

## Management of post-abortion hemorrhage: Pearls for direct patient care in an outpatient abortion clinic setting

This module will review the management of post-abortion hemorrhage, focusing on the clinical pearls that you need for direct patient care.

### **LEARNING OBJECTIVES**

By the end of this module, you should be able to:

- Describe the 6 Ts mnemonic for diagnosis and management of a post-abortion hemorrhage.
- Describe the techniques of bimanual uterine massage, repeated doses of certain uterotonic medications, the cannula test, cervical laceration repair, the clot test, and intrauterine balloon tamponade.

### **INTRODUCTION**

Before viewing this module, we encourage you to first view the hemorrhage overview module within the National Abortion Federation Online Learning Portal. That module covers topics that we won't repeat here – such as details about epidemiology, assessment of patient risk factors, hemorrhage prevention, an overview of management strategies, and an example of an in-clinic simulation.

This module will help you remember the key elements of **management**. To do this, we'll use the framework coined by TEACH (Training in Early Abortion for Comprehensive Healthcare) – the 6 Ts. Into this framework, we incorporate elements from the NAF Clinical Policy Guidelines and the Society of Family Planning Guideline on Hemorrhage.

#### **What do we mean by 6 Ts?**

It starts with 4 Ts – there are four overarching causes of hemorrhage that each begin with T:

Tone is first because atony is a common cause of hemorrhage.

Tissue is next. When faced with hemorrhage, we consider the possibility that it's because of retained products of conception or possibly an invasive placenta.

Trauma refers to both trauma to the uterus, meaning a perforation; or trauma to the cervix, meaning a high cervical laceration or an external cervical laceration.

Thrombin is the most rare, referring to a coagulopathy.

The last two T's are Treatment Plan – which may be occurring throughout the other diagnostic and management steps – and Transfer.

Hemorrhage diagnosis and management often occur simultaneously. In this video, I will describe these components in a linear fashion, but that's not how they're done in reality. For example, if you suspect or see a cervical laceration, you would jump to that section immediately.

## **TONE**

### **Bimanual uterine massage**

- Some patients may need extra pain medication prior to the massage because you want to massage the uterus with as much pressure as possible.
- If the patient can tolerate several fingers inside the vagina, cup your fingers behind the cervix to massage the lower uterine segment. Your abdominal hand on the lower abdomen massages the fundus. You should be able to feel the uterus in between your hands.
- Continue this firm massage for at least 1-2 minute before stopping to reassess. A full minute can feel like a long time, so be sure to watch a clock. During this time, other staff can be gathering interventions or performing other steps.
- If the patient is more awake or too uncomfortable to tolerate several fingers inside the vagina, an alternative is to make a sponge stick with a ring forceps holding 1-2 pieces of gauze. This can be inserted behind the cervix in the posterior fornix to similarly lift upwards on the cervix to elevate the uterus out of the pelvis (aiming both toward the patient's head and toward the anterior abdominal wall).
- If you are seeing bleeding coming past your hand or past the sponge stick, it means the patient is bleeding at a rapid clip. So if the bleeding continues after 1 minute, you should proceed with the first uterotonic medication.

### **Uterotonic medications**

There is a downloadable PDF document accompanying this video listing all of the options for uterotonics, their doses, and additional considerations, so if you haven't already downloaded that to follow along, please do so now. Of note, data supporting the use of several of these medications in the postabortion hemorrhage context are limited, but they are used commonly and their benefit has been extrapolated from the postpartum hemorrhage literature.

*Here are some key points:*

Misoprostol can be used for treatment of post-abortion hemorrhage even if the patient already took misoprostol for cervical ripening. There is no definitive data on a maximum dose of misoprostol, but most providers wouldn't give more than 1200-1400 mcg in a 24-hour period.

Recall that the sublingual route has quicker onset and is more comfortable for patients who are awake and alert. If the patient is not awake or alert, rectal misoprostol should be used.

