Spontaneous Abortion

Background

1. Definitions
    - Spontaneous abortion:
        - Complete loss of pregnancy before 20 wks of gestational age (EGA)
    - Threatened:
        - Vaginal bleeding without loss of viable pregnancy before 20 wks EGA
    - Inevitable:
        - Bleeding with cervical dilatation before 20 wks EGA with loss of pregnancy expected
    - Incomplete:
        - Bleeding with cervical dilatation before 20 wks EGA with partial expulsion of pregnancy
    - Missed:
        - In-utero death of the embryo or fetus prior to 20 wks EGA with retention of pregnancy in uterus
    - Septic:
        - Intrauterine infection resulting from an incomplete or missed abortion
    - Recurrent:
        - 3 or more consecutive pregnancy losses before 20 wks EGA
2. General information
    - Most miscarriages will occur before 13 wks EGA

Pathophysiology

1. Etiology of miscarriage
    - Chromosomal:
        - 50-60%
    - Infectious:
        - Herpes simplex, HIV disease, syphilis
    - Anatomic:
        - Cervical incompetence
        - Uterine fibroids or malformations
        - Usually occur after 1st trimester
    - Trauma:
        - Blunt or procedural (chorionic villous sampling or amniocentesis)
    - Other:
        - Hormonal: progesterone deficiency in luteal phase defects
2. Prevalence
    - Recognized vs. unrecognized
        - 10-15% of clinically recognized pregnancies end in spontaneous abortion
        - Prevalence close to 30%
            - Including unrecognized pregnancies (before testing is done by patient to confirm pregnancy)

- Recurrent
  - 1% of reproductive aged women will experience 3 or more consecutive miscarriages
  - 2% of reproductive aged women will experience 2 consecutive miscarriages; after 2 miscarriages, woman has 30% chance of recurrent miscarriage

3. Risk factors
   - Age
     - Higher risk related to increase in chromosomal abnormalities
   - Lifestyle:
     - Tobacco:
       - 10 or more cigarettes
     - Alcohol:
       - As little as one ounce per day
     - Drugs:
       - Cocaine
     - Caffeine:
       - >3 servings
   - Medications:
     - NSAIDS or aspirin in peri-conception or 1st trimester
4. Morbidity / mortality
   - Rare in spontaneous abortion
   - May occur in septic abortions including hysterectomy and death
   - 11% risk of major depressive disorder in first 6 months after miscarriage (22% if woman is "childless")

Diagnostics

1. History
   - Dating of pregnancy: LMP
   - Symptoms:
     - Pain, bleeding, tissue
2. Physical examination
   - Abdominal exam including heart tones (doppler + at 10-12 wks depending on body habitus)
   - Pelvic exam:
     - Assessment of bleeding and presence of tissue, cervical dilation, uterine size and tenderness
3. Diagnostic testing
   - HCG
     - Produced by fetal-placental unit after implantation
     - Doubles every 2-3 days in normal pregnancy
     - At 1500-2000 a chorionic or gestational sac can be visualized by transvaginal ultrasound
   - Progesterone level if "threatening"
   - Blood type: Rh negative will require Rhogam

- Ultrasound: transabdominal versus transvaginal
  - Transvaginal: can show gestational sac at 5-6 wks and fetal heart activity at 6-7 weeks
  - Transabdominal can detect a week later
- Other studies:
  - Cultures if septic abortion suspected

Differential Diagnosis

1. Ectopic
   - Symptoms include abnormal bleeding, pelvic pain (many times unilateral)
   - Pelvic exam may reveal adnexal tenderness
   - HCG inappropriately low (or less than expected rise) & progesterone low
   - Ultrasound shows no gestational sac, and may show adnexal mass or free fluid in the peritoneum
2. Threatened versus missed versus incomplete
   - Symptoms similar; tissue observed or not?
   - Cervix dilated or tissue present in vagina or os?
   - Appropriately rising HCG and closed cervix in the patient who is having painless bleeding indicate threatened abortion
   - Closed cervix and inappropriately low HCG and retained intrauterine contents on ultrasound indicate missed abortion
   - Dilated cervix with persistent heavy bleeding and scant tissue recovered with regards to gestational age and/or retained intrauterine contents on ultrasound indicate an incomplete abortion
3. HCG testing and ultrasound
   - Essential tools in the management of early pregnancy complicated by pain or bleeding
   - Serial testing may be necessary before the viability of an early pregnancy (4-6 wks EGA) can be determined and the diagnosis made clear
4. Other causes of bleeding in pregnancy:
   - Vaginal, cervical, uterine, hematological

Therapeutics

1. Acute treatment (all involve supportive counseling)
   - Based on classification of miscarriage:
     - Complete:
       - NSAIDs
       - Short-term psychological outcomes are similar between expectant and surgical management
     - Threatened:
       - Progesterone if documented luteal phase defect
     - Inevitable:
       - NSAIDs, review products of conception when passed
     - Incomplete:
       - NSAIDs, and if bleeding persists or becomes heavy, D & C
     - Missed:
       - Expectant versus active management of missed abortion
       - 80% will complete within 2-6 wks

        - Surgical evacuation indicated for uncontrolled bleeding, infection, patient preference
    - Septic:
        - Hospitalization, IV antibiotics, and surgical evacuation
    - Rhogam for Rh negative mothers
    - Pathology/chromosomal analysis:
        - Not generally recommended
    - Saving products of conception
        - May help confirm completed abortion
        - Parents may want burial
2. Further management
    - Hemorrhage:
        - Ibuprofen 600 mg q 6 hrs and call for bleeding not controlled ("heavier than your heaviest period") or light headed
    - Pain:
        - Ibuprofen and call for pain not controlled
    - Fever:
        - Call for temperature >100.4° F and evaluate for possible infection
3. Long-term care
    - Psychological support for grieving, and assessment for depression

Follow-Up

1. Return to office
    - With products of conception to confirm completed spontaneous abortion and provide support
    - 4 week FU to review cycle and provide supportive counseling
        - Increased risk for major depressive episode, in particular among women who are childless
    - Discussion of future pregnancy plans and family planning
        - No evidence to support delaying future conception for improved pregnancy outcome
    - Serial HCG's if question of completed abortion
        - HCG may take several weeks to return to normal
2. Refer to gynecologist
    - Septic abortion
    - Uncontrolled bleeding
    - Missed abortion that has not passed within 2 weeks and/or gestational age greater than 12 wks
    - Patient preference for earlier evacuation
3. Admit to hospital
    - Heavy bleeding resulting in unstable vital signs or orthostatic hypotension
    - Septic abortion

Prognosis

1. Risk for recurrent miscarriage
    - If first miscarriage, risk for subsequent miscarriage is no different than normal population

Prevention of future miscarriages

1. Lifestyle management when attempting conception
    - Avoiding alcohol, NSAIDS, ASA, tobacco, caffeine excess
2. Treatment of specific medical conditions
    - Excellent glucose control in the diabetic patient
3. Evaluation of recurrent miscarriage
    - Chromosomal
    - Hormonal
    - Hypercoagulable
    - Autoimmune
    - Anatomic

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Evidence-Based Inquiry

1. How long is expectant management safe in first-trimester miscarriage?

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