DIAGNOSIS OF ECTOPIC PREGNANCY

C. KIM / STELLER 1.7.18
LEARNING OBJECTIVES

- To describe the epidemiology of ectopic pregnancy
- To list risk factors for ectopic pregnancy
- To describe how an ectopic pregnancy is diagnosed

Prerequisites:
- FLAME LECTURE 81: Evaluation of 1st Trimester Vaginal Bleeding

Closely related topics:
- FLAME LECTURE 83: Medical Management of Ectopic Pregnancy
- FLAME LECTURE 84: Surgical Management of Ectopic Pregnancy
DEFINITION

- An ectopic pregnancy is an EXTRAUTERINE pregnancy – one in which the BLASTOCYST implants anywhere other than the endometrial lining of the uterine cavity
- 95% of ectopic pregnancies implant in the fallopian tube\(^1\)
Normal Pregnancy

Ectopic Pregnancy

Fallopian tube
Uterus
Ovary
Embryo implanted normally
Cervix
Vagina
Tubal
Ovarian
Interstitial
Cervical
EPIDEMIOLOGY

- Accounts for 1-2% of pregnancies in U.S.
- Up to 18% of ED visits for 1st trimester bleeding associated w/ abdominal pain are ectopics.
- Accounts for 9% of pregnancy-related mortality (3rd most common cause)\(^1\)
- 1/200,000 pregnancies are bilateral ectopics\(^2\)
- Since 1970, the frequency has increased 4X\(^3-4\), however mortality has decreased 10X
- Risk of mortality 3.4X higher in non-white women 2/2 issues with access to care\(^3\)
RISK FACTORS

- DON’T MESS WITH THE FALLOPIAN TUBE!¹
  - STIs/PID (especially chlamydia²) can damage the tube
  - Prior pelvic or lower-quadrant abdominal surgery
  - ART (artificial reproductive technologies)

- Advanced maternal age

- Smoking

- STERILIZATION & IUDs
  - ↑ risk of ectopic IF a patient gets pregnant. HOWEVER, because they reduce the overall chance of even becoming pregnant to begin with, the overall risk of ectopic is decreased

- In utero diethylstilbestrol exposure (DES)
  - Largely historical, however some patients may still be prescribed this in other countries like Mexico
<table>
<thead>
<tr>
<th>RISK FACTORS</th>
<th>ODDS RATIOS(^1-4)</th>
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<tbody>
<tr>
<td>1 prior ectopic / 2 prior ectopics</td>
<td>3.0 / 16.0</td>
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<tr>
<td>Prior tubal surgery</td>
<td>4.5-4.7</td>
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<tr>
<td>Smoking 20+ cigarettes/day</td>
<td>2.5-3.5</td>
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<tr>
<td>Outpatient GC/CT / Inpatient GC/CT or PID</td>
<td>1.2 / 2.5-3.4</td>
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<tr>
<td>3+ prior spontaneous miscarriages</td>
<td>3.0</td>
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<td>40+ years of age</td>
<td>2.9</td>
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<td>Prior medical or surgical abortion</td>
<td>1.6-2.8</td>
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<td>12+ months of Infertility</td>
<td>2.5-2.6</td>
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<tr>
<td>5+ sexual partners over lifetime</td>
<td>1.6-2.1</td>
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<tr>
<td>Previous IUD-use / Current IUD-use</td>
<td>1.3-1.6 / 4.2</td>
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</tbody>
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Up to ONE THIRD of pregnancies following even one ectopic pregnancy are RECURRENT!
CLINICAL PRESENTATION

- Approximately 50% of women diagnosed with ectopic have no identifiable risk factors
- Classic symptoms include:
  - Abdominal pain (98% of patients)
  - Nausea / vomiting
  - Missed period
  - Vaginal bleeding
- Other symptoms may include: dizziness, lightheadedness, or referred shoulder pain (due to blood in the abdomen irritating the diaphragm)
Differential Diagnosis

- Obstetric complications of an intrauterine pregnancy:
  - Threatened / Missed / Completed / Incomplete abortion
  - Molar pregnancy / Gestational trophoblastic neoplasia

- Non-pregnant gynecologic causes:
  - PID, follicular or corpus luteum cyst rupture, endometriosis, ovarian torsion

- Common non-gynecologic causes:
  - Appendicitis, gastroenteritis, UTI, kidney stones, inguinal hernia
CLINICAL EVALUATION

- **Physical exam**
  - **Vitals**: look for tachycardia, or orthostatic changes in BP
  - **General**: can range from comfortable to severely ill/unconscious
  - **Abdominal**: can range from unremarkable to acute abdomen; abdominal or pelvic tenderness to palpation is present in 50% of patients
  - **Pelvic**: CMT is common, but adnexal masses may be hard to palpate
CLINICAL EVALUATION - LABS

- **Serum Beta HCG (mIU/ml):** Confirm pregnancy and evaluate for abnormal vs normal pregnancy by trending ß-hCG values across 48hrs
  - If first hCG <1500, it should rise by 49% in 48hrs
  - If first hCG 1500-3000, it should rise by 40% in 48 hours
  - If first hCG >3000, it should rise by 33% in 48 hours

- **CBC:** To check for anemia
- **Blood type and screen:** If Rh negative, will need Rhogam
- **Serum progesterone:** >20 ng/mL: normal IUP; 5-20: equiv; <5: abnormal
  - MUCH less specific and rarely used anymore, however if truly <5 ng/mL, there is a 100% chance of abnormal pregnancy

More on **FLAME 81: Evaluation of 1st Tri Vaginal Bleeding**
OTHER DIAGNOSTIC TOOLS

- Imaging: Transvaginal ultrasound used to evaluate for pregnancy location and signs of internal bleeding

  More on FLAME 81: Evaluation of 1st Tri Vaginal Bleeding

- Dilation & curettage (aspiration)
  - Used when an abnormal pregnancy has been confirmed by US or β-HCG, however, one is unsure whether there is an abnormal IUP or ectopic
    - Evaluating for chorionic villi on D&C may decrease morbidity before escalating care to MTX or laparoscopy
  - Culdocentesis - using a needle to check for blood in the posterior cul-de-sac which would be present if an ectopic pregnancy ruptured
    - Rarely used given modern ultrasound availability
NEXT STEPS: DIAGNOSIS TREE FOR ABNORMAL PREGNANCY

PREGNANT patient w/ BLEEDING/PAIN has a TVUS

ECTOPIC
TREAT ECTOPIC

NO IUP & NO ECTOPIC
HCG > DZ
D&C
- VILLI
TREAT ECTOPIC
+ VILLI
NORMAL RISE
REPEAT TVUS WHEN HCG > DZ

HCG < DZ
SERIAL HCG

VIABLE IUP
PNC

ABNORMAL IUP

EXPECTANT MANAGEMENT OR MEDICAL/SURGICAL MANAGEMENT

SERIAL HCG IF NOT FALLING, TREAT ECTOPIC

ABNORMAL RISE
MEDICAL/SURGICAL MANAGEMENT

REPEAT TVUS WHEN HCG > DZ
CLOSE MONITORING
RESOLUTION

NO RESOLUTION
D&C
- VILLI
TREAT ECTOPIC
+ VILLI

Adapted from Mukul 2007
PRACTICE BULLETIN 94 – Medical Management of Ectopic Pregnancies


