Alphabet Soup: AUB and PALM COEIN for Systematic Diagnosis and Management of Abnormal Uterine Bleeding

Nancy R. Berman MSN, ANP-BC, NCMP, FAANP
Adult Nurse Practitioner/Colposcopist
Certified Menopause Practitioner (NAMS)
The Millennium Medical Group, PC
Division of Michigan Healthcare Professionals
Farmington Hills, Michigan
Clinical Instructor
Department of Obstetrics and Gynecology
Wayne State University School of Medicine
Detroit, Michigan
Objectives

- Discuss the Palm-Coein classification system for abnormal uterine bleeding
- Discuss the workup for the diagnosis of abnormal uterine bleeding
- Discuss options for management of abnormal uterine bleeding including pharmacologic and surgical interventions
Disclosures

Advisory Board: Hologic
Advisory Board: LabCorp
When Furniture Gets Old... Out to the Curb!

Photo courtesy of Unsplash.com
When Shoes Get Old... Out To the Trash!

Photo courtesy of Unsplash.com
When Terminology Gets Old... Replace It!

- Menorrhagia
- Metromenorrhagia
- Dysfunctional Uterine Bleeding (DUB)
Welcome to PALM COEIN

Systematic evaluation of AUB leading to a diagnosis and treatment plan
Figure 1. Basic classification system. The basic system comprises four categories that are defined by visually objective structural criteria (PALM: Polyp, Adenomyosis, Leiomyoma, and Malignancy or hyperplasia); four (COEI) that are unrelated to structural anom...
Most common causes of abnormal uterine bleeding:

- Uterine pathologies: STRUCTURAL
  - Polyps
  - Adenomyosis
  - Leiomyomas
  - Malignancy & hyperplasia
• Systemic conditions: NON-STRUCTURAL
  ▪ Coagulopathies
  ▪ Ovulatory dysfunction
  ▪ Endometrial
  ▪ Iatrogenic
  ▪ Not yet classified
A Classification System for Abnormal Uterine Bleeding

IN NONPREGNANT REPRODUCTIVE-AGED WOMEN

PALM COEIN was developed:

• To improve upon poorly defined terms and definitions

• To develop a structured approach to a frequently multifactorial clinical problem
A Classification System for Abnormal Uterine Bleeding

• Helps the clinician to develop a *diagnosis* for the bleeding rather than a *symptom*

• “Menorrhagia” frequently persists as an ill-defined combination of *symptom and diagnosis*

• “Heavy menstrual bleeding” or “HMB” is frequently used as a *diagnosis* rather than a *symptom*
FIGO System

FIGO system

- Nomenclature and definitions
- Gone are the terms ‘menorrhagia’, ‘menometrorrhagia’, and ‘oligomenorrhea’, and other poorly defined and inconsistently used terms.
There are four basic criteria to define menses:

- Frequency, duration, regularity, and volume,
- All as reported by the patient.
- Intermenstrual bleeding is reported only when one can clearly define normal ovulatory menses.
- Unscheduled bleeding when using hormonal medications is reported separately.
The Menstrual Cycle

What is normal cycling?
Menses

- Proliferative phase- follicular phase, estrogen (E2) dominant
  - Endometrial growth from 0.5 to 3.5-5.0mm, relatively smooth surface
- Secretory phase- luteal phase, progesterone dominant
  - Becomes more glandular, sawtooth appearance
- Menses - decreased E2 and Progesterone

Beshay and Carr 2013
Normal Cycling

• Normal interval: 21-35 days
• Only 15% of women have 28 day cycles
• Duration of flow 2-8 days, Average: 4-6
• Average volume is 80 ml of blood
• 16 mg of Fe

Beshay and Carr 2013
Endometrial Hemostasis

• Platelets involvement relatively low
• Prostaglandin E2:F2α elevated in women with heavy bleeding
• Nitric Oxide may play a role
  ▪ Vasodilator and inhibits platelet aggregation
• Coagulation cascade after day 1
• Possible role of enhanced fibrinolysis

Beshay and Carr 2013
# Pictorial Bleeding Assessment Chart (PBAC)

