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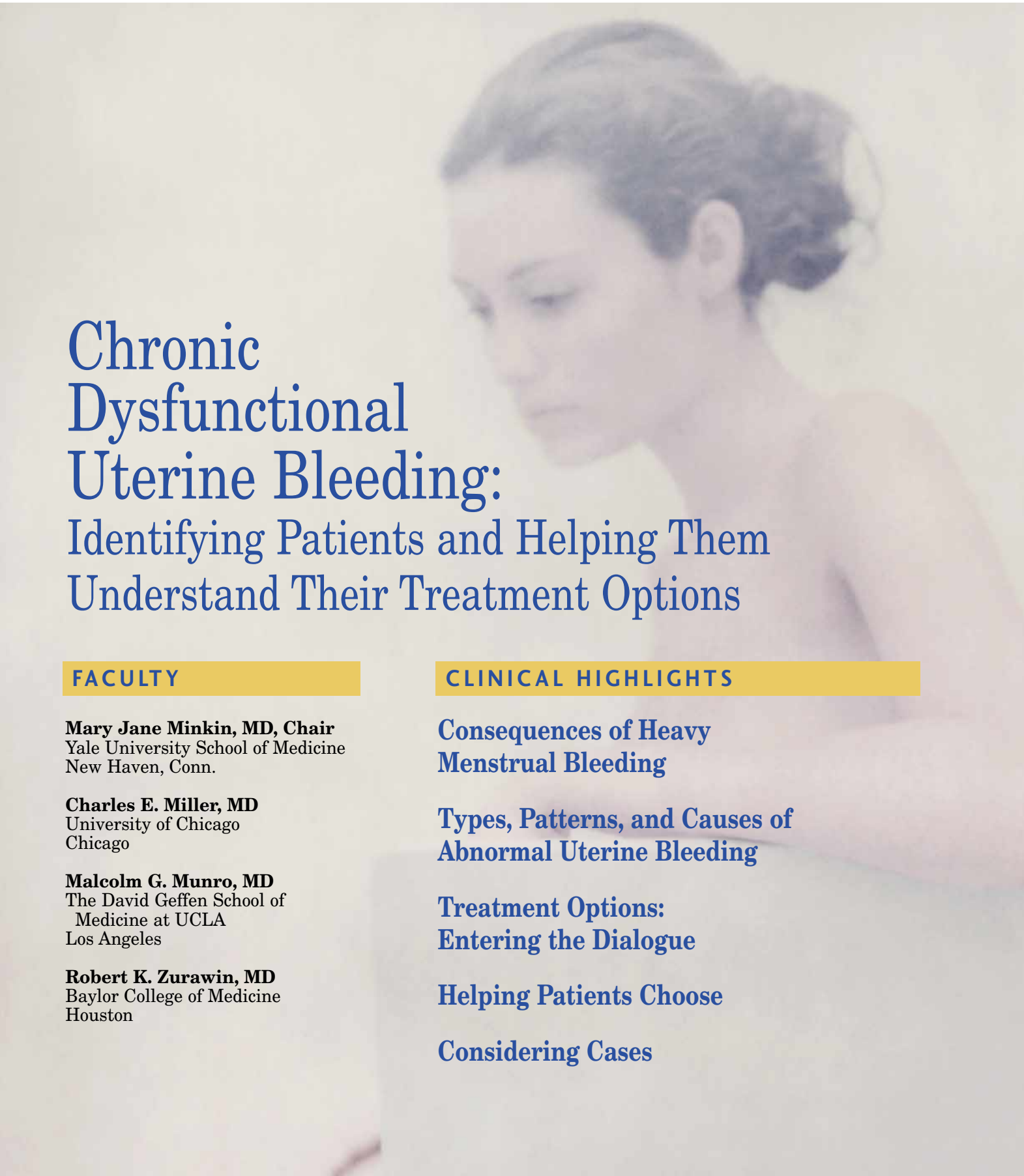

Chronic Dysfunctional Uterine Bleeding:

Identifying Patients and Helping Them Understand Their Treatment Options

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CLINICAL HIGHLIGHTS

Ob.Gyn. News®

Chronic Dysfunctional Uterine Bleeding:
Identifying Patients and Helping Them Understand Their Treatment Options

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FACULTY DISCLOSURE STATEMENT

Faculty/authors must disclose any significant financial interest or relationship with proprietary entities that may have a direct relationship to the subject matter. They must also disclose any discussion of investigational or unlabeled uses of products.

Dr Miller is a consultant to Gynecare Worldwide. **Dr Minkin** developed a Web site for Gynecare and is on the Speaker's Bureau at Berlex, Inc. **Dr Munro** has received funding for clinical grants from Kaiser Research Foundation and Karl Storz Endoscopy-America, Inc. He is also a consultant to Boston Scientific Corporation, Gynecare, and Karl Storz Endoscopy. **Dr Zurawin** is a consultant to and a speaker for Gynecare.

In this supplement, the faculty members discuss the off-label use of several medications and devices to treat heavy menstrual bleeding: oral contraceptives, postmenopausal hormone replacement formulations, leuprolide acetate, and the progestin-releasing intrauterine device.

INTRODUCTION

Mary Jane Minkin, MD, Chair

According to the seminal study on this topic, heavy menstrual bleeding (HMB)—at least 80 mL per month—affects about 20% of menstruating women worldwide.[1] Approximately 550,000 hysterectomies are performed in the United States each year, with more than 230,000 of these performed because of symptomatic menstrual bleeding.[2] In 35% to 50% of these cases, no pathology of the uterus is identified.[2] Even when pathology exists, in many instances it causes no symptoms and is unrelated to the cause of the bleeding.

Once a clinician has evaluated a patient for problems such as structural abnormalities of the uterus and coagulopathies, he or she has the opportunity—and the responsibility—to offer the extensive variety of effective treatment options available. This "menu" approach empowers the patient to make personally appropriate treatment choices.

The discussion of dysfunctional uterine bleeding (DUB) is a complex topic, beginning with terminology (**Table 1**). For example, although many clinicians would simplify this discussion by using the term "menorrhagia," menorrhagia very specifically describes heavy but predictable, cyclic bleeding, which generally implies ovulation. However, many clinicians, particularly in the United States, use the term to include heavy uterine bleeding that occurs in the context of menses that are unpredictable in timing, a situation that generally reflects anovulation. In fact, there are two types of DUB (**Table 2**). One type, which could be called "ovulatory DUB," presents with the symptom of menorrhagia, but occurs unrelated to systemic coagulopathy, pharmaceutical agents, or any structural anomaly of the uterus. The other type of DUB occurs secondary to anovulation or oligoovulation; in some instances, heavy bleeding manifests. Some clinicians have begun to use the term "heavy menstrual bleeding" (HMB) to encompass these two entities.

Further complicating the discussion of HMB is the issue of quantification: What does "heavy" really mean? According to a classic definition of menorrhagia,[1] it is the loss of 80 mL or more of menstrual blood per period. However, some women with less blood loss than this consider their menstrual bleeding to be heavy, particularly when it interferes with their social and/or professional quality of life. Their clinicians would concur. In contrast, others who bleed heavily—especially if this is a long-term condition—do not consider their blood flow to be abnormal because it is not uncommon for patients to become accustomed to and accept as "normal" their own body's functions. Thus, HMB should be defined as any heavy uterine bleeding in the reproductive years that seems to be ovulatory.

