Abnormal Uterine Bleeding

A Practical Guide to Evaluation and Treatment

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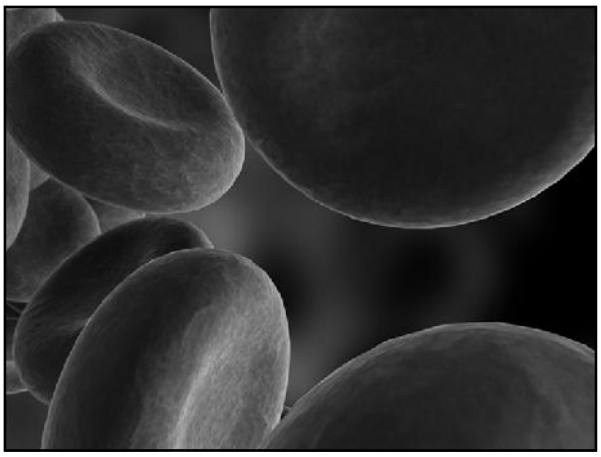
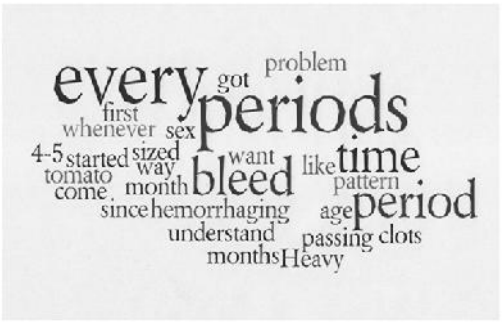
Primer: The Basics

- Normal Menstrual Bleeding
  - Cycle every 21-35 days
  - Duration 2-8 days
  - Average blood loss 40 cc (3 Tbsp) per cycle
  - Heavy blood loss is >80 cc per cycle

Objectives

- Define normal menses
- Describe the differential diagnosis of abnormal uterine bleeding (AUB)
- Review strategies for evaluation
- Discuss how to manage AUB using both medical and surgical therapies
- Work through some cases to utilize these evaluation and treatment options

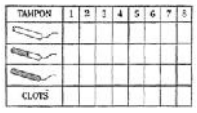




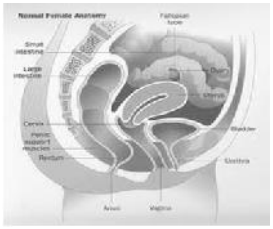
Definitions

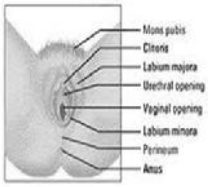
- Polymenorrhea: bleeding occurs < 21 days apart
- Menorrhagia: blood loss > 80 mls/cycle
- Oligomenorrhea: <9 menses per year
- Menometrorrhagia: frequent and heavy menses
- Amenorrhea: no periods for 6 months
- Intermenstrual bleeding: bleeding or spotting between otherwise normal menses

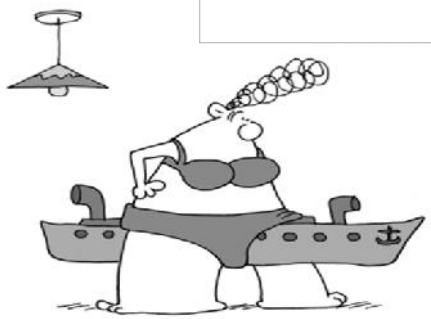
Evaluating Menstrual Blood Loss



Where is the bleeding coming from? Or…confirm that the bleeding is uterine…







Suddenly Maude realised she was wearing the wrong panty liner.

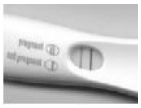
Wu, et al 2007; FDA

How old is the patient?

- Premenarchal
- Reproductive age
- Perimenopausal
- Postmenopausal

A practical approach to abnormal uterine bleeding…

Is she sexually active? Or…could she be pregnant?



