POSTPARTUM CARE AND COMPLICATIONS

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Main topics in this section

- Postpartum complications
- Routine postpartum care (study by self)
Postpartum complications

- Postpartum hemorrhage (PPH)
- Wound complication
- Mastitis
- Endomyometritis
- Postpartum depression
A case

A healthy 42 year old G6 Ab1 has just had a spontaneous delivery of her 5th child, a 4200G male following a labor lasting 1.5hrs. Delivery of the baby was followed almost immediately by the passage of the placenta. As the baby was being passed off to its mother. There was a large gush of blood from the vagina, and the mother felt faint and began vomiting.

What is going on?
What immediate steps would you take to help?
Causes of Maternal Death Worldwide

- Unsafe abortion: 13%
- Infection: 15%
- Severe bleeding: 24%
- Eclampsia: 12%
- Other Direct Causes: 8%
- Obstructed Labor: 8%
- Indirect Causes: 20%
1. Definition

<table>
<thead>
<tr>
<th>Mode of delivery</th>
<th>Blood loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaginal delivery</td>
<td>greater than 500cc</td>
</tr>
<tr>
<td>Caesarean delivery</td>
<td>greater than 1000cc</td>
</tr>
</tbody>
</table>

Postpartum hemorrhage (PPH)
Definition

Time of onset of bleeding

Early  within 24 hours: early or primary PPH
Later  After 24 hours: late or secondary PPH
Part I: Primary PPH

2. Causes of postpartum hemorrhage

(4“T”)

- Abnormal (absent) uterine “Tone”
- Retained products of conception - “Tissue”
- Genital tract “Trauma”
- Abnormal coagulation – “Thrombin”
1T : TONE (uterine atony)

- Uterine over distension:
  multiple gestation, hydramnios, macrosomic fetus
- Uterine exhaustion:
  rapid or long labour, multiparity, oxytocin or prostaglandin stimulation,
- Uterine relaxants:
  nifedipine, magnesium, nitric oxide donors
TONE (uterine atony)

- Infection:
  fever, prolonged ROM
- Anatomic / functional distortion:
  fibroids, anomaly, placenta praevia, uteroplacental apoplexy
- Uterine inversion
  fundal implantation of the placenta, uterine atony, placenta accreta, excessive traction on the cord during the third stage
Retained products of conception – 2T “Tissue”

- Abnormal placenta:
  (accreta, increta, percreta)
Parity, previous uterine surgery, uterine anomalies, placenta previa

- Retained products:
  Incomplete placenta on inspection, retained clots, placenta retained in cavity, placenta succenturiata
3T: Trauma

- Vagina lacerations and hematomas
- Cervical lacerations
  - Risk factors: Episiotomy, precipitate delivery, surgical delivery
- Rupture of uterine
  - Previous uterine surgery, breech extraction, obstructed labor, high parity
4T: Thrombin

- Acquired during pregnancy:
  ITP, thrombocytopenia of HELLP syndrome, DIC
  (eclampsia, intrauterine fetal death, septicemia, placenta abruptio, amniotic fluid embolism),
- Hereditary: Hemophilia, Von Willebrand’s disease
- Anticoagulant therapy:
  valve replacement, patients on absolute bedrest
3. Clinical Presentation

- Different cause of vaginal bleeding has different signs
- Concealed bleeding
- Importance of ongoing assessment of all women in post partum period:
  - pulse, bp, blood loss, fundal height
- Systemic upset dependent on previous blood volume, presence of anaemia
### Symptoms related to blood loss with postpartum hemorrhage

<table>
<thead>
<tr>
<th>Blood loss</th>
<th>Blood pressure (mmHg)</th>
<th>Signs and symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>ml</td>
<td></td>
</tr>
<tr>
<td>10-15</td>
<td>500-1000</td>
<td>normal</td>
</tr>
<tr>
<td>15-25</td>
<td>1000-1500</td>
<td>slightly low</td>
</tr>
<tr>
<td>25-35</td>
<td>1500-2000</td>
<td>70-80</td>
</tr>
<tr>
<td>35-45</td>
<td>2000-3000</td>
<td>50-70</td>
</tr>
</tbody>
</table>

- Adapted from Bonnar J. *Baillieres Best Pract Res Clin Obstet Gynaecol 2000;14:1*
Measurement of blood loss during PPH

- direct collection of blood in collection container
- gravimetric measurement of sponges (weighed before and after use)
- Measure the saturated size pads (10cm * 10cm is about 10ml)
Figure: Soakage characteristics of $10 \times 10$ cm pads
Figure: Blood drained into a fixed collecting container
4. Treatment of PPH: Keys

- Early recognition

- Preparation:
  Awareness, knowledge, skills, judgement, resources, team
- All obstetric patients should have blood typed and screened on admission.
- Appropriate uterine massage
## Initial Assessment

<table>
<thead>
<tr>
<th>Resuscitation</th>
<th>Assess Cause</th>
<th>Investigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I/V infusion</td>
<td>Uterus ? tone ? tissue</td>
<td>CBC</td>
</tr>
<tr>
<td>O2 mask</td>
<td>Examine genital tract</td>
<td>Coag. screen</td>
</tr>
<tr>
<td>Monitor : bp, u/o,pulse</td>
<td>history</td>
<td>Group and screen</td>
</tr>
</tbody>
</table>
Next Step

