Antepartum and Postpartum hemorrhage

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بسم الله الرحمن الرحيم

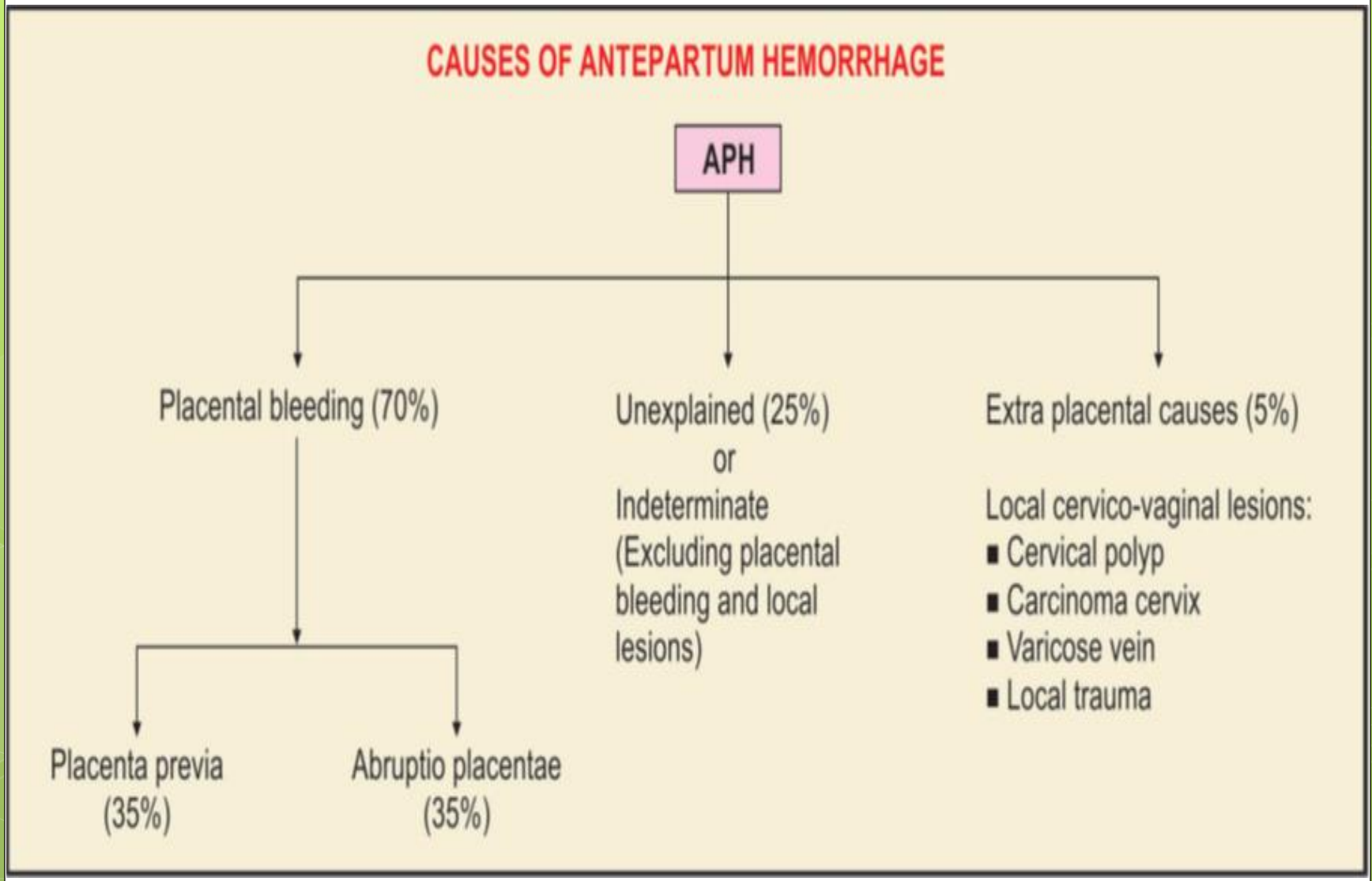
ANTEPARTUM HEMORRHAGE

- This is defined as vaginal bleeding from 24 weeks to delivery of the baby. The causes are placental or local.

Or

- is any bleeding occurring in the antenatal period after 20 weeks gestation. It complicates 2–5 per cent of pregnancies.
- The incidence of antepartum haemorrhage is 3%.

1. 1% placenta praevia.
2. 1% placental abruption.
3. the remaining 1% is from other causes.


CAUSES OF ANTEPARTUM HEMORRHAGE
APH
Placental bleeding (70%)
Unexplained (25%)
or
Indeterminate
(Excluding placental bleeding and local lesions)
Extra placental causes (5%)
Local cervico-vaginal lesions:
Cervical polyp
Carcinoma cervix
Varicose vein
Local trauma
Placenta previa (35%)
Abruptio placentae (35%)

Placenta previa

- placenta is implanted partially or completely over the lower uterine segment (over and adjacent to the internal os) it is called placenta previa.

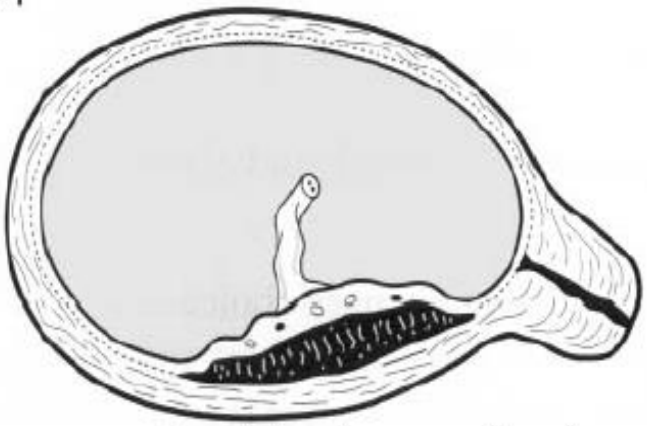
Risk factors for placenta praevia

- Multiple gestation
- Previous Caesarean section
- Uterine structural anomaly
- Assisted conception
- The incidence is increased beyond the age of 35 years
- Smoking — causes placental hypertrophy to compensate carbon monoxide induced hypoxemia
- Prior curettage

Classification of placenta previa

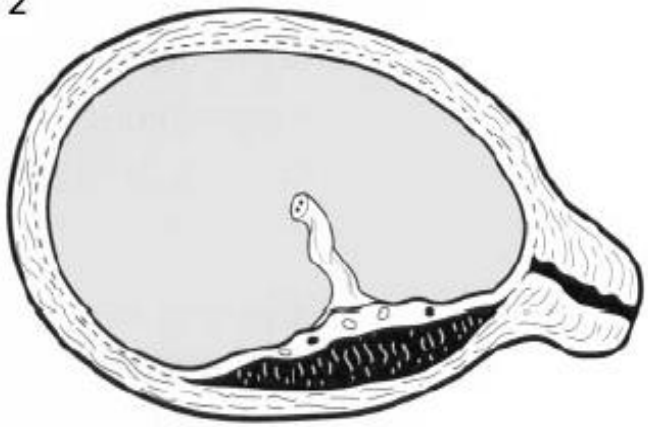
- Type—I (Low-lying): The major part of the placenta is attached to the upper segment and only the lower margin encroaches onto the lower segment but not up to the os.
- Type—II (Marginal): The placenta reaches the margin of the internal os but does not cover it.
- Type—III (Incomplete or partial central): The placenta covers the internal os partially (covers the internal os when closed but does not entirely do so when fully dilated).
- Type—IV (Central or total): The placenta completely covers the internal os even after it is fully dilated.

Type 1



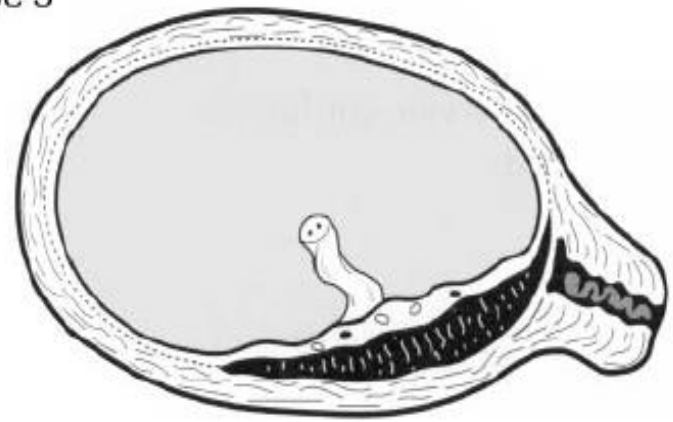
The lower margin of the placenta dips into the lower segment. ('Low implantation'.)

Type 2



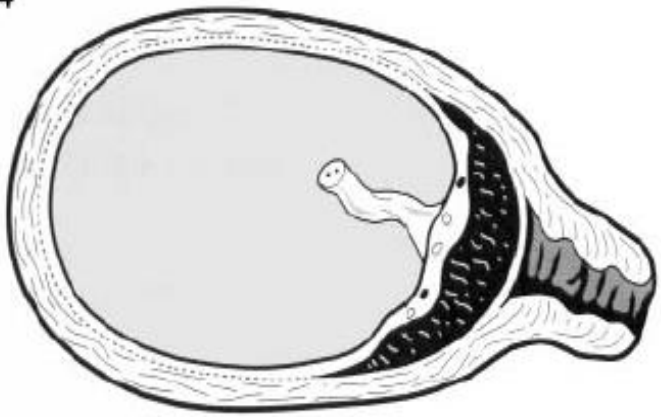
The placenta reaches the internal os when closed but does not cover it. ('Marginal'.)

Type 3



The placenta covers the internal os when closed, but not when fully dilated. ('Partial' or 'Incomplete'.)

Type 4



The placenta covers the os even when the cervix is fully dilated. ('Central' or 'Complete'.)

Clinical features

- SYMPTOMS: The only symptom of placenta previa is vaginal bleeding character of bleeding includes:
- Sudden onset
- Painless(because blood is not normally retained within the uterine cavity)
- Apparently causeless
- Recurrent
- Unrelated to activity and often occurs during sleep
- The bleeding is unassociated with pain unless labor starts simultaneously

Diagnosis

- History (How much bleeding,Triggering factors, Associated with pain or contractions?, Is the baby moving?, Last cervical smear (date/normal or abnormal)?
- Examination (vital signs, Is the uterus soft or tender and firm?, Fetal heart auscultation/CTG,

Diagnosis of placenta previa

- Placenta on lower segment encourage malposition, malpresentation, abnormal lie.
- Abdomen soft and not tender.
- The patient's general condition should reflect the amount of visible blood loss.
- Non engagement of presenting part.
- Confirmation of the diagnosis is obtained by localization of the placenta by ultrasound.

