Management of Placenta Praevia

1. Background

Placenta praevia exists when the placenta is inserted wholly or in part into the lower segment of the uterus. It is classified by ultrasound imaging based on clinical relevance into

Major Praevia; where the placenta lies over the internal cervical os

Minor or partial Praevia; where the leading edge of the placenta is in the lower uterine segment but not covering the cervical os.

Morbidly adherent placenta includes placenta accreta in which the placenta penetrates through the decidua basalis, placenta increta in which the placenta penetrates in to the myometrium and placenta percreta in which the placenta penetrates through the myometrium to invade the surrounding organs. Bladder is the most commonly involved
organ but for ease of description the term accreta will be used to denote all the morbidly adherent placentas in this guideline.

Placenta praevia occurs in 0.3-0.5% of all pregnancies. The incidence of placenta praevia and accreta along with its complications is increasing due to increasing incidence of caesarean section combined with increasing maternal age. In a recent study of 723 women with placenta praevia, the risk of placenta accreta was 3%, 11%, 40%, 61% and 67% for first, second, third, fourth and fifth or more caesarean sections respectively. Placenta praevia may present with painless antepartum haemorrhage or may be diagnosed on ultrasound. The value of making the diagnosis of placenta accrete before delivery is that it allows for multidisciplinary planning in an attempt to minimise potential maternal or neonatal morbidity and mortality.

2. Risk factors for placenta praevia

- Previous placenta praevia
- Previous caesarean sections
- Previous termination of pregnancy
- Multiparity
- Advanced maternal age (>40 years)
- Multiple pregnancy
- Smoking
- Deficient endometrium due to presence or history of: uterine scar, endometritis, manual removal of placenta, curettage, submucous fibroid, assisted conception.

3. Antenatal diagnosis

The location of placenta should be noted and recorded routinely at the time of the anomaly scan. Women require follow up imaging if the placenta covers or overlaps the cervical os at 20 weeks of gestation. Women who present with bleeding will have scan as required. In asymptomatic women the follow up scan can be done at 36 weeks as
scanning early will not change the management except in women with suspicion of placenta accreta.

In women with a previous caesarean section and a low lying placenta, high index of suspicion for placenta accreta should be held. A follow up scan should be organised in the fetal medicine department between 26-28 weeks. The diagnosis is usually established by ultrasonography and occasionally supplemented by magnetic resonance imaging (MRI) in patients with suspected placenta accreta.

Transvaginal scan (TVS) improves accuracy of placental localisation and is safe. It is known to be more helpful in late pregnancy and should be used to measure the distance between the leading placental edge and the internal cervical os. This information is vital to decide on the mode of delivery. TVS is also useful in assessing and marking of the placental location prior to caesarean section

4. **Home based care**

Careful assessment and counselling by a senior obstetrician is required before deciding on home based care. Women who would be suitable are

- Women who remain asymptomatic, having never bled,
- Living in close proximity to the hospital
- Have ready access to the hospital
- Have constant presence of an adult companion
- Any women being managed at home should be instructed to attend immediately if she experiences any bleeding, contractions or pain (including vague suprapubic, period like aches).

5. **Referral with bleeding**

Women who present with bleeding in presence of known low lying placenta must be referred immediately and should be assessed with each bleed. They can be seen in Antenatal Baby Care unit (ABC) and require prompt medical review. In cases with blood loss >200mls or
where there is suspicion that the woman's condition is unstable, direct referral to delivery suite is appropriate and they should be assessed by a senior doctor.

For assessment and flowchart, please refer to guideline on antepartum haemorrhage.

- Gentle speculum examination should be carried out by senior medical staff to identify cervical dilatation and estimate the amount of bleeding.

- Digital vaginal examination should not be performed in cases of placenta praevia unless assessment is done to allow vaginal birth. This should be carried out by a senior registrar or a consultant when indicated.

- Fetal assessment with cardiotocography or ultrasound should be undertaken once the mother is stable or resuscitation commenced

6. Investigations

The following investigations are usually required-

- Full blood count (FBC), group and save (G&S), kleihauer, coagulation screen, urea and electrolytes.

- For blood loss more than 200 mls, cross match 4 units- electronic cross matching is quicker and effective in an emergency. Group and save must be repeated every 48 hours.

- Ultrasound scan - To confirm or exclude placenta praevia.

7. Management

**Admission**- Admission to hospital is recommended for all patients with placenta praevia who have bleeding of any degree. Women with more than 200 mls blood loss should be admitted to labour suite. Women with low body mass index (BMI) or women with additional risk factors will need close monitoring and hence may need to admission labour ward.
Initial management

- Intravenous access gained – This should be two large bore cannulas in women with blood loss of more than 200 mls.
- Intravenous infusion started with normal saline or Hartmann’s solution.
- Bloods sent as above.
- Cardiotocography
- Inform senior obstetrician. In case of major or massive haemorrhage, Major/massive haemorrhage protocol should be activated. Consultant obstetrician and consultant anaesthetist should be informed and asked to attend.

