

Obstetric Hemorrhage

James W. Van Hook, MD

Department of Obstetrics and Gynecology

The University of Texas Medical Branch

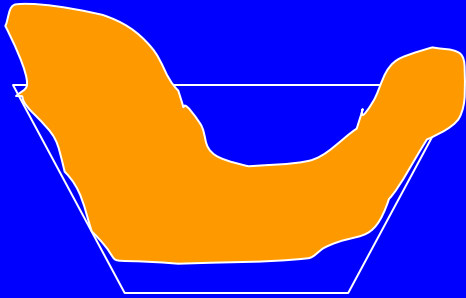
Lecture Organization

- **Antepartum hemorrhage**
 - **Placenta previa**
 - **Vasa previa**
 - **Abruptio placenta**
- **Postpartum bleeding**
 - **Uterine atony**
 - **Laceration**
 - **Uterine inversion**
 - **Other**

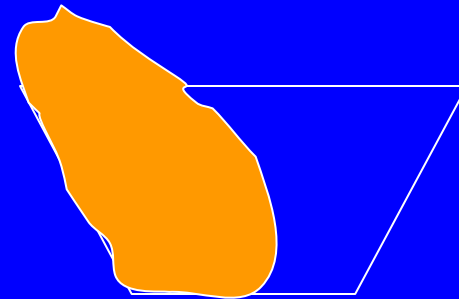
Placenta Previa Definition

- **Total-** internal os covered by placenta
- **Partial-** internal os partially covered by placenta
- **Marginal-** the edge of placentas at the margin of the internal os
- **Low lying-** near the internal os

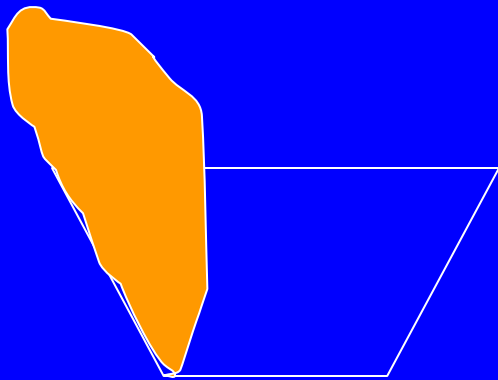
Types of Placenta Previa



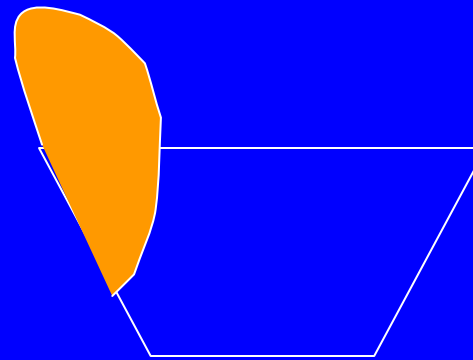
Complete



Partial



Marginal



Low Lying

Placenta Previa- Factoids

- Incidence at approximately 0.3-0.5%
- Occurs as consequence of zygote implantation
- Risk increased with:
 - Advanced maternal age
 - Prior C/S (at least 1.5 times higher)
 - Defective decidualization
 - Smoking (risk doubled)

Placenta Previa- Accreta

- **Placenta previa is associated with increased risk of placenta accreta (discussed subsequently)**
- **Risk of accreta is 5% with unscarred uterus**
- **Previous C-section and previa portends a 25% risk of accreta**

