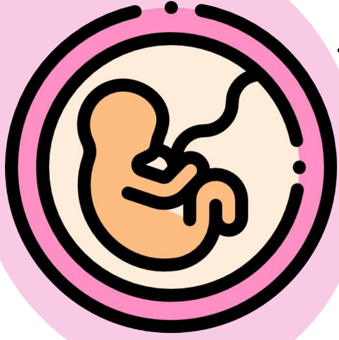

437 Team: Obstetrics and Gynecology

Bleeding in Early Pregnancy (Abortion)

Objectives:

- ➢ Develop a differential diagnosis for first trimester vaginal bleeding
- ➢ Differentiate the types of spontaneous abortion (missed, complete, incomplete, threatened, septic)
- ➢ List the causes of spontaneous abortion
- ➢ List the complications of spontaneous abortion
- ➢ Discuss treatment options for spontaneous abortion

References:

- ➢ Kaplan USMLE step 2 CK - Obstetrics and Gynecology
- ➢ Online Meded videos
- ➢ Team 435

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Color index: Important | Notes | Meded | Video-Case

Editing file link

Definitions:

Spontaneous abortion(miscarriage):

- loss of pregnancy before 20 weeks' gestation. (in Kaplan 12 weeks')
- It affects up to 20% of recognized pregnancies.
- About 80% of spontaneous abortions occur in 1st 12 weeks. The intrauterine demise of the embryo or the fetus before it attains viability (< 20 weeks) as evident from ultrasonography depicting either an empty gestational sac or a fetus without evidence of fetal heart activity within the first 12 weeks

Stillbirth:

- loss of pregnancy after 20 weeks' gestation (also called intrauterine fetal demise)

Recurrent pregnancy loss :

- two or more miscarriages occurring before 20 weeks' gestation

Early pregnancy bleeding:

- Early pregnancy bleeding is bleeding that occurs **before 12 weeks' gestation.**
- The **most common** cause of early pregnancy loss is fetal in origin.

DDx for vaginal bleeding:

- Spontaneous abortion
- Viable intrauterine pregnancy
- Ectopic pregnancy

When a female presents with vaginal bleeding in 1st trimester you have to asses the following:
Site of pregnancy → is it viable or not? → serial of beta- HCG values → transvaginal ultrasound
(will be cover with details through the Lecture)

Etiology of Abortion (spontaneous abortion) :

Fetal causes :

- **Cytogenetic etiology**: Most early pregnancy losses are caused by gross chromosomal abnormalities of the embryo or fetus.
- **Mendelian etiology**: Other losses may be caused by autosomal or X-linked dominant or recessive diseases.
- Abnormal placentation (second trimester miscarriage).

Maternal causes:

- Chromosomal abnormalities in first trimester miscarriages: (trisomy 18 “Edward’s syndrome”, trisomy 13 “Patau syndrome” and trisomy 21 “down syndrome”) 50% of early recognized spontaneous abortions are due to chromosomal abnormalities.
- Increased maternal age(>35 called Advanced maternal age) which will increase the risk of chromosomal abnormalities.
- Abnormalities of the reproductive organs
    - Septate uterus
    - Uterine leiomyomas
    - Uterine adhesions
    - Cervical incompetence

- **Systemic diseases** (second trimester miscarriage)
    - Including diabetes mellitus, hyperthyroidism, hypothyroidism, genetic disorders, infections, hypercoagulability (e.g., antiphospholipid syndrome, which is associated with recurrent miscarriage)
- Antiphospholipid syndrome (second trimester miscarriages): An uncommon cause of early pregnancy loss. Some women with SLE produce antibodies against their own vascular system and fetoplacental tissues. **Treatment is** subcutaneous heparin
- Less well-defined causes include: history of spontaneous abortion, smoking, having an IUD placed and uncontrolled diabetes.

Miscellaneous :

- Trauma
- Iatrogenic (e.g., amniocentesis or chorionic villus sampling)
- Environmental (exposure to toxins such as drugs or maternal smoking during pregnancy)
- Unknown

*Note that caffeine consumption, sex and exercise are not risk factors for miscarriage.

How to approach ?

