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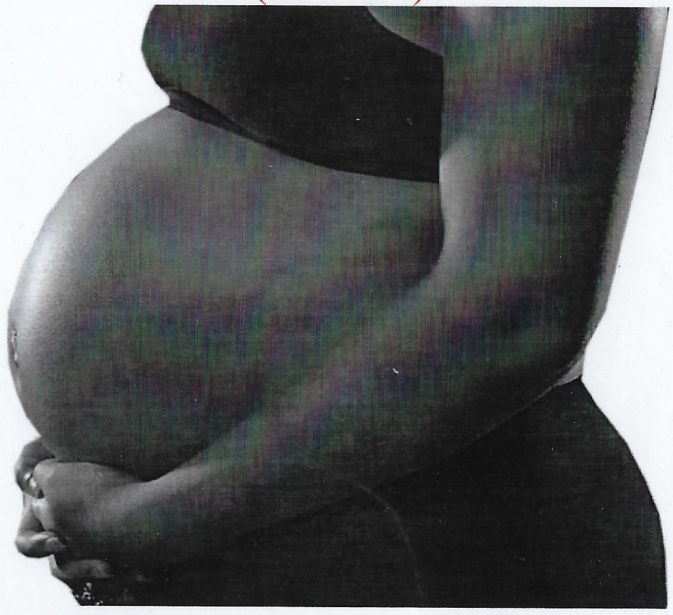
SOCIETY OF GYNAECOLOGY AND OBSTETRICS OF NIGERIA (SOGON)



CLINICAL PRACTICE GUIDELINES

GUIDELINES FOR THE MANAGEMENT OF POSTPARTUM HEMORRHAGE

POSTPARTUM HAEMORRHAGE: MANAGEMENT PROTOCOL

INTRODUCTION

Postpartum haemorrhage (PPH) is defined as vaginal bleeding of equal to or greater than 500mL following vaginal delivery or 1000mL following caesarean section or any vaginal bleeding that affect the haemodynamic stability of the patient. It is said to be primary if it occurs within 24 hours of delivery. Secondary PPH is significant bleeding from 24 hours after delivery until 6 weeks postpartum. PPH is the leading cause of maternal mortality responsible for nearly one quarter of all maternal death globally. It is responsible for about 25% of maternal mortality in Nigeria.

Majority of these deaths could be avoided through risk assessment and the use of prophylactic utero-tonics in the third stage of labour. Uterine atony, genital tract laceration, ruptured uterus, defect of coagulation, abnormally adherent placenta, as well as retained placenta and membranes uterine inversion are the causes of postpartum haemorrhage.

Majority of cases of PPH are unpredicted, therefore it should be anticipated in every parturient.

Efforts at preventing PPH must be instituted at every delivery. Every woman at childbirth, should ha*ve activ*e management of third stage of labo*ur (AMTSL*), being the most effective means of preventing postpartum haemorrhage.

In 2012, WHO recommended that all women giving birth should be offered uterotonics during the 3rd stage of labour for the prevention of PPH; oxytocin (IM/IV,10IU) is the recommended uterotonic. Other injectable uterotonics and misoprostol are recommended as alternative for prevention of PPH in settings where oxytocin is unavailable. In addition, Heat stable Carbetocin IM 100 mcg is recommended.

For the treatment of PPH, oxytocin, uterine massage, fluid resuscitation with isotonic crystalloids and the use of intravenous tranexamic acid (1g slowly administered within 3 hours of delivery is recommended.

Temporizing measures include the use of intra-uterine balloon, bimanual uterine compression, external aortic compression and the use of non-pneumatic anti-shock garment.

CLINICAL FEATURES AND DIAGNOSIS:

Diagnosis of postpartum haemorrhage is one of the most imprecise and subjective clinical challenges. Delayed diagnosis of PPH is a major cause of maternal morbidity and mortality in our settings. The goal to reducing these mortality should focus on early recognition of PPH as the development of cardiovascular symptoms such as tachycardia and hypotension start manifesting only when 25% of the woman's blood volume (≥1,500mls) has been lost. Visual estimation of blood loss is used in most cases and is inaccurate and may underestimate blood loss in up to 50% of cases, however, the use of collector bag, weighed towels/pad may assist in estimation of blood loss.

The Royal College of Obstetrics and Gynaecology recommended the use of shock index for identification of women at risk of adverse outcome from PPH. It is an early marker of haemodynamic compromise and should be used in women with PPH.