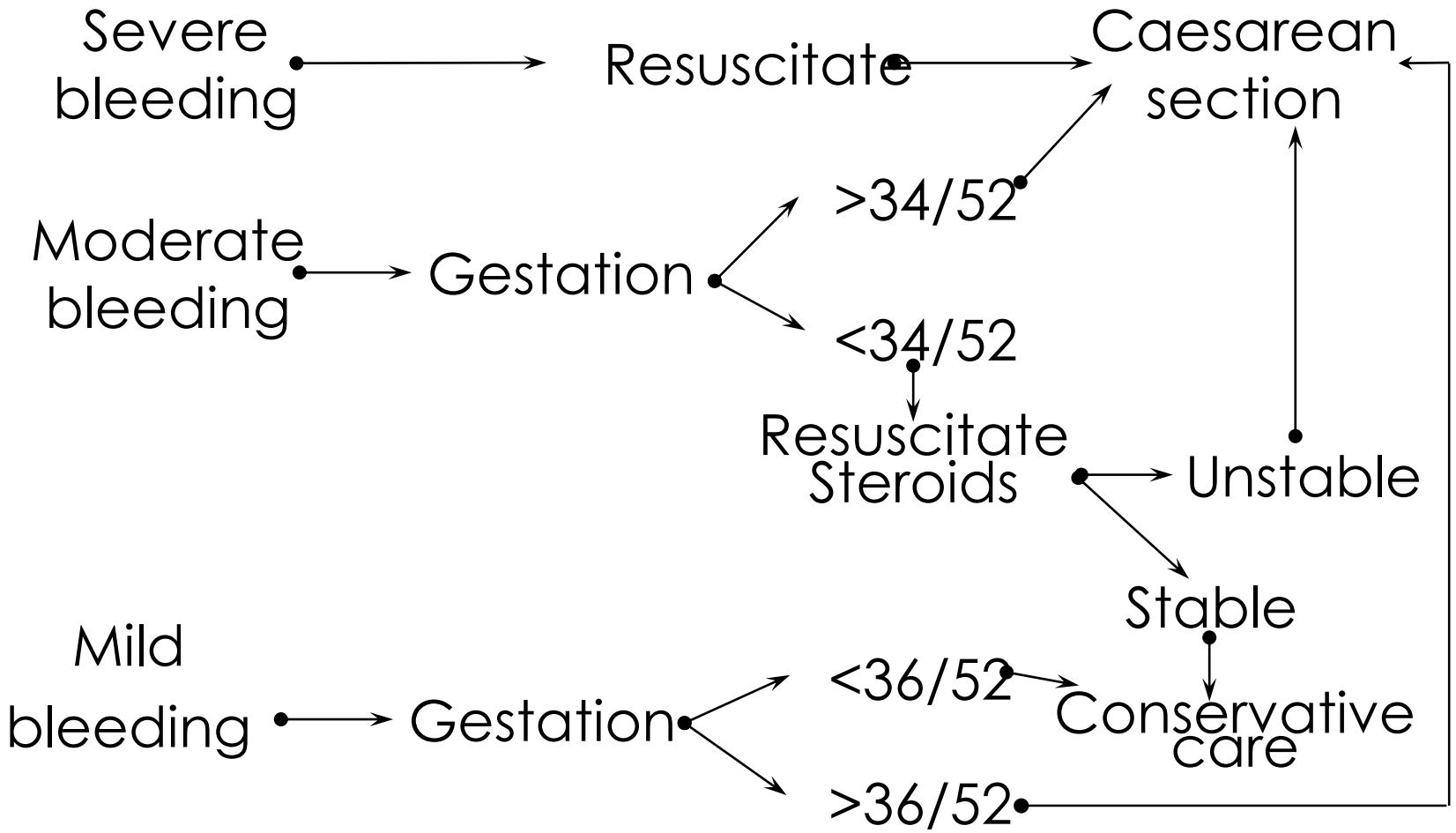
- A digital examination is contraindicated as this can precipitate bleeding. Approximately 10% of cases of placenta praevia can also be complicated by placental abruption.

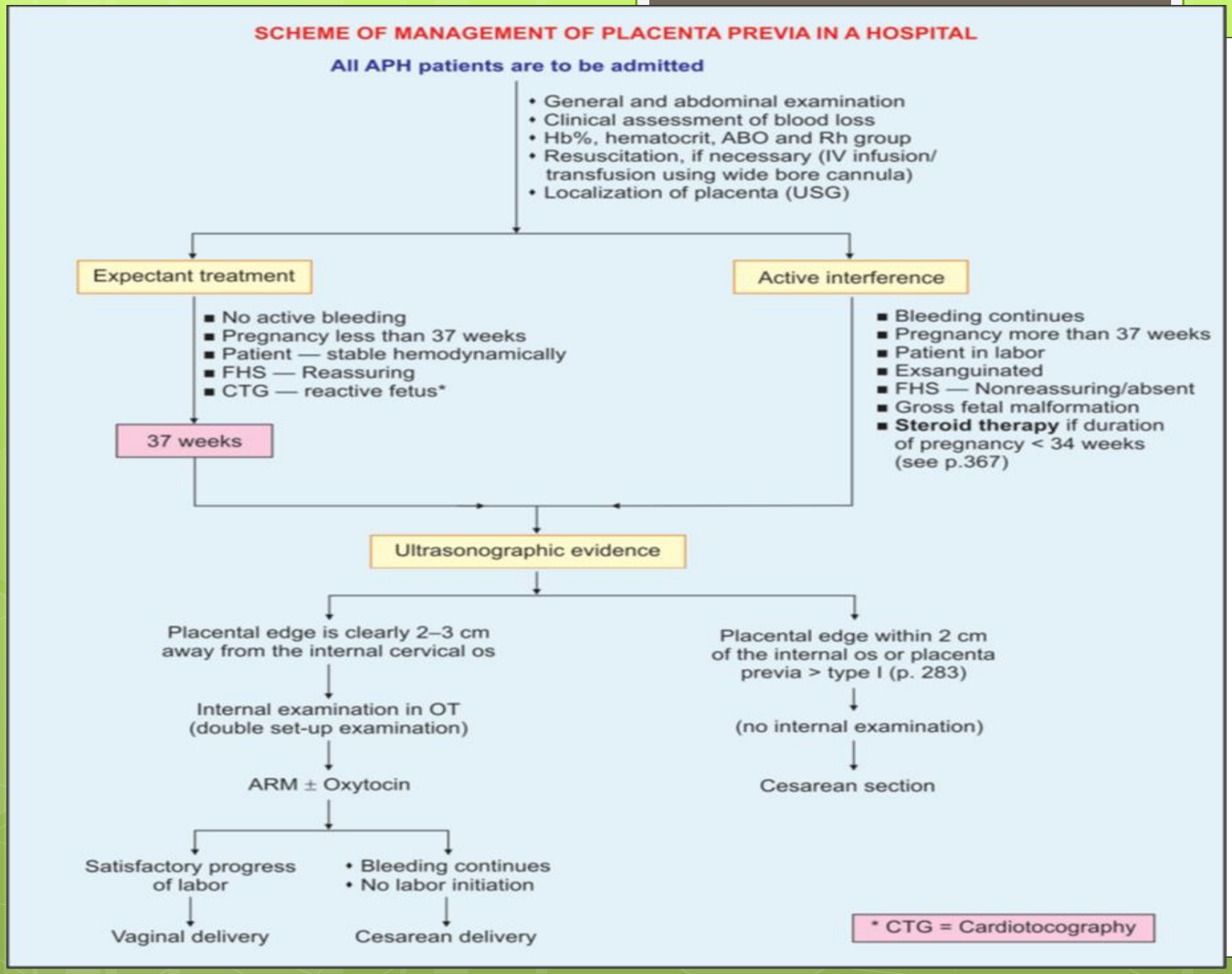
- The diagnosis of placenta previa can seldom be established firmly by clinical examination. Such examination of the cervix is never permissible unless the woman is in an operating room with all the preparations for immediate cesarean delivery, because even the gentlest examination of this sort can cause torrential hemorrhage

Placenta previa management

- Admit to hospital
- ***NO VAGINAL EXAMINATION***
- IV access
- Placental localization

Placenta previa management according to severity of bleeding




SCHEME OF MANAGEMENT OF PLACENTA PREVIA IN A HOSPITAL
All APH patients are to be admitted
• General and abdominal examination
• Clinical assessment of blood loss
• Hb%, hematocrit, ABO and Rh group
• Resuscitation, if necessary (IV infusion/ transfusion using wide bore cannula)
• Localization of placenta (USG)
Expectant treatment
Active interference
■ No active bleeding
■ Pregnancy less than 37 weeks
■ Patient — stable hemodynamically
■ FHS — Reassuring
■ CTG — reactive fetus*
37 weeks
■ Bleeding continues
■ Pregnancy more than 37 weeks
■ Patient in labor
■ Exsanguinated
■ FHS — Nonreassuring/absent
■ Gross fetal malformation
■ Steroid therapy if duration of pregnancy < 34 weeks (see p.367)
Ultrasonographic evidence
Placental edge is clearly 2–3 cm away from the internal cervical os
Internal examination in OT (double set-up examination)
ARM ± Oxytocin
Satisfactory progress of labor
Vaginal delivery
• Bleeding continues
• No labor initiation
Cesarean delivery
Placental edge within 2 cm of the internal os or placenta previa > type I (p. 283)
(no internal examination)
Cesarean section
* CTG = Cardiotocography

