Management of abnormal uterine bleeding

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The Questions

• Too much – abnormal uterine bleeding
  – Differential and approach to work-up
• Too much – fibroids
• Too fast: She’s hemorrhaging—what do I do?
• Side effect: due to hormonal contraception

Case 1

A 46 year-old woman reports her periods have become increasingly irregular and heavy over the last 6-8 months. Sometimes they come 2 times per month and sometimes there are 2 months between. LMP 2 months ago. She bleeds 10 days with clots and frequently bleeds through pads to her clothes. She also has diabetes and is obese.

Disclosures

I have no disclosures.
Q1: Which is the first test should you order in this patient?

1. FSH
2. Testosterone & DHEAS
3. Urine hCG
4. TSH
5. Transvaginal Ultrasound (TVUS)
6. Endometrial Biopsy (EMB)

Step 1: Pregnant?

**Pregnant**
- Ectopic
- Spontaneous Abortion
- Threatened Abortion
- Molar Pregnancy
- Trauma
- Other causes

**Not Pregnant**
- Anovulation ***
- Anatomic/structural **
- Neoplastic *
- Infectious
- Iatrogenic
- Non-gynecologic

* = Most likely for this patient

Terminology: What is abnormal?

- **Normal**: Cycle = 28 days (21-35); Length = 2-7 days; heaviness = self-defined
- **Too little bleeding**: amenorrhea or oligomenorrhea
- **Too much bleeding**: Menorrhagia (regular timing but heavy (according to patient or >80cc) OR long flow (>7 days)
- **Irregular bleeding**: Metrorrhagia, intermenstrual or post-coital bleeding
- **Irregular and Excessive**: Menometrorrhagia

- Preferred term for non-pregnant heavy and/or irregular bleeding = Abnormal Uterine Bleeding (AUB)

Pathophysiology: Anovulatory Bleeding

**Bricks & Mortar**

Estrogen = Bricks, build endometrium
Progesterone (P) = Mortar, stabilizes, only have P if ovulate

**Normal menses**: Withdrawal of P causes wall to fall down, all at once (orderly bleed)

**Anovulation**: No P so when wall grows too tall, it fails. It is heavy when wall is tall. Bricks can also fall intermittently & incompletely – irregularly, irregular
### Abnormal Uterine Bleeding

**Palm-Coein**

- **Antecedent causes**
  - Polyps (ATUB&PD)
  - Adenomyosis (ATUB&D)
  - Leiomyoma (ATUB&D)
  - Malignancy (ATUB&D)

- **Coen in antecedent causes**
  - Congenital (ATUB&D)
  - Ovarian disorders (ATUB&D)
  - Endometrial (ATUB&D)
  - Infection (ATUB&D)
  - Not classified

### Reference: AUB Differential

**Not Pregnant**

- **Anovulation**
  - **Uterus**: Polyp, adenomyosis, leiomyoma, atrophy
  - **Cervix**: Polyp, atrophy, trauma
  - **Vagina**: Atrophy, trauma

- **Hyperplasia, malignancy**
  - **Uterus**: Hyperplasia, malignancy
  - **Cervix**: Dysplasia, malignancy
  - **Ovary**: Hormone producing tumor

- **Dysplasia, malignancy**
  - **Uterus**: Dysplasia, malignancy
  - **Ovary**: Dysplasia, malignancy
  - **Cervix**: Dysplasia, malignancy

- **Infectious**
  - **Uterus**: Infection
  - **Cervix**: Cervicitis
  - **Vagina**: Vaginitis (eg Trich)

- **Non-Gynecologic**
  - **Coagulopathy (vWD)**, severe renal or liver dz, GI or GU source

### History and Physical Examination

- **Hx**: bleeding pattern, symptoms of anemia, sexual & reproductive history, chronic medical illness, medication
- **Acute v. chronic**
- **PE**: signs of hypovolemia and anemia, thyroid examination, gynecologic exam, abdominal examination, (screening for cervical dysplasia and STI)
  - Obesity: up to 60% of women who do not ovulate are obese – increased estradiol & testosterone; elevated insulin → disordered follicular development

