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Case Series

Abnormal Uterine Bleeding

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Abstract

Abnormal uterine bleeding (AUB) is one of the commonest complaints of women in reproductive age and nongravid state that brings them to the attention of the primary care doctor or the gynaecologist. Anovulation without any medical illness or pelvic pathology seems to be the common cause.

Bleeding due to a wide variation in pathology both inside and outside the reproductive tract can be termed as an anovulatory bleeding. Therefore, it is mandatory to elicit a focused menstrual history and appropriate evaluation followed by a pelvic examination. This includes a vaginal speculum examination, to differentiate anovulatory bleeding from other causes of bleeding. In contrast, Heavy menstrual bleeding (HMB) is referred to as an ovulatory bleeding exceeding 8 days duration and is often caused by uterine fibroids or adenomyosis, a copper IUD or coagulation disorders. PALM-COEIN classification is a system designed by the Federation Internationale de Gynecologie et d' Obstetrique to define the precise underlying causes of AUB.

Etiology of AUB can be classified as following the Acronym "PALM-COEIN": Polyp, Adenomyosis, Leiomyoma, Malignancy and hyperplasia, Coagulopathy, Ovulatory dysfunction, Endometrial, Iatrogenic and Not otherwise classified.

AUB describes a range of symptoms, such as HMB, inter menstrual bleeding (IMB) and a combination of both heavy and prolonged menstrual bleeding (MB). Dysfunctional uterine bleeding (DUB) and menorrhagia are now better described as AUB. Newborn girls sometimes spot for a few days after birth, due to placental estrogenic stimulation of the endometrium in utero.

Keywords: Abnormal Uterine Bleeding, Historical Views of Menstruation, Female Genital Tract Pathology, Bleeding Disorders (Thrombophilia), Pharmacological Treatment, Minimally Invasive Surgical Procedures

Introduction

Abnormal uterine bleeding (AUB), a frequent reason for outpatient and emergency department visits in reproductive-aged, nongravid women, may substantially affect a woman's physical, social and mental quality of life. Evaluation and management of AUB incurs high health care costs**.** This predicament may affect 10-30 % of women of reproductive age group [1,2]. All clinicians in the field, therefore need to be alert about the causes and keep a well-organized and prudent approach to formulate the management-plan.

Formally AUB describes a range of symptoms, such as HMB, IMB and combination of both heavy and prolonged menstrual bleeding. Menstrual disorders previously portrayed as DUB and menorrhagia are now better described [3] as AUB.

Bleeding due to a wide variation of pathology both inside and outside the reproductive tract can be mimicked as an anovulatory bleeding. Therefore, it is mandatory to elicit a focused menstrual history appropriate for AUB followed by a pelvic examination that includes a vaginal speculum examination, to differentiate anovulatory bleeding from other causes of bleeding. In contrast, HMB is referred to ovulatory bleeding exceeding 8 days duration and is often caused by uterine fibroids or adenomyosis, a copper intrauterine device (IUD) or coagulation disorders.

There is now agreement on a structured, universal approach to the diagnosis of AUB with the aide memoires PALM-COEINE as shown in figure 1. Once malignancy and pelvic pathology have been ruled out, medical treatment is an effective first-line therapeutic option, with surgery including endometrial ablation or hysterectomy, offered when medical management failed to resolve symptoms and fertility is no longer desired. The acronym PALM-COEINE denotes [4]: Polyp, Adenomyosis, Leiomyoma, Malignancy and hyperplasia, Coagulopathy, Ovulatory dysfunction, Endometrial, Iatrogenic and Not otherwise by Federation of Internationale de Gynaecologie et d' Obstetrique.

Learning Objectives

- To understand the causes of AUB and its management in nonpregnant, pre- menopausal women.
- To be able to evaluate various relevant investigations required to evaluate AUB.
- To recognize the differential diagnosis of AUB in various phases of reproduction.
- To be aware of both medical and surgical therapies including the newer hysteroscopic and non-hysteroscopic ablative techniques, taking into cognizance the morbidity and mortality

Not yet classified

This group is poorly defined, inadequately studied and rare. They include arteriovenous malformation, myometrial hypertrophy and uterine isthmocele secondary to previous caesarean section residual scar defects. Imaging with TVUS and MRI [3], will be able to recognize these defects.

