

# **Postpartum Haemorrhage & Maternal Injuries**

# Postpartum Haemorrhage

## □ **Definition**

- Blood loss in excess of 500 cc in vaginal deliveries and in excess of 1,000 cc in abdominal deliveries
- Any blood loss that has the potential to produce hemodynamic instability (depend on the pre-existing condition of the woman i.e anemia and PET)

## □ **Classification**

- **Primary: within 24 hours of delivery**
- **Secondary: after 24 hours of delivery**

## □ **Incidence**

- About 5% of all deliveries

## ▣ **Predisposing Factors - Antepartum**

- previous PPH or manual removal
- abruption/previa
- fetal demise
- gestational hypertension
- overdistended uterus
- bleeding disorder

## ▣ **Predisposing Factors - Intrapartum**

- operative delivery
- prolonged or rapid labour
- induction or augmentation
- chorioamnionitis
- shoulder dystocia
- internal podalic version
- coagulopathy

## ▣ Postpartum Causes

- lacerations or episiotomy
- retained placenta/placental abnormalities
- uterine rupture/inversion
- coagulopathy

## ▣ Causes primary PPH

- Placental site hmg
  - Atonic PPH (Uterine inertia 90% of all cases)
    - Over distention of the uterus (Multiple pregnancy, large baby, and Polyhydramnios)
    - APH
    - Prolonged labour
    - Multiparity
    - Precipitate labour
    - Idiopathic
    - G anesthesia
  - Retention of placenta and clot
- Extra placental (traumatic)
- Uterine inversion
- Bleeding tendency

## ▣ Causes secondary PPH

- Retention of placental tissue
- Uterine sub involution (failure of the uterus to return to its normal pre pregnancy size)
  - Endometritis
  - Uterine Myoma
  - Placental tissue
  - Blood clot
- Choriocarcinoma



## ▣ Etiology of Postpartum Haemorrhage

**T**one - uterine atony

**T**issue - retained tissue/clots

**T**rauma - laceration, rupture, inversion

**T**hrombin - coagulopathy

## □ Clinical presentation

- Depend on pre existing maternal condition and the degree of bleeding

Blood loss	Systolic BP	S & S	Degree of shock
500-1000 ml (10-15%)	Normal	Palpitation Dizziness Tachycardia	Compensated
1000-1500 ml (10-25%)	Slight decrease	Weakness Sweating Tachycardia	Mild
1500-2000 ml (25-35%)	70-80 mm/Hg	Restlessness Pallor oliguria	Moderate
2000-3000 ml (35-45%)	50-70 mm/Hg	Collapse Air hunger Anuria	Severe

# Management

## ▣ Prevention

- **Antenatally identify patient at risk of PPH**
- **Active management of labour**
  - R/O cephalopelvic disproportion
  - Avoid unnecessary instrumental delivery
- **active management of the third stage**
  - prophylactic oxytocin
    - 10 U IM
    - 5 U IV bolus
    - 10-20 U/L N/S IV @ 100-150 ml/hr
  - early cord clamping and cutting
  - gentle cord traction with suprapubic countertraction

## □ Remember

- blood loss is often underestimated
- ongoing trickling can lead to significant blood loss
- blood loss is generally well tolerated to a point

## □ **Diagnosis?**

- assess the fundus
- inspect the lower genital tract
- explore the uterus
  - retained placental fragments
  - uterine rupture
  - uterine inversion
- assess coagulation

