e-Learning

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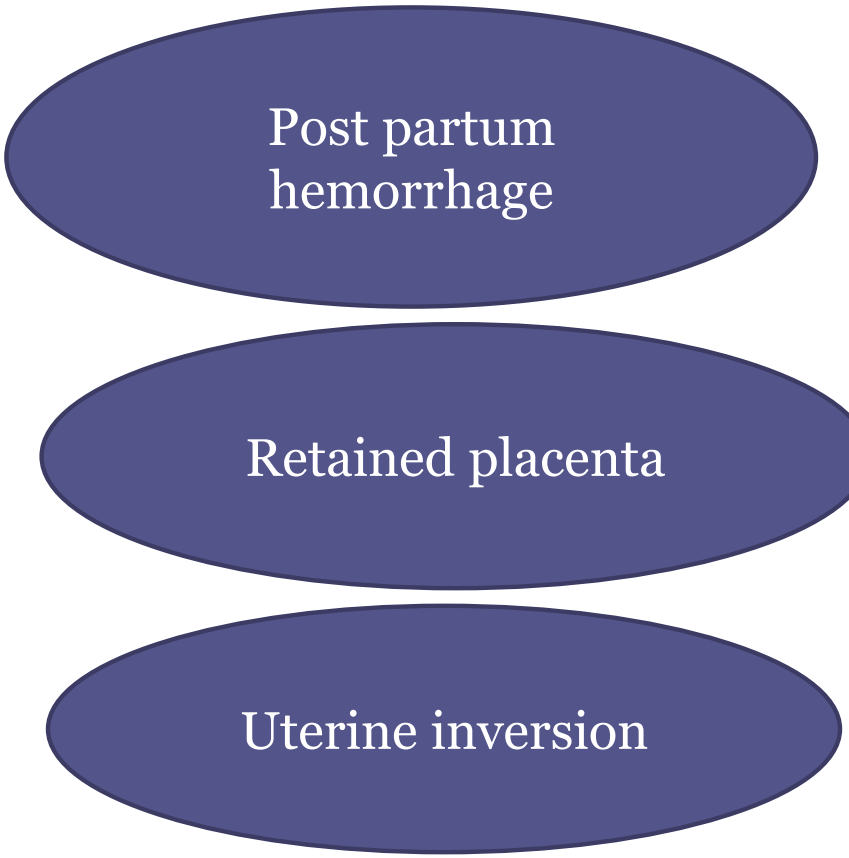
Maduravoyal, Chennai -

INTRODUCTION

- Complications encountered in third stage labour are

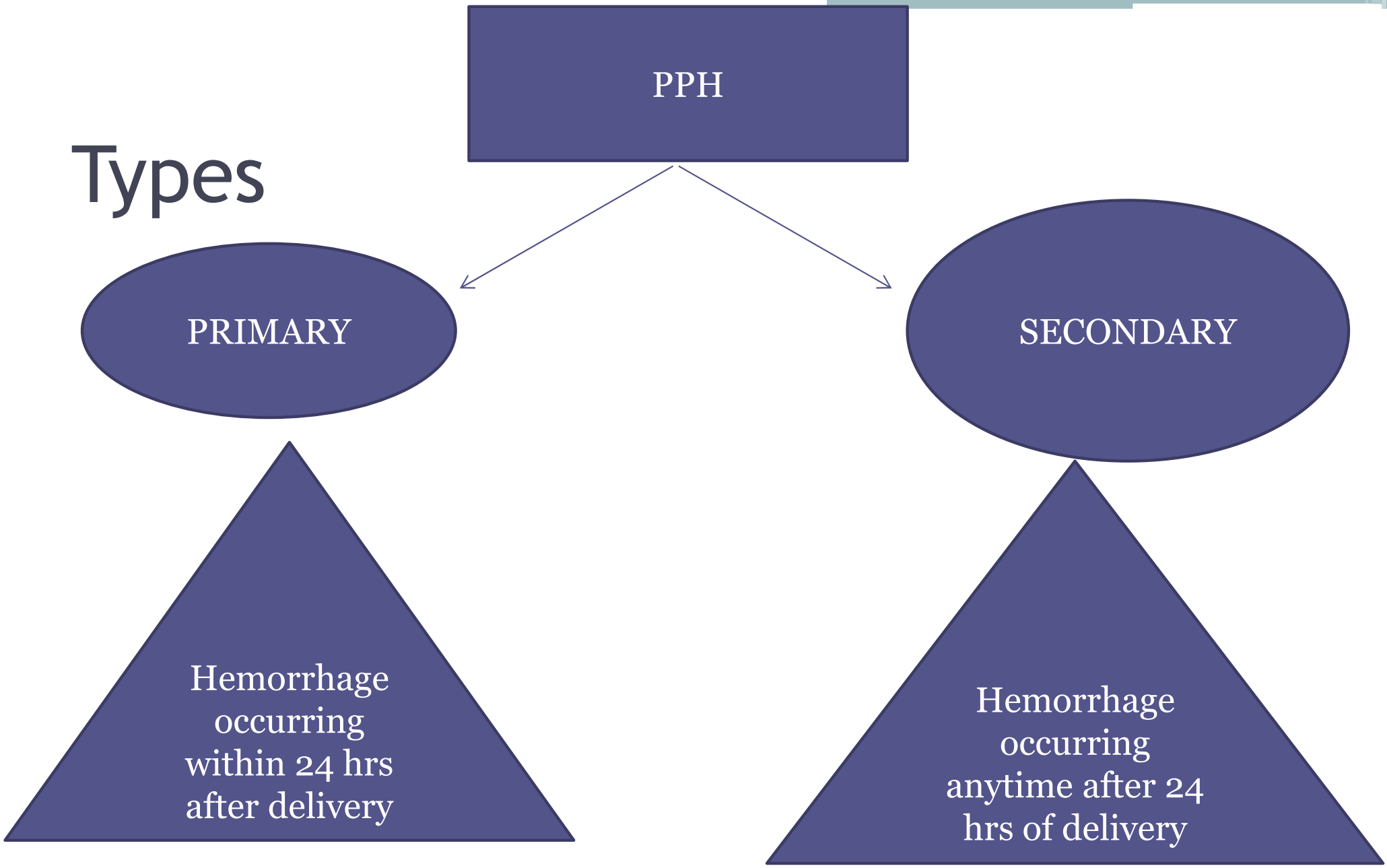


Postpartum hemorrhage

- Hemorrhage occurring after delivery of baby is termed as postpartum hemorrhage (PPH)

- Definition – blood loss that is more than or equal to 500 ml in vaginal deliveries or 1000ml in cesarean section or 10 % fall in hematocrit compared to pre labour values.

Types


PPH
PRIMARY
SECONDARY
Hemorrhage occurring within 24 hrs after delivery
Hemorrhage occurring anytime after 24 hrs of delivery

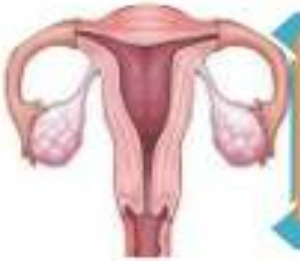
Primary postpartum hemorrhage

- blood loss that is more than or equal to 500 ml with in 24 hrs of delivery of baby

- Causes

1. Uterine atony (tone)
2. Genital tract trauma (trauma)
3. Retained placental fragments (tissues)
4. Coagulation disorder (thrombus)

CAUSES



Tone

Tissues

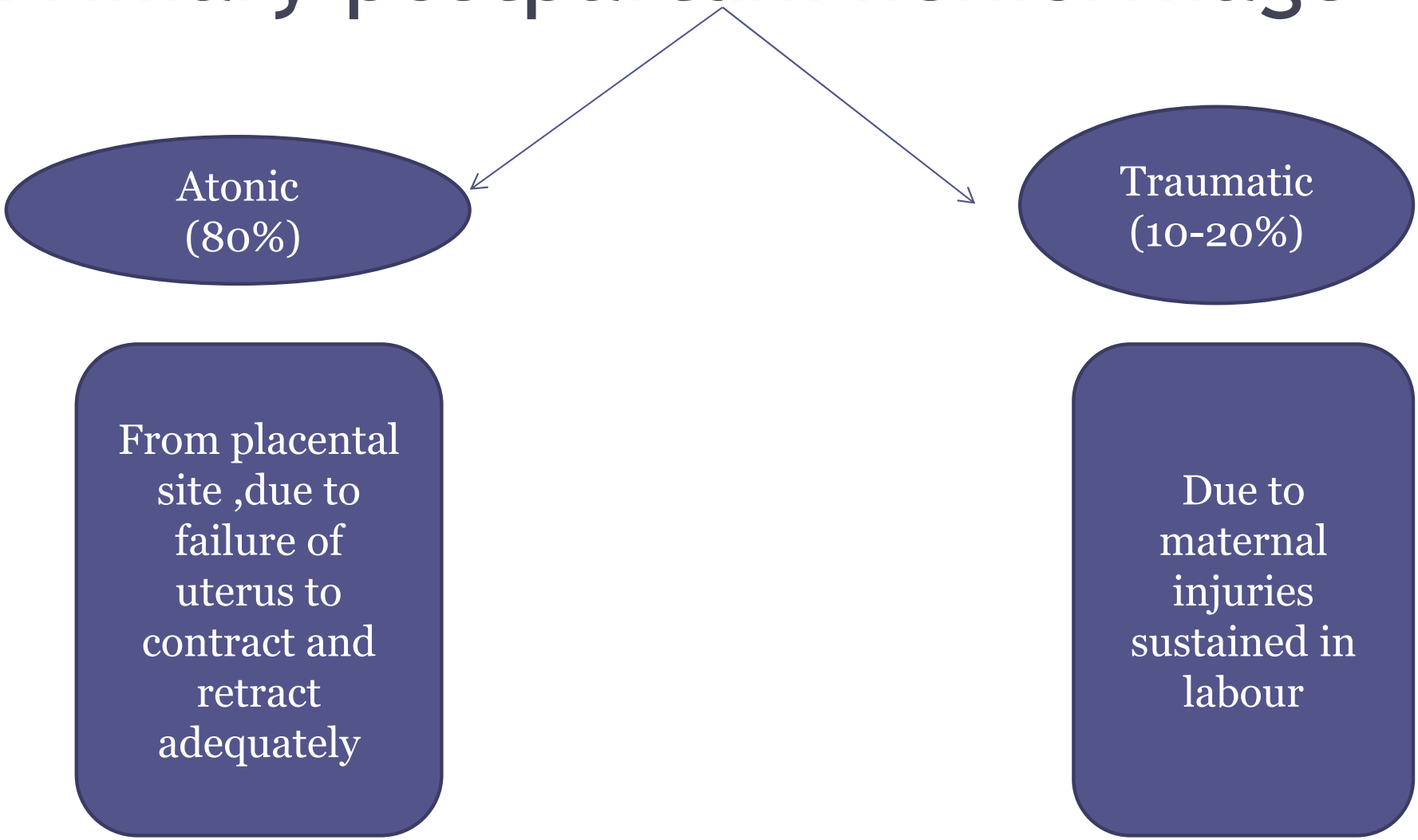
Thrombus

Trauma

Combined
(atonic uterus
+trauma)

