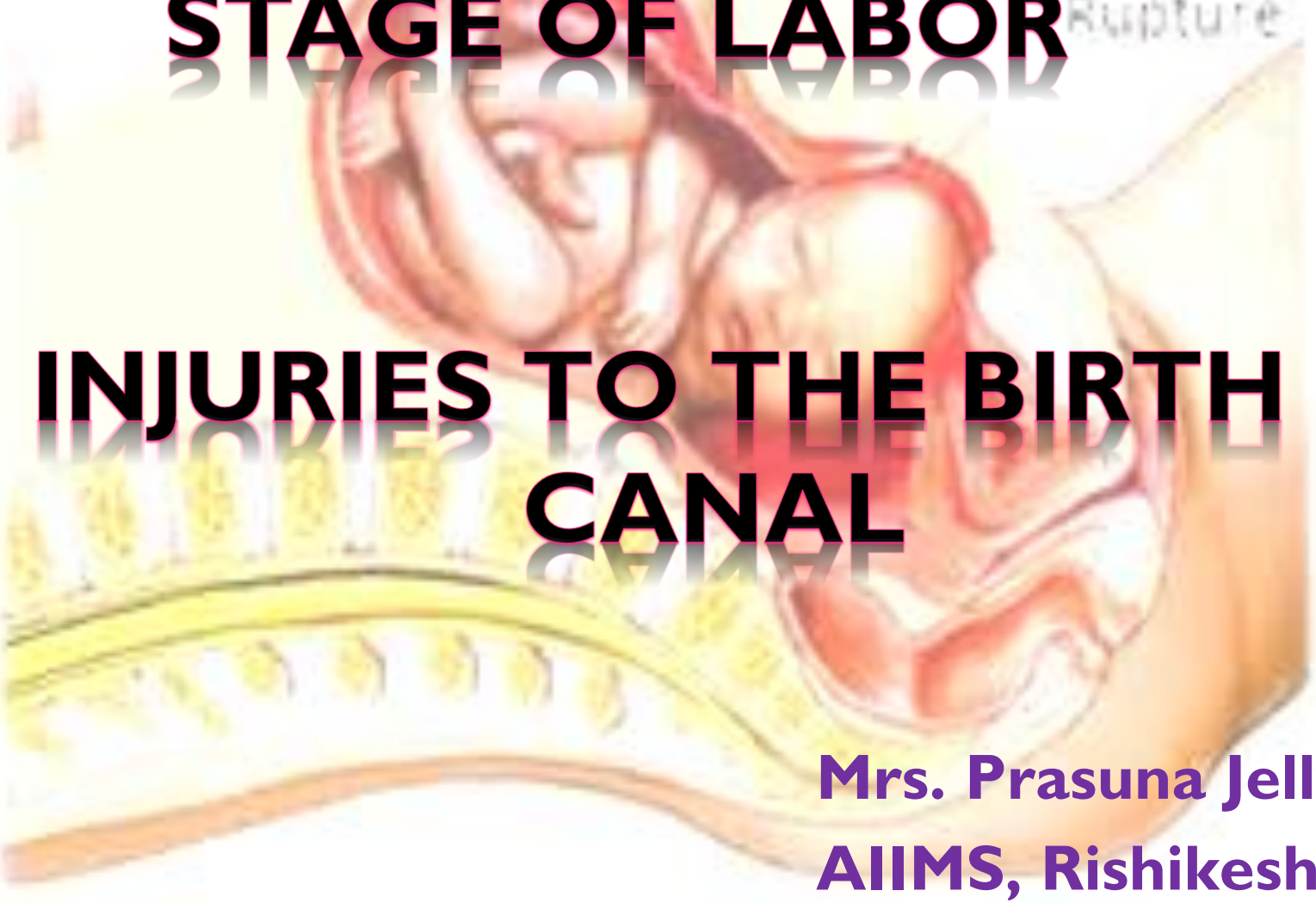
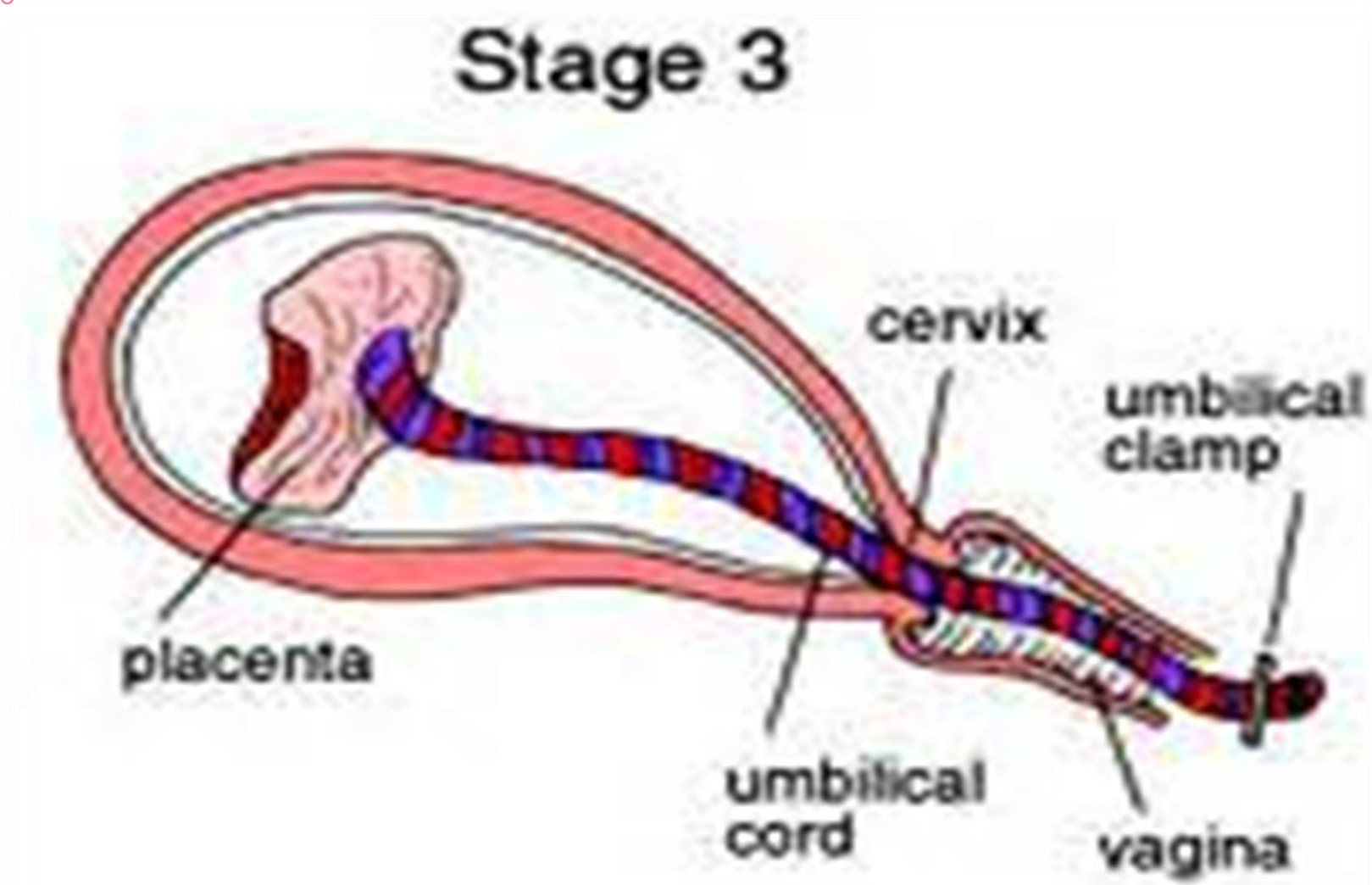
COMPLICATION OF THIRD STAGE OF LABOR



INJURIES TO THE BIRTH CANAL

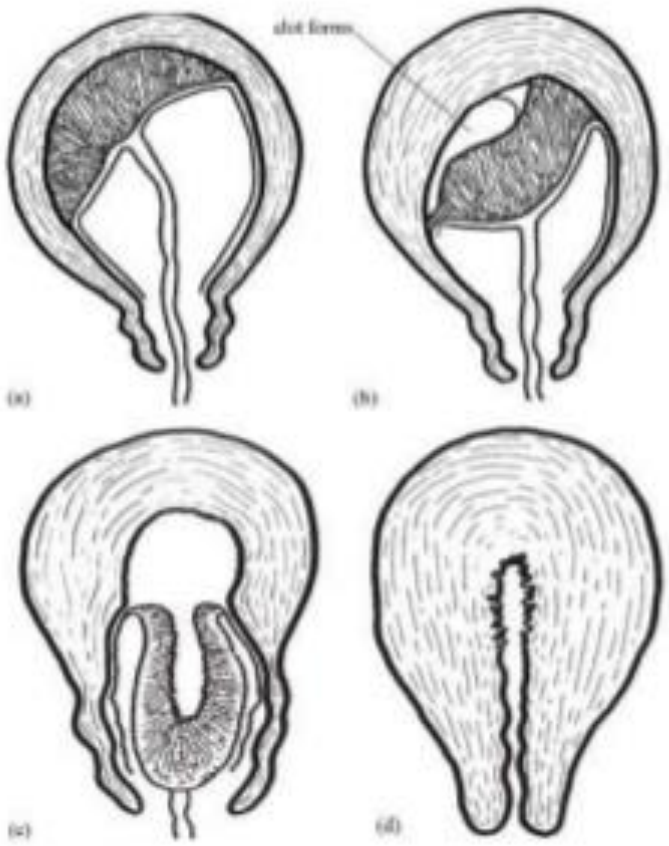
Mrs. Prasuna Jelly,
AIIMS, Rishikesh.

THIRD STAGE OF LABOR?



3rd STAGE OF LABOR

Time from the birth of the baby to the expulsion of the placenta and its membrane



Events:

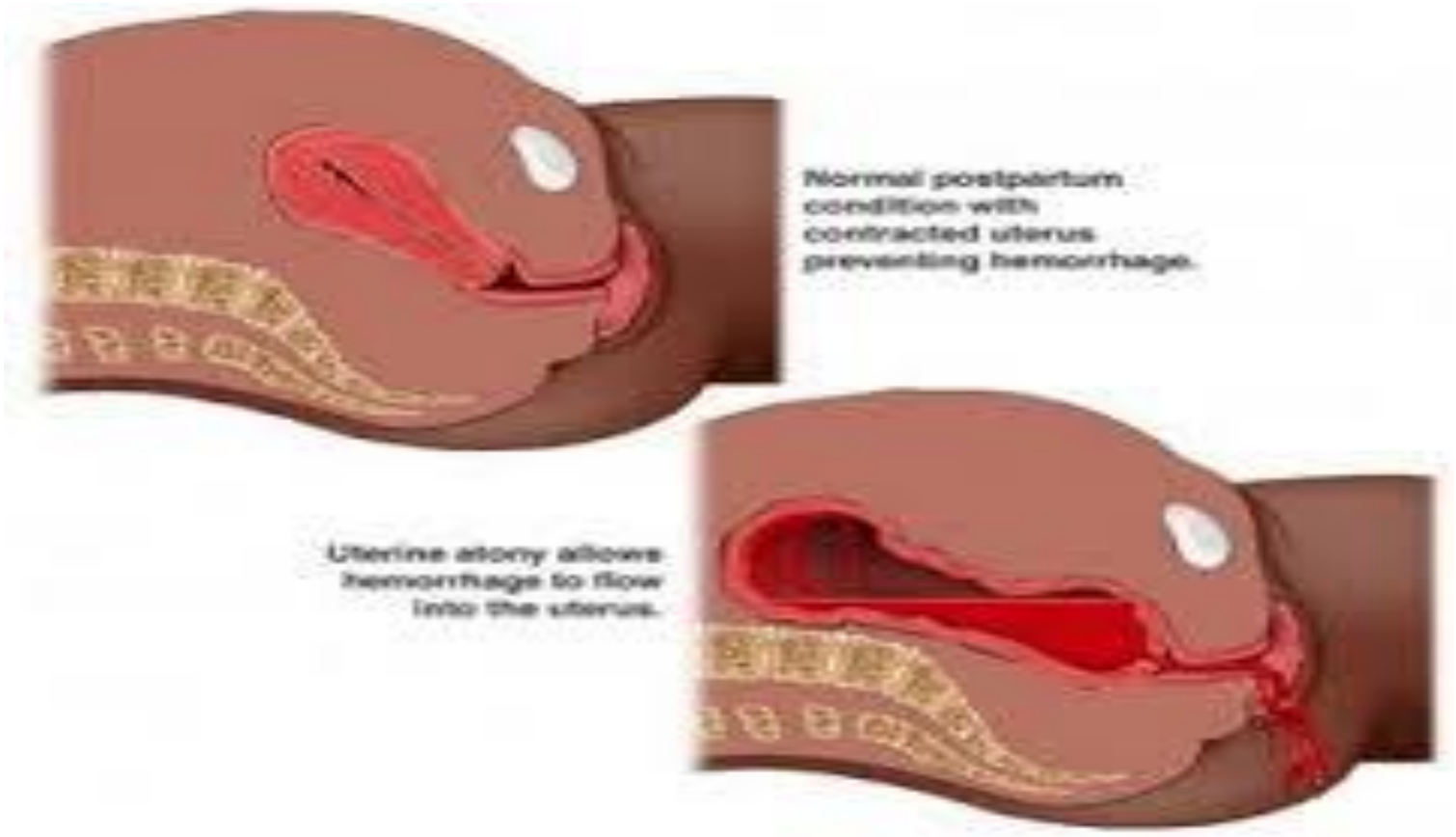
- Placental separation
- Descent to lower segment
- Expulsion with membrane.