### Initial Work-up: Menometrorrhagia

- **Always**: Urine pregnancy
- **Usually**: TSH
- **Maybe**: Hct, r/o coagulopathy
- **Maybe**: EMB (Endometrial Biopsy)
- **Maybe but later**: Transvaginal Ultrasound
- **Usually not necessary**: FSH, LH, Testosterone, Estradiol
**A Rational Approach to EMB**

**Post-Menopause:** ALL women WITH ANY BLEEDING (except 4-6 months after HT)

**Recent onset irregular bleeding:** Consider treating first and if bleeding normalizes, no need for EMB

>50: All women with recurrent, irregular bleeding (consider not doing if periods light and spacing out)

45-50: Recurrent irregular bleeding plus ≥1 risk factor OR > 6 mos menometrorrhagia (consider not doing if periods light and spacing out)

<45: Long bx (>2 yr?) of untreated anovulatory bleeding or failed medical management

EMB is not perfectly sensitive so further evaluation mandatory if:
1. Persistent AUB after negative EMB
2. Persistent AUB after 3-6 months of medical therapy

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**Do all women with AUB need an ultrasound?**

Although TVUS is the best imaging choice for pelvic pathology (ie better than MRI, CT)...

- 80% with heavy menstrual bleeding have no anatomic pathology
- Incidental findings such as functional ovarian cysts and small fibroids (~50%) are often found leading to anxiety and unnecessary treatments
- SO....treat first, TVUS if treatment fails

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**What about U/S instead of EMB for post-menopausal bleeding?**

**Transvaginal Ultrasound**

- Measure endometrial stripe
- Abnormal = >4 mm (or 5)
- Non-specific: myomas, polyps also cause thick EM
- Operator skill mandatory
- NOT USEFUL PRE-MENOPAUSE

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**TVUS vs EMB to Detect Cancer**

(in post-menopausal women)

<table>
<thead>
<tr>
<th></th>
<th>TVUS</th>
<th>EMB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>96%</td>
<td>94%</td>
</tr>
<tr>
<td>Specificity</td>
<td>61%</td>
<td>99%</td>
</tr>
<tr>
<td>NPV</td>
<td>99%</td>
<td></td>
</tr>
<tr>
<td>Further w/u necessary</td>
<td>40-50%</td>
<td>7 &lt;5%</td>
</tr>
</tbody>
</table>

*Can offer patient choice as long as either is quickly available and patient understands she may need EMB after U/S*
Q2: You decide to do a urine pregnancy test and check her TSH – which is the most appropriate next test?

1. FSH
2. Testosterone & DHEAS
3. Serum beta-HCG
4. Transvaginal Ultrasound
5. Endometrial Biopsy

A 46-year-old woman reports her periods have become increasingly irregular and heavy over the last 6-8 months. Sometimes they come 2 times per month and sometimes there are 2 months between. LMP 2 months ago. She bleeds 10 days with clots and frequently bleeds through pads to her clothes. She also has diabetes and is obese.

EMB = “Disordered Proliferative”

How do I stop the bleeding?

Medical
NSAID’s
E+P pill, patch, ring
Oral Progestin
Progestin IUD
IM Progestin
GnRH agonist
Tranexamic Acid

Surgical
Endometrial ablation
D&C/Hysteroscopy
Hysterectomy

Treatment of AUB: NSAIDs

- Suppress prostaglandin synthesis, increase platelet aggregation, and reduce menstrual blood loss
- Reduces blood loss by 40%
- Use alone or with other treatments
- Prescribe 5 days ATC
  - Ibuprofen, mefenamic acid, naproxen
Treatment of AUB: CHC

- CHC – pill, patch, ring – improve cycle control, decrease menstrual blood loss by 40% when used traditionally or continuously
  - One COC (with estradiol) approved by FDA for heavy menstrual bleeding
  - COCs often used to treat acute and chronic AUB
  - Few studies support up to 70% decreased EBL with COC and one study with vaginal ring

