Putting a stop to dysfunctional

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Learn how to search for the source of abnormal bleeding and help your patient get back on track.

By Denise McEnroe Ayers, RN, MSN, and
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Doris Lappin, 45, walks to the ED triage desk and states, "I'm passing large clots and have soaked two maxi pads within half an hour. I just don't know what to do to get the bleeding to stop! I was supposed to see my gynecologist next week, but this just can't wait until then."

MOST WOMEN WHO MENSTRUATE experience a consistent pattern of menstrual bleeding from month to month. Uterine bleeding that differs in quantity, duration, or frequency from a woman's usual pattern—for example, spotting between menstrual periods—is considered abnormal, as is any postmenopausal bleeding (bleeding that occurs 12 months or more after the woman's last menstrual period).

The term *dysfunctional uterine bleeding (DUB)* applies to abnormal bleeding related to changes in hormones directly affecting the menstrual cycle in the absence of any identified organic, systemic, or structural disease. It may occur with or without ovulation.[1-3]

Using Mrs. Lappin's case as an example, we'll discuss the causes of DUB, assessment pointers, and treatment options. Let's start with a quick review of normal menstruation.

Menstruation: A complex event

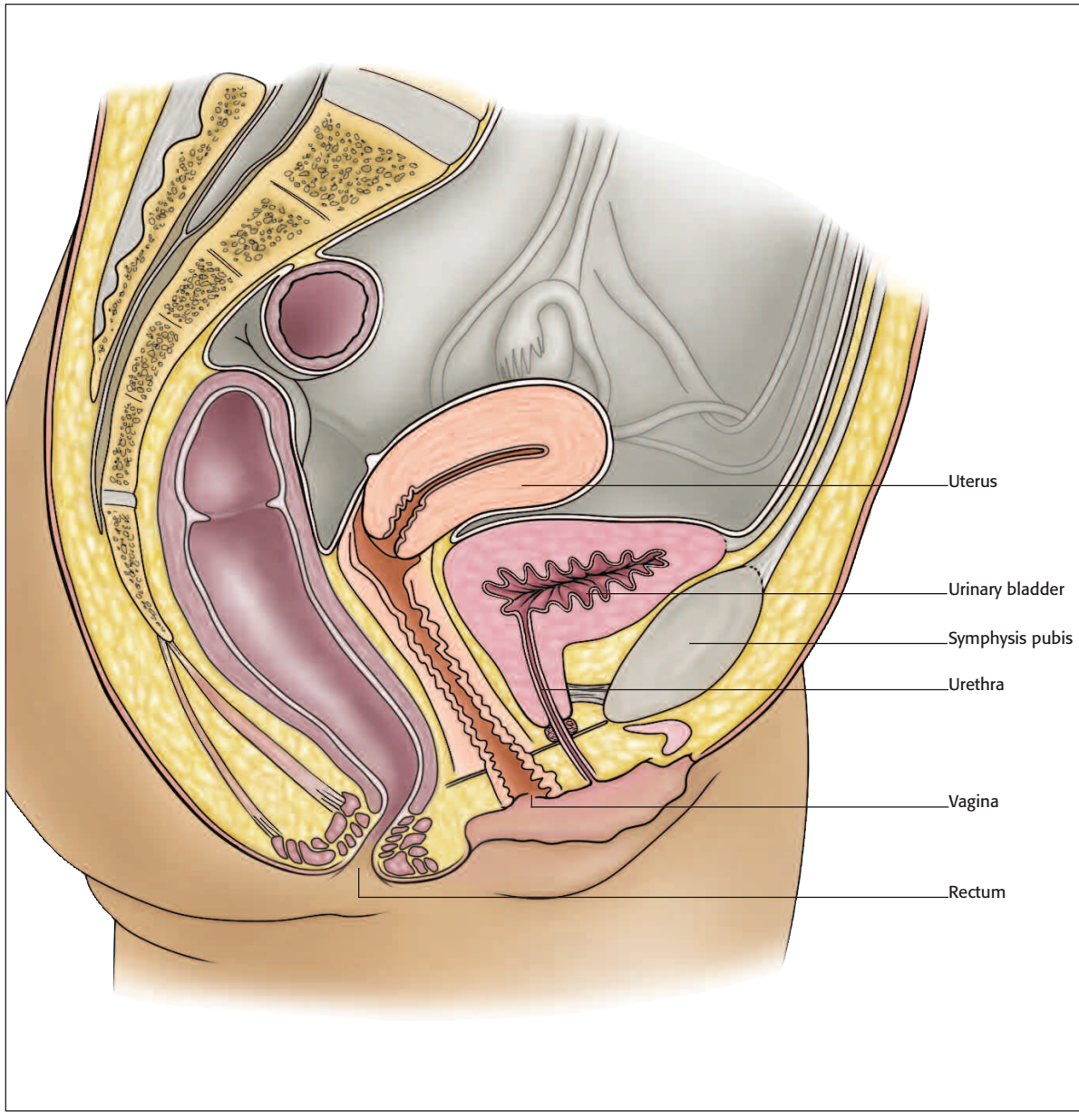
The menstrual cycle is a series of complex hormonal events that relies on a balance between hypothalamic, pituitary, ovarian, and uterine functions. When pregnancy doesn't occur, menses—sloughing of the endometrial lining—is an expected result.

