

Uterine bleeding

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Abstract

Abnormal bleeding from the uterus is all bleedings apart from menstruation, and can be caused by cervical, pelvic, and systemic diseases, but also occur frequently without any evidence of pathological changes. Such bleeding is called dysfunctional bleeding from the uterus. There is a wide range of causes of abnormal bleeding from the uterus. Causes can be endometritis, polyps, myomas, adenomioza to hyperplasia and endometrial cancer. Systemic causes are the cause of thyroid disease, coagulation disorders or the side effects of using steroid hormones. Knowledge of normal and abnormal uterine bleeding mechanisms, refers to the setting a proper diagnosis and a new strategy for targeted treatment.

Introduction

A feminist perspective of health care views women holistically and avoids reducing a woman to her “parts” or medicalizing symptoms that are, in fact, representations of normal [1]. A medical model inscribes the disorder on the body, necessitating symptom interpretation from the single perspective of the clinician’s expertise. For example, the term abnormal uterine bleeding suggests pathology and the need to fix a “problem.” Nevertheless, for continuity of terminology, abnormal uterine bleeding (AUB) will be the term used to describe bleeding that is considered out of the ordinary by either the woman or the clinician. That said, it is important to appreciate that some of the knowledge about women’s cyclicity has been medicalized, socially constructed, or both. In some cases, “abnormal” bleeding actually represents a variation of normal, signifying the physiologic passage of a woman’s body into the next stage of development—for example, menarche or menopause. For this reason, it is important to look beyond the biomedical model when caring for women with concerns regarding their menstrual-cycle bleeding.

Medical intervention—particularly surgical intervention—should be the last resort in many cases of abnormal uterine bleeding. It is important to consider the woman’s goals for treatment when collaborating with her to develop a plan of care. When the uterine bleeding diagnosed as irregular or abnormal is actually a variation of normal, treatment with education, reassurance, and nonpharmacologic intervention such as dietary changes or relaxation techniques is most often appropriate. As more clinicians embrace the normalcy of menstrual variations, there will be less temptation to “cure” normal female processes. The expert clinician is one who actively listens, values input provided by the woman, and then carefully evaluates all available information before determining whether the bleeding is truly abnormal or just a variation of normal. A feminist approach to women’s health care using a health-oriented, normalizing model allows normalcy to be validated. This paradigm enables assessment, diagnosis, and treatment that is woman centered and that values the woman’s standpoint, background, ethnicity, and culture.

Menses

A solid understanding of the normal menstrual cycle is essential to effectively evaluate and treat women with irregularities [2]. The concept of normal menstruation is somewhat subjective and often varies between individual women and certainly between cultures. The normal menstrual cycle occurs over a span of 4.5–8 days every 24–38 days, with cycle-to-cycle variation over 12 months of ± 2 to 20 days. Normal menstruation should not cause severe pain or include passage of large clots.

Menses resulting from ovulatory cycles tend to demonstrate the same interval, amount, and duration from cycle to cycle unless significant health changes occur that negatively affect the HPOA (hypothalamic–pituitary–ovarian axis) [1]. Menses in individual women tend to have consistent patterns once ovulation is established. Women who have regular, ovulatory menstrual cycles often experience premenstrual symptoms such as bloating, fatigue, constipation, and mood changes. These symptoms (collectively called molimina) are a result of higher levels of progesterone in the body. The progesterone surge in the luteal phase sustains the corpus luteum for a finite period of time. When conception does not occur, the corpus luteum atrophies, with resultant progesterone withdrawal bleeding. The withdrawal of progesterone also causes the production of arachidonic acid, which in turn stimulates the production of PGF2 alpha. Although the pathology of dysmenorrhea is not entirely understood, it is believed that dysmenorrhea associated with ovulatory bleeding results from the effects of PGF2 alpha that cause vasoconstriction and contraction of smooth muscle.

Abnormal bleeding

The International Federation of Gynecology and Obstetrics (FIGO) defines chronic abnormal uterine bleeding (AUB) as

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“bleeding from the uterine corpus that is abnormal in duration, volume, and/or frequency and has been present for the majority of the last 6 months” [3]. The prevalence of AUB in the general population is predicted to range between 11% and 13% rising to 24% for those women aged 36-45 years. The extent of the menstrual bleeding has been linked to the likelihood of anemia. Heavy menstrual bleeding (HMB) without underlying pathology (also known as menorrhagia or dysfunctional uterine bleeding) can be a major health problem for many women, frequently resulting in referral for hysterectomy. The National Institute for Health and Clinical Excellence defines HMB as “as excessive menstrual blood loss which interferes with the woman’s physical, emotional, social, and material quality of life, and which can occur alone or in combination with othersymptoms”. Unfortunately, measurement of the volume of monthly menstrual blood loss is not possible outside the research setting, and clinicians are dependent on self-report by women about the heaviness of their menstrual loss.

