


**IN THE NAME OF GOD**





# ***AUB in Reproductive Age***

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- ▶ The causes of abnormal bleeding vary by age, with anovulatory bleeding most likely in adolescents and perimenopausal women.





▶ Anatomic causes of abnormal bleeding including endometrial polyps and leiomyoma occur more frequently in women of reproductive age than in women in other age groups .

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- Most uterine leiomyomas are asymptomatic, although bleeding, pressure symptoms, or pain may necessitate medical or surgical management.

**Table 10-2 Benign Ovarian Tumors**

<i>Functional</i>
Follicular
Corpus luteum
Theca lutein
<i>Inflammatory</i>
Tubo-ovarian abscess or complex
<i>Neoplastic</i>
Germ cell
Benign cystic teratoma
Other and mixed
<i>Epithelial</i>
Serous cystadenoma
Mucinous cystadenoma
Fibroma
Cystadenofibroma
Brenner tumor
Mixed tumor
<i>Other</i>
Endometrioma



# Pregnancy-Related Bleeding


- **Pregnancy should always be excluded in women of reproductive age presenting with AUB.**
- **Abortion**
- **EP**
- **GTN**

Infancy	Prepubertal	Adolescent	Reproductive	Perimenopausal	Postmenopausal
Maternal estrogen withdrawal	Vulvovaginitis	Anovulation	Exogenous	Anovulation	Atrophy
	Vaginal foreign body	Exogenous hormone use	Pregnancy	Fibroids	Endometrial polyps
	Precocious puberty	Pregnancy	Anovulation	Cervical and endometrial polyps	Endometrial cancer
	Tumor	Coagulopathy	Fibroids	Thyroid dysfunction	Hormonal therapy
			Cervical and endometrial polyps		Other tumor—vulvar, vaginal, cervical
			Thyroid dysfunction		





# Differential Diagnosis of Abnormal Bleeding



- ▶ Structural causes of AUB include the PALM in PALM-COEIN (Polyps, Adenomyosis, Leiomyoma, Malignancy/Hyperplasia). **[2] Anatomic causes of abnormal bleeding occur more frequently in women of reproductive age than in women in other age groups. [5] Uterine leiomyomas and endometrial polyps are common conditions that most often are asymptomatic; however, they remain important causes of abnormal bleeding .**
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**Table 10-5 Abnormal Uterine Bleeding Terminology**

<b>Structural Causes</b>	<b>PALM</b>
AUB-P	Polyp
AUB-A	Adenomyosis
AUB-L	Leiomyoma
AUB-M	Malignancy + Hyperplasia
<b>Nonstructural</b>	<b>COEIN</b>
AUB-C	Coagulopathy
AUB-O	Ovulatory dysfunction
AUB-E	Endometrial
AUB-I	Iatrogenic
AUB-N	Not yet classified

# Polyps, AUB-P

- ▶ Endometrial polyps are a cause of intermenstrual bleeding, heavy menstrual bleeding, irregular bleeding, and postmenopausal bleeding. They are associated with the use of *tamoxifen* and infertility, and can cause dysmenorrhea. As with leiomyomas, most endometrial polyps are asymptomatic.

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- Whereas polyps may resolve spontaneously over time, a clinically important question is whether they are likely to undergo malignant transformation. Because even asymptomatic polyps are usually removed at the time of identification, this question is difficult to answer.




# Adenomyosis, AUB-A

- ▶ Traditionally adenomyosis has been diagnosed by histology at the time of hysterectomy, making estimates of prevalence and contribution to AUB and pelvic pain unclear. **With improving imaging technology and evolving diagnostic criteria for adenomyosis on ultrasound and MRI, adenomyosis can be diagnosed prior to hysterectomy and is included as a structural cause of abnormal bleeding.**
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# Leiomyoma, AUB-L

- ▶ Although the number and size of uterine leiomyomas do not appear to influence the occurrence of abnormal bleeding, submucosal myomas are the most likely to cause bleeding.
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# Malignancy and Hyperplasia, AUB-M