## PATIENT DIARY

<table>
<thead>
<tr>
<th>PATIENT INITIALS:</th>
<th>PATIENT ID NO.</th>
<th>NEW FREEDOM SUPER MAXI PADS</th>
<th>TAMPAX SUPER TAMpons</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE: ____________</td>
<td>PHYSICIAN: ______</td>
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</table>

### DAY OF MONTH

<table>
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<th>16</th>
<th>17</th>
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<td><img src="tampon.png" alt="Diagram" /></td>
<td><img src="clot-flooding.png" alt="Diagram" /></td>
<td><img src="discharge.png" alt="Diagram" /></td>
<td><img src="assessment.png" alt="Diagram" /></td>
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</tbody>
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*ASSESSMENT SCALE: 0 = NO SYMPTOMS; 1 = MILD; 2 = MODERATE; 3 = SEVERE.*

Courtesy Jay Berman MD
Abnormal Uterine Bleeding

Definition
Causes
Diagnosis
Treatment
What is Abnormal Uterine Bleeding

• > 1 pad/hour for more than 1 day
• > 7 days at a time
• < 20 days apart
• > 80 cc a month
• Enough to cause anemia
• ENOUGH TO CAUSE DISRUPTION IN LIFESTYLE

ACOG, Committee Opinion. April 2013 (reaffirmed 2015), number 557.
Prevalence

• 5% of women between 35–49
• Up to 50% of perimenopausal women will experience AUB
• 1.4 million women in the US annually
• 53% of women report: periods interfere with their life
  ▪ Compared with 23% of age-matched community controls

Diagnostic Evaluation of AUB

• The evaluation of AUB includes:
  ▪ A thorough medical history and physical examination
  ▪ Appropriate laboratory and imaging tests
  ▪ Consideration of age-related factors
Diagnostic Evaluation of Abnormal Uterine Bleeding

Medical history

• Age of menarche and menopause
• Menstrual bleeding patterns:
  ▪ Duration, onset and quantity
• Severity of bleeding (clots or flooding)
• Family or personal history of bleeding disorders
• Pain (severity and treatment)
• Medical conditions
Diagnostic Evaluation of Abnormal Uterine Bleeding

Physical exam

• General physical:
  ▪ Signs of systemic illness
    ▫ Bruising
    ▫ Thyromegaly
    ▫ Hirsutism
    ▫ Acne
    ▫ Acanthosis nigricans (associated with insulin resistance)
    ▫ Galactorrhea
Diagnosis

• Pelvic Examination
  ▪ External
    ▫ Perineal, perianal, vulvar, vaginal, urethral
  ▪ Speculum with pap test, if needed
  ▪ Bimanual exam
    ▫ Cervical lesions
    ▫ Uterine size and shape
    ▫ Adnexal masses
    ▫ Vaginal lesions
  ▫ Trauma
Diagnostic Evaluation of Abnormal Uterine Bleeding

Laboratory tests
• Pregnancy test (blood or urine)
• Complete blood count
• Targeted screening for bleeding disorders (when indicated) *
  ▪ Check prothrombin time (PT), partial thromboplastin time (PTT), factor VII, and Von Willebrand’s factor antigen

*See Coagulopathy Slides
Screening for Coagulopathy

Assess for a positive screen:
• Heavy menstrual bleeding since menarche
• One of the following:
  ▫ Postpartum hemorrhage
  ▫ Surgery-related bleeding
  ▫ Bleeding associated with dental work
Screening for Coagulopathy

OR

• Two or more of the following:
  • Bruising one to two times per month
  • Epistaxis one to two times per month
  • Frequent gum bleeding
  • Family history of bleeding symptoms
COAGULOPATHIES

• Primary hemostasis
  ▪ Thrombocytopenia
    ▫ Congenital, drug induced, liver disease, lymphoma
    ▫ Von Willebrand disease
    ▫ 0.1-0.8% of population

• Secondary hemostasis
  ▪ Factor VIII, XIII, fibrinogen deficiencies
  ▪ Oral anticoagulation therapy
  ▪ Liver disease
Diagnostic Evaluation of Abnormal Uterine Bleeding

- Thyroid-stimulating hormone level
- Chlamydia trachomatis
Diagnostic Evaluation of Abnormal Uterine Bleeding