- Shock index =pulse rate/systolic blood pressure
- The normal range is 0.5-0.8
- value >0.9 need referral to higher facility
- value > 1.7 calls for URGENT intervention

Mode of presentation may include

- Excessive or continuous vaginal bleeding after delivery
- Dizziness
- Tachycardia
- Hypotension (may be a late sign!)
- Tachypnea
- Syncopal attack
- Circulatory shock
- Altered consciousness
- Oliguria
- Anaemia

PREVENTION OF PPH:

Patients at risk of PPH may be identifiedduring the antenatal period. Efforts should be made to identify such women with previous history of PPH, primigravidity, grand-multiparity and multiple gestations. Women with risk factors should be managed in a secondary or tertiary facility.

Active management of the 3rd stage of labour (AMTSL) has been shown to reduce the incidence of postpartum haemorrhage. The components of active management of the 3rd stage of labour are:

1. Administration of oxytocin-10IU bolus IV or IM
2. Controlled cord traction-to deliver the placenta

The use of Ergometrine for AMTSL is no longer recommended because of certain associated side effects and relative ineffectiveness and instability caused by its poor handling and exposure to sunlight and high temperatures of the tropics, both of which it is sensitive to.

Ergometrine and Syntometrine (combination of syntocinon and ergometrine) are also contraindicated in conditions like pre-eclampsia/eclampsia, heart disease and hypertension.

BIMANUAL COMPRESSION OF THE UTERUS

- Wear high level disinfected or sterile gloves, insert a hand into the vagina and remove any blood clots from the lower part of the uterus or cervix;
- Place the fist into the anterior fornix and apply pressure against the anterior wall of the uterus;
- With the other hand, press deeply into the abdomen behind the uterus, applying pressure against the posterior wall of the uterus;
- Maintain compression until bleeding is controlled and

- Alternatively, compress the aorta as follows:

COMPRESSSION OF THE AORTA

- Apply downward pressure with a closed fist over the abdominal aorta directly through the abdominal wall; the point of compression is just above the umbilicus and slightly to the left (aortic pulsations can be felt easily through the anterior abdominal wall in the immediate postpartum period);
- With the other hand, palpate the femoral pulse to check the adequacy of the compression; if the pulse is palpable during compression, the pressure exerted by the fist is inadequate but if the femoral pulse is not palpable, the pressure exerted is adequate;
- Maintain compression until bleeding is controlled.

If bleeding persists despite adequate uterine contraction and placental removal, explore the genital tract in the theatre under good light source for vaginal or cervical lacerations.

- If cervical or vaginal laceration is identified, suture accordingly.

Observe for the formation of blood clots. If not present, coagulopathy should be suspected and managed according to the protocol below.

If bleeding still persists from the uterine cavity, then perform a digital exploration (check for a rent at the same time) or use ovum forceps for removal of retained POC. Manual or suction aspiration can also be used. If bleeding continues in spite of the foregoing, arrangements should be made for surgical intervention, as follows:

- Balloon tamponade could be applied on the uterus, such as with condom and Foley's catheter or Sengstaken tube, Rusch balloon (Fig. 1). This is a temporary solution for not more than 48 hours. Other alternative temporary surgical interventions are:
  - Laparotomy techniques like:
    - B-Lynch Sutures on the uterus (Fig. 2)
    - Stepwise uterine devascularization (unilateral uterine, bilateral uterine arteries, unilateral ovarian, bilateral ovarian arteries)
  - Internal Iliac Artery ligation
- In the absence of any of these skills or with continuous haemorrhage, perform sub or total hysterectomy. Also, consider hysterectomy earlier in the case of morbidly adherent placenta.
- In the case of a ruptured uterus,
  - Repair of the uterus (and bilateral tubal ligation in most cases), if the rupture is limited;
  - Sub-total hysterectomy, if rupture is extensive;

- Total hysterectomy if there is vaginal and pelvic floor involvement in the rupture or there is considerable sepsis

- If bleeding continues, reassess for DIC and treat accordingly (see below). As DIC may evolve rapidly, repeated testing for coagulopathy are more useful

- Consider transfer to intensive care unit once the bleeding has been controlled or monitoring at high dependency unit as appropriate

Perform hysterectomy sooner rather than later!