FIGO defines normal uterine bleeding as approximately 37-41 ml of blood loss over the first 5-7 days of the menstrual cycle, FIGO also defines HMB as 100-130 ml of blood loss [5], over varying number of days throughout the whole cycle but often within the first 10 days resulting in anaemia. AUB can have a significant impact on women's quality of family perspectives and poses embarrassment, because of soiling outer garments with blood [1]. Also, AUB can be as consequences of infections, uterine fibroids, polyps, adenomyosis or endometriosis. Newborn girls sometimes spot for a few days after birth, due to placental estrogenic stimulation of the endometrium in utero.

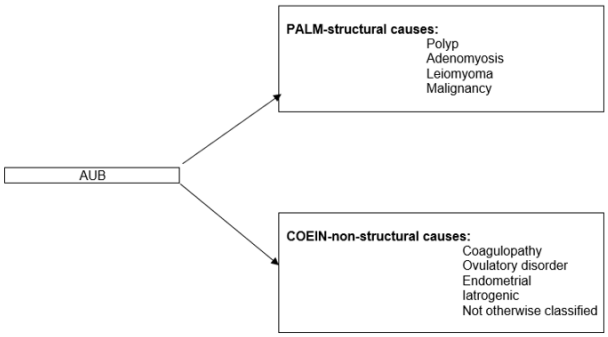

Figure 1: FIGO AUB system II PALM COEIN (2011). (Source: British Medical Bulletin 2017,123: 103-114).

The term DUB is synonymous with anovulatory bleeding, in the absence of pregnancy or any obvious pelvic pathology. The term menorrhagia spells out as regular, heavy or prolonged bleeding. In clinical practice, a wide variety of terms are used to denote the pattern of bleeding.

Historical views of menstruation

Throughout early history, menstruating women were isolated and prevented from handling food. Many considered menstruating women were impure, unclean and subjected to segregation with special rituals. They were prohibited, shunned at holy places and social functions.

Recognizing these cultural sensitivities, healthcare providers need to be familiar with the existing cultural and social views and attitudes towards menstrual disorders and provide medically appropriate therapies for their menstrual disturbances.

Despite sophistication and modernization in lifestyle, negative attitudes toward menstruation, do persist in modern times [6].

Clinical evaluation of AUB

Bimanual examination elicits the size and contour of the uterus. An enlarged or lobular uterus suggests leiomyomas or adenomyosis. Cervical or adnexal tenderness is suggestive of pelvic inflammatory disease (PID). The presence of hyperandrogenic features e.g., acne, hirsutism, basal metabolic index (BMI) >25 kg/m^2 suggests polycystic ovarian syndrome (PCOS), whereas galactorrhea demonstrates possibility of a pituitary hyperprolactinaemia and hypothyroidism.

On the other hand, intermenstrual bleeding IMB may be caused by an endometrial polyp, endometritis or an IUD, whilst postcoital bleeding suggests presence of cervical disease (cervicitis, polyp or malignancy as in figure 2. Anticoagulant use can cause HMB whilst medications that may induce hyper prolactinaemia (e.g. risperidone or haloperidol) can cause AUB. Pregnancy test is prudent in women younger than 55 years. Laboratory testing should include cervical cytology, human papilloma virus along with *Chlamydia trachomatis, Neisseria gonorrhhoe* and *Trichomonas vaginalis* using nucleic acid amplification testing on vaginal swabs for patients younger than 25 years or when there is vaginal discharge, pelvic pain, new or multiple sexual partners, with cervical motion or adnexal tenderness. A complete full blood count (FBC) and serum ferritin levels should be taken from women with HMB because of the risk of iron depletion resulting in an iron deficiency anaemia. Leukocytosis is pathognomonic of PID or postpartum endometritis. Assessment of thyroid and prolactin concentrations is vital. Von Willebrand disease (vWB) is the most common inherited bleeding abnormality affecting women. In adolescent girls a heavy bleeding pattern since menarche is suspicious. The possibility of coagulopathy also should be kept in mind especially in adolescents whose menstrual history is short and not yet well defined. Besides, in adolescents, genital trauma, sexual abuse, cervicitis relating to sexually transmitting infections (*Chlamydia trachomatis*) and foreign bodies e.g., retained tampons merit special consideration.

