Abnormalities of third stage of labour

Post partum hemorrhage:

Postpartum hemorrhage (PPH) is excessive bleeding after delivery of the fetus and may occur before or after delivery of the placenta, Postpartum hemorrhage (PPH) is traditionally defined as **the loss of more than 500 milliliters of blood following vaginal delivery or more than 1000 milliliters following cesarean delivery.**

PPH is considered **severe** when blood loss exceeds 1000 milliliters after vaginal delivery or results in signs or symptoms of hemodynamic instability,

Postpartum hemorrhage can be classified as **primary**, which occurs within 24 hours of delivery, or **secondary**, which occurs 24 hours to 12 weeks postpartum. Primary PPH is more common than secondary PPH

Potential **sequel** of PPH include orthostatic hypotension, anemia and fatigue which can make breastfeeding and maternal care of the newborn more difficult. Postpartum hemorrhage may increase the risk of postpartum depression and acute stress reactions. Transfusion may be necessary and carries associated risks including infection and transfusion reaction. In the most severe cases, dilutional coagulopathy should be anticipated. Hemorrhagic shock may lead to Sheehan's Syndrome (posterior pituitary ischemia with delay or failure of lactation), occult myocardial ischemia, or death.

Risk Factors for Postpartum Hemorrhage:

Antepartum Risk Factors

History of PPH
• Nulliparity
• Grand multiparity (> five deliveries)
• Coagulopathy (congenital or acquired including use of medications such as aspirin or heparin)
• Abnormal placentation
• Age > 30 years
• Anemia
• Overdistension of the uterus

Labor Risk Factors

Prolonged labor (first, second, and/or third stage)
• Preeclampsia and related disorders
• Fetal demise
• Induction or augmentation
• Use of magnesium sulfate
• Chorioamnionitis

Surgical Interventions

Operative vaginal delivery •
Cesarean section ,
episiotomy

Mnemonic for the Specific Causes of PPH

Tone Atonic uterus 70 percent
Trauma Lacerations, hematomas, inversion, rupture
Tissue Retained tissue or membranes, invasive placenta 10 percent
Thrombin Coagulopathies 1 percent

Diagnoses and management

Pregnant women have increased plasma volume and red blood cell mass. In addition, they are typically healthy and can accommodate mild to moderate blood loss without having signs or symptoms such as orthostasis, hypotension, tachycardia, nausea pallor, slow cap refilling, dyspnea, oliguria, or chest pain .Appreciation of risk factors,accurate estimation of blood loss and recognition of women developing symptoms of cardiovascular compromise are imp steps in mgx. Once excessive blood loss is suspected, treatment must be initiated quickly by progressing through the Four T's mnemonic (Tone, Trauma, Tissue, and Thrombin).

Management

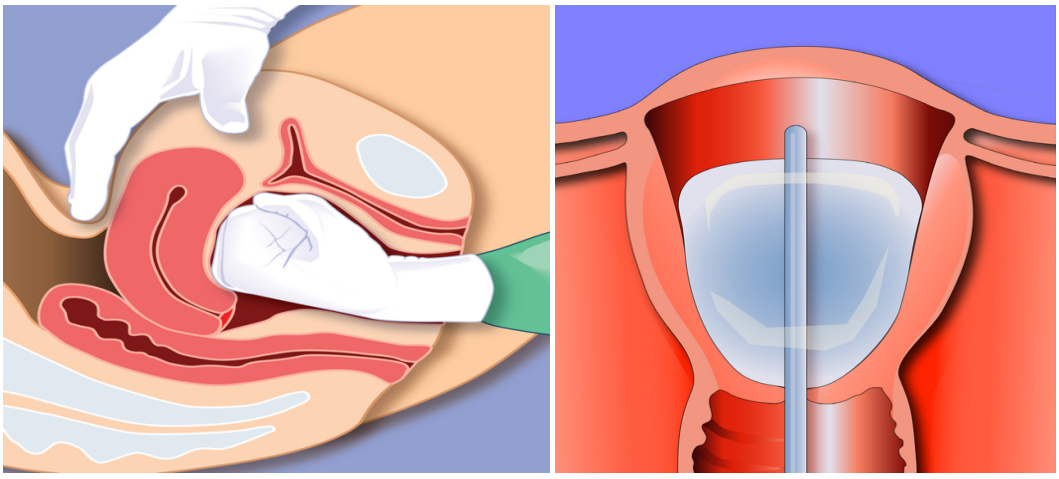
Summon help from senior obstetrician , anesthetist, 2 midwives haematologist blood bank