Currently, no consensus exists among gynecologists regarding the diagnostic and treatment issues surrounding DUB and HMB. Despite the fact that abnormal menstrual bleeding has multiple etiologies, many physicians consider menstrual bleeding disorders as a homogeneous group. Consensus guidelines have been developed by gynecology specialists in several countries (**Table 3** on page 4), but as yet, worldwide agreement has not been achieved. In an effort to clarify many

Table 1. Defining Terms for Abnormal Menstrual Bleeding

Breakthrough Bleeding	Bleeding that occurs despite the use of drugs such as oral contraceptives that are given to control uterine bleeding.
Heavy Menstrual Bleeding	Menstrual bleeding that may be either ovulatory (menorrhagia) or anovulatory.
Menometrorrhagia	The symptom of heavy bleeding between menstrual periods.
Menorrhagia	The symptom of heavy menstrual bleeding; a term specifically used to describe ovulatory bleeding (that is, a normal, regular, and predictable cycle ranging from 21 to 35 days, most often 28 days).
Metrorrhagia	The symptom of bleeding between menstrual periods; the unpredictable timing of the flow generally reflects anovulation.

Table 2. Two Types of Dysfunctional Uterine Bleeding (DUB)

Ovulatory DUB

Presents with the symptom of menorrhagia, but occurs unrelated to:

- systemic coagulopathy
- pharmaceutical agents
- any structural anomalies of the uterus

Anovulatory/Oligoovulatory DUB

Occurs secondary to anovulation or oligoovulation; in some cases, menstrual bleeding is heavy

issues regarding abnormal uterine bleeding—beginning with defining the types according to patterns and other factors—an international consensus conference is being planned for 2005. This conference is supported by the International Federation of Obstetricians and Gynecologists. Meanwhile, for purposes of this discussion, the faculty proposes a systematic way of approaching a woman with abnormal uterine bleeding.

The purpose of this supplement is to provide a balanced overview of patient options and some areas of discussion that may help practitioners and patients establish a treatment plan that is most likely to yield the best results in terms of both clinical outcome and patient satisfaction in cases of DUB and HMB. All of the faculty members contributed to the main document, tables, and charts; where individual faculty members have made comments—in the responses to the case presentations on pages 8, 10 and 14 as well as statements of personal opinion throughout this supplement—attributions are specified.

Table 3. Current Guidelines For Diagnosis and Treatment of Abnormal Uterine Bleeding

Gynecologists in a number of countries (including Australia, Canada, and the United Kingdom) have developed consensus guidelines for the evaluation and treatment of abnormal uterine bleeding, many with an algorithmic format. The following is a list of Internet Web sites on which several of those can be found.

At this time, no formal, evidence-based guidelines developed by gynecologists exist in the United States. Guidelines have been published by the American Board of Family Practice, the American College of Nurse-Midwives, the American College of Radiology, the Madigan Army Medical Center, and the Minnesota Health Technology Advisory Committee.

A complete roster of links to the Web pages for other international and American guidelines can be found at the Web site for the Geneva Foundation for Medical Education and Research (www.gfmer.ch). Click on "Databases, links," choose "Obstetrics, gynecology: guidelines" from the pull-down menu. When the guidelines page appears, choose "Menstruation disturbances, female gonadal disorders."

CLINICAL REVIEW: CHRONIC DYSFUNCTIONAL UTERINE BLEEDING

Consequences of Heavy Menstrual Bleeding

Women with HMB may develop anemia, with fatigue and other manifestations of chronic blood loss. The amount of iron lost in 80 mL of blood is replaced each month with the iron content in a normal diet. However, in the large numbers of women whose iron intake is much lower than normal, lesser degrees of menstrual blood loss may result in a reduction in iron stores and the development of anemia. Iron deficiency is a particular risk among vegetarians, so patients with HMB should be asked about their dietary preferences.

Other important consequences of HMB include the potential compromise of the quality of a woman's life in the areas of sexuality, social function, and career. The need for frequent changes of pads or tampons interferes with daily function, and HMB may be associated with cramps or pelvic pain and an uncomfortable sensation of lower-abdominal heaviness.

In addition, as noted already, many women with HMB undergo hysterectomy. It is not possible to determine how many of these women had this surgery because it was the most appropriate choice for them, or in how many patients another option—or several other options—would have been preferred had such options been discussed and made available.

Types, Patterns, and Causes of Abnormal Uterine Bleeding

The selection of appropriate therapy depends on the determination of the cause of chronic abnormal uterine bleeding (**Table 4** on page 5). Structural pathology of the myometrium (such as leiomyomas) and adenomyosis identified or suggested on physical examination may be unrelated to the cause of the bleeding while that which is present in the endometrial cavity is missed. Critical to the evaluation of the patient with HMB, and especially to those with ovulatory bleeding, is a structural examination of the endometrial cavity.

Abnormal bleeding can occur secondary to a variety of disorders, but each generally results in bleeding from the endometrium lining the uterine cavity. Some entities—such as hyperplasia, carcinoma, endometrial polyps, or endometritis (such as that secondary to *Chlamydia*)—are associated with a fragile epithelium that randomly bleeds. Such bleeding may or may not be heavy in nature. Some structural abnormalities (for example, leiomyomas) exist beneath the endometrium itself and, for unknown reasons, seem to interfere with the normal mechanisms of endometrial hemostasis. Unusual lesions such as arteriovenous malformations are likely to bleed spontaneously and manifest with overt bleeding by establishing a connection with the endometrial cavity.

In addition, chronic abnormal uterine bleeding in the absence of significant structural abnormalities involving the endometrial cavity

appears to occur secondary to disorders of hemostasis that may be either systemic (such as the inherited coagulopathies) or localized to the endometrium itself.

Although all of the mechanisms involved with endometrial hemostasis have yet to be clarified, it seems clear that there exist a number of properties that make the endometrium unique among other body tissues. For example, it has been demonstrated that most women with ovulatory DUB have enhanced endometrial fibrinolysis,[3] characterized by increased local levels of plasminogen activator. As a result, for women with ovulatory DUB, the administration of antifibrinolytics such as tranexamic acid (not currently available in the United States) during menses can reduce menstrual volume by more than 50%.[4]

Another mechanism identified as being important to endometrial hemostasis is the relative amount of endomyometrial prostaglandin (PG) that exerts vasoconstrictive activity as opposed to prostaglandins that cause vasodilatation. It appears that PG $F_{2\alpha}$ is an important vasoconstrictor, whereas PG E_2 and PG I_2 are potent vasodilators and are found in increased relative or absolute quantities in women with ovulatory DUB.[5,6]

Anovulation or oligoovulation seems to be the most common cause of HMB in the United States, particularly—but by no means exclusively—in women in the perimenarcheal years and those who are nearing menopause. Disruption in the feedback mechanisms involving the hypothalamus, pituitary, and ovaries is most commonly idiopathic or is related to stress, exercise, obesity, or relatively rapid changes in weight. Less often, a definable endocrinopathy can be found, including hypothyroidism, hyperprolactinemia, or conditions in which circulating androgen is increased, such as polycystic ovarian syndrome.

A number of pharmacologic agents can affect ovulation, including gonadal steroids and agents that affect dopamine metabolism. The latter include tricyclic antidepressants and phenothiazines as well as more recently introduced antipsychotic drugs, including risperidone and olanzapine.

Anovulatory women do not produce progesterone in the latter part of the menstrual cycle and, consequently, endometrial biosynthesis of a number of substances in these patients is dramatically reduced, including vasoconstrictors such as PG $F_{2\alpha}$ and endothelin-1. The result is that bleeding occurs in various portions of the endometrium and at different rates. In essence, the absence of progesterone-dependent vasoconstrictors creates a disorder of local endometrial hemostasis, so the bleeding may be heavy or continuous.

The work-up of patients with abnormal uterine bleeding should take these possible causes into account. The factors that should be addressed in the history and the laboratory tests that should be considered are summarized in **Table 5** on page 6.

