emDocs

The EM Educator Series

The EM Educator Series: Ectopic Pregnany

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Case 1: A 25-year-old G1P0 female at 5 weeks presents with right lower quadrant pain. She has a history of previously treated Chlamydia.

Case 2: A 37-year-old female who recently underwent "fertility treatment" presents with abdominal pain.

Case 3: A 22-year-old female with her first pregnancy was asked to return "for repeat blood testing". She has abdominal pain and mild tachycardia.

Questions for Learners:

1. What risk factors are associated with ectopic pregnancy? How frequently do these occur?
2. How can ectopic pregnancy present?
3. What are pitfalls with laboratory and imaging tests?
4. What is the ED management of ectopic pregnancy?
5. Who is appropriate for discharge? What do we need to discuss with these patients?

Suggested Resources:

- Articles
  - CORE EM
  - emDocs
  - EM Updates
  - Emergency Medicine Cases Pitfalls
  - Emergency Medicine Cases Ectopic Pregnancy
  - US Probe
- Journal Articles
  - Emerg Med Pract
  - J Emerg Med
  - CJEM

Answers for Learners:

1. What risk factors are associated with ectopic pregnancy? How frequently do these occur?

Risk factors include prior ectopic, history of a tubal ligation or prior tubal surgery, pelvic inflammatory disease (PID), and infertility. ***Risk factors absent in almost half of patients.***

Risk Factor	Odds Ratio
Previous tubal surgery	21
Previous ectopic pregnancy	8.3
Diethylstilbestrol exposure	5.6
Previous PID	2.4 to 3.7
Assisted Fertility	2 to 2.5
Smoker	2.3
Previous intrauterine device use	1.6

2. How can ectopic pregnancy present?

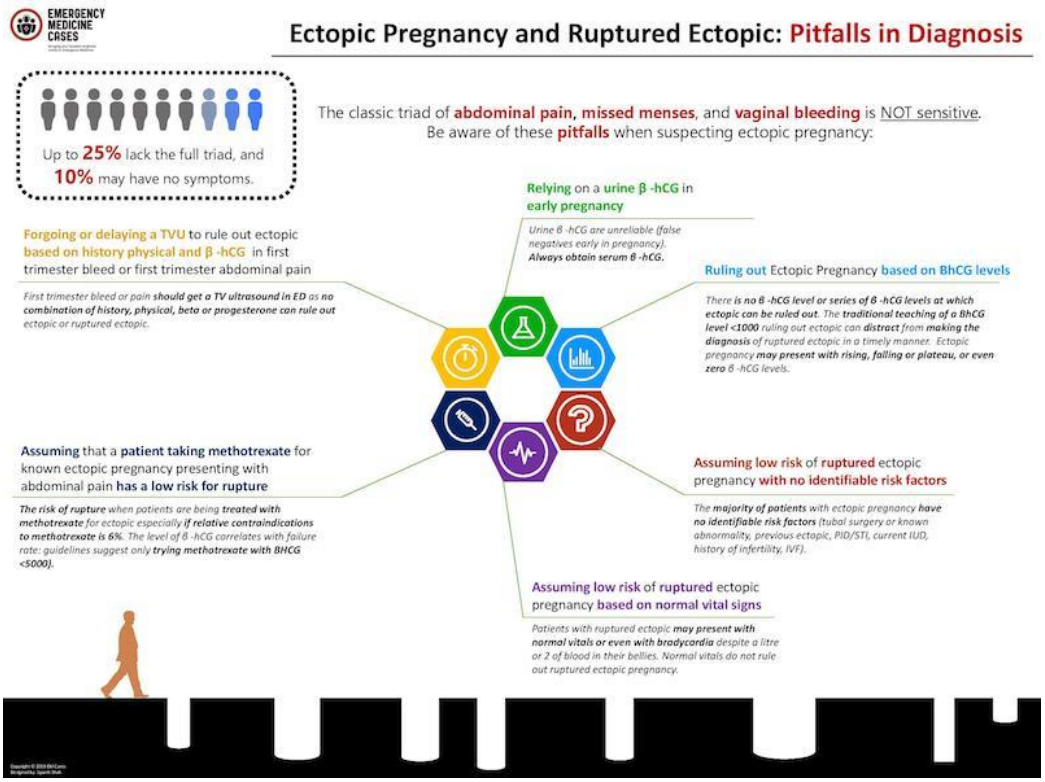
Must consider in all women of childbearing age with abdominal and/or pelvic pain

- Ruptured
  - Shock
  - Rebound tenderness
- Non-ruptured (early)
  - Abdominal/pelvic pain - 9% of women have no pain at all
  - Vaginal bleeding