1- Doppler ultrasound is always used to detect fetal heart beats during prenatal visits. Absence of fetal cardiac activity should raise suspicion of spontaneous abortion

2-Pelvic examination should be performed in all cases of vaginal bleeding. In cases of suspected spontaneous abortion, visualization of the **cervix** is necessary to confirm that the source of bleeding is uterine.

3- Transvaginal ultrasound is the best imaging test once there is absence of fetal cardiac activity or confirmed uterine bleeding. Findings consistent with a spontaneous abortion include:

- Absence of fetal cardiac motion
- Abnormalities of the yolk sac or gestational sac

The time of identification of the following structures by transvaginal ultrasound:

- Gestational sac at → 4.5-5 weeks of EGA
- Yolk sac at → 5-6 weeks of EGA
- Fetal pole with cardiac activity at → 5.5-6 weeks of EGA

4- A downtrending **B-hCG** is consistent with a failed pregnancy. B-HCG should rise 50% in 48 hours (normally) , if it is decreasing it means the pregnancy is not viable and you should think of either (Spontaneous abortion , ectopic pregnancy).

Rule of 10s: Beta - HCG peaks at approximately **10th** week of EGA at approximately **100.000** then it decreases **at term** at about **10.000**

- **Speculum exam** is essential to rule out vaginal or cervical lesions that are causing bleeding.
- **Molar** and **ectopic pregnancy** should be ruled out in all patients with early pregnancy bleeding.

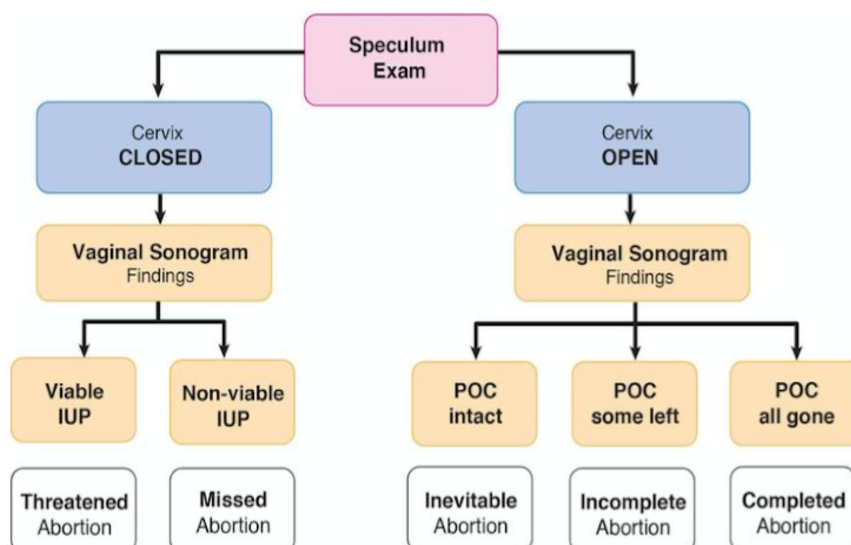


Figure I-2-1. Approach to Early Pregnancy Bleeding

POC = Products of conception **Products of conception** is a medical term used to identify any tissues that develop from a pregnancy.
IUP = An intrauterine **pregnancy**

Types of abortion:

- You should always start by rolling out Ectopic and Septic pregnancy.

	Opened Cervix	Closed Cervix
Products passed	**Incomplete abortion:** it's when some of the products have passed and cervix is still opened.	**Complete abortion:** it's when all products have passed without the need for any intervention and cervix is closed.
Products didn't pass	**Inevitable abortion:** it's when cervix is open but none of the products have passed.	**Missed abortion:** there's been a fetal demise usually for a number of weeks but products haven't been expelled and cervix is closed.