DISSEMINATED INTRAVASCULAR COAGULOPATHY (DIC):
This is a condition in which the patient's blood does not clot. Disseminated intravascular coagulopathy (DIC) is an emergency that requires immediate transfusion of appropriate blood products or referral to centre where such facility is available. The following features are suggestive of the presence of DIC:

- Passage of non-clotting blood
- Bleeding from venipuncture sites
- Bleeding from other orifices such as nose or mouth

Management
Investigations:

Primary Health Care Level:

- Suspected cases of DIC should be referred immediately to a higher level of health care.

Secondary and Tertiary Health Care Levels:

- Take blood for:
  - FBC including platelets

  - grouping and cross-matching of at least 4 units of fresh whole blood and at least 2 units of fresh frozen plasma (FFP)
  - urea and electrolytes
  - bedside clotting time and clotting profile (PT, aPTT, Fibrinogen)
  - liver function tests

Treatment:

Secondary and Tertiary Health Care Levels:

- Involve Haematologists early in the management
- Treat the possible causes of coagulation failure (abruptio placenta, eclampsia etc)
- Give fresh whole blood to replace clotting factors and red cells as well as FFP (as a guide, use one unit of FFP for every 4 units of fresh whole blood or 15 ml/kg body weight of FFP)
- If fresh whole blood is not available, choose one or more of the following based on availability and laboratory test results:
  - packed (or sedimented) red cells for red cells replacement
  - Cryoprecipitate to replace fibrinogen
  - Administer platelet concentrates 10-12 Units if bleeding is continuing and the platelet count is less than 75×10^9/L

Aim to achieve the following recommended Therapeutic Goals:

- Hb greater than 8.0 g/dl (haematocrit – 24%)
- Platelet count greater than 50×10^9/l
- Prothrombin time (PT) less than 1.5 times normal
- Activated partial thromboplastin time (APTT) less than 1.5 times normal
- Fibrinogen greater than 2 g/l.

UTERINE INVERSION

In this condition the body of the uterus is partially or completely turned inside out after delivery of the fetus, akin to a hand glove being removed. It can be complicated by bleeding and shock.

Investigations:

Primary Health Care Level:
Suspected cases of uterine inversion should be referred immediately to a higher level of health care.

Secondary and Tertiary Health Care Levels:

Take blood for:
- PCV or Hb estimation
- grouping and cross-matching of 2 units of blood
- urea and electrolytes
- bedside clotting time and clotting profile

Treatment

Primary Health Care Level

- Set up an intravenous infusion of Normal saline or Ringers lactate using a wide bore cannula or needle;
- Apply Anti-Shock Garment if necessary;
- Insert an indwelling urethral catheter;
- Give analgesics for pain relief;
- Refer to secondary or tertiary health care level.

Secondary and Tertiary Health Care Levels

- Maintain an IV infusion of Normal saline or Ringers lactate using a wide bore cannula or needle;
- Monitor fluid intake and output;
- Insert an indwelling urethral catheter to monitor urinary output;
- Give prophylactic antibiotic

- Arrange to replace the uterus under general anaesthesia as soon as possible.

References

1. World Health Organization. WHO Recommendations for the prevention and treatment of postpartum haemorrhage. Geneva: World Health Organization, 2012.

2. Mavrides E, Allard S, Chandraharan E, Collins P, Green L, Hunt BJ, Riris S, Thomson AJ on behalf of the Royal College of Physicians. Prevention and management of postpartum haemorrhage. BJOG 2016; DOI: .10.1111/1471-0528.14178

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4. 2006B-Lynch C. Conservative Surgical Management. In: B-Lynch C, Keith LG, Lalonde AB, Karoshi M eds. A Textbook of Postpartum Haemorrhage. A comprehensive guide to evaluation, management and surgical intervention. Dumffriesshire: Sapiens Publishing, 2006.

