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Review Article

Management of abnormal uterine bleeding: good clinical practice recommendations

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ABSTRACT

Abnormal uterine bleeding (AUB) refers to menstrual bleeding that deviates from normal in terms of frequency, regularity, duration, or volume. The PALM-COEIN classification system is the standardized framework for categorizing AUB, encompassing structural causes (polyp, adenomyosis, leiomyoma, malignancy PALM) and non-structural causes (coagulopathy, ovulatory dysfunction, endometrial, iatrogenic, not otherwise classified COEIN). Initial evaluation includes a comprehensive history and physical examination, with attention to signs suggestive of coagulopathy such as heavy bleeding from menarche, epistaxis, gum bleeding, or a positive family history. Laboratory investigations should include CBC, coagulation profile, thyroid function, and targeted testing for Von Willebrand disease in cases with suspected coagulopathies. Transvaginal ultrasonography is essential for evaluating the uterus, adnexa, and endometrial thickness; 3D-ultrasound or saline infusion sonography may be indicated for intracavitary or myometrial lesions. Medical management is typically first-line, with options including NSAIDs, tranexamic acid, hormonal therapies (COCs, progestins, LNG-IUS), and GnRH analogs depending on etiology, severity, and fertility preferences. Acute heavy bleeding is managed with high-dose oral progestins or COCs, and adjunctive use of tranexamic acid. In coagulopathies (AUB-C), nonhormonal therapies are preferred initially, with hematology consultation advised. Surgical interventions such as hysteroscopic polypectomy or myomectomy are reserved for refractory cases or where structural lesions exist. Hysterectomy is considered definitive for those who fail medical therapy or do not wish to preserve fertility, particularly in cases of malignancy or persistent hyperplasia. In adolescents, conservative medical management is emphasized. AUB requires a tailored, multidisciplinary approach to optimize outcomes and ensure long-term reproductive and overall health.

Keywords: Abnormal uterine bleeding, Hormone therapy, GPCR, Menstrual bleeding, PALM-COEIN

INTRODUCTION

Menstrual disorders are the most common gynecologic conditions in the general women population. Abnormal uterine bleeding (AUB) can mean both heavy and irregular menstrual bleeding, and many patients experience a combination of both. The substantial impact of AUB lies not only in its prevalence, but its effect on the quality of

life, associated loss of productivity, and major health care costs.[1] AUB was redefined by the Fédération International de Gynécologie et d'Obstétrique (International Federation of Gynecology and Obstetrics) (FIGO) in 2009 by the FIGO Menstrual Disorders Group (FMDG). This was in order to standardize the definition, nomenclature, and the underlying categories of etiology.[2] Acute AUB refers to an episode of heavy bleeding that, in the opinion of the clinician, is of sufficient quantity to require immediate intervention to prevent further blood loss. Chronic AUB was defined as 'bleeding from the uterine corpus that is abnormal in volume, regularity and/or timing that has been present for the majority of the last 6 months.[3,4] Values outside the accepted 5-95th percentiles indicated abnormality (Table 1).

Table 1: International federation of gynaecology and obstetrics (FIGO) system for abnormal uterine bleeding: suggested "normal" limits for menstrual parameters for uterine bleeding.

Clinical dimensions of menstruation and menstrual cycle	Descriptive term	Normal limits (5th to 95th percentiles)
Frequency of menses (days)	Frequent	<24
	Normal	24-38
	Infrequent	>38
Regularity of menses (cycle to cycle variation over 12 months; in days)	Absent	-
	Regular	Variation ± 2 to 20 days
	Irregular	Variation greater than 20 days
Duration of flow (days)	Prolonged	>8.0
	Normal	4.5-8.0
	Shortened	<4.5
Volume of monthly blood loss (ml)	Heavy	>80
	Normal	5-80
	Light	<5

Table 2: PALM-COEIN classification for the etiologies of abnormal uterine bleeding proposed by the international federation of gynaecology and obstetrics (FIGO).