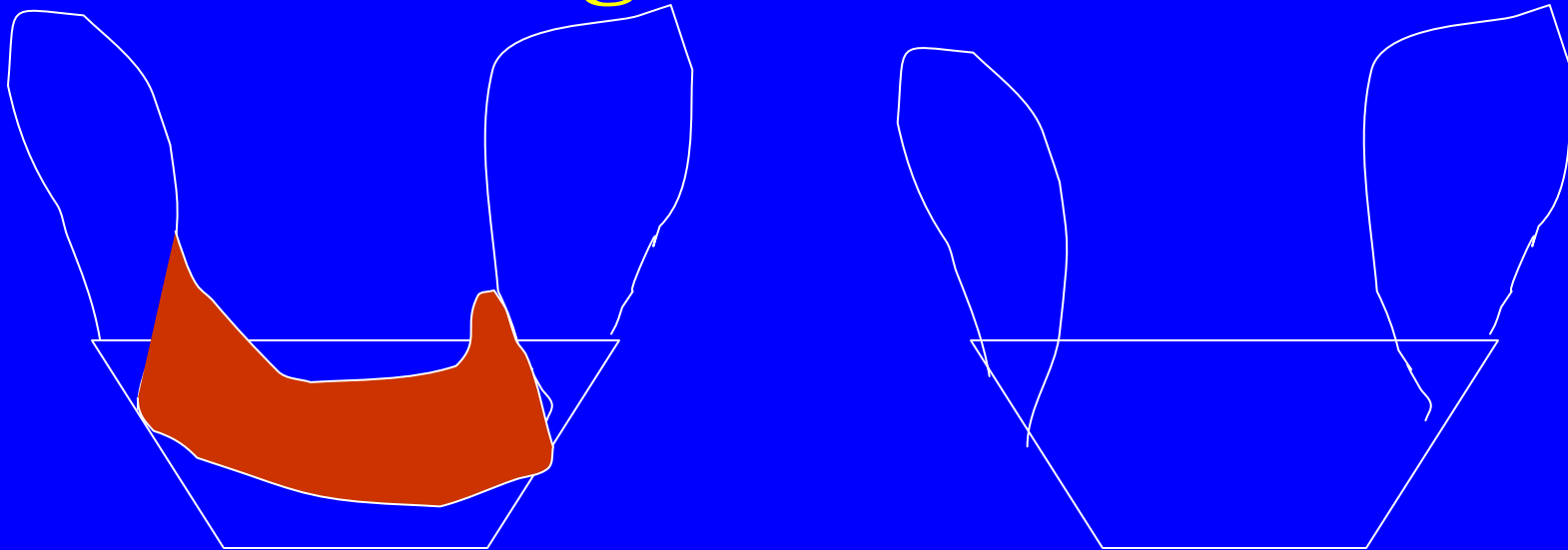
Clinical Findings- Previa (1)

- **Most common symptom is painless bleeding**
- **Some degree of placental separation is inevitable with previa = bleeding**
- **Bleeding increases with labor, direct trauma, or digital examination**

Clinical Findings- Previa (2)

- **Initial bleeding is usually not catastrophic**
- **Uterine bleeding may persist postpartum because of overdistention of the poorly contractile lower uterine segment**
- **Coagulopathy is uncommon with previa unless due to massive bleeding**

Overdistended Lower Uterine Segment- Previa



Placenta Previa- Diagnosis

- **DO NOT DIAGNOSE via vaginal exam!**
(Exception-’’double setup’’)
- **Ultrasound is the easiest, most reliable way to diagnose (95-98+% accuracy)**
- **False positive- ultrasound with distended bladder**
- **Transvaginal or transperineal often superior to transabdominal methods**

Placenta Previa- Placental Migration

- **Placental location may “change” during pregnancy**
- **25% of placentas implant as “low lying” before 20 weeks of pregnancy**
- **Of those 25%, up to 98% are not classified as placenta previa at term**
- **Complete or partial previas do not appear to resolve as often (if at all)**

Placenta Previa- Placental Migration (2)

- **Clinically important bleeding is not likely before 24-26 weeks gestation**
- **The clinically important diagnosis of placenta previa is therefore a late second or early third trimester diagnosis**
- **Migration is a misnomer- the placental attachment does not change, the relative growth of the lower segment does**

Management - Placenta Previa

- **The clinically relevance of the diagnosis is in the late second and/or third trimester**
- **Bedrest probably indicated**
- **Antenatal testing probably indicated**
- **Recent data suggests, if environment idea, home care is acceptable**

Management - Placenta Previa

(2)

