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EM CASE OF THE WEEK

BROWARD HEALTH MEDICAL CENTER DEPARTMENT OF EMERGENCY MEDICINE

An ectopic pregnancy (EP) occurs when a fertilized ovum implants outside of the endometrial lining of the uterus. Although it comprises only 2% of all pregnancies, the incidence has been on the rise. It is the third leading cause of maternal death, responsible for 6% of maternal mortality. Early diagnosis in the ED can save lives!

EM CASE OF THE WEEK

EM Case of the Month 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.

Where's Waldo?

A 19yo G2P0 woman at 7 weeks gestational age by LMP complains of vaginal spotting. She denies passage of tissue per vagina, any trauma, or recent intercourse. Her past medical history is significant for pelvic infection approximately 3 years ago. She had used an oral contraceptive agent 1 year previously. On physical examination her BP is 100/60mm Hg, HR is 90 bpm, and she is afebrile. The abdomen is non-tender with normoactive bowel sounds. On pelvic examination the external genitalia are normal. The cervix is closed and non-tender. The uterus is 4 weeks' size, and mild adnexal tenderness is noted. The quantitative Beta hCG is 2300mIU/mL (up from 2000mIU/mL just 2 days prior). There is no IUP seen on transvaginal sonogram.

Which of the following is true regarding this patient?

A.) The patient has a spontaneous abortion and needs a stat dilation and curettage.

B.) The patient should have a OBGYN consult as she may have an ectopic pregnancy.

C.) No clear conclusion can be drawn from this information, and the β- hCG needs to be repeated in 48 hours.

D.) The woman has a threatened abortion and should be advised to take prenatal vitamins and follow up with OBGYN in a week.

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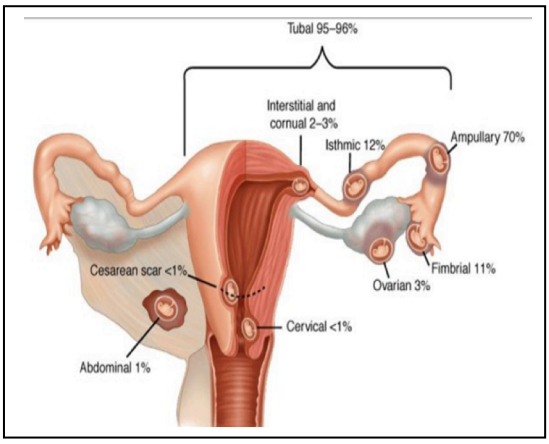

Take Home Points

- Classic triad: pregnancy, vaginal bleeding and abdominal pain
- Signs and symptoms can vary dramatically, although a thorough history and physical should be done, additional studies are necessary to locate the pregnancy (hormone levels and ultrasound)
- Lack of clinical or ultrasound signs of ectopic pregnancy does not exclude the disease
- Treatment can be medical or surgical. Diagnosis early on saves lives!

Ectopic Pregnancy

The correct answer is B, this patient may have an ectopic pregnancy. The rise in prevalence of ectopic pregnancies can be attributed to greater number of STD's (especially chlamydia), improved diagnostic tools, tubal factor infertility, women with delayed childbearing and an increase in the use of IUD's. However, although the number of cases has increased, the number of related-deaths has decreased 10-fold. This is thought to be secondary to diagnostic and treatment protocols, many of which take place in the emergency department. Mortality is directly related to severe hemorrhage from tubal rupture, but ultimately there is no recognizable correlation between tubal damage and prognosis for subsequent pregnancy.

Pathophysiology:
While the pathophysiology of an ectopic pregnancy isn't always agreed upon, it is thought that the lack of submucosal layer within the fallopian tube provides easy access for the fertilized ovum to burrow and thus allows for implantation. While the trophoblast erodes the muscular layer, maternal blood fills spaces within the adjacent tissue. Greater disruption of the wall is seen with isthmus implantation versus ampulla implantation.

Risk Factors:
Previous ectopic, prior tubal surgery, smoking >20 cigarettes per day, women >35 yo, Previous salpingitis (PID), 3+ spontaneous miscarriages, anatomic abnormalities, previous tubal ligation, previous tuboplasty, intrauterine device use, progestin-only pill, assisted reproductive techniques (IVF), lifelong sexual partners >5.