Certain medications can predispose to AUB, by interfering with haemostasis, resulting in menorrhagia by disrupting the hypothalamic-pituitary-ovarian (HPO) axis. Drugs associated with AUB include hormonal contraception, anticonvulsants, anticoagulants and psychopharmacologic medications. Some common herbs have estrogenic activity (e.g., ginseng).

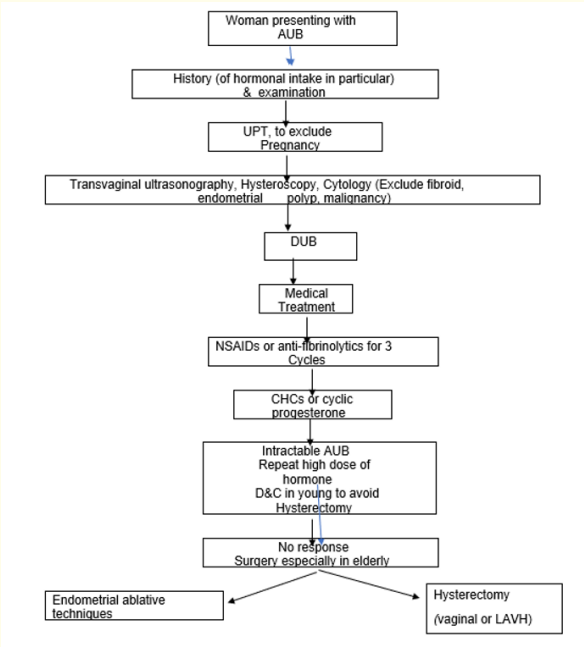

Figure 2: Algorithm in the clinical evaluation of patient presenting with AUB.

Systemic illnesses may predispose to anovulation or coagulation abnormalities; examples include diabetes mellitus, systemic lupus erythematosus, malignancies and myelodysplasias. Chronic renal disease is associated with both ovulatory and platelet dysfunction. Liver disease too can affect estrogen metabolism and predispose to anovulation.

The reality of a post-tubal ligation syndrome [7] of menstrual abnormalities has been debated for some time now. The popular theory is that extensive tubal electrocoagulation adversely affects ovarian blood supply and steroidogenesis. This syndrome is seen frequently many years after sterilization particularly electrocautery but not with rings and clips.

Imaging, often transvaginal route is useful in the evaluation of patients with AUB. Imaging is also useful in suspected PCOS and

polyps or leiomyoma in the endometrial cavity. Abdominal ultrasound is appropriate in virginal patients and others in whom a vaginal ultrasound is inappropriate. Other second-line imaging tests are computed tomography (CT) and magnetic resonance imaging (MRI) in exceptional cases. Alternatively, hysteroscopy may facilitate targeted biopsy, resection of intracavitary pathology or both.

Case Study I

Miss T, a 18-year-old college student came to the primary health center HMB lasting 6-7 days interfering with her life style. Menstrual history showed she had this problem since her first period at 12. Never been on any hormonal medications. She has history of excessive bleed during dental scaling and few occasions of epistaxis resolved by itself. She is not sexually active. There was mild pallor and pelvic ultrasonography was unremarkable.

- What could be the possible causes of this problem?
- List 2 tests that may confirm her diagnosis
- How do you manage and follow-up this case?

Her vital signs were normal. There were few ecchymoses spots on her abdomen and forearms.

