Antepartum haemorrhage

Nektaria Varouxaki
Sai Gnanasambanthan
Shree Datta
Nadia Amokrane

Abstract

Antepartum haemorrhage (APH) is defined as bleeding from or into the genital tract occurring between 24+0 weeks' gestation until birth and seen in 3–5% of pregnancies. Moreover, up to 20% of preterm deliveries are associated with APH. In the UK, the 2013–1015 report of the UK Confidential Enquiries into Maternal Deaths showed that whilst maternal mortality remained stable, there was a non-significant rise in deaths due to haemorrhage. APH can be caused by a range of pathologies and due its high prevalence and strong association with maternal mortality, maternal and perinatal morbidity, a thorough understanding of APH is essential for the practising obstetrician. The objective of this review is to define the most common causes of APH (placenta praevia, placental abruption and local causes), together with its 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 occurs in 3–4% of all pregnancies and is defined as bleeding from the genital tract from 24 weeks' gestation onwards, after the arbitrary cut-off for viability of fetus has passed. Bleeding in early pregnancy is usually seen by General Practitioners, accident & emergency departments and our gynaecology colleagues. Obstetricians may see women with APH from 16 to 23 weeks' gestation however, due to the fact that the pregnancy is not yet viable, management of this group of women may differ.

Nektaria Varouxaki *Ptychion Iatrikes MRCOG Registrar in Obstetrics and Gynaecology, Princess Royal University Hospital, King's College, London, UK. Conflicts of interest: none declared.*

Sai Gnanasambanthan *MBBS BSc (Hons) MRCOG, Specialist Registrar in Obstetrics and Gynaecology, Guy's and St Thomas' NHS Trust, London, UK. Conflicts of interest: none declared.*

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

Nadia Amokrane *MBChB Specialist Registrar, King's College Hospital, London, UK. Conflicts of interest: none declared.*

APH and post-partum haemorrhage (PPH) together, are the leading cause of maternal death worldwide. In the UK, maternal deaths have remained stable and the recent MBRRACE-UK report published in December 2017 showed that maternal mortality in the UK was 8.7 per 100,000 in 2013–2015, compared with 8.5 per 100,000 between 2012 and 2014. This suggests that further measures are required to continue to reduce maternal mortality rates in the UK. The report also highlighted a non-significant rise in maternal deaths from haemorrhage of 99%, and this was due to a small increase in deaths from abnormal placentation, one of the causes of APH.

The MBRRACE report reminds us that APH and PPH are not only are an ongoing cause of maternal mortality but also of maternal and perinatal morbidity. Therefore the early recognition and management of women presenting with any blood loss is essential in preparing for potential sequelae and thorough antenatal, intrapartum and postpartum planning is required. The aim of this review is to define causes of APH and discuss management as advised by recent guidelines and published evidence.

Causes of APH

Causes of APH include placenta praevia, placental abruption and bleeding from the vulva, vagina or cervix. Whilst it is important to diagnose these pathologies, it is not uncommon to fail to identify a cause for APH, which is then described as 'unexplained APH'. Clinicians should also be aware that domestic violence in pregnancy can present this way and repeated presentations should prompt exploring the mother's social history.

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, thought to be related to the high oestrogen levels in the body at this time. The tissue of the ectropion is very friable and contact or provoked bleeding can occur, usually at sexual intercourse or even on passing hard stools. The 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 vaginal bleeding in pregnancy, and may be caused by sexually transmitted infections (STIs) such as chlamydia and gonorrhoea, which can present in this way. A simple swab test and screening for STIs should be undertaken at every examination, as treatment is essential. STIs are associated with preterm labour and neonatal morbidity.

An additional cause of APH is cervical polyps which are benign growths. If the bleeding is not compromising the mother or foetus and the polyp appears non-suspicious then usually these do not have to 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. Smear tests are not indicated in pregnancy.

As with non-pregnant women, bleeding or spotting can occur from the vagina and vulva secondary to infections such as thrush, folliculitis and from trauma.

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 fetal and maternal mortality. The bleeding occurs when the placenta starts to separate from the decidua basalis. The presentation usually includes pain (50%) and bleeding (70–80%) however, a concealed abruption (20% of cases) can present with no pain or bleeding. Premature labour can be a feature of nearly a third of cases of abruption, however, the contraction pains may be atypical.

The incidence of placental abruption is reported between 0.26% and 0.80% in literature depending on the type of study and population. The biggest risk factor for abruption is abruption in a previous pregnancy, with a report incidence of 4.4% if there has been an abruption in the previous pregnancy. The risk increases to 19–25% if a woman has had two previous abruptions.

Although no exact aetiology has been identified for placental abruption, a number of risk factors have been illicited. These include hypertension and pre-eclampsia. Notably, chronic hypertension has a stronger association with abruption (OR 3.13) than pre-eclampsia (OR 1.73) compared with normotension. Smoking is associated with a 90% increase in abruption and a three times increased risk in pregnancies complicated by prolonged rupture of membranes (PROM). Cocaine use has also been linked to a higher rate of placental abruption.

First trimester bleeding or threatened miscarriage has been shown to increase the risk of placental abruption later in pregnancy from 1% to 1.4%. Risk of abruption is also noted to increase if an intrauterine haematoma was identified with first trimester bleeding investigations (RR 5.6, 95% CI 2.8–11.1). Thrombophilias, especially heterozygous factor V leiden and heterozygous prothrombin have shown significant associations with placental abruption occurrences.

However, despite numerous risk factors and associations (Table 1), abruption is usually an unexpected event and 70% will occur in low risk pregnancies. While women should be encouraged to change modifiable risk factors such as smoking, there is limited evidence that this will prevent abruption.

Risk factors

Placenta praevia	Multiple pregnancy
	Advanced maternal age (>40 years)
	High parity
	Deficient endometrium due to
	Uterine scar (caesarean section, myomectomy)
	- previous caesarean section RR 2.6
	Endometritis
	Manual removal of placenta
	Curettage
	Fibroids
	Previous placenta praevia
	Smoking,
	Assisted Conception
Placental abruption	Previous placental abruption
	Hypertension
	Pre-eclampsia
	Smoking, cocaine use
	First trimester bleeding
	Premature rupture of membranes
	Coagulopathies
	Multiple pregnancy
	Advanced maternal age
	Abdominal trauma
Vasa praevia	Placental anomalies:
	- Velamentous insertion of umbilical cord
	- Succenturiate lobes,
	- bi-lobe placenta
	History of low lying placenta in the 2nd trimester
	Multiple gestation
	IVF pregnancy
Uterine rupture	Multiparity
	Congenital uterine anomalies
	Uterine scar (caesarean section, myomectomy)
	Maternal age
	Abnormal placentation
	Uterine distension (multiple gestation, polyhydramnios, macrosomia)
	Gestation > 40 weeks
Uterine rupture	Obstructed labour

Table 1

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 myometrium is invaded and 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 routine incidence of low lying placenta can be up to 28% of pregnancies at the 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 will be approximately 3%.

There are several hypothesis 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. The other theory postulates that areas of deficient endometrium from procedures such as caesarean sections, surgical management