Treatment of AUB: Progestins

- Oral progestin
  - If ovulatory AUB = HMB: daily or days 5-26 "extended use" progestin decreases blood loss (MPA 2.5-10mg qd, norethindrone 2.5-5mg qd, NETA 5 TID)
  - Low satisfaction with extended use
  - If anovulatory: cyclic progestin -12-14 d/month improves menses in half of women
- Injectable progestin
  - 50% amenorrhea after 1 year, irreg. bleeding in first few months and 50% at one year
- Intrauterine progestin
  - Significant decrease in blood loss, superior to other progestins and CHCs

First Line Hormonal Treatments

- **First choice:** Levonorgestrel IUD
  - >80% reduction in blood loss, decreased cramping, prevents/treats hyperplasia, highly effective birth control
  - Blood loss and satisfaction comparable to ablation, satisfaction comparable to hysterectomy
  - Very few contraindications
- **2nd choice:** combined contraceptives (pill, patch, ring) or oral progestin (cyclic v. daily) or progestin injection
  - Decreases irregular perimenopausal bleeding
  - Any type ok, 20 mcg estrogen preferred for women >40
  - Estrogen contraindications: smokers>35, HTN, complicated DM, multiple RF for CAD, h/o DVT, migraines with aura

Where do you find the US MEC and SPR?
### Treatment of AUB: Tranexamic Acid

- Approved by FDA for treatment of ovulatory AUB
- Prevents plasma formation, fibrin degradation, and clot degradation
- In RCT’s, more effective than placebo, NSAID, cyclic progestin
- Dose: 1.0-1.3 g every 6-8 hours x 5 days
- Risks: Theoretic risk of VTE – contraindicated in history of or risk factors for VTE – not with CHC
- Side effects: Minimal

### Medical Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>MEC Category</th>
<th>Treatment of AUB: Tranexamic Acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUB</td>
<td></td>
<td>• Approved by FDA for treatment of ovulatory AUB</td>
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<td></td>
<td></td>
<td>• Prevents plasma formation, fibrin degradation, and clot degradation</td>
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<tr>
<td></td>
<td></td>
<td>• Side effects: Minimal</td>
</tr>
</tbody>
</table>

### Surgical Treatments

- D&C, Hysteroscopy:
  - Not really a treatment
  - Temporary reduction in bleeding
  - Curative if fibroid or polyp removed
- Endometrial Ablation
  - Reduces but doesn't eliminate menses
  - ~25% repeat ablation or hysterectomy in 5 years
  - Must rule out cancer first
  - Can’t be done in >12 week uteri or for women who want fertility

### Perimenopausal/Anovulatory Bleeding: Summary

- R/o pregnancy, thyroid dz
- EMB if meets criteria
- Treat first as if anovulatory bleeding:
  - NSAIDs +
  - Hormones (Levo IUD, CHC, DMPA)
- If persists:
  - U/S to check for anatomic causes (and EMB if not already done)
  - Discuss surgical options for bleeding refractory to medical management.
Case 2: Is it the fibroids?
Same history as Case 1 except she has fibroids...On examination her uterus is 16 weeks' size
- Very common→ 80% of hysterectomy specimens (done for any reason) and ~75% have on U/S at age 50
- About 50% are asymptomatic
- Grow slowly until menopause and then decrease by ~50% (can still cause bleeding post-menopause)

Fibroid Symptoms
- Bleeding
  - Usually normal or menorrhagia (heavy but regular). Fibroids stretch endometrium= more bleeding
  - Occasionally menometrorrhagia if submucous or intracavitary (Fibroids distort endometrium so it can't be stable)
- Pressure (not pain)
- Dysmenorrhea

Is the bleeding due to the fibroids?
- Fibroids are common in later 40s
- Anovulation is common in later 40s
- The increased bleeding seen typically due to increased volume or distortion of the endometrium
  *Therefore:* Thin the endometrium by treating as anovulatory bleeding.