# Management

## ▣ ABC 's

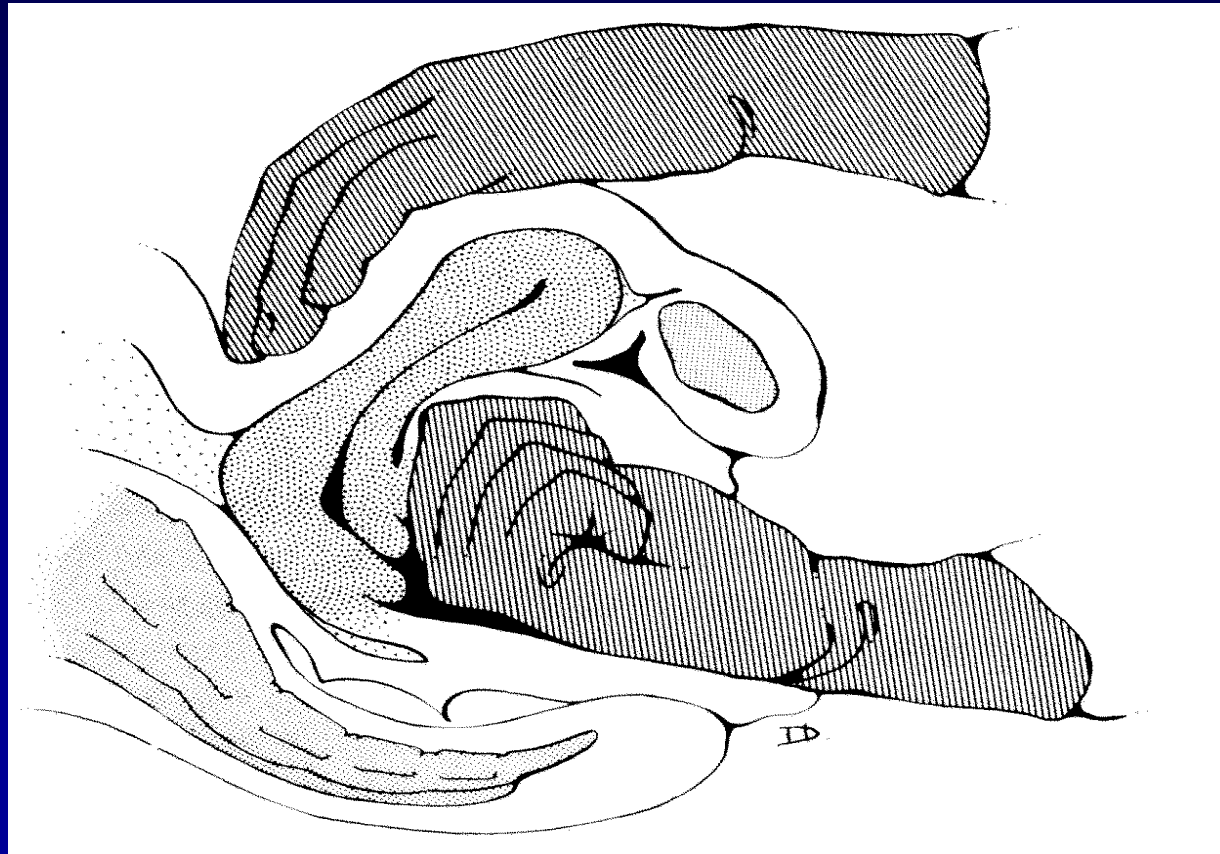
- talk to and assess patient
- get HELP!
- large bore IV access
- crystalloid - lots!
- CBC/cross-match and type
- foley catheter

# Management

## Assess the fundus

- simultaneous with ABC 's
- atony is the leading cause of PPH
- Empty the bladder
- bimanual massage
  - rules out uterine inversion
  - may feel lower tract injury
  - evacuate clot from vagina and/or cervix
  - may consider manual exploration at this time