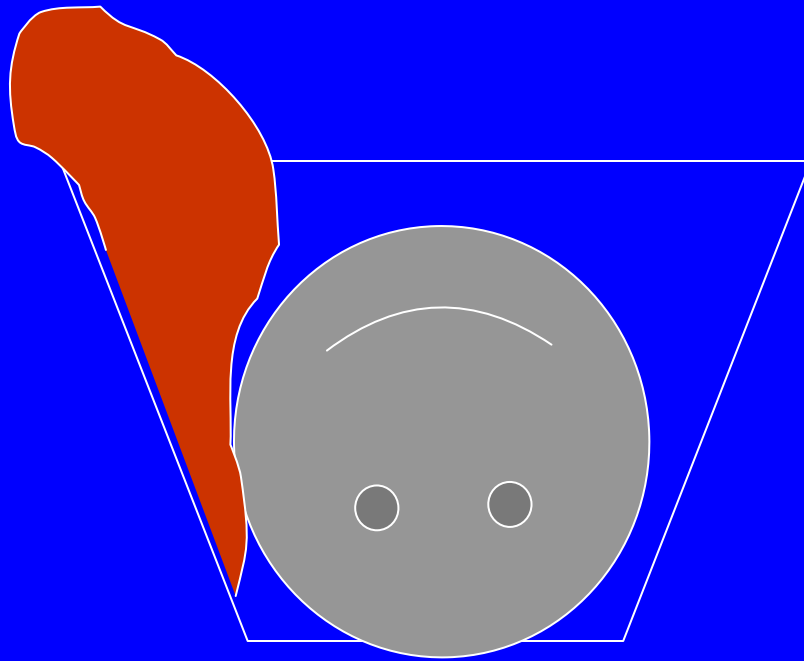
- **Evaluation for possibility of accreta needs to be considered**
- **Consideration for RHIG in rh negative patients with bleeding**
- **Episodic AFS testing with bleeding events**
- **Vigilance regarding fetal growth**
- **Follow up ultrasound if indicated**

Management - Placenta Previa

(3)

- **Delivery should depend upon type of previa**
 - **Complete previa = c/section**
 - **Low lying = (probable attempted vaginal delivery)**
 - **Marginal/partial = (it depends!)**
- Consider “double setup” for uncertain cases**

Tamponade Of Previa By Presenting Part



Placenta Accreta

- **Placenta accreta**
 - **Accreta = adherent to endometrial cavity**
 - **Increta = placental tissue invades myometrium**
 - **Percreta = placental tissue grows through uterine wall**

**Accreta caused by faulty development
of NITABUCH'S LAYER**

Placenta Accreta

- **Incidence = approx 1/2500**
- **Related to abnormal decidual formation**
- **1/3 coexisted with placenta previa**
- **1/4 with previous curettage**
- **Grandmultiparity can be risk factor**
- **If diagnosed microscopically, 1/2 women with C/S have some evidence of abnormal implantation**

Clinical Course- Accreta

- **Association with elevated MSAFP**
- **Antepartum bleeding related usually to coexistent placenta previa**
- **Main problem is at delivery- with adherent placenta**
 - **Association with inversion**
 - **Bleeding of placental bed**
 - **Increta/percreta consequences**

