ECTOPIC PREGNANCY
EP

Incidence
- 2% of reported pregnancies
- 15% recurrence risk
- >100,000 per year

Risk Factors
- Tubal disease
- STI, PID
- Current IUD
- Smoking
- Gonadotropin therapy
- ART

Timely Diagnosis
- High index suspicion
- Serial hormones
- Transvaginal ultrasound TVUS
Diagnosis
- Severe abdominal pain 90%
- Vaginal bleeding 80%
- Amenorrhea 80%
- Pelvic mass 50%

- Common locations, 90% tube
  - Ampullary 80%
  - Isthmus 12%
  - Fimbria 6%

Human Chorionic Gonadotropin
- +hCG 8-9 days after ovulation
  - BHCG ~100 mIU/mL at missed menses
  - Curvilinear until plateau at 100,000 by 10wks
- Potentially viable IUP → at least 53% increase in 48 hours
  - Similar rise in multiple and single gestations
- Complete miscarriage, hCG decline at least 21-35% every 2 days

Pelvic Ultrasound
- Discriminatory hCG for TVUS 1,500 - 2,000
  - Conservative 3,500
- Gestational sac visible 5.5 - 6 weeks
  - Regardless of single or multiple gestation
- Double sac sign
  - Likely represents IUP
- Caution pseudogestational sac
  - Collection of fluid or blood in the cavity
  - 5-20% EP
Abnormal Findings

- Absence of gestational sac with hCG above discriminatory zone
- Abnormally rising hCG
- Declining hCG
- Pregnancy of unknown location
  - EP vs. Failed IUP
  - Consider uterine aspiration or D&C
    - If no chorionic villi, check hCG 12-24 hours later
  - EP or incomplete evacuation

MEDICAL TREATMENT

Methotrexate MTX

- Ideally definitive EP diagnosis
- Potential consequences MTX of a presumed EP
  - Subsequent pregnancies will be viewed as high risk
  - Apparent efficacy of MTX with be artificially increased
  - IUP may be exposed to a known teratogen and abortifacient
- Candidates
  - Hemodynamically stable
  - No severe pain
  - Commitment to followup
  - Normal liver and renal function
- Labs
  - CBC
  - LFTs
  - Cr
  - Bloodtype
  - Chest Xray if pulmonary disease
Methotrexate MTX

- Folate antagonist
  - Inactivates dihydrofolate reductase
  - Affects actively proliferating tissues
- Stop PNV / folic acid
- Single-dose MTX 92% success
- Average time to resolution 2-3 weeks
  - Can take up to 6-8 weeks
  - Wait 3 months before conception

Choice of MTX regimen guided by initial hCG

No clear consensus on hCG cut-offs

- Single-dose if low hCG <1,500 - 3,000
- Consider two-dose if hCG 3,001 - 5,000
- Consider multi-dose if hCG >5,000
Single-dose comparable to Two-dose

Some studies Two-dose better with higher Initial hCG 3,600 – 5,500
Close Surveillance after MTX

- First few days hCG level may increase
- Some patients develop transient “separation pain” between Day 3 and 7
  - Usually resolves 4-12hr
- Failure to decrease at least 15% between Day 4 and 7
  - Add’t MTX or surgery
  - Consider uterine aspiration or D&C
- After appropriate decline, hCGs weekly until negative
Treatment Failure Signs

- Hemodynamic instability
- Increasing abdominal pain
- Rapidly increasing hCG >53% over 2 days
  - After 4 doses in multi-dose
  - After 2 days in single-dose

SURGICAL TREATMENT

Indications

- Tubal rupture or unstable
- MTX contraindicated
- Patient-informed choice when stable

- Success rates and fertility comparable for MTX and surgery
Laparoscopic Surgical Approaches

Linear salpingostomy
- Ideal non-isthmic first time EPs <5cm
- Serial hCGs
- 5-15% chance retained trophoblasts
  - Single-dose MTX
- Recurrent EP
  - 15% salpingostomy
  - 8% salpingectomy

Or Salpingectomy
- Partial or complete

Approach guided by
- Desire future fertility
- Extent of tube damage

Expectant management?
- Asymptomatic
- Objective evidence of resolution
  - Decrease in hCG
- Initial hCG <200, 88% spontaneous resolution
- Counseled of risks!
  - Tubal rupture and hemorrhage
  - Emergency surgery
Heterotopic Pregnancy

- Coexisting IUP and EP
- 1% ART
- Surgery usually required
  - 50% present with rupture

Cornual vs. Angular vs. *Interstitial

- Horn of a bicornuate
- Lateral half of a septate uterus
- Medial to the uterotubal junction
- Lateral angle of uterus
- Conserved management if no acute signs
- Surrounded on all sides >5mm myometrium
- 4.7% Interstitial tube
- 2.7% maternal mortality
- Treatment with local or systemic MTX

Approach to False-Positive hCG

- False-positive usually <150
- Most due to interference by non-hCG substances
- Serum positive but urine pregnancy test negative
  - Anti-animal heterophilic antibodies
  - Pituitary hCG-like substance
  - Postmenopausal cut off 15 mIU/mL

4.7% Interstitial tube
Ectopic Pregnancy Highlights

- Key to early diagnosis
  - High index suspicion
  - Serial hormones
    - Potentially viable IUP ➔ at least 53% increase in 48 hours
    - Transvaginal ultrasound TVUS
  - Discriminatory hCG for IUP 1,500-2,000, conservative 3,500
- Unruptured stable EP: both MTX or surgery first-line
- Choice of MTX regimen guided by initial hCG

References

- ASRM, American Society of Reproductive Medicine, E-Learning and Practice Bulletins, www.asrm.org
- ACOG Practice Bulletins
- Clinical Gynecologic Endocrinology and Infertility, Fitz and Speroff, 8th Edition

ALL THE BEST!

hcottrell@ivf-mi.com