



Learn simply

First-trimester Vaginal Bleeding

Passion profession same

Reported first-trimester vaginal bleeding

- Confirm pregnancy¹
- Take a detailed history and perform a physical examination²
- Consider differential diagnosis of first-trimester vaginal bleeding³

Perform an ultrasound

- **ALWAYS EXCLUDE ECTOPIC PREGNANCY⁴**
- Confirm pregnancy viability and gestational age

Is the bleeding excessive and/or is the woman hemodynamically unstable?

Yes

Initiate treatment without delay

- **Admit to hospital**
- **Place 2 large-bore iv lines**
- **√CBC, T&S, coagulation screen⁵**
- **Urgent anesthesia consultation**
- **Fluid and blood product resuscitation**

Consider immediate surgical management⁶

Threatened abortion

- Outpatient management
- Consider bedrest, pelvic rest until bleeding stops for >1 week
- Regular prenatal visits
- Serial ultrasound exams for fetal well-being and growth

Incomplete or missed abortion

- Both expectant management as an outpatient and D&E are reasonable options⁷

Molar pregnancy

- D&E is both diagnostic and curative
- **Serum β -hCG levels should be followed until < assay** (to exclude persistent trophoblastic disease, choriocarcinoma)

No

Initial management

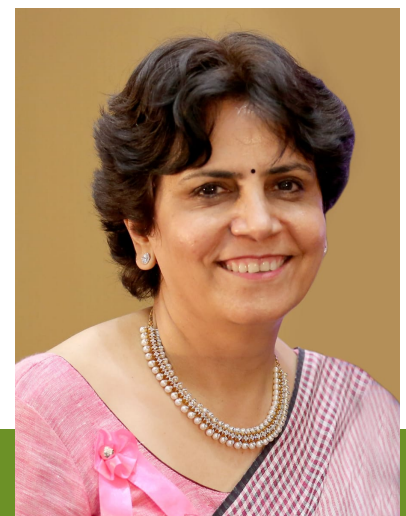
- \sqrt CBC and T&S⁵
- Consider iv access
- Consider anesthesia consultation
- Consider fluid resuscitation

Subsequent management depends on the diagnosis

Ectopic pregnancy

- Given its unpredictable nature, *expectant management is not recommended*
- **Both medical and surgical treatment options are available;** the optimal treatment depends on the clinical situation and patient preference⁸

1. A positive serum β -hCG (>5 mIU/mL) confirms the presence of trophoblast tissue (although, in the case of complete abortion, the tissue may already have been passed). Very high levels of β -hCG suggest a molar pregnancy. Very rarely, β -hCG may be a marker of an ovarian tumor.
2. Bleeding in the first trimester is common; 15-20% of clinically diagnosed pregnancies end in miscarriage. The timing, extent, and severity of the bleeding should be documented. Maternal vital signs should be taken to rule out hemodynamic instability. Speculum examination allows visualization of the cervix and potentially the location of products of conception. Bimanual exam may help estimate gestational age and identify an adnexal mass or tenderness.
3. The differential diagnosis of first-trimester vaginal bleeding includes:
 - (i) a threatened abortion (defined as a viable intrauterine pregnancy <20 weeks with a closed cervix), incomplete abortion (viable intrauterine pregnancy with an open cervix), missed abortion (nonviable intrauterine pregnancy) or complete abortion (complete passage of an intrauterine pregnancy and closure of the cervix);
 - (ii) ectopic pregnancy (implantation of the pregnancy outside the uterine cavity, including fallopian tubes, cornua, cervix or ovary);
 - (iii) gestational trophoblastic disease (including molar pregnancy); and
 - (iv) less commonly, an "implantation bleed," a cervical or vaginal lesion (such as a cervical erosion or postcoital bleeding), and rectal bleeding (hemorrhoids).