Drugs

Primary postpartum hemorrhage



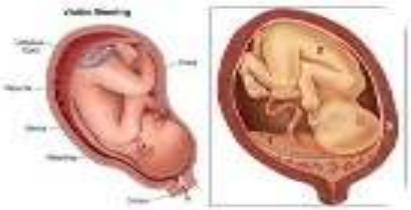
Atonic postpartum hemorrhage

C A U S E S

GRAND MULTIPARA

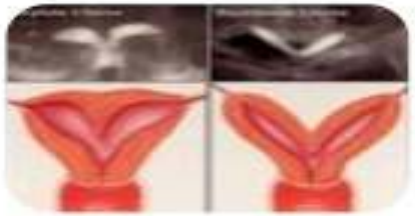
OVERDISTENDED UTERUS

MALNUTRITION & ANEMIA



ANTEPARTUM HEMORRHAGE

PROLONGED OR RAPID LABOUR

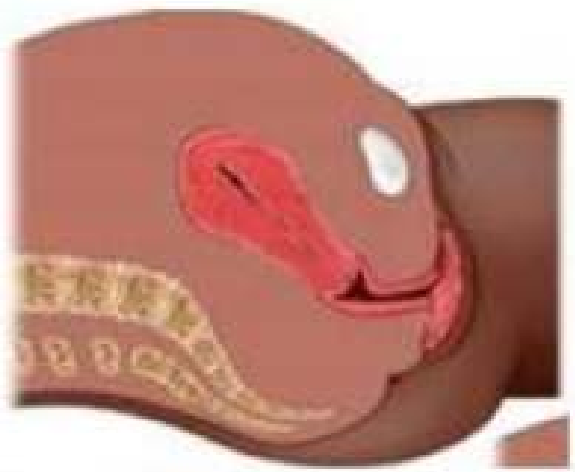


UTERUS MALFORMATION

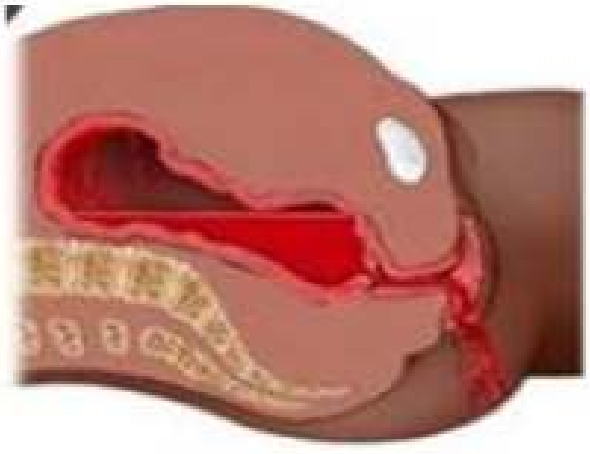
INDUCTION OR AUGMENTATION

ANESTHESIA

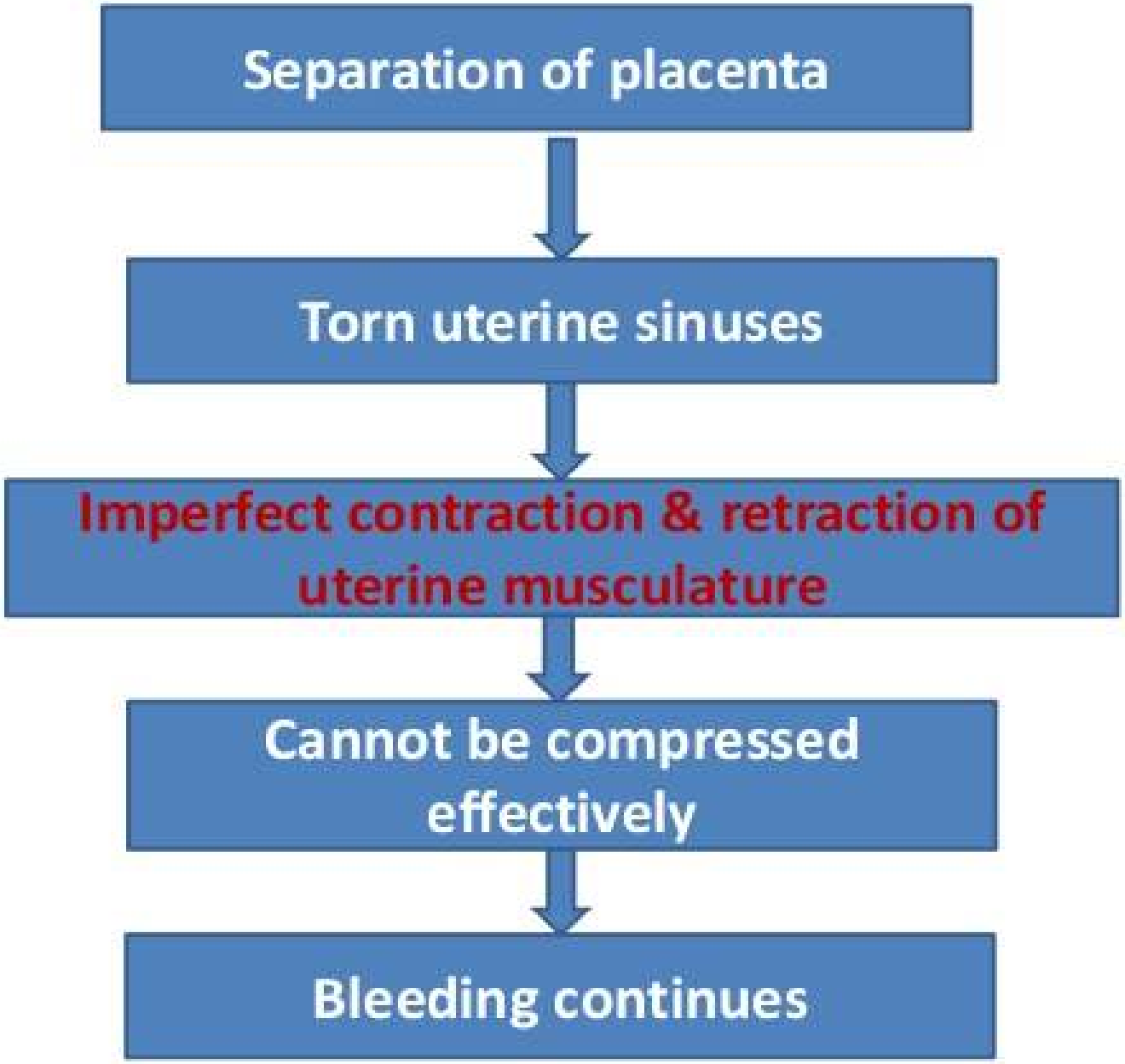
MISMANAGED 3RD STAGE OFLABOR



Normal postpartum condition with contracted uterus preventing haemorrhage



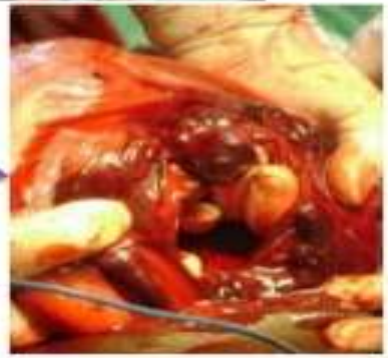
Uterine atony allows haemorrhage to flow into the uterus


Separation of placenta
Torn uterine sinuses
Imperfect contraction & retraction of uterine musculature
Cannot be compressed effectively
Bleeding continues

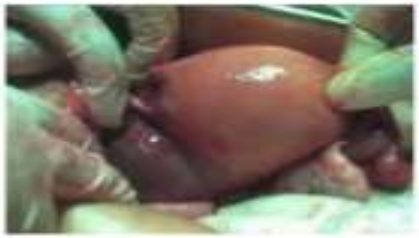
Traumatic PPH

- Trauma involves usually the cervix, vagina, perineum, paraurethral region (**episiotomy wound** or **lacerations**)

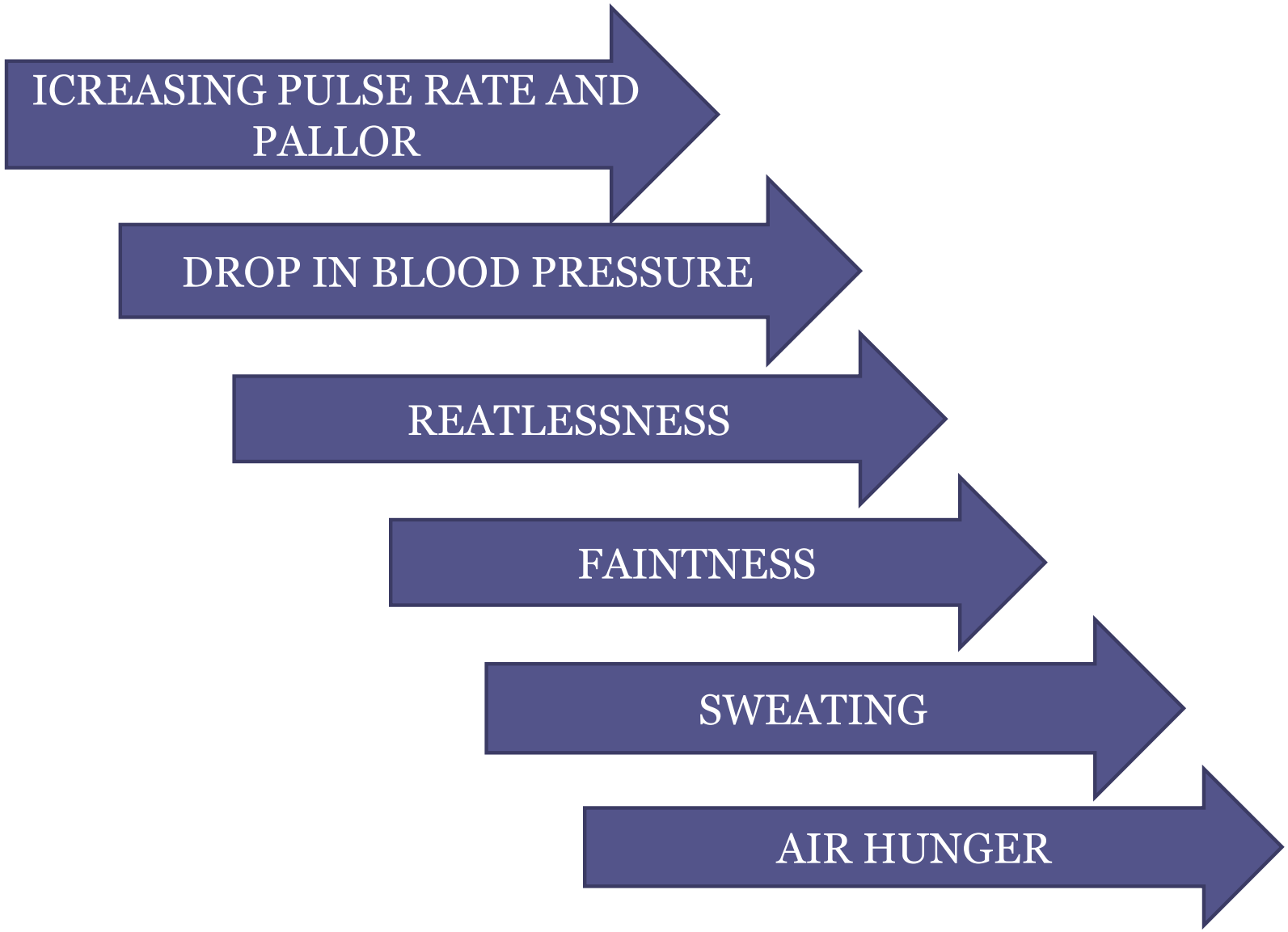
- **Rupture of uterus** (rare)