Delivery should be considered if maternal or fetal condition is unstable. The threshold will vary according to the gestation.

Conservative management can be followed in women with placenta praevia with stable maternal, fetal condition who are not in labour. Decision for this to be made by a senior obstetrician

Antenatal corticosteroids and Magnesium Sulphate should be considered if there is a risk of preterm delivery

Anti D should be administered to all non-sensitized Rhesus negative women who present with bleeding. Please refer to guideline on administration of Anti D.

8. Inpatient care

Women with placenta praevia should have:

- Daily medical review on the ward round
- Care plan documented in the notes
- Delivery suite and neonatal staff should be aware of the woman on the ward
• Maternal observations as per early warning score (EWS) protocol

• The fetal heart should be auscultated once daily by Doppler if the gestation is under 28 weeks, or a CTG once daily if the gestation is over 28 weeks

• FBC, G & S repeated every 48 hours to ensure the woman has valid group and save/crossmatch at all times.

• In women with atypical antibodies discuss with haematologist and blood bank regarding blood availability.

• Ultrasound scan (and if necessary transvaginal ultrasound) repeated as requested by the consultant, usually fortnightly.

• Thromboprophylaxis - Prolonged inpatient care can be associated with an increased risk of thromboembolism; therefore, mobility should be encouraged together with the use of thromboembolic deterrent stockings and adequate hydration. Prophylactic anticoagulation in women at high risk of bleeding can be hazardous and the decision to use it should be taken on an individual basis considering the risk factors for thromboembolism. Limiting anticoagulant thromboprophylaxis to those at high risk of thromboembolism is reasonable.

• Women who bleed should remain in hospital for a minimum of 24hrs after last episode of bleeding. Bleeding in third trimester often necessitates admission till delivery. Follow the guidelines on ante partum haemorrhage in the event of bleeding.

Management of placenta praevia and accreta in third trimester

• Check for anaemia and treat accordingly.

• Counsel about risk of preterm labour, antepartum haemorrhage, blood transfusion, caesarean section and hysterectomy.

• Inform the anaesthetist.
9. Labour and delivery

- Detailed discussion should be undertaken by a senior obstetrician and plan documented in the part 1 and on medway. The counselling should include
  - Anticipated skin and uterine incision.
  - Risk of profuse bleeding requiring transfusion and surgical interventions including Hysterectomy.
  - Additional possible interventions in the case of massive haemorrhage including cell salvage and interventional radiology.
  - Contingency plan for emergency delivery.

Mode of delivery

Vaginal delivery can be considered if asymptomatic and if placental edge is more than 2cm from the internal os. Women can be encouraged to aim for vaginal delivery if the placental edge is 3cm or more from the internal os. In women with placental edge between 2-3 cm from internal os, decision regarding mode of delivery will also depend on engagement of the fetal head, thickness of the encroaching part of the placenta etc. A Transvaginal USS is helpful in such cases. These women should be reviewed by a senior obstetrician for discussion on mode of delivery and counselled regarding risk of haemorrhage. In borderline cases woman should be encouraged to present to labour suite in early labour, be recommended to have intravenous access with cross matched blood available and continuous electronic fetal monitoring in labour.

Caesarean section- Women with placental edge less than 2cm from the internal os and all women with major placenta praevia and accrete will need delivery by Caesarean section.

Timing of delivery- Elective delivery by caesarean section in asymptomatic women is not recommended before 38 weeks of gestation for placenta praevia or before 36-37 weeks of gestation for suspected placenta accreta. The timing of delivery should be
individualised, depending on clinical condition of the patient and availability of staff and resources.
Steroids must be considered in planned deliveries. Choice of anaesthetic technique must be made by the anaesthetist responsible for the procedure.

10. Care pathway for placenta praevia

Experienced SpR or consultant performing the procedure
Consultant obstetrician directly supervising delivery or in theatre
Request the involvement of senior anaesthetist
Use of cell salvage

Blood and blood products - A minimum of 4 units of group specific blood. Cross matched blood should be present in theatre depending on the urgency of the case. O negative blood, fresh frozen plasma, cryoprecipitate as required. The Haematology department should be on standby. They should be warned that a woman with placenta praevia being delivered in theatre and need for further blood products should be an ongoing discussion. In the event of massive haemorrhage early involvement of senior surgeon/gynaecologist and early recourse to hysterectomy is advised.

11. Care pathway for suspected placenta accreta

A Consultant obstetrician should be involved in planning and directly supervising the delivery. The consultant obstetrician should plan and involve a named consultant gynaecologist who should be available to attend if required. In an emergency, the on-call Gynaecologist should be informed before starting the procedure. If the bladder involvement is suspected, a urologist should be involved

A consultant anaesthetist should be involved in planning and directly supervising anaesthetic at delivery.

Blood and blood products should be available in theatre.
Cell salvage should be used.