TOTAL DURATION OF THIRD STAGE OF LABOR?

AVERAGE

Vaginal delivery	Cesarean delivery	Cesarean hysterectomy
500mL	1000mL	1500mL

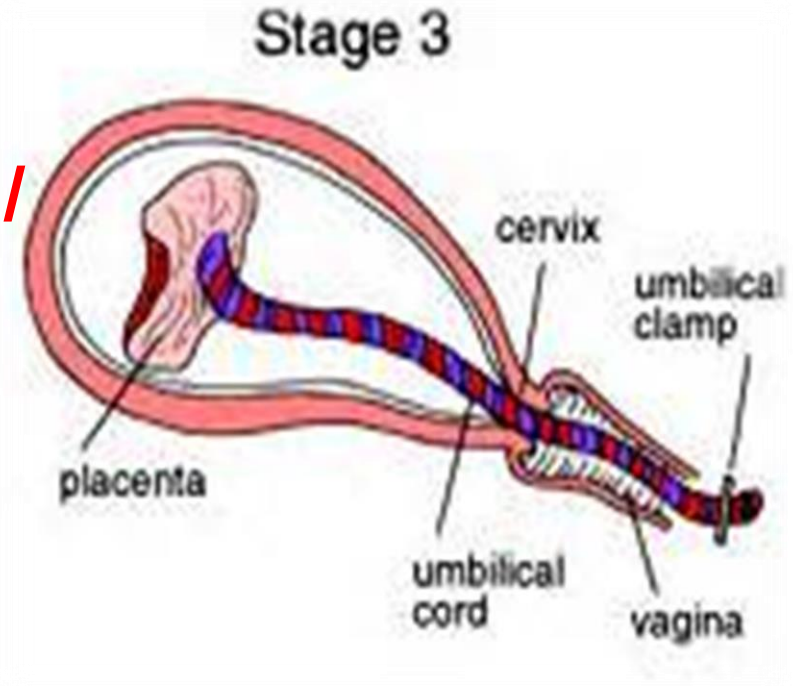
SEVERE BLEEDING IN THIRD STAGE OF LABOR CALLED?



COMPLICATION OF THIRD STAGE OF LABOR

The important complication of third stage of labor:-

- ***Post partum hemorrhage***
- ***Retention of placenta***
- ***Inversion of the uterus***
- ***Amniotic fluid embolism/ Pulmonary embolism***
- ***Obstetric Shock***
- ***Injuries to birth canal***



Important 3rd stage complication

Postpartum hemorrhage

Retention of placenta

Shock

Pulmonary embolism

Uterine inversion

POST PARTUM HEMORRHAGE

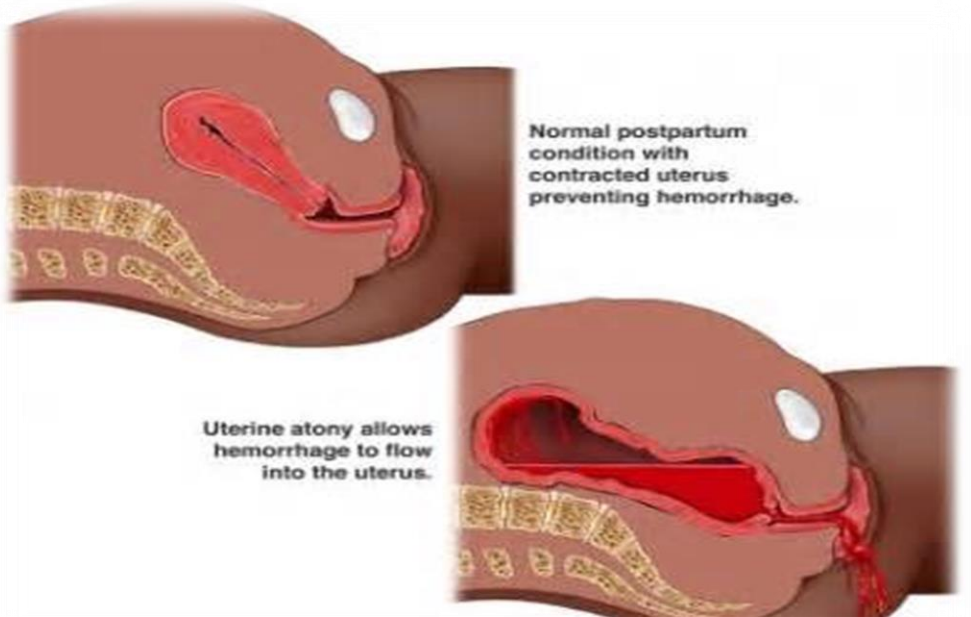
DEFINITION

- **Quantitative (WHO):**

  Amount of **blood loss** in **excess of 500mL** following birth of baby.

DEFINITION :-

" Any amount of bleeding from or into the genital tract following birth of the baby up to the end of the puerperium which adversely affect the general condition of the patient evidenced by rise in pulse rate and falling blood pressure is called post partum hemorrhage".



DEFINITION

- **Clinical :**

  Any amount of bleeding,

  from or into genital tract,

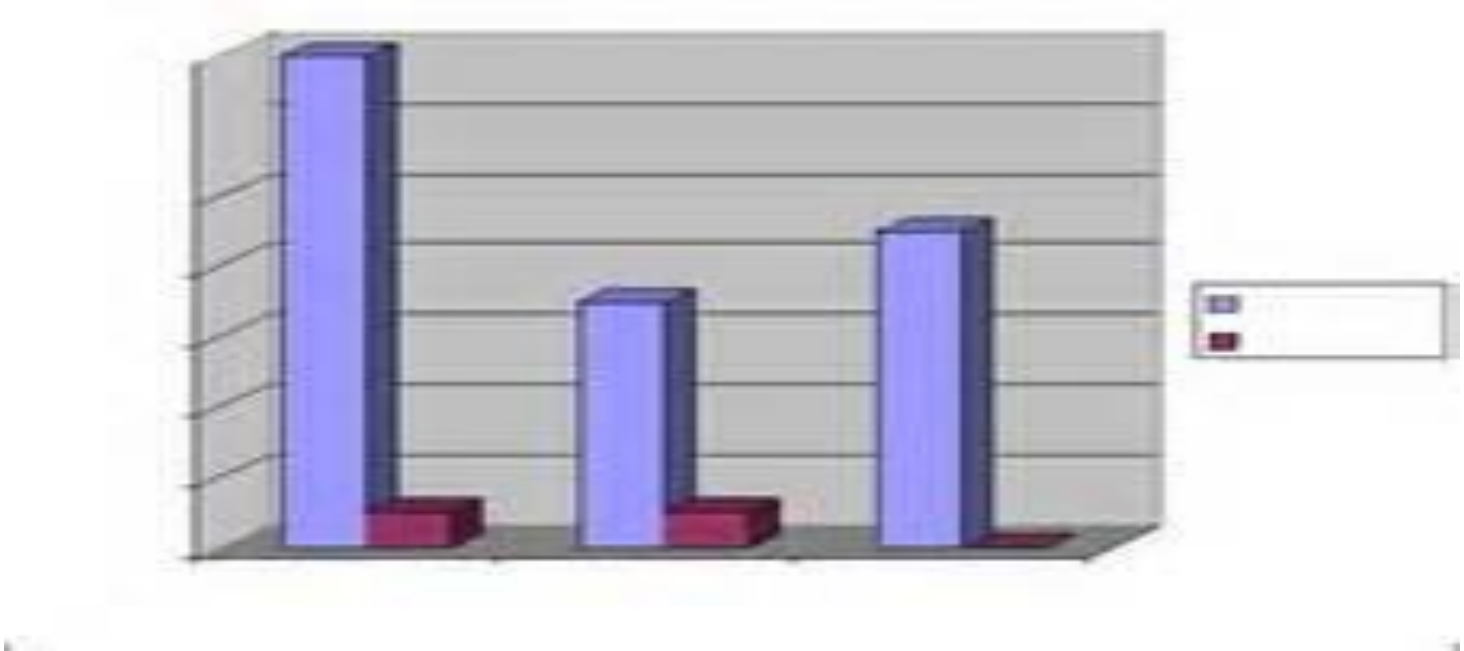
  following **birth of baby → the end of puerperium,**

  which **adversely affect the condition of patient,**

  evidenced by **rise in PR**, and **falling BP**.