HMB may occur at any time between puberty and the menopause and is typically described as either ovulatory or anovulatory. A history of HMB with regular menstrual cycles is usually associated with ovulation whereas an anovulatory pattern of bleeding with erratic intervals between menstrual periods, is common in puberty and as women near the menopause. Anovulatory menorrhagia may also be present in women with polycystic ovaries who often have irregular and heavy menses. This “dysfunctional uterine bleeding” is defined in the NICE guidelines as “Abnormal vaginal bleeding that occurs during a menstrual cycle that produced no egg (ovulation did not take place). The occurrence of irregular or excessive uterine bleeding in the absence of pregnancy, infection, trauma, new growth or hormone treatment”.

Abnormal uterine bleeding (AUB) is one of the more common reasons women seek health care [1]. It accounts for as many as one-third of all annual gynecologic visits AUB has a significant impact on the quality of life for the women it affects. Bleeding patterns range from amenorrhea (no menses) to heavy menstrual bleeding (HMB).

Abnormal uterine bleeding is an all-encompassing term referring to any uterine bleeding that is irregular in amount, frequency, duration, or timing (i.e., cycle irregularity). It may or may not be related to a woman’s menstrual cycle. AUB can occur as a normal physiologic event, such as the irregular bleeding that often accompanies menarche or perimenopause due to irregular ovulation. However, it can also signal pathologic, life-threatening conditions such as an ectopic pregnancy or endometrial cancer. Historically, it has been difficult to investigate the etiologies of AUB due to inconsistencies in definitions. The nomenclature surrounding AUB has evolved over the years but remains confusing, making this condition difficult to adequately study, diagnose, and treat.

Dysfunctional uterine bleeding (DUB) is a term that refers to excessive uterine bleeding in cases in which no uterine pathology can be identified and is therefore a diagnosis of exclusion [2]. Due to the development of a greater understanding of AUB and the availability of more sophisticated diagnostic techniques, this term is less frequently used today.

AUB can be grouped according to the basic pathophysiology of the various etiologies. The clinician must keep in mind that any individual patient can simultaneously have more than one cause of uterine bleeding. Therefore, the work-up should include an appropriate evaluation encompassing both likely and serious anatomic and systemic etiologies.

Dysfunctional uterine bleeding refers to cases in which the cause lies outside the uterus and in the network of endocrine glands that control uterine function [2]. Most cases of dysfunctional uterine bleeding occur because the follicle fails to mature to the point of ovulation and, consequently, no corpus luteum forms. As a result, the endometrium is subjected to continuous estrogen stimulation and responds by shedding in an irregular way instead of shedding all at once as in a normal period. This condition is also called anovulatory bleeding (ana = without + ovulation). It tends to arise at both extremes of reproductive life: when normal menstrual cycles are being established at puberty and near menopause when ovarian function is declining. Less commonly, irregular bleeding is the result of continuous secretion of progesterone from a corpus luteum that fails to involute. This prolongs the secretory phase of the endometrium, which sometimes sheds irregularly.

Pathological causes include infection, structural abnormalities, such as polyps, fibroids, arteriovenous malformations (AVM) or malignancy, drugs, hyperprolactinaemia, coagulopathy and thyroid endocrinopathy [4]. Terms associated with abnormal uterine bleeding are inconsistently defined, but may be broadly considered as abnormal uterine bleeding with ovulatory menstrual cycles and abnormal uterine bleeding with anovulatory menstrual cycles.

The most common cause of abnormal uterine bleeding is menorrhagia occurring in ovulatory menstrual cycles. This presents as regular heavy bleeding and may result in anaemia. In these women, the menstrual blood has been shown to have increased fibrinolytic activity and/or increased prostaglandins.

Abnormal uterine bleeding or metrorrhagia due to anovulatory menstrual cycles, sometimes referred to as dysfunctional uterine bleeding (DUB), presents as irregular bleeding of variable volume. In anovulatory menstrual cycles and other high oestrogen states, there is a relative lack of progesterone to oppose the oestrogenic stimulation of the endometrium. This results in excessive proliferation and occasionally hyperplasia/metaplasia of the endometrium. The endometrium also becomes ‘unstable’ and prone to erratic sloughing.

Pelvic Exam

Although many women presenting for an evaluation of a menstrual problem will give a straightforward history, clinicians should remember that for some, such a complaint may be an acceptable way to obtain a medical evaluation [5]. The pelvic exam can be very traumatic to adolescent patients coming for a first evaluation or for women who have a history of sexual assault. The patient’s cultural background or personal comfort level may also result in a limited (abdominal only) exam. In these cases, the history and further laboratory and pelvic ultrasound investigations can assist in identifying the most likely diagnosis.