A normal menstrual cycle occurs every 21 to 35 days and lasts 2 to 7 days. On average, women lose 30 to 80 mL of menstrual blood in each cycle, with most of that loss occurring during the first 3 days.[1] For more details, see *Looking at a normal menstrual cycle*.

Understanding DUB

By definition, DUB occurs when a woman's normal menstrual cycle is disrupted, usually due to anovula-

uterine bleeding



tion (failure to ovulate). Women who experience cycles that vary in length by more than 10 days from one cycle to another are typically anovulatory. Women younger than age 20 and older than age 40 are at particular risk for DUB because women are most likely to experience hormonal imbalance and anovulation at the beginning or end of their reproductive lives. (See *Risk factors for DUB*.)

Signs and symptoms of DUB vary. For instance, a woman may bleed more heavily during one period and more lightly the next, spot between periods, or have a shorter or longer interval between periods. Or she may bleed for less than 2 days or more than 7 days.

Examples of DUB include the following:

- *menorrhagia:* blood flow of more than 80 mL or lasting more than 7 days
- *polymenorrhea:* menstrual cycles of less than 21 days
- *oligomenorrhea:* cycles lasting longer than 35 days
- *metrorrhagia:* bleeding at irregular but frequent intervals
- *menometrorrhagia:* prolonged or excessive bleeding at irregular or unpredictable intervals.

The most common reasons for abnormal bleeding in women of childbearing age are pregnancy and pregnancy-related conditions (including miscarriage). But many other causes are possible, such as infections of the genital tract, uterine fibroids, endometrial cancer, certain medications and herbal products (such as anticoagulants, corticosteroids, and ginkgo), blood dyscrasias, disorders of the thyroid or adrenal glands (hypothyroidism or hyperthyroidism and hyperandrogenism), liver or kidney disease, and even stress. If underlying pathology is ruled out, the diagnosis is DUB.

Most cases of DUB can be categorized into one of two types:

- ***Anovulatory DUB***, which accounts for about 90% of cases,[4] is common in women at the beginning or end of their reproductive life. In anovulatory DUB, estrogen is continually secreted but an ovum never ripens in the follicle. Because an ovum isn't released, the corpus luteum fails to produce progesterone to counteract uterine lining proliferation and the patient experiences irregular and possibly heavy bleeding.

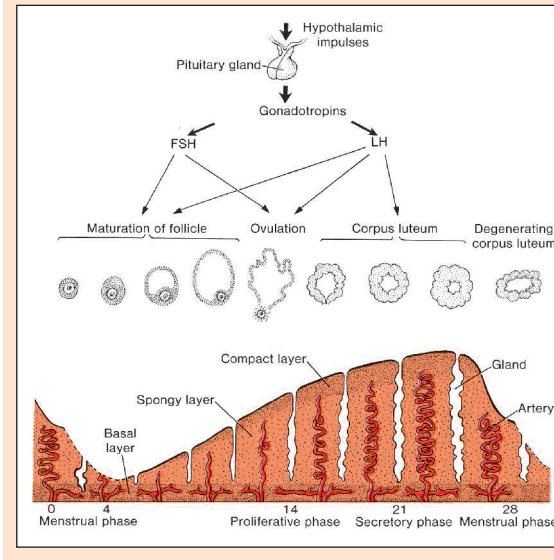
In the absence of ovulation, she won't experience typical menstrual and premenstrual signs and symptoms, such as cramping, mood changes, and breast tenderness. However, the effects of unopposed estrogen on the uterine lining have been directly linked to endometrial hyperplasia and cancer.