- **Broad ligament haematoma**
- **Vulvo-vaginal haematoma**
- **Uterine inversion**



CLINICAL SIGNS OF PRIMARY PPH



DIAGNOSIS

A) GENERAL EXAMINATION

- The general examination of the patient **correspond to the amount of blood loss**
- In excessive blood loss, manifestation of shock appear as **hypotension**, **rapid pulse**, **cold sweaty skin**, **pallor**, **restlessness**, **air hunger** & **syncope**

B) ABDOMINAL EXAMINATION

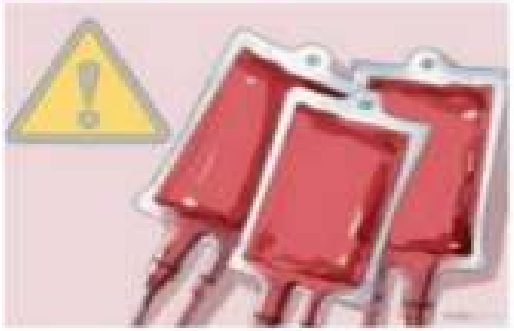
- In **atonic PPH:** Uterus is larger than expected, soft, & squezing it lead to gush of clotted blood PV
- In **traumatic PPH:** Uterus is contracted

C) VAGINAL EXAMINATION

- In **atony**: Bleeding is usually started few minutes after delivery of he fetus
  - It is **dark red** in colour
  - Placenta may not be delivered

- In **trauma**: Bleeding starts immediately after delivery of fetus
  - It is **bright red** in colour
  - Lacerations can be detected by local examination

MANAGEMENT OF THIRD STAGE BLEEDING



- ✓ **Palpate** the fundus & **massage** the uterus to make it hard
- ✓ To start **normal saline drip with oxytocin** & arrange for **blood transfusion**
- ✓ **Oxytocin** 10 units IM/ Methergin 0.2mg IV
- ✓ **Catheterize** the bladder
- ✓ **Antibiotics** (Ampicillin 2g & Metronidazole 500mg IV)

Placenta separated

Express the placenta out by **fundal pressure** or **controlled cord traction method**

Not separated

Manual removal under GA

** Traumatic haemorrhage should be tackled by sutures

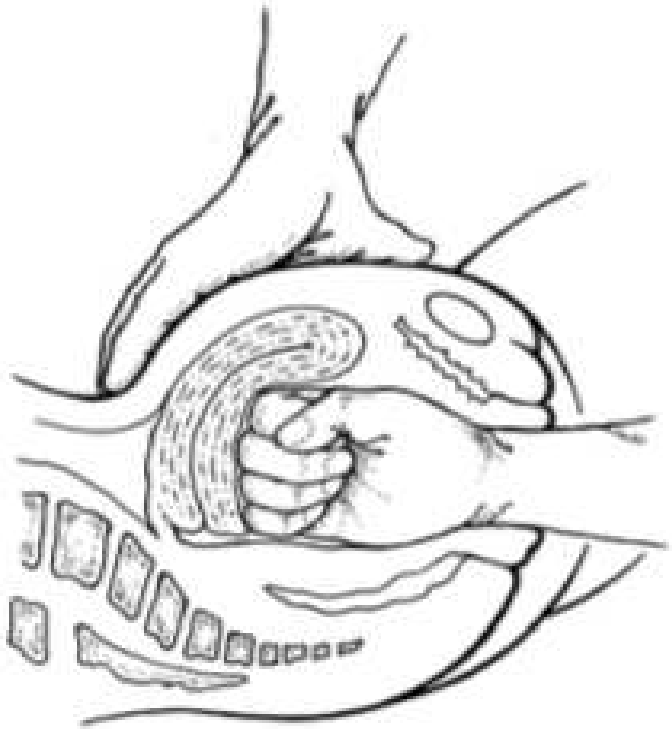
4. ARREST THE BLEEDING

- Depends on the cause of the massive bleeding
- Common cause – **Uterine Atony**
  - Mechanical
  - Pharmacological
  - Surgical

Mechanical

- **Bimanual uterine compression** to stimulate uterus to contract

External

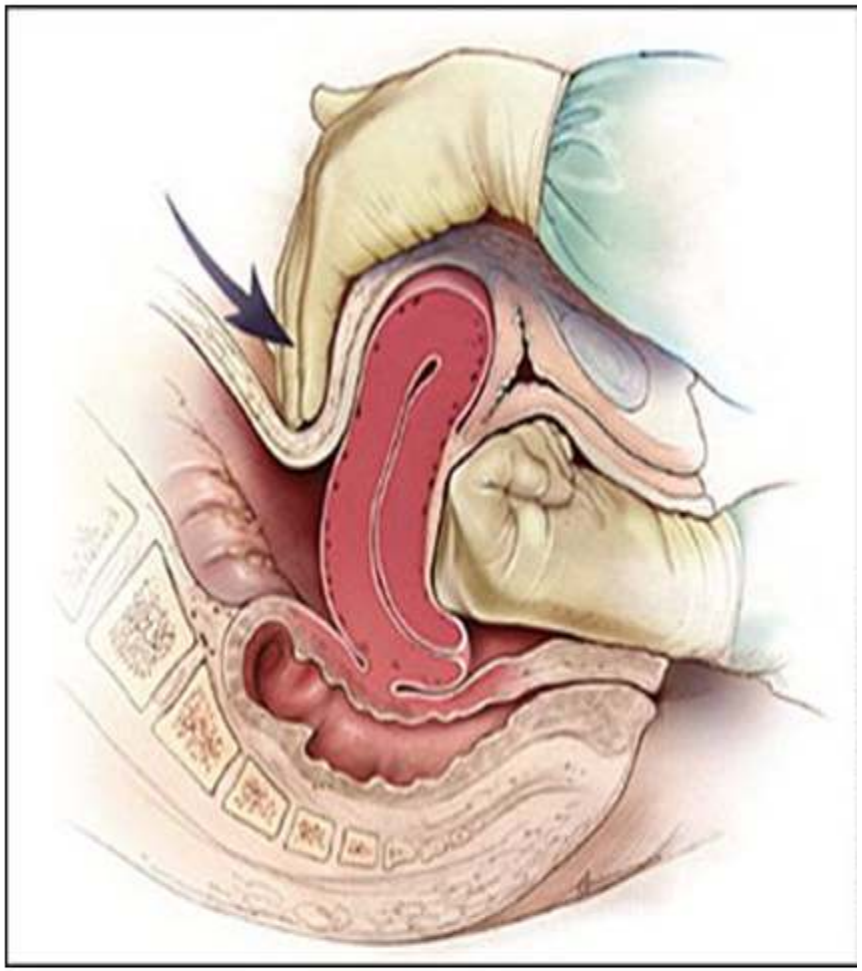


Internal

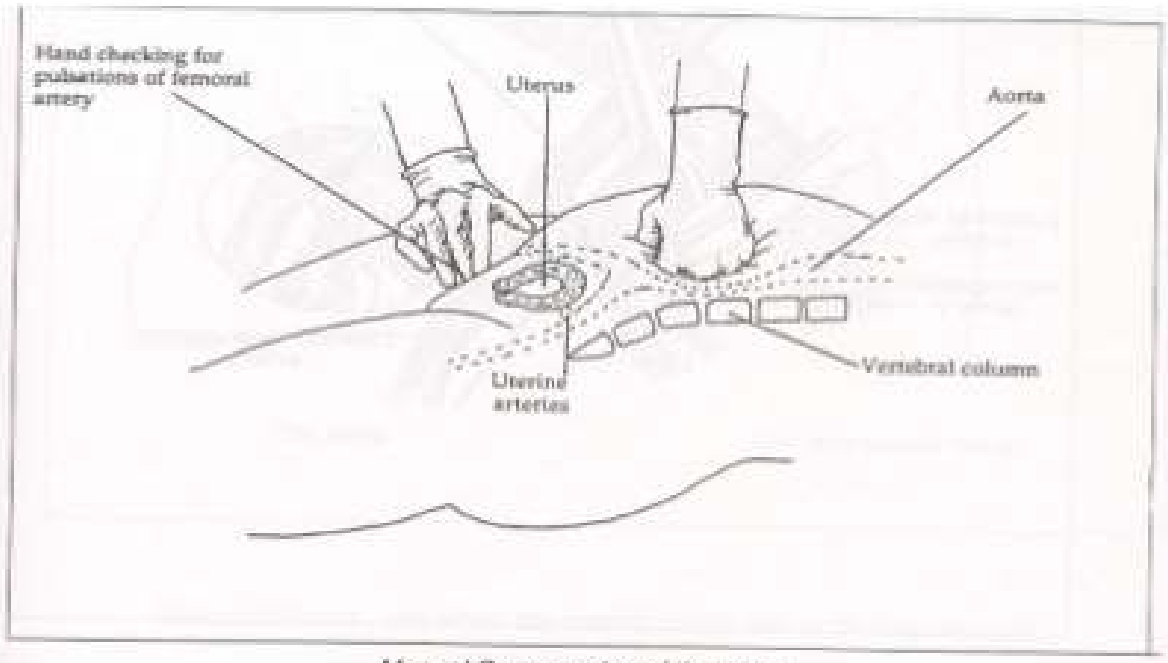
BIMANUAL COMPRESSION

- One hand introduced inside the vagina with fingers aligned like cone

- Bimanual uterine compression massage is performed by placing one hand in the vagina and pushing against the body of the uterus while the other hand compresses the fundus from above through the abdominal wall. The posterior aspect of the uterus is massaged with the abdominal hand and the anterior aspect with the vaginal hand.