AUB causes	Subclass	Characteristics
Structural causes	Polyps (AUB-P)	Present in endometrial and endocervical canal, categorized as absent or present
	Adenoma (AUB-A)	The genesis is controversial but minimal criterion is identification on ultrasound testing
	Leiomyoma (AUB-L)	submucosal types, do not impact endometrial cavity others: <50% intramural ≥50% intramural Totally extra cavitary but lean on the endometrium, 100% intramural Intramural leiomyomas that are entirely within the myometrium Subserosal and at least 50% intramural Subserosal and <50% intramural Subserosal and attached to serosa by stalk Do not involve the myometrium include cervical lesions, lesions that exist in the round or broad ligaments without direct attachment to the uterus, and parasitic lesions
	Malignancy and hyperplasia (AUB-M)	May occur because of ovulatory disorder subclassification according to the WHO or FIGO system
	Coagulopathy (AUB-C)	Coagulopathy represents both inherited and acquired most common is inherited Von Willebrand disease
	Ovulatory dysfunction (AUB-O)	Can lead to amenorrhea or heavy menstrual bleeding
Non-structural causes	Endometrial (AUB-E)	Likely to occur when other abnormalities are excluded in the presence of normal ovulatory function

Continued.

AUB causes	Subclass	Characteristics
	Iatrogenic (AUB-I)	Breakthrough bleeding during use of single or combined gonadal steroid therapy, intrauterine systems, or devices, systemic agents that interfere with dopamine metabolism, or anticoagulant drugs
	Not classified (AUB-N)	Rare or ill-defined conditions: chronic endometritis, arteriovenous malformations, and myometrial hypertrophy

