



Association of  
Ontario **Midwives**

# EMERGENCY SKILLS

## WORKSHOP Manual



Printed 2013

# Antepartum and Intrapartum Hemorrhage

## DEFINITION

Antepartum hemorrhage (APH) is conventionally defined as excessive vaginal bleeding occurring any time after 20 weeks' gestation. (1)

Intrapartum hemorrhage (IPH) is defined as excessive vaginal bleeding during labour. (2)

## INCIDENCE AND CAUSES

APH is thought to occur in approximately 2% to 5% of all pregnancies. (1-4) One study found an incidence of IPH of 1.47%. (5)

The following clinical conditions are the most common identifiable causes of acute hemorrhage in the antepartum and intrapartum periods:

### Placenta Previa

- Incidence • 0.3% to 0.5% of all pregnancies
- Notes • Thought to account for 31% of cases of APH

### Placental Abruption

- Incidence • 0.4% to 1% of all pregnancies
- Notes • Thought to account for 22% of cases of APH
- Leading cause of vaginal bleeding in second half of pregnancy

### Vasa Previa

- Incidence • 0.02% to 0.08% of all pregnancies
- Notes • The only fetal cause of APH. It is associated with significant risk to the fetus but little risk to the mother.

Adapted (3,4,6-10)

## COMPLICATIONS

Any bleeding in pregnancy can have serious and potentially life-threatening implications for the client and fetus. By the third trimester, the uterus receives approximately 20% of cardiac output. Uterine hemorrhage at this stage can have an acute and substantial impact on maternal hemodynamic instability. (1) Subsequent outcomes can include (3):

- Maternal:
  - » Hypovolemic shock
  - » Transfusion
  - » Hysterectomy
- Fetal:
  - » Fetal hypoxia
  - » Sudden fetal death
  - » Premature delivery

## PLACENTA PREVIA

### Definition and Classification

Placenta previa describes the whole or partial implantation of the placenta in the lower segment of the uterus at term, causing the placenta to lie over (or in close proximity to) the internal cervical os. (1,2,6,11)

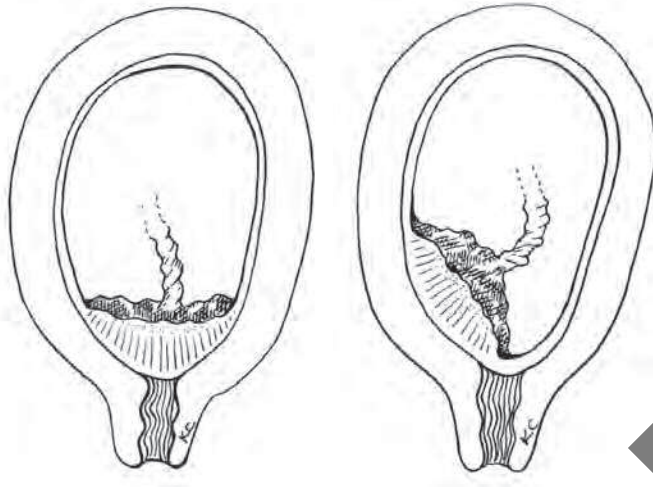
Placenta previa is currently classified depending on the location of the placenta relative to the internal os:

Classification	Location of Placenta*
Placenta previa (Figure 3.1A and 3.1B)	<ul style="list-style-type: none"><li>• Over or very near the internal os</li><li>• Previously subdivided into total and partial previa based on the digital palpation of the placenta through the cervix.</li></ul>
Marginal previa (Figure 3.2)	<ul style="list-style-type: none"><li>• Edge lies within 2 cm of the internal os.</li></ul>
Low-lying placenta (Figure 3.3)	<ul style="list-style-type: none"><li>• A "low-lying placenta" (edge within 2 to 3 cm of internal os) is not associated with an increased risk of antepartum hemorrhage.</li></ul>

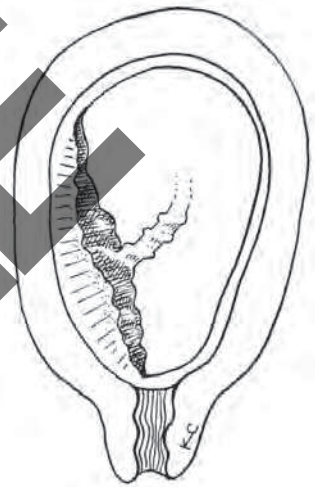
Adapted (1)

\*Note: The reference ranges used to classify placenta previa will vary among imaging facilities. The measurements above are for example only. Midwives should be familiar with their community's standards.