- ***Ovulatory DUB*** is more likely to occur during peak reproductive years. Associated with prolonged progesterone secretion or inadequate prostaglandin release, it typically leads to heavy but predictable bleeding. Ovulatory DUB may also coexist with tumors or polyps that can contribute to excessive bleeding. Women with ovulatory DUB experience menstrual and premenstrual signs and symptoms, which are linked to ovulation and progesterone.[5]

Looking at a normal menstrual cycle

The menstrual cycle is regulated by a complex interaction of the hypothalamus, the anterior pituitary gland, the ovaries, and various target tissues, such as the endometrium. Normal menstrual function consists of two distinct phases, with estrogen and progesterone, hormones produced by the ovaries, playing key roles:

- In the ***proliferative phase***, estrogen levels predominate. Several ovarian follicles containing immature ova grow in this phase of the menstrual cycle. These follicles release estrogens that act on the uterus and cause the endometrium to become thick and vascular and proliferate. The corpus luteum develops from an ovarian follicle during midcycle, using estrogens and progesterone it produces to maintain its structure.
- The ***secretory phase*** begins when an increase in progesterone triggers ovulation. If the ovum isn't fertilized, the corpus luteum will atrophy and estrogen and progesterone production will decline. The endometrium breaks down and menstruation occurs.



History lessons

Mrs. Lappin reports that she's had three viable pregnancies without complications. In between pregnancies, she was on a low-dose oral contraceptive. After her last pregnancy, she had a tubal ligation performed

Risk factors for DUB

- age under 20 or over 40
- overweight (because hormones involved in ovulation aren't readily available from fat stores) or extreme weight loss or gain
- excessive exercise, which decreases body fat to a degree that's inadequate to maintain the menstrual cycle
- high stress levels
- polycystic ovarian syndrome

and now takes no medications routinely. She has no history of bleeding disorders or thyroid or other endocrine disease and has no personal or family history of cancer.

Mrs. Lappin says her menstrual periods started when she was 13 and were regular until last year, when she began having periods of heavy blood flow lasting 7 to 10 days. She reports using at least "two boxes of pads" per cycle and says she passes many large clots. She also has breakthrough bleeding, with this event being the worst so far. Under further questioning, she reveals that she's frequently tired and just "doesn't feel well overall."

Getting a detailed obstetric and gynecologic history is the first step to identifying the underlying cause of your patient's excessive uterine bleeding. This includes investigating whether she has any vaginal discharge, abdominal pain, or pain during intercourse (dyspareunia) or urination (dysuria). When obtaining her health history, specifically explore whether she has a clotting or bleeding disorder (such as von Willebrand disease), chronic liver disease, renal disease, or endocrine disease. Ask about a family history of cancer, endocrine disorders, or bleeding diseases that could be associated with abnormal uterine bleeding. Also ask if she's taking any over-the-counter or prescription drugs or if she uses herbal remedies. Explore her diet and exercise patterns and find out if she's under any unusual stress and if she's gained or lost weight recently.

To help evaluate your patient's hemodynamic status, ask if she ever feels light-headed, fatigued, short of breath, or dizzy, which can signal anemia related to blood loss. Take her baseline vital signs and assess orthostatic BP if she has signs and symptoms of hypovolemia.

During your physical assessment, inspect your patient's skin, noting the color and any signs of bleeding disorders, including bruising and petechiae. Also check for clinical or lab evidence of hyperandrogenism, including acne, hirsutism, or abdominal striae. Examine her thyroid gland for enlargement and check her abdomen for tenderness, rigidity, and masses. Record her height and weight and calculate her body mass index. To track her menstrual cycles and related signs and symptoms, teach her to use a menstruation calendar. (See *Tracking signs and symptoms, day by day*.)

Tracking signs and symptoms, day by day

The use of a menstruation calendar or menstrual flow diary can help your patient compare how her current menstrual cycle differs from her normal cycles in duration, frequency, and intensity. Teach her to record the following:

- daily temperatures, taken each morning before she gets out of bed. An elevation in body temperature can indicate ovulation.
- when her periods start and stop
- the amount of bleeding (number of saturated pads or tampons)
- her contraceptive use and sexual activity
- any problems such as pain, clots, postcoital bleeding, or bleeding that requires more than one pad or tampon every hour.

Your patient should also note if menstruation causes her social embarrassment or inconvenience, compromises her sexual activity, or requires her to change her lifestyle.