Available Diagnostic or Imaging Tests (when indicated)

- Transvaginal ultrasonography
- Saline infusion sonohysterography
- Hysteroscopy
- Magnetic resonance imaging
Direct Visualization May be Necessary

- Hysteroscopy
Diagnostic Evaluation of Abnormal Uterine Bleeding

Available Tissue Sampling Methods (when indicated)

• Office endometrial biopsy
• Hysteroscopic directed endometrial sampling (office or operating room)
Screening the Endometrium

- A positive test is more accurate for ruling *in* disease than a negative test is for ruling *out* disease.
- These tests are only an endpoint when they reveal cancer or atypical complex hyperplasia.
Screening the Endometrium

• All women older than 45 years old with a complaint of AUB
• Women younger than 45 with risk factors for endometrial hyperplasia (obese women, chronic anovulation, history of breast cancer)
• Women of any age with a history of unopposed estrogen exposure

ACOG, 2013
Screening the Endometrium

- Women taking an estrogen agonist/antagonist (selective estrogen receptor modulator: SERM: tamoxifen)
- Postmenopausal women who resume vaginal bleeding once menstrual cycles have ceased for 1 year
Screening the Endometrium

- All women with abnormal endometrial cells
- Atypical glandular cells on the Pap test
  - If ≥ 35 years or at risk for endometrial neoplasia
    - Unexplained vaginal bleeding
    - Conditions suggesting chronic anovulation

Using PALM COEIN

Making a diagnosis
Structural?
Non-structural?
Established by FIGO - Fédération Internationale de Gynécologie et d'Obstétrique (the International Federation of Gynecology and Obstetrics).

Munro, MG et al. *Int J Gynecol Obstet.* 2011
Polyps
AUB: P
Polyps

• Endometrial proliferations
• As many as 25% may resolve spontaneously
• Mostly associated with “intermittent bleeding” as presenting sign
• Risk of malignancy – 1.7% for pre-menopause
• Risk of malignancy – 5.4% for post menopause
• Size not correlated with risk

Polyps

Courtesy Barb Dehn
PELVIC PATHOLOGY

• Polyps
  ▪ Bleeding because of vasculature and friable
  ▪ Bleeding is usually random
    ▫ not necessarily related to menstruation
  ▪ Malignancy is rare

• Inflammation

• Central blood vessel on ultrasound: must use doppler
  ▪ Not seen in fibroids
Polyp Treatment

• Intra-Uterine polypectomy via hysteroscope
• Up to 25% regress, particularly if less than 10 mm
• Symptomatic postmenopausal polyps should be excised for histologic assessment
• Removal in infertile women improves fertility
• Surgical risks associated with hysteroscopic polypectomy are low.

AAGL, Min Invas Gynecol. 2012
Adenomyosis
AUB: Adenomysis

- Uterine lining grows into the adjacent muscular tissue (myometrium)
  - Adenomyomas may be focal or extensive and may mimic fibroid
- May have no signs or symptoms – difficult to diagnose
- Excessive menstrual bleeding
- Painful menstruation and intercourse
- Uterus may be enlarged
- Hysterectomy is gold standard for diagnosis, but diagnosis may be made with:
  - High resolution ultrasound
  - MRI: Needs to be read by knowledgeable radiologist
  - Hysteroscopy

Adenomyosis

Courtesy Barb Dehn
Adenomyosis

• Treatment
  ▪ NSAIDS
  ▪ Hormone therapy: oral contraceptives
  ▪ Levonorgestrel-releasing intrauterine system
  ▪ Endometrial ablation has been used and remains controversial
  ▪ Hysterectomy
• Resolves with menopause
• Doesn’t affect fertility

AUB- A Pharmacologic Therapy

- NSAIDs, which are effective at reducing the amount of bleeding, discomfort and cramping
- GnRH agonist
- Combined hormonal contraceptives
- Levonorgestrel progestin containing IUDs
- Depo Medroxyprogesterone Acetate (Depo Provera)
- Prescription ant-fibrinolytic medications: Tranexamic acid (Lysteda) TID help reduce excessive blood loss
NSAIDs & AUB

