



POSTPARTUM HEMORRHAGE (PPH)

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ABSTRACT

In all the stages of labor, third stage is the most crucial one for the mother. Fatal complications may appear unexpectedly in an otherwise uneventful first or second stage. The following are the important complications: Postpartum hemorrhage, Retention of placenta, Shock-hemorrhagic or non-hemorrhagic, Pulmonary embolism either by amniotic fluid or by air and Uterine inversion (rare).

Postpartum hemorrhage is a direct cause of maternal death worldwide and usually occurs during the third stage of labour. Most women receive some type of prophylactic management, which may include pharmacological or non-pharmacological interventions.

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INTRODUCTION

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 affects the general condition of the patient evidenced by rise in pulse rate and falling blood pressure, is called postpartum hemorrhage”.

Incidence

The incidence widely varies mainly because of lack of uniformity in the criteria used in definition. The incidence is about 4–6% of all deliveries.

Types

1. **Primary** - Hemorrhage occurs within 24 hours following the birth of the baby.
2. **Secondary** - Hemorrhage occurs beyond 24 hours and within puerperium.

Causes

- Grand multipara
- Atonic uterus
- Inadequate retraction
- Over-distension of the uterus.
- Malnutrition and anemia
- Antepartum hemorrhage
- Prolonged labor

- Initiation or augmentation of delivery by oxytocin
- Malformation of the uterus.
- Uterine fibroid causes
- Too rapid delivery of the baby
- Premature attempt to deliver the placenta before it is separated
- Pulling the cord and manual separation of the placenta
- Precipitate labor
- Traumatic (20%)
- Retained tissues, Bits of placenta, blood clots.
- Drugs such as tocolytic drugs (ritodrine), MgSO₄, Nifedipine.
- Combination of both: atonic and traumatic causes.
- Blood coagulation disorders, acquired or congenital

Clinical Manifestation

Symptoms vary but may include:

- Fever.
- Abdominal pain.
- Offensive smelling lochia.
- Abnormal vaginal bleeding - postpartum haemorrhage.
- Abnormal vaginal discharge.
- Dyspareunia and Dysuria.
- General malaise.
- Rigors.

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- Tachycardia.
- Tenderness of the suprapubic area and adnexae.
- Elevated fundus which feels boggy in RPOC.

Investigation

- FBC.
- Blood cultures.
- Check MSU.
- High vaginal swab
- Ultrasound

Actual Management of True Postpartum Hemorrhage

Medical Methods

1. Oxytocin – 5 IU slow IV(2), or 40 IU/500 ml Hartmann's solution at 125 ml/ hour.
2. Ergometrine – 0.5 mg slow IV/IM
3. Carboprost – 250 ug IM every 15 min upto 8 times direct intra myometrial 0.5 ug
4. Mispoprostol – 1000 ug rectally

MECHANICAL METHODS

1. **Balloon tamponade:** The various types of balloons used are Foley's catheter, Rusch balloon, Bakri balloon, Sengstaken-Blackmore oesophageal catheter or sterile glove and condom.
2. **Radiological management:** Uterine artery embolisation is useful in situations in which preservation of fertility is desired when surgical options have been exhausted in controlling PPH both atonic and traumatic. Elective can be done in known or suspected cases of placenta accrete such as placenta previa or previous cesarean section scar diagnosed by Ultrasonography (USG) or Magnetic Resonance Imaging (MRI). The strategy used for elective cases in minimizing blood loss, number of blood transfusion and ICU admission

Surgical Methods

For surgical management multiple surgical options are available, to include a variety of uterine compression sutures, vascular ligations and Peripartum Hysterectomy.

1. **Uterine compression sutures:** Introduction of compression sutures made a revolution in decreasing the incidence of hysterectomy for severe PPH. In severe PPH not responding to pharmacological and mechanical methods. With the increasing rates of cesarean section, complications like placenta previa, placenta accreta, rupture uterus contributes to severe PPH apart from atony.
2. **Uterine compression sutures related complications like pyometra:** uterine inflammation leading to chronic endometritis, systemic sepsis, ischemic uterine necrosis, uterine suture erosion, uterine synechiae have been reported by several studies.
3. **Fertility after application of uterine compression sutures:** Vast majority of cases do not show any serious complications in future pregnancies and no higher rates of infertility. Ovahba *et al.*, reported eight pregnancies out of 20 women who underwent uterine compression sutures; six had term delivery with four cases of cesarean section and two cases of uncomplicated vaginal delivery.

4. **Vascular ligations:** The objective is to decrease blood flow to the uterus, in order to arrest life threatening PPH before hysterectomy when medical therapy is unsuccessful.
5. **Bilateral uterine artery ligation:** 90% of the uterus blood supply in pregnancy comes from these vessels. If this measure fails to control bleeding, the next step is ovarian artery ligation.
6. **Bilateral ovarian artery ligation:** it arises from abdominal aorta and forms utero-ovarian vascular anastomosis. A suture is placed on the ovarian artery through a vascular area in meso-ovarium. If this also fails to control then the next step is internal iliac artery ligation.
7. **Internal iliac artery ligation:** it causes almost 85% reduction in pulse pressure in those arteries distal to ligation thereby, causing arterial pressure system into one with pressure approaching those in venous circulation and provides haemostasis via clot formation. It needs expertise in doing this and avoids complication of injury to vessels and ureter.
8. **Hysterectomy:** Peripartum hysterectomy can be a total or subtotal, it is done as a last resort when all other methods to control PPH fail. The common indications are abnormal placentation with placenta increta, accreta and percreta, rupture uterus where repair not possible, persistent atonic PPH.

Prognosis

Postpartum hemorrhage is one of the life-threatening emergencies. It is one of the major causes of maternal deaths. There is also increased morbidity. These include:

- Shock
- Transfusion reaction
- Puerperal sepsis
- Failing lactation
- Pulmonary embolism
- Thrombosis
- Thrombophlebitis.
- Sheehan's syndrome (selective hypopituitarism) rarely diabetes insipidus.

CONCLUSION

Globally PPH is the leading cause of maternal mortality and morbidity. Prevention plays a very important role by identifying high risk factors and active management of labour. Management is medical, mechanical, surgical and radiological. A multi disciplinary approach is essential in severe haemorrhage. Availability of blood and blood products is essential. It is very important to identify the aetiology, though uterine atony is common. Prediction and assessment of blood loss remains the cornerstone for prompt and effective management of PPH.

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