Upon initial assessment, the nurse finds Mrs. Lappin to be pale and diaphoretic. Mrs. Lappin says she feels dizzy. Vital signs are: temperature, 99.0° F (37.2° C); thready pulse of 110; and respirations, 24. Orthostatic BP results: supine, 110/78 and pulse 110; standing, 82/60 and pulse 130. The patient says she's "feeling faint" with the position change. The nurse notes that she has no bruising, petechiae, or signs of hyperandrogenism. Based on her history and clinical findings, including orthostatic hypotension, the practitioner admits Mrs. Lappin to the hospital.

The nurse inserts an I.V. catheter and administers 1,000 mL of 0.9% sodium chloride over 4 hours, as ordered. The practitioner orders a complete blood cell count, coagulation studies, and a pregnancy test. The nurse prepares Mrs. Lappin for a pelvic examination with Pap test and an ultrasound.

Delving deeper

A thorough pelvic examination, lab work, and imaging studies will reveal more about your patient's problem.

Pelvic examination. With a bimanual pelvic examination, the practitioner assesses for ovarian and uterine masses and signs of pelvic inflammatory disease. He'll also take specimens to screen for cervical cancer (Pap test) and for *Neisseria gonorrhoeae* and *Chlamydia trachomatis*, even when bleeding is present.

The practitioner will examine the patient's urethra, vagina, cervix, and uterus for lesions and evaluate the endometrium for polyps. He should also assess the rectal area and perform a fecal occult blood test to determine if the gastrointestinal tract is the source of bleeding.

The American College of Obstetricians and Gynecologists recommends endometrial evaluation, including biopsy, for women over age 35 and those at high risk for endometrial cancer.[6] Risk factors for endometrial cancer include morbid obesity, diabetes, hypertension, and long-standing anovulation.

Lab work. All women of childbearing potential should have a pregnancy test and a complete blood cell count. Depending on the patient's history and physical, the practitioner may order additional blood work, such as a platelet count, coagulation studies, and levels of ferritin and hormones such as thyroid-stimulating hormone, progesterone, testosterone, and prolactin.

Imaging studies. Your patient may undergo a pelvic ultrasound to rule out tumors, cysts, and polyps. A transvaginal ultrasound helps the practitioner evaluate structural abnormalities, such as the position and size of fibroid tumors, and determine endometrial thickness. If he detects uterine abnormalities, he may order sonohysterography to aid in diagnosis. This involves infusing saline into the endometrial cavity during a pelvic or transvaginal ultrasound examination.

After diagnosis, a patient like Mrs. Lappin needs treatment to stop the bleeding, restore and maintain hemodynamic stability, and restore a normal menstrual cycle. See *Responding to hemodynamic instability* for details on treating acute bleeding.

Treatment goals include treating any underlying cause, controlling excessive bleeding, preventing recurrence, and preserving fertility in women of childbearing age. Most cases of DUB are successfully managed with medication. Let's consider treatment options, which vary depending on the type of DUB the patient is experiencing.

Treating anovulatory DUB

The mainstay of treatment for anovulatory DUB is combination oral contraceptives that contain estrogen and progesterone or cyclical progesterone. Very effective in controlling excessive anovulatory bleeding, oral contraceptives are available in various doses to meet individual patient needs.

Oral contraceptive therapy is generally prescribed for at least 3 months before other diagnostic or treatment options are considered. The following regimens are common:

- *Mild bleeding.* The patient may be put on a normal contraceptive regimen, starting with her next menstrual cycle.
- *Moderate to heavy bleeding.* The patient may take progestin for 10 to 21 days, then start on a normal contraceptive regimen with the next cycle. Alternatively, she may take a monophasic oral contraceptive (delivering the same amount of estrogen and progestin every day) four times daily for 5 to 7 days, then reduce to daily dosing.[7]

If combination hormones are contraindicated in a patient with anovulatory DUB, the practitioner may order progestin, such as medroxyprogesterone (Provera) or norethindrone acetate (Aygestin) to be taken for 5 to 12 days a month beginning on day 11 or 14 of the menstrual cycle to oppose estrogen's effect on the endometrium. When the patient stops taking the progestin each month, she'll have controlled withdrawal bleeding.