**Figure 3.1A and 3.1B Placenta Previa**



**Figure 3.2 Marginal Previa**



**Incidence**

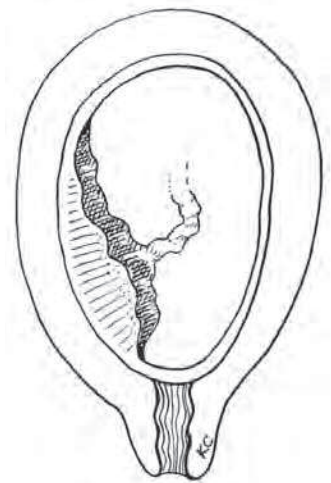
Placenta previa is thought to affect 0.3% to 0.5% of term pregnancies. (2,6) Researchers estimate that 5% to 15% of pregnant women will appear to have low-lying placentas at early ultrasound (US) (18-20 weeks). Approximately 90% of cases of low-lying placenta noted at early ultrasound will have resolved at term. (2,6,11)

**Associated Factors**

Maternal
Previous caesarean section (CS) or uterine surgery
Maternal age > 35
Multiparity
Smoking
Cocaine use
Placental/Fetal
Multiple pregnancy
Previous placenta previa
Abnormal placentation

Adapted (1,2,6,12,13)

**Figure 3.3 Low-lying Placenta**



## Complications

Maternal risks associated with placenta previa include:

- Placenta accreta, particularly in women with a history of previous CS
- Hysterectomy
- Transfusion
- Septicemia
- Thrombophlebitis (6,10,14-16)

Neonatal morbidities associated with placenta previa include:

- Preterm birth
- Respiratory distress syndrome
- Low Apgar score
- Anemia (14,17)

Placenta previa is associated with a perinatal mortality rate of 2.30%. (14)

## Identification

Placenta previa is most often diagnosed through routine prenatal US. The following indications are key to identifying previa if a client has not had a routine US or, in rare cases, where previa has not been detected via US.

- Vaginal bleeding, typically painless, with a soft and non-tender uterus.
  - » Blood is bright red or brown, usually appearing during the second trimester or after.
  - » It is estimated that bleeding occurs before onset of labour in about 80% of cases of placenta previa.
- High presenting part or malpresentation.
  - » The placenta may occupy the space in the pelvis where the fetal head would otherwise lie.
- Signs and symptoms of maternal shock, corresponding to the amount of blood lost.
- Though fetal heart tones are often normal, there may be signs of fetal distress.
  - » Fetal tachycardia may result from maternal blood loss and impaired delivery of oxygen to the fetus.
  - » With severe hemorrhage fetal hypoxia may result. (2,6)

# PLACENTAL ABRUPTION

## Definition and Classification

Placental abruption is defined as the premature separation of the placenta from the wall of the uterus. The placenta may be partially or completely separated and bleeding may be apparent vaginally ('revealed') or concealed behind the placenta. (2,7,18)

Placental abruption is typically described as being partial or total and may be further classified based on fetal condition.

### Classification

Mild	Suspected abruption without fetal compromise
Moderate	Suspected abruption with fetal compromise
Severe	Suspected abruption with fetal death

Adapted (1,2)

## Incidence

Placental abruption complicates 0.4% to 1% of all births. (7,8)

## Associated Factors

### Maternal

- Previous placental abruption
- Some thrombophilias
- Increased maternal age and parity
- Hypertensive disorders of pregnancy
- Previous CS
- Smoking
- Abdominal trauma
- Cocaine use

### Placental/Fetal

- Multiple pregnancy
- Premature rupture of membranes
- Oligohydramnios
- Chorioamnionitis

Adapted (7,8)

## Complications

The clinical significance of placental abruption varies according to severity of the abruption and the gestational age at which it occurs. While some cases of placental abruption are mild and uneventful, massive abruption may lead to fetal death and severe maternal morbidity. Estimated rates of perinatal mortality associated with placental abruption range from 9% to 30%. (2,7,8)

Maternal risks of placental abruption include:

- Hemorrhage
- Blood transfusion
- Hysterectomy
- Disseminated intravascular coagulation
- Death (7,8)

Perinatal risks of placental abruption include:

- Intrauterine Growth Restriction
- Preterm delivery
- Low birth weight
- Hypoxia
- Stillbirth and perinatal death (7,8)

## Identification

- Bleeding may be frank or absent. Uterus may be tender with increased tone or may be rigid or “board like.”
- One source suggests that placental abruption is revealed in 70% and concealed in 30% of cases. (4)
  - » Because bleeding may be concealed, amount of blood is not associated with severity of abruption.
  - » Blood may be red, if fresh, or brown and clotted if it has been retained in utero.
- Mild to severe abdominal or back pain that may occur gradually or suddenly.
- Signs of fetal compromise.
- Signs and symptoms of maternal shock. (2,7)

## Differentiation Between Placenta Previa and Placental Abruption by Common Presentation\*

	Placenta Previa	Placental Abruption
<b>Bleeding</b>	<ul style="list-style-type: none"> <li>• Small amount usually visible, typically bright red</li> </ul>	<ul style="list-style-type: none"> <li>• Frank bleeding usually visible, large blood clots possible</li> <li>• Bleeding may be concealed internally</li> </ul>
<b>Pain</b>	<ul style="list-style-type: none"> <li>• Usually painless</li> </ul>	<ul style="list-style-type: none"> <li>• Mild to severe</li> <li>• Sharp pain may be present in abdomen or back, may refer to shoulder tip (scapula)</li> </ul>
<b>Uterus</b>	<ul style="list-style-type: none"> <li>• Soft, non-tender</li> </ul>	<ul style="list-style-type: none"> <li>• Tense, tender</li> <li>• May be rigid or “board like” especially in later stages</li> </ul>
<b>Maternal</b>	<ul style="list-style-type: none"> <li>• Symptoms of shock may be present</li> </ul>	<ul style="list-style-type: none"> <li>• Symptoms of shock may be present; shock may be disproportionate with apparent blood loss</li> </ul>
<b>Fetal</b>	<ul style="list-style-type: none"> <li>• Malpresentation or high presenting part</li> <li>• Fetal heart tones usually normal</li> <li>• Signs of fetal compromise may occur if bleeding progresses</li> </ul>	<ul style="list-style-type: none"> <li>• Presentation usually normal</li> <li>• Fetal heart tones may be normal or they may be atypical, abnormal or absent</li> </ul>
<b>Vaginal exam</b>	<ul style="list-style-type: none"> <li>• Contraindicated due to risk of exacerbating bleeding</li> </ul>	<ul style="list-style-type: none"> <li>• Not contraindicated; avoid until placenta previa ruled out</li> </ul>
<b>Common associated factors</b>	<ul style="list-style-type: none"> <li>• Previous uterine surgery</li> </ul>	<ul style="list-style-type: none"> <li>• Hypertensive disorders of pregnancy, maternal abdominal trauma</li> </ul>
<b>Identification</b>	<ul style="list-style-type: none"> <li>• Transvaginal US provides definitive diagnosis</li> </ul>	<ul style="list-style-type: none"> <li>• May be seen on US</li> <li>• Negative US does not rule out abruption</li> <li>• US may be useful for excluding placenta previa</li> </ul>
<b>Management</b>	<ul style="list-style-type: none"> <li>• Consult immediately for CS</li> <li>• Resuscitative measures</li> </ul>	<ul style="list-style-type: none"> <li>• Consult immediately for possible CS or induction of labour (if mild)</li> <li>• Resuscitative measures</li> </ul>

Adapted (1,19)

\*This table is not meant to be a definitive list of signs and symptoms as there is a wide range of clinical presentations for each condition.



# VASA PREVIA

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## Definition and Classification

Vasa previa occurs when fetal blood vessels pass through the membranes of the lower uterine segment. Unsupported by either the umbilical cord or the placental tissue, these vessels lie between the cervical os and the presenting part and may tear during rupture of the membranes or labour. Vasa previa typically occurs in conjunction with velamentous insertion of the umbilical cord or bilobed or succenturiate-lobed placenta. (1,6,20,21)

## Incidence

The reported incidence of vasa previa ranges from 1 in 2000 to 1 in 6000 pregnancies. (22)

## Associated Factors

The incidence of vasa previa is higher in the presence of:

- velamentous or marginal insertion of the umbilical cord;
- bilobed or succenturiate-lobed placentas;
- multiple pregnancies;
- placenta previa or low-lying placentas; or
- pregnancies resulting from IVF. (6,20,21)