Endometrial sampling is performed after exclusion of pregnancy in patients with AUB. Biopsy facilitates to exclude endometrial hyperplasia or cancer.

Pathophysiology

The menstrual cycle is an organized string of endocrine signals that gives the menstrual cycle the regularity, predictability and reliability. The cycles become irregular around extremes of reproductive age (menarche and menopause) due mainly to anovulation and inadequate follicular development [8]. This is due to disturbance in the hypothalamus pituitary ovarian (HPO) axis, a phenomenon seen commonly in PCOS and extremes of reproductive age groups as shown in figure a. The term DUB refers to anovulatory bleeding in the absence of pregnancy or any demonstrable pelvic pathology or coagulation disorders [9].

In ovulatory DUB, the bleeding is regular but heavy with 90% of the bleeding is greater in the first three days [10]. The HPO axis is not involved. Here, the gonadotrophin and steroid hormone profiles are similar as in normal menstrual cycles. The decline in estrogen and progesterone levels in the late secretary phase leads

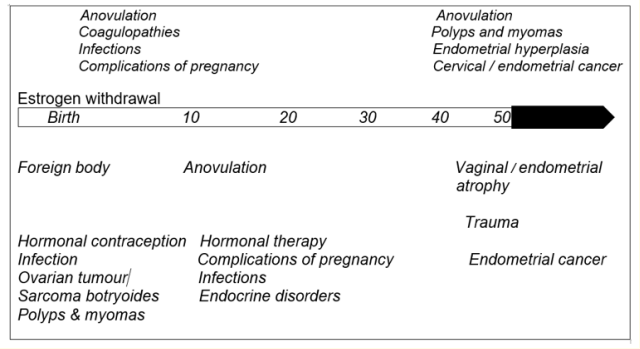

Figure a: Usual causes of abnormal bleeding by age.

Source: Clinical Gynecologic Endocrinology and Infertility (Eds): Marc A. Fritz and Leon Speroff, 8th edition, Wolters Kluwer (Health)/Lippincott Williams and Wilkins.

to disintegration, followed by re-epithelialization of the functional layer of the endometrium. The main defect appears in the process of vasoconstriction and haemostasis.

HMB [11] refers to ovulatory (cyclic) bleeding exceeding 8 days' duration or heavy enough to soak a pad or tampon more than every 2 hours and during peak flow, large clots are passed and interfere with daily activities of life. About 1 in 20 women aged 10 to 49 years will consult their primary care physicians. HMB is often caused by uterine fibroids or adenomyosis but may also be caused by a copper intrauterine device (IUD) or coagulation disorders.

The differential diagnosis of AUB includes problems associated with pregnancy, infection, vaginal and cervical abnormalities, benign and malignant uterine neoplasms, coagulopathies, endocrine disorders, trauma to and foreign bodies inserted into the lower genital tract, systemic diseases leading to vaginal bleeding as seen in figure a. The causes may vary with age. In premenarchial girls, foreign bodies, trauma and infection are more prevalent as in figure a. In post menarche adolescents, anovulatory bleeding, coagulopathies, infections and pregnancy complications are common. In suspected cases of a coagulopathy, history of heavy menstrual bleeding from menarche, after dental procedures, epistaxis, frequent gum bleeding, skin bruises and a family history of bleeding symptoms are noted. During the reproduction years, anovulation,

hormonal contraception, complications of pregnancy, infection, endocrine disorders, cervical lesions and fibroids are frequent. In perimenopausal women, anovulation, uterine neoplasia and endometrial hyperplasia are the principal causative factors. In postmenopausal women, vaginal/endometrial atrophy and HRT prescriptions are the chief causes.

Laboratory tests

Laboratory tests can be very helpful but not always necessary. A urine pregnancy test quickly excludes the possibility of an early pregnancy abnormal bleeding. A complete FBC excludes anaemia and thrombocytopenia which is useful in women who complaints abnormal bleeding.