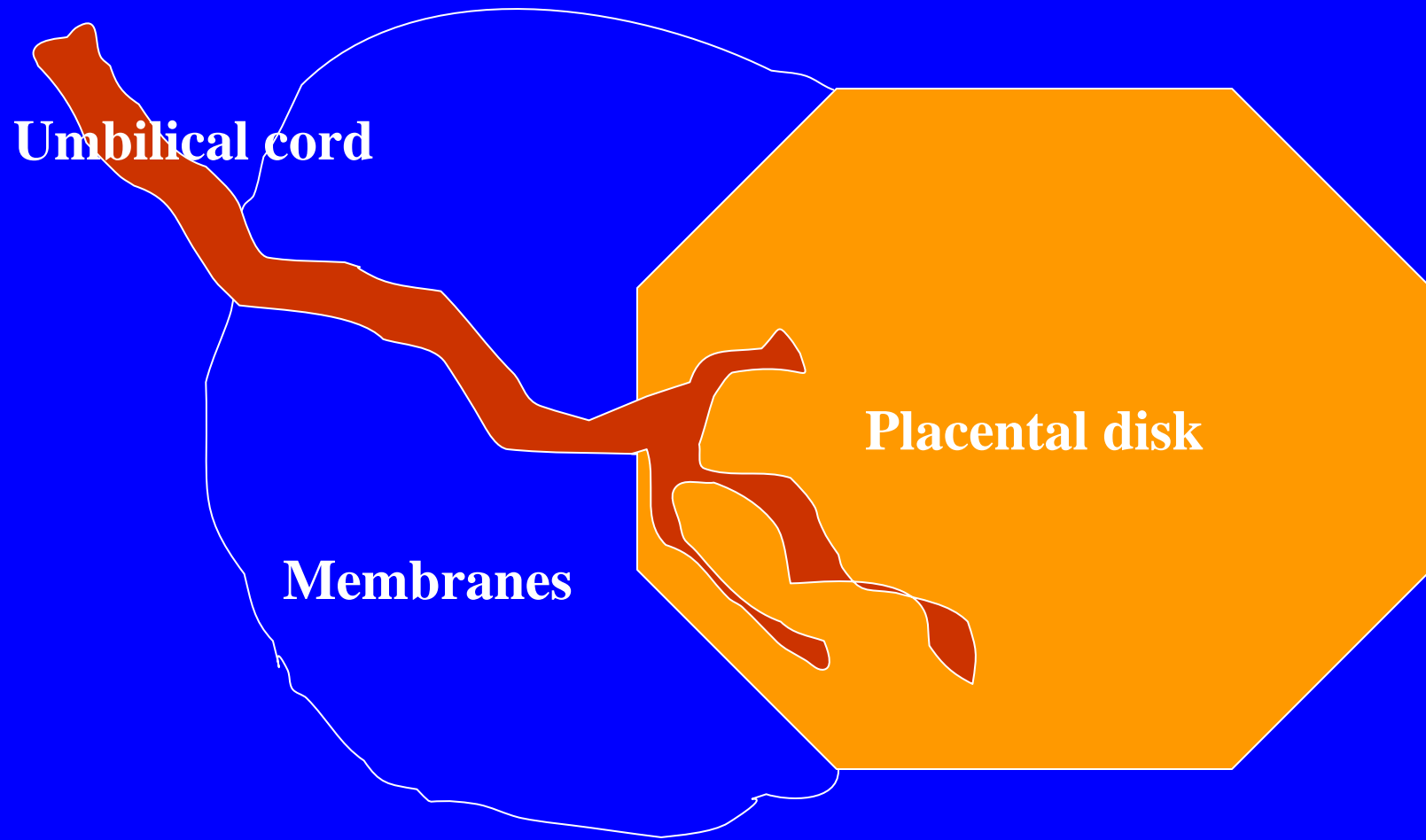
Clinical Course- Accreta(2)

- Attempted manual removal is often unsuccessful
- Conservative management suggested (albeit with *high* M/M)
- May require radical surgery if invasion is extrauterine

Vasa Previa

- Associated with velamentous insertion of the umbilical cord (1% of deliveries)
- Bleeding occurs with rupture of the amniotic membranes (the umbilical vessels are only supported by amnion)
- Bleeding is FETAL (not maternal as with placenta previa)
- Fetal death may occur with trivial symptoms

Vasa Previa



Abruptio Placenta

- **Placental abruption occurs when all or part of the placenta separates from the underlying uterine attachment**
- **Incidence- approx 1/100 - 1/200 deliveries**
- **Common cause of intrauterine fetal demise**

Abruptio Placenta- Associating Factors

- **Hypertension- 1/2 of fetally fatal abruptions were associated with HTN**
- **PPROM- abruptio may be a manifestation of rapid decompression of uterus or from subacute villitis**
- **Smoking (and/or ethanol consumption) linked to abruptio**

Abruptio Placenta- Associating Factors (2)

- **Cocaine abuse- 2-15% rate of abruption in patients using cocaine**
- **Uterine leiomyoma- risk increased if fibroid is behind implantation site**
- **Trauma- relatively minor trauma can predispose (association with bleeding. Contractions, or abnormal FHT)**

