EM CASE OF THE WEEK.

BROWARD HEALTH MEDICAL CENTER
DEPARTMENT OF EMERGENCY MEDICINE

BROWARD HEALTH
Care Warriors

Author: William Gunther, MS IV | Editors: Andrea Sarchi, DO ; Jason Mansour, MD

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Ectopic Pregnancy

A 35-year-old G2P2 female with past medical history of bilateral tubal ligation presents to the ED in severe distress secondary to LLQ abdominal pain. She has never experienced these symptoms prior to this episode. The patient states that the pain began suddenly while getting ready for bed and is a 10/10, stabbing in quality. She denies any fever, chills, vomiting, bowel habit changes, or recent travel. Vitals are 143/76, pulse 97 bpm, 99% 02 sat on room air. On physical exam, the patient is writhing in pain and heavily resistant to examination. She admits to severe abdominal tenderness, worse in LLQ. States she has regular unprotected sexual activity and believes her last menstrual period was about a month ago. Transabdominal US ordered in the ED is indeterminate. Which of the following beta-hCG levels will confirm your diagnosis?

A. <2000 IU/L

B. 2500-4800 IU/L

C. >5000 IU/L

D. No beta-hCG level can confirm or rule out this diagnosis

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An ectopic pregnancy is defined as any pregnancy that takes place outside of the uterus, 98% of which take place inside the fallopian tube. Other locations are in the ovary, abdomen, or a caesarian scar.

EM Case of the Week is a weekly "pop quiz" for ED staff.

The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.

BROWARD HEALTH MEDICAL CENTER

Department of Emergency Medicine
1625 SE 3rd Avenue
Fort Lauderdale, FL 33316

Warriors

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The correct answer is **D, No beta-hCG level can confirm or rule out this diagnosis.** As stated in the September 2012 Annals of Emergency Medicine:

"Level B recommendations - Do not use the beta-hCG value to exclude the diagnosis of ectopic pregnancy in patients who have an indeterminate ultrasound."

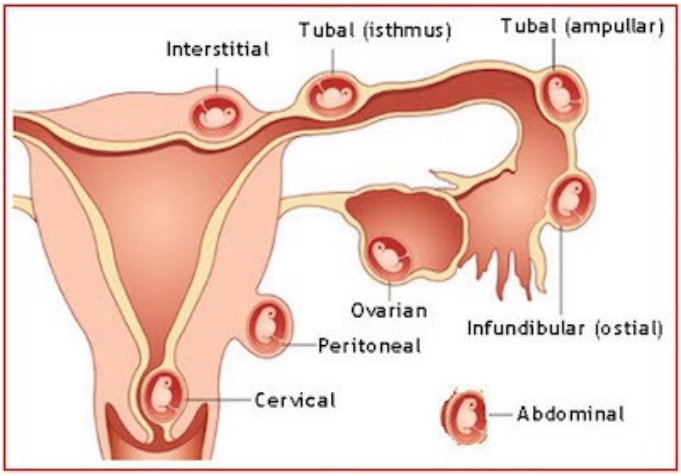
Diagnosis of ectopic pregnancy requires the combination of transvaginal US and hCG measurement. hCG cannot distinguish between an intrauterine pregnancy (IUP), failing/failed IUP, or ectopic pregnancy. The Journal of Emergency Medicine presented two cases of ruptured ectopics with negative hCGs and it has been estimated that up to 1% of ruptured ectopics present with negative quantitative serum beta-hCG.

Etiology

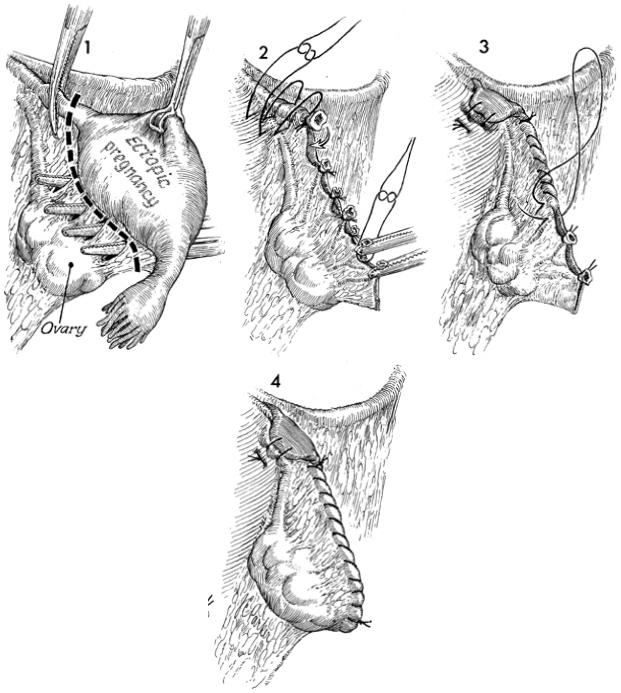
Causes can vary, but in general ectopic pregnancy results from abnormal implantation of the egg in the fallopian tube. This can be due to a variety of factors, including history of pelvic inflammatory disease, IUD use, history of tubal ligation, cigarette smoking, or anatomic variance.