Certain uterotonics can be repeated if needed

- Methylergonovine (methergine) 0.2 mg IM can be repeated 5-10 minutes after the first dose if there is severe bleeding. Most providers don't give more than 4 or 5 IM doses.
  - In certain patients whose bleeding slows but we want to continue a series of uterotonic medication to prevent repeat atony, we dispense methylergonovine 0.2mg PO every 4 hours for a total of 6 doses.
  - Recall that methylergonovine is contraindicated in hypertension
  - Also recall that IM means the medication can be injected into any muscle. While most providers inject into a thigh muscle, some providers inject directly into the uterus via an intracervical injection, which can be less painful.
- Carboprost (hemabate) 0.25mg IM can be repeated every 15 minutes to a maximum of 8 doses.
  - It is contraindicated in asthma and many patients who receive carboprost experience the side effect of diarrhea. In these patients, you can consider also prescribing or dispensing an antidiarrheal pill like diphenoxylate, or lomotil, 5mg.
- Vasopressin 5 units, usually mixed in 10-50cc of normal saline, can be used for treatment. It can be injected directly into the uterine muscle, by injecting into the cervix, into the myometrium, or paracervically.
  - Even if you used vasopressin for prophylaxis at the beginning of the case, you can give vasopressin again for treatment, up to a total of 15 units of vasopressin.

As mentioned in the NAF Hemorrhage Overview module, other medications that may be helpful include:

- Oxytocin or carbetocin IV or IM
- And tranexamic acid IV.

## ***TISSUE***

If pregnancy tissue remains in the uterus, the uterus is unable to clamp down effectively and it will continue to bleed. The two steps within "Tissue" are to assure the uterus is empty by reaspirating and to consider placenta accreta.

- Use an ultrasound to check for retained products of conception or a hematometra.
- It is also helpful to check the products of conception that you've removed to confirm complete evacuation.
- If you have a suspicion for retained products of conception, you should reaspirate under ultrasound guidance.

- But resist the temptation to keep resuctioning, even if the hematometra continues to reaccumulate -- because the risk of perforation exists with every pass, especially when combined with operator anxiety. If you have confirmed there is no actual tissue in the uterus, but the uterus continues to reaccumulate with blood, it would then be time to move on to one of the other management steps – such as additional uterotonic medications or insertion of a foley balloon catheter.

#### **Is the patient at risk of having a placenta accreta?**

- Placenta accreta is rare – in the absence of a placenta previa, the risk in a patient even with 5 prior c-sections is less than 1%. The risk increases significantly, however, in the setting of a placenta previa (at 3% with 1 prior c-section, 11% with 2 prior c-sections, and on up).
- These data reinforce why good preoperative evaluation and ultrasound are key. The ultrasound should identify the placenta location in relation to the uterine scar in patients with a prior uterine scar from a c-section or myomectomy. Clinic policies often include parameters to refer patients at high risk for placenta accreta to hospital-based or higher resourced facilities.

## **TRAUMA**

#### **Trauma can refer to:**

- A perforation of the uterus (covered in a future video)
- A high cervical laceration (which can be hidden from view)
- And an external cervical laceration that is seen with the speculum in place

**For high cervical lacerations**, we are concerned about lacerations in the areas of the uterine arteries or their branches.

- You can use ring forceps to clamp high up in the cervix to compress an area that appears to be bleeding – for both diagnosis and treatment;
- You can consider using Monsel’s solution slightly higher in the cervix;
- And an intrauterine balloon placed in the lower uterus can be highly effective. The balloon can apply compression directly to the area that is bleeding.
- High cervical lacerations are the ones that **may** only be rendered sufficiently hemostatic with the assistance of an interventional radiologist performing a uterine artery embolization, so keep a high index of suspicion for these patients requiring transfer. If the patient keeps bleeding around an intrauterine foley or accumulates blood through the foley catheter, that would be highly concerning.

**When there is bleeding coming from the uterus, it can be difficult to distinguish whether it is due to a high cervical laceration, a perforation, or atony. One tool that can help identify the origin of bleeding is the cannula test.**

**Cannula test demonstration:**

First, insert a small cannula (such as a size 8 or 10) up to the fundus.

If the bleeding through the cannula is most brisk while the cannula is at the fundus, that can suggest fundal atony.

Slowly withdraw the cannula from the fundus all the way down to the cervix.

If the bleeding is most brisk while the cannula is lower down, that can suggest lower uterine segment atony or a high cervical laceration. If this is the case, you may have a low threshold for moving quickly to placement of an intrauterine foley balloon.

**The last component within the T for Trauma is to diagnose and manage a lower, or external cervical laceration.**

You can assess for a cervical laceration by feeling the cervix with your fingers or inspecting the cervix visually. Sometimes you need to use ring forceps to see clearly laterally, or ask for an assistant to help with vaginal wall retraction to improve visualization.

**Cervical laceration demonstration:**

If you use a ring forceps to clamp an area that appears to be bleeding, and that stops the bleeding, then you have made your diagnosis.

