Review

Abnormal uterine bleeding: symptomatology, clinical impact and diagnosis*

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Abstract

Abnormal uterine bleeding (AUB) is one of the most common gynaecological disorders in women of all age groups, it affects quality of life (QoL) and carries high direct and indirect socioeconomic costs. The present article aims to summarise the different aetiologies of AUB, using the unambiguous terminology and systematic approach provided by the International Federation of Gynecology and Obstetrics (FIGO) PALM-COEIN classification system with its periodic evolutions; the objective is also to evaluate the clinical impact and the most accurate diagnostic management, due to continuous improvements in imaging and outpatient hysteroscopy in order to improve patient care and reduce healthcare costs.

Keywords: **Abnormal uterine bleeding, heavy menstrual bleeding, outpatient hysteroscopy, healthcare, quality of life.**

Introduction

Abnormal uterine bleeding (AUB) is one of the most common gynaecological disorders in women of all age groups, and accounts for approximately 400,000 hospital admissions (Finco et al., 2015). It is estimated that up to one-third of women will experience AUB in their lifetime, with greater frequency at the time of menarche and perimenopause (Davis and Sparzak, 2023). The condition describes irregularities in the menstrual cycle involving frequency, regularity, duration, and volume of flow outside of pregnancy, and is generally not life threatening but is important as it directly affects quality of life (QoL) and entails high socioeconomic costs.

Management of AUB in the past has been hindered by both confusing and inconsistently applied nomenclature and the lack of standardised methods for investigating and categorising the various potential aetiologies. Terms such as metrorrhagia, menorrhagia, AUB, heavy menstrual bleeding (HMB), have often been used interchangeably and confusingly, not universally defined. For HMB alone, 100 different terms were used interchangeably (Woolcock et al., 2008). The development of a universally accepted nomenclature and classification system was complicated by the fact that several potential causes may coexist in a single individual and that many definable entities that often contribute to or cause AUB are often asymptomatic.

Shedding light on the issue was the classification system approved by the Executive Committee of the International Federation of Gynecology and Obstetrics (FIGO), which in 2011 (Munro et al., 2011) proposed for the first time to use the expression AUB to describe any deviation from the normal menstruation or menstrual cycle, and older terms such as oligomenorrhoea, menorrhagia, and dysfunctional uterine bleeding have been discarded. This new classification system had 9 main categories (Figure 1), enclosed in the acronym PALM-COEIN (Polyp; Adenomyosis; Leiomyoma; Malignancy and hyperplasia; Coagulopathy; Ovulatory Dysfunction; Endometrial; Iatrogenic; Not yet classified). These categories apply to chronic, non-gestational AUB and refer to irregularities in menstrual bleeding for most of the previous 6 months (ACOG, 2013).

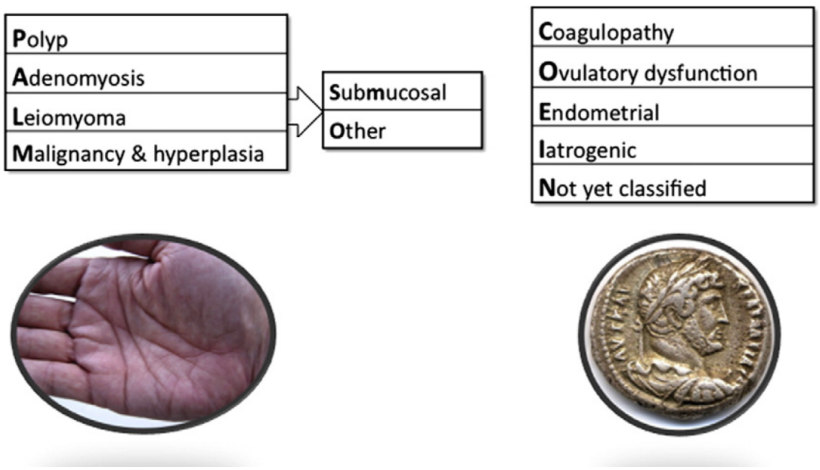

Figure 1: International Federation of Gynecology and Obstetrics (FIGO) PALM-COEIN abnormal uterine bleeding (AUB) classification system (Reproduced with permission from Munro et al., 2011).

