

The Quest of Absolution for Abnormal Uterine Bleeding?

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Introduction

Abnormal uterine bleeding (AUB) represents a clinical dilemma for both clinicians and patients [1]. It refers to any change in the pattern of menstrual bleeding. Those changes include abnormalities in regularity, frequency, heaviness, and duration of menstrual flow during or outside of regularly scheduled menstruation [2]. Often a frequent and vexing symptom experienced by women in their life spans. If left untreated, AUB can lead to problems ranging from reduction in basic quality of life to serious medical complications. If treated, responses are often time-consuming with initial medical followed by surgical for non-responders. Thus, AUB contributes to heavy utilization of healthcare resources, costing over a billion dollars a year and accounting for one-third of gynecological office visits in the United States [3,4]. With the innovation of minimal invasive surgery (MIS), particularly that of operative hysteroscopy, more patients have benefited by reduced bleeding in treatment.

Classification

Depending upon on the duration of blood loss, AUB can be either acute or chronic. Acute AUB is defined by a episode of bleeding outside of pregnancy so severe that acute medical intervention is required [5]. In contract, chronic AUB is defined as, "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 [6]".

Etiology

AUB can have both local and systemic causes. Locally, it is often attributed to structural abnormalities of the uterus as encapsulated in the acronym PALM (Polyp, Adenomyosis, Leiomyoma, Malignancy and hyperplasia). Systemic or non-structural sources of AUB are summarized by the acronym COEIN (Coagulopathy, Ovulatory dysfunction, Endometrial, Iatrogenic and Not yet classified) [7].

Work up

Management depends on the etiology. It is therefore of paramount importance to determine the etiology of AUB when assessing patients. Work up should begin with the basic history taking and physical examination, paying particular attention to the vital signs and the pelvic examination, which must include both a speculum and bimanual examination. For all women of reproductive age, a pregnancy test should be conducted. In all patients, vital signs will determine hemodynamic stability of the patient. The pelvic examination will enable a rapid assessment of blood loss as well as visible and palpable structure abnormalities. Depending upon the results of the history and physical, bearing in mind hemodynamic stability and severity and duration of blood loss, the diagnosis of acute or chronic AUB can be made. Recommended tests include, in addition to a pregnancy test, a complete blood count, blood type, and cross match. Further workup will proceed accordingly.

Management

The management plan will naturally be based upon the results of the above-mentioned workup, the acuity, other co-morbidities (anemia most often), and desire for future fertility. Various medical and surgical modalities may reduce or cease bleeding achieving, at one end of the spectrum, lifesaving hemodynamic stability, and, at the other end of the spectrum, improving that patient's quality of life and decreasing the healthcare utilization burden of AUB.

Medical Therapies for AUB

Hormonal of estrogen, progesterone or combined can often function to control episodic bleeding for acute AUB and normalize menstrual patterns for chronic AUB. Thus, should be first line treatment if not contraindicated. There is a wide array of options from pills, patches, rings, subdermal implants, intrauterine devices, injections to intravenous drips [8]. Treatment should be individualized and adjusted accordingly to patients' response and side effects.

Non-hormonal therapy is available as an alternative for patients with contraindications to hormonal therapy or who have opted-out. These include antifibrinolytics (tranexamic acid); nonsteroidal anti-inflammatory drugs; iron orally or parentally for anemia; and life style modification with exercise, weight loss (reduce peripheral conversion of adipose tissues to unopposed estrogen), and dietary modification. Dietary modification includes iron-enriched food supply for anemia such as red meat, seafood, beans, peas, dark green leafy vegetables (spinach), dried fruits (raisins and apricots), iron-fortified cereals, breads, and pastas. The life style modification is a valuably adjuvant therapy with great health benefits for other co-morbidities as well.

Surgical Options for AUB

Between the inherent risks of surgery itself and the risks due to anesthesia, surgical management of AUB is usually reserved for non-responders who exhaust medical therapy or for patients with symptomatic structural-abnormalities of either intrauterine or extrauterine etiologies. Surgical modalities include dilation and curettage (D and C), uterine artery embolization, hysteroscopy, endometrial ablation, myomectomies or hysterectomy.

The choice of surgical procedures depends upon many factors, including etiology of the AUB, acuity of bleeding, hemodynamic stability, co-morbidity, hematologic status, age, fertility desire, and expectation of treatment goal and quality of life for patients. All risks, benefits, and alternatives of procedure should be discussed with patients so informed decision can be made.

As modern technology intrudes into the operation rooms, surgical options for AUB are also evolving. Dilation and curettage is no longer acceptable as the diagnostic and therapeutic option, for it does not remove pathology and alleviate menstrual cycles [9]. Procedures are now performed with MIS approach of hysteroscopy, laparoscopy, or robot. Hysteroscopy now plays a major role in MIS for diagnosis and treatment in intracavitary pathology as it provides direct visualization of the lesions, tubal ostia, endocervical canal, cervix, and vagina. In this way, MIS enables simultaneous removal of the pathology (such as polyps, myomas) via resectoscopy, blade, or bladeless resection under guidance of the scope while preserving uterus. There are also advanced operative hysteroscopes with automatic fluid management system available to improve patient safety. These include the Myosure and Symphion Tissue Removal System [10]. This system has alarms built in when inflow exceeds certain preset parameters thus enables surgeons to monitor inflow, outflow and fluid deficit visibly to reduce intraoperative complication of fluid overload such as hyponatremia, pulmonary edema while removing pathology. For other structural pathology (fibroids or mass), either laparoscopic or robotic approach with morcellators, electrosurgical or ultrasonic instruments such as harmonic scalpels, ligasure, under MIS principles should be attempted prior to laparotomy.

Summary

Abnormal uterine bleeding (AUB) can mean a perplexing medical encounter for patients and a treatment challenge for their physi-

cians. Due to the potential for multi-system involvement and severity, AUB affects not only women's physical health but also, potentially, her mental health, as recurrent bleeding episodes lead to reduced quality of life.

Modern medical patients, with access to the internet, social media, and smartphones are so-called the educated consumers. Our clients can, and frequently do, access resources prior to and during treatment. This increased level of awareness highlights how all treatment options - both medical and surgical - should be thoroughly discussed with patients and individualized with respect to our patients' preferences. During these encounters, it is especially important that questions be clarified to avoid confusion and guide the patient making the best choice for her circumstance. It is imperative for treating physicians to offer surgical options, particularly via MIS approaches, when medical therapy becomes futile - or when symptomatic structural pathology do not appear to respond to medical therapy. With chronic AUB, signs and symptoms of anemia or other organ system involvement can compromise women health leading to unsalvaged option of hysterectomies. Operative hysteroscopy, which is now available in physician offices and surgical centers, and is indicated for a patient wishing to preserve her uterus and reserve future fertility. Thanks to new knowledge and technology, practitioners can now prioritize patient safety first and at large, fulfill the population health goals of improving quality of care and population health with reducing costs: intervene for indicated patients with MIS approaches.

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