Placental and Umbilical Cord Complications

Instructor: Karen Harmon, MSN, CNS, RNC-OB, C-EFM
Outline: Frann Teplick, MSN, RN-BC, CNS

Placental Complications

- Placenta Previa
- Abruptio Placentae
- Placenta Accreta, Increta, Percreta
- Velamentous Cord Insertion
- Vasa Previa
Placenta Previa

- **Definition**
  Abnormal implantation over or near the cervical os

- **Types**
  - Total or Complete
  - Partial
  - Marginal/Low-lying
Placenta Previa: 
Risk Factors

- Prior previa
- Uterine scar
- Short interval between pregnancies
- Advanced maternal age
- Multiple gestation
- Large placenta
- Minority race
- Smoking

Placenta Previa: 
Clinical Findings

**Painless** Uterine Bleeding

May be intermittent or continuous bright red bleeding

Placenta Previa: 
Management

Management is dependent on gestational age and extent of bleeding

- Preterm with no active bleeding
- Stable term 36-38 weeks
- Previa complicated by severe hemorrhage- term or preterm
Preterm: no active bleeding...
- “Expectant Management”
- Tocolysis
- Autologous donation
- Lab work
- Initial hospitalization
  **GOAL: Sustain pregnancy!**

Stable term 36-38 weeks...
- Assess fetal lung maturity
- Tocolysis
- Schedule C/S
  **Goal: Await pulmonary maturity**

Previa with severe hemorrhage: term or preterm...
- Immediate delivery by C/S
- Prepare for maternal blood transfusion
- Have team ready for possible infant resuscitation
  **Goal: Rapid response to ensure positive outcome.**
Abruptio Placentae

**Definition:**
Separation of the placenta from the uterine wall before delivery of fetus

**Classifications:**
- Complete
- Partial
 Abruptio Placentae: 
**Risk Factors**

- Previous abruption
- Hypertensive disorders
- Smoking
- Multiparity
- Illicit drug use
- Abortions
- Short umbilical cord
- Abdominal trauma
- Decompressive amnio
- PROM
- Multiple gestation
- Supine hypotension

 Abruptio Placentae: 
**Clinical Findings**

**Pain with or without uterine bleeding**

- Small to moderate amt dark or bright red bleeding
- Acute pain
- Uterine tenderness
- "Board-like" abdomen
- High frequency, low amplitude contractions
- Fetal distress

 Abruptio Placentae: 
**Maternal Complications**

- Shock
- Renal failure
- Consumptive coagulopathy
- Couvelaire uterus
Abruptio Placentae: Management

**Depends upon gestation age, maternal status & fetal condition**

- Type & X-match
- Continuous fetal monitoring
- Pad counts/ or weigh chux
- 1-2 large bore IV's

---

Abruptio Placentae: Management (cont.)

Depending on the status of the patient and fetus...

- Manage expectantly
- Vaginal delivery with concentrated monitoring
- Emergent C/S

---

Placenta Accreta, Increta, Percreta

**Definition:** Abnormal placental implantation where there is an abnormally firm adherence to the uterine wall

**Three types:**
- Accreta
- Increta
- Percreta
Risk Factors

- Previous C/S
- Placenta previa
- Implantation in the lower uterine segment
- Uterine malformations
- Infection
- Fibroid tumors
- Multiparity

Management

- Diagnose early/be proactive
- Suspect if delayed placental separation
- Activate OB Hemorrhage Protocol
- Possible emergency hysterectomy

BE PREPARED!!!
**Umbilical Cords Structure and Function**

- Extends from fetal umbilicus to fetal surface of the placenta.
- Covered by amnion.
- Three umbilical vessels: 1 large vein (oxygenated blood), 2 smaller arteries (de-oxygenated blood).
- Wharton jelly covers cord.
- Vessels spiral in cord.

**Cord Length**

- Normal cord range: 30-100 cm
- Average length: 55 cm
- Can range from no cord to 300 cm
- Length influenced by volume of amniotic fluid
- Fetal mobility

**Nuchal Cord**

- One loop in 21% of all deliveries.
- Impedes blood flow.
- Fetal Heart Rate Changes
- Uncommon cause of fetal death or morbidity.
- May impede descent.
**True Knot**
- Approximately 1% of all deliveries
- Distinguish from *false* knot
- More common with long cords and monoamniotic twins
- Cord occlusion: 6% fetal death

**Two Vessel Cord**
- Absence of one umbilical artery
- Singletons: 0.85%
- Increased incidence with Twins - Placental Abnormalities
- Diabetes - Hydramnios
- Smokers
- Associated with congenital anomalies approximately 30% of the time.
- Associated with IUGR and preterm delivery

**Cord Prolapse**
- Imperfect adaptation between the presenting part and the pelvic inlet.
- Fetal blood supply may be compromised.
- Incidence Cephalic: 1 in 250 deliveries
- Frank breech: 1 in 200 deliveries
- Footling breech: 1 in every 5 or 6 deliveries
Management

- Oxygen
- Lift presenting part.
- Knee-chest or Trendelenburg
- Prompt Delivery Fill bladder?
- Toclytics?