The FIGO classification was updated in 2018 (Munro et al., 2018), with some changes (Figure 2).

Among them, the ultrasonographic diagnostic criteria for adenomyosis were refined (AUB-A), Type 3 myoma was included among submucosal myomas (AUB-L), the category AUB-N was changed from "Not Yet Classified" to "Not Otherwise Classified", and isthmocele was included in it as a cause of AUB.

Achieving an unambiguous terminology, together with the PALM-COEIN classification system, has mainly enabled the management of the patient with AUB.

This article aims to summarise the different aetiologies of AUB, its clinical impact on QoL, and diagnostic management to improve patient care and reduce healthcare costs.

Epidemiology

The prevalence of AUB varies from 3% to 30%, with such a wide range due to several factors. The age groups in which the incidence is highest are those around menarche and perimenopause. In addition, several studies have shown a wide discrepancy between subjective and objective measures of

System 2 category	Change
AUB-A	Refined sonographic diagnostic criteria
AUB-L	Inclusion of Type 3 as a submucous leiomyoma
	Type definitions and distinctions
	Distinction between Types 0 and 1; 6 and 7
	Distinction between Types 2 and 3; 4 and 5
AUB-C	No longer includes AUB associated with pharmacologic agents that impair blood coagulation which are now included in AUB-I
AUB-I	Now includes AUB associated with all iatrogenic processes including the use of pharmacological agents used for anticoagulation and those thought to interfere with ovulation
AUB-O	Diagnostic threshold changes based upon the revisions of System 1, described above
	No longer includes ovulatory disorders associated with drugs known or suspected to interfere with ovulation
AUB-N	The name of the category has been changed from "Not Yet Classified" to Not Otherwise Classified
	There is a brief discussion of a potential new cause of AUB the so-called uterine "niche" or isthmocele following lower segment cesarean section

Figure 2: Summary of changes to the International Federation of Gynecology and Obstetrics (FIGO) PALM-COEIN abnormal uterine bleeding (AUB) classification system (Reproduced with permission from Munro et al., 2018).

blood loss; about 10% of women of reproductive age were found in population-based studies to have objective evidence of HMB (i.e., menstrual blood loss greater than 80 ml). In contrast, in studies based on self-reported information, the percentage rises to 30%. However, some determinants for diagnosis are objective while others are subjective, making it difficult to determine the exact prevalence (Liu et al., 2007).

Discordance also exists on the degree of symptoms, depending on who evaluates the condition. One study estimated that 57.1% of patients who considered their symptoms severe were rated by their physicians as having only moderate symptoms. In contrast, 28.7% of patients reporting mild or moderate severity were diagnosed as having severe symptoms (Coulter et al., 1994).

To remedy these variances, objective criteria are needed, such as the objective defining of a blood loss of more than 80 ml; therefore, tools for quantifying the amount of menstrual bleeding, such as the Pictorial Blood Assessment Chart (PBAC), can be of help; it is a simple tool by which the woman herself can estimate the degree of impregnation of each pad at the time of change and record it on a pre-printed card. With this card, a total score for blood loss during a menstrual period can be calculated. A total score of 150 or more makes a diagnosis of severe menstrual bleeding likely (van den Brink, 2021).

A core outcome set (COS) for HMB has recently been developed. Ten outcomes were included in the final COS: subjective blood loss; flooding; menstrual cycle metrics; severity of dysmenorrhoea; number of days with dysmenorrhoea; quality of life; adverse events; patient satisfaction; number of patients going on to have further treatment for HMB and haemoglobin level. The final COS includes variables that are feasible for use in clinical trials in all resource settings and apply to all known underlying causes of HMB symptom (Cooper et al., 2023).