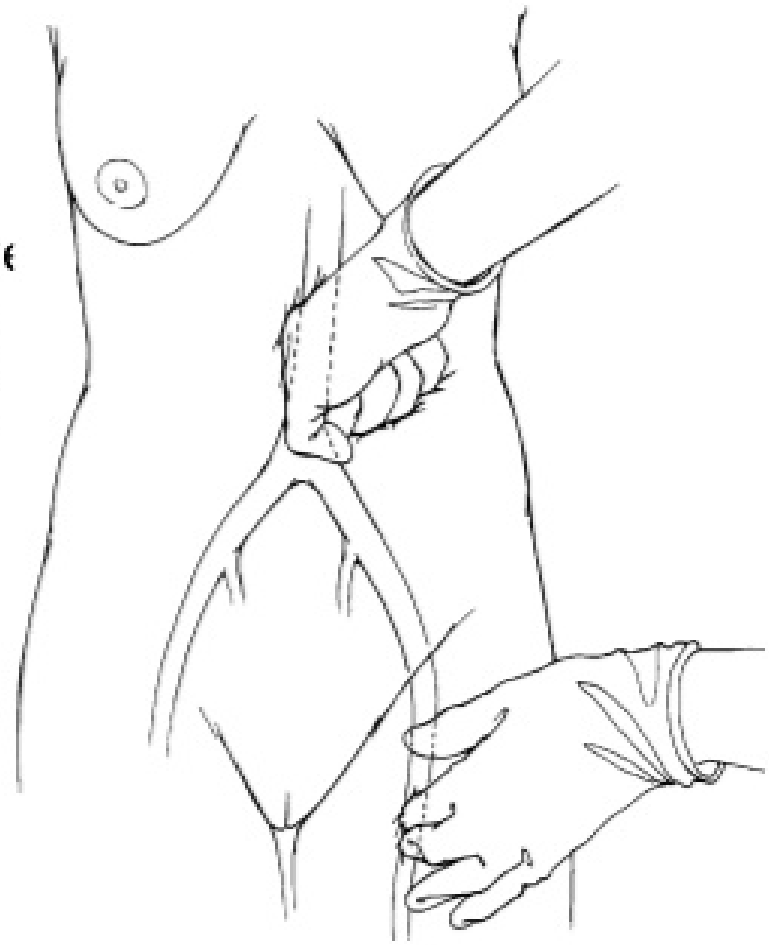
- Aortic Compression



Manual Compression of the aorta

Compression of Abdominal Aorta

- Apply downward pressure with closed fist over abdominal aorta through abdominal wall (just above umbilicus slightly to patient's left)
- With other hand, palpate femoral pulse to check adequacy of compression
  - Pulse palpable = inadequate
  - Pulse not palpable = adequate
- Maintain compression until bleeding is controlled or until she reaches the operation theatre



Pharmacology

- Repeat IM Syntocinon or Syntometrine
- IV Pitocin 40 units in 500 ml Hartmann's solution, run at 125ml/hr
- IM Carboprost (Haemabate®) 0.25mg, may repeated at interval not less than 15 min to a maximum 8 doses (contraindicated in Asthma)

- Intramyometrial of Carboprost 0.25-0.5mg
- Misoprostol 1000 mcg rectally or cervagem per rectally

DRUG THERAPY FOR PPH

Drug	Dose	Side Effects	Contraindications
Oxytocin	10 units IM/IMM 5 units IV bolus 10 to 20 units/litre	Usually none painful contractions nausea, vomiting, (water intoxication)	hypersensitivity to drug
Methylergonovine maleate	0.25mg IM/0.125mg IV repeat every 5 mins as needed maximum 5 doses	peripheral vasospasm hypertension nausea, vomiting	hypertension hypersensitivity to drug
Carboprost (15-methyl PGF_2 alpha)	0.25 IM/IMM repeat every 15 mins as needed maximum 8 doses	flushing, diarrhea, nausea, vomiting bronchospasm, flushing, restlessness, oxygen desaturation	active cardiac, pulmonary, renal, or hepatic disease hypersensitivity to drug
Vasopressin	20 units diluted in 100 ml normal saline = (0.2 units/ml) inject 1 ml at bleeding site avoid intravascular injection	acute hypertension, bronchospasm nausea, vomiting, abdominal cramps angina, headache, vertigo death with intravascular injection	coronary artery disease hypersensitivity to drug

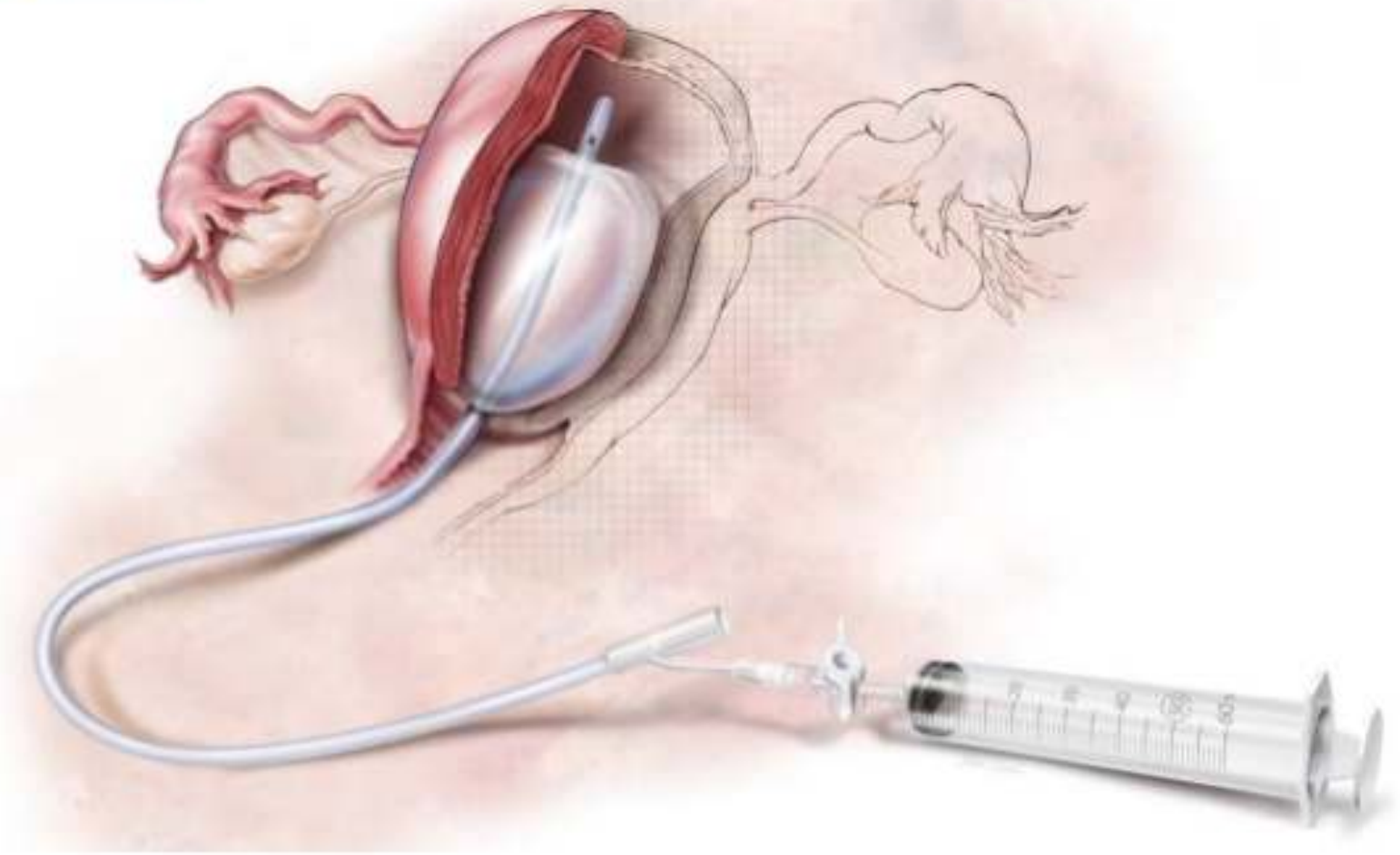
Surgery

- If fail pharmacological
- Depends on the clinical circumstances and available expertise
- First line is **Balloon Tamponade**
  - Various types of hydrostatic balloon catheter
  - Foley catheter, Bakri balloon, Sengstaken-Blakemore oesophageal catheter and a condom catheter

COOK MEDICAL

Bakri

POSTPARTUM BALLOON



- The intervention describe as the **'tamponade test'**

- A '**positive test**' : able to control PPH following inflation of the balloon, indicate that laparotomy is not required
- A '**negative test**' : continued bleeding following inflation of the balloon, indication to proceed to laparotomy

- No evidence of how long the balloon tamponade should be left in place
- Most cases, 4-6 hours of tamponade is adequate to achieve haemostasis
- Should be remove during daytime hours with presence of appropriate senior staff as further intervention may be necessary

- **Haemostatic Brace Suturing**
  - **B-Lynch suture** (describe in 1997)