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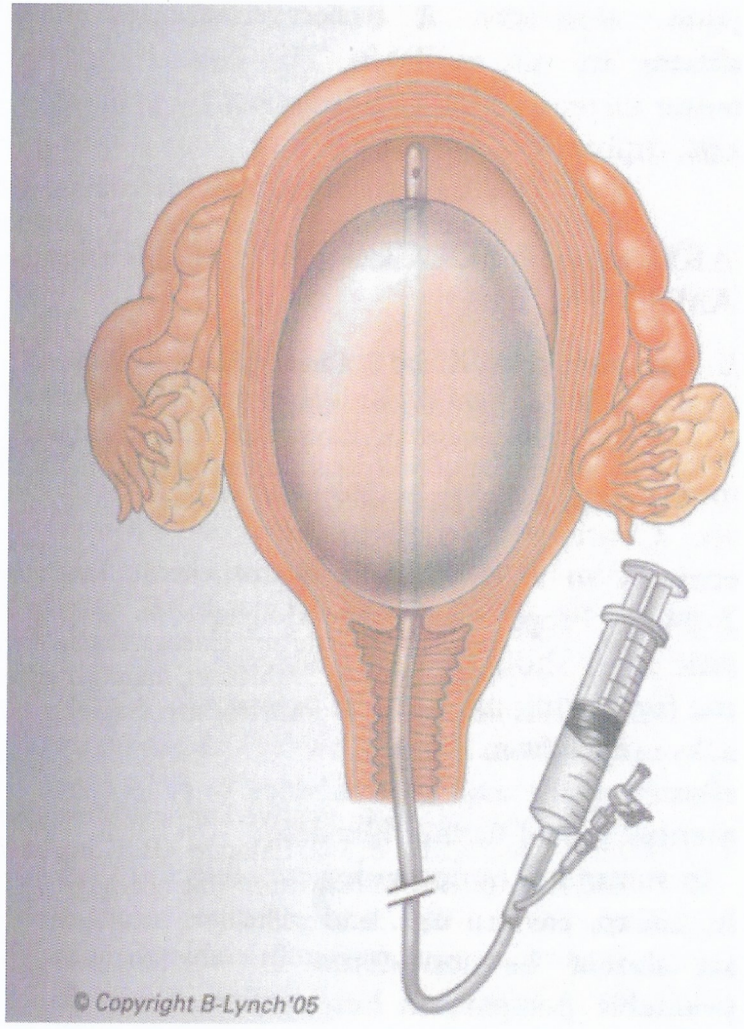

Fig. 1: Internal Uterine Tamponade with Catheter

(Source: Danso and Reginald, 2006)

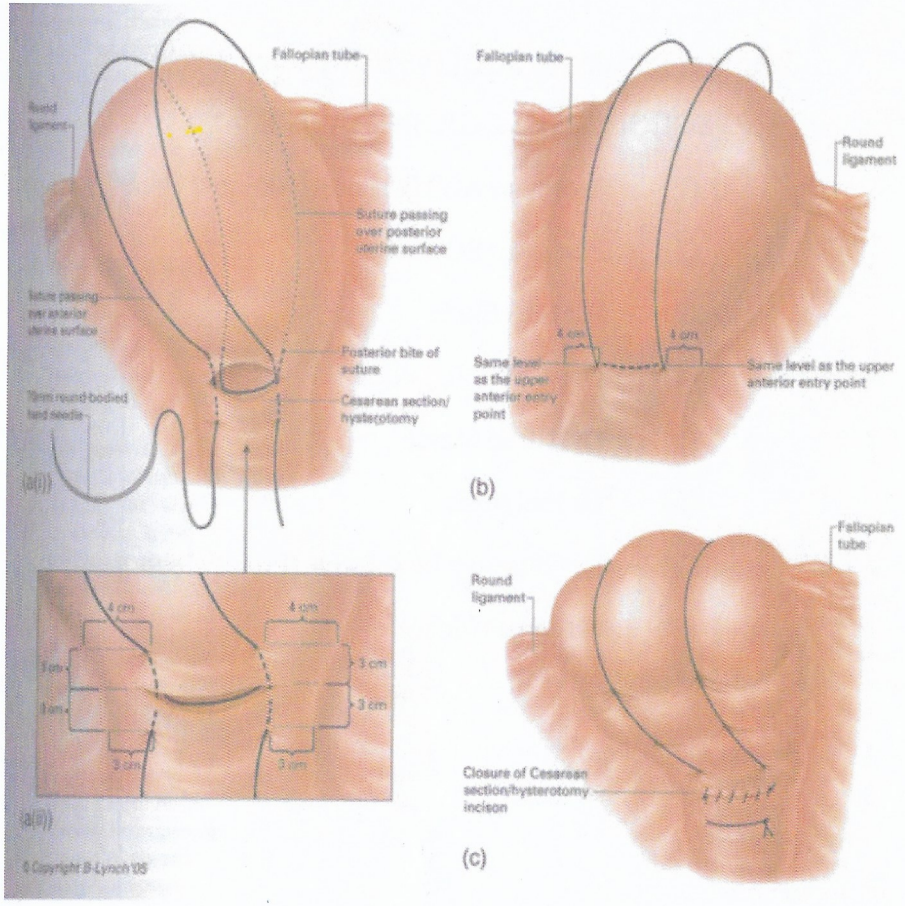

Fig. 2: B-Lynch Suture (Source: B-Lynch C, 2006)