EVALUATING THE ENDOMETRIAL CAVITY

Although it is appropriate to perform a manual examination of the pelvis on all patients, a diagnosis of the cause of HMB should never be made on this basis alone because findings may be misleading. For example, a leiomyoma identified on bimanual palpation may have no relationship to the endometrial cavity and, consequently, is unlikely to be the cause of a patient's abnormal bleeding. In addition, failure to appreciate leiomyoma on a bimanual examination does not necessarily eliminate this as a possible cause of HMB because clinically significant lesions may be located within or adjacent to

Table 4. Dysfunctional Uterine Bleeding

Anovulation or Oligoovulation
- **Idiopathic (most common)**
- **Related to stress, exercise, obesity, or rapid changes in weight**
- **Attributable to a definable endocrinopathy** (hypothyroidism, hyperprolactinemia, or conditions in which circulating androgen is increased, such as polycystic ovarian syndrome)
- **Pharmacologic agents that affect dopamine metabolism** (including tricyclic antidepressants, and phenothiazines and other antipsychotic drugs such as risperidone and olanzapine)

Disorders of Hemostasis (local)
- **Enhanced endometrial antifibrinolytic activity**
- **Absolute or relative increases in endometrial vasodilating substances** (PGI_2, PGE_2)
- **Absolute or relative decreases in endometrial vasoconstricting substances** ($PGF_{2\alpha}$, others)

Disorders of Hemostasis (systemic)
- **Inherited disorders of coagulation** (most commonly, von Willebrand's disease)
- **Other** (eg ITP, TTP, leukemia)

Structural Pathology of the Pelvis
- **Endometrium**
  - **hyperplasia**
  - **carcinoma**
  - **polyps**
  - **endometritis** (eg *Chlamydia*)
- **Myometrium**
  - **leiomyomas**
  - **adenomyosis**
  - **arteriovenous malformations**
- **Cervix** (cervicitis, polyps, carcinoma)
- **Other**

Source: Courtesy of Malcolm G. Munro, MD

the endometrial cavity where they are not readily palpable.

Although an endometrial biopsy is appropriate to evaluate women at risk for endometrial neoplasia, such an assessment is unsuitable for identifying the structural characteristics of the endometrial cavity. (Approaches to the selection of women appropriate for endometrial sampling is provided in **Table 6** on page 7). Consequently, the dual purpose of a comprehensive endometrial cavity evaluation is to aid in the determination of the cause of HMB and to ensure that HMB is not inappropriately ascribed to abnormalities that are not related.

In most instances, imaging of the endometrial cavity is adequately achieved with one or a combination of sonographic- and endoscopic-(hysteroscopic) based techniques.[7]

Transvaginal sonography is a technique that appears to be quite sensitive for identifying leiomyomas in general, although recent evidence suggests that it may be insufficient to evaluate accurately for potentially significant small intracavitary leiomyomas or endometrial polyps.[8] A more sensitive and specific method is saline infusion sonography (SIS), also referred to as "sonohysterography." With SIS, a saline solution is used as a contrast medium to outline the endometrial cavity during transvaginal ultrasound scanning. Such a procedure can be performed in the clinician's office with little or no patient discomfort.

Hysteroscopy, which also can be comfortably performed in the office setting, can be considered as an alternate to SIS or can be used when performance or interpretation of SIS is difficult. In addition, hysteroscopy can be coupled with targeted excision of selected lesions, such as polyps and small myomas. If this technique is performed in the office setting, it obviates the need for an institutional-based hysteroscopic procedure. For this reason, a number of clinicians prefer office hysteroscopy over SIS as a primary method for evaluating the endometrial cavity.

Radiographic imaging with iodine-based dyes (hysterogram) is fraught with a relatively high incidence of false-positive and false-negative results; therefore, findings from such studies should be interpreted with caution. On the other hand, magnetic resonance imaging is very accurate[7] and is particularly applicable when SIS or hysteroscopy is inappropriate or difficult, such as for the evaluation of young or virginal women or in the presence of severe cervical stenosis.

Whereas some clinicians feel it is important to obtain an endometrial biopsy with all abnormal bleeding, this is neither cost-effective nor medically necessary. In postmenopausal patients, who are not the subject of this supplement, transvaginal ultrasound with measurement of endometrial thickness is a suitable substitute or replacement for endometrial sampling. However, in the premenopausal woman there is a great deal of overlap in the sonographically determined thickness of histopathologically normal and abnormal endometrium. Consequently, an office-based endometrial biopsy is the most appropriate method for assessing endometrial histology in premenopausal women.

Treatment Options: Entering the Dialogue

When appropriate investigation has determined that chronic HMB is unrelated to structural pathology, systemic coagulopathies, and iatrogenic causes such as intrauterine devices and pharmacologic agents, a woman can be said to suffer from either ovulatory DUB, anovulatory DUB, or DUB of an undetermined

Table 5. Working Up the Patient With Dysfunctional Uterine Bleeding: History and Laboratory Tests

History

Bleeding pattern
- Menses cyclic and predictably occur every 21 to 35 days, the patient is probably ovulating normally.
- Menses irregular in timing and flow, perhaps with episodes of amenorrhea, is more likely to indicate anovulatory bleeding.

Medication use
- Gonadal steroids
- Agents that affect dopamine metabolism (eg, tricyclic antidepressants, phenothiazines, risperidone, olanzapine)

Coagulopathy
- Family/personal history suggesting congenital coagulopathy*
- Lifelong history of HMB
- Bleeding associated with surgery or dental work
- History of mucous membrane bleeding
- Bruising without petechiae

Laboratory Tests

The following laboratory tests should be considered for all women with HMB, as appropriate:
- Test for pregnancy
- Complete blood count
- Hemoglobin
- Hematocrit
- Platelet count
- Ferritin
- Thyroid-function tests (particularly including thyroid-stimulating hormone level), especially if the bleeding pattern suggests anovulatory HMB

When the clinical picture suggests hyperprolactinema or hyperandrogenic states, the following laboratory tests may be indicated:
- Serum prolactin
- Androgen levels

Possible additional tests:†
- Fasting glucose
- Insulin levels

HMB = heavy menstrual bleeding

*Such bleeding disorders may be more common than is usually appreciated. For example, the US Centers for Disease Control and Prevention published a case-controlled study in which von Willebrand's disease was found in 10.7% of American women diagnosed with menorrhagia.[1] Patients at high risk for inherited coagulopathy based on historical screening should be considered for referral to a hematologist, where appropriate testing may vary according to the specifics of their historical profile. Such testing may include a prothrombin time, partial thromboplastin time, and, if von Willebrand's disease is suspected, von Willebrand's factor and ristocetin cofactor assays.[2]

†Although many women with polycystic ovarian syndrome are insulin-resistant, the precise role for measurements of fasting glucose and insulin levels has not yet been determined.

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1. Dilley A, Drews C, Miller C, et al. von Willebrand disease and other inherited bleeding disorders in women with diagnosed menorrhagia. *Obstet Gynecol.* 2001;97:630-636.

2. Lusher JM. Screening and diagnosis of coagulation disorders. *Am J Obstet Gynecol.* 1996;175:778-783.

origin. For such patients there exists an impressive range of medical and surgical management options. A number of medical interventions have been demonstrated effective, and an ever-expanding set of surgical options are now available.

MEDICAL THERAPY

For women with chronic DUB who wish to retain fertility, medical approaches are the only currently available options. For any woman with DUB who experiences heavy flow, iron replacement is essential. In some instances, relief of fatigue is the patient's only goal; in these cases, iron replacement therapy may be all that is necessary. Of the other medical approaches, some are effective only for anovulatory DUB, some are useful only with ovulatory DUB, and still others may be effective for both.