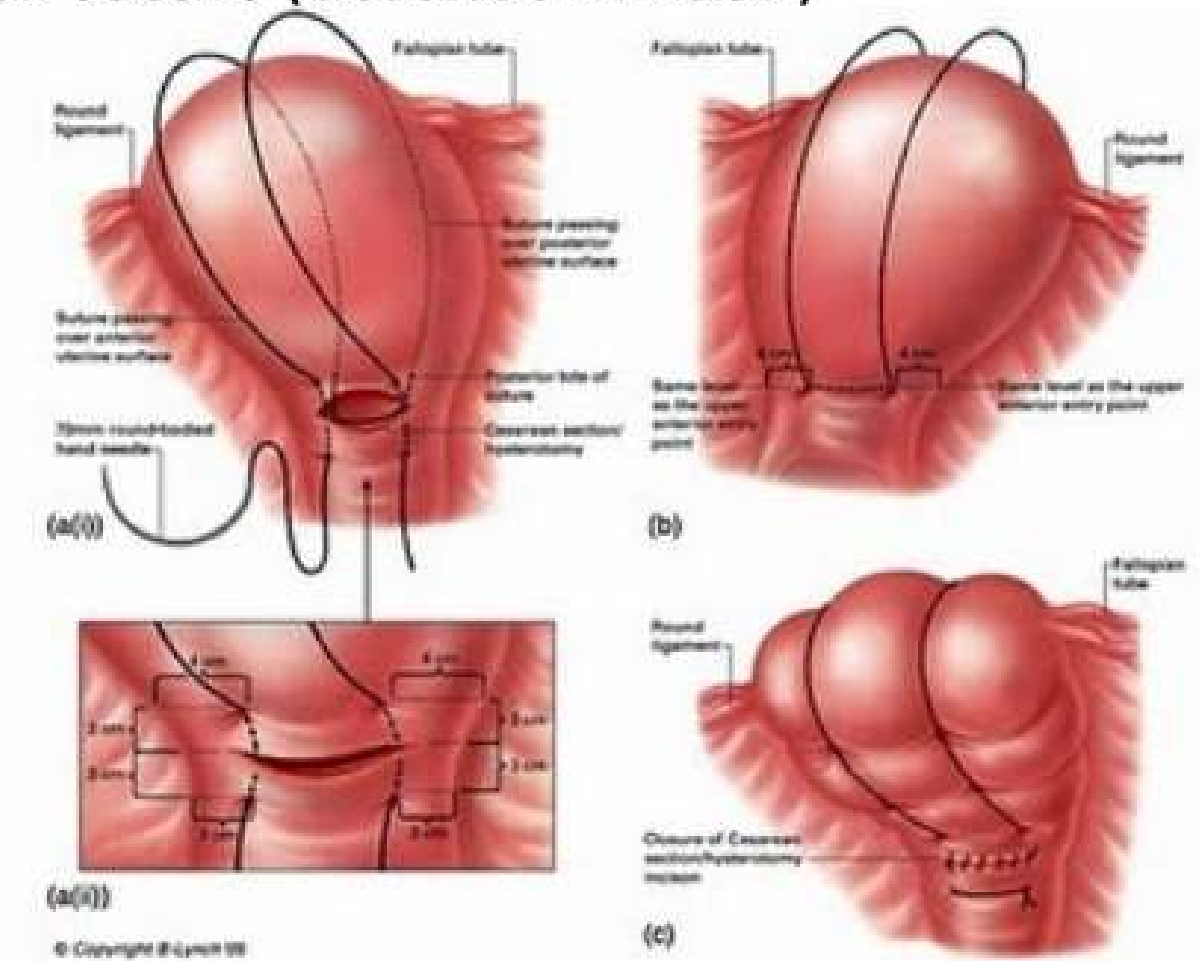


Figure 2a–c Summary of the application of the B-Lynch procedure

- **Hayman suture**, describe in 2002 with modified compressive suture which does not require hysterotomy
- **Vertical compression sutures**

- Effective technique to controlling severe PPH and reducing the need for hysterectomy
- Cx : pyometria, partial uterine necrosis

- Bilateral ligation of uterine arteries
- Bilateral ligation of internal iliac arteries
- Selective arterial embolization
- **Hysterectomy**
  - Need second consultant to involved in decision of hysterectomy

4. ARREST THE BLEEDING

- **Case of RETAINED PLACENTA**
  - empty bladder, attempt CCT
  - If fail, proceed with **Manual Removal of Placenta (MRP)** either under sedation or GA
  - Take consent
  - If under sedation, give IV Pethidine 25-50mg stat, IV Midazolam 2.5-5.0 mg stat
  - Continous SPO_2 monitoring, Litothomy position

- IV Ampicillin 1g stat, IV Flagyl 500 mg stat
- Fully gown, mask, long-sleeve glove
- **Introduce one hand into vagina along the cord**

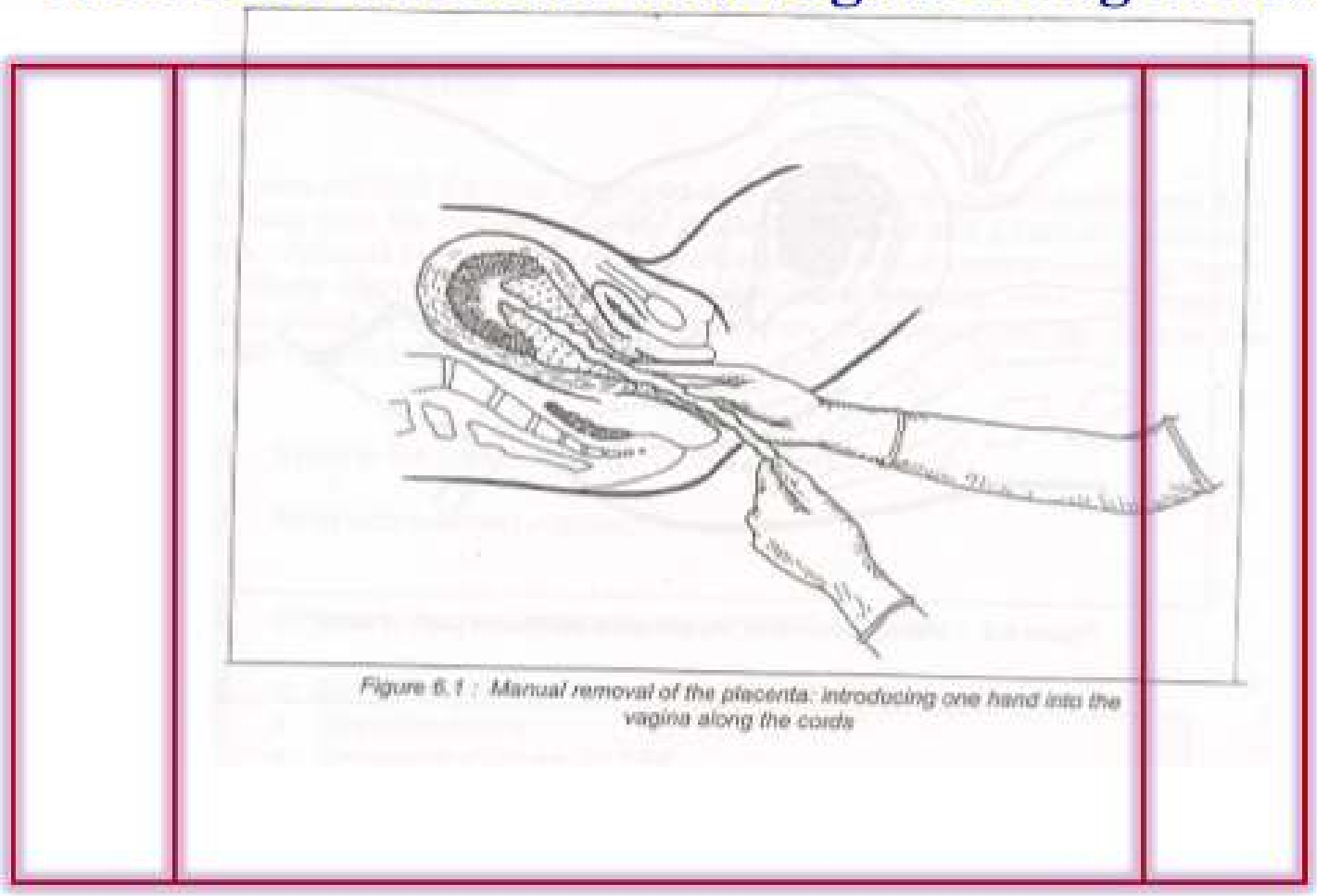


Figure 6.1 : Manual removal of the placenta: introducing one hand into the vagina along the cords

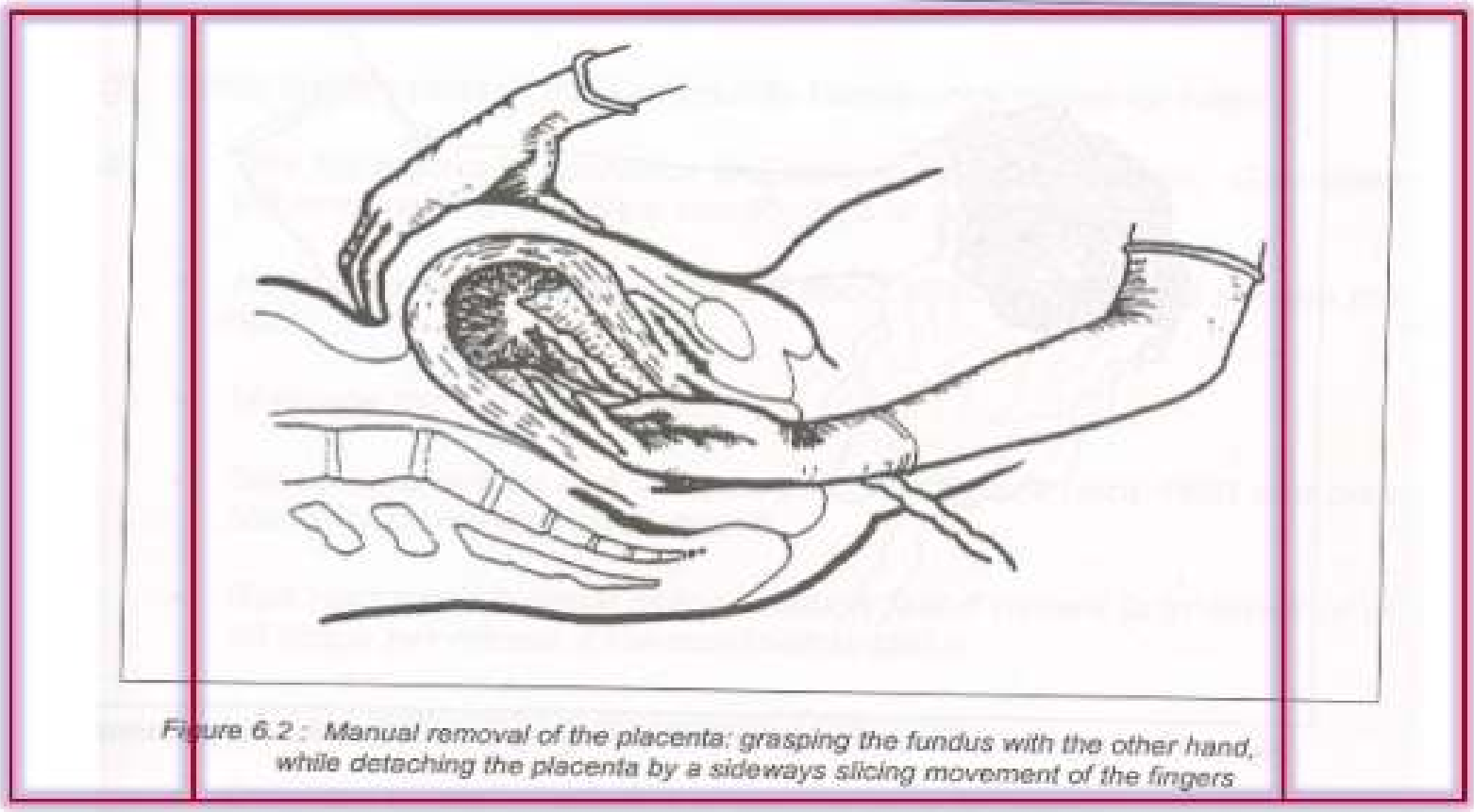


Figure 6.2 : Manual removal of the placenta: grasping the fundus with the other hand, while detaching the placenta by a sideways slicing movement of the fingers

- Other hand grasp the fundal of uterus and the hand just now move through the cervix to the intrauterine cavity
- Detaching the placenta by sideways slicing movement of the fingers