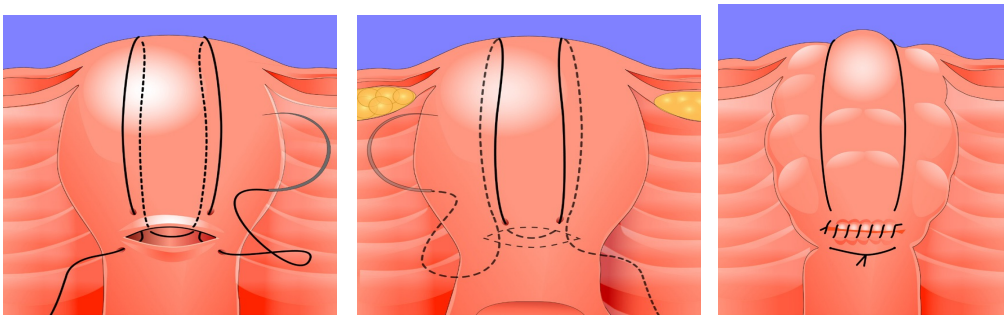
Resuscitation
Two large bore IVs bladder catheter
Oxygen by mask
Fluid Resuscitation intravenously, fluid balance chart central venus pressure and arterial lines
Monitor BP, HR, urine output CBC clotting factors LFT , RFT, type and cross match at least 6 units of blood

Transfuse blood as soon as possible ,may need cryo FFP plateletes

. Since uterine atony is the most common cause , the uterus should be **massaged** and **oxytocics** given 40 IU in 500 ml saline over 4 hours**. Bimanual uterine compression** and more potent drugs can also be used like **ergometrine** 0.5 mg i.m **misopristol** 800 micrograms rectally ,**cyclocaprone** should be given in the first 3 hours. A **vaginal exam** should be done to expel clots of uterus which prevent its contraction ,the placenta should be delivered if retained and inspected **for missing cotyledons**, and assess genital tract trauma. Any tear should be repaired .if bleeding continues referral to theater is indicated for further exam under anasthesea. Under GA we can do **uterine tamponade with balloons ,radiological occlusion of uterine vessels, laparotomy for bilateral iliac artery ligation uterine compression sutures(B-lynch), and finally hysterectomy**. Massive PPH require correction of clotting factors using FFP platelets and cryo precipitate.

Secondary PPH is a rare cause and it is due to retained products of conception and \or uterine infection.





TRAUMA

Lacerations and hematomas resulting from birth trauma can cause significant blood loss that can be lessened by hemostasis and timely repair. Sutures for hemostasis are placed if direct pressure does not stop the bleeding,and should be placed well above the apex of lacerations.

Cervical lacerations should not be sutured unless actively bleed.

Vaginal lacerations require good light and good exposure with running locked sutures.

Uterine rupture requiring laparotomy for repair or subtotal hysterectomy.

TISSUE

Retained tissue (placenta, placental fragments, membranes,and blood clots) prevents the uterus from contracting enough to achieve optimal tone.

Retained Placenta

. The mean time from delivery until placental expulsion is eight to nine minutes. A longer interval is associated with an increased risk of PPH. Retained placenta, defined as the

failure of the placenta to deliver within 30 minutes after birth (and after one hr in the absence of AMTL).

Active management of the third stage

should be recommended to all women because high quality evidence shows that it reduces the incidence of postpartum haemorrhage from 15 to 5 per cent.

AMSTL started with the delivery of anterior shoulder by injection of oxytocin intramuscular. After delivery of the baby and when the signs of placental separation are recognized, controlled cord traction is used to expedite delivery of the placenta. When a contraction is felt, the left hand should be moved suprapubically and the fundus elevated with the palm facing towards the mother. At the same time, the right hand should grasp the cord and exert steady traction so that the placenta separates and is delivered gently, care being taken to peel off all the membranes, usually with a twisting motion.

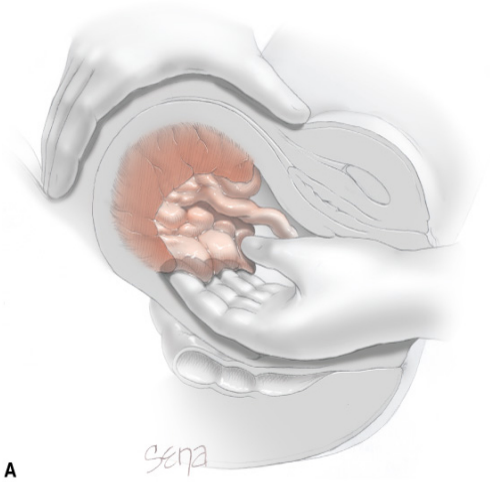
In approximately 2 per cent of cases, the placenta will not be expelled by this method. If no bleeding occurs, a further attempt at controlled cord traction should be made after 10 minutes. If this fails, the placenta is '**retained'** and will require manual removal under general or regional anaesthesia in the operating theatre. Direct injection of oxytocin into the umbilical vein may bring about delivery of the placenta while preparations are being made for theatre.