Cyclooxygenase inhibitors (nonsteroidal antiinflammatory agents [NSAIDs]) such as mefenamic acid (250 to 500 mg two to four times per day), naproxen (1,000 mg per day in divided doses), and ibuprofen (600 to 1200 mg per day) have been shown to be effective in reducing the menstrual volume in women with ovulatory DUB by 20% to 40%.[9] It is likely that this effect occurs by reducing the excess local PG E_2 and PG I_2 present in many women with ovulatory DUB. Such an approach is extremely accessible to women and may be particularly helpful in patients with coexistent primary dysmenorrhea.

> **"The key to optimum management of a patient with HMB, I think, is to understand the mechanism, the pathogenesis, and all the factors involved in the problems. Rather than think of HMB as a single, confusing, heterogeneous group of disorders, it should be considered as a pretty well-defined group of disorders which, with appropriate investigation, allows one to tailor therapy to individuals, and with a fairly successful outcome."**
>
> **— DR MUNRO —**

Tranexamic acid is an antifibrinolytic that has been demonstrated effective at reducing the volume of bleeding in women with ovulatory DUB by more than 50%.[10] In most countries around the world, tranexamic acid is a first-line therapy for ovulatory DUB, and in some countries (including Sweden) is available over the counter. However, the drug currently is not available in the United States. The therapeutic effect is achieved with 1 gram taken orally four times per day for the first 3 or 4 days of the cycle. Gastrointestinal and other side effects are no more frequent with this drug than with other agents, such as NSAIDs, and concerns regarding thromboembolic events seem to be unfounded.

Progestins may be administered orally in continuous or cyclic regimens, by depot injection, or via an intrauterine delivery system. Luteal-phase progestins have been demonstrated ineffective at treating ovulatory DUB,[11] but when cyclically administered, progestins seem effective for anovulatory DUB, provided the endometrium is not otherwise exposed to progesterone.[11,12] Most published regimens are based upon norethindrone (usually, 15 mg per day),[13-15] and there has been no critical evaluation of medroxyprogesterone acetate, the most commonly prescribed and available progestin in the United States. Norethindrone doses usually range from 5 to 15 mg/day, with many clinicians using less than 15 mg/day. Dr Munro notes that in his experience, most women respond to 10 to 20 mg per day for 10 to 14 days of each month.

There are no available studies evaluating the impact of depot progestins (such as depot medroxyprogesterone acetate) on either ovulatory or anovulatory DUB. However, there is genuine concern regarding this approach because the regimen used for contraception is associated with an approximately 50% incidence of irregular bleeding.

Continuous local delivery of the progestin levonorgestrel via an intrauterine device (IUD) originally designed for reversible contraception has been evaluated in high-quality trials and been shown to reduce the volume of ovulatory DUB by over 80% at three months and 90% at one year.[16] In a study by Lahteenmaki and colleagues in Finland,[17] patients on the waiting list for hysterectomy for DUB were randomized to either continue

Table 6. When Should An Endometrial Biopsy Be Performed?

The faculty suggests that an endometrial biopsy should be considered in any patient with an increased risk for endometrial cancer. These risk factors include:

- **Age >40 years**
- **Obesity**
- **Conditions that may result in unopposed estrogen (including estrogen replacement therapy unopposed by a progestational agent, obesity, polycystic ovarian syndrome, nulliparity, late menopause, estrogen-producing tumors, anovulation, oligoovulation)**
- **History of pelvic radiation therapy**
- **Personal or family history of breast, ovarian, or endometrial cancer**

The American College of Obstetricians and Gynecologists* has issued the following guidelines for performing an endometrial biopsy in women with abnormal menstrual bleeding:

- **In women <35 years of age: Perform biopsy only if the patient has been exposed to unopposed estrogen for a prolonged period of time or bleeding does not respond to medical therapy**
- **In women >35 years of age: Perform biopsy whenever anovulatory bleeding is suspected**

*American College of Obstetricians and Gynecologists Practice Bulletin #14, March 2000.

CONSIDERING CASES: An Overweight Patient

- ***A 55-year-old woman with a 4-year history of heavy, irregular vaginal bleeding.***
- ***Weight, 240 lbs; height, 5'7".***
- ***Patient is otherwise healthy.***
- ***She has had two pregnancies, both resulting in live births.***
- ***Ultrasonography, including transvaginal ultrasonogram, performed 2 years ago revealed a small (2 cm) fibroid in the endometrial cavity.***
- ***An endometrial biopsy performed 1 year ago revealed no hyperplasia.***

This patient declined intervention in the past, opting to wait for menopause "to handle the problem naturally." However, she now wishes to be treated for this problem. What are this patient's treatment options?

THE OPINIONS OF THE FACULTY APPEAR BELOW.

Given the patient's age and the fact that she is overweight, I must be concerned about the possibility of endometrial hyperplasia and cancer, even with the normal results of a biopsy performed 1 year prior. However, the 2-cm fibroid tumor must be considered.

Thus, in this case, I would perform a hormonal work-up to check for ovarian reserve: a day-3 luteinizing hormone (LH) level, a follicle-stimulating hormone (FSH) level, an estradiol level, and an ultrasound examination. Hypothyroidism could be detected with the TSH test. The other studies would provide clues to the presence of polycystic ovarian syndrome. If the patient has any signs of abnormally increased androgen levels, I would obtain an androgen profile.

In addition to these laboratory studies, I would perform an endometrial biopsy. Because this patient had no previous evidence of hyperplasia or cancer, and no history of abnormal Papanicolaou smears were noted, I would recommend a hysteroscopic myomectomy and endometrial ablation, which can be done very safely. Alternatively—and, again, providing the patient has a history of normal Pap smears—I would also consider offering her a laparoscopic supracervical hysterectomy. — DR MILLER

I would definitely want to avoid performing a hysterectomy on a 55-year-old, heavy woman. Further, it is likely this patient is less than 3 years from menopause.

This patient is at such high risk for endometrial cancer, so I would want to make sure I have sampled her endometrium thoroughly. To ensure this (although many clinicians today consider it almost "politically incorrect"), I would probably want to perform a hysteroscopy and dilation and curettage (D&C). Presuming she has no hyperplasia, she is an ideal candidate for a hysteroscopic myomectomy and ablation procedure. In addition, I would strongly urge her to join and attend a gym regularly to try to reduce her weight. In addition to helping her to manage her bleeding problem, as a primary care physician—which I consider myself to be, as a gynecologist—I would teach her about the risks of metabolic syndrome associated with obesity, and follow her carefully to encourage and support her in this weight control regimen. —DR MINKIN

This case is complicated by the mixed problem: the patient is anovulatory and she has an intracavitary myoma, which may simply have the impact of increasing the volume of anovulatory bleeding. It is reasonable to repeat the biopsy. Also, of course, if the thyroid-function tests suggest the presence of hypothyroidism, the first step is to treat that problem and reevaluate the bleeding subsequently.

This patient certainly has choices. One option is surgical, but, as Dr Minkin points out, onset of menopause can be anticipated to occur soon. The tests that Dr Miller recommends—particularly the 3-day FSH and the estradiol level—may provide additional information in this regard. Consequently, such a patient may be offered temporary therapy with a gonadotropin-releasing hormone agonist, as we describe in the main text of this supplement, anticipating that menopause may occur within the year. Although no studies have been performed to specifically evaluate this approach, it is certainly worth considering.