• Prostaglandins higher in endometrium of women w AUB higher than in women w/o
• ↑’d levels of Nitric oxide ↑’s prostaglandins via the cyclooxygenase (COX) pathway
• Inhibiting COX2 and reducing blood loss
• Fewer side effects

Tranexamic acid

• Higher plasminogen activators in the endometrium of women with AUB
• Tranexamic acid is a synthetic lysine derivative that blocks lysine binding sites on plasminogen = preventing fibrin degradation
• More effective than mefenamic acid
• Over a few cycles reduces blood loss by 60%
Tranexamic acid

- 650mg x2 TID for 5 days/month
- Reduce the dose in pt with renal failure
- Side effects are dose dependent
- Increased risk of DVT, contraindicated with thromboembolic disease
- Nausea, vomiting, diarrhea, and dyspepsia, as well as disturbances in color vision.
Levonorgestrel (LNG) IUD

- Can reduce menstrual blood loss within 5-26 days by up to 96%
- Delivers 20 mcg of levonorgestrel q 24 hrs
- 50% of women using the 5 year system will have amenorrhea
- There can be some variable spotting
Oral Contraceptives

- Suppress ovarian function
- Low dosages can reduce endometrial proliferation, prostaglandin production and pain
- Consider pills containing 20 mcg or less
AUB-L

Leiomyoma (Fibroids)
The FIGO classification of causes of abnormal uterine bleeding in the reproductive years

<table>
<thead>
<tr>
<th>Polyp</th>
<th>Coagulopathy</th>
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<tbody>
<tr>
<td>Adenomyosis</td>
<td>Ovulatory dysfunction</td>
</tr>
<tr>
<td>Leiomyoma</td>
<td>Endometrial</td>
</tr>
<tr>
<td>Malignancy &amp; hyperplasia</td>
<td>Iatrogenic</td>
</tr>
<tr>
<td></td>
<td>Not yet classified</td>
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### Leiomyoma subclassification system

<table>
<thead>
<tr>
<th>SM - Submucosal</th>
<th>0</th>
<th>Pedunculated intracavitary</th>
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<tr>
<td></td>
<td>1</td>
<td>&lt;50% intramural</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>≥50% intramural</td>
</tr>
<tr>
<td>O - Other</td>
<td>3</td>
<td>Contacts endometrium; 100% intramural</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Intramural</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Subserosal ≥50% intramural</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Subserosal &lt;50% intramural</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Subserosal pedunculated</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Other (specify e.g. cervical, parasitic)</td>
</tr>
</tbody>
</table>

### Hybrid leiomyomas

(impact both endometrium and serosa)

<table>
<thead>
<tr>
<th>Two numbers are listed separated by a hyphen. By convention, the first refers to the relationship with the endometrium while the second refers to the relationship to the serosa. One example is below</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-5</td>
</tr>
</tbody>
</table>

Malcolm G. Munro, Hilary O.D. Critchley, Ian S. Fraser *The FIGO classification of causes of abnormal uterine bleeding in the reproductive years* Fertility and Sterility, Volume 95, Issue 7, 2011, 2204–2208.e3 http://dx.doi.org/10.1016/j.fertnstert.2011.03.079
Leiomyoma (Fibroids)

- Benign tumors of the uterus
- In women with AUB: present in about 50%
- Estimated 50% in women > 50 years old
- Patient may present with:
  - Bladder or intestinal discomfort
  - Pelvic pain or pressure
  - Heavy menstrual bleeding with clots
  - Dyspareunia
- Treatment depends on size, location & desire for fertility

ACOG, Practice Bulletin, 2012
Leiomyoma: Fibroid

Courtesy Barb Dehn
AUB- L Submucosal Fibroids

- AUB from submucosal leiomyoma’s as well as other locations
- Impinge on uterine cavity and endometrium
- Detected via:
  - Transvaginal Ultrasound
  - Sonohysterography – Saline infused U/S
  - Hysteroscopy
  - MRI
Treatment options

- GnRH agonists (Lupron Depot) – abruptly withdraws $E_2$, fibroids regress
- Uterine Artery Embolization – interferes with blood supply leading to regression
- See & treat with Hysteroscopy used for fibroids within the endometrium
- Intrauterine morcellation
- Laproscopic, robotic or abdominal myomectomy
- Hysterectomy-abdominal, vaginal, laparoscopic or robotic
- Resection with hysteroscope and rectoscope
- Laparoscopic radiofrequency ablation

AAGL, J Min Invas Gynecol. 2012
What not to do

• Blind D & C
• No benefit
• Will miss pathology or have incomplete removal
• Extra-uterine morcellation in the pelvic cavity via a laparoscope
  • Associated with an increased risk of seeding leiomyosarcoma into the pelvic cavity

When is Treatment Appropriate?