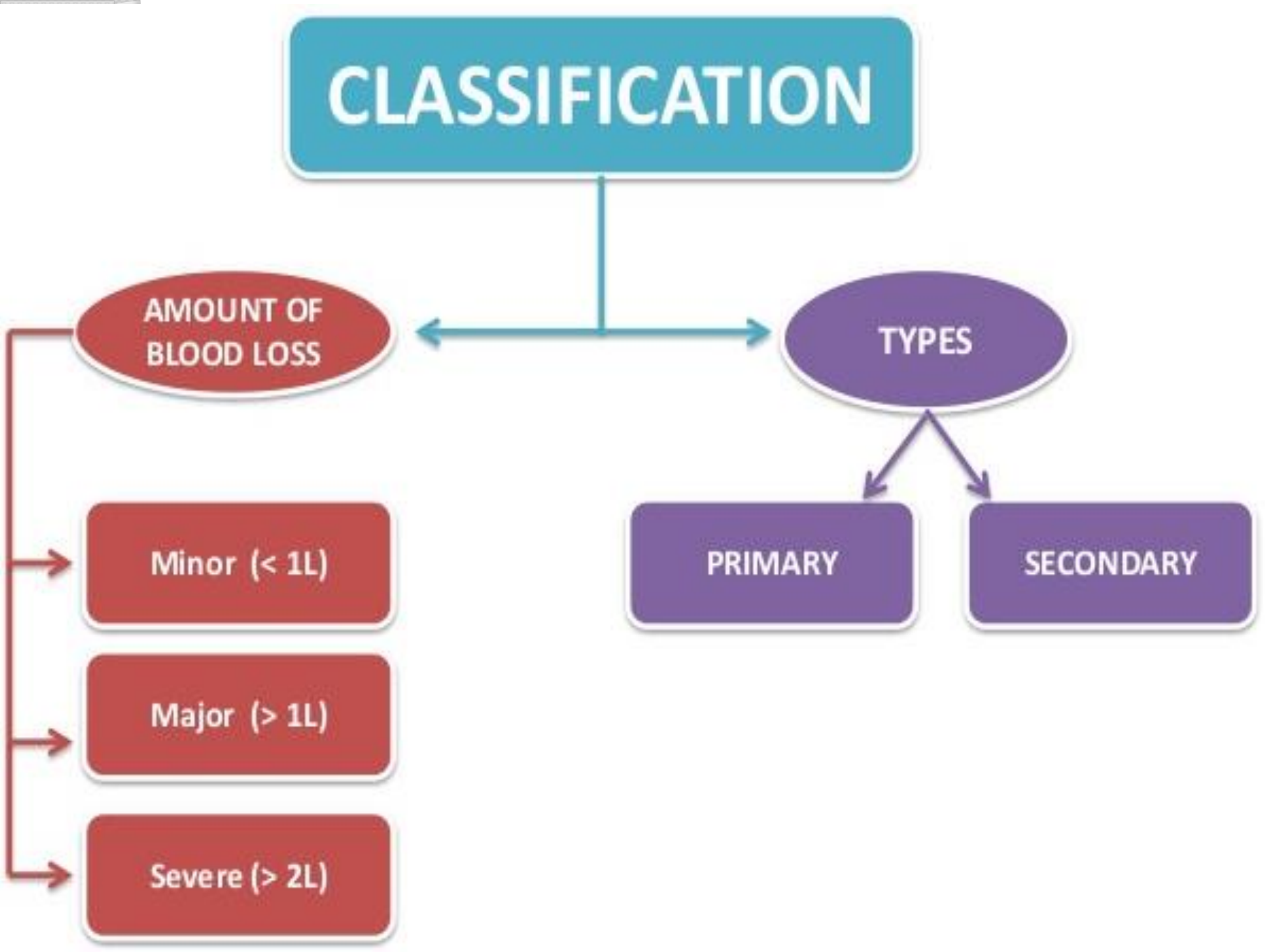
INCIDENCE

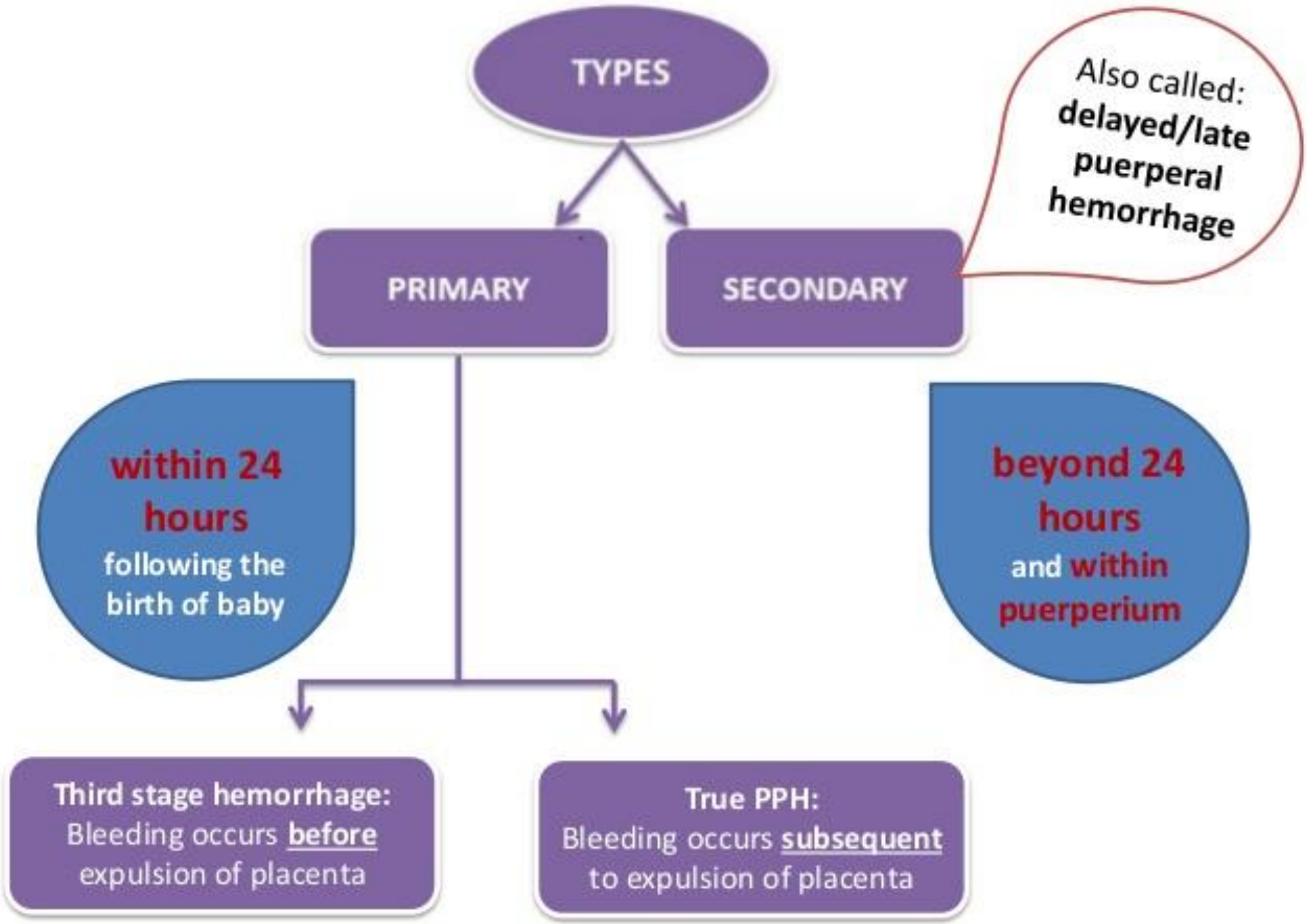
- The incidence is about ***4 – 6 %*** of all deliveries.



Depending upon the amount of blood loss PPH can be :-

- Minor (< 1 liter)
- Major (> 1 liter)
- Severe (> 2 liter)


CLASSIFICATION
AMOUNT OF BLOOD LOSS
TYPES
Minor (< 1L)
Major (> 1L)
Severe (> 2L)
PRIMARY
SECONDARY


TYPES
PRIMARY
SECONDARY
Also called: delayed/late puerperal hemorrhage
within 24 hours following the birth of baby
beyond 24 hours and within puerperium
Third stage hemorrhage: Bleeding occurs before expulsion of placenta
True PPH: Bleeding occurs subsequent to expulsion of placenta

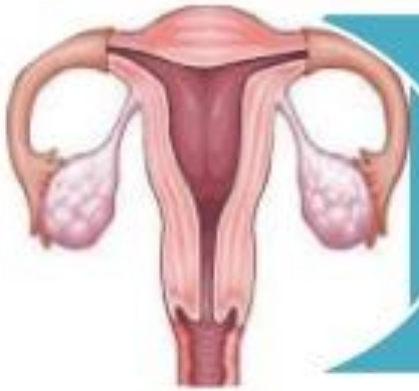
PRIMARY PPH :- Hemorrhage occurs within 24 hours following the birth of the baby.

- Third Stage Bleeding
- True Postpartum Haemorrhage

SECONDARY PPH:-Hemorrhage occurs beyond 24 hours and within puerperium also called delayed or late puerperal hemorrhage.

CAUSES:- PRIMARY PPH

- Atonic uterus
- Traumatic
- Retained Tissue
- Blood Coagulopathy

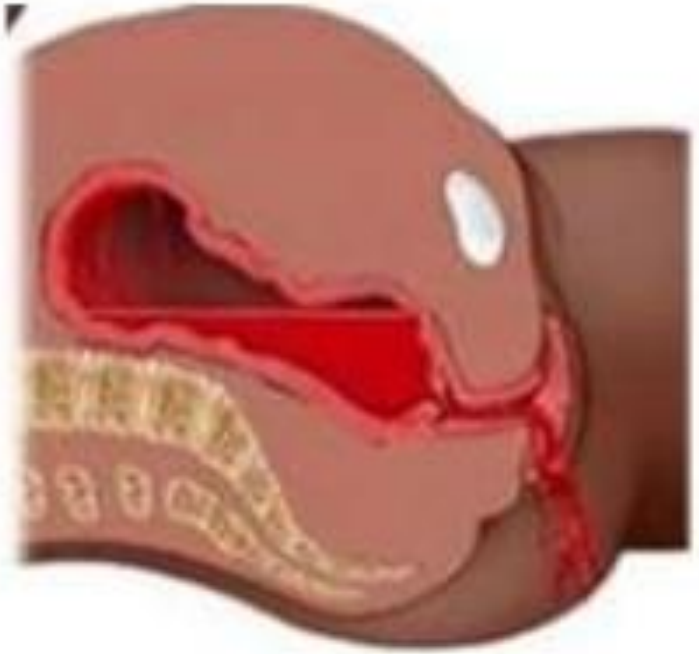


Atonic uterus

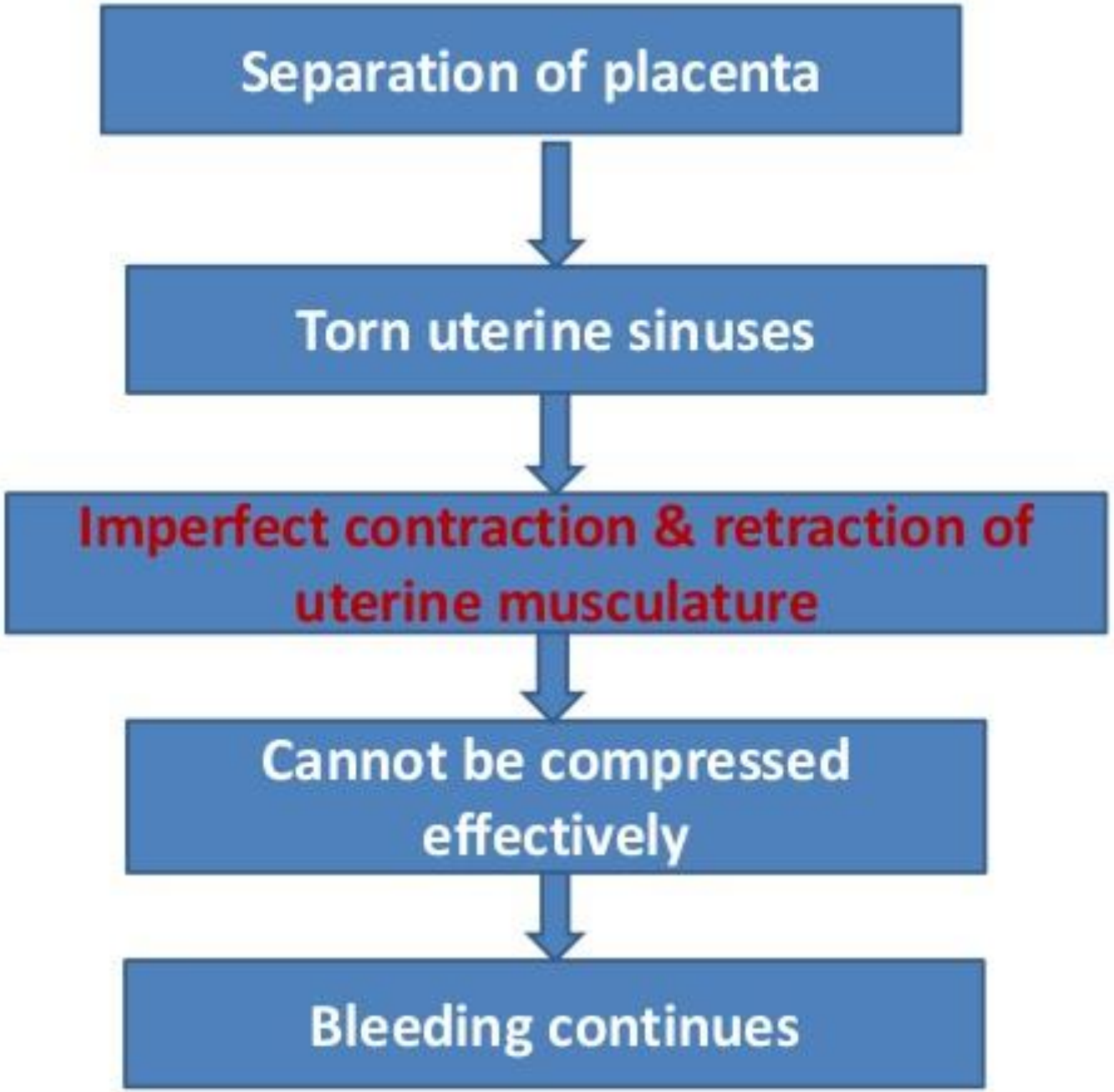
COMMONEST CAUSE OF PPH

80%

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

CAUSES

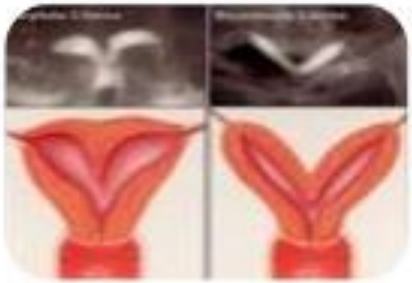
GRAND MULTIPARA

OVERDISTENDED UTERUS

MALNUTRITION & ANEMIA

ANTEPARTUM HEMORRHAGE

PROLONGED OR RAPID LABOUR



UTERUS MALFORMATION

INDUCTION OR AUGMENTATION

ANESTHESIA

MISMANAGED 3RD STAGE OFLABOR

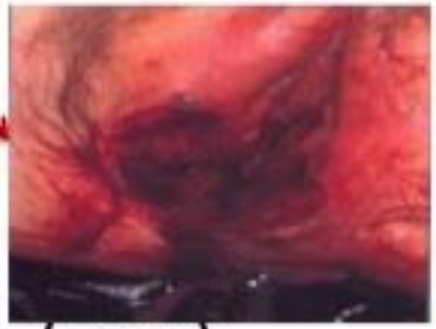
Traumatic

CONTRIBUTES OF ALL PPH

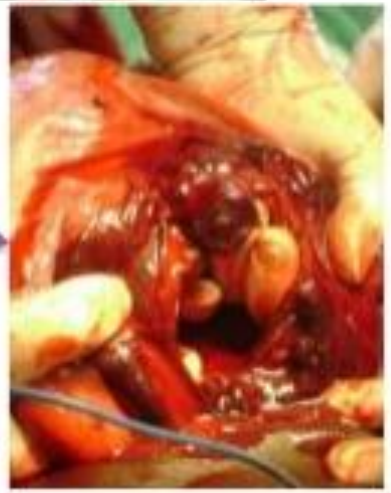
10- 20%

Trauma to genital tract usually occurs **following operative delivery** and even **after spontaneous delivery**