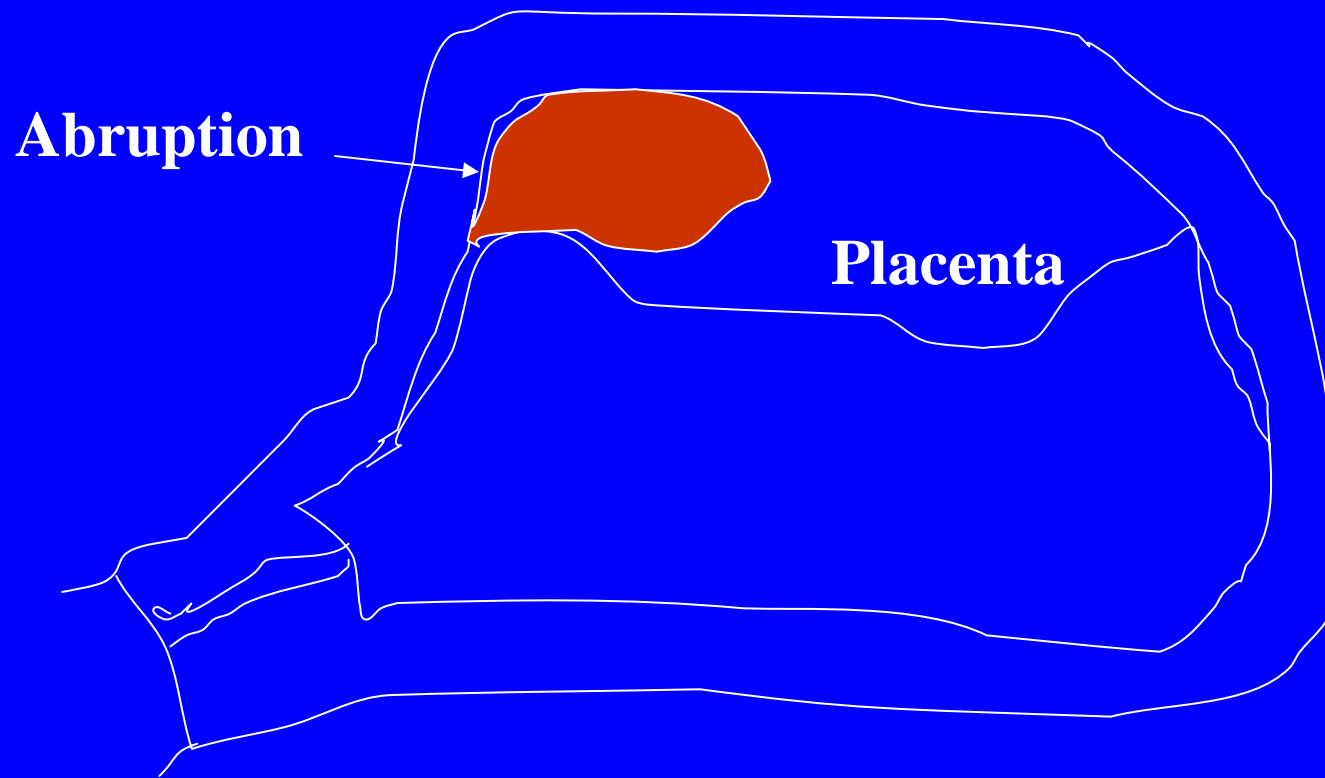
Abruptio Placenta- Recurrence

- **Recurrence rate may be as high as 1 in 8 pregnancies**
- **Antenatal testing is indicated (albeit predictive value may be poor- numerous examples of normal testing with subsequent serious or fatal event)**

Abruptio Placenta- Concealed Hemorrhage

- **Bleeding from abruption may be all intrauterine- vaginally detected bleeding may be much less than with placenta previa**
- **DIC occurs as a consequence of hypofibrinogenemia- in chronic abruption, this process may be indolent**

Occult Hemorrhage in Abruptio



Abruption- Other Complications

- **Shock- now thought to be in proportion to blood loss**
- **Labor- 1/5 initially present with diagnosis of “labor”- abruptio may not be immediately apparent**
- **Ultrasound may not diagnose abruptio in up to 14 of cases**

Abruption- Other Complications (2)

- **Renal failure-** may be pre-renal, due to underlying process (preeclampsia) or due to DIC
- **Uteroplacental apoplexy (Couvelaire uterus)-** widespread extravasation of blood into the myometrium and serosa

Abruption- Management

- **Management is influenced by gestational age and degree of abruptio**
- **Indicators for delivery-**
 - **Fetal intolerance**
 - **DIC**
 - **Labor**

Abruption Management (2)

- **Vaginal delivery is acceptable (and generally preferred with DIC)**
- **Tocolysis:**
 - **Betasymphomimetics contraindicated in hemodynamically compromised**
 - **Magnesium possibly indicated in special circumstances**
 - **Nsaid's contraindicated**