Treatment of AUB and Fibroids
- LNG-IUD: approved by FDA for women with fibroids unless distorted uterine cavity
- Combined hormonal contraception
- NSAIDS
- Tranexamic acid
- GnRH agonist to shrink fibroids before surgery, or bridge to menopause
  * (SPRMS – investigational)
AUB with Known Fibroids: Work-up and Treatment

- R/o cancer (using "rational emb algorithm") and pregnancy (don't blame fibroids for the bleeding)
- NSAID's and LNG IUD, CHC, tranexamic acid
- If no better, blame the fibroids! (LNG IUD>CHC)
- +/- Lupron--as a bridge to menopause or pre-op to shrink to obtain less invasive route of hysterectomy
- Other tx (hysteroscopic resection if <3 cm, myomectomy, MR-guided focused u/s, RFA, UAE, hysterectomy)

Case 3: Acute Hemorrhage

41 year old woman presents with dizziness and heavy vaginal bleeding for 2 weeks straight.

Prior to this, occasional irregular periods but nothing like this!

Hemoglobin=9

Acute AUB Treatment

ABC's and Stop the bleeding!
- Consider ED for transfusion
- Medical management
  - Estrogen
    - Rapid endometrial growth, vasospasm of arteries, platelet aggregation, increasing clotting supportive factors
    - CEE 25 mg IV q 4-6 hours for 24 hours, followed by progestin or COC for 10-14 days
    - COC: 1 tab TID x 7 days then taper
  - Progestin: medroxyprogesterone acetate 20mg TID x 7 days
  - Tranexamic acid 1.3 g TID x 5 days
  - Other options: D&C, foley bulb tamponade, emergency hysterectomy

COC Taper

- Don't want to give 2-4 COC's per day and then stop suddenly b/c will have large withdrawal bleed
- Taper: 3 x 4 days, 2 x 4 days then 1 per day for 1-2 months (60+ pills required)
- Instruct not to take placebos and give at least 3 packs of pills at once
- Give with anti-emetic, split bid (i.e. 2 bid rather than 4 all at once)
Case 4: Because of her contraceptive...

- A 32 year-old woman has recently initiated the birth control pill.
- She has had spotting for 30 straight days! She is annoyed.

Case 4: Because of the injection...

- A 32 year-old woman has recently initiated the contraceptive injection.
- She has had spotting for 30 straight days! She is annoyed.

Case 4: Because of the implant...

- A 32 year-old woman has recently initiated the contraceptive implant.
- She has had spotting for 30 straight days! She is annoyed.

Case 4: Because of the IUD...

- A 32 year-old woman has recently initiated the levonorgestrel IUD.
- She has had spotting for 30 straight days! She is annoyed.
Reasons for dissatisfaction leading to contraceptive discontinuation

<table>
<thead>
<tr>
<th>Reason</th>
<th>LNG</th>
<th>patch</th>
<th>ring</th>
<th>% Reporting the Following Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>2.2</td>
<td>3.2</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>Not effective or easy to use</td>
<td>1.6</td>
<td>1.3</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Side effects</td>
<td>10.9</td>
<td>5.4</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>Unwanted side effects</td>
<td>17.7</td>
<td>8.6</td>
<td>7.3</td>
<td>7.3%</td>
</tr>
<tr>
<td>Unwanted contraception failure</td>
<td>13.3</td>
<td>13.1</td>
<td>12</td>
<td>1.2%</td>
</tr>
<tr>
<td>Need protection against HIV</td>
<td>1.3</td>
<td>2.1</td>
<td>1.9</td>
<td>1.9%</td>
</tr>
<tr>
<td>Other health problems/doctor’s advice</td>
<td>2.3</td>
<td>0.5</td>
<td>1.7</td>
<td>1.7%</td>
</tr>
<tr>
<td>Method discontinued cancer patients</td>
<td>2.7</td>
<td>2.1</td>
<td>2.2</td>
<td>2.2%</td>
</tr>
<tr>
<td>Too difficult to obtain</td>
<td>1.5</td>
<td>2.9</td>
<td>1.6</td>
<td>1.6%</td>
</tr>
<tr>
<td>Other reasons</td>
<td>15.4</td>
<td>8.6</td>
<td>6.4</td>
<td>6.4%</td>
</tr>
</tbody>
</table>


