Abnormal Uterine Bleeding & Pelvic Pain

429 OB/GYN Team

DUB (pg. 2-5) Sources: Mainly Sakala (BRS) and notes from Hacker & Moore and Toronto Notes 2011

Pelvic Pain (pg. 6-9) Sources: Hacker & Moore and notes from Toronto Notes 2011

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Abnormal Uterine Bleeding

Dysfunctional uterine bleeding (DUB) is defined as abnormal uterine bleeding (AUB) in women between menarche and menopause that cannot be attributed to medications, blood dyscrasias, systemic diseases, trauma, uterine neoplasms, or pregnancy. This form of AUB is almost always caused by aberrations in the hypothalamic-pituitary-ovarian hormonal axis resulting in anovulation.

Characteristics of Normal Menstrual Cycles

1. *Length: 21-35 days*
2. *Duration: 2-7 days*
3. *Volume: loss up to 80 ml/cycle*
4. *Regular and predictable*

Ovulatory Vs. Anovulatory Cycles

Ovulatory Cycles

Ovulatory bleeding results from estrogen-progesterone withdrawal bleeding and is self-limited.

1. *Menstrual changes occur simultaneously in **all segments** of the endometrium*
2. *Endometrium has responded to estrogen proliferation followed by progesterone **is structurally stable** and does not break down randomly*
3. *With **progesterone withdrawal**, the ischemic breaking down of the endometrium is orderly and **progressive***
4. *Prolonged **vasoconstriction** enables clotting factors to close the bleeding sites*

Anovulatory Cycles

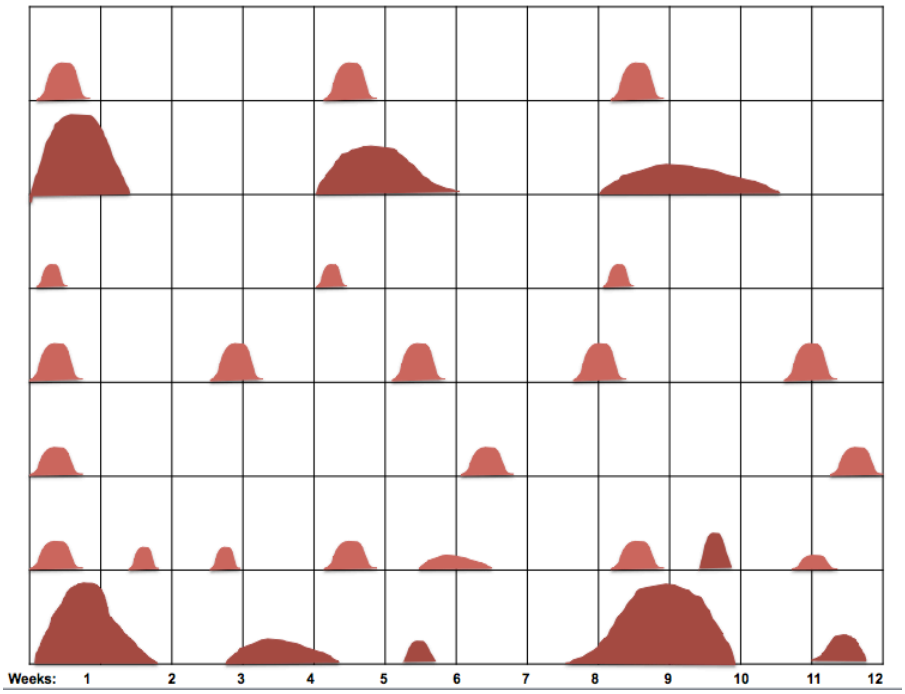
Anovulatory bleeding results from estrogen stimulation without progesterone withdrawal (unopposed estrogen stimulation, and is not self-limited.