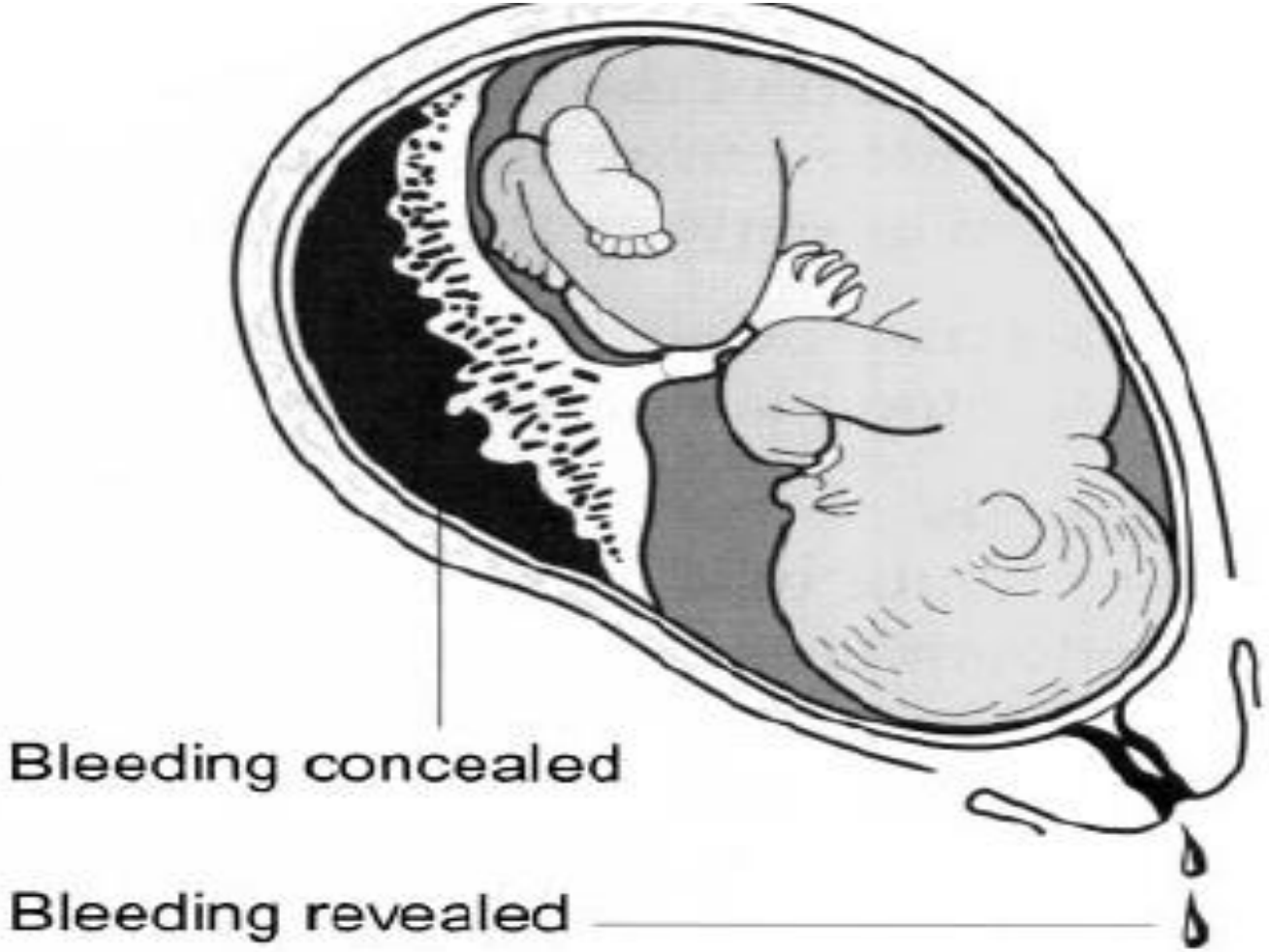
PLACENTAL ABRUPTION (ACCIDENTAL HAEMORRHAGE)

- This means the separation of a normally situated placenta.
- There are 2 types of placental abruption

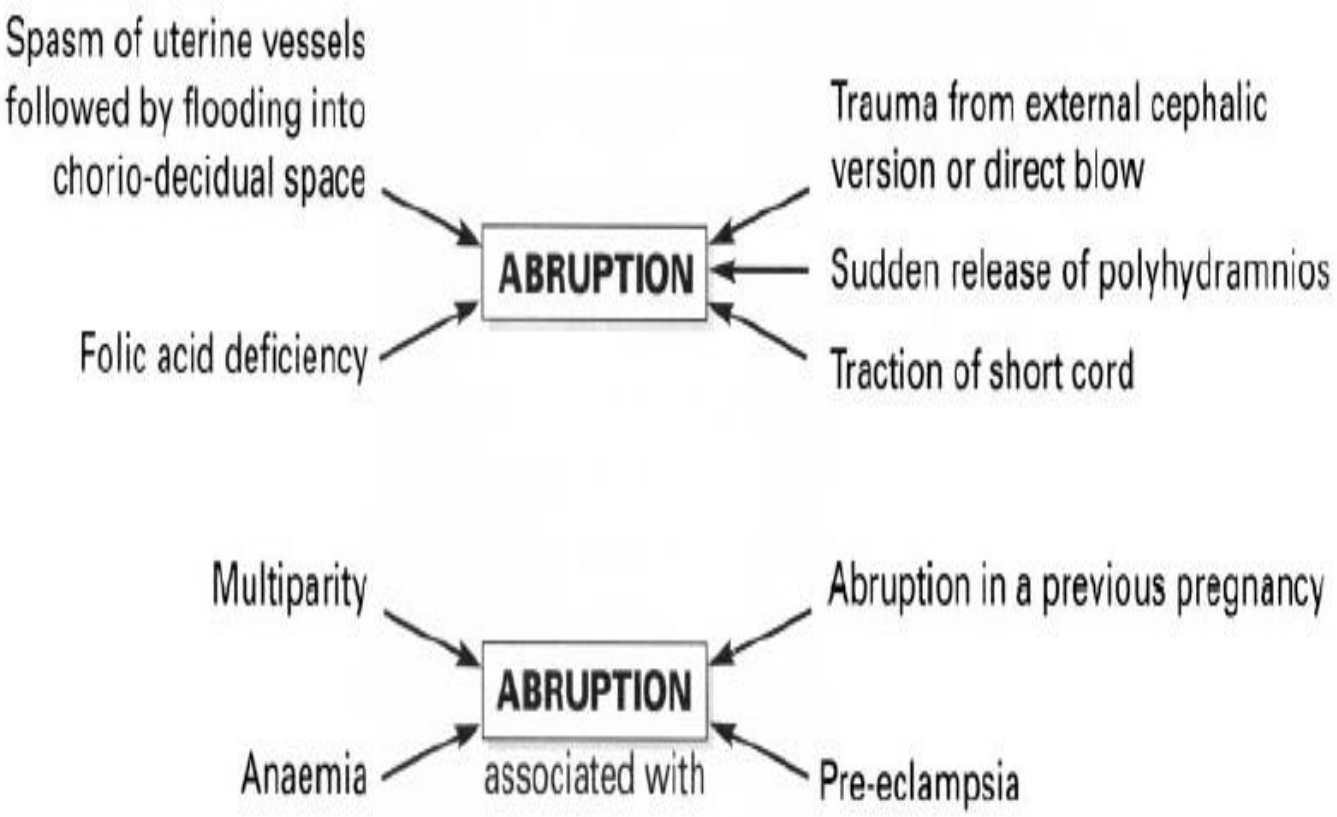
Revealed bleeding per vaginam.

Concealed blood remains in the uterus as a retro-placental clot and sometimes there is no external bleeding.

Mixed Where there is both external bleeding and evidence of retro-placental clot the haemorrhage


Bleeding concealed
Bleeding revealed

Aetiology


Spasm of uterine vessels followed by flooding into chorio-decidual space
Folic acid deficiency
ABRUPTION
Trauma from external cephalic version or direct blow
Sudden release of polyhydramnios
Traction of short cord
Multiparity
Anaemia
ABRUPTION
associated with
Abruption in a previous pregnancy
Pre-eclampsia

Signs and Symptoms

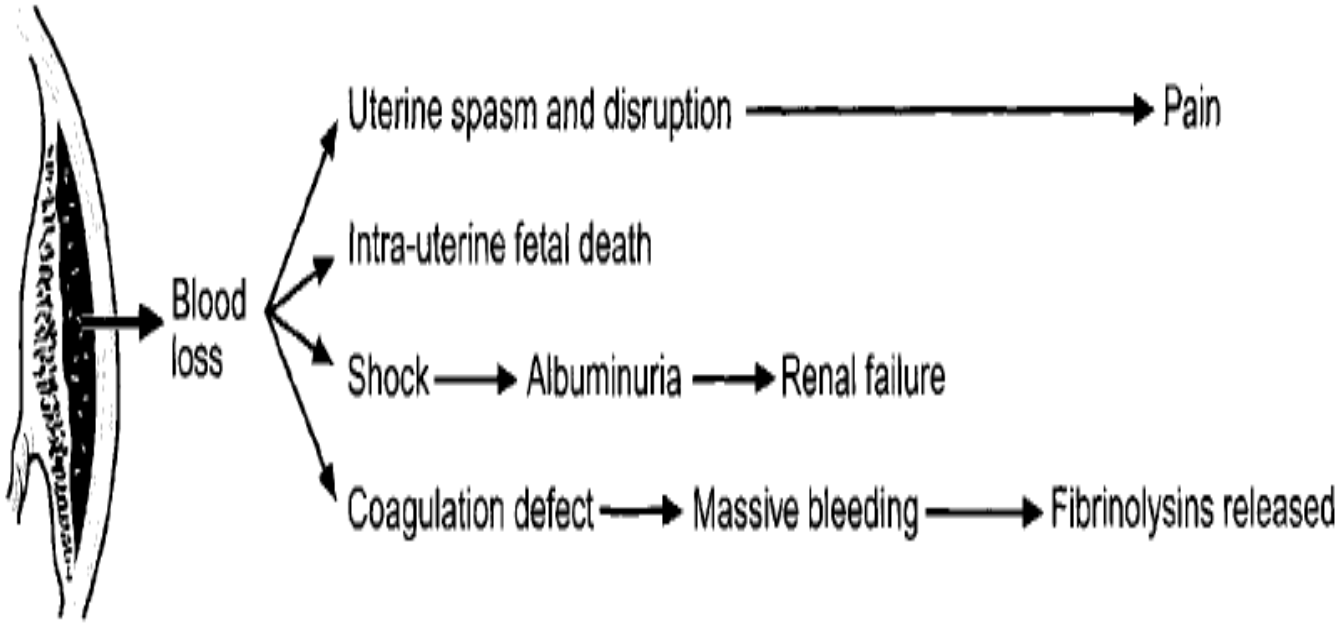
- The hallmark symptom of placental abruption is pain which can vary from mild cramping to severe pain.
- A firm, tender uterus and a possible sudden increase in fundal height on exam.
- The amount of external bleeding may not accurately reflect the amount of blood loss.
- Importantly, negative findings with ultrasound examination do not exclude placental abruption. Ultrasound only shows 25% of abruptions.

