Abnormal Uterine Bleeding
Learning Objectives

- Define normal and abnormal uterine bleeding
- Describe structural and non-structural causes of abnormal uterine bleeding using the PALM-COEIN system
- Discuss the evaluation of a patient with abnormal uterine bleeding
- Describe treatment options for abnormal uterine bleeding caused by both structural and non-structural etiologies
What is NORMAL uterine bleeding?

- Interval: 21-35 days
- Flow duration: 2-7 days (average 5)
- Volume: <80 mL (average 30 mL)
- Composition: non-clotting blood, endometrial debris
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<thead>
<tr>
<th>Surname, First Name</th>
<th>Start Date:</th>
<th>Total:</th>
<th>Day</th>
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<tbody>
<tr>
<td>Towel</td>
<td>1 2 3 4 5 6 7 8</td>
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<td>Clots/Overflow</td>
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**PADS**
- Lightly Soaked: +1 Point
- Moderately Soaked: +5 Points
- Heavily Soaked: +20 Points

**TAMPONS**
- Lightly Soaked: +1 Point
- Moderately Soaked: +5 Points
- Heavily Soaked: +20 Points

**CLOTS**
- Small: +1 Point
- Large: +5 Points

**FLOODING**
- Any: +5 Points

**Interpretation:**
A score of >100 points indicates menstrual loss >80ml/cycle
Old Terminology

- Menorrhagia - heavy menstrual bleeding
- Metrorrhagia - irregular menstrual bleeding
- Menometrorrhagia - irregular AND heavy menstrual bleeding
- Oligomenorrhea - infrequent cycles
- Polymenorrhea - cycles that are TOO frequent
- Amenorrhea - no cycles
Abnormal Uterine Bleeding
- Heavy menstrual bleeding
- Intermenstrual bleeding

PALM: Structural Causes
- Polyp
- Adenomyosis
- Leiomyoma
  - Submucosal myoma
  - Other myoma
- Malignancy & hyperplasia

COEIN: Nonstructural Causes
- Coagulopathy
- Ovulatory dysfunction
- Endometrial
- Iatrogenic
- Not yet classified
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P - Polyps

- Hyperplastic overgrowth of endometrial glands and stroma
- Intermenstrual bleeding
- Risk factors: Tamoxifen use, obesity, post-menopausal HRT
A - Adenomyosis

- Endometrial glands and stroma infiltrating the myometrium
- Heavy menstrual bleeding and dysmenorrhea
- Diffusely enlarged, "boggy" uterus
- Risk factors: parity, history of prior uterine surgery
Adenomyosis
L - Leiomyoma

- Benign, monoclonal tumors arising from smooth muscle
- Submucosal, intramural, subserosal
- Asymptomatic, heavy menses, bulk-related symptoms
- Risk factors: race, nulliparity, early menarche, consumption of red meat, consumption of alcohol
Leiomyoma
Leiomyoma
M - Malignancy

- Endometrial carcinoma AND hyperplasia
- Most common gynecologic malignancy
- Hyperplasia - benign hyperplasia vs EIN
- Carcinomas - type 1 and type 2:
  - Type 1 - estrogen-dependent, low grade, good prognosis, preceded by hyperplasia
  - Type 2 - not estrogen sensitive, high grade, poor prognosis
- Risk factors:
  - Type 1 - obesity, unopposed estrogen, Tamoxifen use, nulliparity, DM, PCOS
  - Type 2 - increasing age, race
COEIN

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C - Coagulopathy

- Up to 20% of women with AUB
- Inherited, acquired
- Screening questionnaire for underlying bleeding disorders
Coagulopathy

Box 1. Clinical Screening for an Underlying Disorder of Hemostasis in the Adult Patient With Excessive Menstrual Bleeding

Initial screening for an underlying disorder of hemostasis in patients with excessive menstrual bleeding should be structured by the medical history. A positive screening result comprises the following circumstances:

- Heavy menstrual bleeding since menarche
- One of the following conditions:
  - Postpartum hemorrhage
  - Surgery-related bleeding
  - Bleeding associated with dental work
- Two or more of the following conditions:
  - Epistaxis, one to two times per month
  - Frequent gum bleeding
  - Family history of bleeding symptoms

*Patients with a positive screening result should be considered for further evaluation, including consultation with a hematologist and testing for von Willebrand factor and ristocetin cofactor.

Box 2. Recommended Screening Tool for Adolescent Patients Who Report Heavy Menstrual Bleeding

If a patient meets one or more of the following criteria, it indicates a positive screen result and warrants further evaluation:

1. Menstrual cycle greater than 7 days and "flooding" or "gushing" sensation or bleeding through pad or tampon in 2 hours
2. History of anemia
3. Family history of bleeding disorder
4. History of bleeding disorder after hemostatic challenge (i.e., tooth extraction, surgery, delivery)
O - Ovulatory dysfunction

- Irregular uterine bleeding - no bleeding vs heavy, irregular bleeding
- Anovulation or oligo-ovulation
- PCOS, ovarian failure, thyroid disorders, hyperprolactinemia, hypothalamic dysfunction