Some women benefit from an intrauterine device that contains progesterone. This method works well because it directly counteracts the effects of estrogen on the endometrium and decreases blood loss. At the same time, it provides contraception while preserving the woman's childbearing ability. Because little of the progesterone is absorbed, most women have few sys-

Responding to hemodynamic instability

For a woman experiencing severe acute bleeding, the primary consideration is her hemodynamic status. She needs hospitalization to support the ABCs, monitor signs and symptoms of hypovolemia, and possibly to replace fluids with volume expanders or blood products. If her hemodynamic status is unstable because of severe acute bleeding, she may receive conjugated estrogens I.V. every 4 to 6 hours until bleeding stops or for 12 hours. To promote rapid regrowth of the endometrial tissue over the denuded epithelial surfaces, she'll also receive I.V. infusions of high-dose estrogen preparations such as Premarin, followed by therapy with oral contraceptives.

temic effects and tolerate therapy well.

Medroxyprogesterone acetate (Depo-Provera), a long-acting injectable progestin, has become increasingly popular because it requires just one injection every 3 months. It's contraindicated in patients with undiagnosed vaginal bleeding. Teach the patient to notify the practitioner immediately if abnormal bleeding becomes severe, so she can be evaluated further.

To treat some cases of anovulatory DUB, the gonadotropin-releasing hormone leuprolide (Lupron) is prescribed to trigger chemical menopause. Leuprolide reduces follicle-stimulating hormone and luteinizing hormone levels to cause amenorrhea, usually within 3 months of starting therapy. Interrupting the anovulatory cycle prepares the body for further intervention. A woman is typically on this therapy for 6 months or less; during that time, she should be monitored for osteoporosis and signs and symptoms of menopause, such as hot flashes, night sweats, and vaginal dryness.

Treating ovulatory DUB

In ovulatory DUB, continuous estrogen secretion unopposed by progesterone stimulates buildup of the endometrium and leads to a prostaglandin imbalance. Heavy bleeding related to ovulatory DUB may respond well to a nonsteroidal anti-inflammatory drug (NSAID) such as naproxen or ibuprofen. These NSAIDs decrease prostaglandin production, reduce blood flow by causing vasoconstriction, and ease cramping pain. They're most effective in decreasing the quantity of blood flow in patients with cyclic ovulatory bleeding, fibroids, and intrauterine devices. In some cases NSAIDs are combined with oral contraceptives. Therapy with NSAIDs is contraindicated in patients with bleeding disorders or platelet dysfunction.

If your patient is on NSAID therapy, teach her to start taking the drug 1 to 2 days before she expects the start of her period and to continue taking it throughout her menses, as prescribed.

Beyond medications

If DUB can't be managed medically, the practitioner may consider several invasive options.

Hysteroscopy allows visualization of the inside of the uterus when bleeding persists. If the practitioner detects fibroids or endometrial polyps during the procedure, he can remove them.

Uterine artery embolization stops direct blood flow to fibroids that are causing excessive bleeding. Losing their blood source, the fibroids become ischemic and necrotic and shrink.

Dilation and curettage (D & C) doesn't cure underlying problems but it will control acute bleeding that hasn't responded to medication. The effects of a D & C last only until the onset of the next menstrual period. A D & C may be done to find out the cause of the bleeding and to help the practitioner decide how to best treat the bleeding process.

Endometrial ablation is an option if the patient doesn't want to have children. The technique uses microwaves, radiofrequency energy, or cryoblation to destroy the uterine lining. Ablation is very successful at decreasing or completely stopping menstrual cycles and DUB, but it leaves the patient infertile.

Hysterectomy is the definitive treatment for women with endometrial cancer. However, it's now used only as a last resort for DUB related to other causes.

Treatment, teaching, and support

During a pelvic exam, the practitioner identifies many large fibroids in the uterus. Because of Mrs. Lappin's severe, acute bleeding and hypovolemia, he performs a D & C immediately to curtail the bleeding. She continues on I.V. replacement therapy (125 mL/hour) and receives one unit of packed red blood cells to treat her low hemoglobin level (7.6 mg/dL). She's given a single dose of conjugated estrogens (Premarin) and started on a combination oral contraceptive. She responds well to treatment and is discharged the next day with instructions to continue the oral contraceptives and see her gynecologist in 1 week.

A patient with DUB may experience considerable distress, including social embarrassment. The disorder may make her unwilling to engage in sexual activity, particularly if her bleeding is frequent or excessive. Until the cause of the bleeding is determined, she may worry about a diagnosis of cancer or another serious condition. She may also have feelings of fear or grief about the potential for infertility.