Differential:
Appendicitis, threatened or incomplete abortion, trauma, PID, UTI, ovarian torsion, ovarian cyst, gastroenteritis, dysfunctional uterine bleeding, uterine fibroids, endometriosis, cervicitis, tubo-ovarian abscess, diverticulitis, nephrolithiasis.

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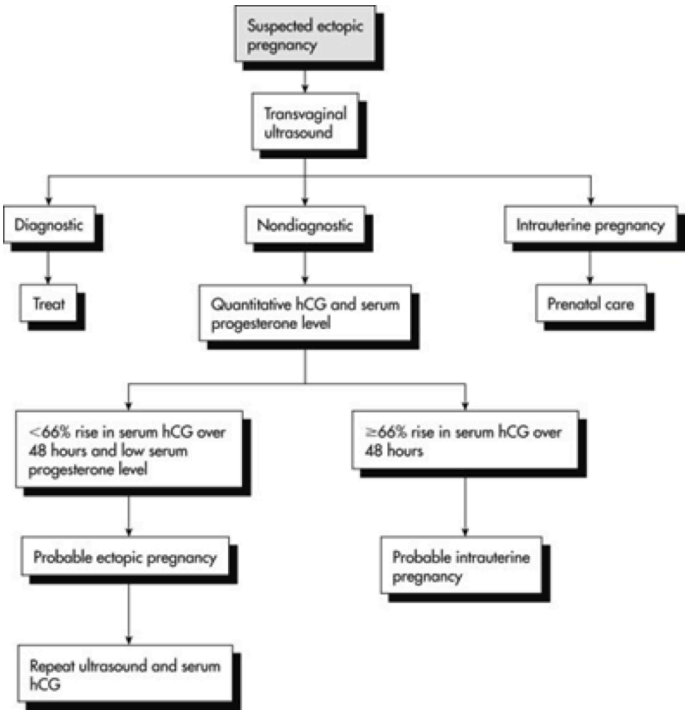
Signs and Symptoms:

The classic clinical picture of ectopic pregnancy is a history of delayed menses, followed by abdominal pain and vaginal bleeding in a patient with known risk factors. However, risk factors are not always present when patients present with signs and symptoms of an ectopic pregnancy. Abdominal pain is most commonly severe, peritoneal in nature, and constant. Shoulder pain indicates that there is free fluid in the peritoneal cavity and is suggestive of an ectopic pregnancy with hemorrhage. The pain of ectopic pregnancy can also be crampy, intermittent, or even absent and most commonly unilateral. Other signs and symptoms are: abnormal vaginal bleeding, symptoms of pregnancy, orthostatic hypotension, dizziness, syncope, adnexal tenderness/mass and cervical motion tenderness.

Diagnosis:



Hormones (Serial β-hCG)

- In normal pregnancies, this rises in a log-linear fashion until 60-80D after last menses (plateau at 100k) and level should double every 48 hours
- Inadequately rising levels indicate a dying pregnancy but provide no clue as to its location
- hCG < 1000mIU/mL = increase risk of ectopic 4x

Ultrasound

- Transabdominal: most useful for identification of IUPs with fetal heart activity and exclusion of EP
- Transvaginal: more sensitive (Gestational sac visible 4-5 week, yolk sac visible 5-6weeks)
- β-hCG discriminatory value ~1500-2000: lower limit at which a pregnancy can be reliably visualized via TVS. Absence of IUP with levels >2000 are indicative of EP.

Treatment:

*Medical: Methotrexate (folic acid antagonist that leads to decreased amount of purines/thymidylate and therefore an arrest in DNA/RNA/protein synthesis.)

- Contraindications: hemodynamic instability, inability to remain
complaint with post therapeutic monitoring, IUP, hepatic/renal/hematologic dysfunction, breastfeeding, immunodeficiency
- Predictors of success:
    1. hCG <5000
    2. EP size <3.5cm
    3. Fetal cardiac activity absent
- Dose: 50mg/m2 on day 1. If hCG doesn't decline by 15% from day 4-7 then an additional dose is indicated.
- hCG should be monitored week until undetectable

*Laparoscopy/laparotomy: No difference in the outcomes. Indicated if medical treatment is not indicated.

*Rho-Gam (50 micrograms) given if woman is Rh- and partner is either Rh+/unknown. Given to prevent

ABOUT THE AUTHOR:
This month's case was written by Kelly Thibert. Kelly is a 4th year medical student from NSU-COM. She did her emergency medicine rotation at BHMC in September 2015. Kelly plans on pursuing a career in Obstetrics and Gynecology after graduation.