Differential Diagnosis

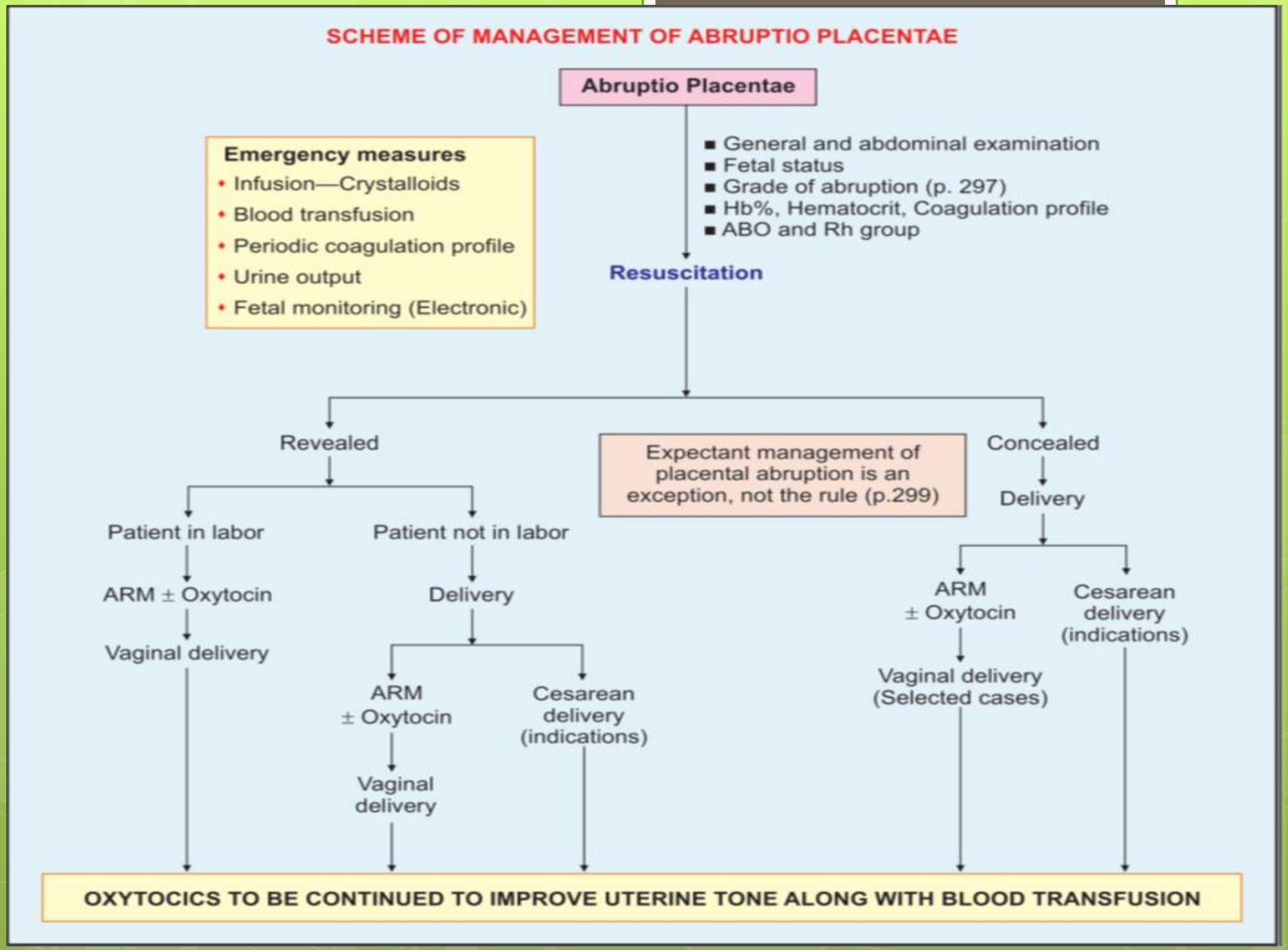
- Mild and early cases of abruption are difficult to distinguish from normal labour with excessive 'show'. The diagnosis of an established mixed haemorrhage is not usually difficult but concealed abruption may need to be distinguished from:
- (a) Acute polyhydramnios
- (b) Degeneration of fibroid
- (c) Peritonism from perforation of a peptic ulcer, appendicitis or other cause.

Complications of Abruption

The complications and dangers of this condition may be summarised as follows:



- It is recognized that the risk of either coagulation failure or renal failure occurring will be reduced by
- rapid and liberal transfusion to restore the circulating blood volume together with speedy emptying of the uterus.
- Similarly the baby's chances of survival will be increased by improved perfusion of the placental site.


SCHEME OF MANAGEMENT OF ABRUPTIO PLACENTAE
Abruptio Placentae
Emergency measures
• Infusion—Crystalloids
• Blood transfusion
• Periodic coagulation profile
• Urine output
• Fetal monitoring (Electronic)
■ General and abdominal examination
■ Fetal status
■ Grade of abruption (p. 297)
■ Hb%, Hematocrit, Coagulation profile
■ ABO and Rh group
Resuscitation
Revealed
Expectant management of placental abruption is an exception, not the rule (p.299)
Concealed
Patient in labor
Patient not in labor
Delivery
ARM ± Oxytocin
Vaginal delivery
Delivery
ARM ± Oxytocin
Cesarean delivery (indications)
ARM ± Oxytocin
Vaginal delivery (Selected cases)
Cesarean delivery (indications)
Vaginal delivery
OXYTOCICS TO BE CONTINUED TO IMPROVE UTERINE TONE ALONG WITH BLOOD TRANSFUSION

PLACENTAL ABRUPTION (ACCIDENTAL HAEMORRHAGE)

- Management Minor or uncertain cases Minor retro placental bleeding sometimes occurs producing a tender area in the uterus.
- bed-rest,
- sedation if required
- observation.
- Check Hb, clotting screen,
- Exclusion of placenta previa by US
- Fetal growth should be monitered
- Pregnancy can be continued safely and check placenta after delivery.

Table 19.1: Distinguishing Features of Placenta Previa and Abruptio Placentae

Parameters	Placenta Previa	Abruptio Placentae
■ Clinical features:		
• Nature of bleeding	(a) Painless, apparently causeless and recurrent (b) Bleeding is always revealed	(a) Painful, often attributed to preeclampsia or trauma and continuous (b) Revealed, concealed or usually mixed
• Character of blood	Bright red	Dark colored
• General condition and anemia	Proportionate to visible blood loss	Out of proportion to the visible blood loss in concealed or mixed variety
• Features of preeclampsia	Not relevant	Present in one-third cases
■ Abdominal examination:		
• Height of uterus	Proportionate height to gestational age	May be disproportionately enlarged in concealed type
• Feel of uterus	Soft and relaxed	May be tense, tender and rigid
• Malpresentation	Malpresentation is common. The head is high floating	Unrelated, the head may be engaged
• FHS	Usually present	Usually absent especially in concealed type
■ Placentography (USG)	Placenta in lower segment	Placenta in upper segment
■ Vaginal examination	Placenta is felt on the lower segment	Placenta is not felt on lower segment. Blood clots should not be confused with placenta

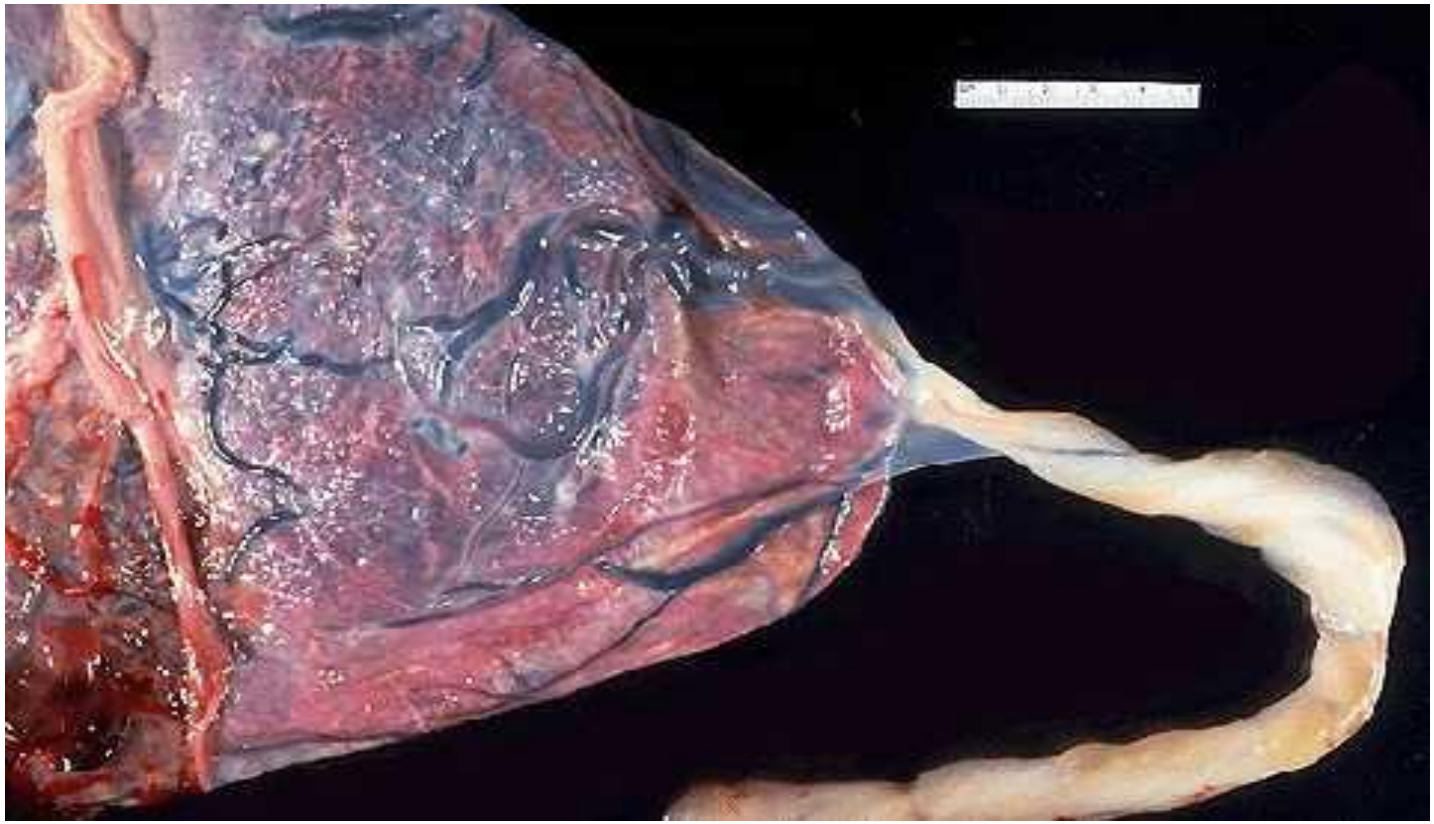
Vasa Previa

Vasa Previa : The unsupported umbilical vessels in velamentous placenta, lie below the presenting part and run across the cervical os.