In addition, this patient might even be a candidate for a trial of cyclic progestin therapy, but I would anticipate that, because of the myoma, this regimen would not be successful. Although oral contraceptives may have similar chances for success, the slightly increased risks associated with these agents make them a less attractive choice. —DR MUNRO

Given the previous suspicion of uterine fibroid on ultrasound in this patient, I would perform a hysteroscopy to evaluate and, ultimately, remove the intracavitary abnormality, and then perform a complete D&C following the hysteroscopy. If the pathologist's examination of the resected lesion and the endometrial biopsy are normal, this patient has several options.

I would recommend that she consider a trial of cyclic progestin. Alternatively, the levonorgestrel intrauterine system would provide localized progestin to reduce menstrual flow and also mitigate the development of hyperplasia. It is unlikely that she would need a hysterectomy, unless a malignancy is encountered. Assuming no other abnormalities are detected on ultrasound examination (such as intramural fibroids, ovarian cysts, adenomyosis), either of these hormonal treatments may provide satisfactory relief of this patient's symptoms in the remaining year or two before menopause is likely to ensue.

I tend to be reluctant to perform endometrial ablation in a woman such as this who is so close to menopause and who has a risk factor (in this case, obesity) for developing endometrial neoplasia. This patient is at risk for endometrial abnormalities for two main reasons: she is 55 years of age and is still having menstrual flow, and she is overweight. In contrast to thinner women, obese women tend to have higher estrogen levels, which predisposes them to polyps, hyperplasia, and, ultimately, endometrial cancer. In addition, this patient's excess weight predisposes her to diabetes, which, in turn, is a risk factor for endometrial neoplasia. —DR ZURAWIN

their current medical therapy or to have a progestin IUD inserted. After 6 months, more than 64% of patients in the IUD group had canceled their hysterectomy and opted to continue using the IUD. Intrauterine progestins have been compared head-to-head with hysteroscopic endometrial ablation and one nonhysteroscopic approach with comparable results.[16,18-20] As a result, this approach is especially useful for women with ovulatory DUB who wish to retain reproductive function. However, patients must be advised that intermenstrual spotting is common for the first 3 to 6 months after insertion of the device. Although there have been no reports specifically evaluating women with anovulatory DUB, there are no specific reasons to exclude patients from a therapeutic trial.

Surprisingly, the use of combination oral contraceptives (OCs) for DUB has had relatively little evaluation. Although OC use is widely perceived as effective to treat HMB, the data to support their efficacy are sparse. However, available evidence suggests that the drugs, cyclically administered, may be effective in both ovulatory and anovulatory DUB.[21,22] As with the progestin IUD, combination OCs provide effective and reversible contraception. If combination OC therapy works, results cannot be expected during the first month but will generally be seen during months 2 to 3. Additional data from randomized, controlled trials are necessary to judge the role of OCs in DUB therapy.[23]

The principle role for gonadotropin-releasing hormone (GnRH) agonists, such as leuprolide acetate, is in the temporary management of abnormal uterine bleeding, including DUB, while a woman considers her options, replenishes her iron stores, and/or prepares for a surgical intervention. In selected circumstances, women in the late reproductive years can use GnRH agonists in a prolonged fashion, if necessary with "add-back" therapy using an appropriate progestin, with or without estrogen, to control symptoms and reduce osteopenia.[24,25] There is some evidence that even when therapy is stopped, anovulatory women may experience sustained benefit up to months later. Although this approach may be appropriate for women with impending menopause, particularly if they are not suitable candidates for surgery, it currently is not practical for younger women who do not anticipate menopause for many years.

"If a patient has a normal or a minimally enlarged uterus and HMB, if she doesn't have cancer, and if she's maintaining her hematocrit, I try to offer a lot of options other than hysterectomy. Once I've ruled out cancer and checked her iron stores and performed any other blood and laboratory tests that are appropriate for her, I tell the patient I would be willing to perform any of the treatments she's a candidate for. At that point, the decision has to depend on the patient's beliefs and choice."

— DR MINKIN —

In some instances, women with chronic HMB (including DUB), will present with acute bleeding requiring immediate intervention. Although some affected women require an immediate surgical procedure, hemodynamically stable patients with adequate hemograms may be candidates for acute medical therapy. In such circumstances, many clinicians use multidose monophasic combination OCs, which seem to be effective; however, there is no supporting evidence for this treatment. An alternative approach is the use of high-dose, orally administered progestins, such as medroxyprogesterone acetate, at loading doses as high as 120 mg.[26] The only approach that has undergone rigorous clinical examination in a randomized trial[27] is intravenous conjugated equine estrogens, administered at a dosage of 25 mg every 4 hours.

SURGICAL INTERVENTIONS

Dilation and Curettage

Dilation and curettage (D&C) is an intervention that may have value in treating selected women with acute abnormal uterine bleeding. However, unless D&C is accompanied by additional procedures such as polypectomy, its effect is temporary, as the underlying mechanisms involved in causing the HMB are not affected. Indeed, a seminal study by Nilsson and Rybo[28] demonstrated that the degree of abnormal bleeding resumed by the second postoperative cycle. Consequently, D&C is not curative and has no role in the management of women with chronic DUB except for endometrial sampling in those in whom samples cannot be obtained using office-based techniques.

Hysterectomy

Hysterectomy is a clearly effective therapy for women with abnormal uterine bleeding and should be considered if less invasive treatments fail, if there are additional benefits to be gained, or because of patient choice. Interestingly, patient preference for a hysterectomy seems to be driven by both geography and family history and attitudes, leading to what might be called "cultural hysterectomies." In addition, a patient who has completed her childbearing plans and who endured HMB for some time may be drawn to the prospect of permanent and complete amenorrhea.

Also affecting the preference for hysterectomy is the perceived "ease" of the procedure. Vaginal hysterectomy has been demonstrated to be less morbid than abdominal hysterectomy and many women are aware that there exist other, less invasive alternatives to abdominal hysterectomy such as laparoscopic total and supracervical hysterectomy.[29] Each of these approaches allows avoidance of the large abdominal incision associated with abdominal hysterectomy and, consequently, each is associated with a much shorter recuperation time. Indeed, laparoscopic supracervical hysterectomy in women with

CONSIDERING CASES: A Patient Who Prefers to Avoid Hysterectomy

- ***A 40-year-old business owner who complains of severe fatigue and heavy menstrual bleeding with cramping. The symptoms often interfere with her ability to complete a workday.***
- ***Weight, 135 lbs; height, 5'4".***
- ***Patient is a sports enthusiast and engages in swimming and tennis regularly.***
- ***Patient describes herself as "careful" with her diet, which consists of mostly vegetarian meals.***
- ***She has three children (the youngest is 17 years of age) and has determined that her family is complete. Her husband has had a vasectomy.***
- ***A menstrual diary documents that her periods are regular. A pictorial chart suggests that the quantity of bleeding is about 70 mL/month, but she considers her blood loss to be excessive.***
- ***Patient's mother had similar problems and underwent a hysterectomy at age 43.***

This patient states a preference to avoid a hysterectomy, citing her desire to maintain an active lifestyle without a prolonged convalescence. What are this patient's treatment options?

THE OPINIONS OF THE FACULTY APPEAR BELOW.

This patient is not interested in future fertility but clearly does want to have treatment to control her bleeding and cramping; however, she also wants to be able to resume her normal activities as quickly as possible. In my opinion, this patient is an ideal candidate for endometrial ablation. Studies have demonstrated that dysmenorrhea can be reduced in two out of three patients with the thermal balloon and radiofrequency electricity devices. Therefore, both bleeding and pain can be reduced following these procedures.— DR MILLER

This case echoes a common scenario. I have had many patients relate their family's history of hysterectomies, and they tell me they do not want to follow in their mother's footsteps.