- An adolescent?
- Woman using hormonal contraceptives?
- An IUD user?
- Status post tubal ligation?
- Partner with vasectomy?
- A perimenopausal patient with infrequent menses?

- Pregnancy should ALWAYS be ruled out …In most patients…

Is the bleeding ovulatory or anovulatory?

Or…What makes bleeding a "period" or a menstrual bleed?

Ovulatory Bleeding







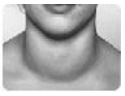
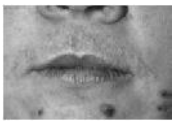
The Menstrual Cycle!

Ovulatory Bleeding Patterns

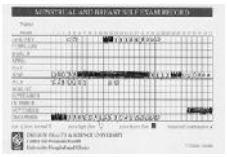
Primer: The Menstrual Cycle!

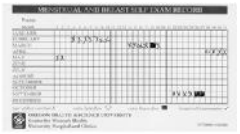
- Estrogen causes endometrium to thicken→
- Ovulation occurs→
- Corpus luteum cyst produces progesterone→
- (if no pregnancy occurs)→
- Corpus luteum cyst resolves→
- Progesterone level decreases→
- Thickened endometrium sheds→MENSES!

Anovulatory Bleeding

Anovulatory Bleeding Patterns

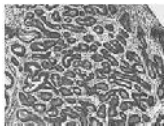
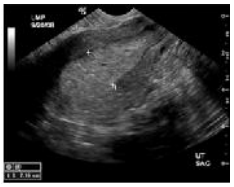




When does the bleeding occur…Or, is it intermenstrual?

- Pelvic infection
- Cervical or endometrial polyps
- Cancer
- Ectropion
- Ovulatory
- "Breakthrough bleeding"

Anovulatory Cycles

When does the bleeding occur? Or is it postmenopausal?

- No ovulation secondary to ovarian failure
- Rule out malignancy

Summary

- Ovulatory bleeding:
  - Regular/cyclic
  - Predictable
  - Associated with moliminal sxs
  - Can be heavy/prolonged
  - Normal sex steroid levels
  - Often structural or a hemostasis issue
- Anovulatory bleeding:
  - Irregular
  - Unpredictable
  - Variable in flow and duration
  - Often associated with oligomenorrhea
  - Common at menarche and perimenopause
  - PCOS, endocrine disorders, stress

Evaluation

- Step 1…History
- Step 2…Examination
- Step 3…Basic laboratory evaluation
- Step 4…Additional evaluation

Step 3…Basic laboratory evaluation
a thinking practitioner's guide

- CBC
- Pregnancy test
- TSH
- Prolactin
- FSH, estradiol
- GC/CT
- Coagulation tests
- Androgen levels
- Cervical cytology
- Endometrial biopsy…who?

When to Biopsy?

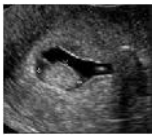
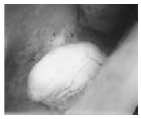
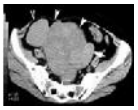
Age 19-40 years	Endometrial cancer risk per 100,000 = 2.3 - 6.1	Consider if chronic anovulation or if unresponsive to medication
Age 40-49 years	Endometrial cancer risk per 100,000 = 36.0	Biopsy unless pregnant or other reason to avoid sampling endometrium

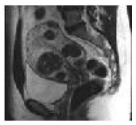
ACOG. *Int J Gynaecol Obstet*. 2001

Additional Evaluation

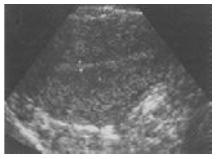
- Ultrasound examination
- Saline infusion sonography
- CT scan or MRI
- Hysterosalpingogram
- Hysteroscopy