A complete Serum progesterone level exceeding 3 ng/ml during the luteal phase between days 22 and 24 of the cycle can help diagnose ovulation. If the menstrual pattern is erratic or poorly documented, then conventional basal body temperature (BBT) measurement may be employed. Endometrial sampling is only reserved for women beyond 40 years or when suspected of endometrial hyperplasia or cancer.

In women who are sexually active, tests for chlamydia and gonorrhoea and a wet preparation for trichomonas infection merit consideration, particularly in those with evidence of cervicitis/vaginitis. Cervical cultures and a cervical smear are appropriate for the presence of sexually transmitted diseases or cervical dysplasia. In adolescent girls who present heavy menstruation since menarche or a family history, it may be prudent to do coagulation screening. In addition to vWB disease, other factor deficiencies, platelet function abnormalities, screening should also include both PT and aPTT as in table 1. The former demonstrates abnormalities of the extrinsic and common pathway, whilst the latter the intrinsic and common pathway. With proven abnormalities, consultation with a haematologist is pertinent. Renal and liver function tests are done when there is a suspicion of the particular-organ involvement.

Imaging techniques could shed light on anatomical abnormalities such as fibroids and endometrial polyps. Transvaginal may throw light on the precise size and location of fibroids or may explain bleeding due to other causes [12]. Saline infusion sonography identifies intracavitary lesions such as endometrial polyps or submucous myomas with high accuracy. CT scans and MRIs are done in more obscure cases. MRI can reliably define uterine anatomy, distinguishing between adenomyosis and leiomyomas. The risk of cancer is remote in women who are either perimenopause, or post-menopause with an endometrial thickness less than 5 mm, but present with abnormal bleeding [13]. Endometrial hyperplasia

Laboratory evaluation	Specific Laboratory Tests
Initial laboratory testing	Full blood count (FBC) Blood group and cross match Pregnancy test Well timed serum progesterone
Initial laboratory evaluation for disorders of haemostasis	Partial thromboplastin time Prothrombin time (PT) Activated partial thromboplastin time (aPTT) Fibrinogen
Initial testing for von Willebrand disease	Von Willebrand factor activity (optional) Factor VIII level (optional)
Other laboratory tests to consider	S. Thyroid stimulating hormone (TSH) Serum iron/ferritin Total iron binding capacity (TIBC) Liver function tests (LFTs) (optional) Renal function tests (RFTs) for those with suspected liver disease (optional) *Chlamydia trachomatis* *N. Gonorrhoea* Wet prep for Trichomonas vaginalis
Ultrasonography as primary diagnostic tool Saline infusion sonography (SIS)(optional) Magnetic resonance imaging (MRI) if ultrasonography information is inadequate (optional)	Early pregnancy features Small ovarian cysts Leiomyoma/adenomyosis Endometrial thickness
Hysteroscopy and endometrial biopsy	Small polyps Submucous fibroids Endometrial hyperplasia Endometrial carcinoma

Table 1: Laboratory evaluation.

and cancer are more commonly detected in older than in younger women. The duration of exposure to unopposed estrogen stimulation is the most critical risk factor. Endometrial biopsy is almost mandatory.

Hysteroscopy plays a very decisive role in those with intrauterine pathology that require biopsy or excision. Modern hysteroscopes with an outer diameter of 2 to 3 mm permit both diagnostic and therapeutic procedures at an office setting [14].

Case Study II

Mrs R.K, a 36-year-old lady with 2 living children 8 and 10 went to the outpatient clinic to a district hospital for excessive per vaginal bleeding during every cycle using 8 to 10 pads per day with clots, for the past one year. She was on barrier contraception between her 2 children but nil presently.

Her vital signs were normal with pallor. Cardiorespiratory systems were normal. Abdominal palpation showed a 16-week size central mass below the umbilicus, soft in consistency, no nodularity, mobile side to side and non-tender and could not feel the lower border. A trans-abdominal ultrasonography revealed a bulky mass measuring 15x8x5 cm. A pelvic examination confirmed a normal cervix, the size and consistency of the uterine mass with normal adnexa.