Given that fertility is not an issue for this patient, she would definitely be a candidate for an ablation procedure. It would likely give her significant alleviation, if not total relief from her symptoms. It would cause her minimal inconvenience, requiring her to be "out of commission" for only a day or two, barring unforeseen complications.

She also would be a candidate for a progestin-releasing intrauterine system, but she would have to understand that she may end up with more frequent bleeding at first. Since her flow is more annoying than severely heavy, she may not want to endure frequent spotting.

Patients like this one, whose medical picture is uncomplicated and who, therefore, have the broadest range of treatment options available to them. They should be reminded that even if they choose one therapy that does not work optimally, they—in partnership with you, as an advocate—will progress through the alternatives until the problem is completely resolved. —DR MINKIN

This patient seems to be a candidate for any of the options we have discussed in this supplement. For example, the fact that she bleeds less than 80 mL/month and because pain is a component of her problem, simple nonsteroidal antiiflammatory drugs may be sufficient to manage both her bleeding problem and primary dysmenorrhea. If she lives outside the United States, tranexamic acid would be an excellent choice. This patient also may want to consider endometrial ablation, as well as the progestin-releasing IUD.
—DR MUNRO

My first step would be to evaluate this patient's fatigue by obtaining a complete blood count and metabolic profile. Although her symptoms are most likely due to anemia from chronic blood loss, other conditions such as thyroid disease or hepatitis must be ruled out. Based on these findings, iron, folate, and/or therapy to balance her serum thyroid hormone should be instituted.

A low-dose contraceptive either in pill or patch form, combined with nonsteroidal antiinflammatory medication might be considered first as a diagnostic and therapeutic trial for 3 months. If the patient chooses this strategy and it works, she can either continue on this regimen or be offered extended-dose combination pills and have menses every 3 months instead of monthly. If the 3-month trial of hormones and antiinflammatory drugs does not work, the patient may have adenomyosis and/or endometriosis. (The success of medical therapy in these conditions is low, and hysterectomy is the usual treatment.)

Another option is endometrial ablation, which not only reduces heavy menstrual bleeding but has been shown to be effective in reducing dysmenorrhea. She may also want to consider a 3- to 6-month trial of leuprolide, which would eliminate the heavy bleeding and the attendant cramping. Successful leuprolide therapy supports the diagnosis of endometriosis and/or adenomyosis, and the patient should be counseled about surgical options. In this instance, it would be important to educate the patient about laparoscopic-assisted vaginal hysterectomy or laparoscopic supracervical hysterectomy. A patient may not be aware that, assuming no complications ensue, these procedures offer a faster recuperation time than does the traditional hysterectomy. —DR ZURAWIN

chronic DUB has been demonstrated equivalent to hysteroscopic endometrial ablation with respect to surgical morbidity and institutional stay, with reduced reoperations and superior levels of patient satisfaction.[29]

However, many patients are not aware that even minimally invasive hysterectomy techniques are considered to be major surgery and carry significant surgical risks. Furthermore, questions remain about the effect of hysterectomy on postsurgical sexual and urinary tract function as well as vaginal vault prolapse. However, recent high-quality evidence suggests that supracervical hysterectomy is not superior to total hysterectomy with respect to sexual and urinary tract function.[30,31]

The potential complications of hysterectomy are well known and include those related to anesthesia, hemorrhage, visceral injury to the gastrointestinal and urinary tract, and infection of the vaginal vault as well as, in the case of abdominal hysterectomy, the abdominal incision. In addition to the potential for surgical and anesthesia-related complications, women who undergo simple hysterectomy—despite ovarian conservation—are known to experience onset of menopause an average of 2 years earlier than they otherwise would.

Health insurance company or health maintenance organization approval may affect the decision to include or exclude hysterectomy as a treatment option for chronic DUB. In many cases, approval for surgery depends on the patient's hematocrit level (and the results of other laboratory studies such as thyroid function tests) and whether other therapies—hormonal therapy, in particular—have been tried and failed to resolve the problem.

Consequently, given the fact that reasonable and less morbid alternatives to hysterectomy are available to many women, a physician who performs a hysterectomy without apprising a patient of her full range of options could justifiably face medicolegal exposure if complications do arise. The contention may be that the hysterectomy was "unnecessary surgery."

ENDOMETRIAL ABLATION PROCEDURES

Despite their apparent effectiveness, traditional resectoscopic endometrial ablation procedures have never been widely accepted in the United States. Although laser-based techniques were in common use in the 1980s, the application of urologic resectoscopes that work with easily accessible radiofrequency (RF) current now dominate the landscape. Our colleagues abroad use such endometrial ablation procedures far more commonly than we do in this country, largely because most clinicians in the United States had not acquired the considerable training necessary to perform such procedures.

> **"Cyclic birth control pills are sometimes effective for controlling HMB, assuming any other problem, such as thyroid disease, has been identified and treated. I usually have the patient take about three rounds of therapy—that's 3 months' worth—and that would be it. Then I would move on to another type of treatment."**
>
> **— DR ZURAWIN —**

Another reason for slow adoption of resectoscopic RF techniques of endometrial ablation were complications that included perforation and issues relating to distention media. The distention media used with monopolar RF resectoscopy, such as glycine and sorbitol, have been associated with electrolyte disturbances and fluid overload if absorbed to excess. The development of bipolar systems that use saline as a medium eliminate the risk of hyponatremia, but the problem of fluid overload persists. Nevertheless, there now exist devices that allow continuous monitoring of fluid balance; when these are used appropriately, the risk for fluid overload is largely eliminated.

These factors combined to create a need for techniques that ablate the endometrium without the need for use of the uterine resectoscope. There now exist five devices approved in the United States that meet this criterion, each of which utilizes a different technology: thermal balloons, RF electricity, microwaves, free heated fluid, and freezing (often called cryosurgery). A recently published review by the international Endometrial Ablation Group[32] concluded that, based on published data and the experience of participants in an international workshop, the efficacy of the nonresectoscopic procedures is as good as that observed with the resectoscopic ablative techniques. In addition, complications are lower with nonresectoscopic procedures, including a lower risk for perforation.

Long-term clinical evidence has demonstrated that these procedures are safe and effective with appropriate use in appropriately selected patients—those who are past the point of childbearing, have a normal uterus, and have ovulatory DUB. The following sections consider some of the design and function differences (**Table 7**) that may make one procedure more appropriate than another for particular patients.

Degree of Cervical Dilation

The thermal balloon and cryotherapy devices require far less dilation—5.0 mm and 5.5 mm, respectively—than the other instru-

Table 7. Ablation Technologies Approved for Use in the United States

TYPE OF TECHNOLOGY	USE WITH HYSTEROSCOPY REQUIRED?*	CERVICAL DILATION REQUIRED (MAXIMUM), MM
Hot fluid, contained (thermal balloon)	No	5.0
Hot fluid, free	Yes (during procedure)	8.0
Freezing (cryotherapy)	No	5.5
Radiofrequency electricity	No	8.0
Microwaves	Yes (prior to procedure)	9.0

*Although only two of these devices require use with a hysteroscope, diagnostic hysteroscopic evaluation of the endometrial cavity should be performed prior to use of any of these instruments.

ments, which require that the cervix be dilated to 8.0 to 9.0 mm in diameter. The advantages of less dilation include greater ease of performance, reduced requirements for anesthesia, and a decreased risk of cervical trauma or perforation of the corpus. In some instances, the requirement for dilating the cervix to 7 mm or more may preclude performing the procedure in an office setting.