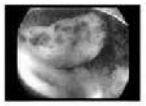






Endometrial evaluation





Risk Factors for Endometrial Cancer

- Age greater than 40
- Family history of uterine, breast, ovarian, or colon cancer
- Obesity
- Diabetes
- Bleeding longer than 10 days or more frequently than every 21 days
- History of unopposed estrogen and anovulation

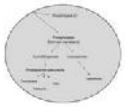
Utility of endometrial biopsy to detect pathology

- Office endometrial biopsy equivalent to D and C
- Detection of cancer
  - 99.6% in postmenopausal patients
  - 91% in premenopausal patients
- Greatest pickup in cases where pathology involves at least 50% of endometrium

Transvaginal Ultrasound

- Endometrial stripe thickness
  - <4 mm
    - false negative = 0.25-0.5 %
  - <5mm
    - false negative = 1-4%
- TVUS not useful
  - Premenopausal women
  - Women on unopposed estrogen or cyclic progesterone
  - On Tamoxifen therapy
  - With heterogenous stripes

NSAIDS

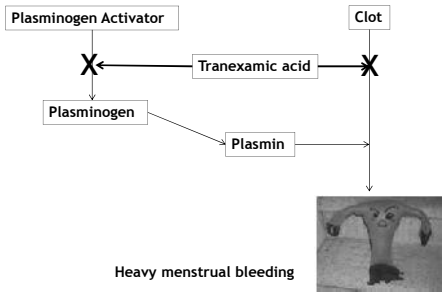


- NSAIDS effectively reduce volume of menstrual bleeding by 20-50%
- Reduces prostaglandin synthesis in endometrium which leads to vasoconstriction of spiral arteries
- Start full dose day before the onset of menses or at the first sign of menstrual bleeding

Therapeutic Options: Goals

- Treat underlying medical conditions
- Consider hormonal/medical management
- Surgical management
  - Minimally invasive
  - Major and definitive
- Think about associated risk factors and address

Tranexamic Acid: antifibrinolytic



Adapted from OB/GYN Management

How do you use it?

- Tranexamic acid
  - Tradename: Lysteda® 650mg tablets
  - Start with menses
  - Take 2 tablets three times daily
  - Up to a maximum of 5 days
  - Contraindications: current/history/increased risk of VTE

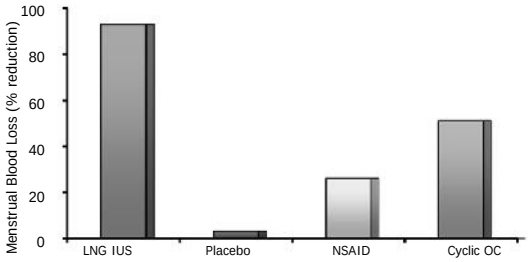
Medical Management




Combination OCPs

- All combination OCPs are progesterone dominant→reduce endometrial proliferation
- Cyclic use
  - 28 day cycles, 7 day placebo allows regular withdrawal
- Continuous use
  - Suppression of endometrial growth, no withdrawal
- End result
  - Regular, predictable, light bleeding
  - Cessation of menses (+/- breakthrough bleeding)

Medical Management: reduction in menstrual blood loss



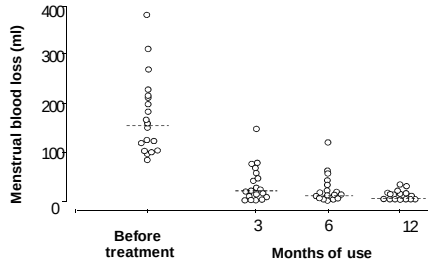
Milsom AJOG 1991

Contraindications to estrogen?