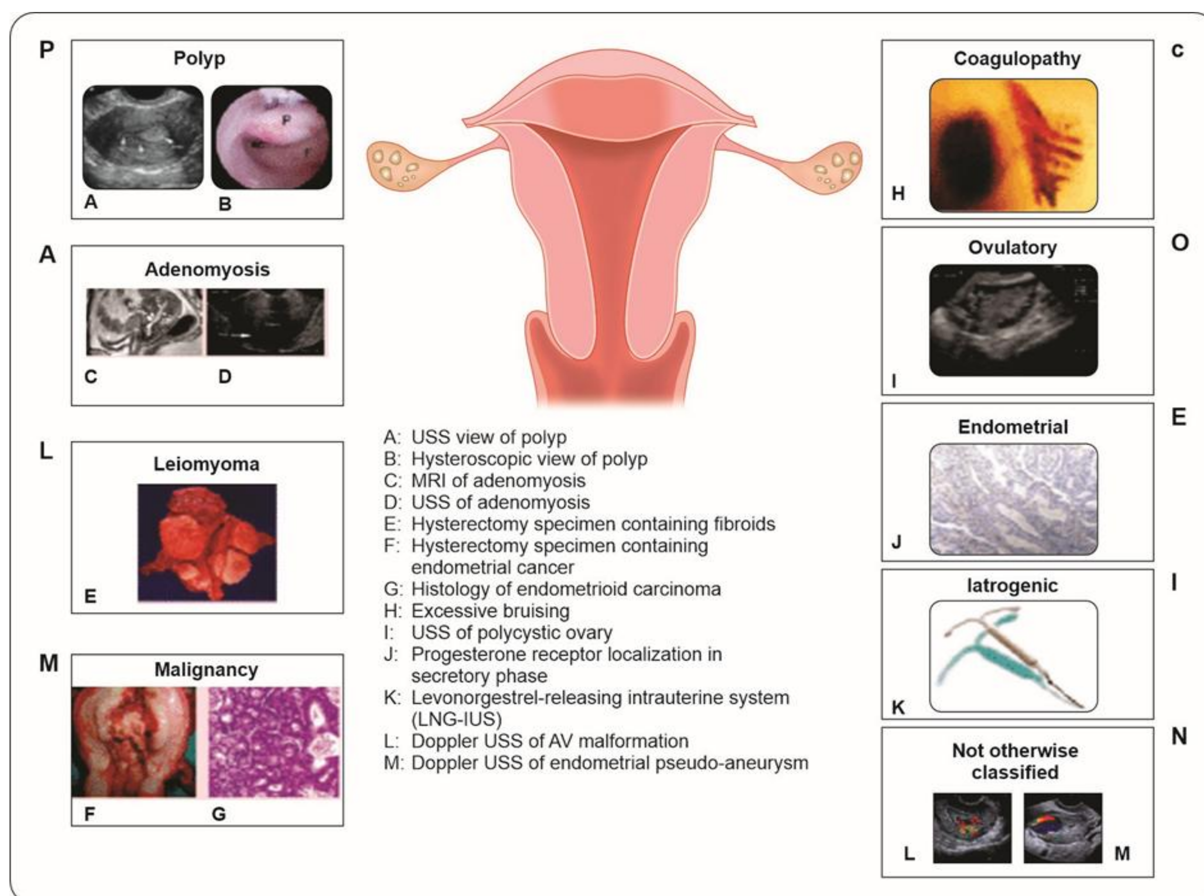

Figure 1: PALM-COEIN classification.

Once bleeding is defined as being abnormal, the acronym PALM-COEIN is now being increasingly used for categorizing causes: Polyp (AUB-P), Adenomyosis (AUB-A), Leiomyoma (AUB-L), Malignancy (AUB-M) (and hyperplasia)-Coagulopathy (AUB-C), Ovulatory disorders (AUB-O), Endometrial (AUB-E), Iatrogenic (AUB-I), and Not otherwise classified (AUB-N) (Table 2). The 'PALM' components are assessed visually (imaging and histopathology) and the 'COEIN' are nonstructural components2 (Figure 1).

METHODOLOGY OF FRAMING RECOMMENDATIONS

A systemic review of literature was conducted to collect the best of evidence for the good clinical practice recommendations (GCPRs). Existing guidelines, meta-analyses, cross-sectional studies, systemic reviews, and key-cited articles related to AUB were reviewed by a group of experts. The expert committee considered the recommendations from the existing guidelines of the Fédération International de Gynécologie et d'Obstétrique (FIGO), National Institute for Health and Care Excellence (NICE), American College of Obstetricians and Gynecologists (ACOG), and Royal College of Obstetricians and Gynaecologists (RCOG), and identified variability in the reproductive profile of Indian women compared to the Western countries. This variability may probably be due to the differences in the racial, socioeconomic, and cultural background of Indian and Western populations. Therefore, there is a need to formulate recommendations in the Indian context. The draft recommendations were framed by the committee and discussed during an expert panel meeting held in May 2023. The expert panel discussed the draft recommendations on the basis of clinical evidences, from India and abroad, and framed the final version. Where evidence is limited, the expert panel relied on their vast experience and clinical judgement. Recommendations are organized etiology-wise, according to the PALM- COEIN

system. They are based on clinical importance and graded (A, B, C, and D), coupled with four intuitive levels of evidence (1, 2, 3, and 4) based on the quality of supporting evidence as below:

Strength of recommendation

The recommendations are categorized into four grades based on their strength of evidence and consensus. Grade A indicates interventions that are strongly recommended, reflecting robust evidence supporting their effectiveness. Grade B represents an intermediate level, suggesting moderate support and applicability. Grade C is considered weak, indicating limited evidence or uncertain benefit. Finally, Grade D refers to recommendations that are not evidence-based but are suggested by the expert panel based on clinical judgment or consensus.

Scale of scientific support

The levels of evidence are classified according to the type and rigor of the supporting research. Level 1 represents the highest quality evidence, derived from meta-analyses of randomized controlled trials (RCTs). Level 2 includes meta-analyses of non-randomized prospective or case-controlled trials, individual non-RCTs, prospective cohort studies, and retrospective case-control studies, reflecting moderate-quality evidence. Level 3 encompasses cross-sectional studies, surveillance studies such as registries and surveys, epidemiologic studies, retrospective chart reviews, mathematical modeling of databases, consecutive case series, and single case reports, indicating limited evidence. Level 4 represents the lowest level of evidence, based on expert opinion, consensus, or preclinical studies.