Box 1. Causes of Anovulation

**Physiologic**
- Adolescence
- Perimenopause
- Lactation
- Pregnancy

**Pathologic**
- Hyperandrogenic anovulation (eg, polycystic ovary syndrome, congenital adrenal hyperplasia, or androgen-producing tumors)
- Hypothalamic dysfunction (eg, secondary to anorexia nervosa)
- Hyperprolactinemia
- Thyroid disease
- Primary pituitary disease
- Premature ovarian failure
- Iatrogenic (eg, secondary to radiation or chemotherapy)
- Medications
E - Endometrial

- Endometritis - acute vs chronic
  - Acute endometritis - rare outside of pregnancy
  - Chronic endometritis - irregular or heavy bleeding with low abdominal pain
- Endometrial hemostasis disorders - increased plasminogen activator & plasmin, increased expression of COX-1 & COX-2
I - Iatrogenic

- Contraceptive agents (OCPs, progestin-only, copper IUD)
- Menopausal HRT
- Medications that interfere with coagulation, endocrine function
N – Not yet classified

- Reserved for entities that are poorly defined, not well examined, or very rare
  - AV malformation
  - Myometrial hypertrophy
  - Cesarean section scar defect
Evaluation

- History
- Physical exam
- Lab studies
- Biopsy
- Imaging
AUB by Age Range

- **13-18 years**
  - Anovulation (physiologic)
  - Coagulopathy

- **19-39 years**
  - PCOS
  - Pregnancy-related
  - Structural lesions

- **40+ years**
  - Structural lesions
  - Anovulation (physiologic)
  - Endometrial hyperplasia/malignancy
History

- Bleeding pattern, severity, associated pain
- Medical & family history
- Medications
- Screen for bleeding disorders

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**Box 2. Recommended Screening Tool for Adolescent Patients Who Report Heavy Menstrual Bleeding**

If a patient meets one or more of the following criteria, it indicates a positive screen result and warrants further evaluation:

1. Menses greater than 7 days and "flooding" or "gushing" sensation or bleeding through pad or tampon in 2 hours
2. History of anemia
3. Family history of bleeding disorder
4. History of bleeding disorder after hemostatic challenge (i.e., tooth extraction, surgery, delivery)
Physical exam

- General - Obesity, signs of hyperandrogenism, insulin resistance
- Thyroid exam
- Skin - petechiae, ecchymoses, skin pallor
- Pelvic exam - speculum and bimanual
Lab studies

- Pregnancy test!!!
- CBC
- TSH, FSH, prolactin
- Pap smear
- PT, PTT; vWF Ag, vWF Act, Factor VIII activity
- If signs of hyperandrogenism, screen for late-onset CAH, Cushing’s syndrome, androgen-producing tumors
Endometrial Biopsy
Imaging

- Ultrasound – fibroids, adenomyosis
- Saline infusion sonogram
- MRI – may be helpful for surgical planning, routine use not recommended
Saline infusion sonogram (SIS)
TVUS vs SIS
Treatment

- **Medical vs Procedural/Surgical**
  - Medical: treat underlying disorder, NSAIDs, hormonal therapy, tranexamic acid
  - Procedural/Surgical: endometrial ablation, lesion-specific (polypectomy, myomectomy), UAE, hysterectomy
Medical Treatment

- NSAIDs
- Combined hormonal contraceptives
- Progestin-only - cyclic vs continuous
- LNG-IUD
- Tranexamic acid (Lysteda)
Tranexamic acid

- Anti-fibrinolytic
- 1300 mg TID x 5 days during menses
- Cannot use in patients with h/o or RF for thromboembolic disease
Endometrial ablation

- Surgical destruction of endometrium by various techniques - radiofrequency, circulating hot water, cryotherapy, combination
- Could make diagnosis of endometrial cancer difficult
Polypectomy

- Blind vs hysteroscopic
Myomectomy

- Can significantly improve symptoms while sparing fertility
- Risk of recurrent myomas
- Laparoscopic/robotic vs open
- Hysteroscopic
Abdominal myomectomy

- Make careful note of entry into endometrial cavity
- Consider risks to future pregnancies
Laparoscopic myomectomy

- Challenges:
  - Uterine repair
  - Fibroid removal without morcellation
Submucosal Leiomyoma

- Type 0 - no invasion into the myometrium
- Type I - <50% invasion into the myometrium
- Type II - >50% invasion into the myometrium

*Type 0 & I am amenable to hysteroscopic resection
Hysteroscopic myomectomy

- Different instruments/techniques
- Challenge: avoiding fluid overload (consider staged procedure)
Uterine artery embolization

- Mostly used for leiomyoma, some studies with adenomyosis
- Helpful for heavy bleeding, less so for bulk-related symptoms
- Higher symptom recurrence if more numerous fibroids
- Post-procedural pain, fever due to necrosis
- Possible pregnancy complications: abnormal placentation, miscarriage, IUGR, postpartum hemorrhage
Hysterectomy

- Abdominal if large fibroids or significant adenomyosis; possible laparoscopic / robotic with new morcellation techniques
- Could give GnRH agonist pre-op to improve hematologic parameters, decrease uterine bulk
- Vaginal hysterectomy is gold standard → laparoscopic/robotic → abdominal hysterectomy
Questions??
References