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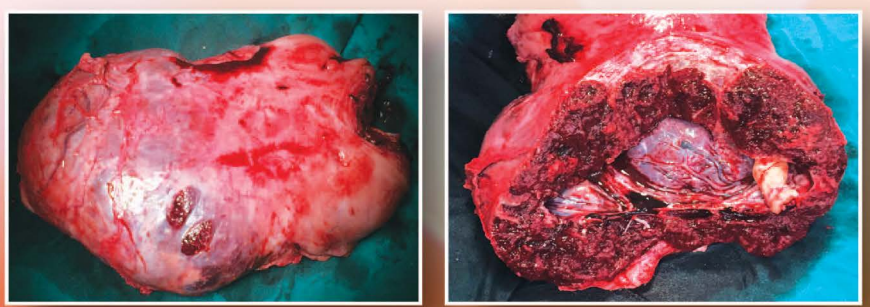
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ABNORMAL PLACENTATION



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CHAPTER 2

Antepartum Hemorrhage: Diagnosis and Consequences

Kartikeya Bhagat, Manohar Motwani

INTRODUCTION

Antepartum hemorrhage (APH) is a common problem which affects approximately 3–5% of all pregnancies. It accounts for 12–15% cases, major/severe hemorrhages leading to maternal mortality and morbidity. About half the cases of APH are due to placenta previa and 40% are because of Abruptio Placentae.[1-2] There has been a noticeable increase in significant APH because of increasing incidence of placenta previa, especially the placenta accreta spectrum disorders (PAS), probably as a consequence of increase in the pregnancies with scarred uterus as well as pregnancies resulting from assisted reproductive technology (ART). Significant APH affects maternal health in terms of increased risk of mortality as well as serious maternal morbidities including hypovolemic shock and obstetric hysterectomy. It is also an important cause of prematurity, fetal distress and perinatal mortality.

This article attempts to give a conceptual and practical road map/algorithm for the diagnosis and optimum management of APH, keeping in mind the common conditions.

DEFINITION

Bleeding from the genital tract in the second half of pregnancy or after the age of viability, which may vary from 24 to 28 weeks depending on the quality of care and infrastructure available so as to be able to give "intact survival" of the neonate. This age may vary from region to region, even in the same country. As far as India is concerned, practically it should be 28 weeks, but may be 24–26 weeks in institutes where excellent neonatal care facilities are available.

CAUSES OF ANTEPARTUM HEMORRHAGE

- Placenta previa
- Placental abruption
- *Local causes:* Excessive show, cervical ectropion/erosion, cervical polyp, local infection of cervix or vagina, trauma to cervix or vagina, vulvovaginal varicosities.
- *Uncommon causes:* Placental abnormalities, circumvallate placenta, vasa previa, rupture uterus, cervical intraepithelial neoplasia (CIN)/cancer cervix.

DIAGNOSIS

- Clinical findings are very important to determine the cause of bleeding though search for the cause could be tricky; amount of hemorrhage dictates not just the time and mode of delivery but also defines the prognosis for the mother and the baby (**Flowchart 1**).
- The cause can be ascertained with history, examination, and confirmed with investigations (**Flowchart 1**).
- The APH would be termed unexplained or indeterminate, if the cause is not found.
- Diagnosis is essentially clinical, especially if the APH is not significant.
- A simple speculum examination confirms the diagnosis of cervical erosion/polyp/CA cervix/cervicitis/local injury.
- Differential diagnosis would be placenta previa or abruption/accidental hemorrhage, if APH is significant (**Table 1**).
- Abruption is more likely to be related to conditions occurring during pregnancy and placenta previa is more likely to be related to conditions existing prior to pregnancy.[3] Approximately 70% cases of abruption occur in low-risk pregnancies (**Boxes 1 and 2**).[4]

CONSEQUENCES OF ANTEPARTUM HEMORRHAGE

- Multiple bouts of bleeding per vaginum (PV) may lead to anemia and may herald severe hemorrhage.
- Severe bout of bleeding PV may end up in hemorrhagic shock affecting maternal and fetal well-being.

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Flowchart 1: Algorithm showing initial approach towards patient with antepartum hemorrhage.