- These vessels are torn either spontaneously or during rupture of membranes.
- Color-flow Doppler (TVS) is helpful for antenatal diagnosis. Fetal mortality is high (50%) due to fetal exsanguination.
- Vaginal bleeding is often associated with fetal distress (tachycardia, sinusoidal FHR tracing).

- **MANAGEMENT**: Management depends on fetal gestational age, severity of bleeding, persistence or recurrence of bleeding. Center must be equipped with appropriate neonatal care facilities in view of preterm delivery.
- A- Considering the risks of bleeding, patient with confirmed vasa previa, needs antenatal admission at 28–32 weeks of gestation. Expectant management can be done in selected cases for fetal lung maturity similar to placenta previa. Antenatal corticosteroids should be given
- B- Any case with bleeding vasa previa, delivery should be done by emergency cesarean section. Intrapartum diagnosis of vasa previa, needs expeditious delivery.
- C- A case of confirmed vasa previa at term (.37 weeks) should be delivered by elective cesarean section prior to onset of labor.
- D- Neonatal blood transfusion may be needed.

Vasa Previa



Vasa Previa

Postpartum Hemorrhage

Primary Post-Partum

Haemorrhage is blood loss from the birth canal of 500 ml or more within 24 hours of delivery.

After 24 hours, abnormal bleeding is classed as Secondary Post- Partum Haemorrhage.

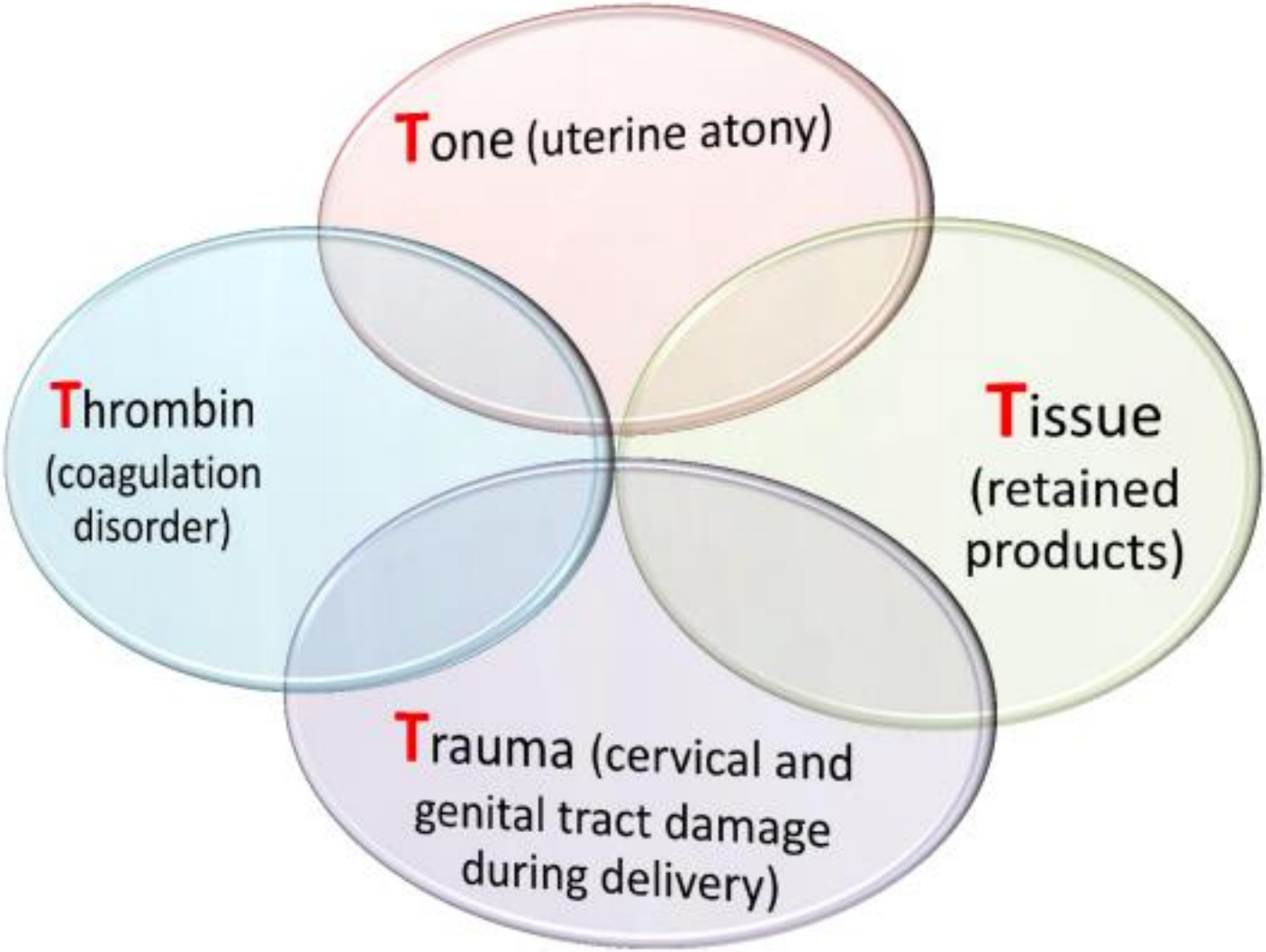
INCIDENCE:

The incidence is about 4–6% of all deliveries

These are of two types of primary PPH:

- Third stage hemorrhage—Bleeding occurs before expulsion of placenta.
- True postpartum hemorrhage—Bleeding occurs subsequent to expulsion of placenta (majority).

4 T's RULE :

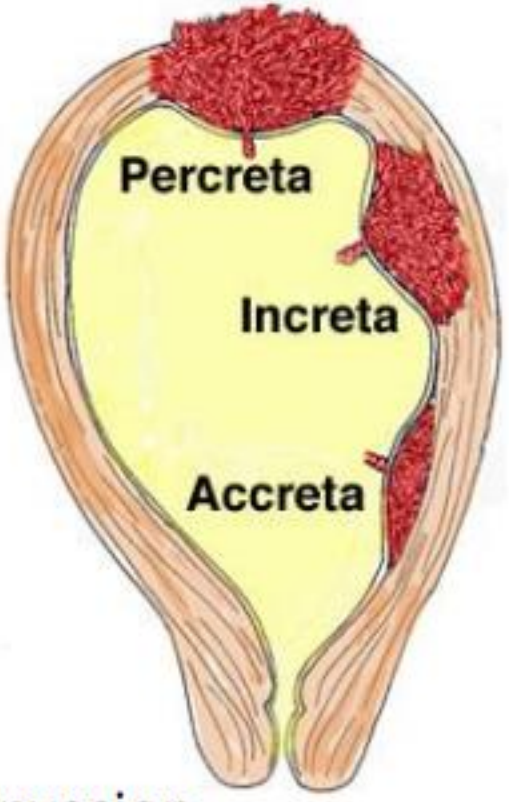

Tone (uterine atony)
Thrombin (coagulation disorder)
Tissue (retained products)
Trauma (cervical and genital tract damage during delivery)

Atonic uterus (80%): causes includes

- (1) Grand multipara
- (2) Overdistension of the uterus
- (3) Malnutrition and anemia (<9.0 g/dL)
- (4) Antepartum hemorrhage (Both placenta previa and abruption)
- (5) Prolonged labor (>12 hours):
- (6) Initiation or augmentation of delivery by oxytocin
- (7) Malformation of the uterus
- (8) Uterine fibroid
- (9) Mismanaged third stage of labor
- (10) Precipitate labor
- (11) Other causes of atonic hemorrhage are: . Obesity (BMI > 35) . Previous PPH . Age (>40 yrs) . Drugs: Use of tocolytic drugs (ritodrine), MgSO4, Nifedipine

Abnormal placentation

Abnormal placentation refers to abnormal attachment of the placenta to the uterine wall



Classification ⟶ degree of myometrial invasion

Abnormal Placentation

+

Uterine atony

> 1 litre of blood

most common cause of postpartum hysterectomy

Traumatic (20%):

- Trauma to the genital tract usually occurs following operative delivery; even after spontaneous delivery. Blood loss from the episiotomy wound is often underestimated.
- Similarly, blood loss in cesarean section amounting to 800–1000 mL is most often ignored.
- Trauma involves usually the cervix, vagina, perineum (episiotomy wound and lacerations), paraurethral region and rarely, rupture of the uterus occurs. The bleeding is usually revealed but can rarely be concealed (vulvovaginal or broad ligament hematoma).