Postpartum Hemorrhage

- **Traditional definition = > 500 ml blood loss**
- **Normally seen blood losses:**
 - **Vaginal delivery- 50% > 500ml**
 - **C/section- 1000ml**
 - **Elective C-hys- 1500ml**
 - **Emergent C-hys- 3000ml**

Postpartum Hemorrhage(2)

- **Pregnancy is normally a state of hypervolemia and increased RBC mass**
- **Blood volume normally increased by 30-60% (1-2 L)**
- **Pregnant patients are therefore able to tolerate some degree of blood loss**
- ***Estimated* blood loss is usually about 1/2 of actual loss!**

Postpartum Hemorrhage(3)

- Early postpartum hemorrhage is within 1st 24 hours (also may be just called “postpartum hemorrhage”)
- Late postpartum hemorrhage (not addressed in this talk) is less common and occurs *after* the 1st 24 hours postpartum

Postpartum Hemorrhage- Causes

- **Genital tract laceration**
- **Coagulopathy**
- **Uterine**
 - **Uterine atony**
 - **Uterine inversion**
 - **Uterine rupture**
 - **Retained POC**

Postpartum Hemorrhage- Genital Tract Laceration

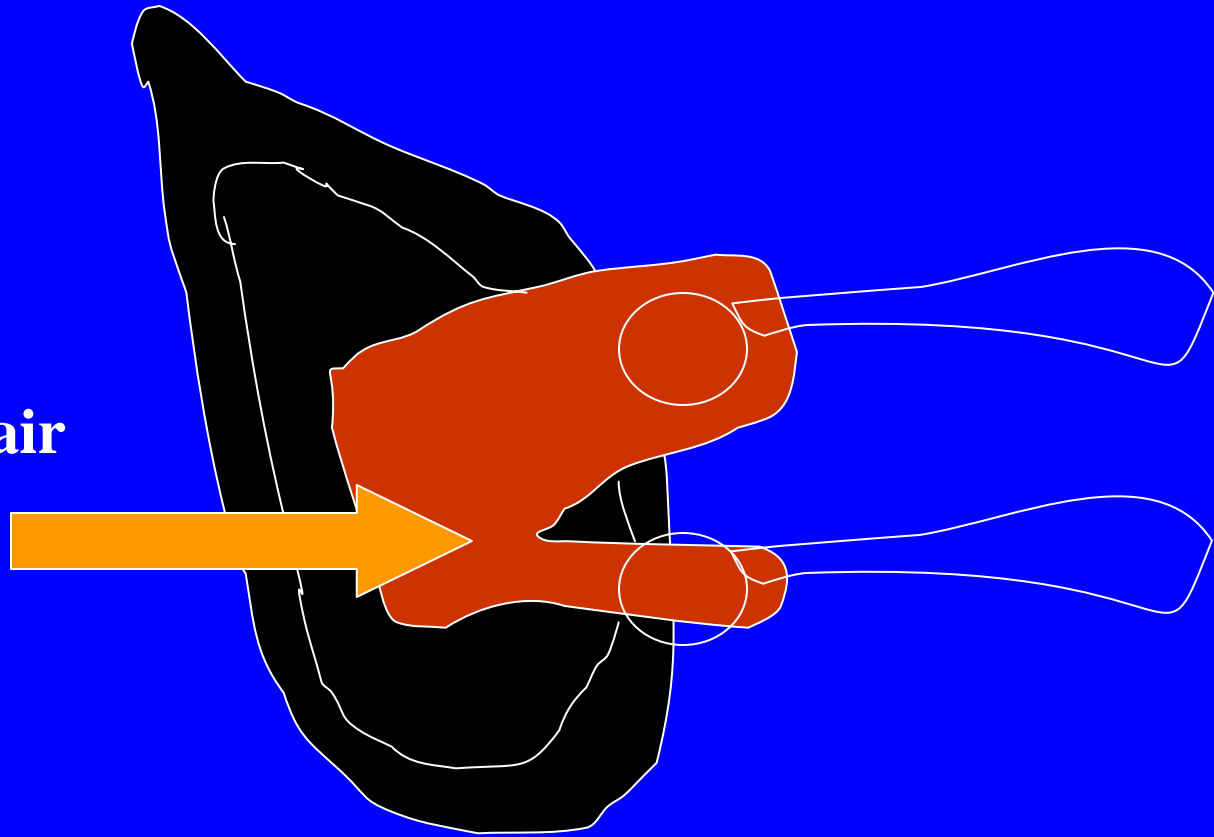
- **May be cervix, vaginal sidewall, rectal (example= hemorrhoid), or episiotomy**
- **Genital tract needs thorough inspection after any delivery**
 - **Cervix needs to be seen**
 - **Vagina needs to be inspected**