COCs: Setting Expectations

- Unscheduled bleeding
  - 10-30% in the first month
  - Less than 10% by the third month

- Amenorrhea
  - Less than 2% in the first year
  - Up to 5% after 1 year

COCs: General Counseling

- Take pill at the same time each day
  - Inconsistent pill use associated with increased risk of unscheduled bleeding

- Stop smoking!
  - Smokers more likely to experience unscheduled bleeding/spotting
  - Among smokers, bleeding more likely to persist

Rosenberg, Contraception, 1996.

Mechanism for Abnormal Bleeding with Hormonal Contraceptives

- Fractile and superficial blood vessels in endometrium
- Unstable endometrial stroma and glands
- Irregular bleeding
- Altered endometrial remodeling
- Transition from thick to thin endometrium
COCs: Regimens

Cyclic Use

Extended Cycle

Treating Bleeding on Cyclic COCs

• Supplemental estrogen
  – Oral CEE 1.25mg x 7 days
  – Oral estradiol 2mg x 7 days

• Increase dose of estrogen if woman using COC with <20mcg estrogen
  – Several COCs containing 20mcg ethinyl estradiol resulted in:
    • Higher rates of early trial discontinuation
    • Increased risk of bleeding disturbances

• Switch to vaginal ring


Double or triple the birth control pill?

Treating Bleeding on Extended COCs

• Discontinue the COCs for 3-4 consecutive days
  – A 3-day hormone free interval was associated with greater resolution in breakthrough bleeding/spotting in comparison to continuing active pills
  – After the first 21 days


DMPA: Setting Expectations

• Abnormal bleeding is common in the first year
• Rates of unscheduled bleeding
  – Up to 70% in the first year
  – Approximately 10% after the first year
• Amenorrhea is more likely over time

<table>
<thead>
<tr>
<th>Rate of amenorrhea</th>
<th>Within 3 months</th>
<th>After 1 year</th>
<th>At 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12%</td>
<td>46%</td>
<td>80%</td>
</tr>
</tbody>
</table>

### Summary: Injection Bleeding

- **Enhanced Counseling**
  - Bleeding patterns
  - Reassurance

- **Continue DMPA**
  - More injections, less bleeding

- **TREAT**
  - NSAIDs x 5-7 days
  - Estrogen (COCs or supplemental estrogen x 10-20 d)
  - Tranexamic acid

### Etonogestrel Implant: Setting Expectations

- Most women experience a reduction of menstrual bleeding.
- Bothersome bleeding reported in 25% of patients.
  - 6.7% reported frequent bleeding
  - 17.7% prolonged bleeding
- Rates of amenorrhea.
  - Approximately 20% in first year
  - 30-40% after 1 year

### Contraceptive Implant: Bleeding Patterns

- Number of unscheduled bleeding days:
  - Highest in the first 3 months
  - Decreases over the first year
  - Plateaus in the second and third year

### Contraceptive Implant: Bleeding Patterns

- More unpredictable bleeding pattern.
  - Amenorrhea may not be sustained if achieved
  - "Favorable" pattern in the first 3 months predicts a continued favorable pattern
  - For those with an "unfavorable" bleeding pattern, 50% report improvement over time

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1. Mansour D, Contraception, 2011
Treating Implant Bleeding

US Selected Practice Recommendation for Contraceptive Use, 2013

- Expectant Management for 6-12 months
- COCs 10-20 days
- Supplemental estrogen
- Oral estrogen 1.25mg CEE 2mg estradiol
- NSAIDs x 5-7 days
- Transdermal estrogen 0.1mg/day

Supplemental estrogen

COCs

Oral estrogen

1.25mg CEE

2mg estradiol

Transdermal estrogen

0.1mg/day

NSAIDs x 5-7 days

LNG-IUS: Setting Expectations

- Unscheduled spotting or light bleeding is common, especially during the first 3-6 months
- For LNG 52/5, spotting was present in 25% of the users at 6 months and decreased over time.