- Cyclic Progesterone
  - 10-14 days → withdrawal bleed
  - Restores orderly bleeding, lighter?
  - Protects endometrium from unopposed estrogen
  - No contraceptive benefit!
- Continuous Progesterone
  - Depo Provera
  - POPs
  - Implanon/Nexplanon
  - Mirena IUD

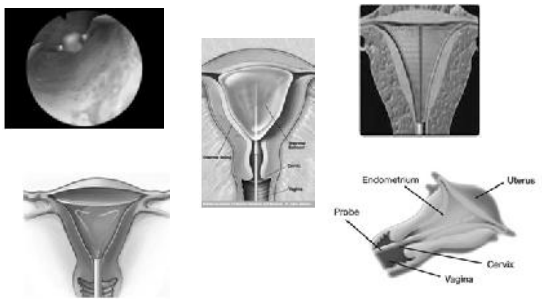
Levonorgestrel IUS…Mirena

LNG IUS: Treatment Heavy Bleeding

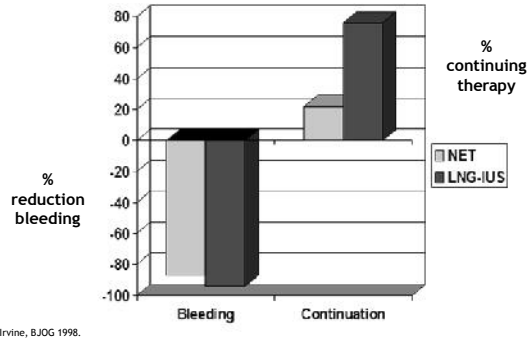


Andersson BJOG 1990

Endometrial Ablation



LNG IUS vs. 35mcg NET



Irvine, BJOG 1998.

Endometrial ablation

Reasonable to consider when

- no hyperplasia or malignancy
- no significant cavity distortion
- no desire for pregnancy
- pre-menopausal

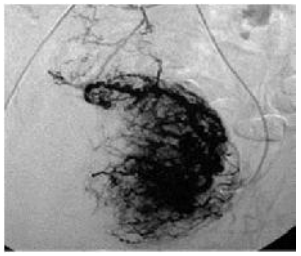
Amenorrhea 37 -50%

Patient satisfaction ~70-90% at 5 years

- Risk of subsequent surgery is double in women under age 45
- 68% satisfaction vs 76% satisfaction with hysterectomy

Pick up your scalpel…
or balloon or loop or stent…

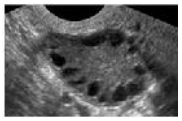
Uterine Artery Embolization

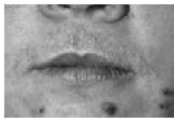


Uterine Artery Embolization for fibroid-related AUB

- Improvement of bleeding in 85 to 94%
- 29 % developed post-procedure amenorrhea
- 14-20% underwent an additional invasive procedure within 5 years
- Risk of ovarian impairment more likely in older women: 8% of women age > 45
- Pregnancy contraindicated

Polycystic Ovary Syndrome: PCOS





Let's Practice…

Diagnostic Criteria for PCOS

- Rotterdam Criteria (2003): 2 of 3…
  - Clinical and/or biochemical evidence of hyperandrogenism
  - Oligo-ovulation and/or anovulation *(<6 periods per year)*
  - Presence of polycystic ovaries on pelvic ultrasound
- NIH Criteria (1990):
  - Chronic anovulation
  - Chemical and/or biochemical signs of hyperandrogenism

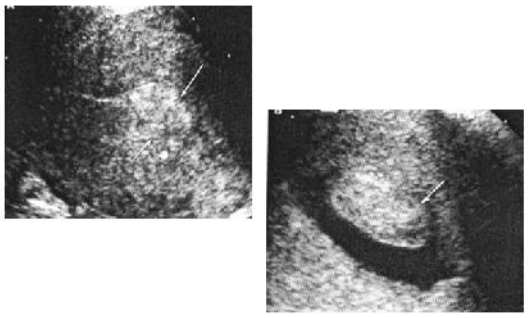
NOTE: Neither includes obesity or laboratory testing!

