

Uterine Rupture

Rupture of the uterus is a life-threatening emergency resulting in massive hemorrhage requiring simultaneous assessment & management

ANESTHETIC CONSIDERATIONS:

1. Considerations of the Pregnant Pt:
 - 2 patients
 - potentially difficult airway
 - rapid desaturation due to increased O₂ consumption and decreased FRC
 - aspiration risk and rapid sequence induction
 - aortocaval compression
 - physiologic changes of pregnancy
2. Complications of Rupture:
 - Massive hemorrhage, DIC, & transfusion
 - Maternal & fetal morbidity & mortality

ANESTHETIC GOALS:

1. Optimize uteroplacental perfusion
2. Maintain adequate circulating blood volume and coagulation factors
3. Clear lines of communication with surgical team regarding ongoing HD & coagulation status

HISTORY

- Hx / PE may be limited d/t emergent conditions and should be directed to evaluating urgency of intervention:
 - Non-reassuring FHR = **most common sign but non-specific**
 - On-going blood loss
 - Maternal hypotension
 - Coagulopathy
 - **Any of these 4 = urgent / emergency and may r/o RA**
- AMPLE at minimum
- Presentation:
 - Normal patient:
 - Vaginal bleeding
 - Severe abdominal pain +/- shoulder pain (**rare & late symptom**)
 - Absent FHR
 - Hypotension
 - Easily palpable fetal parts
 - Oblique or transverse fetal lie
 - Inability to palpate fundal edge
 - VBAC patient:
 - Vaginal bleeding
 - Absence of pain
 - Change in uterine contractility or tone
 - Change in FHR
 - Easily palpable fetal parts
 - Oblique or transverse fetal lie
 - Inability to palpate fundal edge

PHYSICAL

- **HEENT**
 - Mallampati class, ease of intubation
- **CVS**
 - Tachycardia, hypotension
- **GU**
 - Rigid abdomen if not receiving epidural anesthesia

INVESTIGATIONS

- **Labs** immediately drawn:
 - CBC for Hb
 - X-match
 - DIC investigation: PLT, INR, PTT, fibrinogen, FDP
- **Special**
 - FHR & tocodynametry

OPTIMIZATION

- Maternal & fetal resuscitation:
 - Supplemental O₂ (improves fetal oxygenation)
 - IV Fluid Bolus (improve uteroplacental perfusion)
 - LEFT LATERAL DECUBITUS positioning (avoid aortocaval compression to optimize placental perfusion)
 - Ephedrine / phenylephrine for hypotension (in addition to volume)
 - Uterine tone

- Stop oxytocin
 - Consider tocolytics (NTG 50 mcg boluses, MgSO₄, beta-2 agonists)
 - Consider steroids if 24-32 weeks
 - **OR prep:**
 - Mobilization of resources - RNs, surgeon, prep & drape
 - Aspiration prophylaxis
 - Topicalization of A/W if AFOI likely

ANESTHETIC OPTIONS

- Emergent C/S / laparotomy requires GA

ANESTHETIC SETUP

- **Drugs**
 - Standard emergency drugs & inotrope / pressor infusions
- **Equipment**
 - CAS monitors + 5-lead ECG
 - 2nd set of skilled hands
 - Multiple large bore IVs
 - Warmers & rapid infusion device
 - Art-line & central access time permitting

MANAGEMENT OF ANESTHESIA

- **Induction**
 - RSI with cricoid
 - Be prepared for occult hemorrhage resulting in hypotension post induction - consider ketamine 1-1.5 mg/kg instead of STP for induction
 - In severe cases consider intubation with SCh only
- **Maintenance**
 - 100% oxygen pre-delivery
 - Consider low-dose halogenated agents if hemodynamically stable until delivery to decrease incidence of maternal recall
 - 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 emergent hysterectomy or uterine artery ligation
 - After delivery, when blood volume restored, consider narcotics, muscle relaxants as indicated
 - Neonate may require intensive resuscitation at birth
- **Emergence**
 - Awake

DISPOSITION & MONITORING

- EBL: ~3-6 L
- Pain score: 6-8; consider postoperative epidural or epidural PCA

COMPLICATIONS

- Massive hemorrhage & transfusion

PATHOPHYSIOLOGY

- Most commonly occurs intra-partum, but can also occur pre- and post- partum
- Rare but potentially catastrophic w/ maternal and fetal mortality
- Incidence has increased from 1% to 3% over the past 10 yrs
- Causes:
 - Uterine scarring = 10x increase in rupture
 - Previous C/S:
 - Classical incision (weaker) > transverse incision (connective tissue)
 - If rupture occurs:
 - Neonatal mortality increases 10x
 - Peripartum hysterectomy increases 500x
 - Transfusion likelihood increases 50x
 - Myomectomy scar
 - Tumultuous labor
 - Prolonged labor w/ cephalopelvic disproportion (CPD) + oxytocin use
 - Trauma or iatrogenic rupture
- Non-scar uterine rupture increases maternal mortality