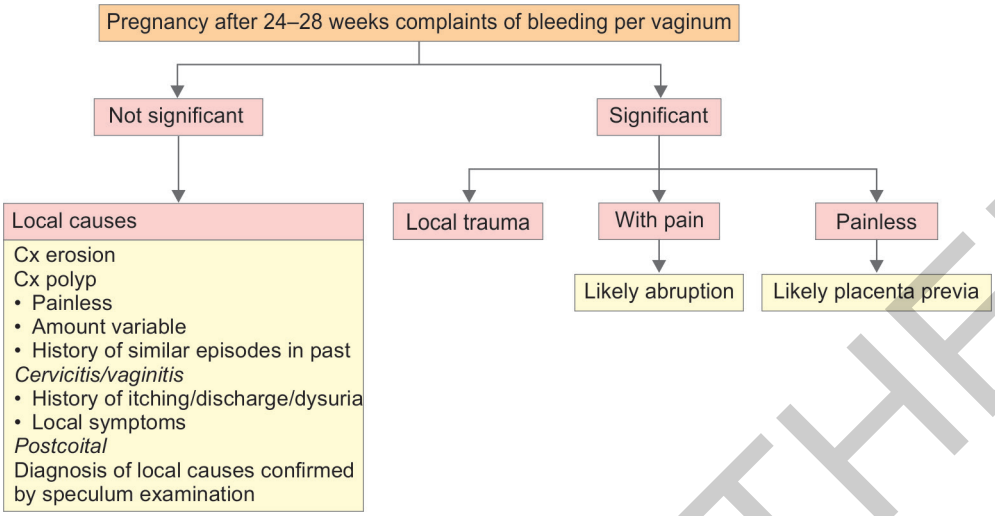


Table 1: Difference between placenta previa and abruption.

		Placenta previa	*Abruption*
History	*Bleeding PV* Color	Bright red	Usually dark
	Amount	Excess/gush of blood	*Amount may vary depending on the type:* Revealed or concealed
	Onset	Sudden, no premonitions	Sudden
	Similar episodes	Usually present	Absent, may give history of bleeding in 1st trimester
	Pain in abdomen	• Usually painless • *Early labor:* Periodic pain with period of relaxation in between	Usually present, abdominal, continuous
	PIH (hypertensive disorders in pregnancy)	No correlation	Usually present
	Trauma	No correlation	Blunt abdominal trauma
Examination	*General*	Pallor, signs of shock	Pallor, signs of shock out of proportion to the amount of blood loss
			Edema feet, signs of PIH
	Obstetric Uterus tone	Relaxed	Tense, no relaxation between pains
	Tenderness	Absent	Present
	Fundal height	Corresponding to the gestational age	May be raised
	Fetal parts	Usually well felt	May not be well felt because of the raised tone
	Fetal heart	Usually well heard	May be absent
	Malpresentations	Common, PP usually high floating	Uncommon
	Speculum examination	• *Bleeding confirmed:* Bright red, amount varies • Local causes ruled out • Os usually closed	• *Bleeding confirmed:* Darkish—may be red, amount varies • Local causes ruled out • Os may be dilated
	PV examination	Not recommended, gentle fornicial examination may be done by an experienced obstetrician in a set up with facilities for emergency CS	Should be performed, ARM recommended

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		Placenta previa	*Abruption*
Investigations	Biochemistry	• To confirm anemia • To rule out bleeding diathesis (platelet count, PTT) • Kleihauer-Betke test in Rh-negative mothers • Preoperative investigations, if delivery imminent	• To confirm anemia • Investigations for hypertensive diseases in pregnancy to rule out organ damage and r/o coagulopathy • Kleihauer-Betke test in Rh-negative mothers • Preoperative investigations, if delivery imminent
	Ultrasonography	To confirm the placental site/location and adhesions, gestational age and fetal well-being	To localize placenta, confirm retroplacental hemorrhage (may not be seen), gestational age, fetal viability and well-being

(PV: per vaginum; PIH: pregnancy-induced hypertension; PP: presenting part; CS: cesarean section; ARM: artificial rupture of membranes; PTT: partial thromboplastin time; r/o: rule out)

Box 1: Risk factors for placenta previa.