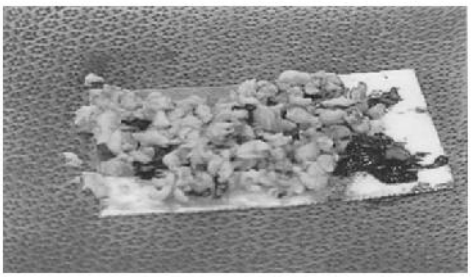
"I'm on my period all the time"

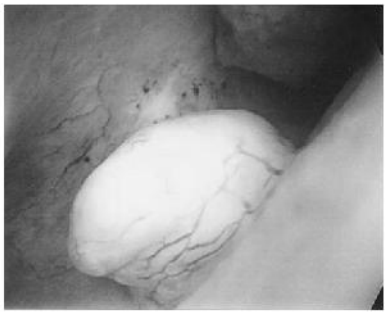
- 36 yo G3P2012 with intermittent heavy bleeding and spotting for most of the month, "no pattern"
- Obese, facial hair, acne. Normal pelvic exam.
- Normal TSH, prolactin. Slightly elevated free testosterone. Hct 32%.

"Heavy periods, passing tomato sized clots"

- 32 yo G2P2002 with increasingly heavy, regular menses over the past two years. No intermenstrual bleeding.
- Uterus normal size, contour. No masses. No thyromegaly.
- Hct 30%. Normal plts. Elevated TSH. Ultrasound with submucosal fibroid.

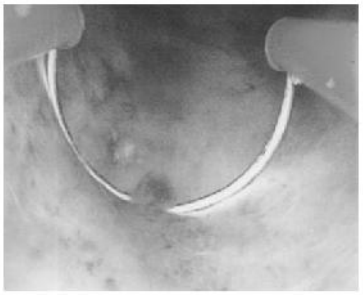


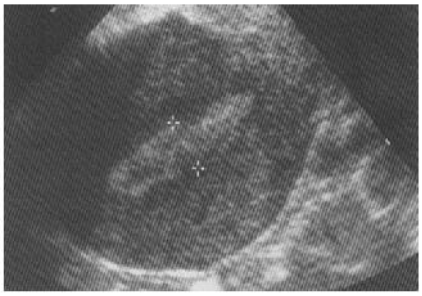




"What's the problem? I only bleed every 4-5 months and I like it this way"

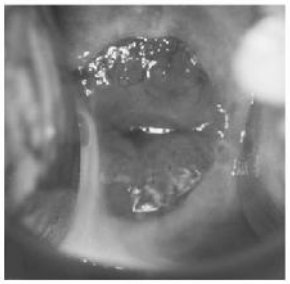
- 43 yo G0 with 4 year history of infrequent menses. Bleeding when she does have it is heavy and prolonged. Intermittent "hot flashes".
- Obese. No thyromegaly, galactorrhea. Normal uterus/pelvic exam. Pelvic ultrasound with "thickened endometrium".
- Normal CBC, TSH, prolactin, FSH . Endometrial biopsy: what are the possibilities?

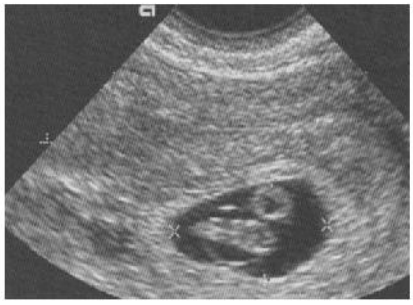


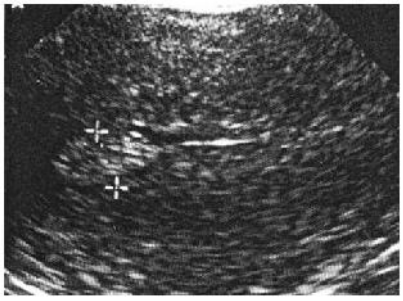


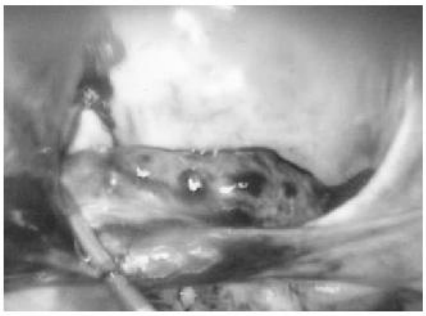
"I bleed every time I have sex"