1. *Menstrual changes occur at **random sites** and times in various segments of the endometrium*
2. *Endometrium that has been stimulated by **unopposed estrogen** proliferation is structurally **unstable** and can breakdown randomly*
3. ***Without progesterone withdrawal**, bleeding occurs from spontaneous, **random breakdown** of hyperproliferative endometrium without stromal structural support*
4. ***Lack of vasoconstriction** of spiral arteries → no orderly tissue collapse to induce stasis*

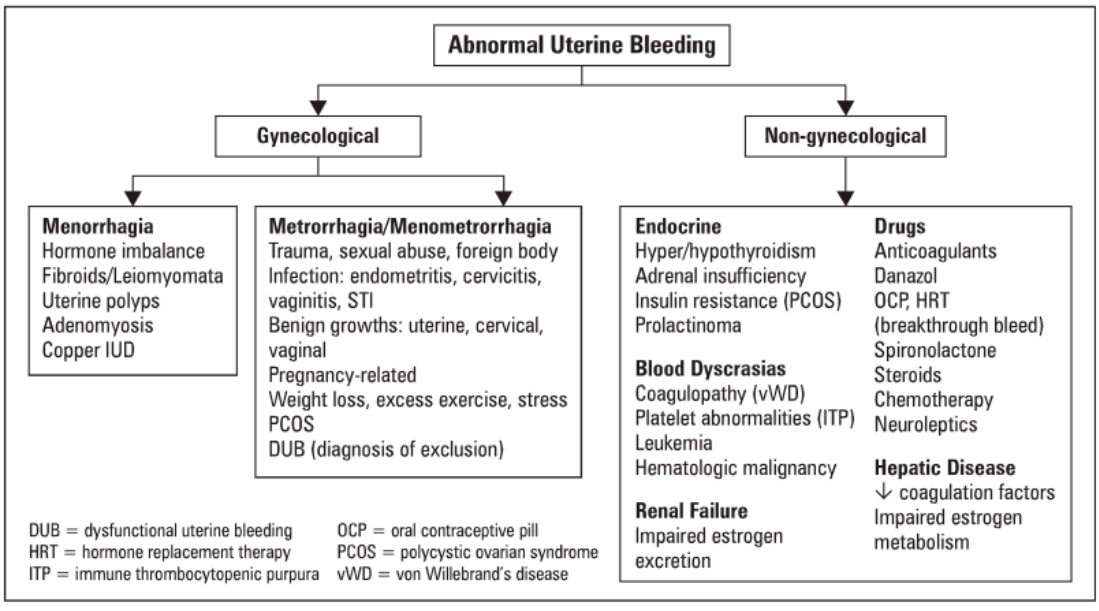
Patterns of Abnormal Bleeding

1. ***Polymenorrhea**: abnormally frequent menses at intervals <24 days*
2. ***Menorrhagia** (hypermenorrhea): excessive and/or prolonged menses (>80 ml and >7 days) occurring at normal intervals*
3. ***Metrorrhagia**: irregular episodes of uterine bleeding*
4. ***Menometrorrhagia**: heavy and irregular uterine bleeding*
5. *Kleine regnung (little shower): scant bleeding at ovulation for 1 or 2 days*

***1. Normal**:*
Regular frequency
Normal amount & duration
21-35 days cycle
***2. Menorrhagia**:*
Regular frequency
↑ amount & duration
21-35 days cycle
***3. Hypomenorrhea**:*
Regular frequency
↓ amount and duration
21-35 days cycle
***4. Polymenorrhea**:*
Regular frequency
Normal amount & duration
<21 days cycle
***5. Oligomenorrhea**:*
Regular frequency
Normal amount & duration
>21 days cycle
***6. Metrorrhagia**:*
Bleeding between normal cycles
***7. Menometrorrhagia**:*
Irrgeular frequency
↑ amount & duration



Differential Diagnosis



1. ***Vagina & vulva**: atrophy, trauma, infections, malignancy*
2. ***Cervix**: eversion, inflammation, polyps, malignancy*
3. ***Uterus**: 1st trimester bleeding, molar pregnancy, endometritis, polyps, submucous fibroids, adenomyosis, hyperplasia, malignancy*
4. ***Oviducts**: salpingitis, ectopic pregnancy, malignancy*
5. ***Ovaries**: estrogen producing tumors and malignancy*

Diagnosis & Management

DUB is a diagnosis of exclusion.

