First Trimester Pregnancy Complications

Red book p. 219 – 249; 273-280

EMC 420: Maternal & Child Emergency Care
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Outcomes

This lecture will enable you to:

- Describe first trimester disease states involving the embryo, fallopian tubes, placenta, and uterus
- Describe the hCG and progesterone correlates of first trimester pregnancies
- Recognize the clinical findings that direct the management of suspected ectopic pregnancy, miscarriage, and trophoblastic disease
- Describe the stabilization of first trimester bleeding

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Complications

- Pregnancy- related
  - Medical complications (P. embolism; eclampsia)
  - Bleeding (ectopic pregnancy)
- Pregnancy – aggravation of prior disease
  - DM
- Delivery - related:
  - Abnormal labor +/or delivery
  - Postpartum or pregnancy complications
- Not pregnancy-related (trauma; appendicitis, …)

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Complications Related to Pregnancy: Bleeding

- Early pregnancy - first trimester
  - Abortion
  - Ectopic pregnancy
- Late pregnancy - third trimester
  - Abruptio placenta
  - Placenta previa

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First Trimester Bleeding

- Normal pregnancy
- Ectopic pregnancy
- Spontaneous abortion / miscarriage
- Vaginal or cervical bleeding
  - STDs
  - Trauma
    - Minor [friable cvx]
    - Significant [sexual assault]
  - Cancer
  - Polyps
- Trophoblastic disease

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First Trimester Hormonal Levels

FYI

- Quantitative beta hCG level
  - correlates with gestational age (and with ultrasound)
  - *2* measurements *2* days apart - should *double*
- Progesterone level
  - A single low level (less than 5 ng/ml) predicts poor outcome
  - High level (greater than 25 ng/ml) predicts living IUP

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Abortion
[AKA spontaneous miscarriage]

- Abortion : the termination of pregnancy at any time before the fetus has attained a stage of viability
- Definitions I :
  - Spontaneous - An abortion that starts of its own accord, during the first 20 weeks; "a miscarriage."
  - Threatened - Bleeding; but the cervix is closed. no conception tissue has passed
  - Incomplete - Some, but not all, tissue has passed
  - Inevitable - No tissue has passed, but cervix is dilated

Abortion Definitions II

- Missed abortion
  - Fetus is dead, but no tissue has passed
  - Closed cervix
  - No fetal heart beat (FHT); no uterine growth
- Septic abortion
  - An incomplete +/or non-sterile abortion
  - With ascending infection
  - (historically: criminal, non-sterile, "back-alley")
- Therapeutic
  - Termination of pregnancy for maternal health
- Elective
  - Termination of pregnancy for reasons other than health

Abortion - Definitions III
[spontaneous miscarriage]

- Blighted ovum *FYI*
  - Gestational sac and placenta begin to develop , but no embryo develops
- Subchorionic hemorrhage
  - Bleeding between uterus and chorion layer
- Decidua
  - Uterine contents (endometrium) passed as part of SAB tissue

Spontaneous Abortion

- Usually occurs before the 12th week
- Occurs approximately 1 in every 10 pregnancies
- Does ***not*** mean future pregnancies will abort
- Predisposing factors to spontaneous abortions
  - Genetic
  - Environmental

Pathophysiology of Miscarriage

- Genetic: major anomalies (imperfect embryos)
- Environmental
  - Internal environmental factors
    - Abnormal uterine wall; incompetent cervix
    - Immunologic factors
  - External environmental factors
    - Severe maternal infection
    - Irradiation
    - Substance abuse (tobacco, alcohol, cocaine, meth.)
  - Advanced age

Abortion - Clinical History

- Abdominal pain and cramping
  - Slight to severe
- History of passing blood +/or tissue
- Evidence of infection

Abortion - Physical exam

- Orthostatic vital signs
  - Evaluation for volume depletion
- Perineum examine for:
  - Presence of tissue
  - Amount of vaginal bleeding
    - Bleeding may vary from spotting to profuse hemorrhage
- FHTs (with Doppler, after 10 weeks)

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Abortion - Management

- O2 ; M3 ; expose as indicated
- Blood draw
- IV
  - Large bore - 2, if indicated
  - Crystalloid solution
- Shock treatment may include pneumatic antishock garment
- Psychological support
- [consider Rhogam in ED, in Rh negative women] *FYI*

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Ectopic Pregnancy

- Pathophysiology
  - Fertilized ovum implants outside the uterus
  - (Tube - 95%)
- Incidence
  - 1-2 of every 100 pregnancies
- Mortality
  - Leading cause of non-traumatic death in the 1st trimester
  - Early diagnosis is critical ("consider in every female…")

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Ectopic Pregnancy

Predisposing factors:

- Previous tubal infections (PID / STD)
- Previous ectopic
- Adhesions from prior tubal surgery
- Tubal ligation ("what *! !* ...")
- Contraception
  - Progestin-only BC pill
  - IUD

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Ectopic Pregnancy - History

- Symptoms of early pregnancy
  - nausea, vomiting, breast fullness, fatigue
- Lower abdominal pain
  - mild to severe, usually diffuse
- Last normal menstrual period
  - may have been 4-8 weeks prior
  - intermittent spotting
  - ***NOT*** a reliable symptom
- Shoulder pain (present in 15-20% of cases)
- Previous ectopic pregnancy
- Previous pelvic infection (PID)

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Ectopic Pregnancy Exam

- Physical exam
  - Vital signs may deteriorate rapidly; paradoxical bradycardia may occur
  - Abdominal/rebound tenderness may be present
  - Vaginal bleeding may be absent or spotty ; *rarely* profuse

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Management of Ectopic Pregnancy

- O_2 ; M_3
- Blood draw ; urine specimen
- IV (2) , large bore , crystalloid solution
- Pneumatic anti-shock garment PRN
- (Rhogam in ED in Rh negative women)
- Definitive Tx *FYI*
  - transvaginal ultrasound
  - methyltrexate
  - laparoscopy

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Trophoblastic or Molar Pregnancy

- Incidence : 1/1000-1500 pregnancies
- Predisposing factors
  - Prior molar pregnancy
  - Either end of reproductive years (old/young)
- Pathophysiology
  - Placenta develops in *absence of a fetus*
  - Placental villa become engorged and "grape-like"
- Complications
  - Recurrence
  - Metastatic choriocarcinoma

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Trophoblastic Pregnancy - History

- Hormonal symptoms of early pregnancy
  - nausea, hyperemesis, breast fullness, fatigue
  - may be exaggerated
  - pregnancy-induced hypertension symptoms
- c/o abdominal swelling or mass

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Trophoblastic Pregnancy - Physical

- VS
  - BP may be elevated
- ABD
  - Uterine size much greater than expected
  - No FHTs
- Lab
  - Extremely high hCG levels

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Summary

- Common and uncommon first trimester disease states involving the embryo, fallopian tubes, placenta, and uterus.
- Clinical presentations of these
  - Pain
  - Bleeding
  - Other
- Importance of early diagnosis and of aggressive management of suspected ectopic pregnancy.

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