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Bleeding in early pregnancy (Ectopic)

Objectives:

- Define ectopic pregnancy.
- Identify the morbidity mortality rate of ectopic pregnancy.
- Mention the risk factors for ectopic pregnancy.
- Describe a diagnostic approach for ectopic pregnancy and highlight the importance of early
- diagnosis.
- Discuss the management of ectopic pregnancy.
- Differentiate between the obstetric and non-obstetrics causes of acute abdomen in pregnancy.

References*:* team 433, kaplan Step2 lecture note Obstetric and Gynecology 2018 , APGO video

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Introduction

DDx of Bleeding in the first trimester					
Viable intra-uterine pregnancy		**Non-viable intra-uterine pregnancy**		**Ectopic pregnancy**	
Physiologic implantation bleeding	Sub-chorionic Hemorrhage	Spontaneous abortion	hydatidiform mole	Ruptured ectopic pregnancy	Unruptured ectopic pregnancy

Ectopic Pregnancy: it's a pregnancy in which implantation has occurred outside of the uterine cavity. With an incidence of 1% of all pregnancies.

- The most common location of ectopic pregnancies is in the fallopian tube at the Ampullary portion (**Distal ampulla**). Other locations : ovaries, cervix, abdomen.

Risk factors: anything that obstruct or prevent migration of zygotes

1. **Pelvic inflammatory disease** (Most common); 3:1 ratio of Ectopic to intra-uterine pregnancy in case of 3 episodes of PID. (known causes of PID include STI & use of IUD)
2. **Personal history** of Ectopic pregnancy. (incidence jumps to 15% in these patients).
3. **History of tubal surgery** e.g. Tubal ligation.
4. History of chlamydial infection : cause tubal scarring, inflammation, and fibrin deposition.
5. Diethylstilbestrol [DES] exposure (Congenital).
6. Smoking : decrease cilia in fallopian tube.

Idiopathic: 50% of patients with Ectopic pregnancy don't have risk factors.

Signs and symptoms

Symptoms	Signs
A **triad of** : • Amenorrhea • Unilateral pelvic pain (after 6-8 menstrual cycle weeks) • Vaginal bleeding. Ruptured : these 3 + hemodynamically unstable	**Unruptured** : unilateral adnexal and cervical motion tenderness, increased uterine size (due to hormonal effect), no fever. **Ruptured** : 1. **Hypovolemia**: blood loss > hypotension and tachycardia. 2. **Peritoneal irritation**: Abdominal guarding and rigidity.

- **β-HCG** : will come out as +ve (>1,500 mIU[1]), done every 2-3 days.
- **Vaginal Sonography** : absence of intra-utrine pregnancy, may show adnexal mass.
    - Vaginal sonography is able to visualize an inrtauterine pregnancy by the 5th week where the level of β-HCG >1,500 mIU.
    - Abdominal sonography is able to visualize an inrtauterine pregnancy by the 6th week where the level of β-HCG >6,500 mIU.

Treatment:

- **Medical** :
    - **Methotrexate:** (MOA: folate antagonist "folate is vital for embryogenesis")
        - **Absolute contraindication:**
            - Hemodynamic instability
            - Liver or kidney abnormalities
            - Active lung disease
            - Breast feeding
            - Inability to comply with B-HCG follow up testing.
        - **Relative contraindication:**
            - Fetal cardiac activity
            - High B-HCG level (>5000 mIU)
            - Large ectopic size (>3.5cm)
            - No history of folic supplementation.
- **Surgical** :
    - Laparoscopy:
        - **Salpingostomy** : removing the ectopic pregnancy only preserving the oviduct.
        - **Segmental resection** : in case of isthmic tubal pregnancy
        - **Salpingectomy** : for patients with ruptured ectopic pregnancy and those with no desire for further infertility.
    - Laparotomy: preserved for ruptured ectopic pregnancy to stop the bleeding.

*Rh-negative women should be administered RhoGAM.

Follow up: weekly β-HCG for **patients treated with medical management + salpingostomy** to ensure there has been complete destruction of the ectopic trophoblastic villi.

[1] In normal pregnancy When B-HCG reach 1500-2000, a vaginal ultrasound should show an intrauterine pregnancy.

Case

A 36-year-old G1P0010 woman presents to the office with onset of **light vaginal bleeding**, which she feels is not her menstrual period, and **mild right lower quadrant pain**, which she rates as 2/10. The pain is intermittent and crampy, and is not associated with urination. There is no nausea or vomiting. The patient's last bowel movement was yesterday and was normal in consistency without blood or black color.