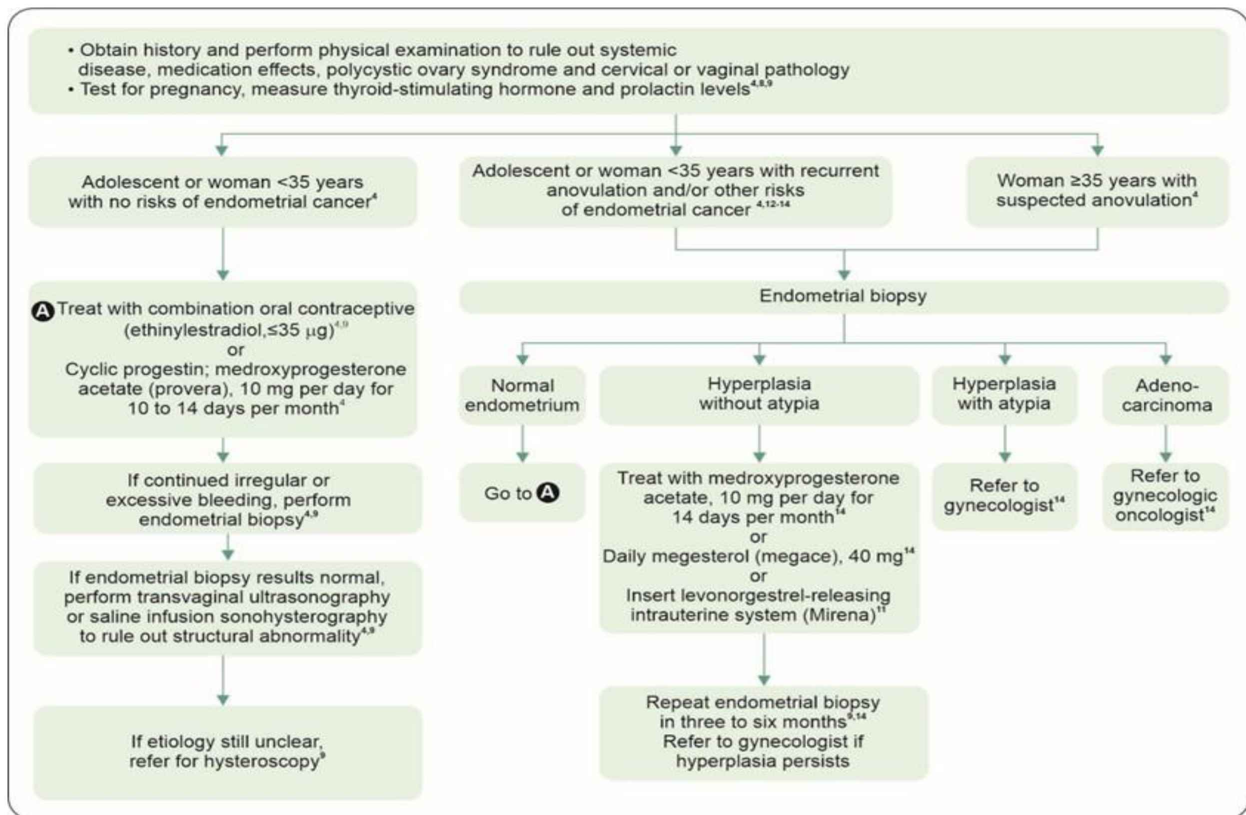

Figure 2: Algorithm for management of abnormal uterine bleeding in perimenopausal women.