Clinical impact of AUB

AUB has significant psychosocial, emotional and economic implications; it may have a significant negative impact on QoL as it is associated with financial loss, decreased productivity, poor health, and increased use of health care resources (Woukand Helton, 2019). In fact, United Kingdom National Institute for Health and Care Excellence (NICE) states that HMB should be recognised as having a major impact on a woman's QoL, and that any intervention should aim to improve this rather than focusing on menstrual blood loss (NICE, 2018).

In a large case-control study of more than 29,000 subjects (Jensen et al., 2012), the authors found that average annual resource consumption was significantly higher in individuals diagnosed with HMB, linked to an overall increase in the use of inpatient, outpatient and emergency room health care services. In addition to direct medical costs, indirect costs (work absenteeism, home management costs) are responsible for large reported financial losses per patient per annum, according to a US study (Frick et al., 2009).

A survey of a randomised sample of Swedish women aged 40-45 years found that 32% of them experienced HMB. These women had significantly worse QoL than women with normal menstruation patterns. In general, menstruation was associated with negative perception and limitation of social and professional activities, although this aspect was significantly more pronounced for the HMB group. Practical inconveniences, such as bleeding through pads and planning social life with menstrual bleeding in mind, are, not surprisingly, more associated with the HMB group (Karlsson et al., 2013).

QoL indicators, pain scores, and perceived stress instruments are commonly used in gynaecological settings to assess the impact of AUB (Santer et al., 2007). Numerous instruments, both retrospective questionnaires and prospective diaries, have been developed over the years to assess menstrual cycle symptoms, especially in the premenstrual phase. The menstrual stress questionnaire (MEDI-Q) is a reliable and valid instrument developed to identify and monitor menstruation-related discomfort, and its impact on well-being. The MEDI-Q explores a number of areas affected by menstruation (pain, bleeding, mood, cognitive function, energy, nutrition, sleep, and sexuality) and provides a score ranging from 0 to 125. A MEDI-Q value at or above the cut-off of 20 indicates a clinically relevant condition (Vannuccini et al., 2021).

The wide impact of AUB on QoL is mainly related to iron deficiency anaemia, of which HMB is the leading cause in women in the developed world (Nazaryan et al., 2023). Iron deficiency anaemia has a significant negative impact on health, neurocognitive, immunologic, and haematologic function, with sequelae such as fatigue, weakness, unexplained weight loss, mood swings, and impaired cognitive functioning. This has an impact on social and economic well-being, related to the overall reduction in productivity (De Benoist et al., 2018).

One study (Fraser et al., 2015) found that the iron deficiency or iron-deficiency anaemia due to AUB is often untreated or inadequately treated in these patients. In fact, the management of AUB requires more than just iron supplementation; the underlying cause needs to be investigated and therapeutic options set up to reduce blood loss.

Another obstacle is determined by the fact that women with AUB tend to delay treatment, for a variety of reasons; uncertainty that uterine bleeding is abnormal, a perceived lower priority of gynaecological health, and difficulty in accessing services.

A recent study designed to assess awareness of HMB among the Saudi female population identified that 65.2% of women suffer from HMB, but only 35.6% are aware that they have it, while 64.4% are either unaware or unsure about having it. Among those who are aware they have HMB, only 32% seek medical advice, while 28% and 3.9% of those who are not aware of having HMB require iron supplementation and blood transfusion, respectively (Alsalman et al., 2020).

One study (Fraser et al., 2015) showed that in Europe 46% of women with HMB symptoms had never consulted a physician, and among those who had consulted a physician in the previous 12 months, 53.2% were not prescribed any medication. Consistent with these observations, a recent estimate (da Silva Filho et al., 2021) shows that an average of 3 years elapse from the onset of AUB to the patient's request for help; only 66% of women who begin to experience the symptom have an awareness that this condition is abnormal, but concern often first prompts them to discuss it with friends or family members and look for answers online. At this point, 60% of patients discuss the problem with their primary care physician and only 47% see their gynaecologist, while 40% believe they can manage it themselves. But even among women who have consulted a doctor, only 33% receive a diagnosis, and of these only 34% are properly treated.

