POST-PARTUM HEMORRHAGE

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Definition

Excessive bleeding from the genital tract during or after the 3rd stage of labor and up to the end of the puerperium "bleeding > 500 cc following vaginal or > 1000 cc following CS OR bleeding that affects the patient's general condition".

- It may be primary "within first 24 hours" OR secondary "after 24 hours till the end of puerperium".

- In developing countries, it is still high as it is the commonest cause of maternal mortality (30%).

Primary PPH

Causes: (4T):

1. Tone: uterine atony . Most common cause. Recurrent.
2. Trauma : tears and lacerations in the genital tract
3. Thrombin : coagulopathy
4. Tissue: retained or invasive placental tissue

Primary PPH/ Diagnosis

There may be history of PPH in previous deliveries or history of the cause.

1. General examination:

- In atonic cases: the general condition is affected according to the amount of blood loss.
- In traumatic cases: there is severe shock "neurogenic and hemorrhagic".

2. Abdominal examination:

- *In atonic cases*: the uterus is lax, soft, doughy in consistency with rising fundal level and fundal pressure may cause expulsion of excess blood.
- *In traumatic cases:* the uterus is contracted and there is picture of internal hemorrhage.

Primary PPH/ Diagnosis

3. Vaginal examination:

- *In atonic cases:* blood is dark and the cause of atony may be found.
- *In traumatic cases:* blood is bright red and exploration of the birth canal reveals the injuries.
- *In DIC:* it is strongly suspected when there is absent atony or lacerations.

Primary PPH/ Treatment

A. Preventive measures:

1. Before labor: prevent and treat any predisposing cause and advice hospital delivery for patients liable to postpartum hemorrhage.

2. During labor:

- Avoid prolonged and obstructed labor, traumatic instrumental delivery, full bladder or rectum and prepare fresh blood and fresh frozen plasma in high-risk group.

- In the 3rd stage of labor; giving ergometrine & uterine massage are essential.

- In the 4th stage of labor, the patient should be watched 1 hour after labor.

- Do examination of the birth canal after difficult labor to repair any tear if present.

Primary PPH/ Treatment

B. Active measures:

1. Correction of shock: by : (a). Trendelenburg's position, oxygen inhalation, warming of the patient. (b). Fluids & fresh blood transfusion, corticosteroids, antibiotics and morphine 10-15 mg IV.

2. Treatment of the cause:

a. Uterine atony: [If bleeding occurs before delivery of the placenta "3rd stage bleeding"]:

1. Ergometrine and uterine massage then Brandt-Andrew's maneuver, if failed
2. Manual removal of placenta under anesthesia, if failed
3. Crede's method for placental delivery.

Primary PPH/ Treatment

a. Uterine atony [If bleeding occurs after delivery of the placenta:]

1. Inspection of the placenta & membranes to detect missed part.
2. Exploration of the birth canal and extract any placental parts, membranes, blood clots.
3. Do uterine massage and give ecobolics e.g., Ergometrine, Oxytocin, or PG.
4. Bimanual compression OR balloon tamponade with blood transfusion & ecobolics if failed--→ LAPAROTOMY……
5. Bilateral uterine arteries ligation OR internal iliac arteries ligation. If failed ---→ angiographic embolization of internal iliac arteries. If failed --→
6. Do Be-Lynch suture to compress uterine walls against each other. If failed ---→
7. Supracervical hysterectomy.