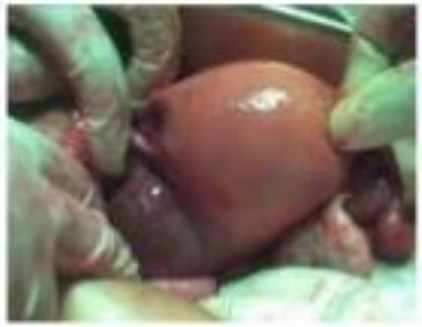
- Trauma involves usually the cervix, vagina, perineum, paraurethral region (**episiotomy wound** or **lacerations**)



- **Rupture of uterus** (rare)



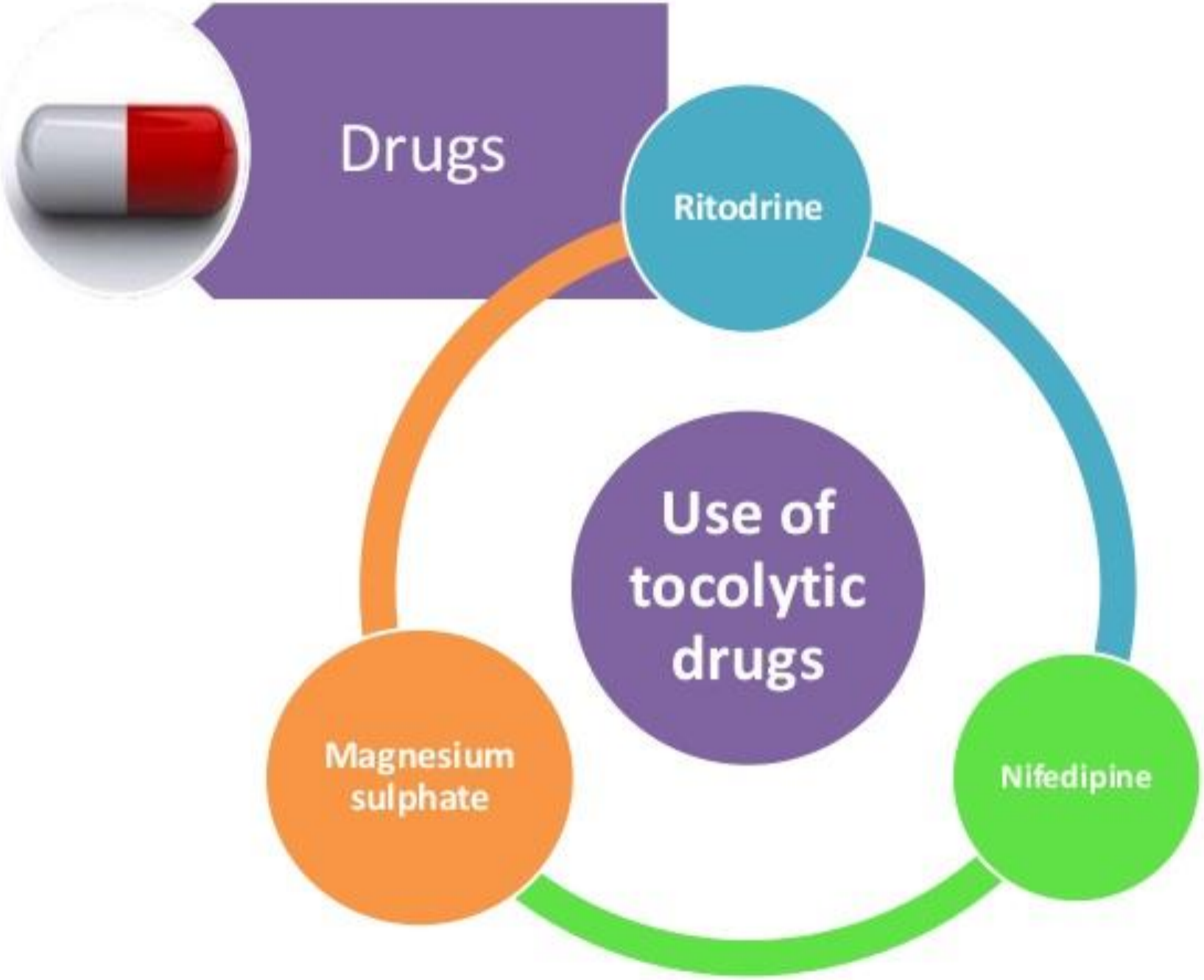
- **Broad ligament haematoma**
- **Vulvo-vaginal haematoma**
- **Uterine inversion**



Retained tissues

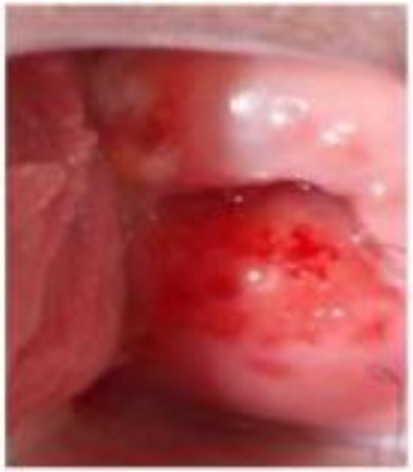
- Bits of placenta
- Blood clots

Cause PPH due to imperfect uterine contraction


Drugs
Ritodrine
Use of tocolytic drugs
Magnesium sulphate
Nifedipine

Blood coagulopathy

- **Rare** causes of PPH
- Blood coagulopathy may be due to **diminished pro-coagulants** or **increased fibrinolytic activity**

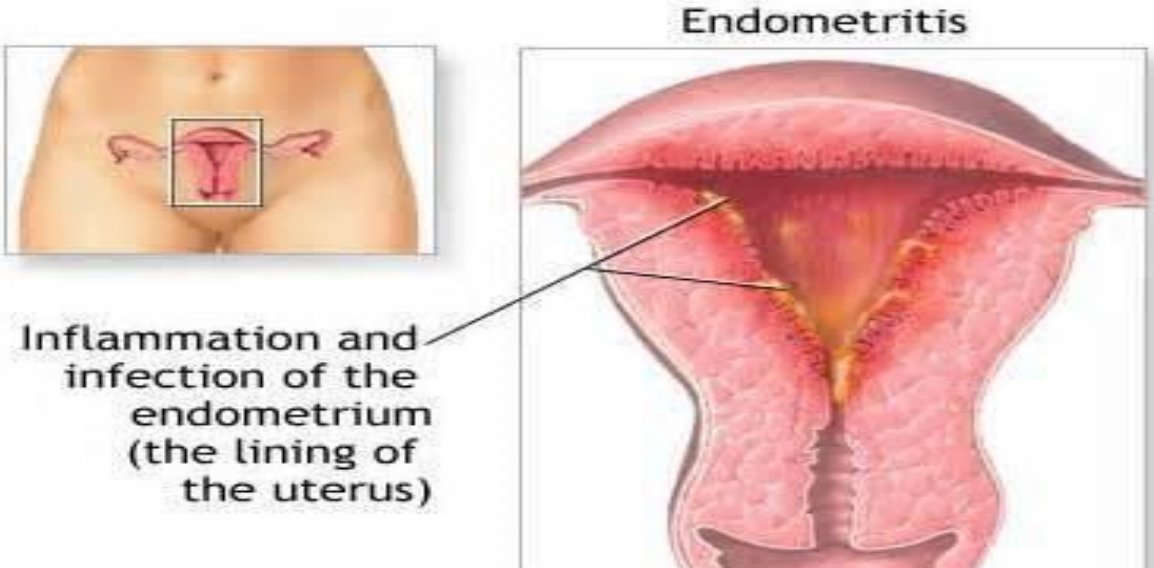


- **Conditions :**
  - Abruptio placentae
  - Jaundice in pregnancy
  - Thrombocytopenic purpura
  - HELLP syndrome
  - IUD

- **Specific therapy** following coagulation screen including *recombinant activated factor VII* may be given

CAUSES:- SECONDARY PPH

- Retained bits of cotyledon or membrane
- Infection and separation of slough over a deep cervic vaginal laceration
- Endom of the placen
- Se sarean se



DIAGNOSIS

- Hemoglobin level
- Internal examination to reveal sepsis sub involution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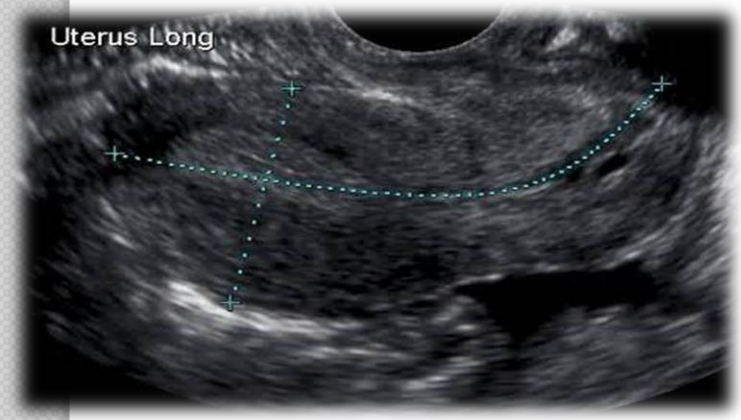
- Ultrasonography



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

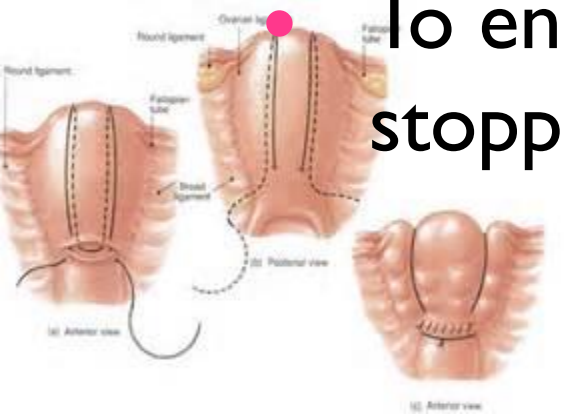
- In **trauma**: Bleeding starts immediately after delivery of fetus
  - It is **bright red** in colour
  - Lacerations can be detected by local examination

MANAGEMENT :- PRIMARY PPH:-

- To empty the uterus of its content and to make it contract.

- To replace the blood through blood transfusion.

- To ensure effective haemostasis through stopping the bleeding from traumatic site.