Physiological management of the third stage is where the placenta is delivered by maternal effort, and no uterotonic drugs are given to assist this process. It is associated with heavier bleeding . In the event of haemorrhage or if the placenta does not deliver after 30 minutes, **manual removal of the placenta** should be considered

Invasive placenta can be life threatening

risk factors include prior C\S, prior invasive placenta, placenta previa (especially in combination with prior cesarean sections, increasing to 67 percent with placenta previa and four or more prior cesareans), advanced maternal age, and high parity

Classification is based on the depth of invasion. Placenta **accreta a**dheres to the myometrium, placenta **increta i**nvades the myometrium, and placenta **percreta p**enetrates the myometrium to or beyond the serosa. The usual treatment for invasive placenta is hysterectomy



THROMBIN

Coagulation disorders, a rare cause of PPH, are unlikely to respond to the uterine massage, uterotonics, and repair of lacerations. Coagulation defects may be the cause and/or the result of a hemorrhage and should be suspected in those patients who have not responded to the usual

measures to treat PPH, are not forming blood clots, or are oozing from puncture sites.

Many patients taking medications such as heparin or aspirin or who have chronic coagulopathies such as idiopathic thrombocytopenic purpura, thrombotic thrombocytopenic purpura, von Willebrand's disease, and hemophilia are identified prior to delivery, allowing advanced planning to prevent PPH. Coagulopathic bleeding before or during labor can be the result of HELLP syndrome (**H**emolys **E**levated **L**iver enzymes and **L**ow **P**latelets) or disseminated intravascular coagulation (DIC). Obstetric conditions that can cause DIC include severe preeclampsia, amniotic fluid embolism, sepsis, placental abruption (often associated with cocaine use or hypertensive disorders), massive PPH and prolonged retention of fetal demise.

Evaluation should include a platelet count, prothrombin time (INR), partial thromboplastin time, fibrinogen level, and fibrin split products (d-dimer). If rapid laboratory testing is not available, an empty whole blood tube ("red top") can be filled with maternal blood and taped to the wall. It should form a clot within five to 10 minutes. Management of coagulopathy consists of treating the underlying disease process, serially evaluating the coagulation status, replacing appropriate blood components.

OBSTETRICAL SHOCK

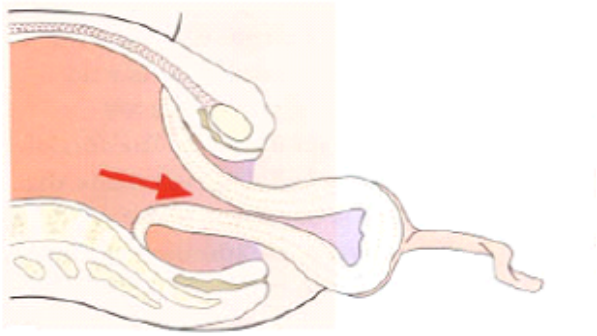
Hypotension without significant external bleeding may result from concealed hemorrhage uterine inversion and amniotic fluid embolism.

An improperly sutured episiotomy can lead to ***concealed PPH*** .A soft tissue haematoma usually of the vulva can lead to occult blood loss without any evidence of laceration or episiotomy.

Uterine Inversion

- It is turning inside out of the uterus .Fundal, adherent, or invasive implantation of the placenta may lead to inversion. **The patient may show signs of shock (pallor, hypotension) without excess blood loss. Upon inspection, the inverted uterus may be in the vaginal vault or may protrude from the vagina, appearing as a bluish-gray mass that may not be readily identifiable as an inverted uterus**

- If the placenta is still attached ,it should be left in place until after reduction to limit hemorrhage. **If oxytocin is running, it should be stopped, and an attempt should be made to replace the uterus.** If initial attempts to replace the uterus have failed ,general anesthesia may allow sufficient uterine relaxation for manipulation. Rarely surgery is required. Once replacement is successful an oxytocin infusion should be started before intrauterine hand is removed.



Amniotic fluid embolism

It is a rare condition charecterised by fulminating consumption coagulopathy, bronchospasm and vasomotor collapse.it is fatal in 80% of cases.

It is triggered by an intravascular infusion of significant amount of amniotic fluid during a rapid labour in the presence of ruptured membranes.the thromboplastin in the amniotic fluid may trigger a consumption coagulopathy .

The treatment include immediate CPR with mechanical ventilation ,correct the shock with electrolyte solution and packed RBC transfusion ,and reversal of coagulopathy with platelets and fibrinogene.