## Management - Bimanual Massage





# Management

## ▣ Oxytocin

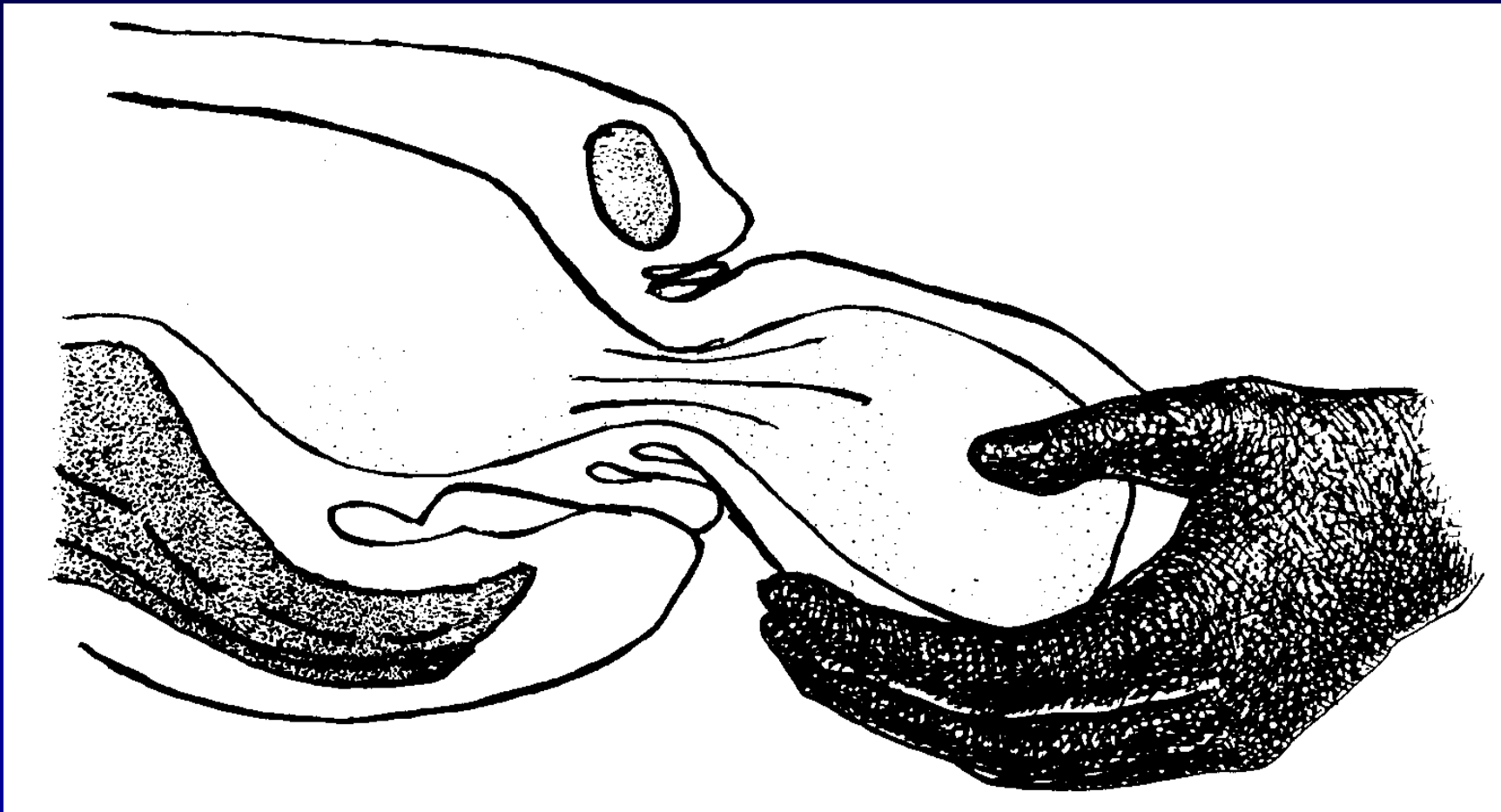
- 5 units IV bolus
- 20 units per L N/S IV wide open
- 10 units intramyometrial given transabdominally