- Once able to detach the placenta part from the intrauterine wall, grasp the placenta and bring out in piece
- Then recheck again inside the uterus for any remnant part of placenta

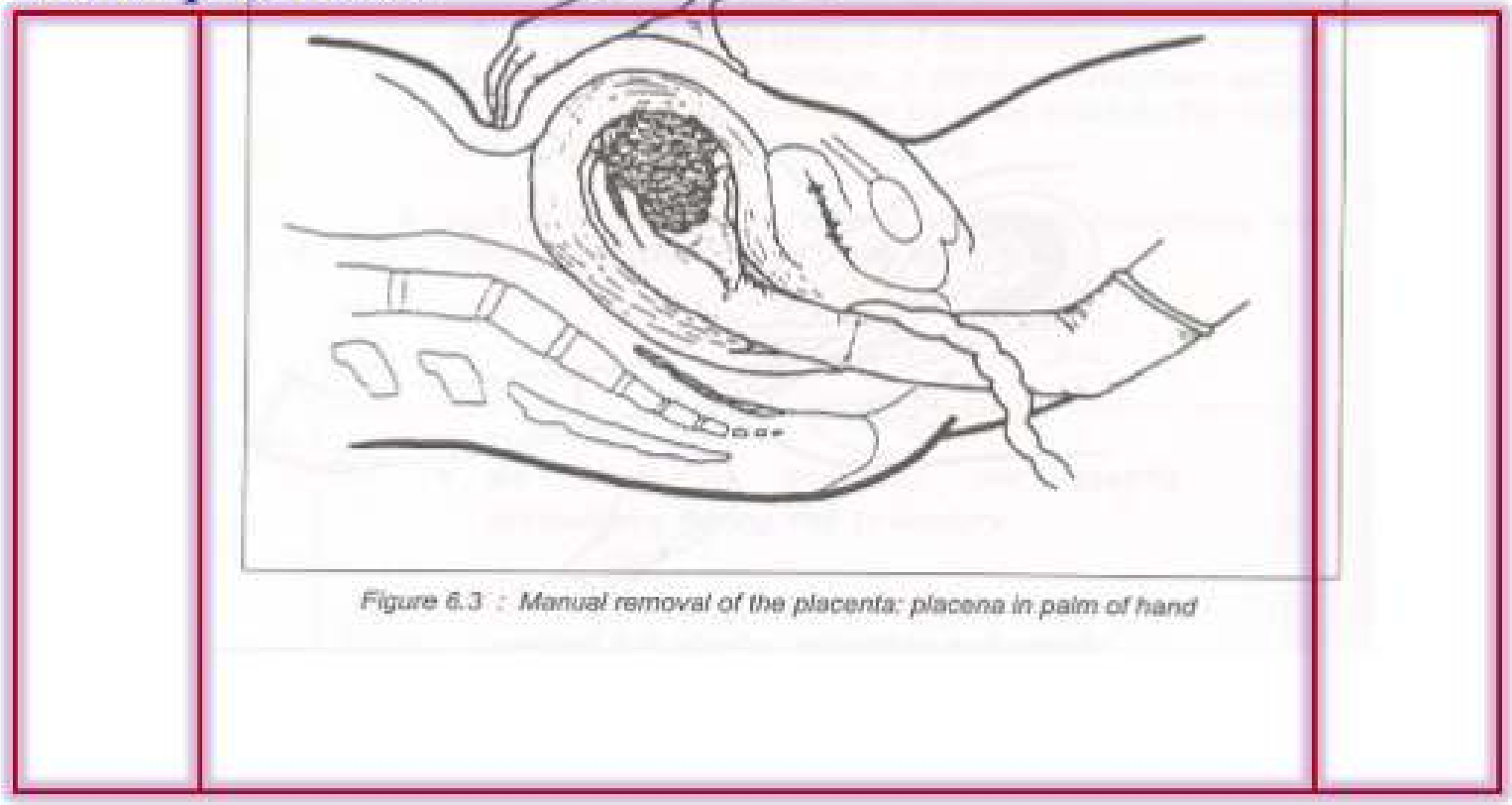


Figure 6.3 : Manual removal of the placenta: placena in palm of hand

4. ARREST THE BLEEDING

- Management of **Genital Tract Trauma**
  - **Suture the cervical / vaginal wall tear**
  - **May need vaginal packing**
  - **Cover with broad spectrum antibiotic**

SECONDARY POSTPARTUM HEMORRHAGE

- Any sudden loss of blood from genital tract after the first 24 hrs of postpartum and within 6 weeks of delivery

Etiology

- Mostly due to retention of portion of placenta or membranes ,which maybe infected
- Rarely ,it maybe due to submucous fibromyoma or choriocarcinoma

Clinical presentation

- General condition depends upon amount of blood loss
- The bleeding maybe preceded by persistent foul smelling lochia , sub involution of uterus and fever

Diagnosis

- Ultrasound – reveal presence or absence of retained products

Management

- A high vaginal swab should be taken for culture
- Broad spectrum antibiotics should be started

- If ultrasound retained products

- Uterus should be evacuated under anaesthesia
- Tissue obtained should be sent for culture and histopathological examination

If there is clinical evidence of sepsis

- The evacuation of retained products should be delayed for 12-24 hrs
- Start broad spectrum I.v antibiotics

If bleeding is very severe

- Uterine artery ligation or hysterectomy may be required .

Retained placenta

- The placenta separates from the uterine cavity within few minutes of birth of the child and it is expelled within 15-20minutes or even much earlier

Retained placenta

- Definition – placenta not separated and expelled within half to one hour after the delivery of the baby

Causes

- Placenta separated but not expelled
- Simple Adherent Placenta
- Morbid adherence of the placenta:
    - Placenta Accreta
    - Placenta Increta
    - Placenta Percreta

- Constriction ring-reforming cervix
- Full bladder
- Uterine abnormality

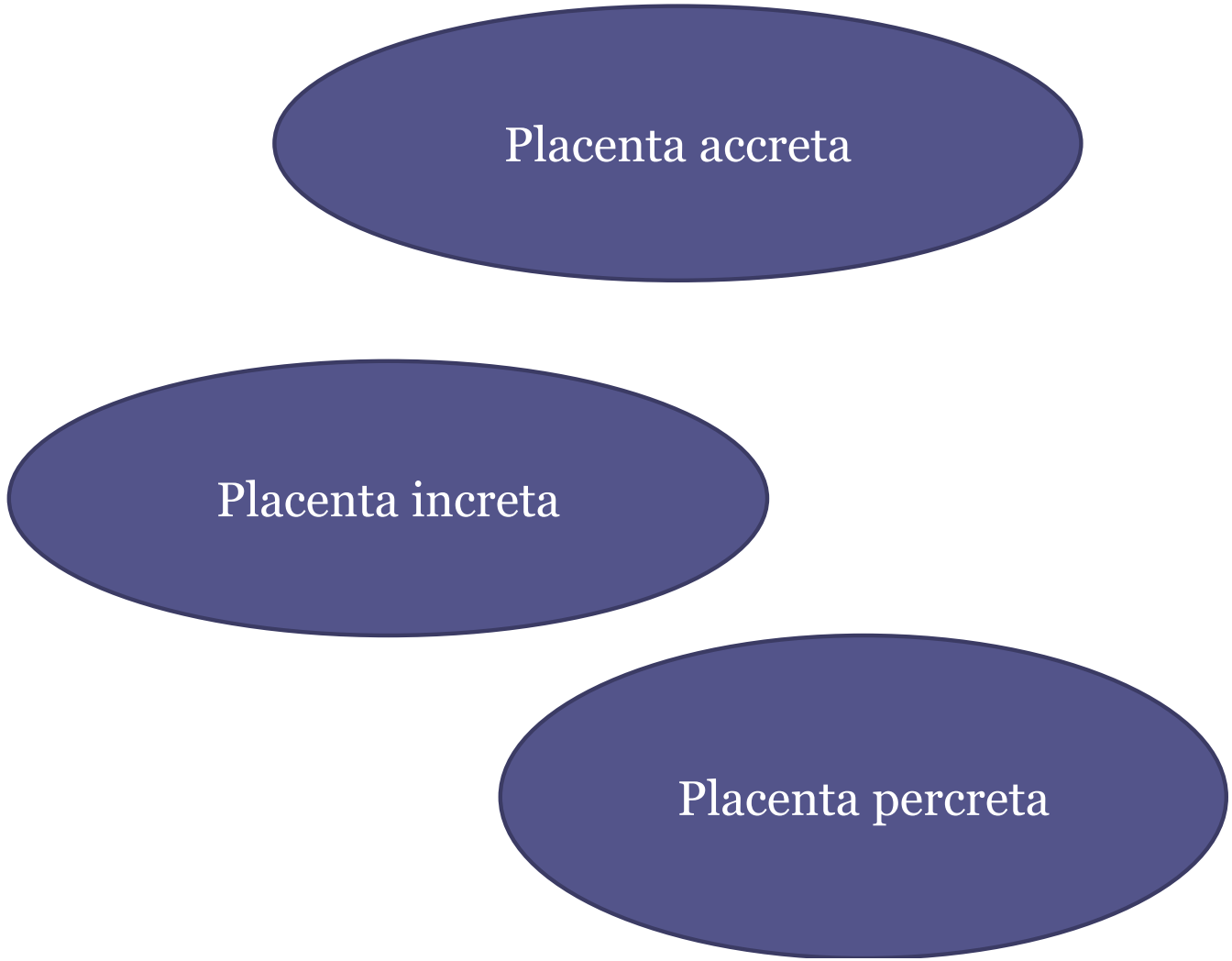
Causes of Retained Placenta

- Placenta separated but not expelled: The placenta may separate completely from the uterine muscle but may still be retained within the uterus. There are three causes for this retention:
- Failure of the woman to push out the placenta due to exhaustion or prolonged labour.
- Closure of the cervix preventing the placenta from being expelled.
- A constriction ring in the uterus can hold up the placenta

- Simple Adherent Placenta:The placenta may fail to separate completely from the uterine muscle due to lack of contraction of the uterine muscles. This condition, called 'uterine atonicity' occurs in cases where the uterine muscles have become lax, either due to repeated pregnancy, prolonged labor or overdistension of the uterus during pregnancy, as in twin pregnancy. Simple Adherent Placenta is the commonest cause for retention of placenta.

