Unusual Bleeding: Evaluation & Treatment Update

FAITH DAGGS, MD, CFCMC
HOLY SPIRIT OB/GYN – A GEISINGER AFFILIATE
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Faculty Disclosure

I, Dr Faith Daggs have no financial interest/arrangement that would be considered a conflict of interest.
OBJECTIVES

Review Normal / Menstrual Bleeding

Review Unusual / Abnormal Uterine Bleeding
- Creighton Model terminology
- “Old” Terminology
- PALM – COEIN Classification (FIGO)
- Evaluation
- Treatment Using Naprotechnology – Case Presentations
Normal Menstruation

- A bleeding episode which follows an “ovulatory event”
- Occurs as the result of progesterone withdrawal
- Is a very characteristic bleeding episode
- Almost always is crescendo-decrescendo or decrescendo in its pattern

**Crescendo-Decrescendo**

L-H-H-M-L-VL

**Decrescendo**

H-H-M-M-L

- Often associated with mild symptoms of menstruation: premenstrual breast tenderness, mild low backaches, mild cramps
The menstrual cycle. The relationship between reproductive hormone levels, follicular development and ovulation, and endometrial changes in a regular ovulatory cycle.
Normal Menses – CrMS FertilityCare Chart
### Characteristics of normal menses versus abnormal uterine bleeding

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Normal menses</th>
<th>Abnormal uterine bleeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>Every 21 to 35 days</td>
<td>&lt;21 days or &gt;35 days</td>
</tr>
<tr>
<td>Regularity</td>
<td>Cycles occur with a fairly consistent frequency</td>
<td>Variation from one cycle to the next of more than 20 days is considered irregular</td>
</tr>
<tr>
<td>Volume</td>
<td>5* to 80 mL of blood</td>
<td>Volume of blood is difficult to measure. In clinical practice, heavy menses are generally defined as soaking a pad or tampon more than every two hours or as a volume of bleeding that interferes with daily activities (eg, wakes patient from sleep, stains clothing or sheets).</td>
</tr>
<tr>
<td>Duration</td>
<td>Bleeding for 5 days</td>
<td>Bleeding for &gt;5 days</td>
</tr>
</tbody>
</table>

* Fraser IS, Critchley HOD, Munro MG, Broder M. Hum Reprod 2007; 22:635.

Unusual Bleeding
Definition

The presence of bleeding that is different from a normal menstrual period
Unusual Bleeding Characteristics Seen in FertilityCare Chart

- Light, very light or brown bleeding
- Not crescendo-decrescendo or decrescendo
- Tends to be the same day to day
- Not associated with menses
- May rarely have characteristics of menstrual bleeding in terms of flow characteristics
- Abn Character, length and/or intensity of menstrual flow
Unusual Bleeding Advances

- Light and very light bleeding at the tail end of menses
- Premenstrual spotting
**CREIGHTON MODEL Definition**

| Postmenstrual brown bleeding/TEBB | Two or more days of brown (black) bleeding appearing at the tail end of the menstrual flow. Generally, the length of the menses in such cases is six days or longer but this is not essential to the definition. |
**CREIGHTON MODEL** Definition

| Excessively heavy menses | At least one 24-48 hour period where the woman must change pads, tampons or both more frequently than every 2 hours.¹ |

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1. On a normal, heavy day of menses, women usually need to change pads or tampons every 3 to 5 hours.
Most are hormonal – due to follicular or luteal dysfunction

Some may be organic – anatomic, infectious, pregnancy related
“Ovulatory” bleeding
- Bleeding associated with estrogen changes around ovulation
- Estrogen breakthrough bleeding: Unusual bleeding observed leading up to the Peak Day
- Estrogen withdrawal bleeding: Unusual bleeding observed immediately after the Peak Day

“Dysfunctional” Uterine Bleeding
- Seen in oligoovulatory or anovulatory situations
- Observed as periods of L, VL or B bleeding not associated with menses
Tail end of menses or premenstrual spotting can be managed according to manual.

Other unusual bleeding should be referred to physician so that organic causes can be ruled out.

Unusual bleeding should still be considered of peak fertility with a count of three following the last day.

