Abnormal Uterine Bleeding: Pathophysiology and Clinical Management
Abnormal Uterine Bleeding

- 1/3 of all outpatient gynecologic visits
- #1 reason for urgent hospital admission for adolescents
- Affects 50% of menstruating women worldwide at some time
- 4 out of 5 women with AUB have no anatomic pathologic condition
- Accounts for 50% of hysterectomies in US
Pathophysiology of menstruation

- Normal duration 4-6 days
  Abnormal if <2 or >7
- Normal volume 30cc (10-80)
  Abnormal if >80cc
- Normal cycle length 24-35 days
  Longer for 5-7 years after menarche
At least 20% of women have irregular cycles.

Be sure they are answering the questions you asked re: LMP and regularity.
Definitions

- **Amenorrhea** - absence of flow for 3 usual cycle lengths
- **Oligomenorrhea** - cycle length >35 days
- **Polymenorrhea** - cycle length <24 days
- **Menorrhagia** - regular cycle with heavy volume or duration of flow
- **Metrorrhagia** - irregular intervals of bleeding but light or normal volume and duration
- **Menometrorrhagia** - irregular interval and excessive volume and duration
Causes of AUB

- Vary with age of patient
- Childhood
- Puberty
- Reproductive Years
- Perimenopause
- Postmenopause
Case - childhood

- Consulted by NICU for 1 week old infant with vaginal bleeding
- 6 year old with vaginal bleeding
- 12 yo with heavy bleeding, soaking pads in one hour for 2 days
Infant

- Estrogen withdrawal bleed
- Sarcoma botryoides (very rare)
6 year old with vaginal bleeding

- Foreign body
- Infection
- Sarcoma botryoides
- Trauma
- Urethral prolapse
- Precocious puberty
- Ovarian tumor - embryonal tumor, choriocarcinoma, polyembryoma, sex cord stromal tumors, etc – any hormonally active tumor
12 year old with menorrhagia

- Coagulopathy
- Hypothalamic immaturity
- Inadequate luteal function
- Psychogenic - including anorexia and bulimia
- Ovarian tumors as before
HPO axis

The Hypothalamic-Pituitary-Ovarian Axis.
Cases - Reproductive Age

- 24 yo with oligomenorrhea q 2-3 months, with menometrorrhagia
- 30 yo with menorrhagia for 6 months associated with new dysmenorrhea
- 38 yo 2 weeks after a D&C for a missed AB with persistent heavy bleeding
Reproductive Age

- Anovulation - #1
- Functional - coagulopathy, hypothyroid, luteal phase dysfunction
- Iatrogenic - anticoagulants, hormonal contraception, hemodialysis
Reproductive Age

- Pregnancy related – Abortion (spontaneous, elective), retained POC, etc.
- Structural - fibroids, polyps, hyperplasia, neoplasia, infection
Case - Perimenopause

- 49 yo with irregular cycles, intermittently heavy or light with bleeding q 15-35 days
Perimenopause

- Anovulation - depleted store of oocytes
- Structural - fibroids, polyps, hyperplasia, cancer
Case - Postmenopause

- 59 yo s/p menopause age 51 with new onset bleeding - light bleeding for 4 days, now stopped
Postmenopausal

- Atrophy
- HRT related
- Hyperplasia, polyps, submucous myoma
- Cancer - 10%
- One study showed 80% have structural cause
Evaluation

- History, detailed
- Exam
- Pregnancy test
- Lab tests - CBC, coagulation profile
- US - SIS vs traditional vaginal US
- Endometrial biopsy
- Hysteroscopy
- D&C (evaluation and treatment)
Ovulatory vs Anovulatory

- **Ovulatory** – menorrhagia with regular, cyclic bleeding, PMS symptoms, often have structural abnormality. Abnormal PG ratios.

- **Anovulatory** – erratic bleeding, both in timing and volume, may have times of amenorrhea. Absence of cyclic progestin causes fragile unstructured endometrium prone to breakage and bleeding.
Treatment

- **Goals** - control acute bleeding, prevent future abnormal bleeding and minimize the risk of endometrial cancer

- **Medical** - Iron, antifibrinolytics, cyclooxygenase inhibitors, progestins, OCs, GnRH agonists/antagonists, antiprogestational agents
Treatment

- Surgical - hysterectomy, hysteroscopic resection of lesions, endometrial ablation
Treatment Overview

OVULATORY AUB
- OCPs
- Progestins, IUD
- Tranexamic Acid
- NSAIDs
- GnRH with addback
- Danazol

ANOVULATORY AUB
- OCs
- Cyclic progestins
- GnRH agonists
OCs

- #1 treatment in US
- Regulates cycles especially with anovulatory bleeding
- Thins lining in anov. and ov. bleeders
- Can use high dose (BID - QID) for acute bleeding, with dose reduction as bleeding improves
- Not very effective if structural problem
IV Premarin

- Useful for acute bleeding
- 25 mg IV q 4 hours until bleeding slows
- Causes nausea, breast tenderness. Give slowly or can cause vasovagal reaction or LOC
- Must give progestins for 7-10 days after and then will have withdrawal bleed or start continuous OCPs
Progestins

- Commonly used - norethindrone or medroxyprogesterone
- Cyclic vs continuous - orally or via IUD
- One study of cyclic use in ovulatory women showed increased menstrual flow by 20%!!
- Mirena - very well tolerated, reduce bleeding 79-94% - best of all tx options
Antifibrinolytics

- Tranexamic acid - reduces menstrual flow by 50% 1gm QID days 1-4 of period
- Reduces flow better than NSAIDs, progestins. 45-54% reduction in flow
- #1 treatment in world
- ?Concern for thromboembolic events - large Swedish study shows no increase in risk
COX inhibitors

- NSAIDs - many types
- Reduce menstrual bleeding by about 25%
- Start day prior to menses if possible
- Ibuprofen easy, cheap 800 TID
GnRH agonists

- Very effective at achieving amenorrhea
- Limited by side effects (hot flashes, depression, osteopenia) and cost
- Add back with low dose progestin reduces side effects significantly
- Study of ovulatory menorrhagia patients with add back showed 90% wanted to continue >12 months
Danazol

- Androgen – 200-400mg/day
- Reduces flow by about half
- More effective than NSAIDs or progestins
- Side effects bothersome – weight gain, acne, deepening of voice
Surgical Treatment

- Hysterectomy - definitive therapy
- Hysteroscopy - good for structural causes, myomectomy, polypectomy etc.
- Endometrial ablation - hysteroscopic or nonhysteroscopic techniques
Hysterectomy

- Definitive
- Abdominal, vaginal, laparoscopic or laparoscopically assisted vaginal
- Supracervical also an option
- 550,000/year in US - 40% done for AUB, 50% show no pathologic abnormality
Hysteroscopy

- Myomectomy, polypectomy
- Endometrial ablation - laser, rollerball coagulation, loop resection, vaporization
Nonhysteroscopic Ablation

- Thermal balloon
- Cryoablation
- Radiofrequency probe
- Unipolar or bipolar electrodes
- Diode laser
- Photodynamic therapy
- Success rates 68-80%, patient satisfaction 86-96%
Abnormal Uterine Bleeding

- Approach possible causes as related to reproductive status
- Consider anatomic causes
- Consider hormonal causes