- Morbid adhesion of the placenta: Morbid adhesion of the placenta can occur when the placenta is implanted deeply into the uterine muscles and thus fails to separate. The placenta can burrow upto different depths in the uterine muscle. In simple cases, it is only attached firmly to muscle and can be stripped off by hand. In severe morbid adhesion, the placenta can burrow through the full thickness of the muscle. In this case, the uterus may be needed to be removed ('hysterectomy') to control the bleeding. There are three types of morbid adhesion of the placenta

Types of morbid adherent placenta



Placenta accreta

- Abnormal adherence ,either in whole or in part of placenta ,to underlying uterine wall
- Pathologically there may be a complete or partial absence of deciduas basalis ,especially the spongiosa ,thus placing tropoblast in direct contact with subjacent myometrium

Types

- Total – involving entire placenta
- Partial – involving one or more cotyledons
- Focal – involving part of single cotyledon

- PLACENTA ACRETA – placental villi are attached to the myometrium
- PLACENTA INCRETA – tropoblast invaded the myometrium
- PLACENTA PRECETA – villi penetrate through the myometrium

MANAGEMENT

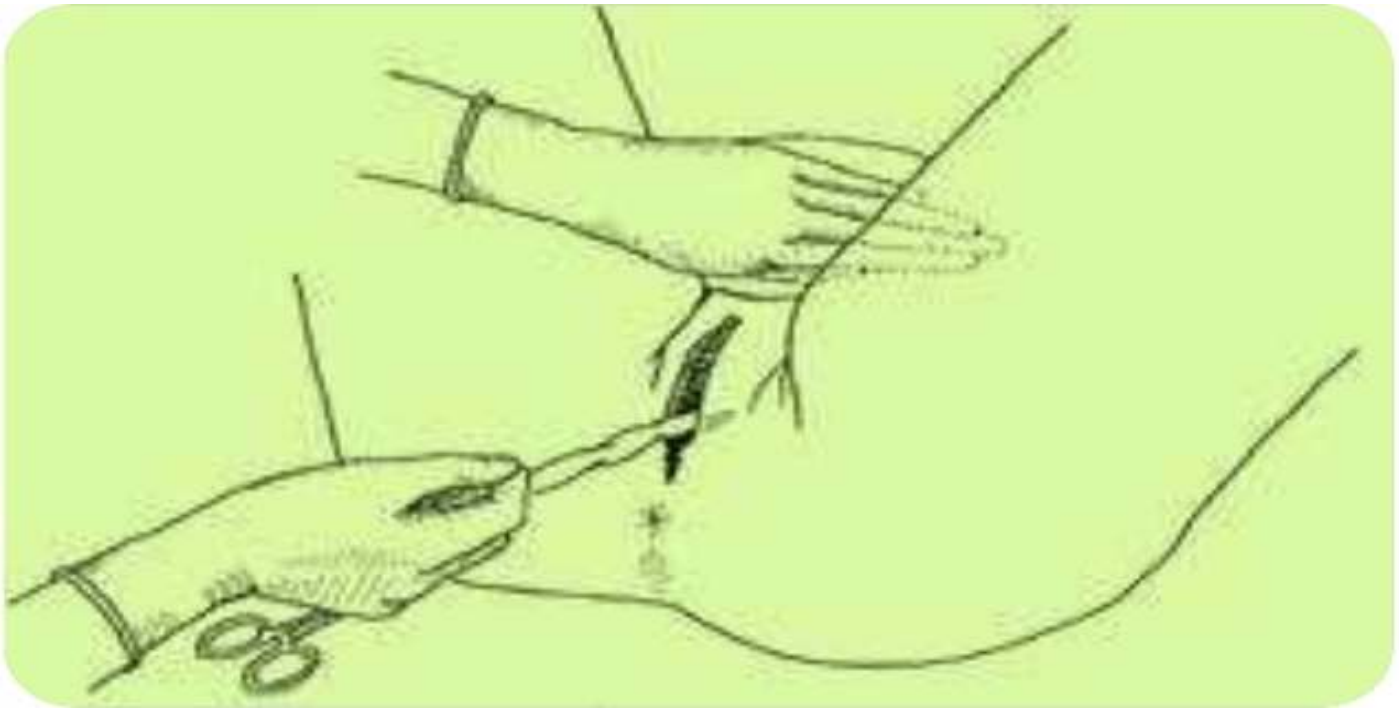
If the placenta is undelivered after 30 minutes consider:

- Emptying bladder
- Breastfeeding or nipple stimulation
- Change of position - encourage an upright position

- The management is done according to condition of placenta as
  - Seperated
  - Unseparated
  - complicated
- If the placenta is separated and retained :express placenta by controlled cord traction
- Unseparated retained placenta :manual removal of placenta under general anesthasia

Controlled cord traction

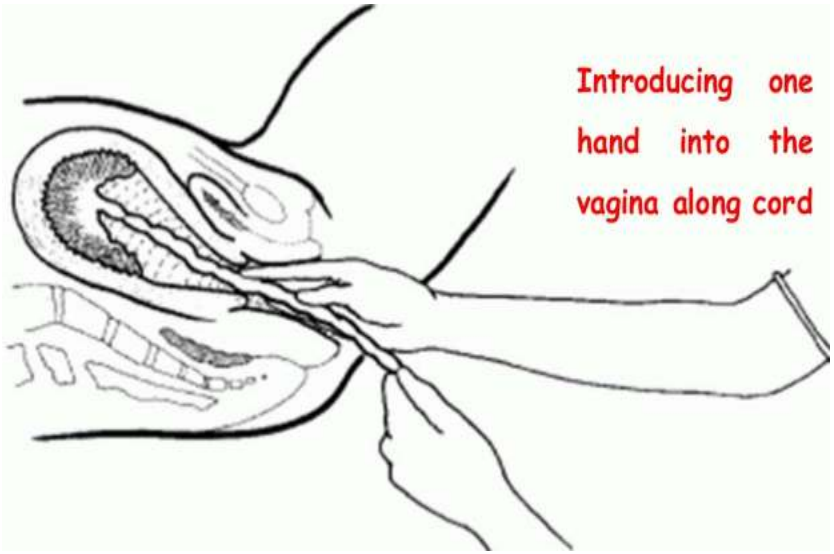
- If the placenta is separated but not expelled, then controlled cord traction should be carried out. In this method, the uterus is held in place or pushed up gently through the abdominal wall by the left hand. The cut umbilical cord hanging from the vagina is held in the right hand and pulled steadily and slowly to pull out the placenta.

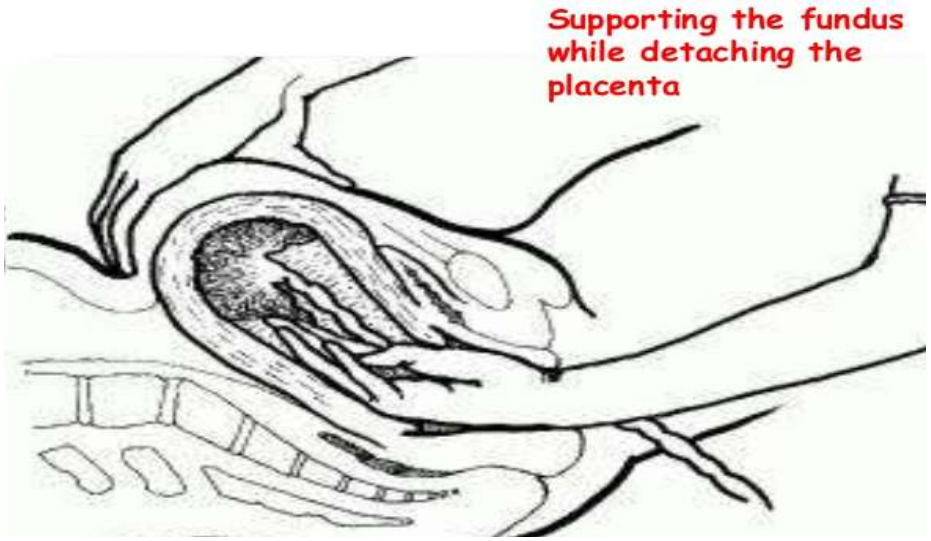


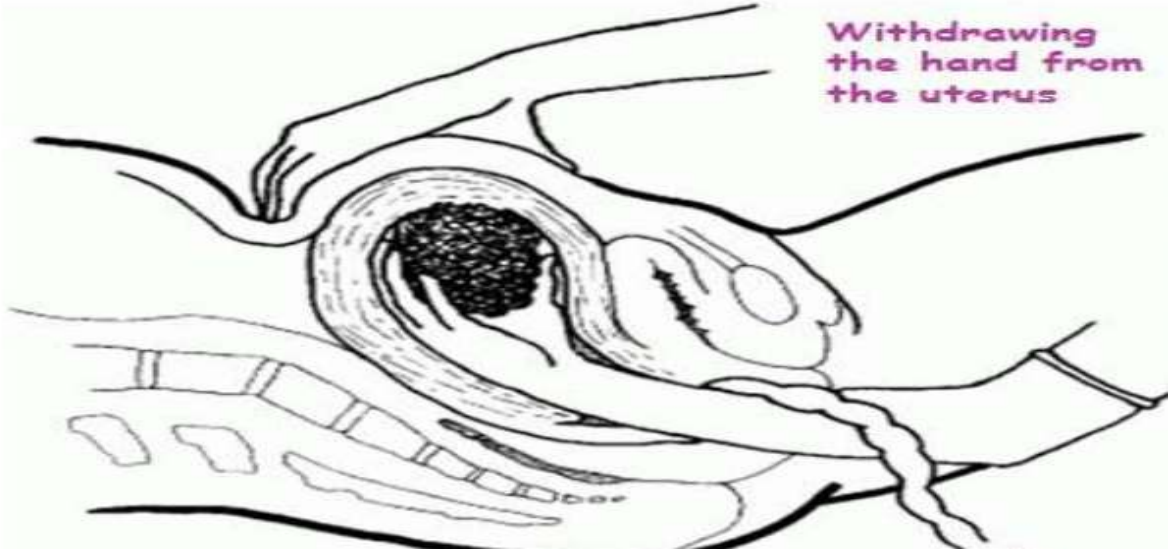
IF BLEEDING: IMMEDIATELY

- Inform Anaesthetist
- Insertion of large bore IV (18g) cannula
- Insert urinary catheter
- Commence/continue oxytocin infusion 20 units in 1 litre / rate – 60drops per min
- Measure and accurately record blood loss
- Prepare and transfer patient to theatre for manual removal of placenta (MROP)

Manual removal of placenta







- If the placenta does not separate from the uterine wall by gentle lateral movement of the fingers at the line of cleavage, suspect placenta accreta and arrange for surgical intervention

Hysterectomy

- When the placenta is completely separated:
  - Palpate the inside of the uterine cavity to ensure that all placental tissue has been removed.
  - Slowly withdraw the hand from the uterus bringing the placenta with it.
  - Continue to provide counter-traction to the fundus by pushing it in the opposite direction of the hand that is being withdrawn.

- Give oxytocin 20 units in 1 L IV fluid (normal saline or Ringer's lactate) at 60 drops/minute.
- Have an assistant massage the fundus to encourage atonic uterine contraction.
- If there is continued heavy bleeding, give ergometrine 0.2 mg IM or give prostaglandins.
- Examine the uterine surface of the placenta to ensure that it is complete.
- Examine the woman carefully and repair any tears to the cervix or vagina, or repair episiotomy.