DIAGNOSIS OF ABNORMAL UTERINE BLEEDING

History and initial examinations

Recommendations regarding obtaining patient history and performing initial examination:

It is suggested to abandon the old terminology and to use PALM-COEIN classification for the diagnosis AUB (Grade A; Level 4).[5] It is recommended to obtain a thorough history and to conduct a physical examination to direct the need for further investigations and treatment (Grade A; Level 4), also recommended to obtain information about the concomitant use of any medications, which may likely be the cause AUB (Grade B; Level 4). In patients with AUB, initial screening for an underlying hemostatic disorder with excessive menstrual bleeding should be by a structured history. Any of the following criteria should be considered a positive screen for coagulopathies (Grade B; Level 4).

History of heavy bleeding starting at menarche; One of the following-Postpartum hemorrhage, Surgery-related bleeding or bleeding associated with dental work; At least

two of the following symptoms- least one episode of bruising per month, at least one episode of epistaxis per month, Frequent gum bleeding or Family history of bleeding symptoms

Examination: Including the assessment of weight, pallor, thyroid, breasts, acne, hirsutism scoring (if present), abdominal, P/S and P/V examination (Grade A, Level 4). Reproduced with permission, this structured history-based instrument has been shown to be 90% sensitive for detecting coagulopathy in women presenting with heavy menstrual bleeding. Patients who have a positive screening result should be considered for further evaluation, which may include consultation with a hematologist and/or testing of Von Willebrand factor and ristocetin cofactor.

INVESTIGATIONS

Laboratory testing recommendations

CBC is recommended for all women with AUB.[6] Perform a sensitive urine pregnancy test when indicated or if pregnancy is suspected. In adolescents and adults with a positive screen for coagulopathies, bleeding time, platelet count, PT, and aPTT are advised. Further testing (Von Willebrand disease, ristocetin cofactor activity, factor VIII, and Von Willebrand factor antigen) should be done in consultation with a hematologist. TSH testing is recommended for all women with AUB.

Imaging recommendations

Ultrasonography is mandatory to assess the uterus, adnexa, and endometrial thickness (Grade A; Level 1). Transvaginal ultrasound is the preferred first-line imaging, except in young girls. Doppler is indicated in suspected arteriovenous malformations, malignancies, or to distinguish fibroids from adenomyomas (Grade B; Level 3). 3D ultrasound may assist in evaluating myometrial lesions like fibroids/adenomyomas (Grade B; Level 4). Saline infusion sonography is useful for suspected intracavitary lesions (Grade A; Level 1). Hysteroscopy is an adjunct tool for diagnosing intrauterine abnormalities, including polyps and submucous fibroids (Grade A; Level 1).

MANAGEMENT OF PATIENTS WITH ABNORMAL UTERINE BLEEDING

Management of acute heavy abnormal uterine bleeding (HMB)

Medical management is the primary treatment for most patients, with options including oral progestins, multidose COCs, and tranexamic acid (Grade A; Level 1) IV conjugated estrogen, though cited in literature, is rarely used in practice.[7] Treatment choice should consider medical history and contraindications (Grade B; Level 2). Hormonal therapy is first-line for acute AUB without suspected bleeding disorders (Grade A; Level 1). Preferred hormonal agents are oral progestins: medroxyprogesterone acetate 20 mg TID or norethisterone acetate 10 mg TID (Grade A; Level 1). An alternative is COCs with 30 µg ethinylestradiol: two pills every 12 hours for 5 days, then one pill daily for 15 days; antiemetics may be added for nausea (Grade A; Level 1). Tranexamic acid (IV or oral) is the nonhormonal option, used alone or with hormonal therapy. IV dose: 10 mg/kg every 8 hours (max 600 mg/dose), followed by oral 500 mg TID as bleeding subsides (Grade B; Level 2). Desmopressin is effective in HMB due to Von Willebrand disease, initiated at menstruation onset (Grade C; Level 3).[8]

AUB-P (polyps) (recommendations for the management of AUB-P)

Hysteroscopic polypectomy is recommended for younger women, who wish to preserve fertility (Grade A; Level 1). In women with multiple endometrial polyps and not desirous of fertility, it is suggested to perform hysteroscopic polypectomy followed by levonorgestrel-releasing intrauterine system (LNG-IUS) insertion after the confirmation of a benign lesion on histopathology (Grade A; Level 2). Polyp should always be sent for histopathology. If histopathology suggests malignancy, further management should be as AUB-M (Grade A; Level 2).