Non-dysfunctional causes of bleeding:

Systemic	Iatrogenic	Organic	Dyscrasias	Trauma
• Hepatic disease (impaired metabolism of estrogens) • Renal disease (hyperprolactinemia) • Thyroid disease	• Exogenous estrogen (OCPs) • Aspirin • Heparin/coumadin • Tamoxifen • Intrauterine device	• Complications of pregnancy • Uterine leiomyomas • Malignancies of cervix or corpus • Endometrial polyp • Adenomyosis • Endometritis • Endometrial hyperplasia	• Thrombocytopenia • Increased fibrinolysins • Autoimmune disease • Leukemia • Von Willebrand's disease	• Laceration • Abrasion • Foreign body

Work-Up:

1. *Abnormal cycle characteristics (length, duration, volume, intermenstrual bleeding)*
2. *B-HCG test (to R/O pregnancy)*
3. *Labs:*
    a. *Complete blood count*
    b. *Platelet count*
    c. *Serum iron and iron-binding globulin*
    d. *Coagulation studies (prothrombin time and partial thromboplastin time)*
    e. *Bleeding time*
    f. *Thyroid function studies*
    g. *Serum progesterone (day 21)*
    h. *Serum androgens*
    i. *Liver function studies*
    j. *Prolactin levels (if amenorrhea)*
    k. *Serum FSH & LH levels*
4. *Procedures:*
    a. *Cervical cytology (Papanicolaou smear)*
    b. ***Endometrial biopsy***
    c. ***Pelvic ultrasonic imaging***
    d. *Hysteroscopy, hysterosonogram, and/or D&C*
5. *Evaluation of cycles: (history is usually enough)*

1. *Ovulatory?*
    a. *Predictable & regular*
    b. *Basal body temperature (BBT) chart shows midcycle elevation*
    c. *Serum progesterone level >500 ng/dl*
    d. *Endometrial biopsy shows secretory changes (progesterone effect)*
2. *Anovulatory?*
    a. *Loss of predictability & regularity*
    b. *Monophasic BBT, progesterone & endometrial biopsy (no midcyclical changes)*

*Two investigations are most useful for confirming DUB: **a pelvic ultrasound and an endometrial biopsy**. If they are both normal and show nothing more than a nonsecretory endometrium → DUB is highly likely.*

Anovulatory Bleeding (90%)

- *Most women affected are at the extremes of reproductive years*
    - *Adolescent (first few years after menarche)*
        - ***No** endometrial biopsy*
        - *For **chronic** bleeding → cyclic **progestin** therapy*
        - *For **acute** hemorrhage → parenteral **estrogen** → follow-up w/cyclic progestin*
    - *Reproductive-age:*
        - ***Endometrial biopsy** if at high risk for endometrial hyperplasia or cancer (>35 y/o, obese, hypertensive or diabetic)*
        - ***Hormonal therapy** with cyclic progestins → normalizes cycles*
        - ***Endometrial ablation** (thermal injury) or **hysterectomy IF** hormonal Rx fails*

- *Peri-menopausal women:*
  - ***Endometrial biopsy** to rule out hyperplasia*
  - *Management is based on histologic findings*
- *Post-menopausal women: malignancy must always be ruled out by **endometrial biopsy***

If cycles are anovulatory:

1. ***Progestin trial**: Medroxyprogesterone acetate for 10 days*
   a. *If cycles are anovulatory:*
      i. *Bleeding should stop in 48 hours*
      ii. *Bleeding should remain stopped until progestin course is completed*
      iii. *Normal withdrawal bleeding should occur after progestin course is completed*
2. *If anovulation confirmed*
   a. *Rule out: hyperprolactinemia (serum prolatin) and hypothyroidism (T4, TSH)*
   b. *Administer cyclic progestins*

Ovulatory Bleeding (10%)

If a progestin trial does not normalize cycles → Investigate for structural abnormality

1. *Hysterosonography*
   a. *Saline is injected into the uterine cavity through the cervix*
   b. *Visualize: endometrial thickness, endometrial polyps, and submucous fibroids*
2. *Hysteroscopy with dilation & curettage*
   a. *Visualize: endometrial pathology e.g. polyps, submucous fibroids*
3. *Cervical cytology: unreliable for assessment of endometrial pathology*