POST-PROCEDURE CARE

- Observe the woman closely until the effect of IV sedation has worn off.
- Monitor the vital signs (pulse, blood pressure, respiration) every 30 minutes for the next 6 hours or until stable.
- Palpate the uterine fundus to ensure that the uterus remains contracted.
- Check for excessive lochia.
- Continue infusion of IV fluids.
- Transfuse as necessary.

COMPLICATIONS OF RETAINED PLACENTA

- Shock
- Postpartum haemorrhage
- Puerperal Sepsis
- Subinvolution
- Hysterectomy
- Embolism
- Thrombophlebitis
- Risk of reoccurence

Uterine inversion

- Collapse of fundus into uterine cavity I,e uterus being turned inside out may occur immediately after delivery
- It is rare and potentially life threatening complication of third stage labour

CLASSIFICATION

- Inversion Of Uterus is Classified in Mainly 3 Types :

A. According Types
B. According Degrees
C. According the Timing of Event

A. Types

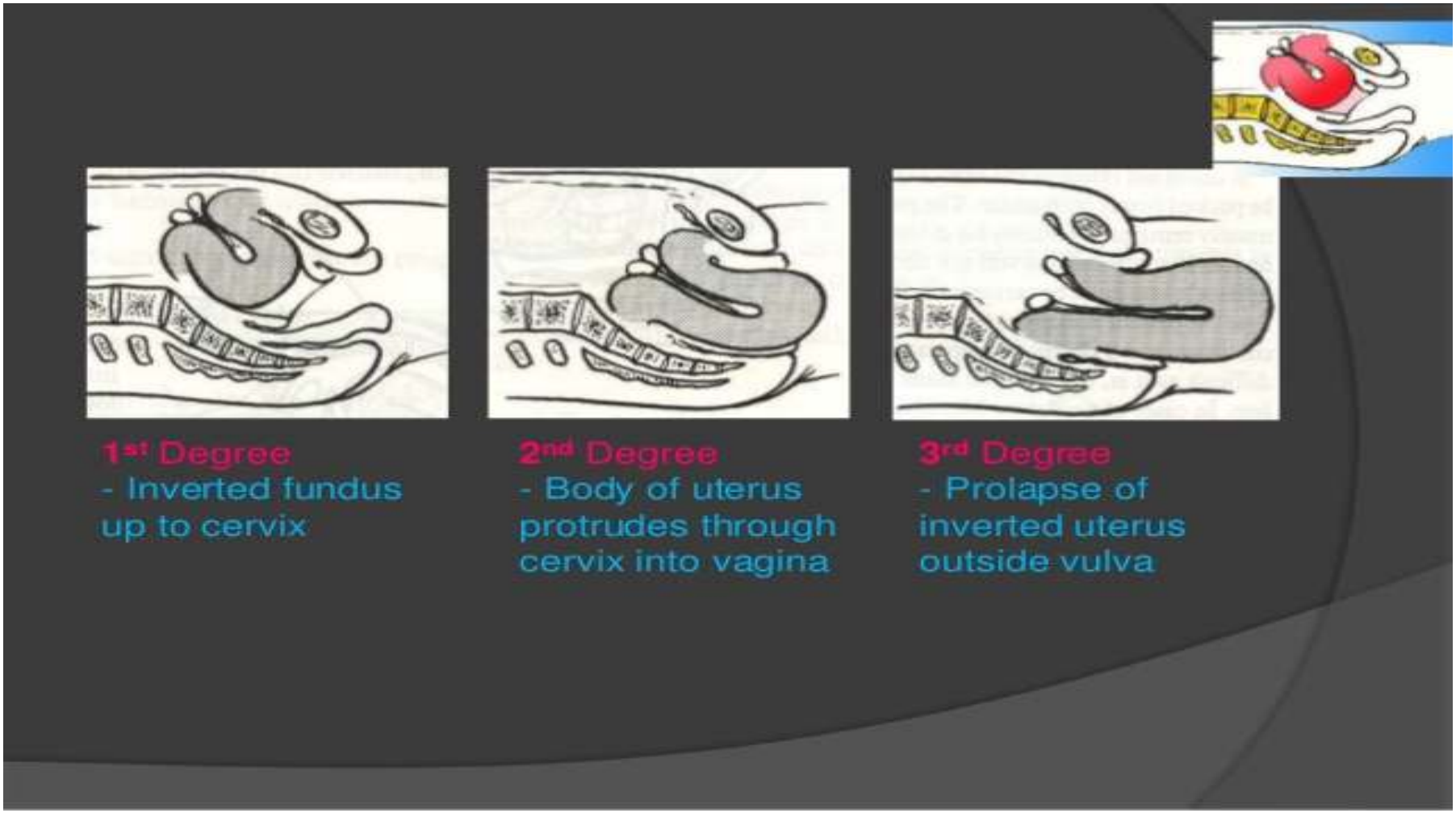
1) *Incomplete Inversion :*

When fundus of uterus has turned inside out, like toe of socks, but inverted fundus has not descended through Cx…

2) *Complete Inversion :*

When the inverted fundus has passed completely through Cx to lie within the vagina or lie often outside the Vaginal Wall.

According to degree



C. According to Timing of Event

- Acute : It occurs within 24 hrs of delivery.
- Sub-acute : It presents between 24 hrs & 4 wks of delivery.
- Chronic : It presents beyond 4 wks of delivery or in non pregnant stage.

CAUSES

- Excessive cord traction (esp. with an unseparated placenta)
- Excessive fundal pressure (esp. when uterus is poorly contracted 'Atonic)
- Placenta accreta
- Congenital predisposition
- Fundal implantation of placenta
- Either Spontaneous OR Iatrogenic causes.

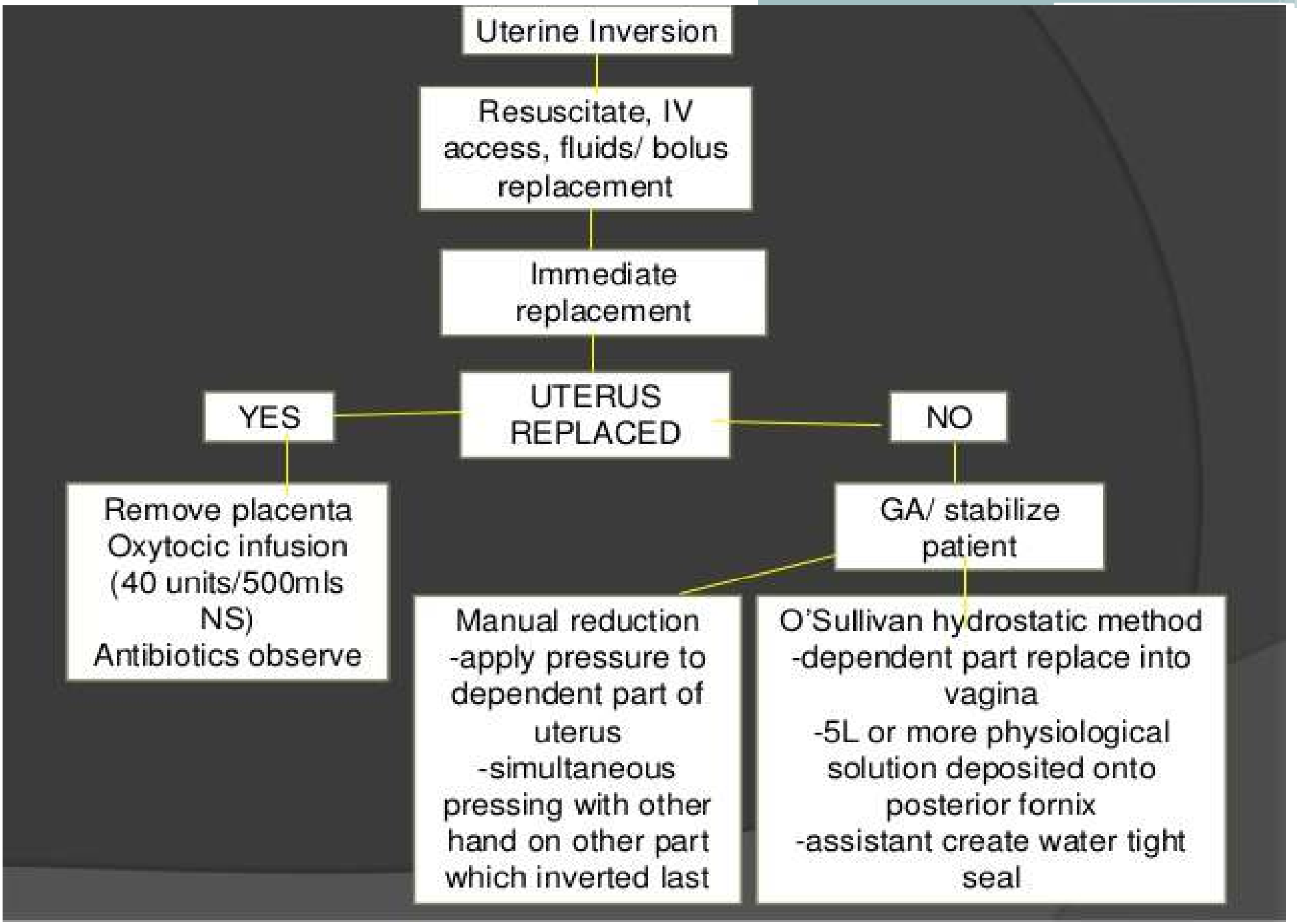
Sign & Symptoms

- Hemorrhage (94%)
- Severe abdominal pain in 3rd stage
- Hypotension with Bradycardia: shock out of proportion to the blood loss (neurogenic due to increased vagal tone)
- Uterine fundus not palpable abdominally
- Mass in the vagina on vaginal examination.
- Sudden cardiovascular collapse
- Lump in the vagina
- Abdominal tenderness
- Absence of uterine fundus on abdominal palpation

DIAGNOSIS

- The diagnosis of uterine inversion is based upon clinical findings:
- **Bleeding,** which may be severe and result in Hemorrhagic Shock

- Palpation of the **prolapsed uterine fundus**:
- Lower uterine segment = INCOMPLETE
- Vagina = COMPLETE
- By Intra Uterine Manual Examination


Uterine Inversion
Resuscitate, IV access, fluids/ bolus replacement
Immediate replacement
UTERUS REPLACED
YES
NO
Remove placenta
Oxytocic infusion (40 units/500mls NS)
Antibiotics observe
GA/ stabilize patient
Manual reduction
-apply pressure to dependent part of uterus
-simultaneous pressing with other hand on other part which inverted last
O'Sullivan hydrostatic method
-dependent part replace into vagina
-5L or more physiological solution deposited onto posterior fornix
-assistant create water tight seal

TO KNOW AND NOT TO DO IS NOT TO KNOW

Dr. M.G.R

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