Her past medical history is notable for no allergies, no medications, and two hospitalizations. The first was eight years ago for lower abdominal pain which was **thought to be due to pelvic inflammatory disease** and which resolved with antibiotics. The second was for a **left ectopic pregnancy** that required surgical removal of her left tube.

Review of systems and family history are unremarkable. Social history reveals that she is mutually monogamous with a male partner without contraception.

Physical examination shows an anxious appearing female with a temperature of 99.2 ° F, orally, a BP of 105/62, and a pulse of 95. Examination of her abdomen reveals normal bowel sounds. There are no masses, organomegaly, distention, or rebound tenderness. She has **mild discomfort in the right lower quadrant**. Pelvic examination reveals **right adnexal tenderness** without adnexal masses. Uterus is of normal size and there is **discomfort on cervical motion**. The rectal exam is negative with heme negative stool.

1- What is the differential diagnosis for this patient? What aspects of her history and physical examination might lead you to be suspicious of an ectopic pregnancy? (*indicates signs or symptoms for teaching case)

DDx		
Ob	**Gyn**	**Others**
threatened abortion, incomplete abortion, ectopic pregnancy, and hydatidiform mole.	Ovarian cyst, Adnexal torsion, Pelvic inflammatory disease and Endometriosis	Appendicitis, Inflammatory bowel disease, Urinary tract infection, Bladder stone, pancreatitis.

Sign	Symptoms
Abdominal tenderness (80-90%) Adnexal tenderness (75-90%) Normal uterine size (70%) Adnexal mass (30-50%) Hypotension and tachycardia. Abdominal guarding and rigidity.	Abdominal pain (95-100%)* Abnormal uterine bleeding (65-85%)* Amenorrhea (75-95%)

2- What are the risk factors for ectopic pregnancy and which of these risk factors does the patient have (* indicate patient risk factors for teaching case)?

- Previous ectopic pregnancy (approx 10 times increase)*
- History of pelvic inflammatory disease, gonorrhea, or chlamydia infections* • History of previous gyn or abdominal surgery*
- Sterilization failure
- Endometriosis
- Congenital uterine malformation
- Assisted reproductive technology
- Older age (35-44 y/o are 3 times higher risk than younger women)*

3- Where can ectopic pregnancies occur and how frequently does this happen?

- Ampullary, 80%
- Isthmic, 12%
- Fimbrial, 5%
- Cornual/Interstitial, 2%
- Abdominal, 1.4%
- Ovarian, 0.2%
- Cervical, 0.2%

4- What initial test would you order for this patient to assist you in narrowing down your diagnosis?

- Quantitative β -hCG (in order to rule in or rule out an intrauterine pregnancy with transvaginal ultrasound, the β -hCG needs to be greater than 1500 mIU/ml)
- Key Learning Point: Confirming pregnancy is critical in the diagnosis of ectopic pregnancy. If this test is not ordered in a timely manner it can lead to significant morbidity and mortality.

5- If this patient's test is positive, what tests could be helpful in making a more definitive diagnosis?

• STAT CBC (to check for anemia that may indicate intra-abdominal bleeding)
• Transvaginal ultrasound to look for intrauterine pregnancy or extrauterine pregnancy (assuming that the quantitative β - hCG > 1500mIU/ml an ectopic pregnancy can be diagnosed if there is no evidence of an intrauterine pregnancy on transvaginal ultrasound)
• Serial Quantitative β -hCG levels: If the level is equivocal and the ultrasound is not helpful, monitoring the β -hCG level rise in 48 hours can aid in distinguishing between a viable intrauterine pregnancy and non-viable intrauterine pregnancy or ectopic pregnancy. In viable early intra-uterine pregnancy, hCG levels will usually rise by at least 66% in 48 hours. A β -hCG level less than 66% should cause suspicion of ectopic or non-viable intrauterine pregnancy. Patients who are stable where the diagnosis is unclear can be followed by serial β -hCG levels and, when levels have reached high enough for ultrasound to be effective, can have repeat ultrasounds
• Serum progesterone level may be helpful in some situations.

6- What options are available for the management of ectopic pregnancy?

Check for Rh status and give Rh negative women Rho-GAM to prevent isoimmunization

- Medical treatment: methotrexate
- Hemodynamically stable patient
- Quantitative β -hCG (higher failure rate if β -hCG is greater than 5,000 mIU/ml thus multiple doses may be required)
- No fetal heart beat seen outside of the uterus
- Ectopic gestation that is not too big (usually <3.5cm).
- Cooperative patient who will be sure to return for appropriate follow up and blood work
- Surgical treatment: Laparoscopy or Laparotomy with or without conservation of the fallopian tube
- Expectant management is an option if β -hCG is low and decreasing and patient is willing to take the risk of tubal rupture and hemorrhage.