Repairing Lacerations

- **Be sure to suture above internal apex of laceration**
- **Forceps may be used as vaginal retractors**
- **Cervical lacerations > 2.0 cm in length need to be repaired. The cervix is grasped with ringed forceps and retracted to allow repair (starting at or above apex)**

Cervical Laceration

Begin repair
at apex



Puerperal Hematomas

- Incidence = 1/300 to 1/1500 deliveries
- Episiotomy is most commonly associated risk factor
- Considerable bleeding may occur with dissection-dissection above pelvic diaphragm
- Drainage usually indicated (source often not evident?)

Uterine Rupture

- **1-2% of previous lower segment C/S TOL patients (more with classical C/S)**
- **Other causes include:**
 - **Instrumented deliveries/versions/operative**
 - **Curettage**
 - **Macrosomia**
 - **Prolonged labor**
 - **Oxytocin**

Uterine Rupture(2)

- Rupture = separation of whole scar with rupture of membranes and bleeding
- Dehiscence = partial separation of previous uterine scar that is usually associated with less bleeding
- Dehiscence may be occult

Uterine Rupture (2)

- **Uterine rupture may be associated with antepartum or postpartum events**
- **Repair may require simple closure or hysterectomy**
- **Consider uterine rupture in patient with firm uterus (no atony), negative laceration survey and continued bleeding**

Hemostatic Disorders

- **Thrombocytopenia and DIC may predispose to continued vaginal bleeding after delivery**
- **Occasionally, a patient with von Willebrand's disease (or other inherited disorder) will be diagnosed at or after delivery**
- **Bleeding from hemostatic disorder is usually not brisk, but it is persistent**
- **Amniotic fluid embolism may present with DIC**

Uterine Atony

- **Most common cause of postpartum hemorrhage**
- **Should be default diagnosis in patients with postpartum bleeding (albeit always exclude other causes)**
- **Can be suspected by uterine palpation exam**

Uterine Atony(2)

- **A prolonged third stage of labor (>30 min.) Is associated with postpartum hemorrhage**
- **Other associations with postpartum hemorrhage include:**
 - **Enlarged uterus (macrosomia or twins)**
 - **Prolonged labor or oxytocin (tachyphylaxis)**
 - **High parity**
 - **Maneuvers that hasten placental removal**

Uterine Atony Presentation

- **Bleeding may be indolent and not easily recognized**
- **Postpartum patients may not exhibit dramatic hemodynamic changes until blood loss is pronounced**
- **Patients with pregnancy induced hypertension may fare poorly (MgSO₄ + volume contraction)**

Treatment: Uterine Atony

- **Make sure uterus is evacuated (manual exploration)**
- **Rule out other causes**
- **Resuscitation**
- **Uterine contractile agents**
 - **Oxytocin**
 - **Ergonovine**
 - **Prostaglandin**

Uterine Inversion

- **May occur spontaneously, as a consequence of placental removal, or in association with connective tissue disorder (Marfan's, Ehlers-Danlos)**
- **Risk of inversion increased with higher parity**
- **May occur with accreta**

Uterine Inversion(2)

- **Treatment is to reduce inversion before contraction of uterus**
- **If accreta-associated, DO NOT REMOVE THE PLACENTA (BLEEDING)**
- **May require uterine relaxants (TNG, halothane)**
- **Rarely, surgical reduction necessary (with constriction band)**

Postpartum Hemorrhage- Unified Approach

- **Always examine systematically**
- **Uterine atony most common, but other causes may get overlooked**
- **Get help!**
- **Remember the hemodynamic implications of the bleeding**