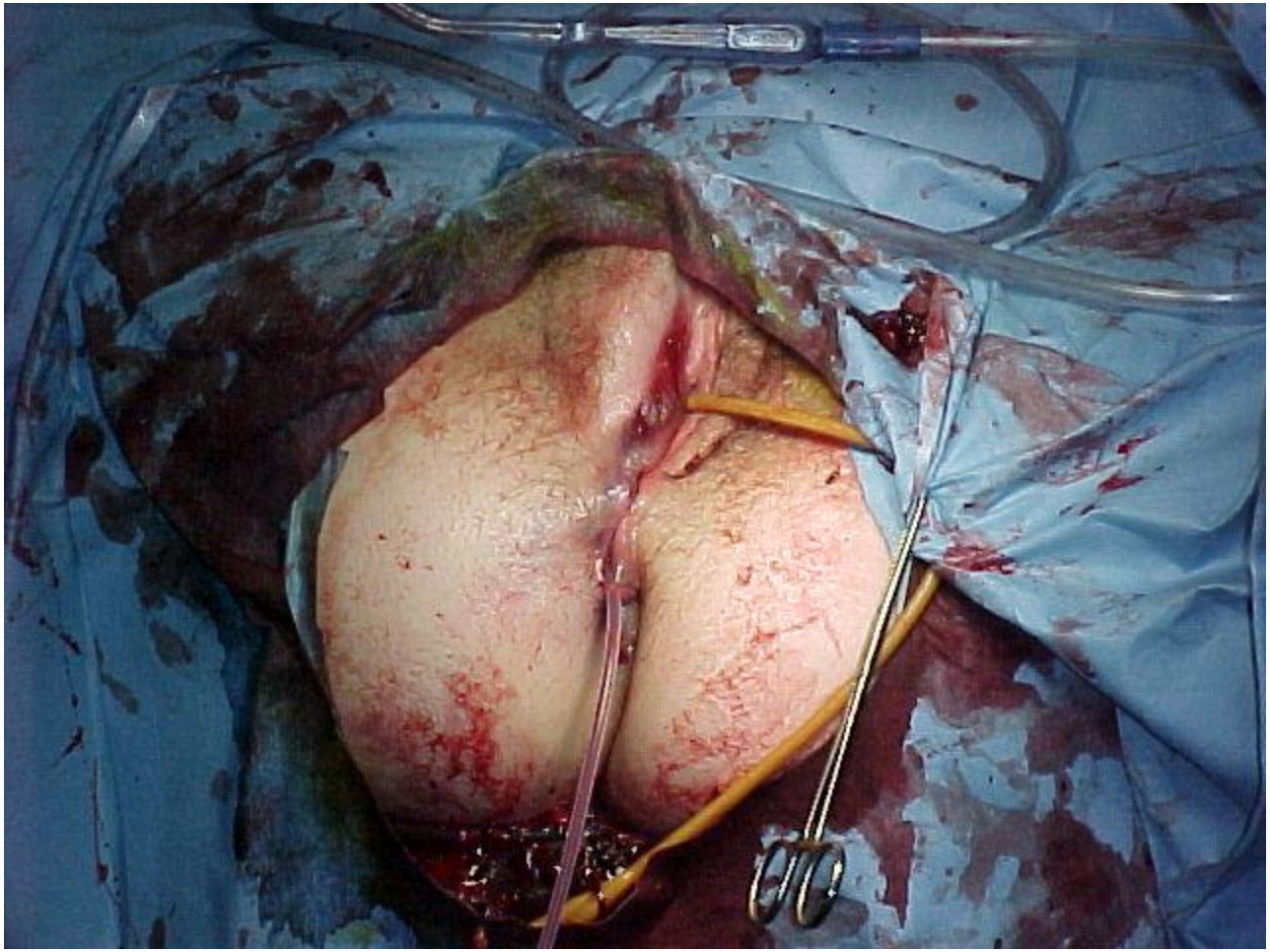
Obstetric Trauma

small pelvic hematoma

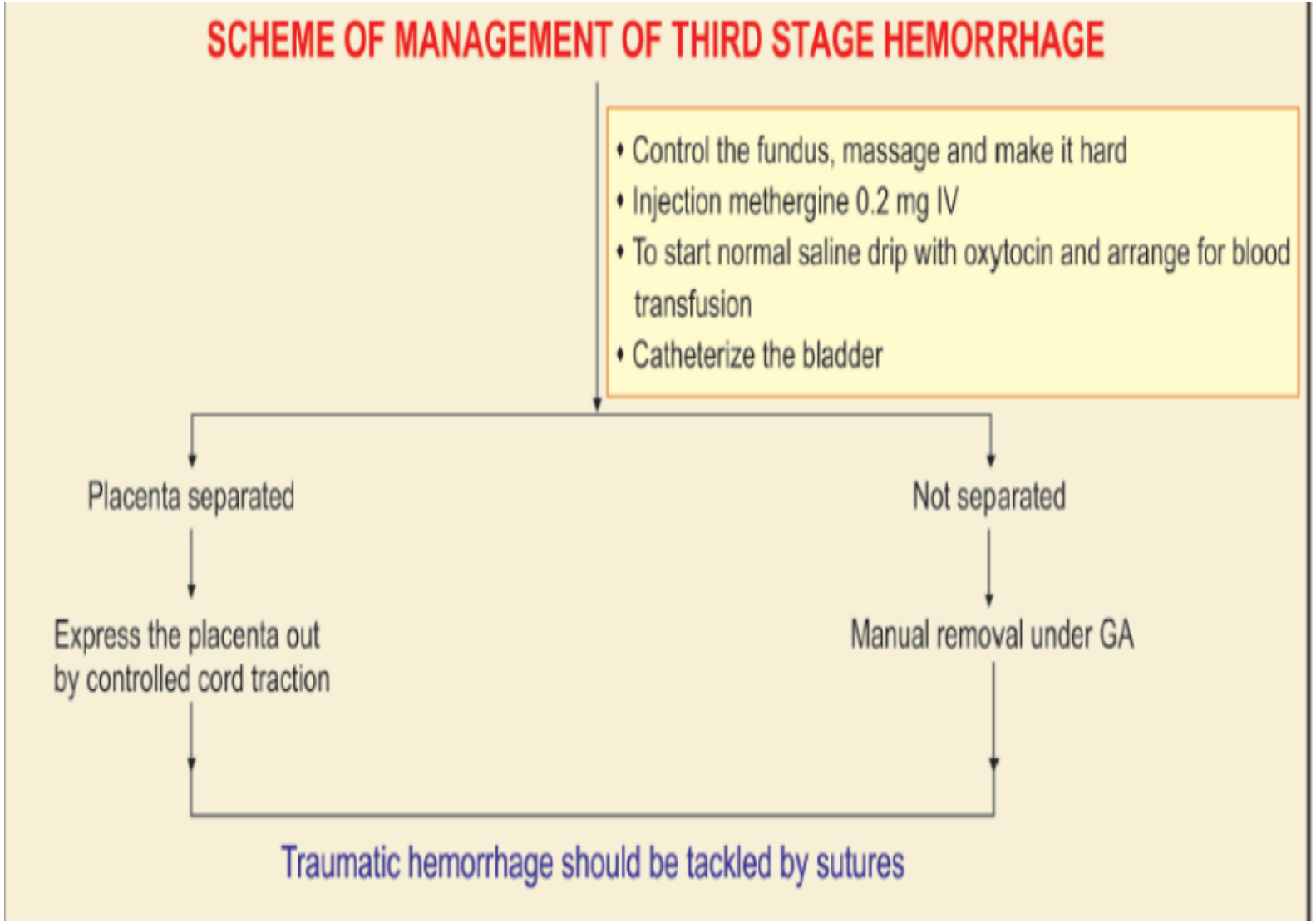
- No evidence of hemodynamic compromise
- Conservative management

Large hematoma

- Surgical exploration, evacuation
- Ligation of vessels
- Avoid infection, septicemia, pressure necrosis, profuse hemorrhage.



- • **Thrombin:**
- Blood coagulation disorders, acquired or congenital, are less common causes of postpartum hemorrhage. The blood coagulopathy may be due to
- diminished procoagulants (washout phenomenon)
- or increased fibrinolytic activity.
- The firmly retracted uterus can usually prevent bleeding. The conditions where such disorders may occur are abruptio placentae, jaundice in pregnancy, thrombocytopenic purpura, severe preeclampsia, HELLP syndrome or in IUD . Specific therapy following coagulation screen including recombinant activated factor VII (rF VIIa) may be given.


SCHEME OF MANAGEMENT OF THIRD STAGE HEMORRHAGE
• Control the fundus, massage and make it hard
• Injection methergine 0.2 mg IV
• To start normal saline drip with oxytocin and arrange for blood transfusion
• Catheterize the bladder
Placenta separated
Not separated
Express the placenta out by controlled cord traction
Manual removal under GA
Traumatic hemorrhage should be tackled by sutures

SCHEME OF MANAGEMENT OF TRUE PPH

Skill drill for PPH using mannequins for all labor attendants

Immediate measures

- Call for extra help (communication)
- Commence IV line with two wide bore cannulas
- Send blood for cross matching tests, coagulation screening including fibrinogen level and ask blood for 2 units (at least)
- Rapidly infuse normal saline/haemaccel 2 liters till blood is available
- To catheterize the bladder
- To monitor pulse, BP, temperature, output, oximeter every 15–30 minutes

To Feel the Uterus by Abdominal Palpation

Uterus atonic

- Massage the uterus to make it hard
- To add oxytocin 10–20 units in 500 mL of Normal saline, at the rate of 40 drops per minute
- Injection methergine 0.2 mg IV (slowly)
- To examine the expelled placenta

Uterus remains atonic

- Exploration of the uterus
- Blood transfusion
- To continue oxytocin drip

Uterus atonic

- 15 methyl $PGF_{2\alpha}$ 250 µg IM/intramyometrial
  OR
- Misoprostol 1000 µg per rectum
  OR
- Carbetocin 100 µg IM / IV

Uterus atonic

Uterine tamponade

(any method)

- Balloon tamponade (Fig. 28.4)
- Bimanual compression (Fig. 28.3)
- Tight intrauterine packing under anesthesia

Uterus atonic

Surgical methods

(any method)

Stepwise uterine devascularization procedure

- B-Lynch compression and multiple square sutures (Fig. 28.6)
- Ligation of uterine artery and utero-ovarian anastomotic vessels unilateral or bilateral (Fig. 28.5)
- Ligation of anterior division of internal iliac artery (unilateral or bilateral)
- Angiographic arterial embolization with gelatin sponge

Hysterectomy (rarely)

Uterus hard and contracted

Traumatic

Exploration

Hemostatic sutures on the tear sites

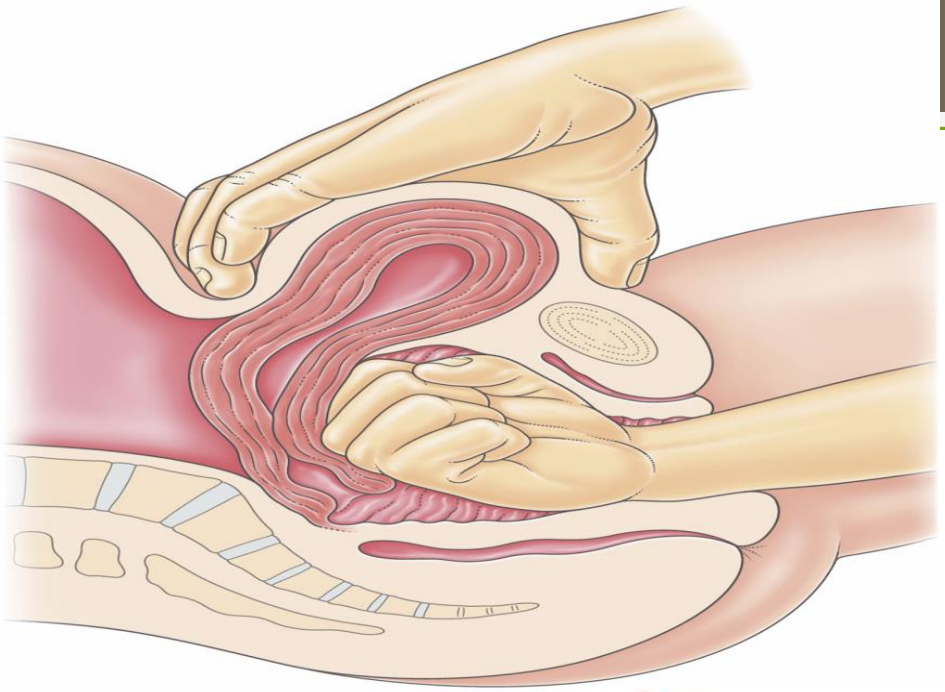
Commonly Used Oxytocics in the Management of PPH

