



# Postpartum Presentations: When Risk Arises After Delivery – Vaginal Bleeding and Discharge

**Urgent Message:** Postpartum vaginal bleeding and discharge have a broad range of etiologies ranging from benign and self-limited to life-threatening. As postpartum patients may present to urgent care centers with concerns for bleeding or discharge, it is important for clinicians to have an understanding of the unique differential diagnosis for causes of hemorrhage in this population.

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**Key Words:** Vaginal Bleeding, Postpartum, Endometritis, Lochia, Retained Products of Conception

**Editor's Note:** *The patient case scenario is hypothetical.*

## Abstract

**Background:** The postpartum period is a unique period of changing physiology. As such, the causes of vaginal bleeding and discharge during this period are distinct and require a unique approach in their evaluation.

**Aim:** The aim of this review is to enhance urgent care (UC) clinicians' familiarity with the differential diagnosis and management for both common and life-threatening causes of postpartum discharge and hemorrhage.

**Conclusion:** In addition to the common and normal causes of postpartum vaginal discharge and bleeding, it is important for UC clinicians to consider factors that can pose threat of morbidity and mortality when there



are delays in diagnosis. Among these conditions, endometritis and retained products of conception are among the most critical to consider. UC clinicians should notify

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the patient's obstetric specialist of the patient's presentation early in the assessment and involve them in work-up and disposition decision-making.

### Background

The postpartum period is variably defined and ranges from 6 weeks to 6 months after delivery.<sup>1,2</sup> However, the majority of physiologic changes and risk are limited to the first 6 weeks after delivery.<sup>2</sup> During these first weeks of the postpartum period, a number of symptoms and physiologic changes are expected. Differentiating normal postpartum signs and symptoms from pathologic conditions can be challenging for both patients (particularly first-time mothers) and clinicians alike.<sup>3</sup>

Given that postpartum symptomology may be related to conditions ranging from benign to life threatening, it is important for UC clinicians to appropriately balance reassurance and vigilance.<sup>4</sup> When women present to UC settings with concerns for postpartum vaginal bleeding or discharge, assessment should begin with an appropriately focused history and exam. Serious etiologies should be considered and reassurance given only after these have been excluded with reasonable certainty.<sup>5</sup>

The following case scenario is hypothetical but is illustrative of the diagnostic reasoning required when women present to UC with concerns for bleeding or discharge after delivery.

### Hypothetical Clinical Scenario

A 36-year-old G2P2 (ie, 2 pregnancies, 2 live births) woman presented to UC 6 days after giving birth to a healthy infant by cesarean delivery (C/S) without complication. Her chief complaint was 4 days of dark, reddish-brown vaginal bleeding that mostly saturated about 3-4 pads daily. She also complained of fatigue and feeling warm at times but denied chills. She reported some abdominal pain but felt that it was improving.

On exam, her vitals were normal, and she appeared comfortable and in no distress. Her cardiopulmonary exam was unremarkable, and her heart rate was normal. Her abdominal exam revealed no tenderness, guarding, or distension. Her C/S incision was clean, intact, dry, and without surrounding erythema. The uterus was firm, nontender, and palpable just below the umbilicus. The remainder of her general exam revealed no concerning findings.

A pelvic exam with speculum was performed and a small amount of blood was noted at the introitus and throughout the vagina. There was a dime-sized clot at the cervical os. A swab was used to clear the clot to

better visualize the cervix. After clearing the blood, a tiny amount of residual oozing from the cervical os was noted when suprapubic pressure was applied.

### Normal Postpartum Vaginal Bleeding and Discharge

Physiologic changes begin immediately after delivery, and heart rate is expected to decrease while body temperature may become slightly elevated. Bloody vaginal discharge (ie, lochia) is normal for the first 4 days postpartum.<sup>6</sup> The lochia then becomes pale brown (ie, lochia serosa), and then yellowish (ie, lochia alba) by 12 days postpartum.<sup>5</sup> Lochia or bleeding that differs from this progression suggests the possibility of a pathophysiologic postpartum condition.