All cases of unusual bleeding should be submitted, in case management form to your supervisor for input. There are other ways of managing unusual bleeding if it poses difficulties and your supervisor can assist you on a one-on-one basis.
Unusual Bleeding
Organic Causes

- Could be many different causes—too many to list
- Some of the more common causes:
  - Cervicitis (see post-coital bleeding)
  - Uterine fibroids
  - Cervical or endometrial polyps
  - Pregnancy (early pregnancy bleeding)
  - Endometritis

- All patients with unusual bleeding should see physician, ideally Creighton Model Medical Consultant to be checked
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menorrhagia</td>
<td>Heavier than normal menstrual period</td>
</tr>
<tr>
<td>Metrorrhagia</td>
<td>Bleeding between menstrual periods</td>
</tr>
<tr>
<td>Menometrorrhagia</td>
<td>Heavier than normal menstrual periods and bleeding between menstrual periods</td>
</tr>
<tr>
<td>Polymenorrhea</td>
<td>Bleeding more often than every 21d</td>
</tr>
<tr>
<td>Oligomenorhea</td>
<td>Bleeding less frequent than every 35d</td>
</tr>
<tr>
<td>Dysfunctional uterine bleeding (DUB)</td>
<td>Uterine bleeding associated with no identifiable organic condition; usually thought to be hormonal in nature</td>
</tr>
</tbody>
</table>
PALM – COEIN Classification of Abnormal Uterine Bleeding / AUB

- Introduced by the International Federation of Gynecology and Obstetrics in 2011
- Established to create a universally accepted nomenclature system to describe uterine bleeding abnormalities in reproductive age women.
  - Classifies by PATTERN - Heavy Menstrual Bleeding (AUB/HMB) and Intermenstual Bleeding (AUB/IMB)
  - and
  - ETIOLOGY – Structural and Nonstructural Causes
- Adopted by ACOG
**PALM – COEIN Classification**

![Diagram showing PALM and COEIN classification categories for abnormal uterine bleeding](image)

**Abnormal uterine bleeding:**
- Heavy menstrual bleeding (AUB/HMB)
- Intermenstrual bleeding (AUB/IMB)

**PALM—structural causes:**
- Polyp (AUB-P)
- Adenomyosis (AUB-A)
- Leiomyoma (AUB-L)
  - Submucosal leiomyoma (AUB-LSM)
  - Other leiomyoma (AUB-LO)
- Malignancy and hyperplasia (AUB-M)

**COEIN—nonstructural causes:**
- Coagulopathy (AUB-C)
- Ovulatory dysfunction (AUB-D)
- Endometrial (AUB-E)
- Iatrogenic (AUB-I)
- Not yet classified (AUB-N)

**Fig. 1.** Basic PALM–COEIN classification system for the causes of abnormal uterine bleeding in nonpregnant reproductive-aged women. This system, approved by the International Federation of Gynecology and Obstetrics, uses the term “abnormal uterine bleeding” paired with terms that describe associated bleeding patterns (“heavy menstrual bleeding” or “intermenstrual bleeding”), a qualifying letter (or letters) to indicate its etiology (or etiologies), or both. Abbreviation: AUB indicates abnormal uterine bleeding. (Data from Munro MG, Critchley HO, Broder MS, Fraser IS. FIGO classification system [PALM-COEIN] for causes of abnormal uterine bleeding in nongravid women of reproductive age. FIGO Working Group on Menstrual Disorders. Int J Gynaecol Obstet 2011;113:3–13. [PubMed] [Full Text]) ☛
AUB – Polyps, Adenomyosis and Leimyomata/Fibroids
AUB – Malignancy and Hyperplasia
AUB – Coagulopathy, Ovulatory Dysfunction, Endometrial, Iatrogenic, Not yet classified

- **Coagulopathy** – 20% of women w/ HMB have an underlying coagulation disorder: von Willebrand’s Disease, Platelet Function Disorders, Hemophilia or other medical diseases – liver, leukemia

- **Ovulatory Dysfunction** – Anovulation, Oligoovulation

- **Endometrial** – Infection and Inflammation

- **Iatrogenic** – anticoagulants, hormonal contraceptives, intrauterine devices, tamoxifen, chemotherapeutics, antipsychotics, antiemetics, corticosteroids

- **Not yet classified** – Disorders of local endometrial hemostasis, Endometriosis? – structural/hormonal/inflammatory
Causes of Ovulatory Dysfunction

Primary Hypothalamic Dysfunction
- Lactational amenorrhea
- Immaturity/postmenarche
- Perimenopause
- Pituitary adenoma/tumor
- Tumors, trauma, radiation of hypothalamus/pituitary
- Stress, Eating disorders, Intense exercise
- Sheehan’s syndrome