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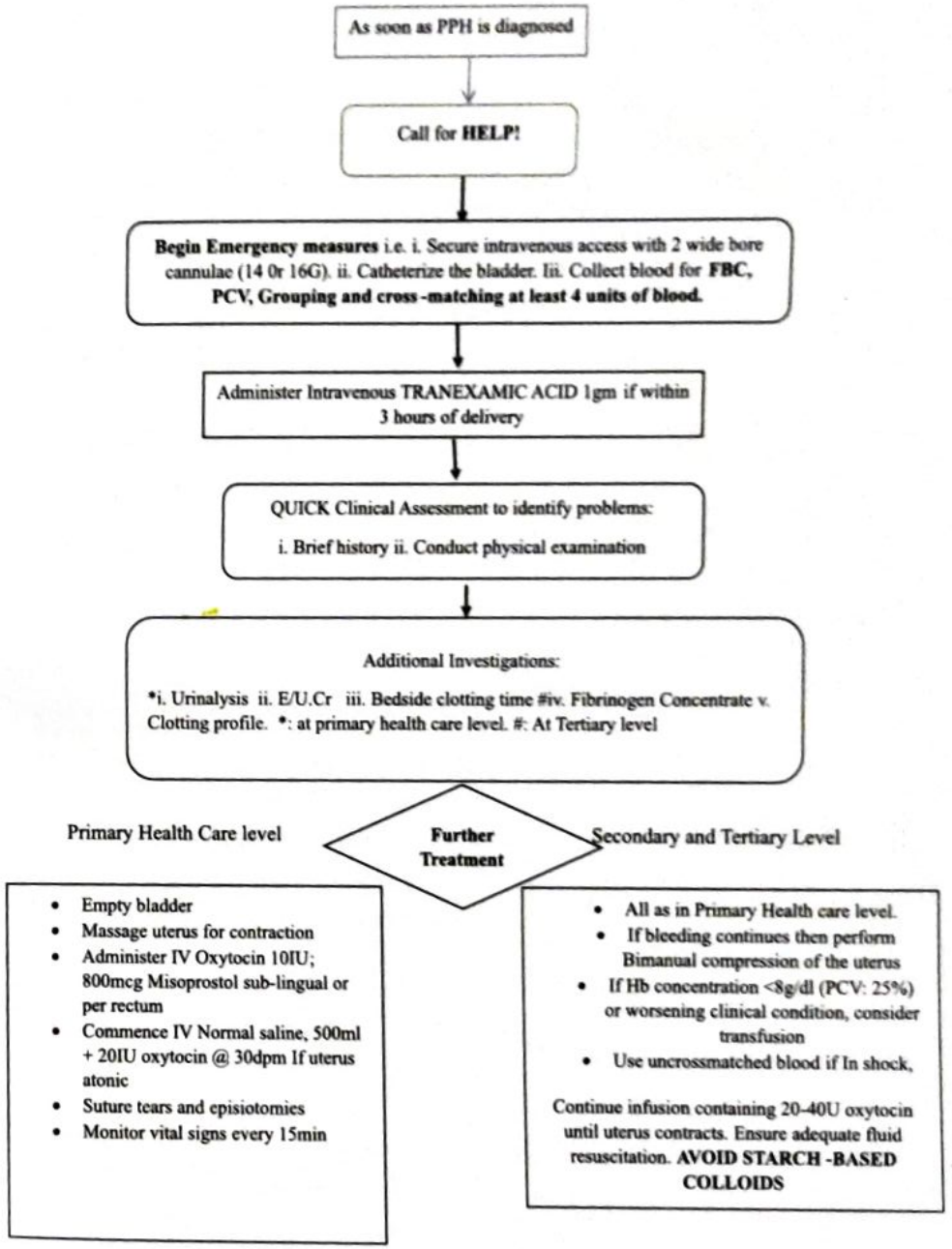
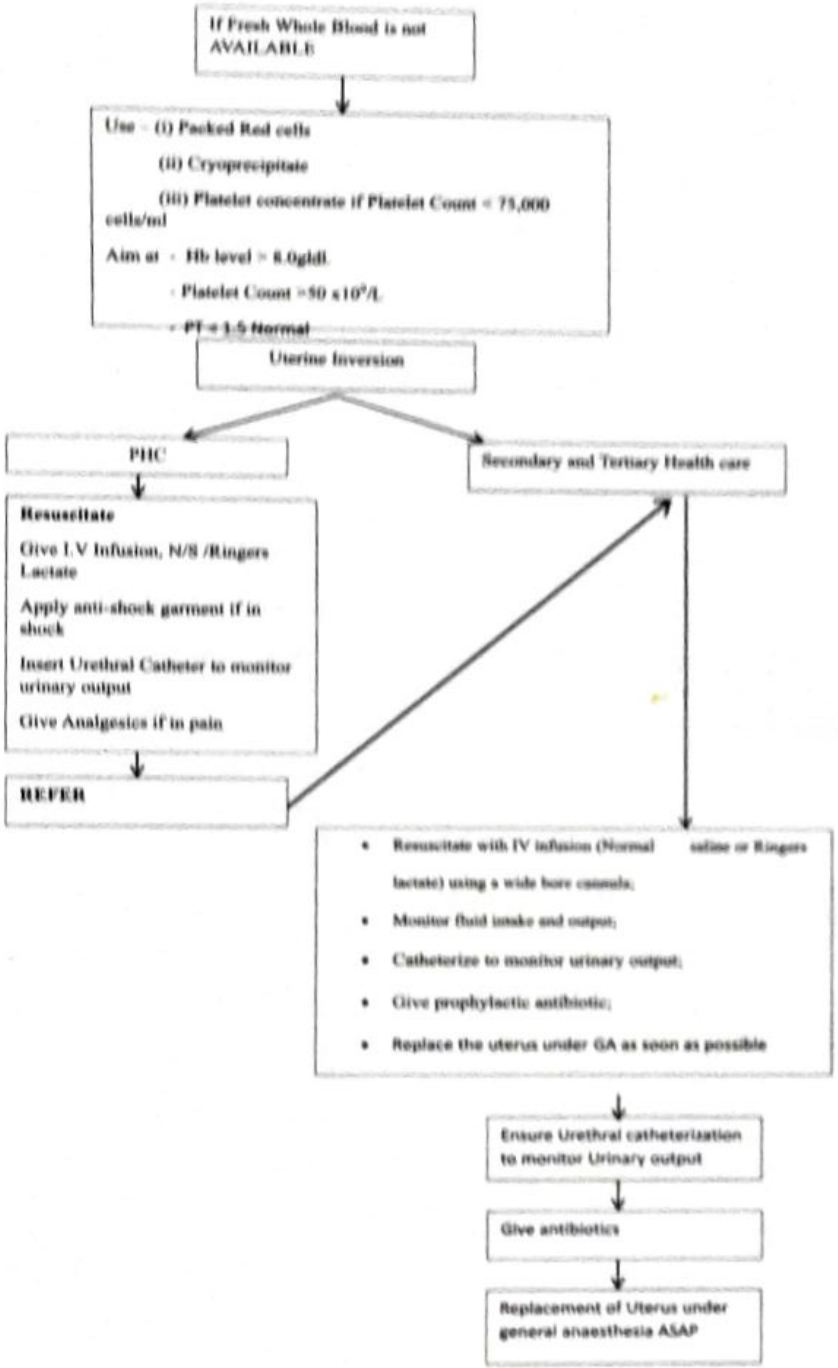