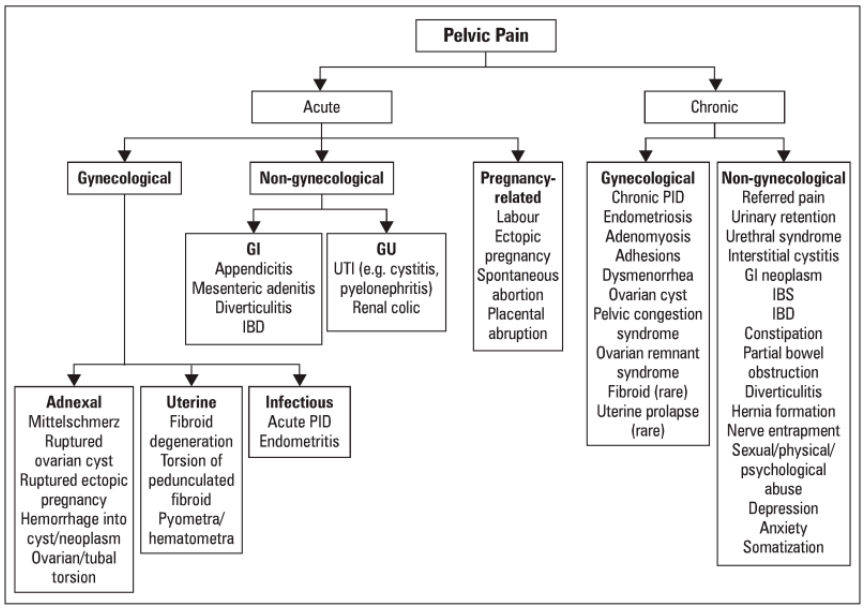
Summary of Management

Hormonal management of dysfunctional uterine bleeding (DUB)

1. ***MASSIVE INTRACTABLE BLEEDING***
   a. *25 mg IV of conjugated estrogens*
2. ***CONTINUED MANAGEMENT AFTER MASSIVE BLEEDING HAS ABATED***
   a. *Conjugated estrogens daily for 25 days*
   b. *May double the dose if bleeding recurs or increases*
   c. *Add medroxyprogesterone acetate (MPA) for last 10 days of treatment*
   d. *Allow 5-7 days for withdrawal bleeding*
3. *Management of moderate menometrorrhagia estrogen-progestin combination*
   a. *Conjugated estrogen for 25 days with 10 mg with MPA for the last 10 days of the estrogen treatment*
   b. *Oral contraceptive (e.g., Triphasil) for 21 days with a 7-day withdrawal*
4. *Cyclic progestin*
   a. *MPA for 10-15 days/month, usually for a **3 month trial**; a*
   b. *5-7 day period of menstrual withdrawal should follow cessation of the MPA each month*

Pelvic Pain

- *Chronic pelvic pain (CPP) refers to pelvic pain of more than 6 months' duration.*
- *CPP includes uterine and nonuterine pelvic pain that is primarily acyclic.*
- *One of the most common presenting complaints in a gynecologic practice*
- *Careful evaluation is needed to distinguish gynecologic pain from that of orthopedic, gastrointestinal, urologic, neurologic, and psychosomatic origin.*
- *Can be psychosomatic in origin*



Anatomy & physiology

- *Painful impulses that originate in the skin, muscles, bones, joints, and parietal peritoneum travel in somatic nerve fibers, whereas those originating in the internal organs travel in visceral nerves*

