# Placenta Previa

*Placental implantation over or close to cervical os, occurring in 0.5% of pregnancies and potentially resulting in massive hemorrhage requiring simultaneous assessment & management*

**ANESTHETIC CONSIDERATIONS:**

1. Considerations of the pregnant patient:
   - 2nd passenger – two patients requiring monitoring & potential resuscitation
   - Altered anatomy w/ potential difficult airway
   - Aspiration risk
   - Altered physiology w/ decreased FRC, rapid desaturation & aortocaval compression
   - Altered response to anesthetics
2. Complications of Placenta Previa:
   - Massive hemorrhage, DIC, & transfusion
   - Maternal & fetal morbidity & mortality
   - Risk of placenta accreta

**ANESTHETIC GOALS:**

1. Optimize uteroplacental perfusion
2. Maintain adequate circulating blood volume and coagulation factors
3. Clear lines of communications regarding ongoing hemodynamics & coagulation status
4. Maintain hematocrit
5. Avoid hypothermia
6. Dialogue with surgeons about diagnosis and options for surgical control

**HISTORY**

- If the patient has attended pre-natal care, placenta previa should be diagnosed already
- Hx / PE may be limited d/t emergent conditions and should be directed to evaluating urgency of intervention:
  - Non-reassuring FHR
  - On-going blood loss
  - Maternal hypotension
  - **Any of these 3 = urgent / emergency and may r/o RA**

- AMPLE at minimum, if time permits, standard obstetrical anesthetic history as well as:
  - S&S:
    - Painless vaginal bleeding
    - Lack of abdominal pain or uterine contractions help differentiate from placental abruption (however, this can co-exist in ~10%)
  - Assessment for placenta accreta:
    - 5% of pts w/ previa have accreta
    - 25% of pts w/ previa and 1 prior C/S have accreta
    - 50% of pts w/ previa and 2 prior C/S have accreta
    - 67% of pts w/ previa and > 3 prior C/S have accreta

**PHYSICAL**

- **HEENT -** Mallampati class, ease of intubation
- **CVS -** Tachycardia, hypotension
- **UTERUS / VAGINA –** painless vaginal bleeding, non-tender uterus, abnormal tone, avoid vaginal exams (bleeding)
- **TABLE 37-1 -- STAGING SCHEME FOR ASSESSMENT OF OBSTETRIC HEMORRHAGE**

| Severity of shock | Findings | % Blood loss |
|---|---|---|
| None | None | <15% to 20% |
| Mild | Tachycardia (<100 bpm) | 20% to 25% |
| | Mild hypotension | |
| | Peripheral vasoconstriction | |
| Moderate | Tachycardia (100 to 120 bpm) | 25% to 35% |
| | Hypotension (SBP 80 to 100 mm Hg) | |
| | Restlessness | |
| | Oliguria | |
| Severe | Tachycardia (>120 bpm) | >35% |
| | Hypotension (SBP <60 mm Hg) | |
| | Altered consciousness | |
| | Anuria | |

- *In Creasy RK, Resnik R, editors. Maternal-Fetal Medicine, 3rd ed. Philadelphia, WB Saunders, 1994:865–90.*

**INVESTIGATIONS**

- **Labs** immediately drawn:
  - CBC for Hb
  - X-match
  - DIC investigation: PLT, INR, PTT, fibrinogen, FDP
- **Imaging**
  - Fetal U/S for diagnosis, confirmation & localization of placenta
- **Special**
  - FHR & tocodynometry, (non-stress test, BPP & bedrest if expectant mgmt)

**OPTIMIZATION**

- Maternal & fetal resuscitation:
  - Supplemental $O_2$ (improves fetal oxygenation)
  - IV Fluid Bolus (improve uteroplacental perfusion)
  - LEFT LATERAL DECUBITUS positioning (avoid aortocaval compression)
  - Ephedrine / phenylephrine for hypotension (in addition to volume)
  - Uterine tone:
    - Stop oxytocin
    - Consider tocolytics (NTG 50 mcg boluses, $MgSO_4$, beta-2 agonists) but controversial
  - Consider betamethasone if 28-32 weeks
  - OR prep:
    - Mobilization of resources - RNs, surgeon, prep & drape
- Topicalization of A/W if AFOI likely
- Aspiration prophylaxis
- If elective, consider preoperative blood conservation strategies
- Definitive management = delivery of the fetus and placenta
- Delivery may be delayed to allow fetal lung maturity if fetus < 34 wks w/ min bleeding & no fetal distress
- Expectant mgmt is terminated when:
  - Active labour
  - Documented fetal lung maturity
  - GA = 37wks
  - Excessive bleeding, pre-eclampsia etc.