Primary PPH/ Treatment

b. Birth canal injuries:

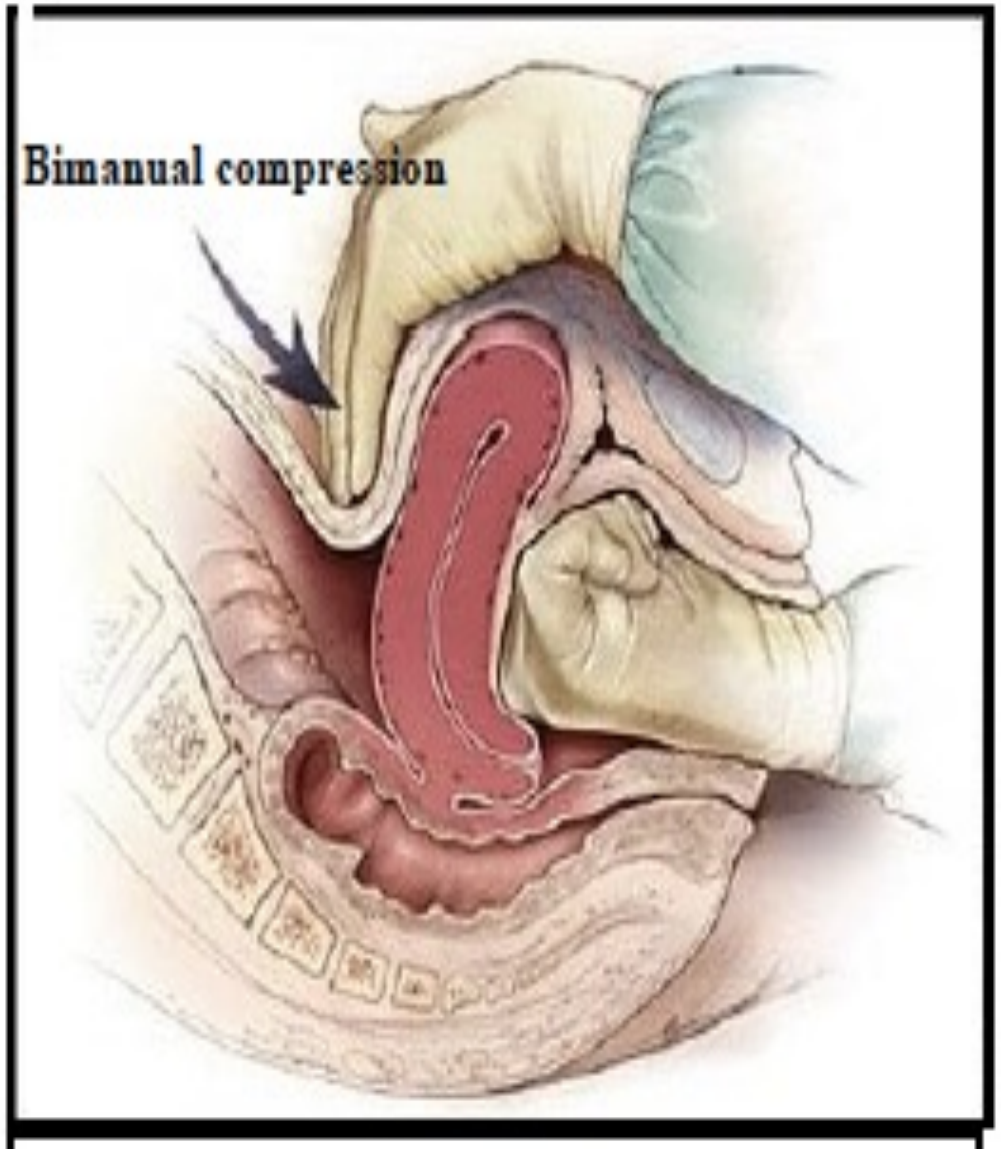
1. Perineal, vulval, vaginal & cervical tears are sutured.