# Management

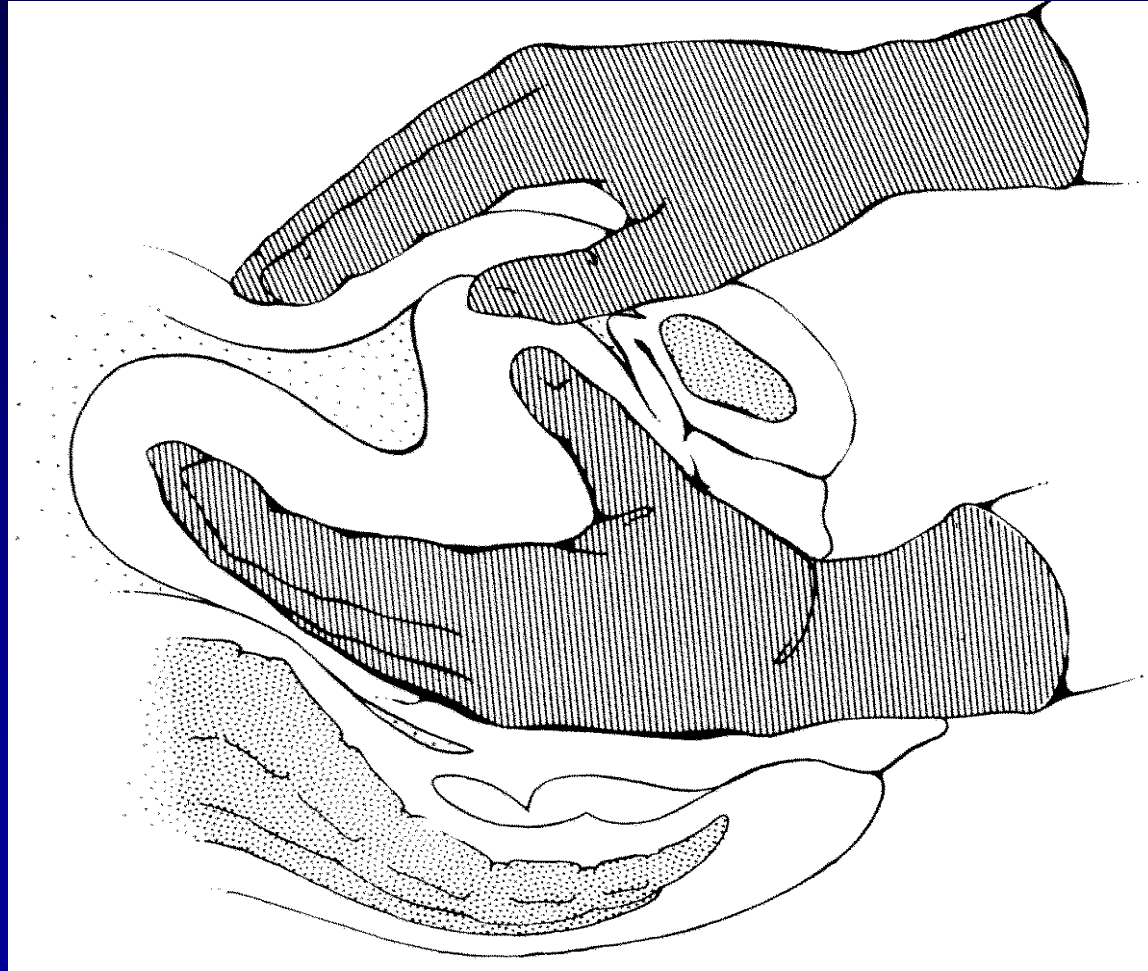
## ▣ Manual Exploration

- manual exploration will:
  - rule out uterine inversion
  - palpate cervical injury
  - remove retained placenta or clot from uterus
  - rule out uterine rupture or dehiscence

## ▣ Replacement of Inverted Uterus



## ▣ Replacement of Inverted Uterus



# Management

## ▣ Additional Uterotonics

- Ergometrine - caution in hypertension
  - 0.25 mg IM or 0.125 mg IV
  - maximum dose 1.25 mg
- Hemabate (carboprost / PG F2alpha) - asthma is relative contraindication
  - 15 methyl-prostaglandin F2 $\alpha$
  - 0.25 mg IM or intramyometrial
  - Maximum dose 2 mg
- Cytotec (misoprostol)
  - 800-1000 mcg pr