- Interfering with life or lifestyle
- Pain, bleeding, pressing on other organs
- Rapid growth
- Alternatives to hysterectomy are a reasonable alternative for many patients
- Refer to a minimally invasive Gyn specialist
- Hysterectomy is indicated in appropriate patients
AUB-M

• Endometrial Hyperplasia/Malignancy
AUB – Malignancy
Endometrial Hyperplasia

• More common in younger women (< 50) with PCOS and chronic anovulation
• More common in post menopausal women with unopposed $E_2$ stimulation
• High index of suspicion with any bleeding
• Ultrasound to measure Endometrial stripe
• Family history important
• Premenopausal malignancy
  ▪ Consider genetic testing: Lynch (hereditary nonpolyposis colorectal cancer-HNPCC syndrome)

Deciphering EMB: Endometrial biopsy
Reported as:
• Benign proliferative – estrogenic
• Benign secretory – Indicates progesterone and ovulation
• Hyperplasia
• Atypical hyperplasia
• Cancer

World Health Organization classification — The 2015 WHO endometrial hyperplasia classification system has only two categories [2]:
• Hyperplasia without atypia (non-neoplastic)
• Atypical hyperplasia (endometrial intraepithelial neoplasm)
AUB- M Treatment

• Correct any hormonal imbalance
• Remember often seen with PCOS
• Add a progestin to her regimen if on estrogen treatment
• Progestin containing IUD
  ▪ 2mg devices have been studied
• Oral progesterone
  ▪ Medroxyprogesterone Acetate 10mg q hs
  ▪ Micronized Progesterone 100-200 mg q hs
AUB- M
Malignancy

• Hysterectomy with BSO, lymph node sampling
• Treatment dependent upon the level of invasion
• May need radiation and/or chemotherapy
AUB-C

- Coagulopathy
AUB – Von Willebrands

• Von Willebrands – A group of (generally) inherited disorders of coagulation related to a defect in von Willebrand factor, critical for the normal function of factor VIII

• Incidence: 13%

• History will suggest: prolonged bleeding, postpartum hemorrhage

Shankar M, BJOG, 2004
AUB – C
Coagulopathy

• Hemophilia, thrombocytopenia – rare
• Inherited deficiencies in prothrombin, fibrinogen, factor V, factor VII, factor X, and factor XII
• Platelet function disorders: 98% of women with Bernard-Soulier syndrome or Glanzmann’s thrombasthenia
• Women on anticoagulant therapies
Screening vWF

- Heavy menstrual bleeding since menarche
- One of the following conditions:
  - Postpartum hemorrhage
  - Surgery-related bleeding
  - Bleeding associated with dental work

  OR

- Two or more of the following conditions:
  - Epistaxis, one to two times per month
  - Frequent gum bleeding
  - Family history of bleeding symptoms
Treatment Von Willebrands

- Consultation with hematologist
- Progestin containing IUD, Implant
- Progestin Only Pill, Combined OCPs
- Tranexamic acid – antifibrinolytic
- Inhibit conversion of plasminogen to plasmin, which inhibits fibrinolysis helps to stabilize clots.
- Reduces menstrual bleeding by 30–55%

AUB-O

- Ovulatory (anovulatory)
Perimenopause:
Changes in both menstrual flow and frequency are common with the following potential presentation:

• Lighter bleeding
• Heavier bleeding
• Duration of bleeding may change with each period
• Cycle length often changes
• Skipped menstrual periods
ANOVULATORY AUB