Other
- PCOS
- Thyroid dysfunction
- Adrenal or Ovarian Tumors
- Chronic liver or kidney disease
- Adrenal disorders – Cushings, congenital adrenal hyperplasia
- Premature Ovarian Failure – genetic, autoimmune, iatrogenic – surgical, drugs, radiation
Management of Abnormal Uterine Bleeding Associated With Ovulatory Dysfunction

Abnormal uterine bleeding associated with ovulatory dysfunction (AUB-O) is a condition for which women frequently seek gynecologic care. Anovulatory bleeding is common at the extremes of reproductive age. The choice of treatment of AUB-O depends on several factors, including the woman’s age, severity of her bleeding, her medical risk factors, her need for contraception, and her desire for future fertility (1). The purpose of this document is to provide management guidelines for the treatment of patients with AUB-O.
From NaProTechnology perspective, Ovulatory or Follicular Dysfunction goes beyond whether a woman is ovulatory or nonovulatory but seeks qualify and quantify ovulation.

Not every woman who is ovulating is ovulating normally.

Ovulatory/Follicular Dysfunction generally precedes Luteal dysfunction which causes abnormal bleeding.

NaProTechnology approach allows for more precise diagnosis and management.

- Targeted Hormone Profile
- CERT/CPRT/Coop HCG
- Follicular Maturation Series
- Follicular Support
- Surgical Evaluation/Treatment
- Cervical Ablation
Using the CrMS FertilityCare Chart and NaProTechnology Approach to evaluate Unusual/Abnormal Bleeding

- Menstrual patterns: frequency, duration, intensity, intermenstrual bleeding – biological markers the patient records for us! Mucus cycle scoring, menstrual scoring system
- Targeted Hormone Profile
- Follicular Maturation Ultrasound Series
- NaProTechnology Surgical Approach – works with the chart to time surgical evaluation optimally to prepeak window
Evaluation of Patient with Unusual/Abnormal Uterine Bleeding

- History: Menstrual – Intensity, duration, frequency of menses, associated symptoms – pain, GI changes, skin changes, HA, dizziness, fatigue, aggravating/alleviating factors, bleeding outside the menses

FertilityCare Chart
- Obstetric/Medical/Surgical/Family Hx; Medications
- Physical Exam – general including pelvic exam
- Laboratory Evaluation – HCG, CBC, TFTs, Prolactin, Genital Cultures, Targeted Hormone Profile or Selective Hormone Evaluation (E2, P4, FSH, LH, Androgens)
- Endometrial Biopsy (+/- Em Cultures, CD 138 stain for Bcells)
- Imaging – Pelvic Ultrasound, Saline Infusion Sonography, MRI
- Surgery – Diagnostic Hysteroscopy, Diagnostic Laparoscopy
Diagnostic Evaluation of AUB

Endometrial biopsy

Saline Sonohysterogram
Treatment of Unusual/Abnormal Bleeding

- Structural Causes – Polyps, Adenomyosis, Leiomyoma, Malignancy and Endometrial Hyperplasia

MEDICAL – cooperative cyclic progesterone can reverse endometrial hyperplasia

SURGICAL – Hysteroscopic removal of intracavitary lesions, Laparoscopic/Robotic/Open Myomectomy vs Hysterectomy (referral to Oncology as indicated)
Treatment of Unusual/Abnormal Uterine Bleeding – NaPro Approach

Nonstructural Causes

- Coagulopathy – Tranexamenic Acid (Lysteda), NSAIDs, Progesterone
- Ovulatory Dysfunction – follicular/ovulatory support (clomiphene citrate, letrozole, HMG, hcg, low dose naltrexone; cyclic CPRT includes Luteal Phase Defects – CERT, CPRT, postpeak hcg
- Endometrial – Endometritis/PID - antibiotics
  Local endometrial hemostatic disorders – CPRT, NSAIDs, Tranexamencic Acid
- Iatrogenic – medications (anticoagulants, antipsychotic, oral contraceptives) or devices (IUDs, Cervical/menstrual cup) stop use where possible
- Not Yet Classified – Endometriosis, anatomic defect causing hormonal dysfunction – treat surgically and medically follicular/luteal support of cycle, low dose naltrexone
Local Endometrial Hemostatic Disorders: Role of Progesterone