- ▶ **Abnormal bleeding is the most frequent symptom of women with invasive cervical cancer.** A visible cervical lesion should be evaluated by biopsy rather than awaiting the results of cervical cytology testing, because those results may be falsely negative with invasive lesions as caused by tumor necrosis. Although vaginal neoplasia is uncommon, the vagina should be evaluated carefully when abnormal bleeding is present. Attention should be directed to all surfaces of the vagina, including anterior and posterior areas that may be obscured by the vaginal speculum on examination.
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- ▶ **Nonstructural causes of AUB include the COEIN in PALM-COEIN (Coagulopathy, Ovulatory dysfunction, Endometrial, Iatrogenic, NOS**
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# Coagulopathy, AUB-C

- ▶ As with adolescents, hematologic causes of abnormal bleeding should be considered in women with heavy menstrual bleeding, particularly in those who have had heavy bleeding since menarche. **Of all women with menorrhagia, 5% to 20% have a previously undiagnosed bleeding disorder, primarily the von Willebrand disease .**



# Ovulatory Dysfunction, AUB-O

- ▶ Many ovulatory disorders relate to endocrine disturbances. **Both hypothyroidism and hyperthyroidism can be associated with abnormal bleeding.**
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**Table 10-6 When Should a Gynecologist Suspect a Bleeding Disorder**

Heavy menstrual bleeding since menarche
Family history of bleeding disorder
Personal history of any of the following:
Epistaxis in the last year
Bruising without injury >2-cm diameter
Minor wound bleeding
Oral or gastrointestinal bleeding without anatomic lesion
Prolonged or heavy bleeding after dental extraction
Unexpected postoperative bleeding
Hemorrhage from ovarian cyst
Hemorrhage requiring blood transfusion
Postpartum hemorrhage, especially delayed >24 h
Failure to respond to conventional management of menorrhagia

## Table 10-7 Conditions Associated with Anovulation and Abnormal Bleeding

Eating disorders

Anorexia nervosa

Bulimia nervosa

Excessive physical exercise

Chronic illness

Primary ovarian insufficiency—POI (previously termed premature ovarian failure [POF])

Alcohol and other drug abuse

Stress



Thyroid disease

Hypothyroidism

Hyperthyroidism


Diabetes mellitus


Androgen excess syndromes (e.g., polycystic ovary syndrome [PCOS])

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- ▶ **Diabetes mellitus can be associated with anovulation, obesity, insulin resistance, and androgen excess.**
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# Endometrial, AUB-E

- ▶ In ovulatory cycles, the endometrium itself may contribute to abnormal or heavy menstrual bleeding (AUB/HMB). There is evidence that deficiencies of vasoconstrictors or excess of vasodilators may lead to heavy bleeding.
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- ▶ **Menorrhagia can be the first sign of**
  - ▶ **endometritis in women infected with sexually transmissible organisms.**
  - ▶ **Women with cervicitis, particularly chlamydial cervicitis, can experience**
  - ▶ **irregular bleeding and postcoital spotting**




# Iatrogenic, AUB-I

- ▶ ***Iatrogenic-Exogenous Hormones*** Irregular bleeding that occurs while a woman is using contraceptive hormones should be considered in a different context than bleeding that occurs in the absence of exogenous hormone use. Breakthrough bleeding during the first 1 to 3 months of oral contraceptive use occurs in as many as 30% to 40% of users; it should almost always be managed expectantly with reassurance because the frequency of breakthrough bleeding decreases with each subsequent month of use





# Not Yet Classified, AUB-N

- ▶ This includes causes of AUB not yet discovered and those rarer and less understood causes, including myometrial hypertrophy and AV malformations (8).
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# Diagnosis of Abnormal Bleeding

- ▶ For all women, the evaluation of excessive and abnormal menses includes a thorough medical and gynecologic history, the exclusion of pregnancy, the consideration of possible malignancy, and a careful gynecologic examination.
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▶ **Abnormal bleeding either intermenstrual or postcoital, can be caused by cervical lesions. Bleeding can result from endocervical polyps and infectious cervical lesions, such as condylomata,** herpes simplex virus ulcerations, chlamydial cervicitis, or cervicitis caused by other organisms. Other benign cervical lesions, such as wide eversion of endocervical columnar epithelium or nabothian cysts, may be detected on examination, but rarely cause bleeding.