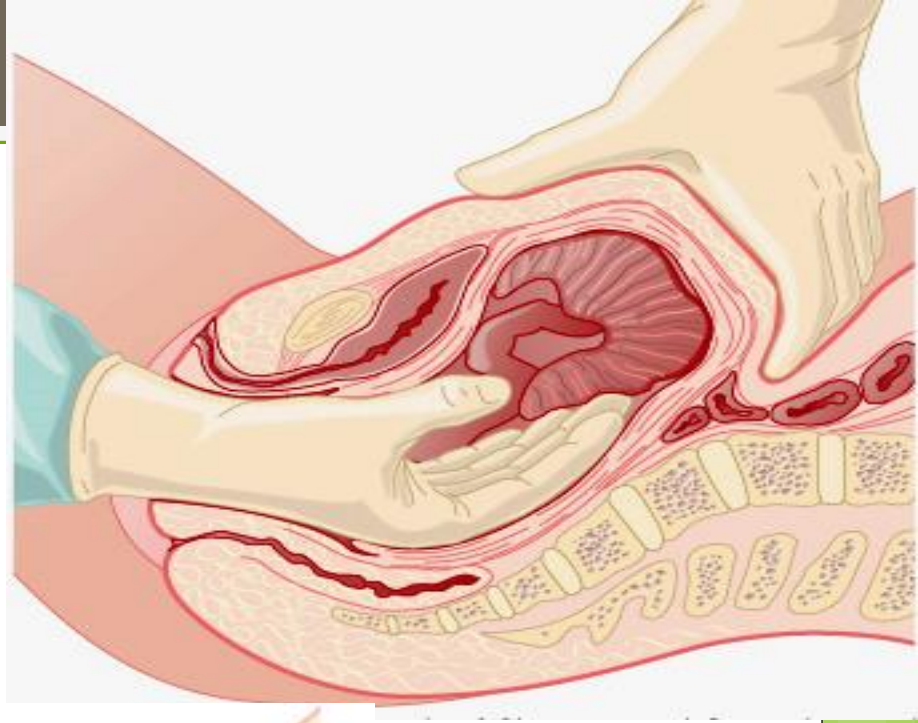
Drug	Dose	Route	Dose frequency	Side effects	Contra-indications
Oxytocin	10–40 units in 1 L of crystalloid solution	First line: IV;Second line: IM (10 units)	Continuous IV	• Nausea • Water intoxication	Not as IV bolus, otherwise none
Methergine	0.2 mg	First line IM/IV; Second line PO	Every 2–4 hours	• Nausea • Vomiting • Hypertension	• Hypertension • Pre-eclampsia
15 methyl $PGF_{2\alpha}$	0.25 mg	First line IM; Second line intrauterine	Every 15–90 min. (8 doses maximum)	• Nausea • Vomiting • Diarrhea • Chills	• Bronchial asthma • Active cardiac, renal or hapatic disease
Misoprostol (PGE_1)	600–1000 mcg	First line PR second line PO	Single dose	• Fever, • Tachycardia	None

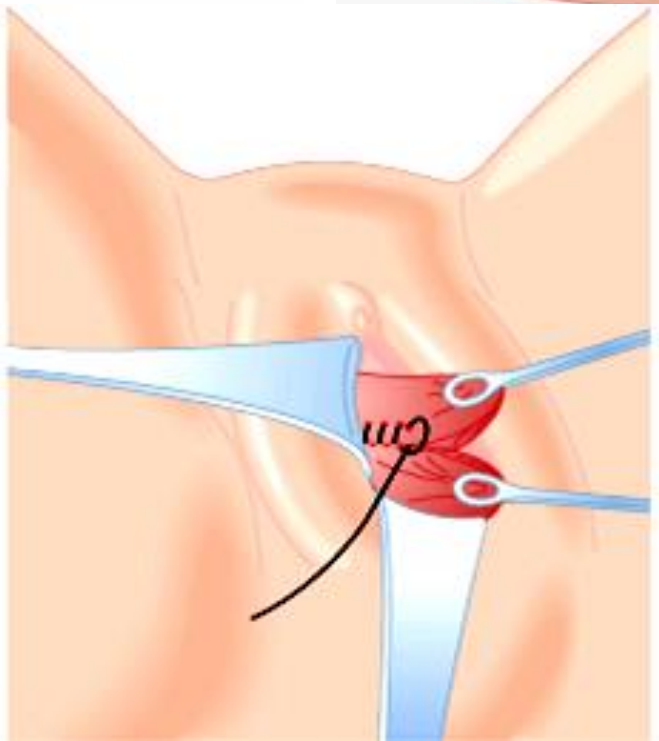
Bleeding controlled

- Continuous observation in high dependency unit/ICU
- Documentation of procedures adopted in respect to time