# Management

- **Bleeding with firm uterus**
  - explore the lower genital tract
  - requirements
    - appropriate analgesia
    - good exposure and lighting
  - appropriate surgical repair
    - may temporize with packing

# Management

## ▣ Continued uterine bleeding

- consider coagulopathy
- correct coagulopathy
  - FFP, cryoprecipitate, platelets
- if coagulation is normal
  - consider embolization
  - prepare for O.R.

# Complication

- ▣ **Increased maternal mortality and morbidity**
  - **Renal failure**
  - **Sheehan syndrome**
    - **Amenorrhea**
    - **Failure to lactate**
    - **hypothyroidism**
  - **Chronic anemia**



# Maternal Injuries

# Episiotomy

## □ Definition

- Incision of the perineum (skin, vagina, and perineal muscle) to increase the space available for delivery

## □ Objective to reduce:

- ? Risk of injury to maternal soft tissue
- Resistance of soft tissue to delivery
- ? Risk of fetal birth injuries (pressure against fetal head)
- ? Prevent future gynecological problems (prolapse and SI)

# Episiotomy: Types

## ▣ Midline:

- From the fourchette down the perineal midline raphe toward the anal verge
- Vaginal epithelium, perineal skin, transverse perinei muscles and the medial fibers of the bulbocavernosus muscles
- Risk: injury to anal sphincter and anal mucosa either at the time of cutting or extension at the time of delivery
- Benefit:
  - Less bleeding , easy to heal, post-operative comfort and cosmetic

# Episiotomy: Types

## ▣ **Mediolateral and :**

- Incise the perineum at a 45-degree angle inferiorly from the midline of the fourchette
- Incise the transversus and bulbocavernosus muscles lateral to their midline attachments
- Benefit: more room
- Risk: more bleeding and extension to ischiorectal fossa

## ▣ **Modified median:**

- The incision is directed in the midline toward the rectum for the length of the perineal body then angle 20-30 degree to the right or left
- Has the advantages of both median and mediolateral

# Episiotomy: Types

## Lateral

- Useless
- doesn't increase the capacity of the outlet
- Ugly and painful scar

# Episiotomy: Indication

- ▣ **Whenever feel it is indicated**
  - Instrumental delivery
  - Breech delivery
  - Premature delivery
  - ? Primgrvida
  - Macrosomia
  - Suspected shoulder dystocia

# Episiotomy: Repair

- Good view and lightning
- Proper analgesia
- Inspection for extension
- Secure bleeding point
- Repair the Episiotomy in layers
  - Close the vaginal epithelium starting one stitch above the apex (to prevent hematoma) with a continuous locked suture to the level of the hymenal ring
  - Obliterate the dead space beneath the vaginal suture line and the anterior rectal wall
  - Reapproximate the muscles of the perineum
  - Closure of the perineal skin

# Episiotomy: Care and complications

## □ Care

- Ice pack to reduce tissue edema
- Sitz bath
- Stool softeners

## □ Complications

- Extension and perineal tears
- Hematoma formation
- Infection
- Break down
- Dysparonia and vaginismus
- Skin tags and granulation tissues
- Fistula (esp. with fourth degree tears)



# Perineal & Vulvar lacerations

## ▣ Precipitating factors

- First delivery
- Instrumental delivery
- Precipitate delivery
- Unattended delivery
- Large babies

## ▣ Classification:

- First-Degree
  - Epithelial and sub epithelial tears of the perineum and the vagina
- Second-Degree
  - Epithelial and superficial muscle
- Third-Degree
  - Epithelial, superficial muscle, and anal sphincter
- Fourth-Degree
  - Epithelial, superficial muscle, anal sphincter, and rectal mucosa

