Placenta Accreta

Abnormally adherent placenta potentially resulting in massive hemorrhage & emergent hysterectomy requiring simultaneous assessment & management. Classification is dependent on depth of invasion.

ANESTHETIC CONSIDERATIONS:

1. Potentially life threatening situation with potential for significant maternal and fetal morbidity and mortality. (NICU/ICU consult)
2. Considerations of the pregnant patient (except 2nd passenger):
   - Altered anatomy w/ potential difficult airway
   - Aspiration risk
   - Altered physiology w/ decreased FRC, rapid desaturation & aortocaval compression
   - Altered response to anesthetics
   - Hyperocoagulable state
3. Complications of Placenta Accreta:
   - Massive hemorrhage, DIC, & transfusion
   - Potential for STAT life-saving hysterectomy

ANESTHETIC GOALS:

1. Preoperative optimization: discuss with surgeons re: diagnosis and options for surgical control including pelvic (bilateral uterine arteries or anterior divisions of the internal iliac) artery balloon occlusion/transcatheter embolisation, bilateral uterine/hypogastric artery ligation (success rate ~ 40%), hysterectomy
2. Optimise uteroplacental perfusion by maintaining maternal hemodynamics
3. Anticipate and treat complications of massive transfusion: Prevent coagulopathy, restore depleted/diluted/consumed clotting factors, monitor fibrinogen/replace with cryoprecipitate, consider rFVIIa, replace platelets, avoid hypothermia

HISTORY

- Should be either diagnosed by U/S pre-partum or suspect in:
  - Placenta previa
  - Previous C/S or uterine trauma
  - PPH that won't stop bleeding
- Hx / PE may be limited d/t emergent conditions and should be directed to evaluating urgency of intervention:
  - On-going blood loss
  - Maternal hypotension
  - **Any of these 2 = urgent / emergency and may r/o RA**
- AMPLE at minimum, if time permits:
  - Standard obstetrical anesthetic Hx & PE
  - 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**
  - Vaginal bleeding, hypotension, tachycardia, low CVP & wedge pressures
- **RENAL**
  - Signs of hypovolemia, decreased u/o
- **UTERUS / VAGINA**
  - Tender, firm uterus; vaginal bleeding may be < CV signs and symptoms, indicating concealed hemorrhage

- **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)	

Severity of shock	Findings	% Blood loss
	Altered consciousness	
	Anuria	

INVESTIGATIONS

- **Labs** immediately drawn:
  - CBC for Hb
  - X-match
  - DIC investigation: PLT, INR, PTT, fibrinogen, FDP
- **Imaging**
  - U/S sensitivity and specificity is 85%
  - MRI has sensitivity up to 97% and is often used if U/S is not clear
- **Special**
  - FHR & tocodynometry in known pre-delivery

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)
  - Consider betamethasone if 28-32 weeks
  - OR prep:
    - Mobilization of resources - RNs, surgeon, prep & drape
    - Two Obstetricians scrubbed
- Topicalization of A/W if AFOI likely
- Aspiration prophylaxis
- If elective, consider preoperative blood conservation strategies
- Radiologic placement of uterine artery balloons pre-elective C/S

ANESTHETIC OPTIONS

- GA vs Neuraxial
- Options will be limited by:
  - Hypovolemia
  - Hemorrhage
- Epidural not adequate for 3 reasons:
  - Operative time twice as long
  - Intraperitoneal manipulation, dissection, traction exceeds normal C/S = pain/nausea/vomiting
  - Absolutely quiet operative field for careful dissection engorged vasculature
- **~30% of RA cases w/ CSE required conversion to GETA intra-op**

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
  - Pre-induction art-line

MANAGEMENT OF ANESTHESIA

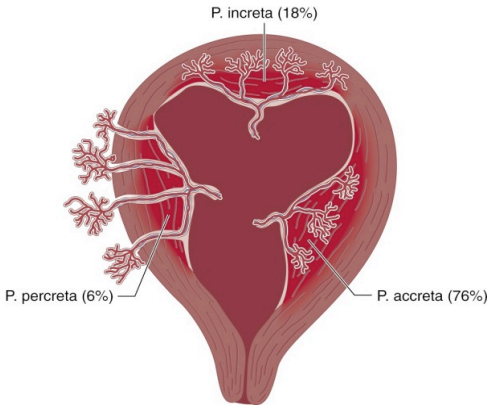
- **Induction**
  - Be prepared for hemorrhage resulting in hypotension post induction - consider ketamine 0.5-1.0 mg/kg or Etomidate 0.3mg/kg instead of STP or propofol for induction
- **Maintenance**
  - Elective? - consider duration of surgery in RA technique - Spinal vs. epidural vs. CSE
  - Evaluate urgency and prepare for:
    - Massive blood loss:
      - At least 2 large-bore IVs
      - PRBCs
      - Coagulopathy: FFP, PLT, Cryoprecipitate or Factor replacement
    - Requirement for:
      - Balloon uterine arteries
      - Clamp uterine arteries
      - Emergent hysterectomy
      - X-clamp aorta
- **Emergence**
  - Extubate awake in monitored setting

DISPOSITION & MONITORING

- ICU monitoring indicated with prolonged hypotension, coagulopathy, massive transfusion

COMPLICATIONS

- Inability to separate placenta from uterus w/ massive blood loss & need for hysterectomy
- Risk intraop blood loss for three reasons:
  - Cut into placenta
  - Lower uterine segment implantation site doesn't contract as well as normal fundal implantation
  - Increased risk accreta



PATHOPHYSIOLOGY

- Normally found in 1:2000 deliveries
- Up to 7% maternal mortality
- Incidence increases in pts w/ previa + previous C/S:
  - 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 accrete

- Classification based on depth of invasion:
  - Vera - surface of myometrium
  - Increta - into myometrium
  - Percreta - through myometrium into uterine serosa or other tissues

- Pathophysiology:
  - Normally decidua basalis forms the interface and cleavage plane between placenta and myometrium
  - In accreta, the placenta implants and grows directly on or into the myometrium
  - After delivery, there is incomplete separation of the placenta resulting in on-going blood loss

- Treatment ranges from D&C (often doesn't work) to emergent hysterectomy
- Preoperative diagnosis made w/ U/S and w/u of MRI can allow pre-op iliac artery balloon catheter placement so that if needed blood flow to the uterus can be stopped

- Emergent cesarean hysterectomy:
  - Average blood loss = 2500
  - Average transfusion requirements = 6.6 units
  - 25% have DIC

- Elective cesarean hysterectomy:
  - Average blood loss = 1300
  - Average transfusion requirements = 1.6 units

REFERENCES

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