It is clear from all this that it is important to define what is normal, and to adopt unambiguous terminology. Indeed, to reduce the socio-economic burden of AUB, it is first necessary to frame the diagnostic aspect appropriately and promptly, and then the therapeutic one. Since it is beyond the scope of this paper, we will not discuss treatment in detail.

Diagnosis of AUB

The initial evaluation of a woman presenting with genital tract bleeding thought to be an AUB must start with detailed history and clinical examination, which aim to rule out pregnancy and origin from other sites (urethra, anus, vulva, vagina, perineum). Laboratory tests can include a urine/serum assay for the presence of the β-subunit of human chorionic gonadotropin (β-HCG), full blood count - including platelets, ferritin, coagulation panel, thyroid function tests, gonadotropins, and prolactin (Davis and Sparzak, 2023).

Once it is assumed that the bleeding originates from the cervical canal or uterine cavity, the patient must be systematically evaluated for each of the most common aetiologies, which can be remembered by the acronym PALM-COEIN, according to the 2011 FIGO classification as later modified. In general, components of the PALM group represent structural entities, which can be objectively assessed by imaging and/or histopathology techniques, while the COEIN group includes non-structural entities, which therefore cannot be defined by imaging techniques. These aetiologies are not mutually exclusive; it must also be considered that one or more factors may contribute to the genesis of AUB, and that the presence of a pathology that is among the possible causes of AUB does not mean that it must necessarily contribute to it (Munro et al., 2018).

After the initial general evaluation, ovulatory status should be determined to investigate any irregularities in timing and flow, which are responsible for the bleeding. Anovulatory cycles, due to unbalanced oestrogenic effects on the endometrium, cause marked endometrial proliferation and thickening resulting in HMB. Ovulatory disorders causing AUB are classified as AUB-O and should have endocrine evaluation, in order to investigate possible endocrinopathies such as polycystic ovary syndrome (PCOS), hyperprolactinaemia, hypothyroidism, as well as factors such as obesity, anorexia, weight loss, mental stress, and extreme exercise, which impact the hypothalamo-pituitary-ovarian (HPO) axis (Whitaker and Critchley, 2016). In doubtful cases, serum progesterone assay may need to be performed to confirm ovulation in the current cycle for better estimation of mid-luteal phase; endometrial biopsy may also help in determining any alterations in secretory phase, although it is not recommended as a routine investigation.

A structured history can identify a bleeding disorder in 90% of women (Kouides et al., 2005; Kadir et al., 1998); further testing is then required, after consultation with a haematologist, including von Willebrand factor, ristocetin cofactor, and partial thromboplastin time (PTT) assay. If the results are positive for a coagulopathy, the woman with AUB is classified as having AUB-C.

AUB also occurs in 2/3 of women who undertake anticoagulant therapy (Patel et al., 2023), so this needs to be considered and recognised measures taken to minimise this problem for menstruating women prescribed this therapy. The 2018 updated FIGO classification (Munro et al., 2018) shifted individuals with AUB associated with the use of anticoagulant/antiplatelet therapies therapy from

AUB-C to the AUB-I (Iatrogenic) category, which also include continuous oestrogen or progestin systemic therapy or intrauterine systems (Fraser, 1999), or gonadotropin-releasing hormone agonists (GnRH-a) and aromatase inhibitors, with action on ovarian steroid release, or selective oestrogen receptor modulators (SERMs) and more rarely selective progesterone receptor modulators (SPRMs).

Once coagulopathy or other systemic disease or menstrual cycle disorders have been ruled out, the presence of an underlying endometrial cause (AUB-E) should be investigated. Diagnosis depends on a careful history and exclusion of other causes, as the role of endometrial disorders in AUB is not yet fully understood and there are no specific tests or clinically available biomarkers (Whitaker and Critchley, 2016). AUB-E may be associated with altered local endometrial haemostasis and angiogenesis mechanisms, with a deficiency in local production of vasoconstrictors and increased local production of vasodilator-promoting substances, or by altered local glucocorticoid metabolism (Critchley and Maybin, 2011).