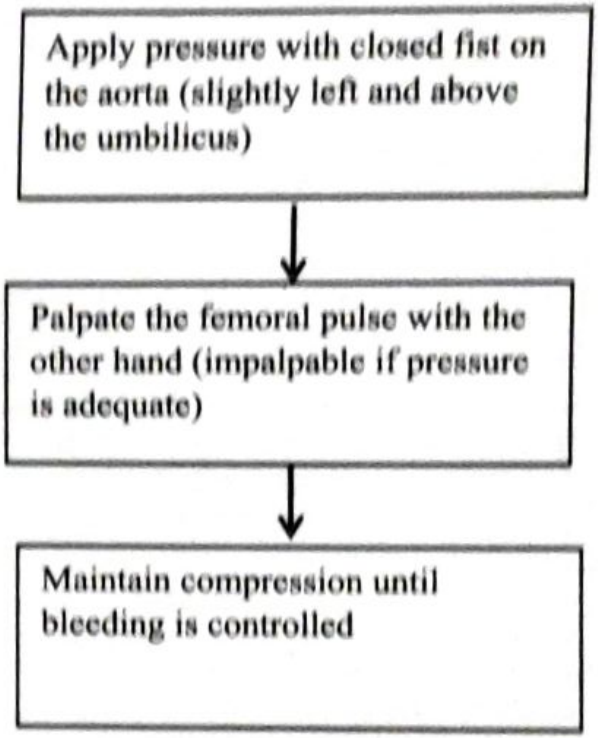
ALGORITHM OF MANAGEMENT OF POST-PARTUM HAEMORRHAGE (PPH)