• Unpredictable in timing and volume
• Causes of anovulation
  ▪ PCOS
  ▪ Insulin resistance emerging role
  ▪ Hyperprolactinemia, hypothyroidism
  ▪ Obesity
  ▪ Eating disorders, stress, exercise
  ▪ Contraceptive
ANOUVULATORY AUB

• Endometrial biopsy in any chronic anovulatory AUB regardless of age.
Medical Management

• Iron
  ▪ May relieve principal symptom of fatigue 2^0 to anemia

• Antifibrinolytics
  ▪ Tranexamic acid
    ▫ RCT 41% reduction in bleeding
    ▫ GI side effects
Medical Management

• Cyclooxygenase Inhibitors (NSAIDS)
  • RCT show some benefit
  • Mefanemic acid
  • Naprosyn
  • Ibuprofen
Progestins

• Similar results for Levonorgestrel IUD
• 79% reduction in bleeding
• Continuous administration
  ▪ May work for ovulatory menorrhagia
    ▫ Depot MPA
      ▪ 80% amenorrhea at 1 year
    ▫ No trials for AUB
Contraceptive Implant

- Progestin containing contraceptive implant—Subdermal, single rod
- Progestin only – Etonorgestrel
- Highly effective contraception, 0.05% failure rate
- 3 years of benefit
AUB-E

• Endometrial
AUB - Endometrial

- The cause of AUB-E: Local disorders of the normal hemostatic mechanisms
- Combination of excesses of vasodilating prostaglandins such as PG I₂ or PG E₂, or deficiencies in vasoconstricting agents such as PG F2α.
- Or Infections, such as *Chlamydia trachomatis*.
- No commercially available tests to detect such disorders.

Endometrial NSAID Management

- Mefenamic acid
  - 250 to 500 mg taken 2 – 4 times/day
- Ibuprofen
  - 600 to 800mg TID
- All NSAIDs must be taken with food
- Contraindicated in women with peptic ulcer
- Observe for elevated blood pressure
AUB-I
Iatrogenic

- Usually from estrogen & progestin containing contraceptives, especially progestin – only agents
- Missed contraceptive pills
- Certain medications that impact cytochrome p-450 pathway: anticonvulsants and some antibiotics
- Cigarette smoking
- Street drugs
- Anticoagulants
Combined Contraception

• Many non-contraceptive benefits
• Reduce endometrial height
  ▪ Decreases bleeding, cramping, pain
  ▪ Reduced risk of PID
  ▪ Suppresses endometriosis
• Reduces risk of ovarian cysts
• Suppress the hormonal roller coaster in PCOS
• Not otherwise classified
AUB-N
Not Otherwise Classified

• Catch-all category includes the rare and poorly defined and/or poorly examined uterine conditions such as:
  ▪ Caesarean section scar bleeding
  ▪ Arteriovenous malformations
    ▫ Usually acquired, rarely congenital
    ▫ Occur after instrumentation, spontaneous or induced abortion, or myomectomy
Medical Management of AUB
Medical Options for Treating AUB

Medical options:
• Treat identified coagulation disorders
• Combined oral contraceptive – Pills, Ring, Patch
• Progesterone – Oral, IUD, IM injection, implant
• Hormonal implant
• GnRH agonists
• Antifibrinolytic medications
• NSAIDs
Surgical Options for Treating AUB
Surgical Options for Treating AUB

- Hysteroscopic polypectomy
- Hysteroscopic myomectomy
- Endometrial ablation
- Abdominal myomectomy
- Radiofrequency ablation of fibroids
- Hysterectomy
Hysterectomy

• Surgical removal of the uterus
• Most definitive RX for AUB
• Major procedure
• Vaginal, LAVH, Laparoscopic, Robotic, Abdominal
• Significant risks
• Recovery period of 6 – 8 weeks
• Psychological issues
Alternatives to Hysterectomy

- Myomectomy
- UAE (uterine artery embolization)
- Hysteroscopic Myoma Mechanical Tissue Removal
- Polyp resection
- Endometrial Ablation
  - Traditional
  - Global
Myomectomy

- Preservation of fertility main advantage
- Pre-op suppression useful
- Autologous blood helpful
- Anterior incision better
- Techniques vary
- Laser, harmonic scalpel
Uterine Artery Embolization
Uterine Artery Embolization: UAE