Type	Definition	Diagnosis	Management
Missed abortion	-When the fetus has died but is retained in the uterus, usually for more than 6 wks. -Sonogram finding of a nonviable pregnancy without vaginal bleeding, uterine cramping, or cervical dilation.	- Gradual disappearance of pregnancy signs and symptoms. **- Brownish discharge.** - Pregnancy test may remain + for 3-4 wks. - U\S: no fetal heartbeat, empty sac.	Scheduled suction D&C, conservative management awaiting a spontaneous completed abortion, or induce contractions with misoprostol (PGE 1). Can be complicated by septic abortion and DIC. so better to be evacuated surgically to minimize the risks
Threatened abortion	-Pregnancy is complicated by vaginal bleeding before 20 weeks in absences of other explanations. -Sonogram finding of a viable pregnancy with vaginal bleeding but no cervical dilation (50% of these pregnancies will continue to term successfully).	- Mild bleeding. - Mild pain. - Cervix is closed. internal os - U\S + bimanual all fine. - Patient denies passing tissue (Products of conception : fetus, placenta and membranes)	- Often the cause is implantation bleeding. - Observation and **reassurance.** -Rest - Progesterone -Anti-D if Rh-

Inevitable abortion	Pregnancy is complicated by both vaginal bleeding and cramp-like lower abdominal pain	- Heavy bleeding with clots. - Severe pain. - Cervix is open. **- Products are felt in cervical canal.** - No passage of tissue. - Uterus is smaller than the gestational age	- IV fluid. - Cross match blood. - Oxytocin - Syntocinon IV infusion - Emergency evacuation of the uterus. - Anti-D if Rh-
Incomplete abortion	vaginal bleeding and uterine cramping leading to cervical dilation, with some, but not all, POC having been passed. Usually occurs >12 Week gestation	- Often described by the woman as looking like **pieces of skin or liver** - **Open cervix.** - U\S: retained products of conception.	Emergency suction D&C if bleeding is heavy to prevent further blood loss and anemia. Otherwise conservative management waiting a spontaneous completed abortion or induce contractions with misoprostol PGE 1.
Complete abortion	vaginal bleeding and uterine cramping have led to **all** POC being passed. This is confirmed by a sonogram showing no intrauterine contents or debris. Usually occurs < 12 Week gestation	- **Heavy bleeding + clots.** - Severe pain. - **Passage of tissue.** - Stoppage of pain and bleeding. - Cervix is closed - Uterus is smaller than the gestational age. - Pregnancy symptoms abate. (Pregnancy test becomes -ve)	Conservative if an intrauterine pregnancy had been previously confirmed. Otherwise, serial β-hCG titers should be obtained weekly until negative to ensure an ectopic pregnancy has not been missed.
Septic abortion	Uterine infection at any stage of pregnancy. Caused by: delay evacuation, incomplete surgical evacuation followed by vaginal organisms after 48 hours.Usually preceded by a predisposing factor such as another type of abortion and opening of the cervix.	- Fevers, chills. - Lower abdominal discomfort - Foul vaginal discharge. - Cervical tenderness	- Oral broad spectrum antibiotics.

Treatment options of spontaneous abortion :

Conservative :

Watch carefully and wait.

Medical :

Vaginal misoprostol (it's a prostaglandin analogue used to induce labour)

Surgical :

- Dilatation bc internal OS is closed and curettage (Any women who's Rh -ve and undergoing D&C should be given RhoGAM If the husband is Rh+ . D&C may cause adhesions).

-Manual vacuum aspiration

-Avoid over curettage, it can result in Asherman syndrome "Amenorrhea"

Complications of spontaneous abortion :

Hemorrhage :

If a patient presents with heavy vaginal bleeding with retained products of conception then a Surgical evacuation should be performed .

Endometritis :

Should be treated with oral antibiotics.

Septic abortion :

Signs and symptoms of septic abortion include fever, chills, lower abdominal discomfort and foul vaginal discharge

Online meded notes:

- intra uterine pregnancy → threatened abortion → Inevitable abortion → incomplete abortion → complete abortion (these are the phases of abortion)
- Threatened abortion may be reversed by putting the patient on bedrest.
- How do we decide what phase of abortion is the mother at?