Guidelines for Management of PPH : RCOG, FIGO and ACOG







Failure to control bleeding…

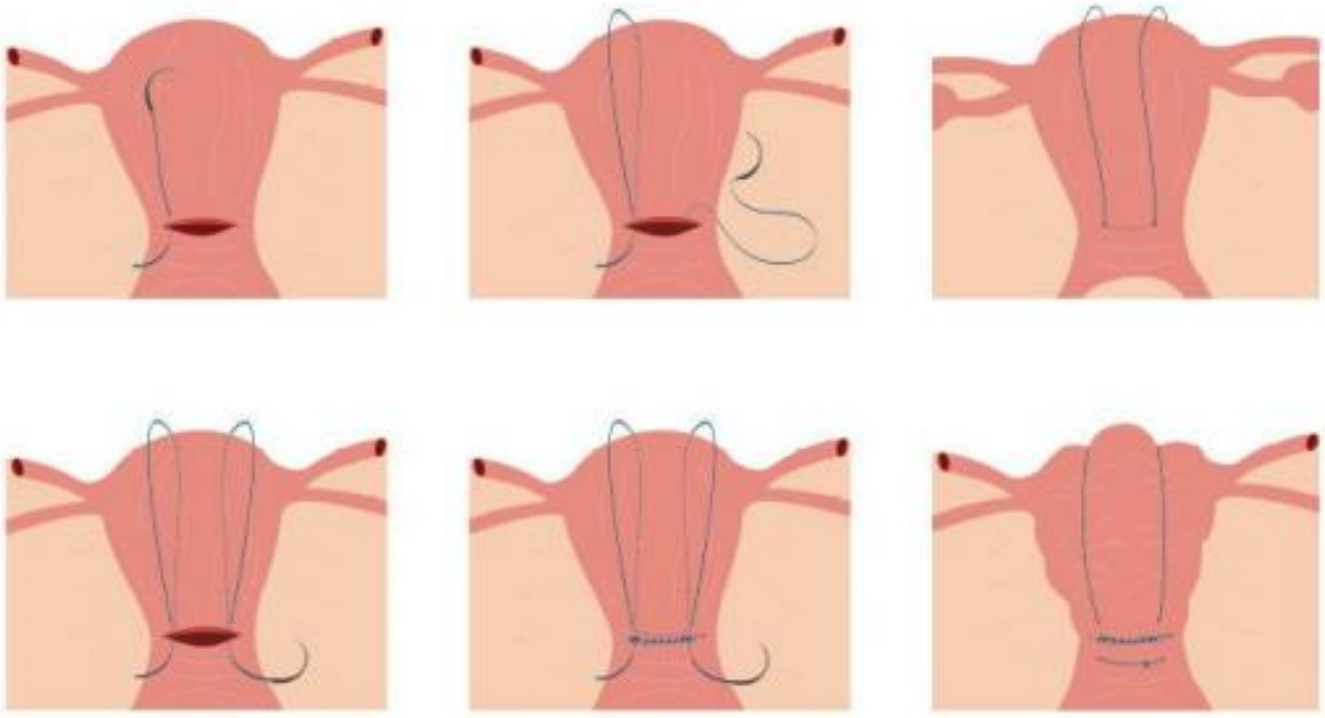
Invasive procedures must be performed

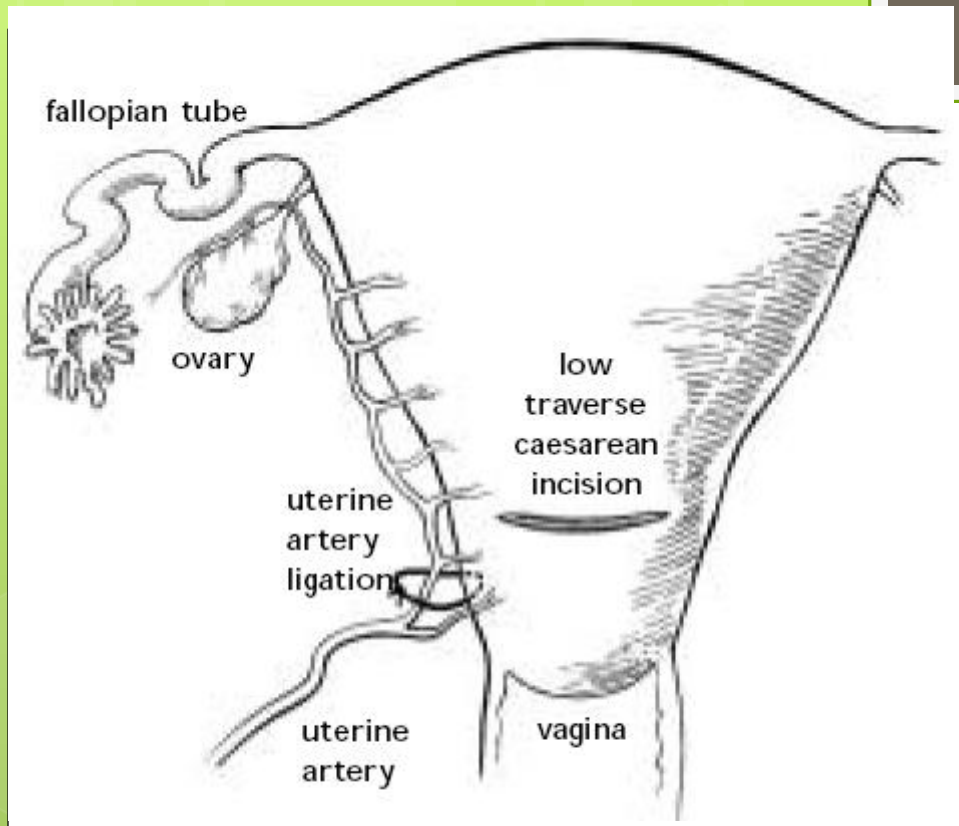
Surgical Management

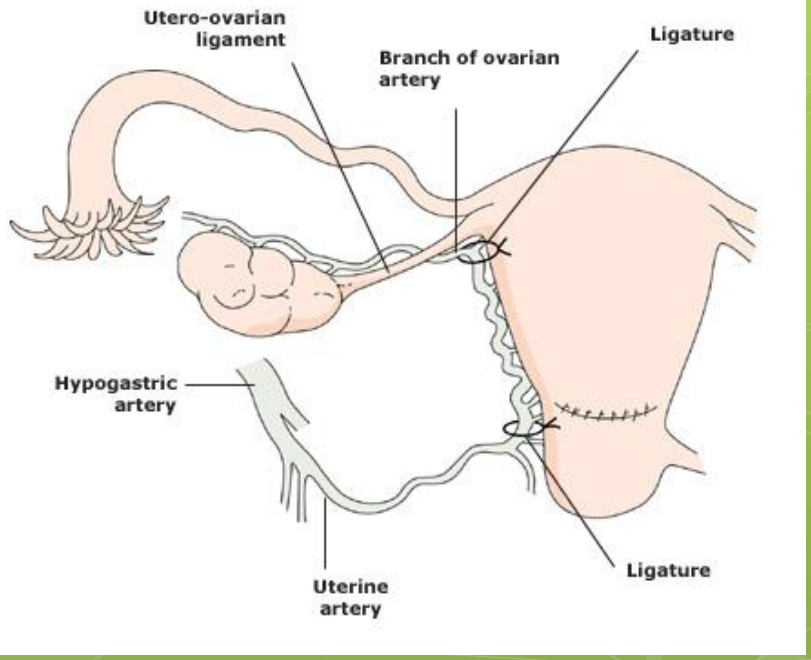
- Provide hydrostatic intra-uterine balloon tamponade :
  - Bakri tamponade balloon
  - Rusch urological balloon
  - Sengstaken-Blakemore tube.

Surgical Management

- Perform a uterine compression suture (e.g. B-Lynch suture).




fallopian tube
ovary
low
traverse
caesarean
incision
uterine
artery
ligation
uterine
artery
vagina


Utero-ovarian
ligament
Branch of ovarian
artery
Ligature
Hypogastric
artery
Ligature
Uterine
artery

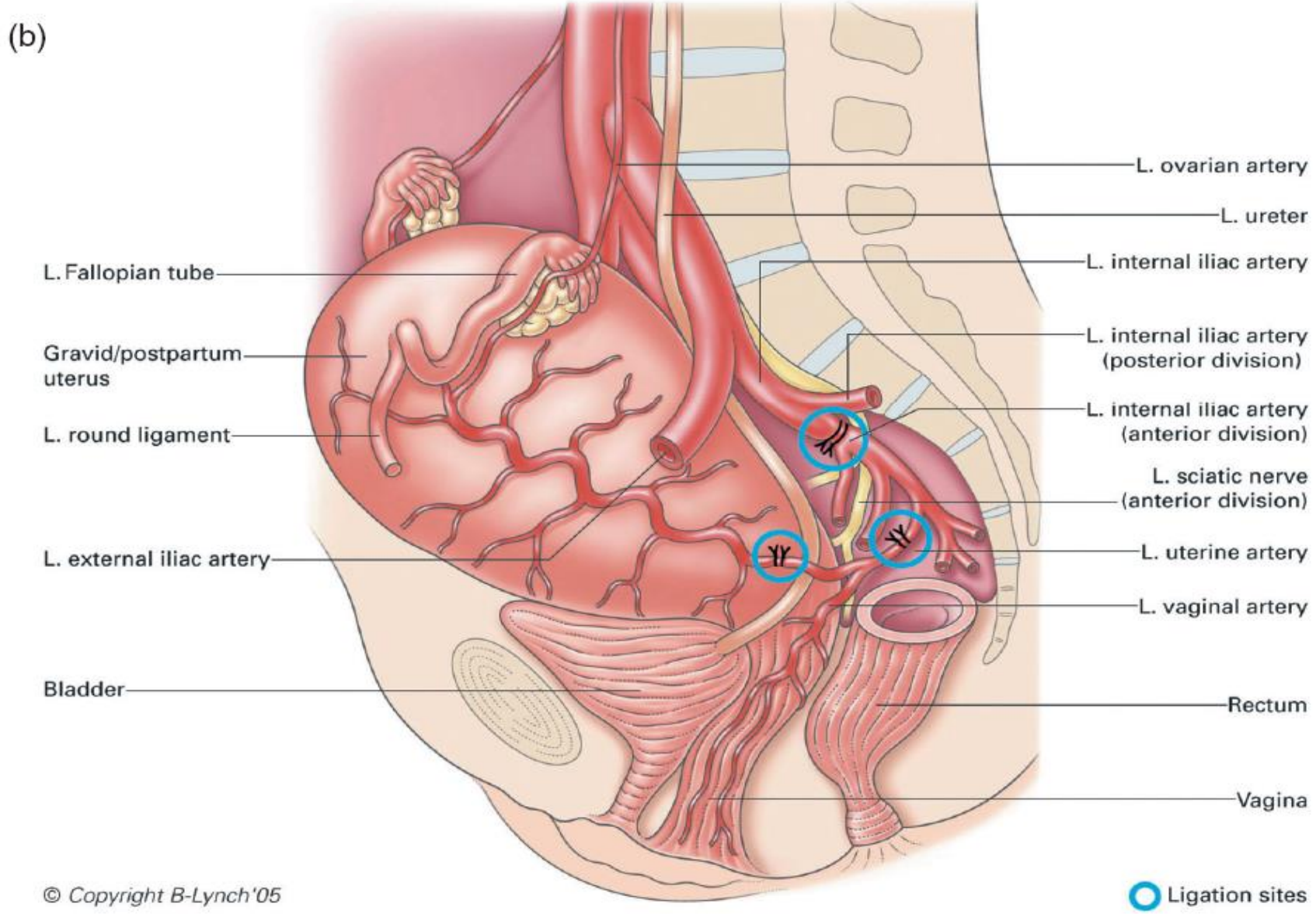
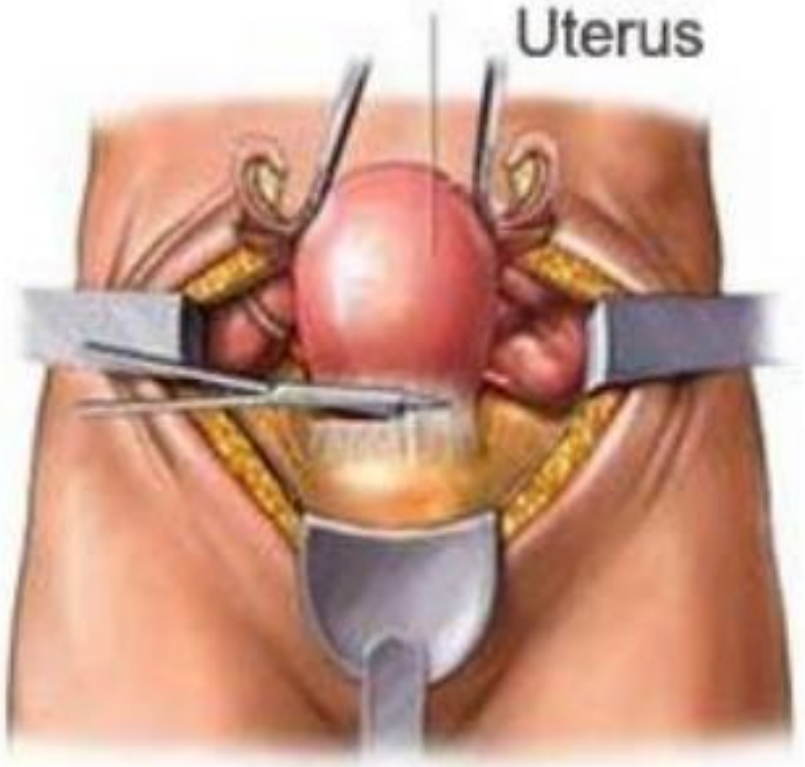


Figure 1 Ligation of the anterior branch of the internal iliac artery with its associated vein. (a) Demonstrable vulnerability of internal iliac vein and obturator nerve in close proximity; (b) A 'skeletal' anatomy, showing proximity of external iliac artery, ureter and anterior branches of sciatic nerve

Surgical Management

- Perform a peripartum hysterectomy.



RADIOLOGICAL MANAGEMENT

RADIOLOGICAL MANAGEMENT

- Requires the mother to be stable enough to be transferred to a radiology suite

- **Embolisation** requires fluoroscopic guidance and Availability of an interventional radiologist with appropriate facilities and team.

SECONDARY POSTPARTUM HEMORRHAGE

- **CAUSES**: The bleeding usually occurs between 8th and 14th day of delivery. **The causes of late postpartum hemorrhage are**:

(1) Retained bits of cotyledon or membranes (most common),

(2) Infection and separation of slough over a deep cervicovaginal laceration,

(3) Endometritis and subinvolution of the placental site—due to delayed healing process,

(4) Secondary hemorrhage from cesarean section wound usually occur between 10–14 days. It is probably due to—

(a) separation of slough exposing a bleeding vessel or

(b) from granulation tissue,

(5) Withdrawal bleeding following estrogen therapy for suppression of lactation, (6) Other rare causes are: chorionepithelioma—occurs usually beyond 4 weeks of delivery; carcinoma cervix; placental polyp; infected fibroid or fibroid polyp and puerperal inversion of uterus.

DIAGNOSIS:

- The bleeding is bright red and of varying amount. Rarely it may be brisk.
- Varying degree of anemia and evidences of sepsis are present.
- Internal examination reveals evidences of sepsis, subinvolution of the uterus and often a patulous cervical os.
- Ultrasonography is useful in detecting the bits of placenta inside the uterine cavity

MANAGEMENT

Supportive therapy:

- (1) Blood transfusion, if necessary,
- (2) To administer methergine 0.2 mg intramuscularly, if the bleeding is uterine in origin,
- (3) To administer antibiotics (clindamycin and metronidazole) as a routine.

Conservative: If the bleeding is slight and no apparent cause is detected, a careful watch for a period of 24 hours or so is done in the hospital.

Active treatment: As the most common cause is due to retained bits of cotyledon or membranes, it is preferable to explore the uterus urgently under general anesthesia.

- One should not ignore the small amount of bleeding; as unexpected alarming hemorrhage may follow sooner or later. The products are removed by ovum forceps.
- Gentle curettage is done by using flushing curette. Methergine 0.2 mg is given intramuscularly. The materials removed are to be sent for histological examination.
- Presence of bleeding from the sloughing wound of cervicovaginal canal should be controlled by hemostatic sutures. Secondary hemorrhage following cesarean section may at times require laparotomy. The bleeding from uterine wound can be controlled by hemostatic sutures; may rarely require ligation of the internal iliac artery or may end in hysterectomy


THANKYOU