COMPRESSION OF THE AORTA



FURTHER MANAGEMENT

If bleeding persists despite adequate uterine contraction and placental removal

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Explore for vaginal or cervical laceration under good light source in the theatre and suture accordingly

↓

If bleeding persists and there are no clots, coagulopathy should be managed per protocol

↓

If bleeding persists, ensure digital exploration of the uterus / use ovum forceps or do suction aspiration for retained products

↓

If bleeding persists, then ensure surgical intervention

SURGICAL INTERVENTION

Balloon tamponade on the uterus with Condom and Foley's catheter or Sengstaken tube, Rusch Balloon

↓

B-Lynch Sutures on the uterus via laparotomy

↓

Stepwise uterine devascularization (unilateral uterine, bilateral uterine arteries, unilateral ovarian, bilateral ovarian arteries)

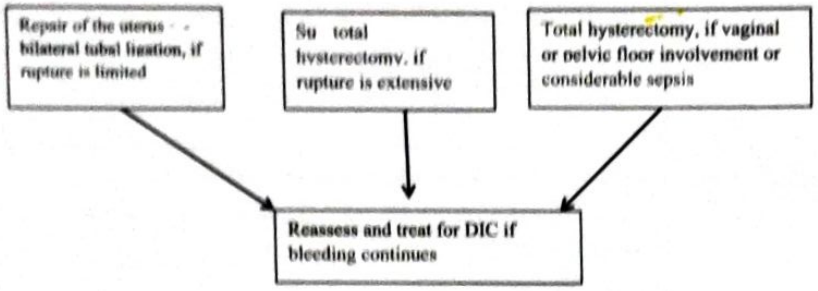
↓

Internal Iliac Artery Ligation

↓

Subtotal or total hysterectomy (particularly for morbidly adherent placenta or if the above skills are not available or continuous bleeding)

RUPTURED UTERUS



Suspect **Disseminated Intravascular Coagulopathy** if

- Passage of non-clotting blood
- Bleeding from venipuncture sites
- Bleeding from other orifices such as nose or mouth

PROMPT REFERRAL IF IN A PRIMARY HEALTH CARE CENTER AS MANAGEMENT SHOULD PROCEED ONLY IN A SECONDARY OR TERTIARY HEALTH CARE CENTER

INVESTIGATIONS

- Full blood count including platelet count
- Urea and electrolytes
- Bedside clotting time and clotting profile(PT/aPTT/Fibrinogen)
- Liver function test

MANAGEMENT

- Invite the Haematologists to co-manage
- Group and cross-match at least 4 units of fresh whole blood and at least 2 units of FFP
- Transfuse with fresh whole blood to replace red cells and clotting factors; for every 4 units of fresh whole blood give 1 unit of FFP
- If fresh whole blood is not available, choose one or more of the following based on availability and laboratory test results:
  - Packed or sedimented red cells for red cell replacement
  - Cryoprecipitate to replace fibrinogen
  - Platelet concentrate if platelet count is less than 75,000/mL

THERAPEUTIC GOALS

- Haemoglobin greater than 8.0g/dl(haematocrit-24%)
- Platelet count greater than 50,000/mL
- Prothrombin time(PT) less than 1.5 times normal
- Activated partial thromboplastin time(APTT) less than 1.5 times normal
- Fibrinogen greater than 2g/l.