- Previous placenta previa
- Previous cesarean sections one, 2.2; two, 4.1; three, 22.4 (Odds ratio)
- Previous termination of pregnancy
- Multiparity
- Advanced maternal age (>40 years)
- Multiple pregnancy
- Large placenta
- *Placental pathology:* Marginal cord insertion, succenturiate lobes
- Smoking
- Assisted conception, assisted reproductive technology
- *Deficient endometrium:*
  - Uterine scar
  - Endometritis
  - Manual removal of placenta
  - Curettage
  - Submucous fibroid

- Associated medical condition, especially hypertensive disorders of pregnancy, may put the patient at risk of coagulopathy and eclampsia.
- Repeated bouts of bleeding PV may warrant prolonged hospitalization and early delivery which may put strain on resources of the family in terms of manpower and finances.
- Patients with placenta previa are likely to undergo surgical procedures–cesarean section and additional surgical procedures like stepwise devascularization, internal iliac ligation and obstetric hysterectomy. They are at a higher risk of having adherent placenta or PAS and the complications associated with them (**Box 3**).
- Prognosis of the baby depends on gestational age, condition at birth, and extent of treatment the baby requires (**Box 4**).

Box 2: Risk factors for abruption.

- Most predictive is abruption in a previous pregnancy
- First trimester bleeding, presence of a hematoma
- Preeclampsia, hypertensive diseases in pregnancy
- Advanced maternal age
- Polyhydramnios
- Malpresentations
- Multiple pregnancies
- Multiparity
- Low body mass index (BMI)
- Pregnancy following assisted reproductive technologies
- Intrauterine infection (chorioamnionitis)
- Premature rupture of membranes
- Abdominal trauma (both accidental and resulting from domestic violence)
- Smoking and drug misuse (cocaine and amphetamines)
- Unexplained elevated maternal serum AFP levels in 2nd trimester
- Hyperhomocystinemia
- Thrombophillia (heterozygous Factor V Leiden or heterozygous prothrombin 20210A)

Box 3: Maternal consequences of antepartum hemorrhage.

- Anemia
- Shock and sequalae–acute kidney injury, hypoxic encephalopathy, multiorgan dysfunction, ARDS
- DIC
- Increased risk of operative delivery
- Additional surgical procedures and obstetric hysterectomy
- Risks of multiple blood transfusions
- Prolonged hospitalization and ICU stay
- Risk of recurrence in future pregnancies
- Risks associated with PAS, hypertensive disorders

(ARDS: acute respiratory distress syndrome; ICU: intensive care unit; DIC: disseminated intravascular coagulation; PAS: placenta accreta spectrum)

Box 4: Fetal consequences of antepartum hemorrhage.

- Intrauterine fetal death
- Shock, resuscitation
- Anemia
- Prematurity and all the related problems
- Prolonged hospitalization

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- Antenatal steroids should be given, whenever possible, to improve neonatal outcome.
- Anti D should be used when required–dose to be calculated depends on the amount of fetomaternal hemorrhage determined with the Kleihauer-Betke test.
- Risk of APH increases in subsequent pregnancies.

SCREENING STRATEGY

- *1st trimester scan:* Increased uterine artery resistance and pregnancy-associated plasma protein-A (PAPP-A) values are risk factors for preeclampsia.
- History of bleeding PV in the 1st trimester and presence of a subchorionic hematoma increase the risk of APH.
- *Anomaly scan:* Check the placental location. If the placenta is within 2 cm of the internal os, repeat the scan at 32 weeks to reconfirm the diagnosis. Monitor placental migration. Check for placental invasion, especially if the placenta is anterior with history of cesarean scar—the risk increasing with the number of previous cesareans.
- If the uterine artery in earlier scans showed increased resistance:
  - Repeat scan at 32 weeks, localize the placenta and check for signs of adhesion/invasion especially if the placenta is anterior in a case of previous CS.
  - Look for signs/symptoms of preeclampsia.
  - Frequent visits and scans as required.
- *If bleeding PV:* Follow the algorithm.
- The recommended timing of delivery in patients with placenta previa is 36–37 weeks with a rescue dose of steroids in asymptomatic women and 34–35 weeks in symptomatic women (or earlier if maternal hemodynamic compromise).

CONCLUSION

Antepartum hemorrhage is not an uncommon complication of pregnancy. Being aware of predisposing risk factors, careful follow-ups, ordering specific tests at the right time, aggressive management in case of bleeding PV, timely decision to deliver the baby and of course the infrastructure for maternal resuscitation, facilities for blood transfusion, and neonatal care improves outcomes and minimizes morbidity and mortality.

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