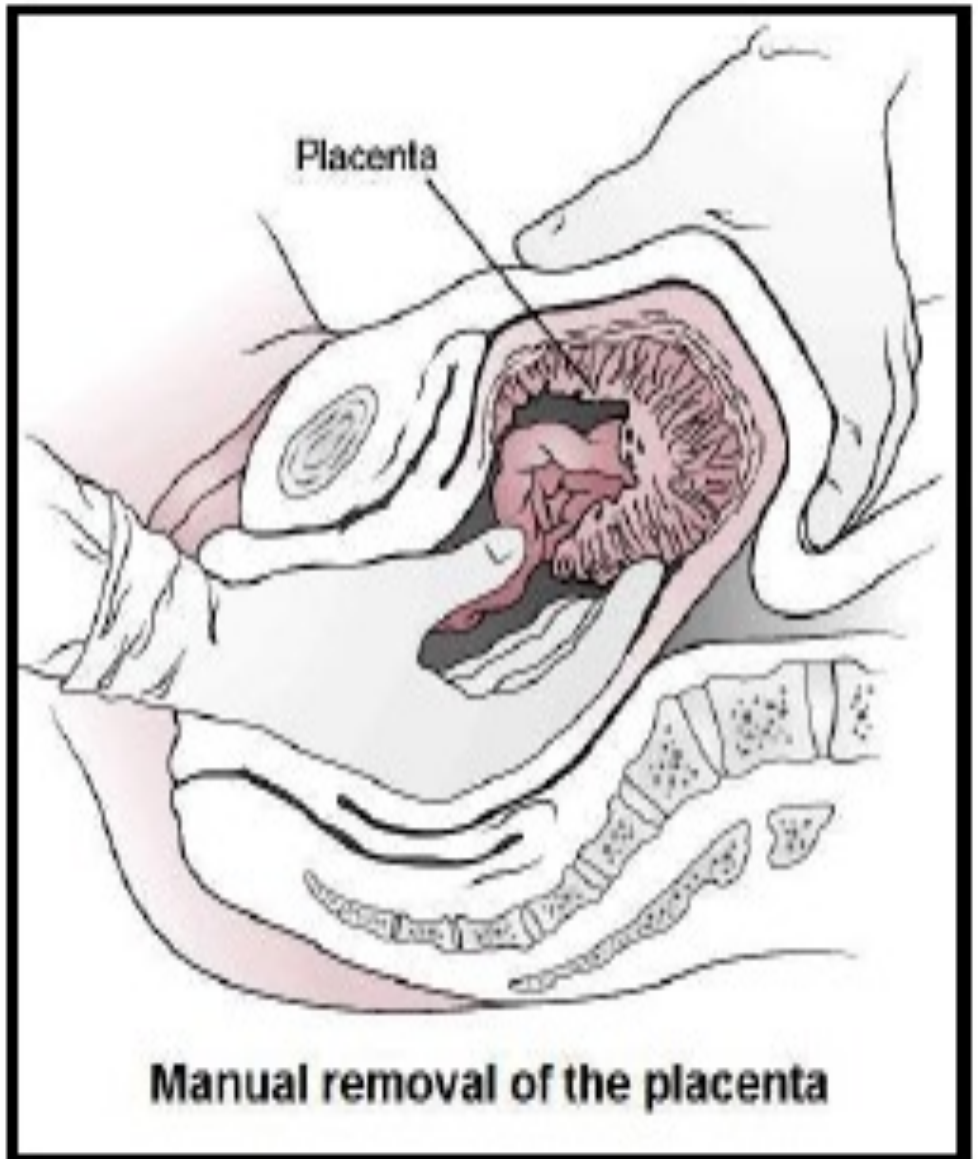
2. Ruptured uterus: laparotomy and repair in young patient or subtotal hysterectomy if extensive irreparable tear or old patient.

c. Clotting defect:

1. Fresh blood transfusion is the best to supply platelets & clotting factors.

2. Fresh frozen plasma, fibrinogen or cryoprecipitate to supply fibrinogen.





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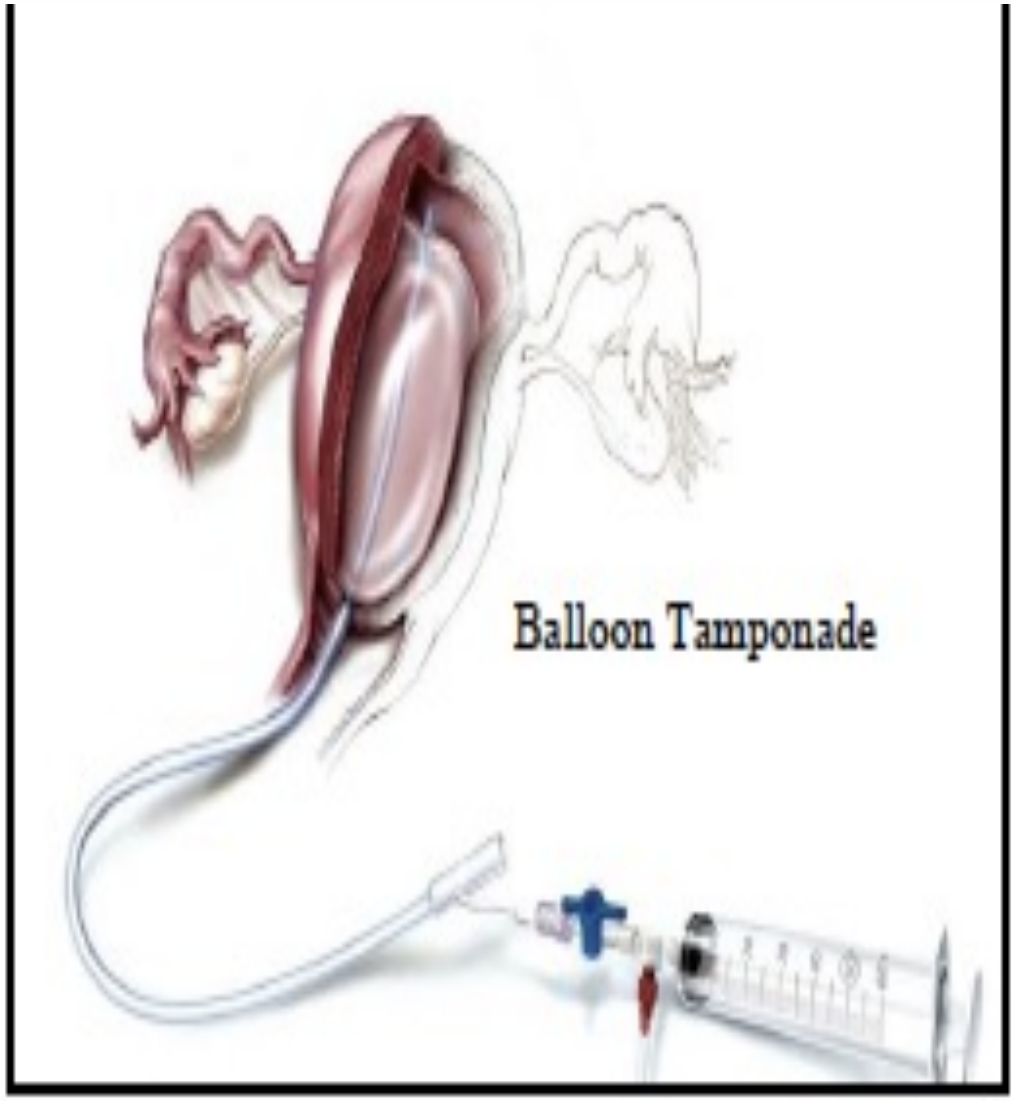