Patients reporting AUB, with a diagnosis of established chronic endometritis, should also be categorised as having AUB-E; therefore, it may be reasonable to consider evaluating for the possible presence of chlamydia in these patients, given the apparent correlation between endometrial chlamydial infection and AUB (Toth et al., 2007).

Rare or ill-defined conditions that cannot easily be included in the other categories are enclosed in the AUB-N (Not otherwise classified) category. This is a category undergoing periodic revisions, scheduled every 3-5 years by FIGO (Munro et al., 2011); in the 2018 revision, the lower segment or upper cervical niche or "isthmocele" frequently found in association with a previous caesarean delivery was included in this category (Bij et al., 2014; Tulandi and Cohen, 2016). A recent meta-analysis (Murji et al., 2022) demonstrated a strong and consistent association between patients with caesarean scar defect (CSD) and AUB: in patients with at least one caesarean delivery and CSD, the prevalence of AUB was 25.5%, and it was higher in patients with larger CSD. These patients have a unique bleeding pattern, i.e., prolonged menstruation, "brown discharge", and early-cycle intermenstrual bleeding.

Structural Causes – PALM group

Evaluation of structural causes usually begins with imaging studies, transvaginal ultrasonography (TV-USG), sonohysterography, magnetic resonance imaging (MRI).

TV-USG, complemented also by the three-dimensional (3D) study, can provide an accurate assessment of the uterine cavity (size, shape, endometrial thickness, volume) but also of the myometrium, junctional area, any ovarian abnormalities, and concomitant pathologies. Thus, it is an important tool that should be employed in the first line in the investigation of AUB (Finco et al., 2015). Sonohysterography (TV-USG with intrauterine contrast, either saline or gel) can be useful in cases where TV-USG images are inconclusive or endocavitary pathology is observed, but it is more invasive. MRI provides detailed images that may prove useful in surgical planning, but it is expensive and is not the first-line choice for imaging in patients with AUB.

If imaging features indicate the presence of endometrial polyps or leiomyomas that may footprint or affect the endometrial cavity, outpatient hysteroscopy is recommended (Munro et al., 2018).

The increased availability of new hysteroscopic technology and equipment has led to a trend toward single-step, outpatient-based techniques for diagnosis and treatment of AUB. First, however, the meaning of "outpatient" needs to be clarified, since the terminology that applies to hysteroscopic procedures is often not unambiguously used. Therefore, an international working group of experts in hysteroscopy from the American Association of Gynecologic Laparoscopists (AAGL), the European Society for Gynaecological Endoscopy (ESGE) and the Global Community of Hysteroscopy (GCH) developed recently a consensus statement of recommended terminology to use for describing different aspects of hysteroscopic procedures: (i) pain management, (ii) the setting where procedures are conducted, (iii) the model of care relating to the length of stay and need for admission, (iv) the type of procedure and (v) the approach to hysteroscopy (Carugno et al., 2021). In this scenario, the term "outpatient" refers to the hysteroscopic procedure performed in a health care facility where pain control up to level 3a (oral or inhaled medications with sedative effect) can be eventually administered and to a model of care in which the patient arrives and leaves the facility on the same calendar day.

The tendency of hysteroscopy to move itself towards the outpatient setting closed the gap with TV-USG. Actually, office hysteroscopy presents some major advantages (Di Spiezio Sardo et al., 2016). The characteristic of "direct view" represents a huge benefit, ensuring a very high diagnostic sensitivity and specificity in uterine cavity and endometrial evaluation. Moreover, thanks to modern instrumentation, the visual endoscopic examination

is generally completed by the "target-eye" biopsy of the suspected areas.