Interventional radiology can be life saving for the treatment of massive postpartum haemorrhage and therefore having this facility available is desirable. Every attempt should be made to involve interventional radiology in planning for elective delivery where appropriate. The interventional radiology (IR) team should be informed by 28/40 gestation along with the planned delivery date. The vascular interventional radiology secretary is Amy Benner. x70487 who will be able to add you to the on-call rota e-mailing list.

The vascular interventional radiologists involved in these cases (QMC/NCH) are

1. Dr. Richard O’ Neil
2. Dr. Simon Travis
3. Dr. Simon Whitaker
4. Dr. Greg Ramjas
5. Dr. Ahmed Zia-Ud-Din
6. Dr. Said Habib
7. Dr. Asim Shah

On-call IR consultants should be made aware of any in-patients with placenta accreta with antepartum haemorrhage. In an emergency, attempt should be made to involve them if possible.

Multidisciplinary involvement in pre-op planning - An advance consultation should be made for exchange of information, between the relevant clinical teams (gynaecology, urology, surgery or interventional radiology) when there is ongoing clinical uncertainty about placental invasion or adherence. This will avoid the additional tension of an urgent call.

Discussion and consent about possible interventions.

Local availability of a level 2 critical care bed.
**Intra operative care**

The choice of incision should be discussed with the woman. A midline vertical incision may be considered especially if hysterectomy becomes necessary.

A classical uterine incision or trans fundal could be used to avoid the placenta.

Antenatal ultrasound mapping of the placenta may be helpful but also consider ultrasound prior to commencing surgery so that the surgeon can see where the placenta lies.

Await spontaneous placental separation (as Positive Predictive Value of ultrasonography for placenta accreta ranges from 65% to 93%).

If the placenta does not separate either 1) close uterus and leave it in place 2) perform Hysterectomy. Both choices are appropriate.

The placenta may separate at a delay and this may result in an obstetric haemorrhage. The woman needs to be counselled regarding this.

If the placenta partially separates, the separated portion(s) need to be delivered and any haemorrhage that occurs needs to be dealt with in the normal way. Adherent portions can be left in place, but blood loss in such circumstances can be large and massive haemorrhage management needs to follow in a timely fashion.

**Post-operative care**

Counsel about risk of bleeding and infection

Administer antibiotics for 7 days

Neither Uterine artery embolisation nor methotrexate have proven to be beneficial in reducing the risks of bleeding and infection and therefore neither is recommended routinely.

Monitor with ultrasound and serum b-Human Chorionic Gonadotrophin.
Vasa Praevia

Vasa praevia describes fetal vessels coursing through the membranes over the internal cervical os and below the fetal presenting part, unprotected by placental tissue or the umbilical cord. Unlike placenta praevia, vasa praevia carries no major maternal risk, but is associated with significant risk to the fetus. When the fetal membranes are ruptured, either spontaneously or artificially, the unprotected fetal vessels are at risk of disruption with consequent fetal haemorrhage.

The fetal blood volume is around 80–100 ml/kg. So the loss of relatively small amounts of blood can have major implications for the fetus, thus rapid delivery and aggressive resuscitation including the use of blood transfusion may be required.

Risk Factors include

- Placental anomalies such as a bilobed placenta or succenturiate lobes where the fetal vessels run through the membranes joining the separate lobes together,
- A history of low-lying placenta in the second trimester
- Multiple pregnancy
- In vitro fertilisation

Diagnosis – In the antenatal period, in the absence of vaginal bleeding, there is no method to diagnose vasa praevia clinically. In cases of vasa praevia identified in the second trimester, imaging should be repeated in the third trimester to confirm persistence.

In the intrapartum period, in the absence of vaginal bleeding, vasa praevia can occasionally be diagnosed clinically by palpation of fetal vessels in the membranes at the time of vaginal examination. This can be confirmed by direct visualisation using an amnioscope

Vasa praevia can be accurately diagnosed with colour Doppler ultrasound, often utilising the transvaginal route. At present, vasa praevia should not be screened for routinely at the time of the mid-
trimester anomaly scan, as it does not fulfil the criteria for a screening programme.

In the presence of vaginal bleeding, especially associated with membrane rupture and fetal compromise, delivery should not be delayed to try and diagnose vasa praevia

**Management**

**In case of bleeding Vasa praevia- Category 1 emergency caesarean is indicated.** Fetal wellbeing should be confirmed at the time of any antepartum or intrapartum haemorrhage and this is currently best achieved using the cardiotocograph.

In cases of confirmed vasa praevia in the third trimester, antenatal admission from 28 to 32 weeks of gestation to a unit with appropriate neonatal facilities will facilitate quicker intervention in the event of bleeding or labour.

In the presence of confirmed vasa praevia, elective caesarean section should be carried out prior to the onset of labour.

**References**

1. RCOG Green-top Guideline No. 27 20 of 26 © Royal College of Obstetricians and Gynaecologists.

2. Saving lives, Improving mothers’ care, MBRRACE- UK, Surveillance of maternal deaths in the UK 2011-13 and lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2009-13