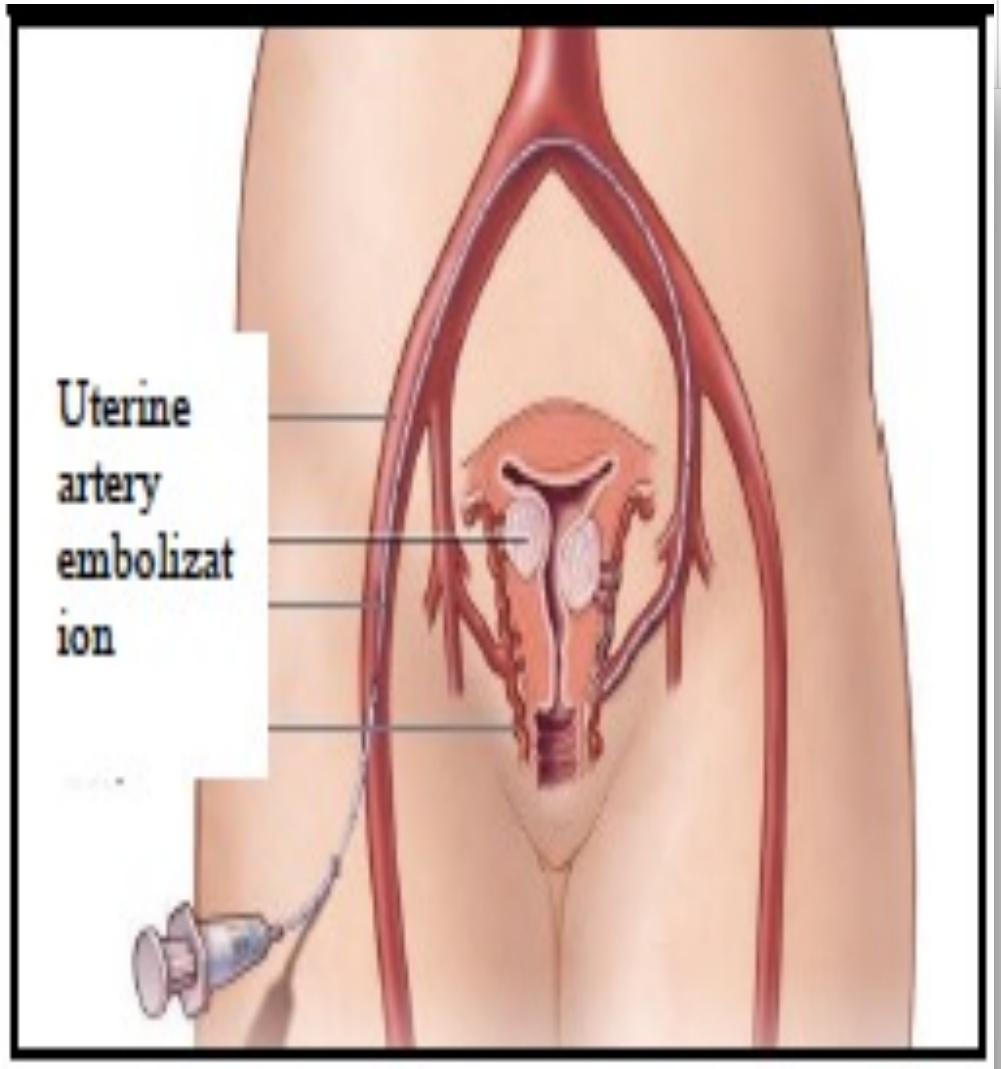

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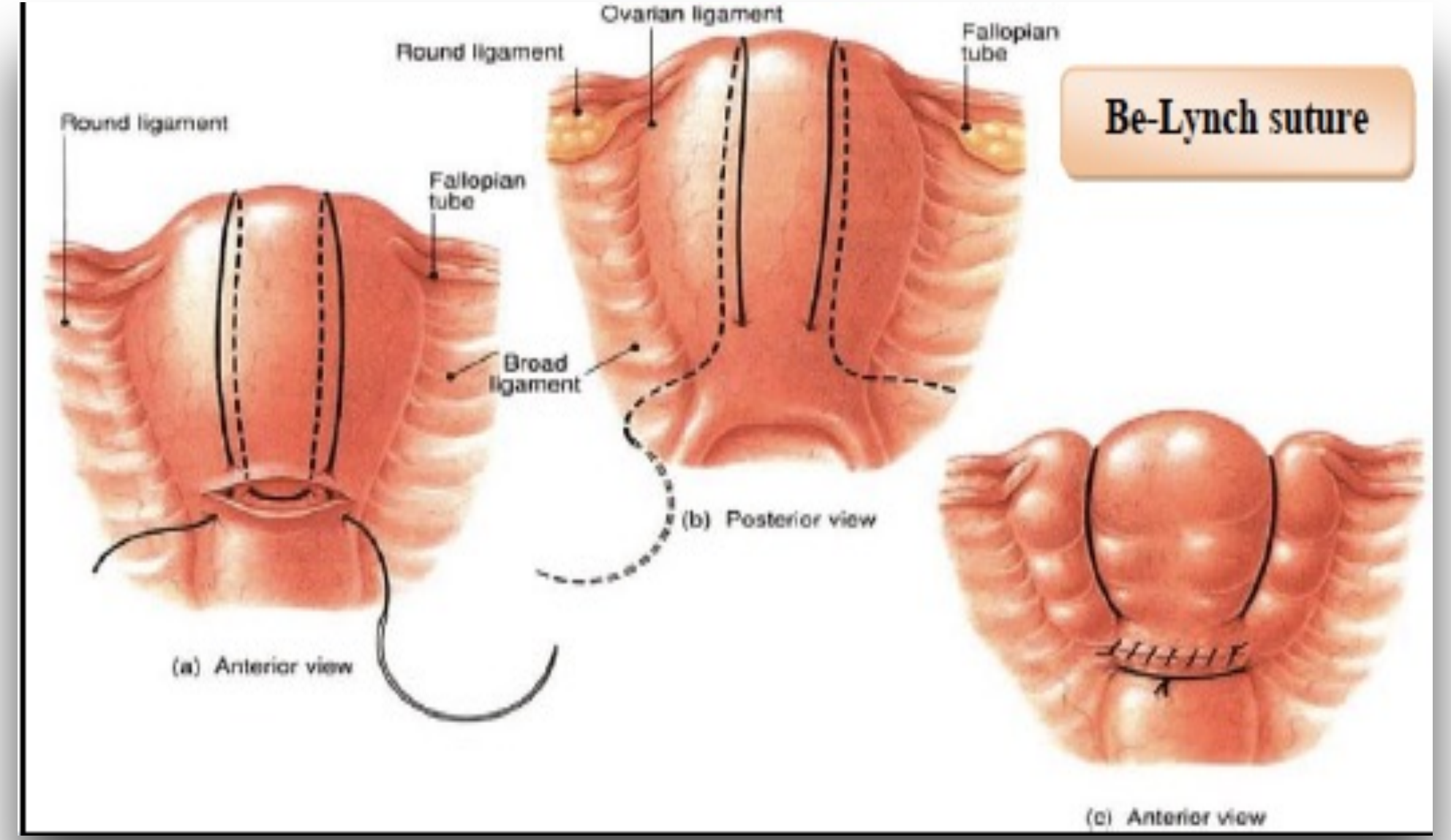

Be-Lynch suture

Secondary Postpartum Hemorrhage

Definition: = Excess bleeding from the genital tract starting 24 hours after labor up to the end of puerperium.

Causes:

1. Retained parts of placental tissue, membrane or blood clot.
2. Infection (puerperal sepsis).
3. Sub-mucous fibroid: if Infected or forming a polyp projecting in the cavity.
4. Choriocarcinoma.
5. Local gynecological lesions e.g., cervical erosion or cervical carcinoma.
6. Puerperal inversion of the uterus.

Secondary Postpartum Hemorrhage

Diagnosis:

Clinical: C/P of the cause.

Ultrasound: for retained placental parts, sub-mucous fibroid and choriocarcinoma…

Treatment:

1. Antishock measures.
2. Treatment of the cause.

Case senario #1

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History

A 32-year-old woman is brought into the delivery suite by ambulance 6 days following a vaginal delivery at 39 weeks' gestation. The pregnancy and labour had been unremarkable and the placenta was delivered by controlled cord traction.