There is a case in which hysteroscopy is the first-level investigation of AUB, and that is when the woman is considered to be at high risk for hyperplasia or neoplasia; performing a hysteroscopic endometrial biopsy is indeed necessary in the presence of AUB and risk factors for malignancy, which include age over 45 years, Lynch syndrome, whose lifetime risk of developing endometrial cancer reaches 60% (Lu and Broaddus, 2001; Lu et al., 2005), age under 45 years but unopposed oestrogen exposure (obesity and/or PCOS). In addition, in case of treatment failure or persistent or unexplained bleeding, hysteroscopic evaluation of the uterine cavity (ACOG, 2013; NICE, 2018) with endometrial sampling is also necessary.

Several techniques can be used to perform endometrial sampling. Blind dilatation and curettage (D&C) was long considered the gold standard, although its well-recognized deficiencies. Hysteroscopic targeted biopsy, with the "grasp" technique, replaced blind D&C, achieving a high concordance of histologic type and tumour grade, especially in presence of an endometrioid-type tumour (Di Spiezio Sardo et al., 2020). 5 Fr scissors or 15 Fr bipolar office resectoscope can be used to collect adequate tissue samples from hypo/atrophic endometrium, from the subendometrial layer or from the endocervical canal, when needed. And last but not least, a new technique,performed with hysteroscopic tissue removal systems (HTRS), provides a type of atraumatic curettage performed under direct visualisation, mechanically collecting targeted and larger amount of endometrial tissue (Di Spiezio Sardo and Gallo, 2022).

AUB-P

The first "P" of the classification system stands for "polyps". Endometrial polyp is a frequent cause of AUB, which is reported in 3.7–65% of these patients (Whitaker and Critchley, 2016). Its prevalence is around 7.8–34.9%, lower in young women than in postmenopausal women (Finco et al., 2015). Intermenstrual bleeding is the most common presenting symptom, but many polyps are asymptomatic; their transformation in pre-malignant and malignant lesions is estimated to occur in 0 to 12.9% of cases, higher for post-menopausal women and for those with significantly greater bleeding (Lieng et al., 2010). TV-USG, and even more so sonohysterography (Bahamondes and Ali, 2015), can raise the suspicion of endometrial polyp, appearing as a focal, hyperechoic and well-defined thickening of the endometrium. Diagnostic confirmation is provided by hysteroscopy, with sensitivity and specificity described of 90% and 93%, respectively (De Cunha Vieira et al., 2022); it provides an evaluation of number, dimensions, location and relationship to the tubal ostia, adjacent mucosa; performed in outpatient setting, it also allows immediate removal. A review of the literature (Nathani and Clark, 2006) points out that polypectomy led to improvement in AUB symptoms (range 75–100%).

AUB-A

The "A" stands for adenomyosis, which is defined as the presence of endometrial tissue within the myometrium, and it can be diffuse (involving most of the myometrium or dispersed within the myometrium) or focal (confined nodular lesion) or presenting as an adenomyoma (focal adenomyosis with additional compensatory hypertrophy of the surrounding myometrium (Van den Bosch et al., 2015). Its prevalence ranges from 5% to 70%, but its association with AUB is unclear (Taran et al., 2013). TV-USG has similar sensitivity and specificity for the diagnosis of adenomyosis when compared to MRI (Bazot and Daraï, 2018); although the diagnosis of certainty can only be provided by histological analysis, the use of criteria based on the ultrasound features suggested by the Morphologic Uterus Ultrasound Assessment Group (MUSA) for the diagnosis of adenomyosis is recommended (Munro et al., 2018); they include asymmetrical thickening, cysts, hyperechoic islands, fan-shaped shadowing, echogenic subendometrial lines and buds, translesional vascularity, irregular junctional zone and interrupted junctional zone. The application of 3D-USG allows the evaluation of the junctional zone (JZ), the inner myometrial layer underlying the endometrium, composed of higher cellular density and a higher nuclear area compared to the outer myometrium, which appears thickened, interrupted, irregular or ill-defined (Van den Bosch et al., 2015). Some hysteroscopic aspects are generally indicative of adenomyosis, even if restricted to the endometrial surface layer and so not definitively diagnostic; irregular endometrium with tiny openings seen on the endometrial surface, pronounced hypervascularisation, endometrial "strawberry" pattern, fibrous cystic appearance of intrauterine lesions, haemorrhagic cystic lesions assuming a dark blue or chocolate brown appearance (Di Spiezio Sardo et al., 2017). Biopsy sample from the endometrium and underlying myometrium can be obtained using grasping forceps, 5 Fr scissors, 5 Fr bipolar electrodes bipolar, bipolar resectoscope or bipolar mini-resectoscope (Di Spiezio Sardo and Campo, 2022). In order to improve collection of samples from the subendometrial myometrium,