**ANESTHETIC OPTIONS**

- Major decision point: options will be limited by:
  - Fetal distress
  - Hypovolemia
  - Hemorrhage
- Emergent C/S GA if any of above r/o RA
- Elective C/S is appropriate in patient w/ no fetal distress & minimal bleeding BUT surgical time is potentially prolonged d/t difficulties in separating the placenta
- None – expectant mgmt if bleeding subsides – goal is to delay delivery until fetus is mature

**ANESTHETIC SETUP**

- **Drugs**
  - Standard emergency drugs & inotrope / pressor infusions
- **Equipment**
  - CAS monitors + 5-lead ECG
  - 2nd set of skilled hands if hemorrhage
  - Multiple large bore IVs
  - Warmers & rapid infusion device
  - +/- Art-line for elective cases & ASAP in emergent cases

**MANAGEMENT OF ANESTHESIA**

- **Induction**
  - Aspiration prophylaxis, RSI w/ cricoid or awake depending on a/w
  - Be prepared for occult hemorrhage resulting in hypotension post induction - consider ketamine 0.5-1.0 mg/kg or Etomidate 0.3mg/kg instead of STP or propofol for induction
  - Elective? - consider duration of surgery in RA technique – spinal vs. epidural vs. CSE
- **Maintenance**
  - Low-concentration inhalational agent 0.5-0.75 MAC before delivery
  - 50% N2O/O2 if min bleeding, no fetal distress
  - Increase N2O, use small dose narcotic & d/c volatile if uterine atony
  - Evaluate urgency of delivery and prepare for:
    - Massive blood loss w/:
      - At least 2 large-bore IVs
      - PRBCs
      - Coagulopathy: FFP, PLT, Cryoprecipitate or Factor replacement
    - Requirement for multiple uterotonic agents:
      - Oxytocin boluses and infusion

        - Hemabate
        - Ergot
    - Requirement for emergent hysterectomy or uterine artery ligation (**bleeding should stop w/ placental separation - otherwise consider placenta accreta**)
- **Emergence**
    - Extubate awake; greatest risk is pulmonary aspiration of gastric contents

**DISPOSITION & MONITORING**

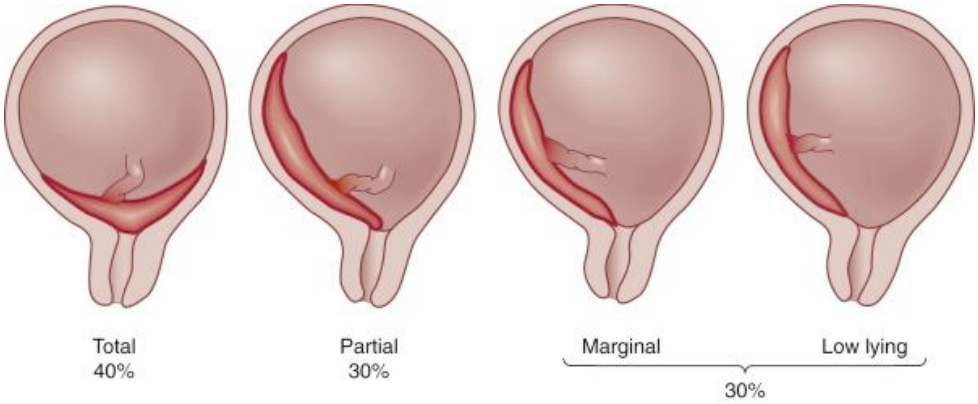
- Depends on degree of hemorrhage
- ICU monitoring indicated with prolonged hypotension, coagulopathy, massive transfusion

**COMPLICATIONS**

- Uncontrollable hemorrhage, DIC & massive transfusion in face of unrecognized placenta accrete
- Risk intraop blood loss for three reasons:
    - Obstetrician may cut into placenta
    - Lower uterine segment implantation site doesn't contract as well as normal fundal implantation
    - Increased risk accreta

**PATHOPHYSIOLOGY**

- Definition = placental implantation over or close to cervical os
- 1:200 deliveries
- **Presentation = painless vaginal bleeding in the 3rd trimester - any painless vaginal bleeding in 3rd trimester is considered previa until proven otherwise**




- **Miller 7th : Figure 69-17**: Types of placenta previa
    - Total: placenta completely covers the os
    - Partial: placenta covers part, but not all of the cervical os
    - Marginal: placenta lies close to, but does not cover cervical os
- **Risk Factors:**
    - Multiparous
    - Uterine scar:
        - D&C, C/S, VBAC
        - Previous previa
        - Age > 30
        - ? h/o abortion
- Multiple RF increase risk logarithmically up to 400x
- Historically, previas were diagnosed using a double setup after presenting w/ bleeding but now almost all are diagnosed w/ U/S
- Most previas diagnosed in early gestation by U/S resolve by the 3rd trimester as the uterus grows and carries the placenta away from the os:
    - Asymmetrical = 98% resolution
    - Symmetrical = 25% resolution
- Blood loss can be minimal or massive and life-threatening
- Massive hemorrhage requires expeditious delivery b/c hemorrhage won't stop until fetus AND placenta are delivered

**REFERENCES:**

Miller 7th ed. Ch 69
Chestnut 3rd ed. Ch 37
Old seminars