Following delivery the woman had been discharged home after 6 h. She reported that the lochia had been heavy for the first 2 days but that it had then settled to less than a period. However today she had suddenly felt crampy abdominal pain and felt a gush of fluid, followed by very heavy bleeding. The blood has soaked through clothes and she had passed large clots, which she describes as the size of her fist. She feels dizzy when she stands up and is nauseated.

Case senario #1

Examination

She is pale with cool and clammy extremities. She is also drowsy. Her blood pressure is 105/50 mmHg and heart rate is 112/min. On abdominal palpation there is minimal tenderness but the uterus is palpable approximately 6 cm above the symphysis pubis.

Speculum examination reveals large clots of blood in the vagina. When these are removed, the cervix is seen to be open.

Questions

- What is the diagnosis?
- What is your immediate and subsequent management?
- Should an ultrasound scan be requested?

Case senario #1

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The diagnosis is secondary postpartum haemorrhage.

Postpartum haemorrhage

Postpartum haemorrhage is defined as the loss of more than 500 mL of blood vaginally following delivery. Primary postpartum haemorrhage is within 24 h. Secondary postpartum haemorrhage occurs between 24 h and 6 weeks following delivery.

Common causes of postpartum haemorrhage

- Retained placental tissue
- Vaginal trauma
- Endometrial infection
- Coagulopathy (e.g. following placental abruption)
- Uterine atony

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Immediate management

This woman is in hypovolaemic shock and needs immediate resuscitation. Two wide-bore cannulae should be inserted and blood sent for full blood count, urea and electrolytes, clotting and crossmatch of 4 units, with further red cells, platelets or fresh-frozen plasma requested depending on further evaluation and blood results.

Immediate intravenous fluid should be administered, usually colloid as volume expansion to maintain cardiac output.

Case senario #1

The uterus should be rubbed suprapubically, and if this fails then bimanually, pending administration of 500 μg ergometrine and commencing a syntocinon infusion. These measures stem the blood loss and aid immediate resuscitation while the diagnosis is investigated.

A urinary catheter should be inserted to allow close fluid balance monitoring and renal function.

The anaesthetist and senior obstetrician should be called urgently.

Case senario #1

Subsequent management

The fact that the cervix is open is pathognomonic of retained tissue, and evacuation of retained products of conception should be arranged once the woman has been resuscitated and blood is available.

In view of the haemodynamic instability, general anaesthetic is preferred.

Intravenous antibiotics should be given.

The woman should be monitored initially in a high-dependency setting until clinically and haematologically stable.

Although she is likely to have had a coagulopathy at admission, she is still at high risk of venous thromboembolism as she is probably septic, postpartum and has undergone anaesthetic. Thromboembolic stockings and heparin should therefore be administered postoperatively.

Case senario #1

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Ultrasound scan

Ultrasound scan would not be indicated in this scenario. First, an open cervix implies retained products and it would therefore be superfluous. Second, an examination under anaesthetic is warranted anyway to establish any other cause of bleeding, such as vaginal or perineal trauma. Third, retained products may be confused with blood clot on post-partum ultrasound.

KEY POINTS

- Postpartum women with retained products of conception become very ill very quickly. Once the diagnosis is made they need intravenous antibiotics and urgent evacuation of the uterus.

Case senario #2

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History

A 39-year-old woman in her first pregnancy delivered twin sons 2 h ago. There were no significant antenatal complications. She had been prescribed ferrous sulphate and folic acid during the pregnancy as anaemia prophylaxis, and her last haemoglobin was 10.9 g/dL at 38 weeks.

The fetuses were within normal range for growth and liquor volume on serial scan estimations. A vaginal delivery was planned and she went into spontaneous labour at 38 weeks and 4 days. Due to decelerations in the cardiotocograph (CTG) for the first twin, both babies were delivered by ventouse after 30 min active pushing in the second stage. The midwife recorded both placentae as appearing complete.

As this was a twin pregnancy, an intravenous cannula had been inserted when labour was established and an epidural had been sited. The lochia has been heavy since delivery but the woman is now bleeding very heavily and passing large clots of blood.

