Management of Primary Postpartum Hemorrhage

118

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Postpartum hemorrhage (PPH) is defined as ≥500 ml blood loss within 24 h of vaginal delivery or 1000 ml loss within 24 h of cesarean section. It is the leading cause of maternal mortality worldwide.

118.1 Indications

- Excessive vaginal bleeding with or without pain and/or hemodynamic instability within 24 h of delivery

118.2 Contraindications

- There are no absolute contraindications to the management of PPH.

118.3 Materials and Medications

- Sterile technique
- Good lighting
- Sponge forceps
- Gauze
- Towels
- IV fluids
- Type and screen/crossmatch of blood
- Absorbable suture with curved needle
- Needle holder
- Tooth forceps

118.4 Procedure

- Standard resuscitation measures: Place IV, O_2, monitor.
- Assessment and treatment should occur simultaneously.
- All techniques should be performed under strict sterile conditions.

118.4.1 Uterine Exam

1. Assess by placing the hand on the uterine fundus and checking its size and firmness.
2. High, soft, or boggy uterus implicates retained placenta or uterine atony. Start external fundal massage.
3. Non-palpable uterus implicates uterine inversion.

118.4.2 Vaginal Exam

1. Keeping one hand on the abdomen, gently examine the vaginal canal using the other sterilely gloved hand.
2. Gently scoop out any clots/retained placenta that are easily removable.
3. Look for traumatic sources of bleeding from the perineum, vaginal walls, and cervical lacerations.
4. Gauze-wrapped ring forceps can be used to assist direct visualization and clearing of clots.

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118.4.3 If Uterine Atony Suspected

1. Continue external fundal massage with the abdominal hand. Make a fist with the vaginal hand and start bimanual massage. Raise the uterus from the pelvis and pivot it anteriorly, compressing it between the external hand and the internal fist. This maneuver will result in expression of any clots present and decrease uterine bleeding via direct compression (Fig. 118.1).
2. Administer oxytocin (20–40 units in 1 L of normal saline or lactated Ringer's solution intravenously [IV]; alternatively give 10 units intramyometrially with a spinal needle).
3. Methylergonovine may also be used at this time if oxytocin fails to reduce uterine bleeding (100 or 125 mcg IV or intramyometrially; alternatively 200 or 250 mcg may be given intramuscularly).
4. Continue massage until bleeding slows and the uterus becomes more firm. This can take 15–30 mins.

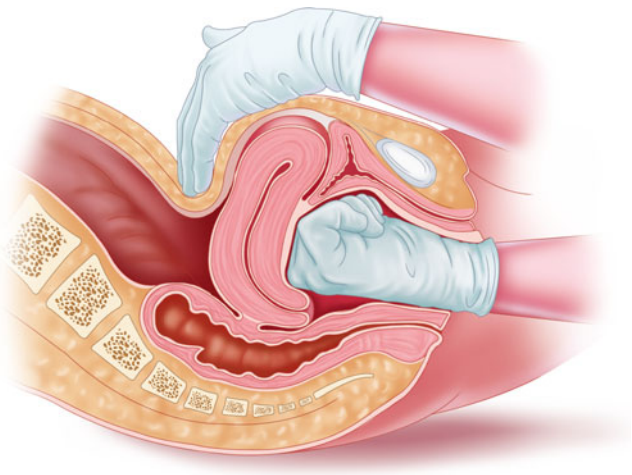

Fig. 118.1 Intrauterine massage for uterine atony

118.4.4 If Retained Placenta Suspected

1. Manual removal of the placenta or any of its retained tissue should be facilitated with sedation or additional analgesia.
2. Keeping the thumb and fingers together in a teardrop shape and using sterile technique as described previously, insert the hand through the vaginal canal and the cervix into the lower uterine segment.
3. Keep the other hand on the lower abdomen to continue gentle yet firm upward pressure and massage.
4. Find the placental edge within the uterus, grasp it gently, detach it from the uterine wall, and withdraw the hand from the patient.
5. Repeat the maneuver as necessary; remove any additional clots from the uterus and continue bimanual massage until it becomes firm and bleeding decreases.
6. If the entire placenta has been removed this way, an assistant should be available to inspect it for completeness and any torn vessels.
7. If the bleeding is particularly severe and placenta accreta is strongly suspected, pack the uterus with gauze and prepare the patient for urgent surgical intervention.

