accreta spectrum. [New 2018]

D

Women diagnosed with placenta accreta spectrum who decline donor blood transfusion should be cared for in a unit with an interventional radiology service.

D

How are women with undiagnosed or unsuspected placenta accreta spectrum best managed at delivery?

If at the time of an elective repeat caesarean section, where both mother and baby are stable, it is immediately apparent that placenta percreta is present on opening the abdomen, the caesarean section should be delayed until the appropriate staff and resources have been assembled and adequate blood products are available. This may involve closure of the maternal abdomen and urgent transfer to a specialist unit for delivery. [New 2018]

✓

In case of unsuspected placenta accreta spectrum diagnosed after the birth of the baby, the placenta should be left in situ and an emergency hysterectomy performed. [New 2018]

D

1. Purpose and scope

The purpose of this guideline is to describe the diagnostic modalities and review the evidence-based approach to the clinical management of pregnancies complicated by placenta praevia and placenta accreta.

2. Introduction and background epidemiology

Placenta praevia and placenta accreta are associated with high maternal and neonatal morbidity and mortality.^{1–5} The rates of placenta praevia and accreta have increased and will continue to do so as a result of rising rates of caesarean deliveries, increased maternal age and use of assisted reproductive technology (ART), placing greater

demands on maternity-related resources. The highest rates of complication for both mother and newborn are observed when these conditions are only diagnosed at delivery.

2.1 *Placenta praevia*

Determining placental location is one of the first aims of routine midpregnancy (18⁺⁶ to 21⁺⁶ weeks of gestation) transabdominal obstetric ultrasound examination.^{6,7} Placenta praevia was originally defined using transabdominal scan (TAS) as a placenta developing within the lower uterine segment and graded according to the relationship and/or the distance between the lower placental edge and the internal os of the uterine cervix. Grade I or *minor praevia* is defined as a lower edge inside the lower uterine segment; grade II or *marginal praevia* as a lower edge reaching the internal os; grade III or *partial praevia* when the placenta partially covers the cervix; and grade IV or *complete praevia* when the placenta completely covers the cervix. Grades I and II are also often defined as ‘minor’ placenta praevia whereas grades III and IV are referred to as ‘major’ placenta praevia.

The introduction of transvaginal scanning (TVS) in obstetrics in the 1980s has allowed for a more precise evaluation of the distance between the placental edge and the internal os. A recent multidisciplinary workshop of the American Institute of Ultrasound in Medicine (AIUM)⁸ has recommended discontinuing the use of the terms ‘partial’ and ‘marginal’, suggesting that the term ‘placenta praevia’ is used when the placenta lies directly over the internal os. For pregnancies greater than 16 weeks of gestation, the placenta should be reported as ‘low lying’ when the placental edge is less than 20 mm from the internal os, and as normal when the placental edge is 20 mm or more from the internal os on TAS or TVS. This new classification could better define the risks of perinatal complications, such as antepartum haemorrhage and major postpartum haemorrhage (PPH),^{9,10} and has the potential of improving the obstetric management of placenta praevia. Recent articles reviewed in this guideline refer to the AIUM classification.

The estimated incidence of placenta praevia at term is 1 in 200 pregnancies.^{5,9} However, this is dependent on the definition used and is likely to change with the introduction of the AIUM classification described above and with the rising incidence of the main risk factors, i.e. prior caesarean delivery and pregnancies resulting from ART. The relationship between a low-lying placenta or placenta praevia and a velamentous insertion of the umbilical cord is presented and discussed in the sister Green-top Guideline No. 27b: *Vasa Praevia: Diagnosis and Management*.

2.2 *Placenta accreta*

Placenta accreta is a histopathological term first defined by Irving and Hertig in 1937, as the “abnormal adherence of the afterbirth in whole or in parts to the underlying uterine wall in the partial or complete absence of decidua”.¹¹ Irving and Hertig did not include abnormally invasive placentation in their series and thus, their description was limited to abnormally adherent placenta. Depending on the depth of villous tissue invasiveness, placenta accreta was subsequently subdivided by modern pathologists into ‘creta’ or ‘adherenta’ where the villi adheres superficially to the myometrium without interposing decidua; ‘increta’ where the villi penetrate deeply into the uterine myometrium down to the serosa; and ‘percreta’ where the villous tissue perforates through the entire uterine wall and may invade the surrounding pelvic organs, such as the bladder.^{12–14} Cases of placenta accreta are also often subdivided into total, partial or focal according to the amount of placental tissue involved and the different depths of accreta placentation have been found to co-exist in the same case.^{12,15} Thus, placenta accreta is a spectrum disorder ranging from abnormally adherent to deeply invasive placental tissue.

Detailed data on clinical findings and, where possible, on histopathological examination are essential when describing different diagnostic or management techniques.^{16,17} The diagnostic conundrum is obvious at the abnormally adherent