## Complications

Vasa previa carries no major maternal risk. Because fetal blood volume is limited, loss of even 80 to 100 mL of fetal blood can have a major impact on the fetus. Consequently, rates of fetal mortality associated with vasa previa are estimated to be as high as 60%. (1,6,20,22)

## Identification

While vasa previa may be detected antenatally by US, missed diagnoses are common and guideline authorities do not currently recommend routine screening for vasa previa. (20,22) Consequently, most cases of vasa previa are diagnosed in the intrapartum period by:

- frank bleeding with membrane rupture,
- fetal vessels palpated on membrane surface during a vaginal exam (feels like a ridge or pulsating thread or rope), or
- variable fetal heart rate if the vessels are compressed by the presenting part. (2,4,19-22)

During any vaginal exam, especially prior to artificial rupture of membranes, consider the possibility of vasa previa and run finger over the membranes to identify the presence or absence of fetal vessels.

# MANAGEMENT OF ACUTE HEMORRHAGE BEFORE AND DURING LABOUR

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Some of the following management guidelines apply to situations where the midwife's assessment over the phone suggests that the client is experiencing antepartum or intrapartum hemorrhage. The usual expectation of a primary care giver is that an initial clinical assessment is conducted in person prior to consultation, except in cases of acute emergency.

Midwives need to be aware of appropriate assessments and differential diagnoses in situations where clients report varying degrees of blood loss and hemodynamic compromise. The degree of acuity will be determined by the midwife based on the entire clinical picture including, but not limited to, the amount of bleeding and/or pain, signs of maternal and fetal well-being, gestational age and risk factors.

In an emergent situation, many of the measures listed below should take place as simultaneously and as quickly as possible. The order may vary depending on the specific circumstances and resources available.

In either antepartum or intrapartum hemorrhage, do not perform a vaginal exam unless placenta previa has been ruled out by US. Ultrasound is one of the first steps of assessment if placental location is unknown.

## Acute Antepartum Hemorrhage

If the midwife is not in attendance but has assessed the APH to be acute and has determined the need to transfer to hospital by ambulance, the midwife should

- inform client of the urgency of the situation;
- advise client to move to recumbent position;
- call for help (see Chapter 1),
  - » the client (or support person) may call emergency medical services (EMS) herself, depending on level of compromise;
- notify receiving hospital, attend in hospital and facilitate rapid assessment and transfer of care as necessary;
- supply records to the receiving hospital; and
- document advice given.

## Acute Intrapartum Hemorrhage

If the midwife is not in attendance, follow the management steps outlined above.

If the midwife is in attendance, the midwife should

- move client to a left-lateral or right-lateral position;
- inform client, partner and second midwife/attendant of the urgency of the situation;
- call for help (see Chapter 1);

- institute resuscitative measures:
  - » provide oxygen to the mother at 8 to 10 L/min by non-rebreathing mask,
  - » start one or two 16 or 18 gauge angiocath IVs, bolus 1000 mL Ringer's lactate or normal saline, and
  - » draw blood for group, screen, crossmatch, CBC and Kleihauer-Betke. Consider drawing blood for clotting factors (PT, PTT, INR) if time permits;
- monitor maternal vital signs q 5 minutes (BP, pulse, respiration) and fetal heart tones as continuously as possible and start electronic fetal monitoring if in hospital;
- keep client warm;
- insert an indwelling urethral catheter (if time permits);
- continue to talk to the client and keep her focused and assess consciousness; and
- document assessments and actions as soon as possible.

Remember to check if Rh immune globulin is needed after APH.

SAMPLE

## SELF-TEST QUESTIONS

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1. What is the main cause of APH?

- A) Placenta abruption
- B) Placenta previa
- C) Vasa previa

2. Name 3 main complications of APH for the client.

- i) \_\_\_\_\_
- ii) \_\_\_\_\_
- iii) \_\_\_\_\_

3. Name 3 main complications of APH for the baby.

- i) \_\_\_\_\_
- ii) \_\_\_\_\_
- iii) \_\_\_\_\_

4. The differential diagnosis of placenta previa includes:

- A) Symptoms of shock
- B) Tense, tender uterus
- C) High presenting part
- D) All of the above
- E) A and C
- F) Only C

SAMPLE

Answers: 1. A; 2. Hypovolemic shock, Transfusion, Hysterectomy;  
3. Fetal hypoxia, Sudden fetal death, Premature delivery; 4. E

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**SAMPLE**