### Postpartum Endometritis

#### *Epidemiology and Pathophysiology*

Endometritis is the leading cause of postpartum fever in women.<sup>7</sup> Its incidence ranges from 1-3% in patients without risk factors after a normal spontaneous vaginal delivery (NSVD) but can be as high as 6% in women with risk factors for endometritis.<sup>8</sup> Specifically, it is important to note that cesarean delivery is associated with a 5- to 20-fold increase in the risk of postpartum endometritis. When C/S is performed after the rupture of the amniotic membranes, the risk is over 20-fold higher than with NSVD.<sup>9</sup>

#### *History*

The key clinical feature suggestive of postpartum endometritis is the presence of fever following a recent delivery. Early-onset endometritis occurs within the first 48 hours of the postpartum period, while late-onset refers to endometritis occurring from 2 days to 6 weeks after delivery.<sup>8</sup> The patient may also complain of increasing lower abdominal pain and purulent or foul-smelling lochia.<sup>10</sup> Patients with endometritis may also have symptoms resembling a viral illness including fatigue, headache, and chills.<sup>11</sup>

#### *Exam*

A focused abdominal and genitourinary (GU) exam, including speculum exam, should be performed if suspecting endometritis. Clinical findings of postpartum endometritis include pronounced suprapubic and uterine tenderness and unexpectedly prolonged enlargement of the uterus. Vital sign abnormalities such as fever and tachycardia may occur but may also be initially absent.<sup>8</sup> If diagnosis is delayed, patients may develop sepsis with signs indicating end-organ dysfunction (eg, altered mental status).<sup>12</sup>

### **Speculum Exam**

The GU exam should begin with inspection of the external genitalia. Any external abnormalities should be noted prior to speculum exam. In postpartum patients, the speculum exam provides critical data but may cause anxiety among UC clinicians who rarely perform speculum examinations in the postpartum setting. It is important to attempt to discuss these patients with the obstetric specialist who performed the delivery (eg, gynecologist or midwife). Prior to the speculum exam, while UC support staff is gathering the necessary supplies, is often the optimal opportunity for this. The obstetric specialist can then either provide guidance for speculum examination techniques and key findings to note or may perhaps prefer the exam is deferred and the patient is sent for immediate evaluation in clinic or the hospital labor and delivery unit.

If unable to consult with an obstetric specialist, it is appropriate to proceed with a gentle speculum exam. To minimize discomfort, ensure adequate lubricating gel is used and attend to the use of the most aseptic technique possible.<sup>13</sup> During insertion, gentle downward pressure is applied with the speculum itself, which helps reduce discomfort from the speculum sliding against the sensitive urethra anteriorly.<sup>13</sup> With proper insertion technique, the inferior blade of the speculum should be placed in the posterior fornix of the vagina. The speculum is then opened carefully until it cups the cervix. If the cervix is difficult to identify, the speculum should be withdrawn slightly, repositioned, and reopened. If the uterus is anteverted, the cervix is directed toward the posterior vaginal fornix, while a retroverted uterus will result in a more anterior position of the cervix.<sup>13</sup>

Once the cervix is identified, characteristics of the cervix and surrounding vaginal tissue should be noted, including cervical position, size, color, and the presence of any lesions, lacerations, and characteristics of any discharge coming from the cervical os. Purulent discharge in this setting is abnormal and suggestive of uterine infection.

### **Testing**

Postpartum endometritis is primarily a clinical diagnosis. Endocervical swabs sent for wet mount can be helpful for confirming this, but the results may not be immediately available during the UC visit.<sup>13</sup> When the consultation with the patient's obstetrician is available, they can offer guidance if any specific testing would be clinically useful. Endocervical cultures, when negative, do not exclude an endometrial infection, and positive cultures may result from contamination from the vag-

inal vault during collection.<sup>8</sup>

Blood laboratory study findings (eg, leukocytosis) can be suggestive of endometritis, but the results are often not available rapidly enough to influence care during a UC visit and are not reliable for ruling-in or excluding postpartum endometritis.<sup>8,14</sup> A urinalysis and culture should be obtained to exclude the possibility of urinary tract infection (UTI), which can have similar symptomatic presentation.<sup>12</sup>

*“Given the need for IV antibiotics for proper treatment, any patient with suspicion for postpartum endometritis should be immediately referred to the emergency department.”*

Pelvic ultrasound (US) is recommended as the first-line imaging modality as it can assess for retained products of conception (POC) or alternate diagnoses, such as septic pelvic thrombophlebitis.<sup>15</sup> However, most often, pelvic US findings in cases of postpartum endometritis are nonspecific, and there is significant overlap with normal postpartum findings (eg, gas in the endometrial cavity, uterine enlargement).<sup>16</sup> Similar to blood testing, imaging decisions should be undertaken in conjunction with the patient's obstetric specialist and should not delay referrals to appropriate levels of care, especially if the patient is ill-appearing.