On pelvic exam, evidence of infection, trauma, foreign body, IUD string, cervical polyps or neoplasia may help identify the source of the bleeding. Trauma or foreign bodies may indicate sexual assault or self-mutilation. Cervical cultures, a pap smear and a biopsy of any visible lesion should be done at the time of the initial exam if possible. Uterine size, shape, and consistency should be assessed. Adenomyosis is strongly suspected in a uterus that is enlarged, diffusely tender, and soft to boggy to palpation. Irregular contours are more likely with fibroids. The adnexal exam can help identify any masses or localized pain suggestive of an ectopic pregnancy or abscess. A recto-vaginal exam may be helpful in assessing structural abnormalities.

Diagnosis

AUB is broadly defined as any uterine bleeding that occurs outside the parameters of normal menstruation during the reproductive years [2]. It includes bleeding originating from either the uterine fundus or cervix and does not include bleeding that originates in the lower genital tract (i.e., the vagina or vulva). However, these causes can be difficult to distinguish clinically. Therefore, both of these origins should be considered in all patients presenting with bleeding from the uterus. It can be further characterized in terms of volume, duration, frequency, and regularity. AUB can be classified as acute or chronic. Chronic abnormal uterine bleeding is bleeding that has occurred for at least 6 months.

Irregular bleeding is always a cause for concern when it occurs in an older woman nearing the end of her reproductive years or after menopause because it may be the result of an endometrial carcinoma [6]. Bleeding in older women is usually treated by dilating the cervix with various metal dilators and then scraping out the lining of the uterus with a long-handled scooplike instrument called a curette. This procedure is called dilatation and curettage or simply abbreviated as D&C. The tissue removed is examined microscopically by the pathologist. If the endometrial tissue is not malignant, no further treatment is needed. If endometrial carcinoma is detected on histologic examination, further treatment is required, usually consisting of hysterectomy, sometimes preceded by a course of radiation therapy.

Management

Dysfunctional uterine bleeding is treated by administering hormones to restore the proliferative-secretory sequence in the endometrium that is characteristic of a normal menstrual cycle [6]. In one common treatment, the patient is given a synthetic steroid hormone having progesterone activity. The hormone induces secretory changes in the endometrium and stops the bleeding. The hormone treatment is then stopped, and the endometrium sheds as in a normal period. Frequently, the next cycle is normal and usually no further treatment is required. Multiple recurrent episodes of dysfunctional bleeding that lead to anemia resulting from excessive blood loss may require more aggressive treatment such as uterine ablation, destruction of the endometrium by a variety of physical methods including heat, cold, or microwave radiation. Because the technique has serious consequences (including likely loss or compromise of fertility), medical treatment is preferred when feasible.

Management goals for treating AUB are to (1) normalize the bleeding, (2) correct any anemia, (3) prevent cancer, and (4) restore quality of life [1]. The clinician should always consider the woman's choice of treatment when developing a plan of care. Concomitant therapy may be necessary to achieve these goals, particularly if the bleeding is severe and threatens hemodynamic stability. For example, a woman who presents with severe bleeding from a raw and denuded endometrium may require high-dose estrogen to stop the bleeding. Estrogen therapy will provide rapid growth of a denuded endometrium. Once the acute bleeding is under control, additional treatment options

such as oral contraceptives, use of the levonorgestrel intrauterine system, and progestin therapy (among others) are available for long-term treatment. If testing reveals that the woman is anemic because of the bleeding, she will need iron therapy.

Age, desire for future fertility, and the woman's preferences all need to be considered when determining treatment options for women with AUB. Treatment falls into two categories: treatment of acute bleeding and treatment of chronic bleeding. Women who present with excessive HMB and who have a dangerously low hematocrit require physician consultation. All episodes of acute hemorrhagic bleeding should be managed by a physician in a hospital setting. Usually intravenous estrogen therapy is instituted in such cases. Following intravenous administration of estrogen, high-dose estrogen therapy should be continued orally, tapering to once daily when bleeding is under control and adding a progestogen such as medroxyprogesterone acetate. This same treatment is effective for the woman whose bleeding is acute but not yet considered an emergency.

Conclusion

Functional bleeding from the uterus is abnormal bleeding which is due to hormonal changes rather than injury, inflammation, pregnancy or tumor. Dysfunctional bleeding usually occurs at the beginning and end of reproductive years: 20% of cases occur in adolescent and more than 50% in women over the age of 45. Most of the abnormal bleeding from the uterus are of a dysfunctional type, but this diagnosis only occurs when all other possible causes are excluded. Dysfunctional uterine bleeding usually occurs due to "uninterrupted" levels of estrogen, which leads to enlargement of the uterine mucosa. The mucosa is then peel incompletely and incorrectly which leading to bleeding. In polycystic ovarian syndrome, excessive luteinizing hormone production can cause ovaries to produce large amounts of male sex hormones of which the part then converts to estrogen instead of releasing the egg cell. Over time, estrogen without sufficient progesterone which would have the opposite effects can lead to abnormal bleeding from the uterus. Bleeding is improper, prolonged and sometimes abundant.

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