Where do you find the US MEC and SPR?

IUD Comparison

<table>
<thead>
<tr>
<th>NAME</th>
<th>HORMONE</th>
<th>DOSE</th>
<th>APPROVED FOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A, no copper</td>
<td>N/A</td>
<td>36/12 years*</td>
<td>“52/5”</td>
</tr>
<tr>
<td>levonorgestrel</td>
<td>20mcg/day (52 mcg in the delivery)</td>
<td>5-7 years</td>
<td>“52/4”</td>
</tr>
<tr>
<td>levonorgestrel</td>
<td>10.5 mcg/day (52 mcg total)</td>
<td>4-6 years</td>
<td>“19.5/5”</td>
</tr>
<tr>
<td>levonorgestrel</td>
<td>12.5 mcg/day (62.5 mcg total)</td>
<td>5 years</td>
<td>“13.5/3”</td>
</tr>
<tr>
<td>levonorgestrel</td>
<td>14 mcg/day (65 mcg total)</td>
<td>3 years</td>
<td></td>
</tr>
</tbody>
</table>
LNG-IUS: Setting Expectations

- LNG 52/5 and LNG 52/4
  - 79-97% reduction in bleeding
  - 33% oligo/amenorrhea in first 3 months, 70% 2 years
  - Amenorrhea at 3 yrs: 40%
- LNG 19.5/5
  - Amenorrhea at 1 yr: 12%
  - Amenorrhea at 3 yrs: 20%
- LNG 13.5/3
  - Amenorrhea at 1 yr: 6%
  - Amenorrhea at 3 yrs: 12%

Treating LNG IUD Bleeding

- Pre-insertion counseling
  - Discuss bleeding/spotting in first 3-6 months
  - Discuss amenorrhea
- Provide reassurance as bleeding likely to improve
- Check IUD location
- NSAIDs ATC q 4 wks may help, no evidence for estrogen

Irregular Bleeding by Contraceptive

<table>
<thead>
<tr>
<th>Rates of irregular bleeding</th>
<th>COCs</th>
<th>vaginal Ring</th>
<th>Patch</th>
<th>Injectable</th>
<th>Implant</th>
<th>Cu-IUD</th>
<th>LNG-IUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-30% in first month of use</td>
<td>• Less common in comparison to COCs</td>
<td>• Similar to COCs except slightly higher rate of spotting in first 2 cycles</td>
<td>• 70% in first year</td>
<td>• Up to 25% in first 2 years</td>
<td>• Less irregular bleeding compared to LNG-IUS</td>
<td>• Up to 25% at 6 months</td>
<td>• 8-11% at 10-24 months</td>
</tr>
</tbody>
</table>

Amenorrhea by Contraceptive

<table>
<thead>
<tr>
<th>RATES OF AMENORRHEA</th>
<th>Within 1st year</th>
<th>At 1 year</th>
<th>Beyond</th>
</tr>
</thead>
<tbody>
<tr>
<td>COCs</td>
<td>&lt;2%</td>
<td>Up to 5%</td>
<td></td>
</tr>
<tr>
<td>Vaginal Ring</td>
<td>Similar to COCs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patch</td>
<td>Similar to COCs</td>
<td></td>
<td></td>
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<tr>
<td>Injectable</td>
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<td>46%</td>
<td>80% at 5 years</td>
</tr>
<tr>
<td>Implant</td>
<td>21%</td>
<td>30-40%</td>
<td></td>
</tr>
<tr>
<td>Cu-IUD</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>LNG-52/5 &amp; 4</td>
<td>20%</td>
<td>40% at 3 years</td>
<td></td>
</tr>
<tr>
<td>LNG-19.5/5</td>
<td>12%</td>
<td>20% at 3 years</td>
<td></td>
</tr>
<tr>
<td>LNG-13.5/3</td>
<td>0%</td>
<td>12% at 3 years</td>
<td></td>
</tr>
</tbody>
</table>
Case: Early Pregnancy

- A 35 year-old woman at 8 weeks' gestation presents to your office with spotting.