Procedure Time

The duration of a procedure comprises all of the time consumed from the moment the patient enters the procedure room until she leaves. This includes administration of anesthesia, equipment setup, any additional procedures necessary before or after the treatment, the actual treatment time, and the time that the patient stays in the room after the procedure. To date, there have been no rigorous comparisons of the procedure times required.

The five devices clearly differ in terms of active treatment time. For example, the active treatment time with the RF electrosurgical device is 90 seconds, the thermal balloon 8 minutes, and the free fluid device, 10 minutes. All of these devices have microprocessor-controlled therapy that is largely time-fixed. The cryotherapy and microwave devices are physician-controlled, with ultrasound feedback for the cryotherapy device and temperature feedback for the microwave device. Treatment times will vary according to the size of the endometrial cavity, but generally do not exceed 10 minutes. However, the microwave and free-fluid devices currently require hysteroscopic evaluation prior to the initiation of treatment, and the RF electrosurgical device must be calibrated to the specific endometrial cavity and a cavity integrity check must be performed; each of these tasks consumes time. Thus, despite the lack of any rigorous comparisons, the actual procedure time for the different devices is probably quite similar.

Efficacy and Safety

The efficacy of therapy with nonresectoscopic devices in the US Food and Drug Administration (FDA) trials was determined by two principle factors: improvement in uterine bleeding scores and patient satisfaction. In each randomized trial, the study device was compared to resectoscopic endometrial ablation or resection as performed by surgeons with extensive experience and expertise. In each instance, the success and patient satisfaction associated with the study device was similar to that reported for the resectoscopic procedure.

> **"I think about treatment of HMB as an algorithm based on bleeding pattern, laboratory results, physical findings, and the patient's age and desires. When a patient with HMB is older, has a normal uterus, and has completed her childbearing, then early on in my discussions with her, I bring up endometrial ablation as a treatment option. Whether we perform endometrial resection or a nonresectoscopic procedure, ultimately we can provide a great deal of patient satisfaction."**
>
> **— DR MILLER —**

Differences did exist among the procedures with respect to amenorrhea rates. However, amenorrhea is not—and should not be—the goal of such therapy. In fact, most women do not desire amenorrhea, but are satisfied with amelioration of excessive bleeding. Patients who demand amenorrhea will be satisfied only with one of the various types of hysterectomy.

All five of the devices are considered to be safer than resectoscopic endometrial ablation or more invasive procedures such as hysterectomy. However, the possibility exists that perforation can occur and, therefore, the specter of thermal injury to intraperitoneal viscera exists. Although there have been no rigorous comparisons of the relative safety of these devices, Gurtcheff and Sharp[33] searched the literature and analyzed the FDA's Manufacturer and User Facility Device Experience (MAUDE) database. These authors reported complication rates of 0.56/100,000 with the thermal balloon, 0.96/100,000 with the free hot-fluid device, 1.2/100,000 with the radiofrequency electricity device, and 1.0/100,000 with the cryosurgery device. Because the microwave device was not released in the United States until late in 2003, it was not evaluated in this study.

Whereas this study provides some important information, it is limited for at least three reasons. First, most surgical complications are not reported for inclusion in the MAUDE database, particularly if the complications are minor. Thus, it is likely that these data have an underreporting bias. Second, it only included data collected through May 2003, when one of the devices had not been released. Third, in reporting complications for the thermal balloon, the authors included the results of a European survey, which increased the denominator in that category. Nevertheless, the risk for serious complications with these procedures is low and patients should feel confident that such devices appear to be safer than any other currently available and effective surgical procedure for chronic DUB.

Patient Characteristics

Endometrial ablation with nonresectoscopic techniques is currently appropriate only in patients with a normal or near-normal-sized endometrial cavity—that is, generally between 6 and 10 cm in length. In addition, several of these techniques should not be performed in the presence of significant congenital abnormalities of the uterine cavity or if the cavity is distorted by submucous leiomyomas. The microwave device is the only one that is FDA-approved for use in

patients with type 2 myomas and some type 1 myomas 3 cm or less in diameter. However, there is high-quality evidence that the thermal balloon is also effective with type 2 myomas that are 3 cm or less in diameter.[34] Theoretically the device based upon free hot-fluid would also be appropriate in the presence of myomas and a small pilot study seems to support this notion.[35] No data are currently available on the RF electricity or the cryosurgery devices with respect to use in patients with uterine fibroids.

Although hysteroscopy is required to perform only the free hot-fluid technique, a diagnostic hysteroscopy is the best method of identifying previously unsuspected septa, fibroids, and polyps.

Helping Patients Choose

Determining the treatment strategy is a two-tiered process that should include consultation with the patient at all times. First, from the available options for chronic DUB, all those that are appropriate for the patient should be presented, and a thorough explanation should be provided, along with an explanation for the reasons that certain options were included or excluded. Factored into the discussion should be the patient's age, previous experience with therapy, reproductive desires, and goals for any contemplated interventions. In addition, the patient's general health should be considered, including the presence of comorbid conditions, such as obesity or diabetes, that could influence her risks of surgery.

During this iterative process, medical and surgical options should be included or excluded from the list accordingly. From the list of remaining therapies, the clinician should help the patient determine an appropriate strategic approach that meets her personal preferences and needs (**Table 8**).

EXPLAIN THE ISSUES REALISTICALLY

Patients should be informed about how long they should expect to wait before a treatment takes effect. For example, if NSAID therapy is going to be effective in any patient, that benefit will be evident during the first month, whereas the full effects of a progestin-containing IUD cannot be expected before 6 months, and if combination OCs are going to work, the therapeutic benefit will likely be seen within 3 months.

Just as important, the goals of treatment should be clearly articulated. If nothing less than total amenorrhea is acceptable, a patient must understand that this can be achieved only through hysterectomy—for which she may or may not be a suitable candidate.

DEMONSTRATE AN ATTITUDE OF FLEXIBILITY

A patient should be reassured that her treatment plan is just that—a strategy. This means performing appropriate studies to determine the mechanism for her HMB, then discussing together a hierarchy of options. She should understand that a treatment can be attempted, and if it fails or if she determines it to be unacceptable for any reason, the plan can be adjusted. To prevent frustration, a patient should know that the treatment choice she and the clinician agree on is not one that she is bound to for the remainder of her reproductive years.

This is particularly problematic when hysterectomy is highest on the clinician's list of therapeutic choices. Although it may be that the ultimate treatment is hysterectomy, unless there is a compelling medical reason, a woman should be given the opportunity to choose one or more less invasive options. Then, if those therapies fail to solve the problem, the patient is more likely to feel peaceful with the decision to undergo surgery. As a result, her level of postoperative satisfaction and psychological response to hysterectomy is likely to be better than if she feels "directed" to the decision.

CONSIDER THE PATIENT'S BELIEFS AND ATTITUDES

Clinicians must be exquisitely sensitive to a patient's personal belief structures and should take care to elucidate, respect, and address those beliefs. For example, a woman may be strongly opposed to taking medication in general or may, because of religious or other beliefs, reject the use of an IUD or OCs. She should not be made to feel that these beliefs are inappropriate. Instead, other options should be offered that do not conflict with her beliefs.

Another example concerns the patient for whom a hormonal method is contraindicated or is not desired, or when one or more have been tried and proven unsuccessful. In such a case, endometrial ablation is a reasonable procedure. However, a woman's desires concerning future childbearing should be carefully discussed. Endometrial ablation obviously is not an option if a woman even thinks she might wish to preserve reproductive function.

Table 8. Five Key Questions For Patient Counseling

1. What do you hope or expect from treatment? Would you be satisfied to bleed normally, or do you hope to stop bleeding completely?
2. What are your future plans for childbearing?
3. How do you feel about taking hormones long term?
4. Have you heard about any of the treatments we've discussed just now? What have you heard?
5. Do you have any other concerns that we haven't talked about yet?