AUB-A (adenomyosis) recommendations for the management of AUB-A

Management should consider age, symptoms (pain/infertility), and coexisting conditions like fibroids, polyps, or endometriosis (Grade B; Level 3). Medical options include NSAIDs, progestogens, combined OCPs, dienogest, LNG-IUS, and GnRH agonists. LNG-IUS is effective for women wishing to preserve fertility but not planning immediate conception, offering symptom control with fewer systemic effects (Grade A; Level 1). GnRH agonists are recommended as second-line therapy when other treatments fail or are not tolerated (Grade A; Level 1). Hysterectomy is indicated if medical therapy fails, is not tolerated, or declined (Grade A; Level 1).[9]

AUB-L (leiomyoma) (recommendations for AUB-L)

Treatment should be individualized based on age, parity, symptoms, fertility desires, and the size, location, and number of myomas. Submucosal myomas (Grade 0-1) are more likely to cause heavy bleeding, dysmenorrhea, and infertility, and typically require treatment (Grade A; Level 2).

Intramural or subserosal myomas (Grade 2–6) are often asymptomatic and may not require intervention (Grade B; Level 2). Medical options for all grades include tranexamic acid, NSAIDs, GnRH agonists/antagonists, LNG-IUS, mifepristone, and ulipristal acetate. Grade 0–1 myomas <4 cm can be treated by hysteroscopic resection; >4 cm may need laparoscopic or abdominal myomectomy

(Grade B; Level 4). For Grade 2–6 myomas requiring surgery, laparoscopic myomectomy is preferred for faster recovery and reduced morbidity (Grade A; Level 3). In women >40 years, not seeking fertility, hysterectomy is definitive; LNG-IUS may be considered in small fibroids (<4 cm) before surgery (Grade B; Level 3). For short-term management (≤6 months), GnRH agonists with add-back therapy are useful in perimenopausal women, pre-myomectomy, or for anemia correction (Grade A; Level 1) (Figure 2).

AUB-M (malignancy and endometrial hyperplasia) (recommendations for AUB-M)

In cases with confirmed endometrial malignancy, standard oncology protocols should be followed (Grade B; Level 4). Women with atypical endometrial hyperplasia who do not wish to preserve fertility should undergo total hysterectomy due to high risk of malignancy or progression. Fertility-desiring women should be counseled on risks, and a thorough workup should exclude coexisting cancers. Multidisciplinary evaluation is essential.[10] LNG-IUS is first-line medical treatment; continuous oral progestogens are alternatives if LNG-IUS is unsuitable. Surveillance includes endometrial biopsy every 3 months until two consecutive negative results.[11]If medical therapy fails or atypical hyperplasia persists, hysterectomy is definitive (Grade B; Level 2).[12] In hyperplasia without atypia, the risk of progression to cancer is <5% over 20 years; most regress spontaneously.[13]

Both LNG-IUS and continuous oral progestogens are effective, but LNG-IUS offers better regression rates, bleeding control, and fewer side effects.[14] Continuous progestogens (medroxyprogesterone 10–20 mg/day or norethisterone 10–15 mg/day) are options for those declining LNG-IUS.[12] Cyclical progestogens are less effective and not recommended (Grade A; Level 1). Treatment should continue for at least 6 months to achieve histological regression. If tolerated and fertility is not desired, LNG-IUS may be retained for up to 5 years to reduce relapse risk. Regular outpatient endometrial biopsies every 6 months are advised until two consecutive negatives are achieved. Recurrence of abnormal bleeding after treatment warrants re-evaluation. High-risk women (e.g., BMI ≥35 kg/m² or on oral progestogens) need 6-monthly biopsies, transitioning to annual once stable.

Hysterectomy is indicated in several situations, including the development of atypia during follow-up, lack of regression after 12 months, relapse after treatment, persistent bleeding, or if the patient chooses to decline surveillance or conservative therapy.