Diagnosis

Ectopic pregnancy is responsible for 9% of all pregnancy-related deaths, thus making its early diagnosis vital to decreasing morbidity and mortality, as well as preserving reproductive function. Classically, patients can present with the "triad" of amenorrhea, abdominal pain, and irregular vaginal bleeding. However, less than 50% of patients present with all 3 clinical features, and the AAFP recommends no physical exam finding (or lack thereof) be used to rule out an ectopic diagnosis. Ultrasound is the test of choice in the ED, with a transvaginal US + beta hCG level >1500 nearly 100% specific for an ectopic. It was believed that women with an hCG <1500 could be sent home and trended over several days until the pregnancy becomes visible on US, but patients have been found ruptured with beta-hCG levels <100.



The different locations of ectopics (Via http://dfcmopen.com)



Salpingectomy (Via atlasofpelvicsurgery.com)

For a list of educational lectures, grand rounds, workshops, and didactics please visit ***BrowardER.com*** and **click** on the ***"Conference"*** **link**.

All are welcome to attend!

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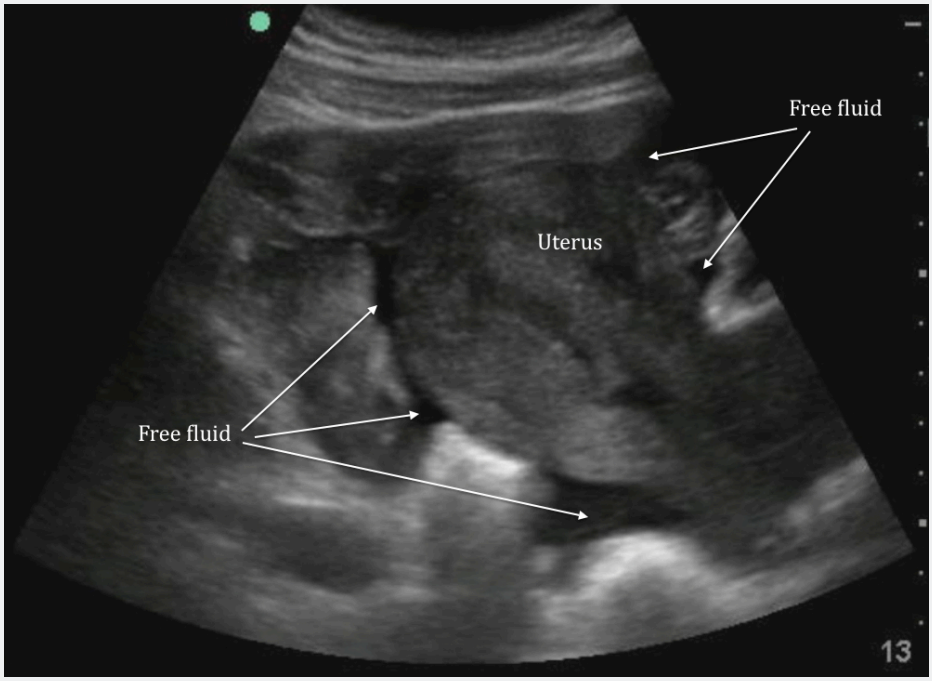

Appearance of ectopic on US (Via em.emory.edu)

Treatment

Hemodynamic stability comes first and foremost, as patients are able to decompensate very quickly after rupture. Medical treatment with methotrexate, a folic acid antagonist, is indicated for stable patients with beta-hCGs <5000, no fetal cardiac activity, and ectopic size <3.5-4 cm on US. Surgical intervention with salpingectomy or salpingostomy is indicated for unstable patients, those with methotrexate contraindications, those with ongoing or impending rupture, or those who desire concurrent sterilization procedure.

Take Home Points

- Ectopic pregnancy requires high levels of suspicion in all females of childbearing age who present to the ED with vaginal bleeding, abdominal pain, or amenorrhea.
- Be aware of risk factors for ectopic pregnancy such as PID, tubal procedures, or previous ectopic pregnancies.
- Beta-hCG must be used in conjunction with transvaginal US; it is not a good indicator of diagnosis or prognosis when used alone.
- Hemodynamically unstable patients go immediately to the OR, but evaluating stable patients for methotrexate therapy can save them post-operative complications and preserve future fertility.

ABOUT THE AUTHOR

This month's case was written by William Gunther. William is a 4th year medical student from Nova Southeastern University College of Osteopathic Medicine. He completed his Emergency Medicine rotation at Broward Health North in September 2016. William is currently applying to residency and plans a career in Family Medicine after graduation.

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