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

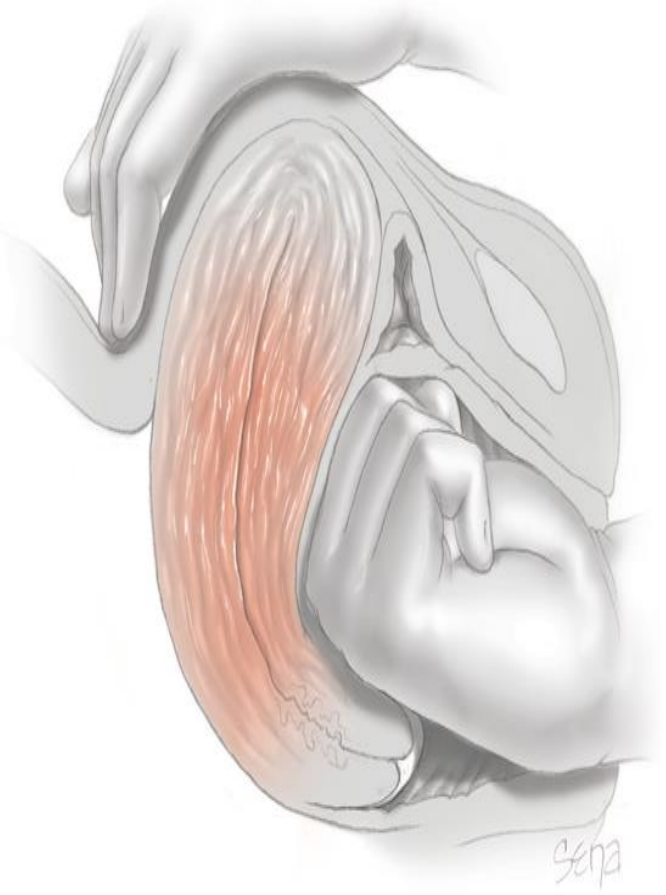
Manual removal under GA

** Traumatic haemorrhage should be tackled by sutures

True Postpartum Haemorrhage

Same as third stage bleeding plus

- Inj. Misoprostol 1mg per rectum
- Bimanual compression of uterus
- Tight uterine packing
- Balloon tamponade
- Ligation of uterine artery
- Hysterectomy



SECONDARY PPH

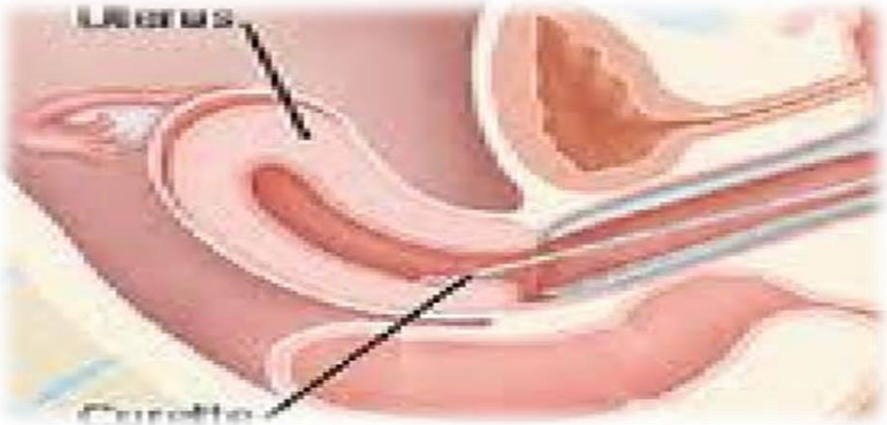
- ***Supportive therapy:-***

  methargin 0.2 mg I/M

  antibiotic therapy, IV Fluids

- ***Active treatment***

  gentle curattage to remove placenta under general anaesthesia



Prevention

PREVENTION-
ANTENATAL

- **Improvement of the health status** of the women & to keep the haemoglobin level normal (>10g/dl).

- **High risk patients** who are likely to develop PPH (such as twins, hydramnios etc.) are to be screened & delivered in a well equipped hospital

- **Blood grouping** should be done for all women so that no time is wasted during pregnancy.

- **Placental localization** must be done in all women with previous caesarean delivery by USG or MRI to detect placenta accreta or percreta

- **Women with morbid adherent placenta** are at high risk of PPH. Such a case should be delivered by senior obstetrician.

PREVENTION-
INTRANATAL

- **Active management of the third stage,**

for all women in labour should be **routine** as it **reduces PPH by 60%.**

- Cases with ***induced or augmented labour*** **by oxytocin**, the infusion should be **continued for at least 1 hour** after the delivery.

- Women delivered by ***caesarean section***:
  - **Oxytocin 5 IU slow IV** is to be given to reduce blood loss **(Carbetocin 100mcg)**
  - **Spontaneous separation & delivery of the placenta** reduces blood loss (30%)

- **Exploration of the utero-vaginal canal** for evidence of trauma following difficult labour or instrumental delivery.

- **Expert obstetric anaesthesist** is needed when the delivery is conducted under general anaesthesia

- **Examination of the placenta** & the membranes should be a routine so as to detect at the earliest any missing part.

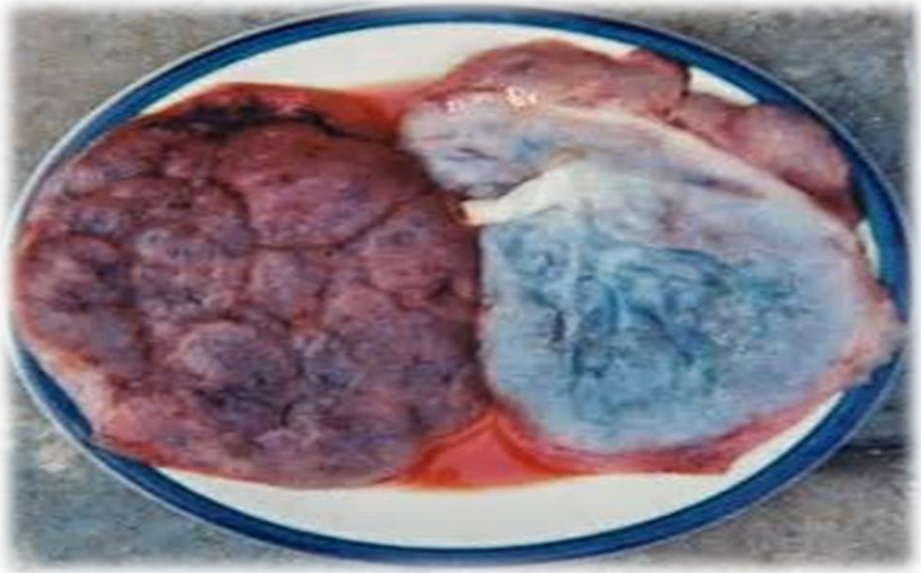
Complications of PPH

- Shock
- Maternal death
- Acute renal failure
- Puerperal sepsis

RETAINED PLACENTA

DEFINITION:-

"The placenta is said to be retained when it is not expelled out even 30 minutes after the birth of the baby."



CAUSES:- There are three phases involved in the normal expulsion of placenta

Separation through the spongy layer of the decidua

↓

Descent into the lower segment and vagina

↓

Finally its expulsion to outside

Interference in any of these physiological processes, results in its retention.

- Placenta completely separated but retained is due to poor voluntary expulsive efforts.
- Simple adherent placenta or non separated placenta is due to atonic uterus.
- Premature attempts to deliver the placenta before it is separated.

RETENTION OF PLACENTA

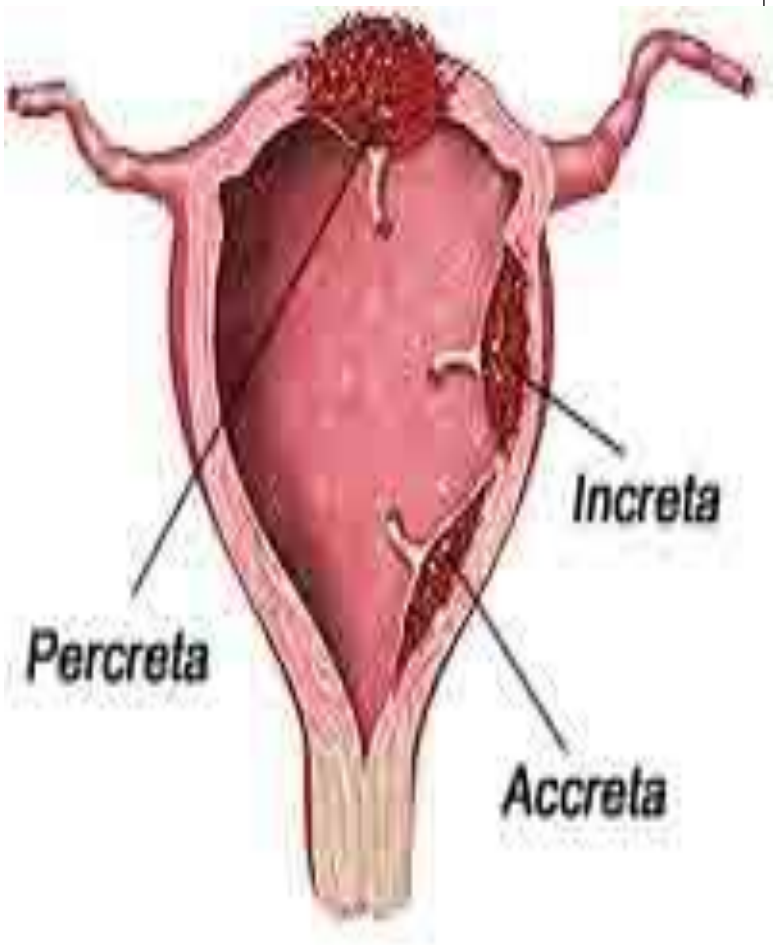
- **Causes**

1. Retained separated placenta

- Atony of uterus
- Contraction ring
- Premature attempts to deliver placenta before it is separated

2. Retained non-separated placenta

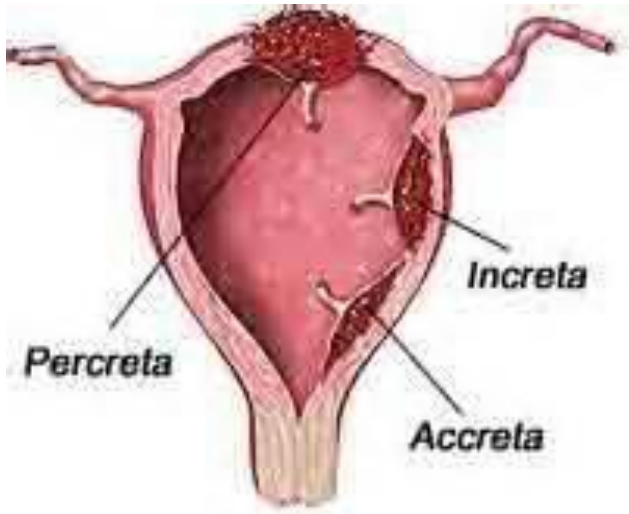
- Simple adherance- Due to uterine atony
- Morbid adherance- Placenta accreta, increta or percreta



DIAGNOSIS

- Diagnosis of retained placenta is made when placenta does not delivered after the 30 minutes of baby delivery

- Adherent placenta can only be diagnosed during manual removal.



COMPLICATION

- Hemorrhage
- Puerperal sepsis
- Risk of its recurrence in next pregnancy
- Shock is due to :-

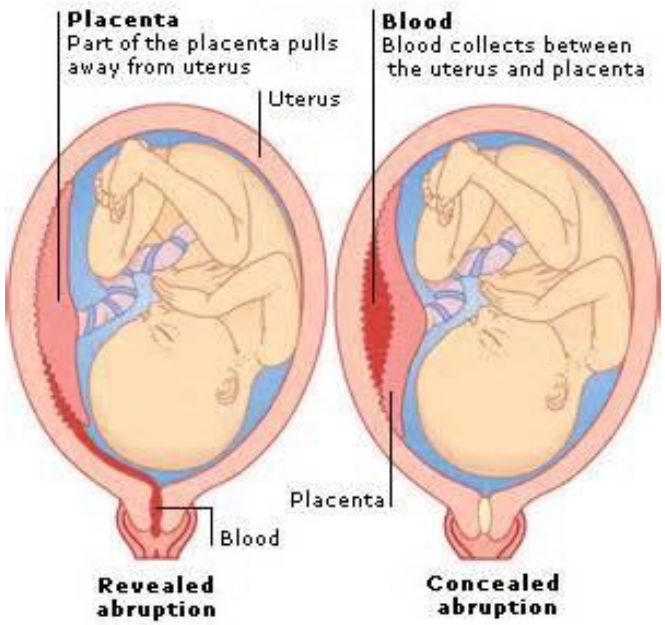
✓ Blood loss

✓ Frequent attempts of abdominal manipulation to express the placenta out.