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- ▶ For women of normal weight between the ages of approximately 20 and 35 years who do not have clear risk factors for STDs, have no signs of androgen excess, are not using exogenous hormones, and have no other findings on examination, management may be based on a clinical diagnosis. Additional laboratory or imaging studies may be indicated if the diagnosis is not apparent on the basis of examination and history.



# Laboratory Studies

- ▶ In any patient with heavy menstrual bleeding, an objective measurement of hematologic status should be performed with a complete blood count to detect anemia or thrombocytopenia.
- ▶ A pregnancy test should be performed to rule out pregnancy-related problems.
- ▶ A TSH level and chlamydia testing should be considered.
- ▶ Because of the possibility of a primary coagulation problem, screening coagulation studies should be ordered where appropriate



# Imaging Studies

- **Women with abnormal bleeding who have a history consistent with chronic anovulation, are obese, or older than 35 to 40 years of age, require further evaluation.**
- The use of a vaginal probe transducer allows assessment of endometrial and ovarian disorders, particularly in women who are obese.
- **Because of variation in endometrial thickness with the menstrual cycle, measurements of endometrial stripe thickness are significantly less useful in premenopausal than postmenopausal women**



- ▶ Sonohysterography

- ▶ CT

- ▶ MRI






# Endometrial Sampling

- ▶ Endometrial sampling should be performed to evaluate abnormal bleeding in women who are at risk for endometrial pathology, including polyps, hyperplasia, or carcinoma. Such sampling is mandatory in the evaluation of anovulatory bleeding in women older than 45 or in younger women who are obese, in those who do not respond to medical therapy or those with a history of prolonged anovulation .
- ▶ The technique of a D&C, which was previously used extensively for the evaluation of abnormal bleeding, has now been largely replaced by endometrial biopsy in the office.





# Management of Abnormal Bleeding

- ▶ Attention should be directed to establishing a cause of abnormal bleeding. In most cases, medical therapy is effective in managing abnormal bleeding and should be attempted before surgical management.
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# Nonsurgical Management

- ▶ **Most bleeding problems, including anovulatory bleeding, can be managed nonsurgically.** Treatment with NSAIDs, such as ibuprofen and mefenamic acid, decreases menstrual flow by 30% to 50%, but is less effective than tranexamic acid, danazol, or levonorgestrel IUD (49). Antifibrinolytics, such as tranexamic acid, are effective in reducing menstrual blood loss, and this indication was approved by the FDA in late 2008 .
- ▶ **Hormonal management of abnormal bleeding can frequently control excessive or irregular bleeding.** The treatment of choice for anovulatory bleeding is medical therapy with combined oral contraceptives or progestins including the levonorgestrel IUD (5). Oral contraceptives are used clinically to decrease menstrual flow, although supporting data from prospective clinical trials are sparse.

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- ▶ *Low-dose oral contraceptives may be used by reproductive age women without medical contraindications and during the perimenopausal years in healthy nonsmoking women who have no major cardiovascular risk factors. The benefits of menstrual regulation in such women often override the potential risks. The medical treatment of acute abnormal bleeding in reproductive age women is the same as that described for adolescents (see Chapter 9).*



# Surgical Therapy

- ▶ **The surgical management of abnormal bleeding should be reserved for situations in which medical therapy is unsuccessful or is contraindicated. Although sometimes appropriate as a diagnostic technique, D&C is questionable as a therapeutic modality.** One study reported a measured reduction in menstrual blood loss for the first menstrual period only .Other studies suggest a longer-lasting benefit .
- ▶ **The surgical options range from a variety of techniques for endometrial ablation or resection, to hysterectomy or a variety of conservative surgical techniques for the management of uterine leiomyoma, including hysteroscopy with resection of submucous leiomyomas, laparoscopic and robotic techniques of myomectomy, uterine artery embolization, and magnetic resonance–guided focused ultrasonography ablation**



A dense field of pink and red roses, filling the entire frame. The roses are in various stages of bloom, with some showing deep red centers and others being a lighter pink. The lighting is soft, highlighting the texture of the petals.

**THANKS**