Give your patient and her family information to help them better understand DUB, including the causes, treatments, long-term effects, and prognosis. Then spell out these measures to help minimize the effects of DUB on her daily functioning:

- Call your healthcare provider if you pass clots the size of a half-dollar or larger, if you soak a pad or tampon at least every hour, or if you develop severe abdominal pain.
- Take your medications as prescribed. (Tell the patient what adverse reactions she might experience and when to contact her healthcare practitioner.)
- If you experience cramps or discomfort, take ibupro-

fen or naproxen as directed. Avoid aspirin products because they can increase bleeding.

- To get plenty of iron in your diet, eat foods such as liver, beans, and spinach. (If the practitioner prescribes an iron supplement, teach the patient about side effects such as constipation and a darker stool color.)
- Rest frequently to manage fatigue.
- If you feel dizzy or have heart palpitations, which may signal excessive blood loss, contact your healthcare practitioner right away.
- You may engage in sexual activity and other activities of daily living, including swimming and exercise, during menstruation.

By helping your patient understand the reasons for DUB and supporting her as she takes steps to manage it, you help her return to her normal routines. ✧

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Putting a stop to dysfunctional uterine bleeding

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Putting a stop to dysfunctional uterine bleeding

GENERAL PURPOSE To provide nurses with an overview of dysfunctional uterine bleeding (DUB). **LEARNING OBJECTIVES** After reading the preceding article and taking this test, you should be able to: **1.** Describe the pathophysiology of abnormal uterine bleeding. **2.** Identify the causes of DUB. **3.** List management options for a patient with DUB.

1. Postmenopausal bleeding is bleeding that occurs
a. after age 50.
b. after age 55.
c. 6 months after a woman's last menstrual period.
d. 12 months or more after a woman's last menstrual period.

2. DUB is bleeding that
a. occurs only after menopause.
b. occurs from systemic or structural causes.
c. is abnormal in timing or quantity from any cause.
d. is related to changes in hormones that affect the menstrual cycle.

3. The menstrual cycle is determined by complex events between the ovaries, uterus, pituitary gland, and
a. pineal body.
b. hypothalamus.
c. thyroid gland.
d. parathyroid gland.

4. A normal menstrual cycle occurs every
a. 28 days.
b. 24 to 31 days.
c. 21 to 35 days.
d. 21 to 60 days.

5. Blood flow lasting more than 7 days is called
a. polymenorrhea.
b. menorrhagia.
c. metrorrhagia.
d. menometrorrhagia.

6. Which is the *most common* reason for abnormal uterine bleeding in women of childbearing age?
a. pregnancy and pregnancy-related conditions
b. ginseng
c. stress
d. thyroid disorders

7. Anovulatory DUB is caused by
a. endometrial hypoplasia.
b. the release of an immature ovum.
c. continuous estrogen release without progesterone release.
d. continuous progesterone release without estrogen release.

8. Pain during intercourse is called
a. dyspareunia.
b. dysuria.
c. metrorrhagia.
d. menometrorrhagia.

9. All of the following are considered risk factors for endometrial cancer *except*
a. diabetes.
b. hypertension.
c. obesity.
d. polymenorrhea.

10. Sonohysterography is
a. a venous blood test.
b. used to measure uterine blood flow.
c. performed during ultrasound examination.
d. performed during a computed tomography scan.

11. Most cases of DUB are treated with
a. medication.
b. hysterectomy.
c. dilation and curettage.
d. uterine artery embolization.

12. One treatment for anovulatory DUB is an intrauterine device containing
a. estrogen.
b. progesterone.
c. an NSAID.
d. follicle-stimulating hormone.

13. Leuprolide is a type of
a. androgen.
b. estrogen.
c. progesterone.
d. gonadotropin-releasing hormone.

14. Which treatment causes infertility?
a. endometrial ablation
b. uterine artery embolization
c. hysteroscopy
d. dilation and curettage

15. Instruct your patient with DUB to avoid
a. aspirin.
b. acetaminophen.
c. exercise.
d. sexual intercourse.

16. Ovulation is triggered by
a. a decrease in estrogen.
b. an increase in progesterone.
c. atrophy of the corpus luteum.
d. endometrial hypertrophy.

17. Which treatment is most likely to be ordered for a hemodynamically unstable patient with severe, acute bleeding?
a. conjugated progesterone I.V.
b. high-dose progesterone I.V.
c. conjugated estrogens I.V.
d. medroxyprogesterone I.M.

18. All of these are risk factors for DUB *except*
a. obesity.
b. high stress levels.
c. age between 25 and 40.
d. polycystic ovarian syndrome.

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