- What is the probable diagnosis and why?
- What further investigations would complement your diagnosis?
- How would you manage this case?

Medical treatment

Although AUB can often be managed medically. on an outpatient basis as in table 2, discussion pertaining to contraceptive needs, desire for future pregnancies, medical comorbidities, patient preferences and desire for endometrial ablation or hysterectomy is well discussed. Improving access to care will require multi-level approaches that involves local socio-cultural needs and improved healthcare facilities.

Hormonal
Combined hormonal contraceptives (CHCs)
Progestins
Levonorgestrel impregnated intrauterine system (LNG-IUS)
(Suitable to patients <35 years, non-smokers, no comorbid complications, migraine and history of VTE)
Non-hormonal
Prostaglandin synthetase inhibitors (PGSI)
Anti-fibrinolytic agents-Tranexamic acid
Reducers of platelet fragility-Ethamsylate
(Suitable for women >35 years with hypertension, diabetes)
Others
Danazol (17α-ethinyl testosterone)
GnRH agonists
Selective estrogen receptor modulations (SERMs)
Epsilon amino caproic acid
Gestrinone (19-Norsteroid derivative)
Interleukin II
Vasopressin analogues
Desmopressin (dDAVP) analogues
(Suitable in women with HMB in women with von Willebrand disease, beginning treatment with onset of menses)

Table 2: Medical treatment.

Combined hormonal contraceptives (CHCs)

CHCs reduce the MBL and result in a consistent menstrual cycle interval [15]. The reported MBL or Pictorial blood assessment chart (PBAC) score range from 32 to 36% at 3 months and 35-68% in 12 months [16]. CHCs could be prescribed for 3 weekly followed by a week pill-free week to facilitate withdrawal bleed or be given as hormone free interval to induce amenorrhoea in 80-100% of women.

Rare side effects of CHCs are breast tenderness and mood changes. The contraindications for use of CHC are for women more than 35 years, who smoke, have hypertension, cardio-vascular disease, migraine, breast cancer or history of VTE.

Progestin therapy

Synthetic progestogens have been used in the treatment of menorrhagia for over 30 years. The drug dosage and the duration of use will influence the effect on the endometrium and consequent pattern of bleeding. Progestins are the mainstay of treatment for anovulatory bleeding. This is commenced after organic pathology is excluded. In oligomenorrhoeic anovulatory patients, an orderly organized withdrawal bleeding can be worked out. Cyclic oral progestins, medroxyprogesterone acetate (MPA) 5-10 mg for 10-12 days each month. MPA inhibits FSH release from the anterior pituitary and prevents ovulation. When the endometrium is either normal or increased in thickness [17], the regime is continued for 3 weeks and 10 days thereafter, decreased to once a day for 7 to 10 days.

The progesterone impregnated intrauterine device

Relating to 20μg of levonorgestrel per day has proven to be successful in reducing menstrual blood loss [18]. Progestogens may be safely used for long-term treatment of DUB.

Modern low dose CHCs

Can be safely prescribed for most young women, provided they do not have any contraindications. The CHC is used frequently for the treatment of menorrhagia. The efficacy has been confirmed objectively [19]. CHCs are unpopular for treatment of menorrhagia, particularly in women over 35 years of age over concerns of thrombo-embolic diseases.

Non-hormonal medical therapy

Suitable for women beyond 35 years, smokers with comorbid complications and history of VTE.

Iron therapy

Intravenous iron like Iron Sucrose is given 200 mg intravenous in 200 ml of Normal Saline over 30 mins., thrice a week. Side effects-mainly gastro-intestinal. Contraindications: known hypersensitivity to intravenous iron. Precautions: asthma, eczema and other atopic allergy [20].