### **Diagnostic Criteria**

While scoring systems have been proposed,<sup>17</sup> there are no formal diagnostic criteria for postpartum endometritis. It is generally diagnosed in the presence of fever, tachycardia, uterine tenderness, and purulent appearing lochia.<sup>18</sup>

### **Initial Management**

Intravenous (IV) antibiotics and close monitoring are recommended for suspected endometritis. Clindamycin plus gentamicin is the recommended first-line empiric antibiotic regimen.<sup>8</sup> IV antibiotics are recommended until the patient is clinically feeling improvement and remains afebrile for at least 24 hours.<sup>8</sup>

**Indications for Referral to Emergency Department**

Given the need for IV antibiotics for proper treatment, any patient with suspicion for postpartum endometritis should be immediately referred to the emergency department (ED). If the patient delivered in a hospital setting, referring the patient to site of her delivery is often preferable for the purposes of continuity of care.<sup>19</sup> In cases where there is concern for sepsis based on the patient appearing ill or having significant tachycardia, mental status changes, and/or hypotension, use of ambulance transport to the ED is recommended.

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**Lochia and Mild Postpartum Bleeding**

The various forms of lochia previously described are expected after every delivery. Lochia is composed of blood and the remnants of the amniotic membranes and placental tissues. Shedding of the layers of the placenta, which completely cover the endometrial cavity, typically progressively decreases, resolving by approximately 35 days postpartum.<sup>20</sup>

Lochia rubra, which may be described as “vaginal bleeding” or “spotting” typically resolves within 4 days of delivery. Lochia serosa, the next phase, is increasingly watery and pinkish and will resolve by 12 days after delivery. Finally, lochia alba, which is a yellowish-white discharge, resolves within 2-6 weeks postpartum.<sup>6</sup>

**History**

As in any case of vaginal bleeding, postpartum bleeding should be quantified to determine the likelihood of a pathologic condition. It is important to assess how often pads are changed, their degree of saturation, and whether the patient is noting clots (and if so, the size of clots). As discussed above in the consideration of endometritis, inquire about symptoms suggestive of infection (eg, increasing pain or fevers) and if there is an unpleasant odor to the discharge that the patient has noted.

**Exam**

The clinical assessment should start with reviewing vital signs. It is especially important to note tachycardia, hypotension, and/or fever, which could suggest significant blood loss and/or infection (eg, endometritis).

The physical exam should focus on the abdominal and GU assessment. If the delivery was performed by C/S, do not forgo inspection of the surgical incision. Palpate the abdomen to assess for uterine size and tenderness. The GU exam, again, should begin with external inspection, looking for other sources of bleeding such as labial lacerations or perineal tears.

A speculum exam in consultation with the patient’s obstetric specialist using gentle and maximally aseptic technique is also generally recommended.<sup>21,22</sup> This can also offer information about alternate internal sources of bleeding from cervical or vaginal injuries vs normal, small amounts of bloody lochia coming from the cervical os.

**Testing/Diagnostic Criteria**

Differentiating normal lochia from pathologic discharge is generally a clinical assessment based on the patient’s history, exam, and the character of the discharge. This relies on visual inspection and no testing is routinely recommended.

**Initial Management**

If bleeding/lochia seems to be conforming to the expected pattern of change described previously, simple reassurance is appropriate. Education should be provided on proper hygiene in the postpartum period. Only sanitary pads should be used for the first 6 weeks postpartum to allow for adequate time for the perineum and vagina to heal.<sup>22</sup> Tampons or other menstrual products inserted into the vagina (eg, menstrual cups) should not be used until the patient is cleared by their obstetrician. Pads also allow for the patient to track their bleeding and discharge so that they might seek care again if there are changes that do not conform to the normal progression of postpartum discharge.

**Indications for Referral to Emergency Department**

Heavy bleeding in the postpartum period is almost never physiologic. If there is active, heavy bleeding, ED referral may be indicated, especially if the patient appears pale or is tachycardic and/or hypotensive. However, for more stable patients, the patient’s obstetric specialist may prefer to have the patient seen in clinic or in the hospital labor and delivery unit directly. Heavy bleeding or passage of clots usually requires an urgent pelvic US to exclude retained POC.<sup>1</sup>

## Retained Products of Conception

### *Epidemiology and Pathophysiology*

The mnemonic of the “4 Ts” is frequently used to remember the common causes of postpartum hemorrhage. Uterine atony (“tone”) is the most common cause and accounts for 70% of cases. However, this will be evident within the first 24 hours after delivery, and therefore, unlikely to be an issue of concern in UC settings.<sup>23</sup> “Trauma” (eg, laceration) is the second leading cause, accounting for 20% of cases, but is also typically evident before hospital discharge.<sup>23</sup> Retained POC (“tissue” in the mnemonic) accounts for approximately 10% of cases of postpartum hemorrhage and more commonly presents in a delayed fashion.<sup>23</sup> The fourth is “thrombin” (coagulation deficiency).