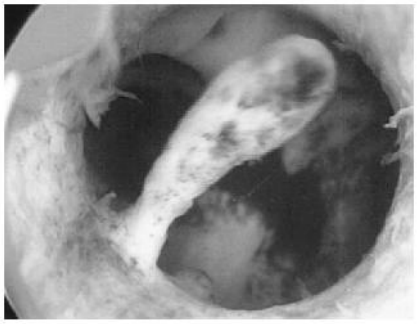
- 28 yo G0 with postcoital bleeding for the past 2 mos. On OCPs. Two new sexual partners in the past year. History of ASCUS pap. Has regular, monthly menses. Intermittent pelvic "cramping".
- Normal weight, no abdominal/pelvic masses. Cervical ectropion present.
- Pap normal. GC/CT negative. Pelvic ultrasound and sonohysterogram with endometrial polyp.









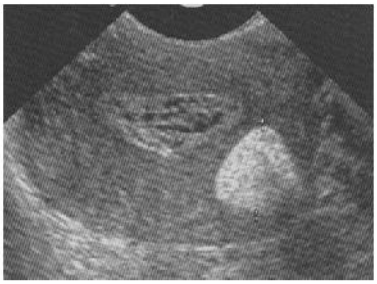


"I don't understand why I started having periods again at age 62"

- 62 yo G4P4004 with cessation of bleeding in "early 50's", has had intermittent light vaginal bleeding for the past 5 mos.
- Well appearing. No thyromegaly. No pelvic or abdominal masses. Cervix normal. Scant blood in vagina.
- Normal CBC, coags, pap. Transvaginal ultrasound reveals endometrial stripe of 9 mms.

Thank you!

Questions?



Step 1…the History

- Age
- Are you sexually active?
- What are menstrual cycles like? Sxs of ovulation
- Nature of bleeding: frequency, duration, volume, relationship to activities?
- Associated sxs?
- Systemic illness or medications?
- Change in weight, excessive exercise,eating d/o or stress?
- Personal or family history of bleeding disorder?

Summary

- AUB is common
- Goals of evaluation
  - Rule out pregnancy
  - Rule out malignancy
  - Determine if bleeding is ovulatory or anovulatory
- Choose a treatment modality
  - Many options for medical management exist and can be used to successfully avoid surgery, provide additional health benefits
  - Minor surgical procedures
  - Major and definitive surgery

Step 2…the Examination

- Rule out bleeding site other than uterus
- Evaluate for mass, laceration, ulceration, vaginal discharge, foreign body
- Assess size, contour, tenderness of the uterus
- Examine the adnexae
- Evaluate for pain, sxs of infection
- General exam to look for systemic illness: infection, liver disease, thyroid, signs of hyperandrogenism, insulin resistance, hyperprolactinemia

Summary: Ovulatory Bleeding Management

- Treat underlying conditions
  - Infection
  - Malignancy
  - Coagulopathies
- Hormonal/medical management
  - Goal to decrease bleeding frequency/volume
  - Cause cessation of menstrual bleeding
- Surgical management
  - Address fibroids/polyps if not responsive to medical tx
  - Endometrial ablation
  - Hysterectomy

Summary: Anovulatory Bleeding Management

- Treat underlying conditions
  - Thyroid disorder
  - Pituitary dysfunction/hyperprolactinemia
- Hormonal management
  - Goal to protect endometrium
  - Lead to regular cyclic withdrawal bleeding or cessation of bleeding
- Think about associated risk factors and address
  - Hyperplasia, malignancy
  - Dyslipidemia, diabetes, metabolic syndrome