- Progesterone plays key role in stabilizing the endometrium
- Progesterone blocks endometrial stromal cells production of matrix metalloproteinase (MMPs)
- MMP’s degrade the extravascular and stromal matrix
- Progesterone stimulates stromal cell Tissue Factor production – a key factor in extrinsic coagulation pathway – binding Factor VII
- Progesterone stimulates Plasminogen Activator Inhibitor -1/PAI-1 blocks fibrinolysis – stabilizing clots
- Presence of luteal phase defects in progesterone should be anticipated to cause abnormal bleeding as would a complete lack of progesterone – anovulation.
Case #1: 36 yo G0 hx type 3 lpd, new painless midcycle bleeding
Evaluation & treatment

DX: AUB - Polyp

- Saline Infusion Sonogram
  - Soft tissue masses c/w endometrial polyps
  - 0.47cm to 0.74cm

- Treatment: Hysteroscopy w/Polypectomy

- Continue postpeak estradiol & progesterone support
Case #2 33 yo G0 w/PCOS, new onset prolonged, unusual bleeding; desires pregnancy prior eval incl nl HSG, +insulin resistance, elevated androgens; prior tx with clomiphene citrate up to 150mg x 5 days with only 1 successful ovulatory cycle (+P4)
Evaluation, Diagnosis & Treatment

- 5/27/14 Pelvic US – Uterus 7cm, endometrium 7mm, Ovaries multiple small follicles b/l
- 6/30/15 Office visit – H&P – BMI 42, nl VS, pelvic exam wnl except for mod blood  Embx done – no hyperplasia, proliferative endometrium cervical culture: +Klebsiella pneumonia
- DX: AUB-Ovulatory Dysfunction and AUB-Endometritis
- TX: Bactrim DS and Micronized Progesterone 200mg qhs x 10 days
- Ovulatory Support: Letrozole 2.5mg 10-12 tabs, monitored with FertilityCare Charting and targeted estradiol & progesterone levels
- Luteal Support: unable to successfully induce ovulation, Micronized progesterone 200mg x 10d to induce withdrawal bleeding
- 4/22/15 Robotic Assisted Ovarian Wedge Resection with apparent resumption of normal cycling based on FertilityCare charting
Case #2 evaluation & treatment

|   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 |
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[Image of a chart or diagram related to fertility tracking or symptom monitoring.]

Use these symbols: P = Peak  
12:3 = Fertile days following Peak  
F = Intercourse

BSE = Breast self-exam
Case #2 evaluation & treatment
Case #3 31 yo G0 ref from FCP/FCMC w/AUB, pelvic pain – dysmenorrhea & dyspareunia, fertility d/o – ttc 6y.
Case #3 evaluation & treatment

- Previous – 6/2014 Nl pelvic US, nl TFTs, nl PRL, nl pap, nl androgens, limited THP P+5 FSH 1.0, LH 1.9, P+8 E2 79, P4 3.5
- Treatment – started on postpeak SR oral micronized progesterone
- Seen as Consult 11/11/14 H&P, BMI 58, VSS, pelvic exam – tender, limited by habitus, cervical cultures done + ureaplasma – pt & spouse treated w/doxycycline
- 12/18/14 Endometrial cultures, attempted SHSG, Diag Hysteroscopy, D&C, Robotic Assisted Diag Laparoscopy w/Laser Exc Endometriosis
- Endometrial Culture + Enterococcus Faecalis – pt treated w/Biaxin
- Stage 1 Endometriosis treated w/CO2 laser excision/ablation
Case #3 AUB – final dx’s & treatment

**Ovulatory Dysfunction** – likely follicular as well as luteal – cc 25mg cd3-5; estradiol 1mg po P+3-12, SR micronized progesterone 200mg po P+3-12

Cervicitis, Endometritis – abx – Clarithromycin 250mg BID x 21d

Endometriosis – treated surgically
Case #4 31 yo w/dysmenorrhea, prolonged menses, imb, tebb, ttc x 2y, hx chlamydia age 20 tx’d, hx of oc use for menstrual bleeding and pain. Referred by another FCMC for surgical evaluation and ongoing treatment.
Case #4 Evaluation & Treatment

