Antepartum haemorrhage

Nadia Amokrane
E R F Allen
Anna Waterfield
Shreelata Datta

Abstract

Antepartum haemorrhage (APH) is bleeding from or into the genital tract occurring between 24 + 0 weeks' gestation until birth. It complicates 3–5% of pregnancies. The 2006–2008 report of the Confidential Enquiries into Maternal Deaths in the UK (CMACE) reported APH as the cause of death in four women. The high prevalence of APH, and its associated perinatal mortality and morbidity makes a thorough understanding of APH is essential for the practising obstetrician. The objective of this review is to consider the most common causes of APH (placenta praevia, placental abruption and local causes), together with their management.

Keywords antepartum haemorrhage; obstetric haemorrhage; placenta accreta; placenta praevia; placental abruption

Introduction

Bleeding in pregnancy is a common reason for presentation to labour wards, maternity triage units, GP surgeries and early pregnancy centres in the UK.

The management of bleeding in pregnancy varies according to gestation. In this review we specifically address antepartum haemorrhage (APH) which is defined as bleeding from the genital tract that occurs from viability onwards, defined here as greater than 24 weeks' gestation. Obstetricians may see women with genital tract bleeding from 16 to 23 weeks' gestation however management of this group of women may differ.

APH and post-partum haemorrhage (PPH) are the leading causes of maternal death worldwide. In the UK, maternal deaths have continued to decrease. The recent MBRRACE-UK report published in December 2014 showed that maternal mortality in the UK had decreased from 11:100, 000 women between 2006 and 2008 to 10:10,000 between 2009 and 2012. Between 2009 and 2012, 17 mothers in the UK and Ireland died due to haemorrhage. The report does not distinguish the women who presented with APH, but three women were diagnosed with placental abruption and placenta praevia.

The aim of this review is to define causes of APH and discuss management in accordance with recent guidelines and published evidence. The MBRRACE-UK report reminds us that APH and PPH are not only important causes of maternal mortality but also of maternal and perinatal morbidity. Therefore the early recognition and management of women presenting with genital tract blood loss is an important aspect of antenatal assessment. It is essential that the obstetrician be prepared for potential sequelae, and thorough antenatal, intrapartum, and postpartum planning is required.

Causes of APH

Cervical and vaginal causes

A common cause of APH is bleeding from the cervix. A cervical ectropion or 'erosion' is where the columnar epithelium that lines the cervical canal protrudes further onto vaginal surface of the cervix. This is more common in pregnancy, and is thought to be related to high oestrogen levels. The tissue of the ectropion is very friable and contact bleeding can occur, usually at sexual intercourse or even on passing hard stools. Ectropion can be easily diagnosed on speculum examination of the cervix.

Cervicitis (inflammation or infection of the cervix) may be an under-diagnosed cause of bleeding in pregnancy and may be caused by sexually transmitted infections (STIs) such as chlamydia and gonorrhoea, which can present with abnormal vaginal bleeding. A high vaginal swab and screening for STIs should be undertaken. Treatment of STIs presenting in pregnancy is important, as they can be associated with preterm labour and neonatal morbidity. Bleeding or spotting can also occur from the vagina and vulva secondary to non-sexually transmitted infections such as thrush, folliculitis, and from trauma.

Benign cervical polyps are a further cause of APH. If the bleeding does not clinically compromise the mother or fetus, and the polyp appears non-suspicious then these should not usually be removed in pregnancy.

Cervical carcinoma presenting in pregnancy is uncommon and a detailed history at booking appointment should assess a woman's smear history and history of previous cervical treatments. If a cervical carcinoma is suspected on assessment of the cervix then urgent referral to colposcopy is indicated.

Placental causes

Placental abruption: abruptio placenta is the premature separation of a normally sited placenta from the uterus. Placental abruption can lead to maternal and fetal complications, and ultimately mortality. Bleeding occurs when the placenta starts to separate from the decidua basalis. The presentation of placental abruption usually includes pain (50%) and bleeding (70–80%) however, a concealed abruption (20% of cases) can present with no pain or bleeding. Premature labour is seen in nearly a third of cases of abruption, however, the contraction pains may be atypical in nature, with the patient describing severe unremitting pain.

The incidence of placental abruption is reported between 0.26% and 0.80% in literature depending on the type of study

Nadia Amokrane *MBChB is a Specialist Registrar in Obstetrics and Gynaecology at King's College Hospital, London, UK. Conflicts of interest: none declared.*

E R F Allen *MBBS BSc MRCOG is a Locum Consultant Obstetrician and Gynaecologist at King's College London (PRUH), London, UK. Conflicts of interest: none declared.*

Anna Waterfield *MRCOG is a Senior House Officer in Obstetrics and Gynaecology at King's College Hospital, UK. Conflicts of interest: none declared.*

Shreelata Datta *MBBS LLM BSc (Hons) MRCOG is a Consultant Obstetrician and Gynaecologist at King's College Hospital, London, UK. Conflicts of interest: none declared.*

and population. The biggest risk factor for abruption is a previous abruption with a 10-fold increased risk of abruption if there has been an abruption in the previous pregnancy. The risk increases to nearly 25% if a woman has had two previous abruptions.