- If it is not contracted firmly, the uterus should be massaged.
- If the signs of placental separation have appeared, expression of the placenta should be attempted by manual fundal pressure.
- If bleeding continues, manual removal of the placenta may be necessary.
Procedures for Manual Removal of the Placenta and Membranes

- Indications
  1. The sudden occurrence of hemorrhage but the placenta gives no indication of delivering
  2. Hemorrhage after the birth of the placenta AND examination of the placenta also shows evidence of missing placental fragments, membranes or a cotyledon.
**Technique**

1. Trace the umbilical cord with your hand as you enter the uterus and move laterally to identify the edge of the placenta. The membranes at the margin of the placenta are perforated by a stripping motion downward with the edge of your fingers directed toward the placenta. Be careful not to push the tips of your fingers against the wall of the uterus, as it is very thin and easily ruptured.

2. Insert the side of your hand between the placenta and the uterine wall. Gently use an up and down motion to establish a cleavage plane and then sweep behind the placenta and separate it from the wall of the uterus. Move carefully and sequentially from one side to the other around the back of the placenta, until it falls into your hand.
Management after placental delivery

- Confirm the uterus is well contraced.
- If it is not firm:
  - oxytocin
  - Vigorous uterus massage
Bleeding unresponsive to oxytocin

1. Uterine massage
2. Call for help
3. Add a second large-bore intravenous catheter so that crystalloid with oxytocin may be continued at the same time blood is given
4. Blood transfusion
5. Explore the uterine cavity manually for retained placental fragments or lacerations
6. thoroughly inspect the cervix and vaginal for lacerations after adequate exposure
7. Insert a Forley catheter to monitor urine output, which is a good measure of renal perfusion.
Deal with Uterine tone

- 1. IV oxytocin
- 2. Uterine massage/compression
3. Stepwise administration of other uterotonic drugs
   - Methylergometrin (contraindicated in hypertension)
   - prostaglandine derivates: Prostin or PGF2 α (Hemabate)
     Contraindicated in asthmatics
4. Uterine tamponade using an intrauterine balloon
5. Uterine artery embolization
6. surgical treatment:
   - Pressure occlusion of the aorta
   - Uterine artery ligation
   - Internal iliac artery ligation
   - B-Lynch brace suture
Fig. 1. Sites of uterine artery ligation in steps 1, 2 (upper arrow), and 3 (lower arrow). U.U.S., Upper uterine segment; L.U.S., Lower uterine segment.
How to deal with uterine Inversion

To replace the uterus, the palm is placed on the center of the inverted fundus, while fingers identify the cervical margins. Upward pressure by the palm restores the uterus and elevates it past the level of the cervix.
Repair of lacerations

- The vagina and cervix should be carefully inspected.
- The episiotomy is quickly repaired after massage has produced a firm, tightly contracted uterus.
- Begin the repair above the highest extent of the laceration.
- If the laceration extended into the broad ligament, it should be repaired by laparotomy or hysterectomy is required.
Repair of lacerations
Vaginal Hematoma

- The blood vessel was injured without disrupting the epithelium above it.
- It can be managed expectantly unless it is tense or expanding. Or it should be opened, and the bleeding vessel should be ligated.
Rupture of the uterus

- Laparotomy and repair of ruptured uterus
- Hysterectomy
Management of RPC

- Careful inspection of the placenta (placenta succenturiata)
- If the suspicion is high for retained POCs
  - explore the uterus manually
  - examine the uterus by ultrasound
  - D & C for both diagnostic and therapeutic methods
Management of RPC

- Placenta accreta should be suspected if hemorrhage continues once no further POCs.
- Conservative treatment
- Hysterectomy
Active management of the third stage of labour should be offered to women since it reduces the incidence of post-partum haemorrhage due to uterine atony.
Every attendant at birth needs to have the knowledge, skills and critical judgment needed to carry out active management of the third stage of labour and access to needed supplies and equipment.
Never apply cord traction (pull) without applying counter traction (push) above the pubic bone on a well-contracted uterus.
The sum up of Primary PPH

• To explain the definition and the four main causes of postpartum hemorrhage
• To explain and emphasize the various clinical manifestations of postpartum hemorrhage with different causes
• To explain principles in emergency treatment in detail for postpartum hemorrhage caused by various etiological factors and rescue approaches for hemorrhagic shock
Part. II Secondary PPH

Excessive bleeding occurring 24hrs or greater after delivery,
but within 6 weeks
Secondary PPH: causes

- Subinvolution of the placental bed
- Infection
- Retained products of conception
- Other genital tract pathology (Rare)
  - Ca cervix, Trophoblastic disease
Secondary PPH: Diagnosis

- Based on clinical situation
- Condition and history of patient
- Time since delivery
- Character of bleeding
Secondary PPH: Treatment

- Evaluate overall clinical condition
  - systemic sepsis
  - amount of blood loss
  - speculum examination
  - tissue digital exam
  - cervix and uterus
- Antibiotic cover
- Rest
- Possible uterine evacuation
Reference Book

- Obstetrics & Gynecology  
  *Written by Tamara L. Callahan and Aaron B. Caughey*


- Current Obstetric & Gynecologic Diagnosis & Treatment  
  *Written by Alan H. DeCherney and Lauren Nathan*