MANAGEMENT

- During the period of arbitrary time limit of half an hour, the patient is to be watched careful for evidence of any bleeding, revealed or concealed and to note the signs of separation of placenta.

- The bladder should be emptied using a rubber catheter.



- There are three types of retained placenta:-

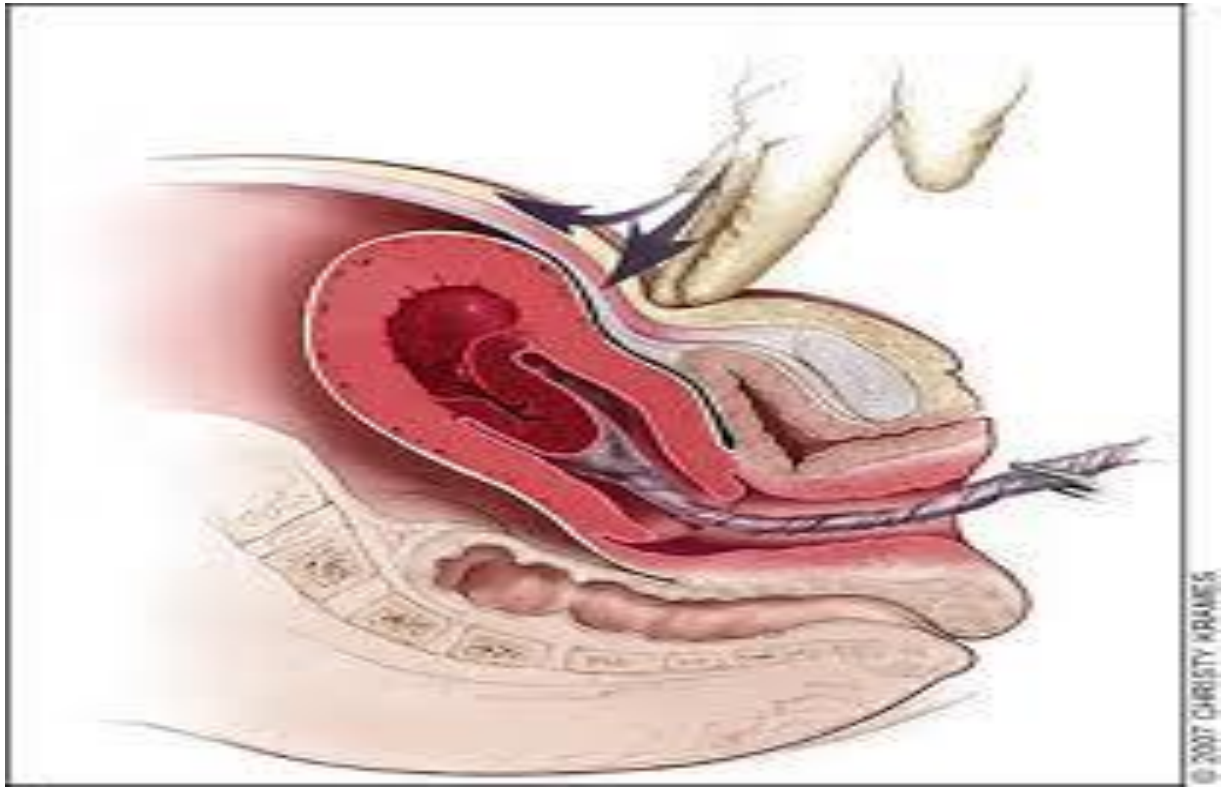
a. ***Separated placenta but retained***

a. ***Unseparated retained placenta***

a. ***Complicated retained placenta***

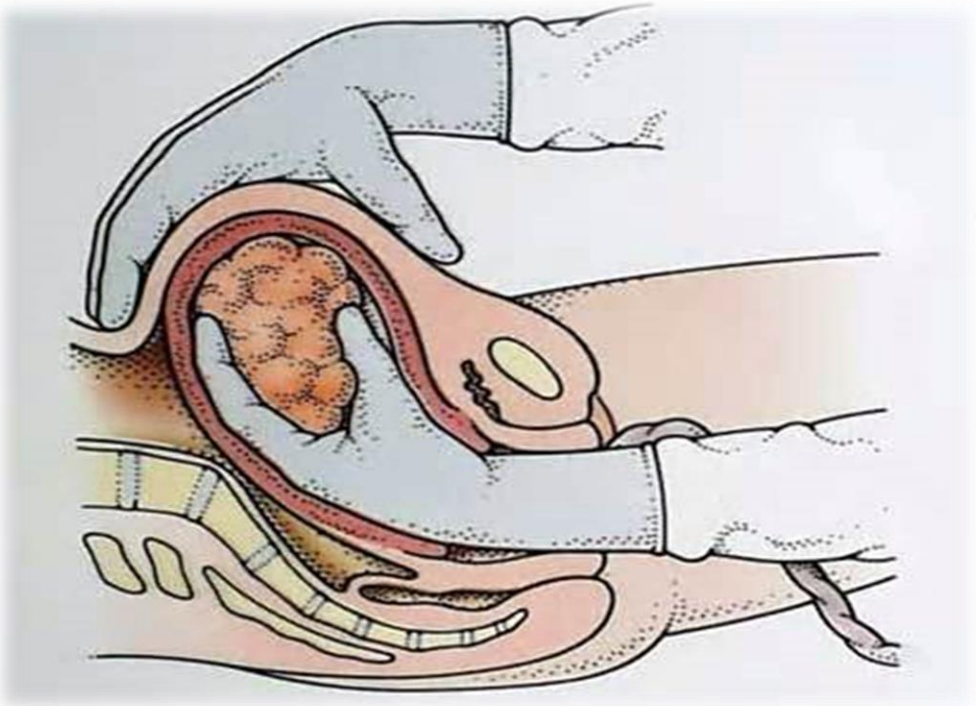
Placenta is separated and retained:-

express the placenta out by **controlled cord traction.**



Unseprated retained placenta:-

- manual removal of the placenta is to be done under general anesthesia.



- ***Complicated retained placenta:-***

the following guidelines are formulated to manage the case of retained placenta complicated by hemorrhage shock or sepsis.

- ***Retained placenta with shock but no hemorrhage :-***
- to treat the shock and when the condition improves manual removal of the placenta is to be done.

- ***Retained placenta with hemorrhage:-***

- Control the fundus massage and make it hard
- Inj. Methergin 0.2 mg IV
- To start normal saline drip with oxytocin and arrange for blood transfusion.
- Catheterized the bladder

- Placenta separated

Express the placenta out by controlled cord traction

not separated

manual removal under general anesthesia

- Traumatic suture should be tracked by sutures

- ***Retained placenta with sepsis:-***

- Intrauterine swabs are taken for culture and sensitivity test and broad spectrum antibiotics is given.

- Blood transfusion is helpful.

- As soon as the general conditions permits, arrangement is made for manual removal.

- ***Retained placenta with an episiotomy wound:-***

- The bleeding points of the episiotomy wound are to be secured by artery forceps.
- An early decision for manual removal should be taken followed by repair of the episiotomy wound.

STEPS OF MANUAL REMOVAL OF PLACENTA

1.**PREPARATION-** General anesthesia, Lithotomy position, Catheterization

2.**INTRODUCTION** of one hand into the uterus

- after smearing with antiseptic solution
- in cone shaped manner
- fingers of the other hand separate the labia majora
- fingers of uterine hand should locate the margins of the placenta.

3.**COUNTER PRESSURE** on uterine fundus

- by the hand placed on abdomen (abdominal hand)

- it should steady the fundus & guide the movements of fingers inside the uterine cavity till the placenta is completely separated

4.**INSINUATION** of fingers between the placenta and the uterine wall

- back of the hand in contact with the uterine wall

- The placenta is gradually separated with sideways slicing movements of the fingers, until whole of the placenta is separated.

5.**EXTRACTION** of placenta

- traction of the cord by the other hand

- uterine hand is still inside the uterus for exploration of the cavity (to be sure that nothing is left behind)

6.**COMPLETION**

- IV Methergin 0.2mg is given

- uterine hand is gradually removed while massaging the uterus by the external hand to make it hard

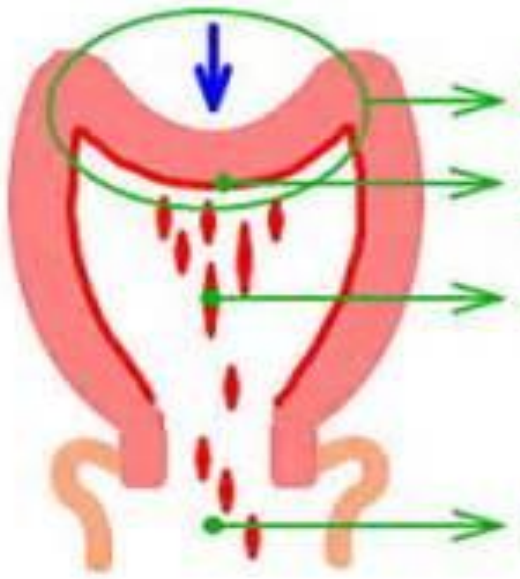
7.**INSPECTION**

- inspection of cervicovaginal canal to exclude any injury
- placenta and membranes is checked for completeness
- be sure that uterus remains hard and contracted

INVERSION OF THE UTERUS

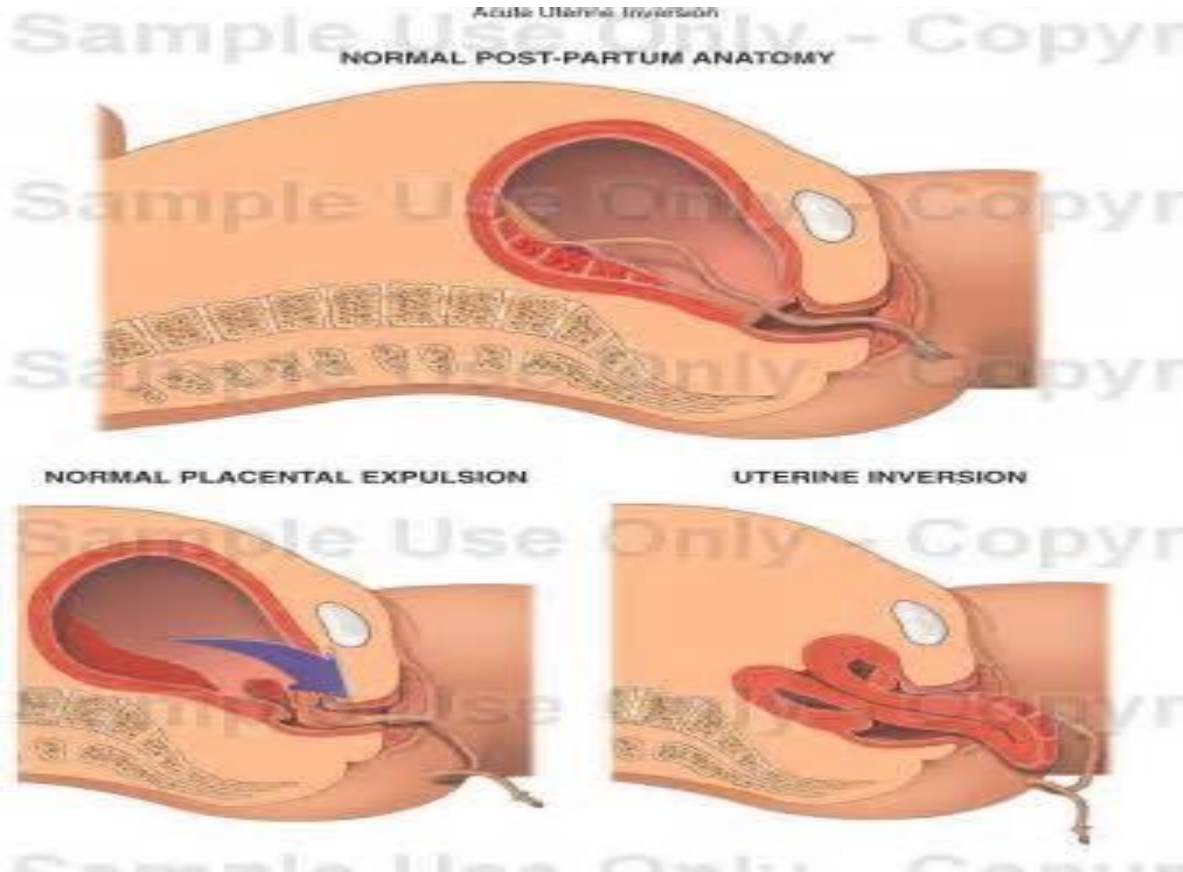
DEFINITION:-

"It is an extremely rare but a life threatening complication in third stage in which the uterus is turned inside out partially or completely".