Prostaglandin synthetase inhibitors (PGSIs)

Use of inhibitors of Cox enzymes had been shown to reduce MBL implicating impairment of prostaglandin pathways in the etiology of excessive menstrual bleeding. NSAIDs reduce MBL by (10-51%) inhibiting endometrial prostaglandin synthesis. The endometrium is rich source of PGE_2 and $PGF_{2\alpha}$. Reductions in MBL in proven menorrhagia range from 22 to 46 per cent [18,19].

Anti-fibrinolytic agents

The endometrium possesses, an active fibrinolytic system. Tranexamic acid, is an inhibitor of fibrinolysis, is used frequently as first-line therapy in the UK [23], despite of a number of trials showed only 50% reduction in MBL [24]. It decreases endometrial plasminogen activator activity. Side effects were minimal with no discontinuation on account of adverse drug reactions. A third of women experience gastrointestinal side effects with 3-6 grams daily. As 90% of MBL in the first 3 days of flow, dose related side effects can be minimized by limiting the number of treatment days to the first 3 or 4 days of the period.

Other medical therapies

Danazol is a synthetic androgen (17α ethinyl testosterone) with anti-estrogenic and anti-progestogen activities, leading to endometrial atrophy and reduced blood loss. A high incidence of androgenic side effects such as weight gain, muscle cramps and skin rashes have limited its treatment option. When prescribed at more than 400 mg daily [25], as a treatment option for women with gynaecological diseases, it is mainly used as a second line therapy especially as a short-term, pre-surgical procedures.

Gonadotrophin-releasing hormone agonists (GnRHa)

GnRH agonists achieve short-term relief from a bleeding problem and has been used as a pre-operative adjunct in women awaiting myomectomy or endometrial ablation or definitive surgery (hysterectomy) for AUB. The resultant shrinkage of myomas and thinning of endometrium promotes less bleeding intraoperatively [26].

The analogues control menstrual loss by pituitary down regulation and subsequent inhibition of cyclical ovarian activity. Ovarian suppression and amenorrhoea with associated hypoestrogenic-state and endometrial atrophy leads to hot flushes, vaginal dryness

and bone mineral depletion. Add-back therapy with estrogen may alleviate the problem.

The levonorgestrel-releasing intrauterine system (LNG-IUS, Mirena®)

Progestogen can be delivered directly to the endometrium using a hormonal intrauterine device. The operation compliance and carry with them additional contraceptive benefits. Potential modes of action of progesterone and progestogen-releasing devices are a reduction of endometrial prostaglandin synthesis and endometrial fibrinolytic activity [27]. The reservoir contains 52 mg of LNG mixed with polydimethylsiloxane and release 20 µg of LNG per day. It is contraindicated in pregnancy and unexplained vaginal bleeding.

Desmopressin (dDAVP)

A synthetic analogue, Desmopressin is used to treat AUB in women with coagulation disorders especially those with von Willebrand disease. It has been shown to reduce median PBAC score by 24-42% during 2 cycles of treatment [28].

Ethamsylate is a haemostatic agent used to treat HMB given at 500 mg 4 times daily during days of menstruation, it reduces MBL by 25% of women during 3 cycles [29].

Other options include haemostatic agents, SERMs, epsilon aminocaproic acid, gestrinone (19-Norsteroid derivative) and interleukin II.

Case Study III

Madam M, 48-years-old lady with 3 living children age ranging 18-12, delivered normally, was never on any form of contraception. She was amenorrhoeic for 8 months followed by per vaginal spotting and frank bleeding past 6 months. She had gone to see her family physician. She is not a hypertensive or diabetic.

Her BMI was 26, BP 120/70 mm Hg, looked tired and week. Abdominal examination was unremarkable, pelvic examination showed a pale vaginal mucosa, normal cervix and bulky uterus, with no adnexal masses. A transvaginal scan essentially showed normal uterus with an endometrial thickening of 11 mm. Her doctor referred her to see the gynaecologist at a tertiary center:

- What is your provisional and differential diagnosis?
- What investigations would you perform for the thickened endometrium.
- What will be your further management of this patient?.