Organ	Spinal Segments	Nerves
Perineum, vulva, lower vagina	S2-4	Pudendal, inguinal, genitofemoral, posterofemoral cutaneous
Upper vagina, cervix, lower uterine segment, posterior urethra, bladder trigone, uterosacral and cardinal ligaments, rectosigmoid, lower ureters	S2-4	Pelvic parasympathetics
Uterine fundus, proximal fallopain tubes, broad ligament, upper bladder, cecum, appendix, terminal large bowel	T11-12, L1	Sympathetics via hypogastric plexus
Outer two thirds of fallopian tubes, upper ureter	T9-10	Sympathetics via aortic and superior mesenteric plexus
Ovaries	T9-10	Sympathetics via renal and aortic plexus and celiac and mesenteric ganglia
Abdominal wall	T12-L1	Iliohypogastric
	T12-L1	Ilioinguinal
	L1-2	Genitofemoral

- *The structures of the female genital tract vary in their sensitivity to pain.*
  - *The skin of the external genitalia is extremely sensitive*
  - *Pain sensation is variable in the vagina (upper segment is less sensitive than the lower)*
  - *The cervix is relatively insensitive to small biopsies but sensitive to deep incision or dilatation*
  - *The uterus is sensitive*
  - *The ovaries are insensitive to many stimuli, but sensitive to rapid distension of the capsule or compression during physical examination*

Evaluation

A. HISTORY

- SOCRATES analysis
  - Impact on everyday life
  - Onset/events e.g. sexual intercourse (infection), lifting heavy object (hernia), abuse (psychological)
  - Explore psychological causes
    - Stress (palpitations, headaches), or depression (insomnia, amnesia)
- The relationship of the pain to the menstrual cycle (including the presence of:
  - Abnormal uterine bleeding, bowel movements, urination, sexual intercourse, and physical activity
- A history of similar painful episodes in the past
- The presence of other somatic complaints, such as anorexia, weight loss, or gastrointestinal or urologic symptoms
- Gynecologic history: complete history including infertility, PID, STDs, surgeries, endometriosis

B. PHYSICAL EXAMINATION

Examination should attempt to reproduce & localize the pain.

- Abdominal examination
  - The severity of the pain should be quantified on a 0 to 10 scale (0=no pain, 10=hitting thumb with a hammer).
- Pelvic examination
  - Endometriosis may have a fixed retroverted uterus with tender uterosacral nodularity.
  - Chronic salpingitis may be suggested by bilateral, tender, irregularly enlarged adnexal structures.
  - A prolapsed uterus may account for pelvic pressure, pain, or low backache.
- The abdominal wall should be examined for evidence of chronic abdominal wall pain

C. INVESTIGATIONS

1. Psychological evaluation
2. Laboratory studies (of limited value):
   a. CBC
   b. Erythrocyte sedimentation rate (ESR); salpingo-oophoritis, tuberculosis, or inflammatory bowel disease
   c. Urinalysis
3. If bowel or urinary signs and symptoms are present → endoscopy, abdominal and pelvic CT scan, cystoscopy, or CT urogram may be useful.
4. If there is clinical evidence of musculoskeletal disease → a lumbosacral x-ray, CT scan, MRI
5. Pelvic U/S
6. Laparoscopy: gold standard for CPP with undetermined etiology

Differential Diagnosis

ORGANIC CAUSES

On laparoscopy: ~ 1/3 of women have no apparent pathology, 1/3 have endometriosis, 1/4 have adhesions or stigmata of chronic pelvic inflammatory disease (PID)

1. Endometriosis

- *May be missed at the time of laparoscopy in 20-30% of women who have histological evidence*
- *Therefore, initiate treatment once other etiologies have been ruled out*
- *The size and location of the endometriotic implants do not appear to correlate with the presence of pain*

2. Chronic Pelvic Inflammatory Disease

- *May cause pain because of*
    - *Recurrent exacerbations that require antibiotic therapy*
    - *Hydrosalpinges and adhesions between the tubes, ovaries, and intestinal structures*

3. Ovarian Pain

- *Ovarian **cysts are usually asymptomatic**, but episodic pain may occur secondary to rapid distention of the ovarian capsule.*
- *An ovary or ovarian remnant may occasionally become retroperitoneal secondary to inflammation or previous surgery, and cyst formation in these circumstances may be painful.*
- *Some women, may develop multiple recurrent hemorrhagic ovarian cysts that seem to cause pelvic pain and dyspareunia intermittently*