AUB-C (coagulopathy) (recommendations specific to AUB-C)

First-line treatment is nonhormonal therapy with tranexamic acid. Hormonal options (COCs or LNG-IUS) may be used in consultation with a hematologist (Grade A; Level 2). If bleeding persists despite medical therapy, consider specific factor replacement or desmopressin (IV, SC, or intranasal).[15] NSAIDs are contraindicated due to their effect on platelet function and hepatic metabolism of clotting factors. Injectable therapies (e.g., GnRH agonists) are generally avoided, except in mild coagulation disorders, with pressure applied at the injection site.[11]

AUB-O (ovulatory dysfunction) recommendations specific to AUB-O

Oral progestins are first-line treatment (Grade A; Level 1). Norethisterone or medroxyprogesterone acetate may be used from day 15 to 25 of the cycle for up to 3 cycles (Grade B; Level 4). Women not seeking pregnancy can be managed with COCs or LNG-IUS.

Reassess response after 1 year to guide continuation or modification of therapy (Grade B; Level 4).[15] Surgery is not recommended unless AUB persists or medical treatment fails (Grade A; Level 4). Adolescents with AUB-O may be treated with either hormonal or nonhormonal therapies (Grade A; Level 4). AUB-E (Endometrial) (Recommendations specific to AUB-E): Initial treatment options available for these women are tranexamic acid combined with mefenamic acid, oral progestins, and COCs. LNG-IUS is an extremely effective option in this group.

AUB-I (iatrogenic causes) (recommendations specific to AUB-I)

Breakthrough bleeding in the first 1–3 months of combined OCP use typically resolves spontaneously; reassurance is usually sufficient. A 5–7-day NSAID course can reduce breakthrough bleeding volume. Breakthrough/intermenstrual bleeding is common in the first 6 months after LNG-IUS insertion; pre-insertion counseling is essential. [15]

NSAIDs and tranexamic acid are first-line treatments for LNG-IUS-related bleeding/spotting. Tranexamic acid is preferred for spotting; NSAIDs are more effective for heavy bleeding. For bleeding with pain or when first-line measures fail, NSAIDs plus oral estrogen or COC may be used.

Post-IUCD or post-sterilization bleeding can be managed with NSAIDs and antifibrinolytics. Women on anticoagulants may be treated with oral progestins, DMPA, or LNG-IUS. Antifibrinolytics and COCs are traditionally avoided in patients with VTE risk, though most studies show no significant VTE increase. Switching to a lower-risk anticoagulant may be considered alongside hormonal therapy.[16]

AUB-N (not defined) (recommendations for AUB-N)

In patients with idiopathic AUB and desiring effective contraception, LNG-IUS is recommended as the first-line

therapy to reduce menstrual bleeding (Grade A; Level 1). In patients with AUB-N, desirous of continued fertility and in whom LNG-IUS is contraindicated, the use of COCs are recommended as the second-line therapy (Grade A; Level 1). For the management of abnormal uterine bleeding that are mainly cyclic or predictable in timing, nonhormonal options, such as NSAIDs and tranexamic acid, are recommended (Grade A; Level 1).[16]

AUB-COEIN: general management guidelines (recommendations of AUB-COEIN)

Tranexamic acid is the first-line therapy alone or in combination with NSAIDs (Grade B; Level 1).[16] In women desiring effective contraception, LNG-IUS is recommended (Grade A; Level 1). Cyclic oral progestins (from day 5–25) are recommended as the second-line therapy (Grade B; Level 1). COCs are recommended in patients desiring effective contraception, but unwilling or unsuitable for LNG-IUS (Grade A; Level 4). Centchroman is an option when steroidal hormones and other medical options are not suitable (Grade B; Level 3). Use of cyclic luteal-phase progestins is not recommended as a specific therapy for managing AUB (Grade A; Level 4). GnRH agonists are recommended as a last resort when medical or surgical treatments for AUB have failed or are contraindicated (Grade B; Level 4).[16] Conservative surgeries, such as ablation, are less often used these days, with increasing popularity of LNG-IUS as a medical ablative therapy.