- In general, you want to use the least intervention that stops the bleeding
  - Compression will suffice in many cases. This simply means that you attach a ring forceps to the area of bleeding for 2-5 minutes. Before you wait those 2-5 minutes, though, it should be clear that this intervention has sufficiently slowed the bleeding.
  - You can apply silver nitrate or Monsel's solution for superficial lacerations or abrasions.
- If the laceration continues to bleed, it should be sutured. Also, lacerations that are greater than 1cm are often rendered hemostatic better with suture than with Monsel's solution.
- To perform a cervical laceration repair, these supplies are useful:
  - A speculum or retractors to ensure good visualization and good lighting
  - Long scissors.
  - A long-handled needle driver
  - Long grasping pick-ups
  - 2 ring forceps
  - And Absorbable suture, such as vicryl or chromic. 0-vicryl and 2-0 vicryl work well.
- It can help to identify where to suture if you start by grasping the 2 edges of the laceration with clamps.
- Place your anchoring stitch just behind the apex of the laceration.
  - Then place a few running stitches along the length of the laceration to bring the edges together and obtain hemostasis.

## **THROMBIN**

**The next T is Thrombin, prompting us to consider if the patient could have a coagulopathy.**

Suspicion for an inherited coagulopathy, like von Willebrand disease, would be high if the patient had reported during her preoperative evaluation that she has had a hemorrhage with her prior vaginal deliveries, or lifelong heavy menstrual bleeding that has resulted in transfusions, or has a family history of a bleeding disorder.

An example of an acquired coagulopathy is DIC, or disseminated intravascular coagulation. You should have a higher suspicion for DIC if there has been a fetal demise, particularly if retained for a prolonged period of time (5 weeks or more), or if there is evidence of sepsis, placental abruption, massive hemorrhage, preeclampsia, or amniotic fluid embolism.

If you think the patient is coagulopathic, management involves blood products and support, so transfer should be considered.

**The clot test** can be used to assess for coagulopathy.

It can be performed without a lab – it just requires collecting the patient's blood into a plain glass tube (without any solution in it). If you are going to do a venipuncture to do the clot test, it's a good time to place a second IV.

- To perform the clot test, fill a plain glass tube (such as the red-top tube pictured here) with whole blood, which can be the blood that is coming through the cervix, or a separate venipuncture.
- Initially, the blood is liquid, you can see in this first video, that the blood slides back and forth in the tube easily.
- The glass tube should be kept warm, so some people hold it in a closed fist; some people put it in their shirt pocket.
- Set a timer for 10 minutes – and look at the tube at the 10-minute mark. As you can see in this second video, the blood is clotted and not sliding in the tube.
- Complete clotting at 10 minutes rules out DIC at that time.

## **TREATMENT PLAN**

**The next T is Treatment Plan**

Resuscitation and vital sign monitoring should be ongoing throughout.

- One staff person should be assigned to checking, recording, and announcing vital signs at least every 5 minutes
- Important components of resuscitation include:
  - Establishing IV access (2 large-bore IVs if possible in a severe hemorrhage)
  - IV fluids given as a bolus

- Administration of O2 by facemask
- And elevation of the foot of the bed while awaiting transfer.

During hemorrhage management, the clinician should have a mindset like that in ACLS – re-evaluating the patient’s status every 2 minutes. This means, asking oneself, and verbalizing to staff: Is the bleeding continuing? What is the estimated blood loss? And how concerned are we about the patient?

**Intrauterine balloon tamponade** is highly effective in stopping the bleeding, whether the bleeding is due to atony, a high cervical laceration, or as a temporizing measure during transfer to the hospital. Placement of a balloon tamponade should be considered if the first line approach does not sufficiently slow the bleeding.

Over the course of the next 5 minutes, I will describe in detail how to place and manage an intrauterine foley balloon for management of post-abortion hemorrhage.

**To insert an intrauterine balloon for tamponade, you will need:**

- A speculum, tenaculum, and ring forceps.
- A 30cc foley balloon catheter or a Bakri balloon.
- A bag to attach to the bottom of the balloon catheter to monitor any bleeding that comes through the catheter tubing.
- One or multiple syringes to instill saline into the balloon
- And saline or sterile water.

This picture and the subsequent animation demonstrate what is available in some clinical settings – which is these single-use 10cc saline syringes commonly used as IV flushes. If this is not available, an alternative is to pour saline into a sterile dish. From this dish, you would draw up the saline using an empty syringe, and continue refilling the syringe from that dish.

Many clinicians place the balloon tamponade under ultrasound guidance.

How much do you fill the balloon?