4. Uterine Pain

- ***Adenomyosis** (or endometriosis interna) may cause dysmenorrhea and menorrhagia, but rarely does it cause chronic intermenstrual pain.*
- *Uterine myomas (**fibroids**) usually do not cause pelvic pain unless they are degenerating, undergoing torsion (twisting on their pedicles), or compressing pelvic nerves.*
    - *On occasion, a submucous leiomyoma may attempt to deliver via the cervix, which may cause considerable pelvic pain similar to childbirth.*
    - *Uterine myomas may cause pain from rapid growth or infarction during pregnancy.*
- *Deep dyspareunia may occasionally be associated with uterine retroversion, especially when the uterus is fixed in place by scarring.*
    - *Pain may be caused by*
        - *Irritation of pelvic nerves by the stretching of the uterosacral ligaments*
        - *Congestion of pelvic veins secondary to retroversion.*
- *A tender uterus that is in a fixed retroverted position usually signifies other intraperitoneal pathology, such as endometriosis or PID, and diagnosis rests on laparoscopic findings.*

5. Pelvic Congestion Syndrome

- *In multiparous women who have pelvic vein varicosities and congested pelvic organs.*
- *The pelvic pain is **worse premenstrually** and is **increased by fatigue, standing, and sexual intercourse**. Many women with this condition are noted to have a*
- *Uterus is usually mobile, retroverted, soft, boggy, and slightly enlarged.*
- *There may be associated menorrhagia and urinary frequency.*
- *Dilated veins may be seen on venographic studies.*
    - *Factors other than venous congestion may be involved, however, because most women with pelvic varicosities have no pain.*
- *Surgery: hysterectomy and oophorectomy*
- *Medical Rx: ovarian hormone suppression and cognitive behavioral therapy*

6. Genitourinary Pelvic Pain

- *Urinary retention*
- *Urethral syndrome (infections)*
- *Trigonitis and interstitial cystitis*
    - *Urinary urgency, frequency, nocturia, and pelvic pain suggest early interstitial cystitis.*

7. Gastrointestinal Pain

- *Penetrating neoplasms of the gastrointestinal tract*
- *Irritable bowel syndrome*
- *Partial bowel obstruction*
- *Inflammatory bowel disease*
- *Diverticulitis*
- *Hernia formation*

8. Neuromuscular Pain

- *Experienced as low back pain, usually increases with activity and stress*
- *If accompanied by a pelvic mass, surgical exploration may reveal a neuroma or bony tumor*

Management

- *Regular follow-up*
- *If untreatable: symptomatic therapy*
- *TEAM MANAGEMENT (IF multidisciplinary pain clinic is not available): a gynecologist, a psychologist (able to provide marital and sexual counselling), and an anesthesiologist*
- *MEDICAL MANAGEMENT:*
    - *In the initial stages of therapy → a trial of ovulation/menstrual suppression with **OCPs**, high-dose **progestins** or **GnRH-agonists***
        - *Especially if there is midcycle, premenstrual, or menstrual exacerbation of pain*
        - *Or in those who have ovarian pathology e.g. periovarian adhesions or recurrent functional cyst formation*
    - ***NSAIDs**, such as ibuprofen or naproxen*
    - ***Tricyclic antidepressants** or other GABA-ergic agents*
- *SURGICAL MANAGEMENT:*
    - *Psychosomatic evaluation should be carried out before a surgical corrective procedure is considered.*
    - *If CPP without pathology → **DON'T PERFORM** unilateral adnexectomy, total abdominal hysterectomy, presacral neurectomy, or uterine suspension,*
    - *Lysis of adhesions is performed **ONLY IF** the site of adhesions, visualized by the laparoscope, correlates with the localization of pain.*
        - *Pelvic adhesions often recur following surgical lysis*
- *ANESTHESIA:*
    - *Acupuncture (↑ spinal cord endorphins),*
    - *Nerve blocks*
    - *Trigger-point injections of local anesthetics*
        - *Usually found either on the lower abdominal wall, lower back, or the vaginal and vulvar areas.*
        - *Respond to bi-weekly injections of a local anesthetic (usually up to five injections is sufficient)*