the "Spirotome" (Bioncise and Wellen, Belgium), inserted to the outer sheath of Campo Trophyscope® (KARL STORZ, Germany) can be used, under sonographic guidance (Di Spiezio Sardo et al., 2017).

AUB-L

The "L" stands for leiomyomas, also known as fibroids, benign smooth muscle tumours that arise from the myometrium. They are present in about 80% of women (Wouk and Helton, 2019), with increasing prevalence with increasing age. AUB is a common symptom, associated with pelvic pain or pressure (Borah et al., 2013) and consequences for fertility and obstetric outcomes (Van den Bosch et al., 2015).

The primary classification of leiomyomas involves their identification by a combination of TV and transabdominal (TA) USG; any lesion identified leads to the assignment of an "L." It is then necessary to determine the relationship of the leiomyoma to the endometrium by adopting a secondary classification, which divides leiomyomas into submucosal (SM) and other (O) (Whitaker and Critchley, 2016). Tertiary classification aims to clarify the relationship of leiomyoma with the endometrial cavity, myometrium, and uterine serosa by a combination of TV-USG, hysterosalpingography, hysteroscopy and MRI. Leiomyomas are thus further subdivided into nine categories, adopting the FIGO subclassification system of leiomyoma (Munro et al., 2018). Type 0, 1, 2, or 3 for woman in whom L-SM was detected, Type 4, 5, 6, 7, and/or 8 for women in whom L-O was detected.

MRI may be useful to distinguish between leiomyomas and adenomyosis or adenomyomas (Van den Bosch et al., 2015) and to measure the extent of the myometrium of submucosal leiomyomas, with superior reliability to TV-USG, sonohysterography, and hysteroscopy (Munro et al., 2018). The distinction between type 2 and type 3 leiomyomas should be based on hysteroscopy, infusing the distention medium at low pressure so that the natural relationships of the leiomyoma with the endometrium are not distorted.

Hysteroscopy also allows the evaluation of several criteria essential for the decision on surgical treatment: location, size (best evaluated by combining hysteroscopy and USG), consistency, depth of myometrial invasion (the wider the angle, the greater the depth of myometrial penetration within the uterine wall should be, and vice versa), vascularization (which may contribute to bleeding), and characteristics of the surrounding endometrium (Di Spiezio Sardo and Campo, 2022).

AUB-M

Any premalignant hyperplastic or malignant process would be classified as AUB-M. Bleeding patterns in patients with uterine malignancy are highly variable (Wouk and Helton, 2019). As mentioned above, hysteroscopy with endometrial biopsy is the gold standard diagnostic tool and it should be used first-line when there is a high risk of hyperplasia or neoplasia; the different methods of performing endometrial biopsy have been explained above. Subclassification of malignant lesions should be done using the appropriate WHO or FIGO system.

Conclusions

AUB is a common and debilitating condition for women of all age groups, directly affecting quality of life (QoL) and incurring high direct and indirect costs. A systematic approach to establish the cause using the FIGO PALM-COEIN classification system with its periodic evolutions facilitates accurate management of AUB and ensures improved quality of life for women with this symptom, thanks to continuous improvements in imaging and outpatient hysteroscopy.

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