1. All first-trimester vaginal bleeding should be regarded as an ectopic pregnancy until proven otherwise. Failure to promptly diagnose and manage an ectopic pregnancy can be catastrophic.
2. Ectopic pregnancy accounts for 10% of all pregnancy-related maternal deaths, and is the most common cause of maternal death in the first half of pregnancy. Abdominal pain, absence of menses, and irregular vaginal bleeding (usually spotting) are the main symptoms.
3. The most common presenting sign in a woman with symptomatic ectopic pregnancy is abdominal tenderness, and 50% will have a palpable adnexal mass. Ruptured ectopic pregnancies cause shoulder pain in 10-20% of cases as a result of diaphragmatic irritation from the hemoperitoneum.
4. Profound intraperitoneal hemorrhage can lead to tachycardia and hypotension. The amount of vaginal bleeding is not a reliable indicator of the severity of the hemorrhage since bleeding is often concealed.
5. The primary goal of ultrasound is to confirm the presence of an intrauterine pregnancy, which should be evident by transabdominal ultrasound at a serum β -hCG level of ≥ 6000 mIU/mL and by transvaginal ultrasound at a serum β -hCG level of ≥ 1200 mIU/mL (approximately 5 weeks from LMP). The absence of an intrauterine pregnancy on ultrasound with a positive serum β -hCG level should raise the suspicion of an ectopic pregnancy. Only rarely will the ectopic pregnancy itself be visible on ultrasound. The presence of free fluid (blood) in the abdomen suggests a ruptured ectopic or ruptured ovarian cyst.



1. If the patient is Rh negative, she should receive anti-Rh[D]-immunoglobulin (RhoGAM) 300 µg IM to prevent Rh isoimmunization.
2. The nature of the surgical procedure will depend on the diagnosis: (i) D&E if an incomplete abortion is suspected; and (ii) laparoscopy and/or explorative laparotomy if a ruptured ectopic pregnancy or ovarian cyst is diagnosed.
3. If the patient is hemodynamically stable with minimal bleeding, expectant management on an outpatient basis is reasonable and will likely avoid a surgical procedure. Only 10% of such women will subsequently require a D&E for excessive vaginal bleeding.

Goals of management for an ectopic pregnancy are to prevent maternal mortality, reduce morbidity, and preserve fertility. Once the diagnosis is confirmed, expectant management is rarely justified. Most (95%) ectopic pregnancies occur in the fallopian tubes. Treatment options for such pregnancies include:



Methotrexate (MTX) (50 mg/m² im) is an effective treatment for patients who are hemodynamically stable without evidence of rupture, who are compliant, and who meet the selection criteria (below). The dose is administered on day 1, but serum β -hCG levels typically continue to rise for several days thereafter. An acceptable response to MTX therapy is defined as a $\geq 15\%$ decrease in serum β -hCG levels from day 4 to day 7. β -hCG levels should thereafter be followed weekly. Most cases will be successfully treated with one dose of MTX, but up to 25% will require two or more doses if the serial β -hCG levels plateau or rise. Patients with a gestational sac > 3.5 cm, starting β -hCG > 6000 mIU/mL or fetal cardiac motion evident on ultrasound are at higher risk for MTX failure and should be considered for surgical management. Side-effects of MTX are generally mild and include nausea, vomiting, bloating, and transient transaminitis. Increased abdominal pain will occur in up to 75% of patients due to tubal abortion and serosal irritation or distension of the fallopian tube. All MTX patients should be closely monitored due to the risk of rupture and hemorrhage.

Surgical therapy. Definitive surgery (salpingectomy) is the treatment of choice for women who are not hemodynamically stable or where the fallopian tube is significantly damaged. Conservative surgery may be appropriate for the hemodynamically stable patient. Laparoscopic salpingostomy and removal of the products of conception are the most common conservative surgical procedure. The injection of vasopressin prior to the linear incision can be used to decrease bleeding. Serum β -hCG levels must be followed until undetectable in conservatively managed patients, because 5-10% will develop a persistent ectopic pregnancy which may require further treatment with MTX. Failure to achieve hemostasis is the only indication for oophorectomy.