PROVIDE AN OPPORTUNITY FOR BETTER LIFESTYLE CHOICES

The epidemic of obesity in the United States has significant bearing on the issue of DUB, not only from the point of view of its known propensity to be associated with anovulation but also because a patient's weight affects her potential choices for therapy. Indeed, in several recently published studies of chronic DUB treatment, the patients were young as well as obese. In the study of combination OCs by Davis and colleagues,[22] the average weight of the study participants was 172 lbs; in a hysterectomy study involving 63 patients by Kuppermann and coworkers,[36] the average body mass index was 32 kg/m^2 (moderately obese).

Obviously, obesity presents increased risks for surgical complications. In obese patients who require

CONSIDERING CASES: A Patient With Postsurgical HMB

- ***A 35-year-old woman who had been using oral contraceptives (OCs), but then underwent tubal ligation.***
- ***Following the surgery, the patient noted her periods became—and remained—very heavy.***

This patient blames the tubal ligation for the sudden change in her menstrual status. What are her treatment options?

THE OPINIONS OF THE FACULTY APPEAR BELOW.

As the other faculty members also note below, this patient truly has myriad options, and her choice depends on whether she desires amenorrhea or eumenorrhea. The aggressive approach of hysterectomy will guarantee amenorrhea, but we must counsel our patients regarding the increased morbidity of these procedures over other choices, including endometrial ablation.

The most conservative approach is to try an extended-dosage OC; menses, although remaining heavy, would occur only four times a year. Depot medroxyprogesterone acetate also could be considered. Unfortunately, while menses generally ceases, problems such as weight gain, breast tenderness, breakthrough bleeding, and depression are common.

Certainly if the patient is interested in eumenorrhea an excellent option would be an endometrial ablation procedure. These procedures are safe and offer an excellent change of return to normal menses. If eumenorhea is the goal, endometrial ablation can provide a reliable and satisfactory result.—DR MILLER

This case illustrates precisely the reason that I do not like to have a patient undergo a tubal ligation while taking OCs. Indeed, the patient may be having controlled menorrhagia and not even know it. I usually ask my patients on OCs to stop taking them at least 2 to 3 months prior to surgery. In this way, we can assess their menstrual periods—that is, the heaviness of flow or cramping—both on and off the OCs. If a patient is unhappy with how she feels off the Pill, I ask whether she really wants a tubal ligation or if she would prefer to resume the use of OCs.

Under the scenario described here, one would assume that, for some reason, the patient determined that she wanted to stop taking the Pill. This patient obviously has determined that she does not wish future childbearing. Because of her age, she is not likely to be menopausal for at least another 15 or more years, so she will need a relatively long-term solution to her problem. This patient can be offered a progestin-containing intrauterine system. She also would be an ideal candidate for an ablation procedure. Obviously, a hysterectomy is a fairly radical answer to her needs. —DR MINKIN

Provided that the menses remain regular and predictable, it is unlikely that this patient has a coagulopathy or endometrial neoplasia. If transvaginal ultrasound (including sonohysterogram, if necessary) is normal, this patient has a number of options—and they are just that, her options. Her ultimate selection will depend on a number of factors, including her desire for anemorrhea (versus normalization of bleeding) and her response to medical therapy, if she makes such a selection.

Outside the United States, many women would chose tranexamic acid, taken during the menses, which reduces ovulatory menorrhagia by about 50%. Cyclooxygenase inhibitors such as ibuprofen or mefenamic acid, also taken during menses, would likely reduce ovulatory menorrhagia by about 20% to 40%, and oral contraceptives are an option as well.

The levonorgestrel intrauterine system will reduce ovulatory bleeding volume by 80% or more by 3 weeks, but the patient will likely have to endure intermenstrual spotting for 3 to 6 months.

Endometrial ablation will result in reduction of flow to normal or less in about 85% to 90% of cases. If amenorrhea is the desired outcome, hysterectomy is the most predictable approach. Morbidity is lowest with either vaginal total hysterectomy or laparoscopic supracervical hysterectomy, either of which can be done with a total length of institutionalization of less than 24 hours. Supracervical hysterectomy should likely be reserved for those women who have no history of cervical neoplasia and who continue to have reassuring Pap smears. —DR MUNRO

If this patient has been on OCs for many years, such hormone use would have obscured her underlying native menstrual pattern. Close questioning might reveal that she had been given OCs as a teenager because of irregular or heavy periods. If that is the case, the menorrhagia she now experiences is probably "normal" for her.

Endometrial ablation may be the most attractive option for this patient. She undoubtedly elected to have a tubal ligation because she wished to discontinue taking birth control pills. It is unlikely that she would be willing to take OCs again to "control" her heavy bleeding.

Surgery would be problematic in this case. A patient who attributes heavy menstrual bleeding to a tubal ligation may blame the surgeon for actual or perceived complications following a hysterectomy (for example, loss of libido after laparoscopic-assisted vaginal hysterectomy, even if the ovaries are not removed).

An intrauterine system is an alternative, but a patient who had undergone a tubal ligation would need to understand that the IUD was being used for its progestational rather than its contraceptive effect. —DR ZURAWIN

hysterectomy, the alternative options provide an opportunity for interim treatment, during which time patients may accept assistance for a weight loss regimen, including nutritional and exercise elements. Obese patients with DUB face a considerable physical challenge with respect to exercise: they tend to feel fatigued, and the discomfort and logistical issues associated with frequent changes of tampons and pads add to the problem. Yet, for many obese patients, dietary changes alone do not provide the desired results, and the severe caloric restriction that would be required for significant weight loss in the absence of exercise is not acceptable (or reasonable) as a long-term plan.

In such cases, the clinician can offer a nonresectoscopic endometrial ablative procedure as a means of improving chronic DUB that will allow—and perhaps motivate—a patient to increase her mobility, to embark on a regular regimen of exercise, and to lose weight. The goal is to improve the patient's chances for an uncomplicated surgery, if surgery is still necessary. With sufficient weight reduction, surgery may become unnecessary in some patients. In either case, the patient has had the opportunity to control her own healthcare strategy.

Conclusion

The optimum therapy of HMB depends on understanding the mechanisms, pathogenesis, and possible factors involved. Chronic DUB itself is not a single, homogeneous problem but instead comprises either anovulation (with its attendant unpredictable episodes of bleeding) or a specific disorder of local hemostasis despite the existence of ovulatory function. With appropriate investigation, one can tailor therapy to certain classes of individuals, and with a reasonably successful outcome.

Women who wish to preserve reproductive function have at their disposal a number of medical approaches that, appropriately selected, can be effective and well tolerated. Such options are also available for women who have no desire to maintain their reproductive function. In addition, these women can select surgical approaches that obviate the need for long-term medical therapy. For women whose desire is amenorrhea, hysterectomy is the only option that virtually guarantees achievement of this goal. Laparoscopic supracervical hysterectomy is a promising minimally invasive procedure for some women and can be performed in an outpatient setting.

However, for most women who have completed their childbearing plans, endometrial ablation is an effective alternative to hysterectomy and nonresectoscopic endometrial ablation technology seems to provide equal efficacy with a greater degree of safety. These procedures are attractive to clinicians as well, because their use requires less of a learning curve to achieve proficiency compared with that for resectoscopic procedures. Moreover, the risk for complications is generally low. Unfortunately, at this time no uniform guidelines exist for training clinicians in the use of the newer devices and for certifying their proficiency in performing these procedures. The faculty urges hospital credentialing committees to consider developing and implementing such guidelines so that these valuable tools can be used appropriately and safely.

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