Case senario #2

As this was a twin pregnancy, an intravenous cannula had been inserted when labour was established and an epidural had been sited. The lochia has been heavy since delivery but the woman is now bleeding very heavily and passing large clots of blood.

On arrival in the room you find that the sheets are soaked with blood and there is also approximately 500 mL of blood clot in a kidney dish on the bed.

Examination

The woman is conscious but drowsy and pale. The temperature is 35.9°C, blood pressure 120/70 mmHg and heart rate 112/min. The peripheries feel cool. The uterus is palpable to the umbilicus and feels soft. The abdomen is otherwise soft and non-tender. On vaginal inspection there is a second-degree tear which has been sutured but you are unable to assess further due to the presence of profuse bleeding.

The midwife sent blood tests 30 min ago because she was concerned about the blood loss at the time.

Case senario #2

Examination

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Case senario #2

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INVESTIGATIONS

		Normal range for pregnancy
Haemoglobin	7.2 g/dL	11–14 g/dL
Mean cell volume	99.0 fL	74.4–95.6 fL
White cell count	3.2×10^9/L	$6–16 \times 10^9$/L
Platelets	131×10^9/L	$150–400 \times 10^9$/L
International normalized ratio (INR)	1.3	0.9–1.2
Activated partial thromboplastin time (APTT)	39 s	30–45 s
Sodium	138 mmol/L	130–140 mmol/L
Potassium	3.5 mmol/L	3.3–4.1 mmol/L
Urea	5.2 mmol/L	2.4–4.3 mmol/L
Creatinine	64 µmol/L	34–82 µmol/L

Questions

- What is the diagnosis and what are the likely causes?
- What is the sequence of management options you would employ in this situation?

Case senario #2

The diagnosis is primary postpartum haemorrhage (PPH), defined as the loss of more than 500 mL of blood in the first 24 h following delivery. This classification applies even if the blood is lost at Caesarean section or while awaiting placental delivery.

! Causes of and risk factors for postpartum haemorrhage

- Uterine atony (multiple pregnancy, grand multiparity, polyhydramnios, prolonged labour)
- Antepartum haemorrhage
- Uterine sepsis (chorioamnionitis)
- Retained placenta
- Lower genital tract trauma (perineal or cervical tears)
- Coagulopathy (heparin treatment, inherited bleeding disorders)
- Previous PPH

Case senario #2

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This woman's major risk factor is multiple pregnancy and with the high uterus, the cause is likely to be uterine atony (inability of the uterus to contract adequately). Blood loss is often underestimated, the 'high' uterus may contain a large volume of concealed blood, and the blood pressure in young fit women remains relatively normal until decompensation occurs. Therefore this woman is in fact extremely sick and at risk of cardiac arrest if immediate management is not employed.

Case senario #2

The sequence of management strategies is:

- rub up a contraction by placing the dominant hand over the uterus and rubbing and squeezing firmly until the uterus becomes firm
- ensure two large-bore cannulae are inserted with cross-matched blood requested
- recheck full blood count and coagulation
- commence intravenous fluids for volume expansion
- give 500 µg ergometrine intramuscularly or intravenously to enhance uterine contraction
- start a syntocinon infusion to maintain uterine contraction
- consider other uterotonics such as misoprostol or carboprost
- transfer to theatre for examination under anaesthetic to assess for vaginal trauma, cervical laceration or retained placental tissue
- the doctor or midwife should continue bimanual compression until the clinical situation is under control
- if the bleeding does not settle with the above measures then further options are uterine artery embolization or laparotomy with B-Lynch haemostatic suture, uterine artery ligation or hysterectomy.

Case senario #2

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KEY POINTS

- Uterine compression from the abdomen or bimanually is the first and immediate management strategy for postpartum haemorrhage and should be continued until the clinical situation has settled.
- Clinicians usually underestimate blood loss and in assessing haemodynamic status may forget to take account of concealed loss (into the uterus) and the ability of healthy women to compensate.

THANKS

Obstetrics & Gynecology Dept. MUH