INCIDENCE

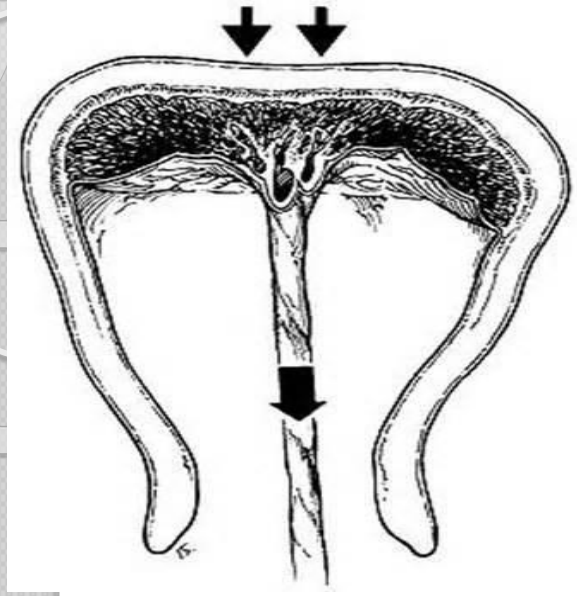
- The incidence is about ***1 in 20,000*** deliveries.

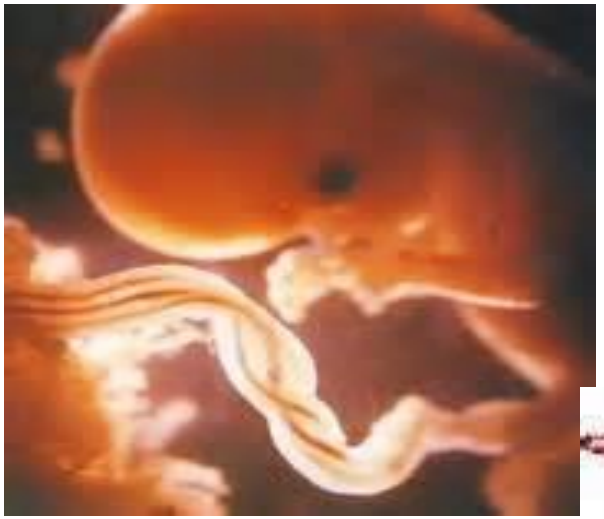


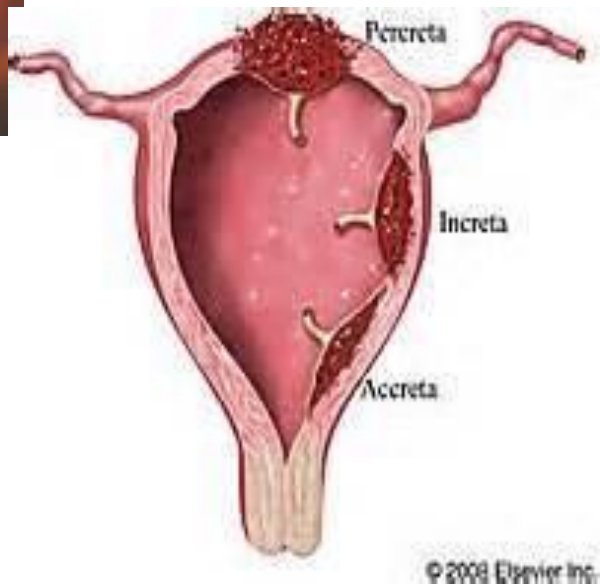
VARIETIES OR TYPES

ETIOLOGY

- The inversion may be spontaneous or more commonly induced
- ***spontaneous (40%)*** it is due to sharp raise in intra abdominal pressure as in coughing, sneezing or bearing down effort.
- fundal attachment of the placenta, short cord and placenta accreta are often associated.






Percreta
Increta
Accreta
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- ***Iatrogenic*** this is due to mismanagement of the third stage of labor.
- Pulling the cord when the uterus is atonic specially when combined with fundal pressure.
- Fundal pressure when the uterus is relaxed.
- Faulty technique is manual removal

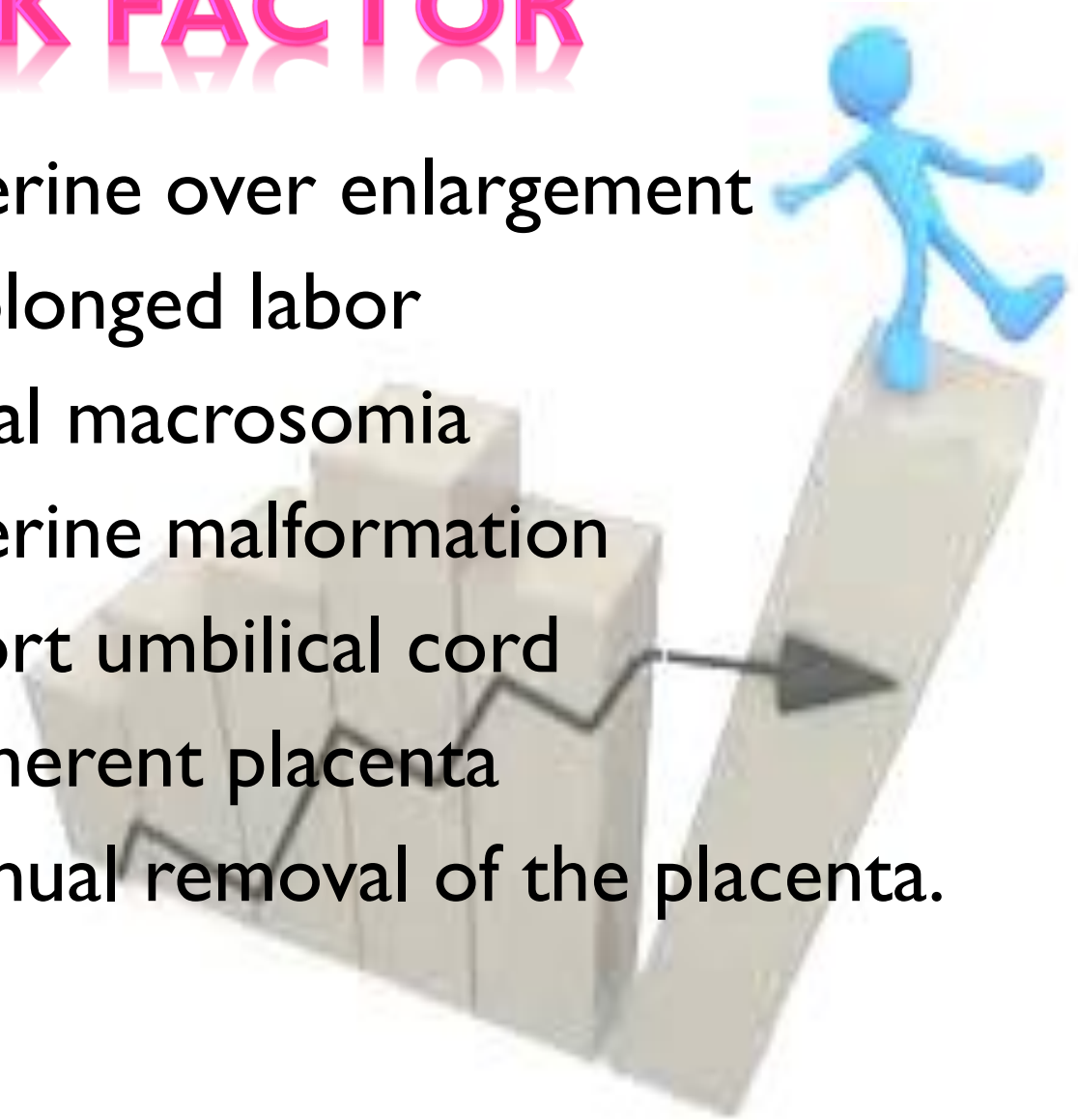
- The body of uterus is partially or completely turned inside out.

- **Types**

- First degree- Dimpling of fundus which still remains above the level of internal os
- Second degree- Fundus passes through cervix but lies inside the vagina
- Third degree(Complete)- Endometrium is visible outside the vulva

RISK FACTOR

- Uterine over enlargement
- Prolonged labor
- Fetal macrosomia
- Uterine malformation
- Short umbilical cord
- Adherent placenta
- Manual removal of the placenta.



COMPLICATION

- ***Shock*** is extremely profound mainly of neurogenic origin due to:-

a) Tension on the nerves due to stretching of infundibulo pelvic ligament.

b) Pressure on the ovaries as are dragged with the fundus through the cervical ring

- ***Haemorrhage*** specially after detachment of placenta.
  - ***If left uncared it may lead to:-***

    Infection

    Uterine sloughing

SIGN AND SYMPTOMS

- Symptoms include:-

Acute lower abdominal pain with bearing down sensation.

- Signs include:-

Varying degree of shock

Cupping and dimpling of the fundal surface

Pear shaped mass outside the vulva and looking reddish purple in color

DIAGNOSIS

- Abdominal examination:-

a) To reveal cupping and dimpling of fundal surface.

b) Bimanual examination is only helful in diagnosis but also confirm the degree of inversion

c) Sonography can confirm the diagnosis when clinical examination is not clear.

PREVENTION

- Do not employ any method to expel the placenta out when the uterus is relaxed.
- Pulling the cord simultaneously with fundal pressure should be avoided.
- Manual removal should be done in proper manner

MANAGEMENT

- Call for extra help
- Before the shock develops urgent manual replacement even without anaesthesia.

Principle steps are:-

To replace the part first which is inverted last with the placenta attached.

To apply counter support by the other hand placed on the abdomen.

- After replacement, the hand should remain inside the uterus until the uterus become contracted by parentral oxytocin.

- The placenta is to be removed manually only after the uterus becomes contracted.

- The placenta may however be removed prior to replacement:-

i. *To reduce the bulk*
ii. *To minimize the blood loss if partially separated*

- Blood transfusion for shock

➢ Management

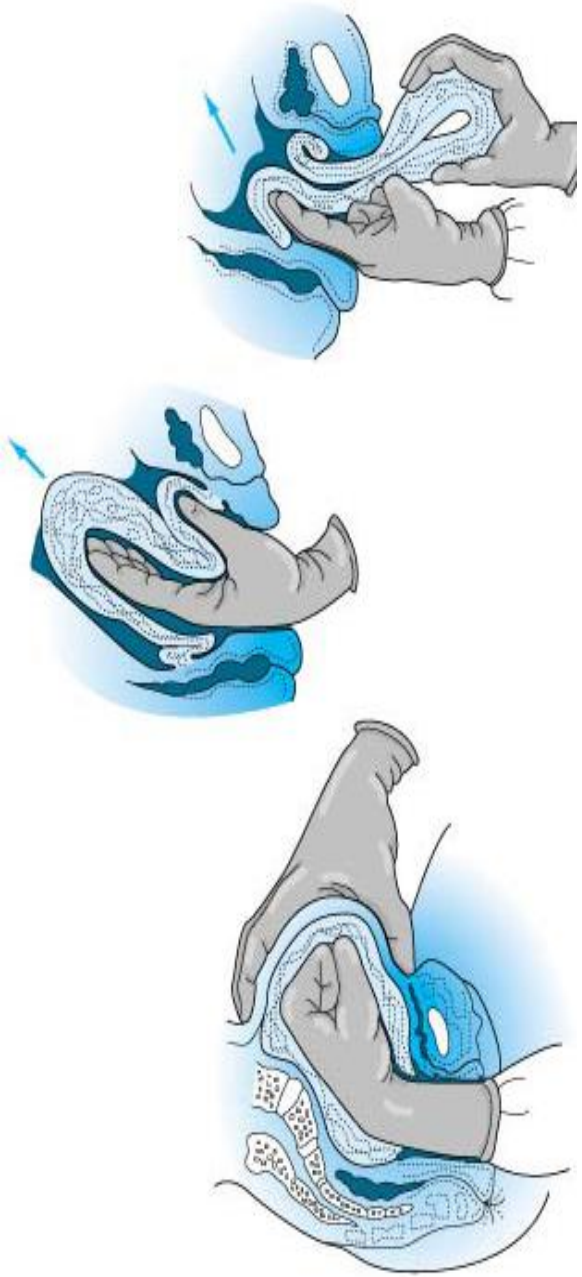
- Replacement of uterus

-Manual replacement

-Hydrostatic replacement

-Surgical replacement

- Antibiotics to control sepsis



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Replacement of an inverted uterus.