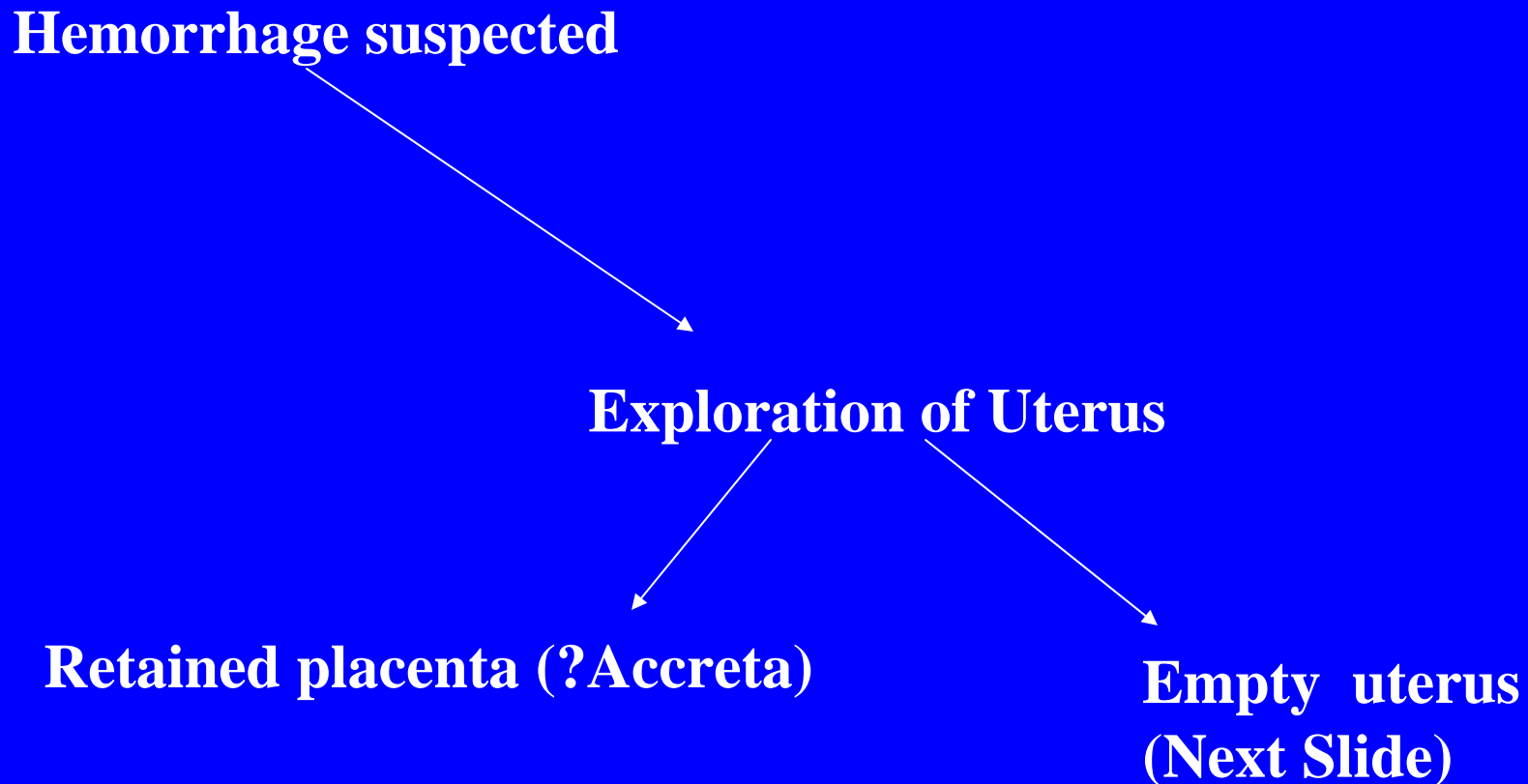
Postpartum Hemorrhage

Hemorrhage suspected

Exploration of Uterus

Retained placenta (?Accreta)

Empty uterus
(Next Slide)



Postpartum Hemorrhage(2)

Empty Uterus

Oxytocin
Atony?

Yes- 2ndary medical tx.
Consider surgery for failure

No- Inspect vagina
and cervix (next slide)

Postpartum Hemorrhage(3)