Evaluation

- History
  - Risk factors for ectopic pregnancy
- Physical exam
  - Vital signs
  - Abdominal and pelvic exam
- Ultrasound
  - Transvaginal often necessary
- Lab
  - Rh factor
  - Hemoglobin or Hematocrit
  - β-hCG when indicated

Is the pregnancy desired?

Case 5: Bleeding in Early Pregnancy

- Keep the patient informed.
  - Provide reassurance that not all vaginal bleeding & cramping = an abnormality, but avoid guarantees that "everything will be all right"
  - Assure that you are available
- What does the bleeding mean?
  - Up to 20% chance of ectopic pregnancy
  - 50% ongoing pregnancy with closed cervical os
  - 85% ongoing pregnancy with viable IUP on sono
  - 30% of normal pregnancies have vaginal bleeding
**Ectopic Pregnancy**

- 1-2% of all pregnancies
- Up to 20% of symptomatic pregnancies
- ½ of ectopic patients have no risk factors
- Mortality has declined: 0.5/100,000 – 6% of pregnancy-related deaths
- Early diagnosis important
- Concern about management errors

**Early Pregnancy Loss (EPL)**

- 15-20% of clinically recognized pregnancies
- 1 in 4 women will experience EPL
- Includes all non-viable pregnancies in first trimester = miscarriage

**Pregnancy of Unknown Location**

- When the pregnancy test is positive and no signs of intrauterine or extrauterine pregnancy on u/s
  - We try to follow these women until a diagnosis is made
  - We have to weigh risk of ectopic pregnancy (EP)
  - Sometimes no final diagnosis - both EPL and EP may resolve spontaneously
- More commonly encountered in symptomatic early pregnancy, but can also be encountered in asymptomatic women, especially when u/s early

**Simplified Workup of Bleeding &/or Pain**

1. Where is the pregnancy? → U/S (same day)
2. If the pregnancy undesired? → uterine aspiration
3. If desired and we can’t tell where it is: Is it normal or abnormal? → quantitative (serial) Beta-HCG
   - If Bhcg above threshold (>3,000) and no IUP = Abnormal
   - Most likely an abnormal IUP

IUP=Intrauterine pregnancy
Simplified Workup of Bleeding &/or Pain

1. Where is the pregnancy? → U/S (same day)
2. If the pregnancy undesired? → uterine aspiration
3. If desired and we can’t tell where it is: Is it normal or abnormal? → quantitative (serial) Beta-HCG
   - If Bhcg above threshold (>3,000) and no IUP = Abnormal
   - Serial beta HCGs:
     • If Bhcg drops > 50% in 48 hours = Abnormal
     • If Bhcg rises > 50% in 48 hours = Most likely normal (can be EP) – Continue to follow and repeat u/s
     • If between = Most likely abnormal (still can be normal) – Continue to follow and repeat u/s
4. If pregnancy clearly abnormal, if undesired or desires definitive dx → uterine aspiration

Conclusions

• **Diagnosis:** think of pregnancy, then anovulation
• **Work-up:** Always rule out pregnancy. If irregular: TSH, PLN. ?HCT, ?EMB, TVUS if initial tx fails.
• **Treatment:** all bleeding treated similarly
  • NSAID’s plus hormones. Persistent abnormal bleeding requires continued work-up even if EMB and/or ultrasound are negative.
  • Hormonal or copper birth control: set expectations

Thanks to Rebecca Jackson and Sara Whetstone for sharing slides!

Society of Radiologists in Ultrasound: No Gestational Sac

• HCG 2000 - 3000
  – Non-viable pregnancy most likely, 2X ectopic
  – Ectopic is 19 x more likely than viable pregnancy
  – For each viable pregnancy:
    • 19 ectopic pregnancies
    • 38 nonviable pregnancies
    – 2% chance of viable pregnancy
  • HCG > 3000
    – Ectopic 70 x more likely than viable pregnancy
    0.5% chance viable IUP

In women with desired pregnancy consider beta hcg cut-off of ≥ 3000.