Although there is no single aetiology for placental abruption, a number of risk factors have been identified. These include hypertension and pre-eclampsia. Notably, when examining risk factors in a control population, chronic hypertension has a stronger association with abruption (OR 3.13) than pre-eclampsia (OR 1.73). Smoking is associated with a 90% increase in the risk of abruption. There is a three-fold increased risk in pregnancies complicated by prolonged rupture of membranes (PROM). Cocaine use has also been linked to a higher rate of placental abruption. However, despite numerous risk factors and associations, abruption is usually an unexpected event and the vast majority will occur in low risk pregnancies.

Placenta praevia, placenta accreta, increta and placenta percreta: placenta praevia is the insertion of the placenta partially or entirely within the lower segment of the uterus after 32 weeks. If the placenta does not cover the internal os then it is described as a minor praevia and if it partially or fully covers the os then it is classified as a major praevia. A morbidly adherent placenta such as a placenta accreta, increta or percreta invades through the decidua basalis. In placenta accreta the chorionic villi attach to the myometrium. In placenta increta the placenta has invaded into the myometrium; in placenta percreta the placenta invades through the myometrium and breaches the uterine serosa. Placenta percreta may then invade other organs such as the bladder.

The incidence of low-lying placenta can be up to 28% at the routine 20 week anomaly ultrasound scan, but the majority of these will have migrated higher by the following scan, usually at 32 weeks or later. The incidence of true placenta praevia at term is approximately 3%.

There are several hypotheses about the aetiology of placenta praevia. One theory is that the position of the placenta depends on the site of implantation of the discoid trophoblast when the pregnancy is developing and from where the placenta will arise. A further theory postulates that areas of deficient endometrium from procedures such as caesarean sections, surgical management of miscarriage and myomectomies may affect how the placenta attaches in these cases.

The risk factors for placenta praevia include multiparity, increasing maternal age, smoking, previous praevia and surgical procedures that may result in deficient endometrium (Table 1). The number of previous Caesarean sections also increases the risk of placenta praevia.

In well-resourced settings such as in the UK, the majority of placenta praevia cases may be picked up on ultrasound scan at 20 weeks. Currently the UK National Screening Committee does not recommend screening for placenta praevia however, alongside the RCOG, they support most local practice of identifying women by ultrasound whose placenta lies near the internal os at the routine 20 week scan. Evidence shows that at the second trimester scan about 26–60% of women with a low lying placenta on abdominal ultrasound would be reclassified with a more accurate transvaginal scan. There have been no reports to suggest that transvaginal scanning in suspected placenta praevia cases is unsafe.

Women with a low-lying placenta at 20 weeks should be followed up in the third trimester, usually at 32–36 weeks. However, if women have had a previous Caesarean section and have a low-lying placenta, then a placenta accreta should be suspected. If major placenta praevia is suspected in the third trimester, then this significantly raises the risk of morbidity and preterm delivery. However the diagnosis of placenta praevia should be considered in any patient who presents with painless, fresh vaginal bleeding or bleeding after intercourse.

The most likely symptom from a placenta praevia is painless bleeding in contrast to abruption where pain is likely to co-present. The bleeding is usually fresh, red and the amount of APH can vary. The patient may also present with fresh bleeding in early labour, with the onset of labour and cervical dilatation triggering the bleed or vice versa.

Other causes

Uterine rupture: uterine rupture is a rare event that is defined as loss of the full thickness of the uterine wall integrity. It usually occurs during labour in a woman with a previous Caesarean section or myomectomy. Within this group the risk is still small; the incidence of uterine rupture has been estimated at 7 per 10,000 planned vaginal births after Caesarean section. Uterine rupture may present with CTG abnormalities, pain or APH. Early recognition and quick stabilisation of the mother and baby is required as mortality and morbidity is high.

Vasa praevia: vasa praevia is a rare obstetric complication where fetal blood vessels cross the internal cervical os. As the incidence is rare (between 1 in 2000 and 1 in 6000 pregnancies) it is not currently screened for during routine ultrasound. The risk of APH mainly comes with rupture of the membranes or labour, as a direct consequence of tearing of the blood vessels. The fetus can be comprised quickly and management if diagnosed or suspected is usually by immediate category 1 Caesarean section.

Unexplained APH

Some women will present with bleeding that cannot be attributed to any of the above causes. The RCOG Greentop Guideline references a number of studies over the last four decades that demonstrate that pregnancies with unexplained APH are at higher risk of preterm birth and stillbirth. A recent retrospective, observational study noted that pregnancies complicated by APH of unknown aetiology are at a higher risk of preterm birth, lower birthweight, induction of labour, and neonatal unit admissions. Repeated presentations with unexplained APH in pregnancy should raise suspicion and the pregnancy should be monitored as high risk, with the need for additional ultrasound scans for fetal growth.

Healthcare providers should be aware that maternal trauma, including domestic violence, can result in APH, possibly from placental abruption. A third of domestic violence is known to start or escalate in pregnancy. A retrospective study of 2070 women subjected to physical violence in pregnancy found an increased odds ratio of APH in this cohort, compared with controls, of 3.79 (95% CI 1.38–10.40). Women who present with