Surgical considerations

Surgery is seldom indicated in young women with menstrual disturbances. Hysterectomy, the traditional surgical treatment of menorrhagia, is only suitable for women who have no further wish to conceive. The operation itself is not without risk. Concerns about the "invasiveness" of hysterectomy have led to the development of minimal access approaches including endometrial resection and ablation both as inpatient and as outpatient treatment modality [30].

Uterine artery embolization (UAE) is an alternative for uterine fibroids in cases where pregnancy is still desired. Both the uterine arteries are blocked with particles injected through a catheter inserted into them via the femoral artery. This procedure causes shrinkage of the fibroids. UAE is performed by an interventional radiologist. Embolization may be an appropriate treatment for larger fibroids where the risks from surgery are higher [31].

Current minimal access techniques

Hysteroscopy and visually directed endometrial sampling have replaced blind curettage for the diagnosis of endometrial disease. The development of minimal access techniques has made it possible to therapeutic destruction of endometrium in situ as a day-care operation. The earliest techniques ablated endometrium with ND: YAG LASER [32], (hysteroscopic first generation). The second-generation of endometrial ablation devices are technically simpler to perform, less invasive, designed to ablate the full thickness of endometrium by application of heat, cold, or microwave. The aim of these new procedures is to remove only the endometrium and leave the myometrium intact. Generally, the technique of endometrial ablation is divided into two groups: Hysteroscopic and Non-Hysteroscopic procedures.

Hysteroscopic (First-Generation Devices):

- Transcervical resection of endometrium (TCRE)
- Rollerball endometrial ablation (Endometrial "Rollerball" Electrocoagulation)
- LASER ablation (Neodymium YAG LASER)

Non-Hysteroscopic (Second Generation Devices) Hot liquid balloons:

- Thermal balloon endometrial ablation: Cavaterm, Therma-Choice Thermablate
- Microwave endometrial ablation (MEA)
- Bipolar radiofrequency induced thermal endometrial ablation (RITEA).

Complications

Both hysteroscopic and non-hysteroscopic techniques for endometrial ablation appear to offer good patient satisfaction and symptom relief. Endometrial ablation generally is more effective when the endometrium is relatively thin.

Complications associated with hysteroscopic techniques involve primarily those resulting from unrecognized uterine perforation and injury to the bladder and bowel [33] and from fluid and electrolyte disturbance relating to excessive absorption of distention media. Fluid overload can result in hyponatremia and pulmonary oedema [34].

Non-hysteroscopic methods of endometrial ablation requires less technical skill and operative time.

Conclusion

Gynaecological health has historically remained a taboo subject, yet this stigmatization, has meant that many women today are not able to talk about issues such as menstruation. This has resulted in many women normalizing symptoms or "suffering in silence". AUB is a disabling condition compelling many women to seek medical help. The literature is replete with drugs recommended for the treatment of menorrhagia throughout the ages. There are a limited number of studies that have explored women's experiences in accessing care for AUB. Improving access to care will require multilevel approaches that include consideration of local socio-cultural needs with improved training for primary healthcare providers such as general practitioners.

In addition, consequent to failure of medical therapy, an increasing number of surgical procedures have developed. Although, hysterectomy, the definitive treatment, is associated with increasing patient satisfaction, it is beset with unprecedented morbidity and mortality. The last two decades have witnessed development of less invasive minimal access techniques that conserve the uterus facilitating shorter in-patient care and faster recovery. Training in hysteroscopic surgery, knowledge about the indications, contraindications and limitations are essential prerequisites, to ensure the safety and sound care of the patients. Adolescent menstrual disorders are relatively common handled by primary care physicians, in many instances reassurance is all that is required. Otherwise, those presenting with protracted bleeding require referral to tertiary centres for further assessment of rare haematological, endocrine or structural abnormalities.

Conflict of Interest Statement

Both authors declare that they have no competing interest.

Ethics Approval and Consent to Participate

Not applicable.

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Authors' Contributions

Siva Achanna and Jaydeep Nanda contributed to the development, design, drafting and review of the manuscript.

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