Ectopic Pregnancy

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DMS 443
Spring 2019

Etiology of Ectopic
- Definition=Implantation of fertilized ovum outside body of uterine cavity
  - Ampulla of fallopian tube most common

- Mechanical obstruction of tube
  - Increased with advent of:
    - Tubal surgery, STD, PID, IUD, elective AB
- Early implantation of malformed ovum
- Responsible for up to 26% of maternal deaths

Clinical Presentation of Ectopic Pregnancy
- Positive pregnancy test
  - Positive quantitative pregnancy test increasing at an abnormal rate
- Bleeding or even amenorrhea
- Adnexal mass
- Pain
  - Location might not be specific
  - Shoulder/neck pain
- Hypovolemic shock

Human Chorionic Gonadotropin
- Produced by cells of implanting egg
- Can be produced in absence of embryo
- Detected in maternal plasma or urine
  - 8-9 days post ovulation
- Two types
  - Qualitative
    - Present in blood or urine
  - Quantitative (beta)
    - Measures amount of hCG in blood

Serum beta-hCG
- Negative ßhCG-excludes ectopic
- Second International Standard (IS)
- International Reference Preparation (IRP)
  - Standard used today
- hCG=2000 mIU/mL IRP-you should expect to see a gestational sac.

Clinical Reaction to Early Ectopic is the Same as an Early IUP

- Increased uterine size
  - Estrogen and progesterone
- hCG produced= positive preg. test
- Corpus Luteal Cyst
  - Watch for ovarian ectopics

Increased Risk Factors

- Tubal blockage
- PID-
  - pelvic inflammatory disease
- TOA-
  - tuboovarian abscess
- prior ectopic

Clinical Presentations

- Pelvic pain
  - 95%
  - depends on location where pain is
- Amenorrhea >6wks
- Abnormal vaginal bleeding
  - 75%
- Positive pregnancy test
- Cervical tenderness
- Fainting-hematocrit
- Increased temperature
- Nausea, vomiting
- Shoulder pain
  - bleeding to paracolic gutters and Morison's pouch
- Shock (hemorrhage)

Sonographic Techniques

Demonstrate IUP

- Fetal/embryonic pole with heart beat
- Double decidual sign
- Size of pregnancy is consistent with expected gestational age
- Correct location in uterus
- No pseudosac
  - seen in 50% of ectopics
  - blood in endometrial cavity surrounded by decidual reaction

History

- Evaluate clinical history:
  - **LMP**
    - How long
  - **Pain**
    - Where
  - **Bleeding**
    - How much

        - How long
    - **Positive pregnancy test**
        - Blood/serum most accurate
        - 6-8 days s/p fertilization

Types of Ectopic Pregnancies

- Ovarian
- Cervical
- Abdominal/peritoneal/C-section scar
- Tubal
    - 95% incidence
    - Typically rupture between 8-10 weeks
- Heterotopic

Cervical ectopic:

- 1:18,000 ectopics, or 1% of all ectopics
- Risk factors
    - Multiparity, prior abortion, instrumentation of the cervix
- Often presents as SAB
- Implantation to cervical myometrium
- Diagnosis
    - Gestational sac with peritrophoblastic flow in cervix

Interstitial Pregnancy

- 2-4% of all ectopic pregnancies
- Sonographic diagnosis:
    - IUP in fundal area
    - Often difficult diagnosis

Cesarean Scar Pregnancy

- Enters through defect in the sac tract
- Embeds in myometrium
- Sonographic diagnosis:
    - Empty uterus and cervical canal
    - Sac in anterior lus
        - Lack of myometrium between bladder wall and gestational sac.

Heterotopic Pregnancy

- Uncommon, 1 in every 6-8,000 pregnancies
- On the rise due to ovulation induction, IVF, embryo transfer, previous surgeries, hx of ectopics
- Diagnosis:
    - One pregnancy within the uterine cavity, one outside the uterus

Abdominal ectopic:

- 1:3000-1:7000
- Two types of occurrences:
    - Ovum escapes fimbriae goes into peritoneal cavity

- Starts as tubal> when small ruptures> and reimplants into peritoneal cavity
  - Latter is most common

Ultrasound protocol:

- Full bladder
- Evaluate:
  - uterus, cervix, adnexa, cul-de-sac, paracolic gutters
  - bowel can obscure ectopic/mimic mass
- +pregnancy test
- No evidence for IUP
- Increased uterus size
- Increased echoes from decidual reaction

Adnexal Mass

- Adnexal ring with gestational sac
  - 10% will see viable embryo
- Solid anechoic complex
- Irregular shape
- Other considerations for mass:
  - Persistent (corpus luteum), PID/TOA, appendiceal abscess, endometriomas, dermoid, hydrosalpinx, hemorrhagic or ruptured bowel, check clinical history

Fluid in cul-de-sac:

- Possible blood from ruptured ectopic
- Possible ruptured Corpus Luteal Cyst or PID
  - Check clinical history
- Clotted blood in cul-de-sac
  - Hyperechoic, looks solid, like a mass

Uterine Criteria:

- Intrauterine fluid, no DDS
  - Blighted ovum, Incomplete AB, or Ectopic
- Intrauterine fluid, with DDS
  - Normal vs Abnormal IUP
  - Pseudogestional sac present in 20% of ectopics
- Endometrium
  - Varies from thin to thick
  - Look for double decidual sac (DDS)

Pseudogestational Sac vs Gestational Sac

Role of Doppler Sonography

- Normal intrauterine pregnancies have a low impedance
  - Flow will be continuous
- Only use Doppler techniques when absolutely necessary

Mimics of Ectopic Pregnancy

- Hematosalpinx:
  - Exophytic or ruptured CLC
  - Pedunculated fibroids

- Ovarian torsion
- Tuboovarian abscess
- Tubal cysts
- Adjacent bowel

Ancillary studies:

- ☐ Cul do centesis
- ☐ Laparoscopy
- ☐ Laparotomy
- ☐ Serum tests

Management

Conclusion

- ☐ Sonography and Serum hCG guiding factors
- ☐ IUP should be noted with hCG levels >2000mIU/ml
- ☐ Be aware of different types of ectopics