- In a first trimester abortion hemorrhage case, the foley balloon can be filled to 20-30cc.
- In a second trimester abortion hemorrhage case, you can fill the foley balloon even more. Most providers fill to 60cc. Or, you can fill a Bakri balloon to 120cc.

**Intrauterine foley balloon placement demonstration:**

The first step is to grasp the foley catheter close to the balloon-end of the catheter with the ring forceps and advance it into the uterus.

Move the ring forceps back behind the balloon. Hold the catheter to ensure the balloon stays where you want it to be, but don’t clamp down on the catheter to allow for filling.

If the cervix is not dilated enough to allow for passage of the ring forceps – such as in a rare case of a first-trimester abortion hemorrhage – the ring forceps can feed the catheter up into the cervix and into the uterus but not go all the way inside the os.

Once the catheter is in place – confirmed either by feeling the fundus or by seeing the location on ultrasound – attach the syringe to the balloon port and fill. In this case, we are filling the balloon to 60cc, so all 6 syringes are attached and the balloon is filled.

This image intends to convey the fact that as the balloon exerts outward pressure on the uterine walls, the uterus is clamping down around it, to create tamponade. Though this animation makes it appear that there is empty space within the uterus, in reality the uterine walls would be clamped down both above and below the balloon.

The clinician then attaches the back end of the catheter to the collection bag and tubing.

This is an image of what a uterus looks like on ultrasound with a foley balloon positioned in the lower uterine segment and filled with 60cc of saline. The uterus is well-clamped-down around the balloon with no blood collecting above the balloon.

**Once the intrauterine balloon is placed, it is generally recommended to**

- Place a *bladder* foley catheter to keep the patient’s bladder empty while the intrauterine balloon is in place.
- Occasionally: vaginal packing is also placed into the vagina (such as a kerlix which you can soak in gel to make it more comfortable for the patient when it is removed). This is most often used in a severe hemorrhage in which the patient continues bleeding and you need as much pressure to tamponade as possible. Some providers place the balloon on traction if there is a concern for a high cervical tear.

Because it can be scary for a patient to hear that she is needing an extra intervention to manage bleeding, it can help to describe the balloon in simple terms. One way to do so is to say that the balloon that is going inside the uterus is like a strong bandaid – it is temporarily putting pressure on an area that is bleeding until the bleeding stops, and then the balloon will be removed.

**Once the balloon has been placed, there are a couple options for management.**

- In some cases, the balloon is a temporizing measure to minimize bleeding while the patient is being transferred for additional treatment.
- **Transfer should be considered if any of the following situations are present:**
  - If there is suspicion for placenta accreta,
  - suspicion for DIC,
  - if the patient has exhibited signs of hemodynamic instability,
  - if you have any concern for ongoing bleeding, such as you see brisk bleeding through the catheter tubing or there is an accumulation of blood seen on ultrasound,
  - or if the clinic protocols mandate it.
- In other cases, when none of those concerns exist, the balloon can be put into place, filled, and the patient can then be monitored in the clinic’s recovery area for 2 or so

hours. If the bleeding stops with placement, and overall the bleeding was never highly concerning, some would consider removal after 1 hour.

- Then, assuming there has been less than around 50-100cc of blood that has come through the catheter tubing, the balloon can be slowly deflated.

The most common scenario is that a few hours of tamponade while the patient waits in the recovery area will be sufficient.

**That's the end of this section on the specifics of intrauterine foley balloon placement. Feel free to revisit this section again in the future – it can be found as a separate video for quick review on The Abortion Clinic Toolkit website.**

**To summarize this part**, placing a foley balloon catheter into the uterus is a straightforward procedure that results in uterine tamponade to manage heavy bleeding from atony or a high cervical laceration. It can temporize bleeding while a patient is en route to a hospital in anticipation of an uterine artery embolization or surgery, which are the definitive approaches to managing an ongoing hemorrhage.

## ***TRANSFER***

**If the prior steps do not result in cessation of bleeding, or per clinic policy, initiate transfer.**

**There is a video in Section 2 of The Abortion Clinic Toolkit curriculum which reviews considerations when transferring a patient to the emergency department.**

## ***SUMMARY***

This hemorrhage algorithm can help you remember the management steps for a post-abortion hemorrhage. Recall that the 4 Ts for causes of the hemorrhage are the same in the post-abortion setting as in the postpartum/obstetrics setting. And many of the management steps are similar to the postpartum/obstetric setting as well.

Feel confident in your training and come back to this algorithm for review often.

Thank you for viewing this presentation.

## References

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