Retained POC is defined as a condition where tissues resulting from a gestation persist after medical or surgical termination of pregnancy, spontaneous abortion (ie, miscarriage), or vaginal or cesarean delivery.<sup>24</sup> Retained placenta specifically refers to a situation when placental tissue remains adherent to the uterine wall after delivery of the placenta.<sup>21</sup> This can occur due to uterine atony, the placenta accreta spectrum of disorders, or premature cervical closure.<sup>25</sup> Retained membranes may also occur, particularly if manual removal of the placenta was performed.<sup>26</sup>

Retention of placental fragments is the most common situation involving retained POC, occurring in 3% of all vaginal deliveries; it is responsible for 6% of all cases of postpartum hemorrhage.<sup>27</sup> Placenta accreta is the result of a defect in the decidua basalis, which allows the placenta to invade the uterine wall to an abnormal depth.<sup>24</sup>

Risk factors for retained placental fragments include prolonged exposure to oxytocin, high parity, preterm delivery, placental abruption, prior uterine surgery, placenta accreta, and assistive reproduction technology use (eg, *in vitro* fertilization).<sup>25,28</sup> Retained POC is the second leading cause of postpartum hemorrhage and is associated with nearly a quarter of cases of endometritis.<sup>25</sup>

### *History*

The most common complaints among women who have retained POC are abdominal pain and vaginal bleeding.<sup>24</sup> Fever may be present and is suggestive of concurrent endometritis.<sup>24</sup> Ascertaining if the patient has a history of prior uterine surgeries is useful as this is a significant risk factor for retained POC.<sup>29</sup> Quantifying bleeding character and quantity as previously discussed is a critical aspect of assessment for the degree of hemorrhage. The majority of cases of retained placenta are diagnosed during delivery, but when pieces of the pla-

centa remain, abnormal vaginal bleeding may develop in the days to weeks after delivery, with a median time to onset of hemorrhage being 24 days.<sup>25,30</sup>

*“The most common complaints among women who have retained POC are abdominal pain and vaginal bleeding .”*

### *Exam*

Review the patient’s vital signs for hypotension, tachycardia, and tachypnea, which are indicators of significant blood loss. In addition to tenderness and surgical incision assessment, abdominal exam should focus on assessment of the uterine size and texture. The uterine fundus should become firm and return to the level of the umbilicus in the 24 hours after delivery.<sup>31</sup>

As previously discussed, it is recommended to attempt to consult with the patient’s obstetric specialist before performing a pelvic exam. When performing a GU exam, begin with external inspection for sources of bleeding related to the trauma of delivery including from the labia, vaginal introitus, and rectum. A gentle, aseptic speculum exam should then be performed in order to visualize the vaginal mucosa and cervix to identify non-uterine sources of bleeding, such as lacerations. If the patient complains of passing clots or saturating pads, suction or absorptive swabs should be available to assist with visualization for sources of bleeding. Active bleeding coming from the cervical os or the presence of visible clots is concerning for the possibility of retained POC and warrants further assessment with US.

### *Testing/Diagnostic Criteria*

Retained POC requires failure of complete passage of the placenta by 30 minutes or longer after delivery, after which time, the risk of hemorrhage begins to increase.<sup>25</sup> The clinician performing a delivery will routinely inspect the placenta carefully to ensure there is no evidence of tearing to suggest incomplete passage.<sup>29</sup> However, clinical assessment is unable to exclude retained POC in all cases.

Retained POC is generally diagnosed by US.<sup>24</sup> In cases of retained POC, US will demonstrate an echogenic mass within the uterus and/or a thickened endometrial stripe.<sup>29</sup> The most sensitive finding for retained POC is

a thickened endometrial echo complex, with “thickened” defined as >8 mm.<sup>24</sup>

### Initial Management

When retained POCs are suspected after the third stage of labor (ie, placental delivery), manual attempts at removal of the placenta are typically performed by the obstetrician.<sup>29</sup> For cases where retained POC are still suspected, curettage is often immediately performed.<sup>29</sup> Patients presenting to UC with bleeding where there is concern for retained POC based on US findings will generally be treated with dilation and curettage via hysteroscopy.<sup>25</sup> Thus, the initial UC management consists of coordination of US and obstetric evaluation with the patient’s treating specialist or ED referral if this cannot be coordinated expediently.