- Option for women with AUB who are unresponsive to medical therapy and desire future fertility.\(^3,18\)
- Minimally invasive, catheter threaded to the specific Uterine Artery nourishing the fibroid.
- Magnetic Resonance–guided Focused Ultrasound (MRgFUS): Emerging radiologic technique: which uses MRI to identify the location of fibroids and high-intensity focused ultrasound energy to destroy leiomyomas without injury to surrounding tissues.
UAE

Courtesy Jay Berman MD
Angiograms

Pre-embolization angiogram

Post-embolization angiogram

Courtesy Jay Berman MD
Hysteroscopic Mechanical Tissue Removal

Courtesy Jay Berman MD
Endometrial Ablation

Minimally invasive alternative to hysterectomy
Endometrial Ablation

• Appropriate for women who have finished childbearing
• Post ablation pregnancies can be very problematic, use contraception!
• May normalize menstruation or produce amenorrhea.
• Has not been studied in postmenopausal women
• Should not be used with suspected uterine cancer or hyperplasia

Endometrial Ablation

- Baumann (1948): 387 ablations
  - Procedure performed blindly, steelball electrode
  - Destruction performed with laser
- Rollerball
  - Electric current through the rollerball
- Trans cervical resection of the endometrium
  - Hysteroscopic loop removal of endometrium
Endometrial Ablation Techniques

Global Endometrial Ablation

- Hydrothermablation (HTA)
  - Hysteroscopic: free flowing hot water
- Novasure
  - Bipolar mesh
- Balloon Rx (Thermachoice)
  - 2016 Removed from market
- Minerva
  - Bipolar with plasma formation array (heat device)
- Aegea
  - Controlled low pressure water vapor
Non-Hysteroscopic Endometrial Ablation: Bipolar Mesh Electrosurgical Device

Ablation device

Courtesy Jay Berman MD
Hysteroscopic Thermal Ablation

- Microprocessor controlled
- Gravity fed freely circulating physiologic saline
- Low pressure
- Fluid loss of 10 mL during therapy cycle interrupts the procedure
- 90ºC for 10 minutes

Courtesy Jay Berman MD
Free Fluid Conforms to Any Cavity

Courtesy Jay Berman MD
Preparation for Endometrial Ablation

• Bipolar mesh
  ▪ May be done at any time in the cycle

• Hydrothermablation
  ▪ May preference thin endometrium
    ▫ Early in cycle
    ▫ Days to week after withdrawal bleed after 10 days of combined oral contraceptive or progestin
Radio Frequency Ablation of Leiomyomas

Acessa
MRI  Subject 4

Figure 2  Baseline (preablation) MRI (T2) in the sagittal midline plane reveals posterior submucosal fibroid.

Figure 3  Postablation MRI (T2) in the sagittal plane reveals no fibroids.
Fig. 4. Initial evaluation. For a diagnosis of chronic abnormal uterine bleeding (AUB), the initial assessment requires the patient to have experienced 1 or a combination of unpredictability, excessive duration, abnormal volume, or abnormal frequency of menses...

Uterine evaluation. The uterine evaluation is in part guided by the history and other elements of the clinical situation such as patient age, presence of an apparent chronic ovulatory disorder, or the presence of other risk factors for endometrial hyperplasia.

Malcolm G. Munro, Hilary O.D. Critchley, Ian S. Fraser The FIGO classification of causes of abnormal uterine bleeding in the reproductive years Fertility and Sterility, Volume 95, Issue 7, 2011, 2204–2208.e3 http://dx.doi.org/10.1016/j.fertnstert.2011.03.079
Summary

- AUB is common reason for women to seek care
- AUB requires careful history and physical assessment
- Classification of disorder helps to select appropriate Treatment
- Using PALM COEIN leads to a diagnosis that is structural or non-structural and an appropriate treatment plan!
We Are the Gatekeepers of Appropriate Care!

Evaluation, diagnosis, and medical management...

and when indicated, referral for surgical care!
Walk our patients systematically through the steps: AUB is not a diagnosis, but a symptom that requires a diagnosis!
Questions?


References


References

References


References


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