- Initial office visit w/partner 3/20/14 – H&P, cervical cx – all neg, referred to FertilityCare office for intro session, plan for THP after 2 charted cycles
- 4/7/15 HSG – NL uterine cavity; Partial fill, no spill left tube; no fill or spill noted on the right
- 6/15 Targeted Hormone Profile – suspected Follicular Dysfunction, Type 1 Luteal Phase Defect, nl TFTS, PRL
- 8/15 Preop consult, 8/27/15 Pelvic US – nl uterus, nl ovaries
- 9/4/15 SHSG w/bilat tubal cannulation, Diag Hysteroscopy, D&C, Robotic Asst Diag Laparoscopy w/Laser Excision of Endometriosis
### Case #4 Evaluation & Treatment

#### Hormonal Profile:

**Results**

<table>
<thead>
<tr>
<th>LMP</th>
<th>Peak Day</th>
</tr>
</thead>
</table>

**Pre-Peak Hormonal Profile**

<table>
<thead>
<tr>
<th>Date</th>
<th>Cycle Day</th>
<th>Estradiol, ng/dl</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/26/2014</td>
<td>12</td>
<td>250.0</td>
</tr>
<tr>
<td>6/28/2014</td>
<td>14</td>
<td>42.0</td>
</tr>
</tbody>
</table>

**Post-Peak Hormonal Profile**

<table>
<thead>
<tr>
<th>Date</th>
<th>Cycle Day</th>
<th>Estradiol, ng/dl</th>
<th>Progesterone, ng/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/2/2014</td>
<td>p+4</td>
<td>94.00</td>
<td>4.80</td>
</tr>
<tr>
<td>7/2/2014</td>
<td>p+6</td>
<td>109.00</td>
<td>10.00</td>
</tr>
<tr>
<td>7/3/2014</td>
<td>p+7</td>
<td>108.00</td>
<td>3.60</td>
</tr>
<tr>
<td>7/6/2014</td>
<td>p+10</td>
<td>42.00</td>
<td>3.10</td>
</tr>
<tr>
<td>7/7/2014</td>
<td>p+11</td>
<td>32.00</td>
<td>1.60</td>
</tr>
</tbody>
</table>

[Image of medical scan]
Case #4 Final Dx’s & Tx: AUB

**Ovulatory Dysfunction:** likely follicular & known luteal phase defects – letrozole 2.5 mg 5 tabs cd2; pp hcg 2,000 P+3,5,7,9

**Endometriosis** Stage 2/3 – Treated surgically

Assessment of Tx – FertilityCare Chart & P+7 E2, P4
Case #5 30 yo G4P2022, ttc 2y, 2 SAB, HMB, TEBB
Case #5 Evaluation & Treatment

- H & P - heavy menses w/TEBB, IMB; difficulty w/weight loss, cyclic acne, nl exam, abn cervical cultures +ureaplasma
- Prior evaluation w/nl TFTs, nl thrombophilia evaluation
- Pelvic US wnl
- THP done after 3rd charted cycle c/w Type 2 Luteal Phase Defect, elevated DHEA-S 386
- 2h gtt w/insulin levels – 96/86, 2h insulin 91.5: insulin resistance
- Surgical evaluation w/SHSG, Hsc, D&C, Robotic Asst Diag Lap w/LOA, Exc St 1 Endometriosis – nl tubes, nl cavity, neg cultures, L tube/sigmoid adhesions, mild endo
Case #5: Final Dx & Tx: AUB
- **Cervicitis** – patient & spouse tx’d w/doxycycline, neg TOC
- **Luteal Phase Defect** – postpeak estradiol 1mg po P+3-12, Micronized progesterone 200mg pv P+3-12 >> pp hcg 2,000 IU P+3,5,7,9
- **Endometriosis, Pelvic Adhesions** – treated surgically
- **Insulin Resistance** - Metformin 1,000 mg BID
CrMS FertilityCare Chart serves as the guide for the Evaluation of Unusual/Abnormal Uterine Bleeding

- Directs the History and Physical
- Timing and Choice of Laboratory and Radiographic Diagnostic Tests
- Choice and timing of Medical Therapies
- Choice and Timing of Surgical Evaluation and Treatment if indicated
- Provides an Objective Tool in Assessment of Response to Treatment, and allows for troubleshooting
THANK YOU!

SPIRIT FertilityCare Center – 10 years and going!
Dorice Millar, CFCP, CFCE and our FCPs!!
Dr. Thomas Hilgers
Dr. Mark Stegman
Dr. Anne Marie Manning

My Husband, Paul and our kids!

Faith Daggs, MD  fddaggs@geisinger.edu  fdaggs@comcast.net