### Indications for Referral to Emergency Department

Patients with signs of significant blood loss (eg, hypotension, tachycardia, syncope) should be sent to the ED via ambulance. In stable patients, ED referral can often be avoided through discussion with the patient’s obstetric specialist. This should involve a plan for immediate or rapid US acquisition and obstetric clinic or labor and delivery unit evaluation.

### Other Causes of Postpartum Vaginal Bleeding and Discharge

In addition to the causes of postpartum vaginal and discharge bleeding discussed previously in this review, women may also experience bleeding from structural causes or systemic causes. The American College of Obstetricians and Gynecologists has adopted the acronym PALM-COEIN from the International Federation of Gynecology and Obstetrics to categorize the wide variety of abnormal uterine bleeding (AUB).<sup>32,33,34</sup>

The “PALM” etiologies include structural causes of AUB:

- Polyps
- Adenomyosis
- Leiomyomas
- Malignancy (or hyperplasia)

The “COEIN” etiologies include physiologic or systemic causes:<sup>35</sup>

- Coagulopathy (the fourth “T” in the mnemonic—for “thrombin” related issues)
- Ovulatory dysfunction, typically related to endocrine disorders or at the extremes of reproductive age (eg, polycystic ovary syndrome, thyroid dysfunction)
- Endometrial abnormalities (eg, inflammatory or

infectious endometritis, disorders of endometrial hemostasis, such as those that occur with endometrial atrophy)

- Iatrogenic causes (eg, hormonal contraceptives, hormone therapy, adverse effects from medications such as anticoagulants)
- Not otherwise classified (eg, bleeding from arteriovenous malformations, uterine sarcoidosis, or other rare conditions)

Additionally, other uterine and vaginal disorders leading to bleeding and/or discharge unrelated to the delivery (eg, sexually transmitted infections [STIs], bacterial vaginosis, polyps, fibroids, and cervical ectopion) may still occur, especially in patients further into the postpartum period.<sup>35</sup> In the late postpartum period (ie, after 4-6 weeks post-delivery), it is important to expand the history to determine if patients warrant testing for STIs or vaginitis or outpatient gynecologist referral, as they may have completed all scheduled follow-up with their obstetric specialist by this time.

### Clinical Scenario Conclusion

The UC clinician consulted with the obstetrician (OB/GYN) on-call covering the group where she received her pregnancy care. Based on the UC clinician’s description of relevant findings, the OB/GYN felt the patient was experiencing a normal amount of vaginal bleeding consistent with the lochia expected after C/S. The patient was therefore instructed simply to monitor her symptoms and follow-up as scheduled with her OB/GYN. She was counseled on the signs of significant postpartum hemorrhage and endometritis, which would warrant immediate reassessment.

### Summary and Key Points for Urgent Care Clinicians

- Make attempts to consult with the patient’s obstetric specialist early in the evaluation of any postpartum complaint. The OB/GYN will usually appreciate the call and can offer guidance for what should be addressed in UC and where and when the patient should be seen for follow-up.
- Postpartum lochia initially presents as red-brown discharge or spotting, termed lochia rubra. The lochia gradually lightens in color and lessens in quantity but may persist for up to 6 weeks postpartum.
- For normal postpartum lochia presentations, patients should be reassured and reminded to avoid tampons (ie, pelvic rest) until cleared by their OB/GYN.

- Vaginal bleeding or discharge in the postpartum period may be normal lochia, but endometritis should be suspected if it does not conform to the expected pattern of progression, is foul-smelling, or is accompanied by uterine tenderness and/or fever.
- Endometritis is a clinical diagnosis; recommended treatment consists of hospitalization and IV antibiotics.
- Significant, delayed postpartum hemorrhage (ie, soaking through pads frequently or passing clots) is suggestive of possible retained POC.
- Retained POC is diagnosed via US and treated with dilation and curettage.
- Ambulance transport should be used in postpartum patients with bleeding or discharge if they have signs of shock related to infection or hemorrhage (eg, hypotension, mental status changes, significant fever, and/or tachycardia). ■

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