118.4.5 If Uterine Inversion Suspected

1. Using sterile technique, insert a fist through the vaginal canal and push the inverted fundus back through the cervical canal with pressure directed toward the umbilicus.
2. If the uterus has contracted, tocolytics such as IV magnesium sulfate or terbutaline can be used to aid myometrial relaxation. Alternatively, provided the patient is not overly hypotensive, nitroglycerin 50–100 mcg IV may be administered to relax the myometrium and facilitate return to normal uterine position.
3. If manual replacement is ineffective, hydrostatic reduction may be attempted. Warm fluids are run into the upper vagina under high pressure while occluding the introitus.

118.4.6 Trauma: Genital and Perineal Lacerations

1. For significant cervical lacerations: use absorbable sutures with a continuous interlocking stitch technique to close (Fig. 118.2).
2. For vaginal wound repair: place the initial and final stitch above the apices of the lacerations and grab a good amount of tissue with the needle. Small bites can lead to ongoing bleeding and hematoma formation.
3. Observe the repaired lacerations for any additional bleeding after the torn edges have been sutured.
   - Apply additional pressure to any site that continues to ooze blood; gauze-wrapped ring forceps may be used for this purpose if necessary.

If none of the above causes are apparent, consider underlying coagulopathies and treat appropriately. This may require administration of fresh-frozen plasma, platelets, or clotting factors as indicated.

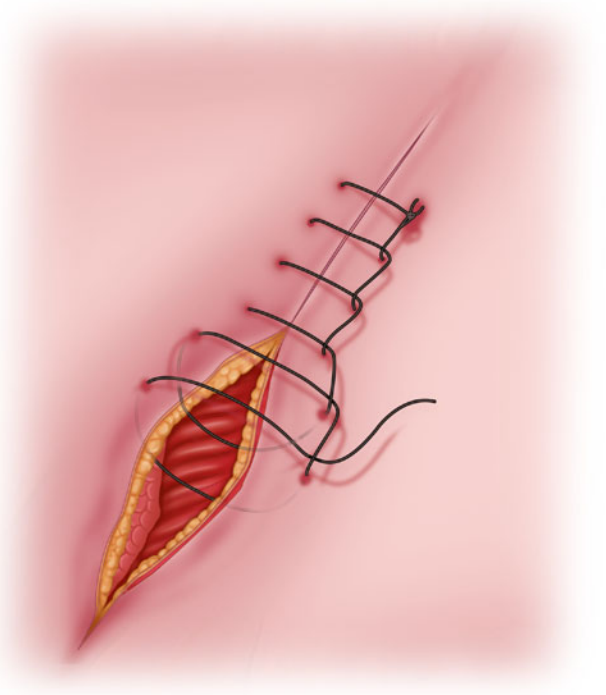

Fig. 118.2 Continuous interlocking stitch: perineal lacerations repair

118.5 Complications

- Uterine perforation and scarring
- Urinary and genital tract trauma and injury
- Genitourinary and genitointestinal fistula
- Pelvic hematoma
- Genital vascular injury
- Infection and sepsis
- Disseminated intravascular coagulation (DIC)
- Maternal death

118.6 Pearls and Pitfalls

- Pearls
  - Causes of PPH can be divided into the "5 Ts":
    - Tone: uterine atony, occurring within the first 4 h after delivery.
    - *T*issue: retention of the placenta, especially placenta accreta and its fragments, more common at extreme preterm deliveries.
    - *T*rauma: injury to the uterus, cervix, and perineal structures after delivery of a large fetus, use of forceps and/or vacuum, frequent vaginal manipulation during delivery, and episiotomy procedures.
    - *T*hrombosis: intrinsic or acquired coagulation disorders, including idiopathic thrombocytic purpura (ITP); hemolysis, elevated liver enzymes, and low platelets (HELLP) syndrome; and disseminated intravascular coagulation (DIC), as well as preexisting conditions such as von Willebrand disease.
    - *T*raction: inversion of the uterus during placental delivery secondary to excessive traction on the umbilical cord. The uterine fundus can be within the endometrial cavity, in the cervical canal, or outside the external os and within the vaginal canal.
  - The administration of broad-spectrum antibiotics should be strongly considered following any manual removal, exploration, or instrumentation of the uterus and the genital tract.
  - Bedside ultrasonography can be very helpful for identifying uterine abnormalities, retained placental tissue, free fluid in the pelvis, and/or intrauterine hematoma.
  - Risk factors for PPH include prolonged active phase of labor, previous PPH, multiple pregnancy, and history of a bleeding disorder.
- Pitfalls
  - Failure to recognize and treat PPH early increases morbidity and mortality.
  - Underestimating the potential blood loss of PPH. The gravid uterus at term has a blood flow of 600 ml/min (non-gravid: 60 ml/h).

Selected Reading

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