Abnormalities of Cord Insertion

- Marginal Insertion
- Velamentous Cord Insertion
- Vasa Previa

Velamentous Insertion of Cord & Vasa Previa

**Velamentous insertion:**
Fetal vessels separate in the membranes before reaching the placenta

**Vasa Previa:**
Due to velamentous insertion, the vessels cross the region of the internal os and present ahead of the fetus
Danger Signs...
Rupture of the unprotected fetal vessels could occur with ROM, artificial or spontaneous.

- Bright red blood
- Fetal tachycardia
- >>>Fetal exsanguination and death

Retained Placenta Tissue

Definition:
Inability of the uterus to involute normally due to tissue fragments
Management of Retained Placental Tissue

1. Placental examination
2. Fundal massage
3. Methergine &/or Hemabate
5. Prep for D&C
6. Prophylactic antibiotics

UCSD Medical Center
High Risk OB Standard:
Vaginal Bleeding

- Undelivered Patient
- Delivered Patient

OB Hemorrhage Protocol

**POLICY STATEMENT:**

- The OB Hemorrhage Protocol will be initiated to ensure immediate delivery of red blood cells to patients in immediate need of additional blood oxygen-carrying capacity.
- The OB attending physician will initiate the OB Hemorrhage Protocol for the management of the patient.
- CNM patients requiring the OB Hemorrhage Protocol will be transferred to MD service.
- If the OB Hemorrhage Protocol is initiated outside L&D, a Code Pink will be called.
- For the purposes of this procedure, "OB Hemorrhage" is defined as a quantity and rate of blood loss sufficient to rapidly result in shock and, in the judgment of the physician, requires the immediate availability of un-cross-matched blood. The attending physician or nursing staff may recognize this condition.
OB Hemorrhage Protocol: RESPONSIBILITIES AND PROCEDURES

OB Nursing Staff

1. General: nursing staff (or the physician in attendance) will recognize puerpbral hemorrhage (PPH) and notify the senior house staff, attending physician and a charge nurse. Nursing staff will also facilitate the delivery and administration of blood products (see below) as the OB Hemorrhage Protocol is initiated.

2. When the protocol is ordered/initiated by the OB attending physician or his/her designee, the charge nurse will:
   a. Inform the unit secretary of the emergency
   b. Ensure the completion of the “Request for Emergency Blood” form D460 (4-06).
   c. Ensure the delivery of the “Request for Emergency Blood” form to the blood bank by a designated courier.
   d. Blood to be drawn from patient:
      - 7 ml purple top to Blood Bank with “Request for Emergency Blood” form
      - A clotted blood specimen will be drawn for the blood bank regardless of whether or not there may be a previous specimen in the blood bank.
      - Small lavender top to Hematology for CBC w/diff
      - Small blue top to Hematology for coagulation profile/ DIC panel (PT, PTT, fibrinogen)
      - 7 ml red top for “wall clot”

3. Charge nurse will notify the remaining on-duty nursing staff of OB Hemorrhage Protocol.

4. Charge nurse will appoint an individual with the sole responsibility of communicating with the blood bank (normally the unit secretary).

5. Charge nurse will assign a separate individual whose sole responsibility is transporting blood products. This individual (who may be a tech or a hospital assistant) will be dispatched to the blood bank with the blood specimen and the completed “Request for Emergency Blood” form, and will pick up 4 Units Group 0 negative PRBC from the blood bank.

6. Charge nurse will ensure that unused units of blood and plasma will be returned to the blood bank within 30 minutes.

7. At the direction of the OB attending, the unit secretary will notify the blood bank of cancellation of the OB hemorrhage protocol.

OB Hemorrhage Protocol: RESPONSIBILITIES AND PROCEDURES

Attending Physicians

1. OB attending will initiate the OB hemorrhage Protocol. The “Request for Emergency Blood” form may be signed by other MD present if attending is unable to sign.

2. OB attending will assume responsibility for management of the patient.

3. OB attending, through the individual designated by the charge nurse, will keep the Blood Bank informed of ongoing and projected needs in blood component support.

4. OB attending will cancel the OB Hemorrhage Protocol when indicated.

5. OB Anesthesia Staff/Attending will assist the OB attending in determining the optimal hemodynamic and blood component support of the hemorrhaging patient.
   * On the initiation of the OB Hemorrhage Protocol, the Anesthesiology Resident will be called to the patient’s bedside (via Code Pink if outside L&D) and the Anesthesiology Attending will be notified.
OB Hemorrhage Protocol:
RESPONSIBILITIES AND PROCEDURES
Blood Bank Staff

1. Upon receipt of the properly completed form and blood specimen will prepare:
   4 units of Group O, Rh Negative PRBC for immediate transport to L&D.
   On rare occasions, the blood specimen may not be submitted along with
   the PRBC, but should be available promptly and in any case before the
   first unit is infused.
2. The Blood Bank staff will begin thawing 2 units of Fresh Frozen Plasma.
3. The Blood Bank staff will notify the unit of additional needs regarding
   blood specimens for additional cross-matching, difficulties with blood
   compatibility, and shortages of specific blood components.
4. When time permits, the Blood Bank tech will make available type-
   specific (or ABO compatible) uncrossmatched blood, then type-specific
   (or ABO compatible) cross matched blood, and type-specific plasma.

Placental Complications

Questions or Comments??