Depending on:

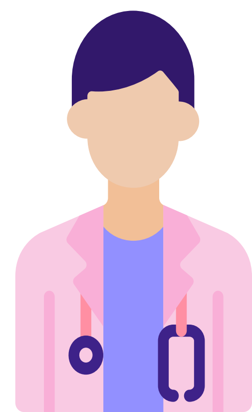
1) Passage of contents
2) Cervical os
3) Ultrasound

	Passage of contents	OS	U/S
IUP	no	closed	Live baby
Threatened Patient will have vaginal bleeding	no	closed	Live baby
Inevitable	no	open	Dead baby
Incomplete	yes	open	Retained parts
Complete	yes	closed	Nothing

- In missed abortion, there will be no passage of contents and the OS is closed but we will see a dead baby on U/S

Missed abortion is managed by:

1) Misoprostol (first trimester)
2) Oxytocin
3) If U/S shows remaining contents D+C can be done



Teaching case (video case)

A 32 year-old G1 woman presents with a positive urine pregnancy test at 9 weeks 4 days from start of last normal menstrual period. She reports 5 days of moderate painless vaginal bleeding and chills. Physical examination shows a temperature of 101.5° orally, pulse 95, and BP 95/60 with normal bowel sounds, no rebound, and 5/10 suprapubic tenderness. Pelvic exam shows moderate amount of blood in vagina with a closed 5/10 tender cervix and an 8/10 ten- der uterus. No adnexal masses or tenderness. Lab data shows a serum β-hCG level of 6,500 mIU/ml and ultrasound shows a gestational sac in the uterus with no fetus seen. The ovaries and tubes appear normal.

Questions

1- What are the different types of spontaneous abortion?

- Threatened abortion
- Incomplete abortion
- Inevitable abortion
- Complete abortion
- Missed abortion
- Septic abortion
- Recurrent abortion

2- Which type or types is most likely in this case and why?

- **Septic abortion** Because she has :Fever, Tenderness, Hypotension and Tachycardia

3- Why does this patient have a fever and tenderness and what needs to be done about it?

The fever originates from infected **non-viable products of conception.** The patient needs immediate evacuation of the uterus and **antibiotics** in order to prevent worsening infection, sepsis and possible septic Shock.

4- If this patient was 6 weeks pregnant with no fever or tenderness, had an β-hCG level of 700 mIU/ml and a negative ultrasound with no evidence of a gestational sac, what would be your differential diagnosis if she had a small amount of bleeding and no fever or tenderness?

- **The first diagnosis to exclude would be ectopic pregnancy.** A closed cervical os could indicate either a threatened abortion with a gestation which was so early that it could not be visualized on ultrasound or completed abortion in which the products of conception have already passed though this is less likely given the small amount of bleeding she has had. A missed abortion occurs when the patient is asymptomatic but has a non-viable pregnancy, as diagnosed by falling **β**-hCG levels or ultrasound imaging.

5- How would you make the diagnosis in question 4?

If no intrauterine gestational sac can be seen on ultrasound, order serial beta β-hCGs since the initial B-HCG level is too low for ultrasound to show an intrauterine pregnancy (IUP) (which usually is seen onvaginal ultrasound at 1500-2000 mIU/ml β-hCG). If this is a viable intrauterine pregnancy, the β-hCG level usually will increase at least 66% when repeated in 48 hours. If it does not, then a viable intrauterine pregnancy is unlikely. If the patient is stable, repeated quantitative β-hCG levels can be performed and followed until negative. Diagnostic D&C can be performed as well once viable IUP has been ruled out.Once a diagnosis of ectopic or abnormal intrauterine pregnancy is confirmed, appropriate treatments can be implemented.

6- For a patient with any type of abortion, what blood test is essential to do?

- **Blood typing for Rh factor is essential followed by RHoGAM injection if patient is Rh negative.** This is vital to prevent Rh sensitization in a subsequent pregnancy.
- CBC: to assess for possible anemia.

7- What are the causes of spontaneous abortion?

- **Fetal chromosomal abnormality** (the most common in the first trimester), Possible causes include infection, uterine malformation (septate uterus), immunologic dysfunction, diabetes, thyroid disease, subclinical infection, trauma, as well as teratogenic or environmental exposures. (these mostly are the causes in the second trimester)

8- What are treatment options for spontaneous abortion?

- For incomplete, inevitable and missed abortions, management may include **expectant, medical or surgical** management. **We start with** Medical management with prostaglandins, or expectant management it may be associated with bleeding and still require surgical evacuation.if it's failed we will move to **Surgical management with dilation and curettage or manual vacuum aspiration which is more definitive.**