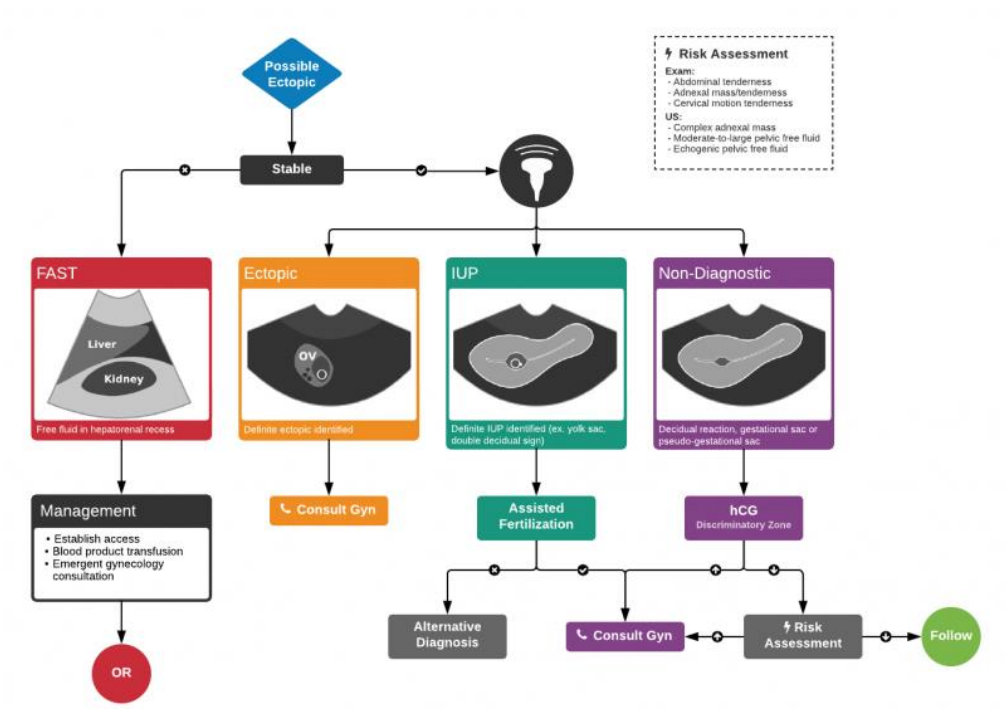
3. What are pitfalls with laboratory and imaging tests?

The difficulty in diagnosing ectopic pregnancy lies in the inconclusive ultrasound results. If the ultrasound is inconclusive, then a serum B-hCG level is drawn to see if it is greater or less than the "discriminatory zone". By definition, the discriminatory zone is the minimum serum β-hCG concentration at which ultrasound is 100% sensitive in identifying an IUP. Currently, most hospitals have a discriminatory zone of 1000 to 2000 IU/I. The diagnosis of ectopic pregnancy is then made if an IUP is not visualized when the β-hCG is above the defined discriminatory zone. If the serum β-hCG is less than the discriminatory zone, then the pregnancy may be an ectopic, a spontaneous abortion, or simply an early IUP. Patients are typically sent home with instructions to repeat β-hCG levels and obtain close follow-up.

The problem with the above plan, however, is that ectopic pregnancies can present at almost any β-hCG level. In addition, in patients with indeterminate ultrasounds, the serum β-hCG is not predictive of ectopic pregnancy at all. Literature has shown moderately high sensitivities of ultrasound in diagnosing ectopic pregnancy in patients with β-hCG of under 1000 IU/I. ACEP's recent clinical policy states at a Level B recommendation, "Do not use the beta-hCG value to exclude the diagnosis of ectopic pregnancy in patients who have an indeterminate ultrasound."



Courtesy of EM Cases



Courtesy of VisualDx

4. What is the ED management of ectopic pregnancy?
5. Who is appropriate for discharge? What do we need to discuss with these patients?

Treatment will vary depending on hemodynamic stability, pre-treatment β-hCG concentration, and the ability of patients to comply with follow-up. If unstable, patients should be resuscitated as any unstable patient. A type and screen should always be obtained and Rhogam® administered to Rh-negative patients as per ACEP Clinical Policy. Thereafter, for all other stable patients, expectant, medical or surgical management may be options. All options should be discussed with the consulting obstetric specialist.

Ectopic pregnancy can resolve spontaneously, but many women require treatment with methotrexate or surgery. Expectant management should be offered only when serum levels of β- hCG and progesterone are low and declining and ultrasound does not show the location of the gestational sac. Patients must then be monitored closely until the serum β-hCG levels fall below 15 IU/L.

All other patients will require surgery or medical therapy with methotrexate. Criteria for methotrexate include absence of ultrasound evidence of fetal cardiac activity, hemodynamic stability, pre-treatment β-hCG concentration less than 5,000 IU/L , and the ability of patients to comply with follow-up. It is contraindicated in patients with alcoholism, immunodeficiency, peptic ulcers, or active disease of the lungs, liver, kidneys, or hematopoietic system. It is also relatively contraindicated in patients with a gestational sac larger than 3.5 cm or with cardiac motion observed on ultrasound.

The 2012 ACEP Clinical Policy also addresses treatment with methotrexate, namely, the ED management of patients taking the medication. One can refer to the policy, but essentially the authors recommend close follow-up as well as keeping a strong suspicion of rupture in patients who have received methotrexate and have concerning symptoms. Finally, surgery is typically conducted in patients who refuse or have contraindications to medical treatment, those in whom medical treatment has failed, and those who are hemodynamically unstable.

Medical management with methotrexate

- Eligible Patients:
    - Hemodynamically Stable,
    - Hcg <5000,
    - Need to comply with treatment and follow up,
    - No fetal cardiac activity
- Contraindications:
    - Renal insufficiency
    - Immunodeficiency
    - Active Pulmonary Disease
    - Peptic Ulcer Disease
    - Hypersenstivity to MTX
    - Heterotopic Pregnancy with viable IUP
    - Breastfeeding
- Dosing
    - IM Therapy is most common choice (Linscomb 2007)
    - Dose 50mg/m^2 of body surface area (Stovall 1993)