•AMNIOTIC FLUID EMBOLISM

DEFINITION

- *The condition of amniotic fluid embolism occurs when amniotic fluid enters the maternal circulation through a tear in the membrane or placenta*

Onset:-

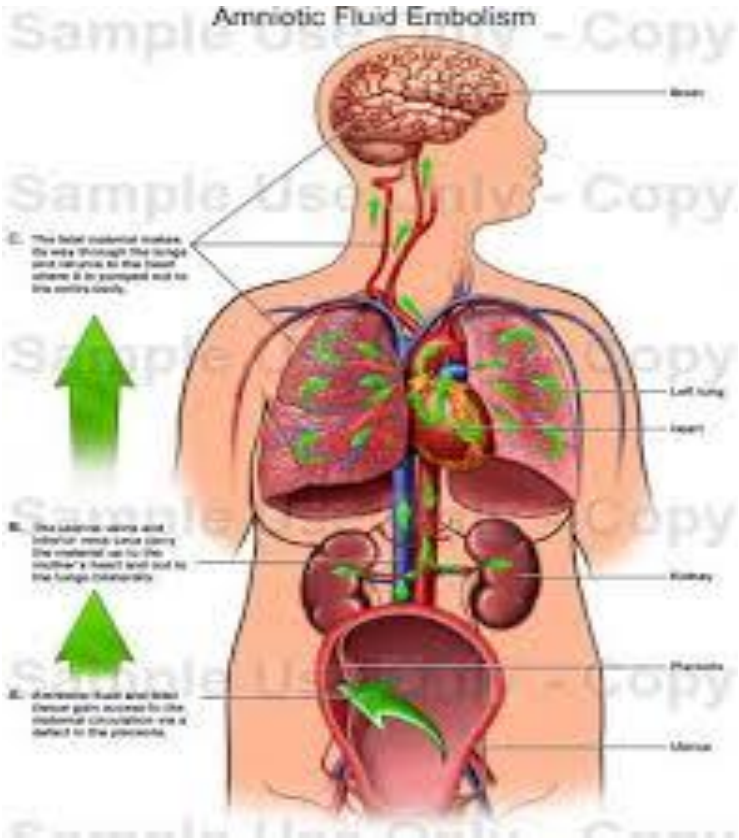
Amniotic fluid embolism can occur at any stage of gestation.

PHASES :-

- The initial phase is one the vasospasm of causing hypoxia, hypotension and cardiovascular collapse.

- The second phase is the development of left ventricular failure with hemorrhage and coagulation disorder followed by pulmonary edema.

ETIOPATHOGENESIS



PREDISPOSING FACTOR

- Tear in the membrane
- Hypertonic uterine activity
- Placental abruption
- Cesarean section
- Termination of pregnancy
- Rupture uterus
- Trauma may occur during intrauterine manipulation

CLINICAL FEATURES

- *Maternal respiratory distress:-* the woman becomes severely dyspnic and cyanosed.
- *Maternal hypotension and uterine hypotonia.*
- *Fetal distress in response to hypoxia*
- *Cardiopulmonary arrest*
- *Many mothers present with convulsion immediately*

EMERGENCY MANAGEMENT

- Resuscitate must be started at once
- Hydrocortisone, large dose intravenously.
- Aminophyllin, intravenously for respiratory distress
- Correction of acid – base imbalance
- Correction of the blood loss and coagulation defect if indicated.

COMPLICATION

- Disseminated intravascular coagulopathy
- Acute renal failure
- Neurological impairement
- Death

PULMONARY EMBOLISM

- Emboli can be thrombus, amniotic fluid or air

- **Clinical features**
  - Sudden chest discomfort
  - Air hunger
  - Hypotension
  - Haemorrhage (due to DIC)
  - Collapse

- **Management**
  - Similar to shock

OBSTETRIC SHOCK

- **Causes**

1. Hypovolemic Shock
- Postpartum haemorrhage
- Haematoma- Broad ligament/Paravaginal

2. Neurogenic Shock
- Uterine rupture
- Uterine inversion

3. Obstructive Shock

- Air embolism

4. Anaphylactic Shock

- Amniotic fluid embolism

5. Septic Shock

- Prolonged Rupture Of Membranes
- Retained placental tissues
- Manipulation & instrumentation

Management

- Ensure patent airway & give 100% Oxygen
- Control active bleeding
- IV Fluids- Crystalloids, Colloids, Blood
- IV Sodium bicarbonate (For acidosis)
- Antibiotics (For sepsis)
- Others- Steroids, Morphine, Ranitidine

Monitor

BP, ECG, Pulse oximetry, Urine output, Serum electrolytes, CVP, ABG

•INJURY TO BIRTH CANAL

INJURIES TO THE BIRTH CANAL

- Maternal injuries following child birth process are quite common and contribute significantly to maternal morbidity and even to death.

- Prevention, early detection and prompt and effective management not only minimize the morbidity but prevent many gynaecological problems from developing later in life.

INJURY TO VULVA

- Laceration of the vulval skin posteriorly and the Para urethral tear on the inner aspect of labia minora are the common sites.
- Para urethral tear may be associated with brisk hemorrhage and should be repaired by interrupted catgut suture, preferable after introduction of a rubber catheter into the bladder to prevent injury of the urethra.

PERINEAL TEAR

- Minor injury is quite common specially during first birth. Gross injury is invariably a result of mismanaged second stage of labor.
- Overall risk is 1% of all vaginal delivery.

CAUSES

The perineum may be term due to several factors:-

- Over stretching of the perineum due to large baby, face delivery outlet contraction with narrow pubic arch, shoulder dystocia and forcep delivery.

- Rapid stretching of the perineum due to rapid delivery of the head during uterine contraction precipitate labor and delivery of the after coming head in breech.

- Inelastic perineum as in rigid perineum in elderly primigravida,, scar in the perineum following perivious operation, such as episiotomies or perineorrhaphy and vulval edema.

- Unattended delivery and inability of the woman to stop bearing down.

CLASSIFICATION

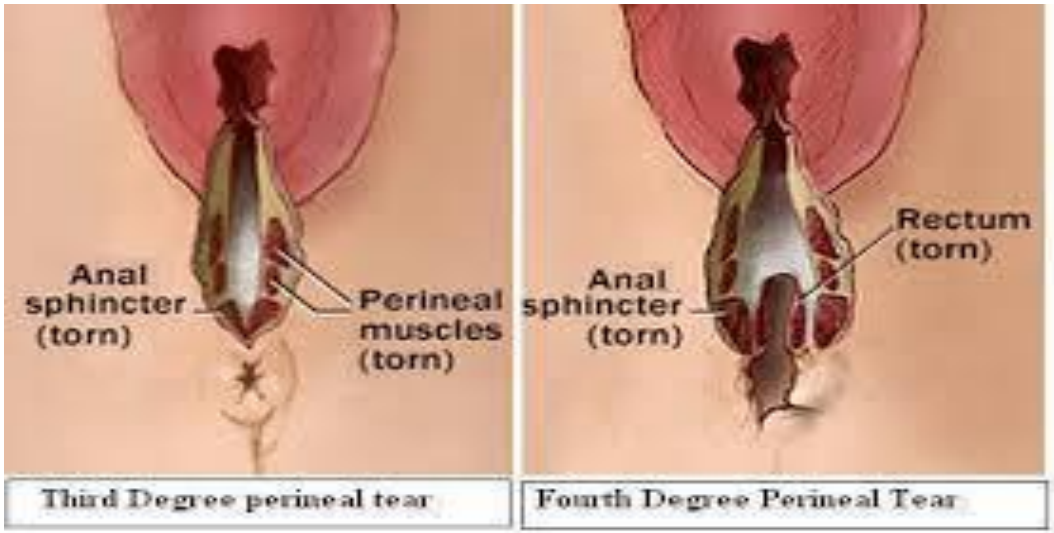
Spontaneous tears are usually classified in degree which are related to the anatomical structures which have been traumatized.

First degree:- Involves laceration of the fourchette (lower end of the posterior vagina or perineal skin) only.

Second degree:- Injury to perineum involving perineal body (muscles) but not involving the anal sphincter.

Third degree:- Injury to perineum involving the anal sphincter complex.

Fourth degree:- The tear extends to the rectal mucosa. Injury to perineum involving the anal sphincter complex and anal epithelium.



PREVENTION

Conduct of second stage of delivery with due care in those with increase likelihood of laceration.

- Maintain flexion of the head until the occiput comes under the symphysis pubis so that lesser sub occipito frontal (10 cm) diameter emerges out of the introitus.

- Assure the woman not to bear down during contractions to avoid forcible delivery of the head.
- Delivery of the head in between contraction
- Performs timely episiotomy
- Take care during delivery of the shoulder.

MANAGEMENT

- Recent tear should be repaired immediately following the delivery of the placenta.
- This reduce the chance of infection and minimizes the blood loss.
- In cases of delay beyond 24 hours, the repair is to be withheld.
- Antibiotics should be started to prevent infection.
- The complete tear, should be repaired after 3 months, if delayed beyond 24 hours.

VAGINAL TEAR

Vaginal lacerations Without involvement of the perineum or cervix sometimes occurs. These are usually seen following instrumental or manipulative delivery. In such cases the tears are extensive and often associated with active bleeding.

COMMON SITES

- The most common site is the lower third of the vagina.
- The lower end of the vagina may be torn transversely from its junction with the perineum leaving a deep cavity behind and intact perineum.

MANAGEMENT

- A vaginal tear is sutured by interrupted or continuous sutures using chromic catgut number '0'.
- In case of extensive lacerations in addition to sutures, hemostasis may be achieved by intravaginal plugging by roller gauze soaked with glycerin and acriflavine. The plug should be removed after 24 hours.

CERVICAL TEAR

Minor degrees of cervical tears often occur during first delivery. Extensive cervical tear is rare. It is the commonest cause of traumatic post partum hemorrhage.

Causes

- **Iatrogenic:-** attempted forceps delivery or breech extraction through incompletely dilated cervix.
- **Rigid cervix:-** this may be congenital or more commonly following scar from previous operations on the cervix.
- **Strong uterine contraction:-** as in precipitate labor.

MANAGEMENT

- Minor tear require no treatment.
- Deep cervical tears associated with bleeding should be repaired soon after delivery of the placenta.
- The repair should be done under general anesthesia in lithotomy position with a good light.

PELVIC HEMATOMAS

Collection of blood anywhere in the area between the pelvic peritoneum and the peritoneal skin are called pelvic hematoma.

CLINICAL MANIFESTATION

- ✓ Pain in perineal region.
- ✓ Retention of urine.
- ✓ Variable degree of shock or collapse.
- ✓ Tense swelling at the vulva which becomes dusky and purple in color and tender to touch.
- ✓ Pallor, rapid pulse and low blood pressure.
- ✓ A tender pelvic lump on palpation.

TREATMENT

- A small hematoma (<5cm) is treated conservatively with cold compress.
- If it is larger than 5cm or increasing in size, it need to be evacuated.
- The hematoma is drained under general anesthesia and bleeding points are secured.
- The dead space is to be obliterated by deep mattress sutures.
- Prophylactic antibiotics is to be administered.
- Blood transfusion and narcotic analgesics for pain.

2. Supralevator Hematoma:- it is rare.

CAUSES:-

- Extension of cervical laceration or priamary vault rupture.
- Lower uterine segment rupture.

DIAGNOSIS

- ✓ Unexplained shock with features of shock following delivery.
- ✓ Abdominal examination reveals swelling above the inguinal pushing the uterus to the opposite site.
- ✓ Vaginal examination reveals occlusion of the vaginal canal by a bulge or a bogy swelling felt through the fornix.
- ✓ Ultrasonography may show the exact location of the hematoma.

MANAGEMENT

- Treatment of shock.
- Exploratory laporotomy and drainage of the hematoma.
- Ligation of the bleeding points.
- Bilateral internal iliac artery ligation may be required to control bleeding.

ASSIGNMENT