# Cervical lacerations

## Types:

- Multiple small tears in the epithelium (if no bleeding, don't repair)
- Deep lateral tears
- Complete tears that extent into the lower segment
- Annular detachment of the cervix

## Causes

- Spontaneous more common
- Instrumental delivery before complete dilatation of the cervix
- Precipitate delivery

## Complications:

- Cervical incompetence
- Cervical dystocia
- Eversion of endocervical canal mucosa

# Cervical lacerations

- Annular detachment of the cervix
  - Partially (anterior lip) or complete (rare)
  - **Causes**
    - Pressure necrosis as a result of the fetal head's pressing the CX against the bony pelvis
    - Inappropriate suturing of an incompetent cervix
    - Vacuum before full dilatation
    - Labour with cervical cerclage in situ
  - **Management**
    - Antibiotics
    - Healing by secondary intention
    - ? C/S and cerclage next pregnancy

# Rupture uterus

- **Dehiscence** : uterine scar separation that does not penetrate the uterine serosa, does not produce hemorrhage, and does not cause a major clinical problems (2%)
- **Rupture**: open rupture into the peritoneal cavity of both the uterine wall and amniotic membranes (<1%)
- **Incidence**
  - 1/2500 - 1/3000
  - In patient with previous scar and IOL (0.7%), no IOL (0.5%)
  - In patient with classical and labour (4.7%), no labour 2.2%

# Rupture uterus

## □ Classification

- Prepartal vs. intrapartal
- Spontaneous vs. traumatic
- Partial vs. complete
- Dehiscence vs. rupture : separation of the scar without rupture of the membrane.

## □ Morbidity and Mortality

- Maternal mortality is low
- Maternal morbidity
  - Bleeding
  - Injury to other organs (Bladder and ureter)
- High PNM (> 50%) in cases with vertical (classical) rupture while in LLS rupture is < 3%
- PN morbidity is increased (neurologic sequellae)

# Rupture uterus

## ▣ Predisposing factors:

- VBAC-TOL (50-70% of all cases)
- Previous 2 or more uterine scar
- Excessive amount of oxytocin
- Dysfunctional labour (Malpresentation, Large baby)
- Obstetric procedures (IPV)
- Previous hystrotomy
- Previous uterine perforation (myomectomy)
- High parity
- RTA

# Rupture uterus

## □ Diagnosis (Intrapartal rupture)

- Maternal anxiety
- Vascular instability and shock
- Vaginal bleeding
- Fetal distress or demise
- Pain not associated with contraction
- Cessation of labor
- Recession of presenting part
- Easily palpable fetal parts through abdominal wall
- Tenderness of the uterus
- Signs of peritoneal irritation
- US diagnosis

# Rupture uterus

## ▣ Management

- Surgical
  - Debridement and repair
  - Peripartal hysterectomy (Subtotal vs. total)
  - Internal iliac artery ligation



# Uterine inversion

- Occur in 1/25,000 deliveries
- Often iatrogenic and more common in grand multips
- The placenta appears at the introitus with mass attached
- Shock secondary to increased vagal tone
- Replace the uterus immediately without removing the placenta
- Replacement is by “last out, first in”
- If fail laparotomy

# Para genital hematoma

- Perineal and Vulvar hematoma (Infralevator)
  - Bleeding inferior to pelvic diaphragm
  - Do not dissect into retro peritoneal space
  - Dissect into the ischiorectal fossa
  - Venous bleeding stops spontaneously as a result of pressure of the expanding mass
  - Painful
  - Small – Ice pack
  - Large – surgical drainage, drain and primary closure

# Para genital hematoma

- Paravaginal (Suprlevator)
  - Less painful initially but more dangerous
  - Bleeding from vessels above pelvic diaphragm that communicate with hypogastric and inferior hemorrhoidal, and inferior vesical arteries and veins
  - Massive blood loss
  - Broad ligament and retro peritoneal hematoma
  - Small --- observe
  - Large --- surgical drainage and packing with healing by secondary intention