ABNORMAL UTERINE BLEEDING IN ADOLESCENTS

Diagnostic evaluation

Evaluation should precede treatment to assess bleeding severity and identify etiology (Strength of recommendation and scale of scientific support and Table 3).[17] Exclude bleeding disorders, reproductive tract pathology, trauma, medications, and pregnancy-related causes (e.g., ectopic pregnancy). Bleeding disorders contribute to 20–33% of prolonged/severe cases and must always be considered. Take a detailed history, including: With parents: clinical history, without parents: confidential sexual history, menstrual pattern, post-surgical bleeding, epistaxis, gum bleeding, bruising, family history of coagulopathies or hormone-sensitive cancers and use objective methods to assess blood loss (Figure 3), as HMB is subjective.

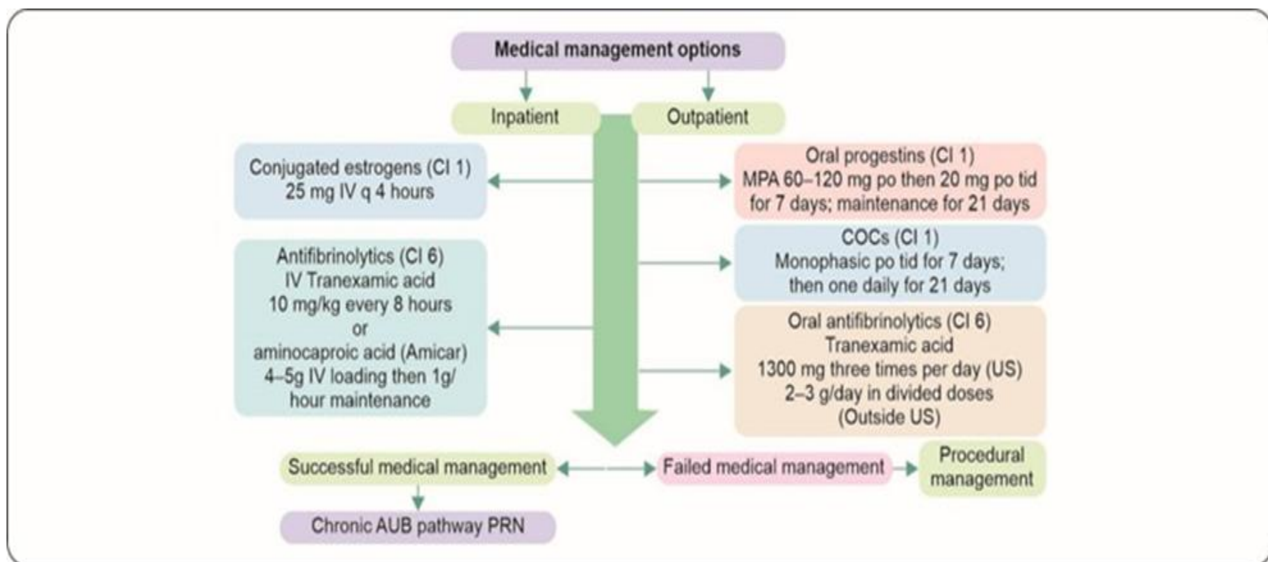

Figure 3: Medical management of acute heavy menstrual bleeding.

General exam should include signs of anemia, hepatosplenomegaly, hirsutism, and acanthosis nigricans. Gynecological exam is not mandatory unless pregnancy-related cause is suspected.

Ultrasound is not routine; when indicated, use transabdominal route. Minimum labs: CBC, peripheral smear, ferritin, PT, aPTT. If a bleeding disorder is suspected, test for von Willebrand disease (vWF antigen, activity, and factor VIII).[18]

Management approach

The aim for the management of an AUB is to stop the bleeding, to correct anaemia and to maintain normal menstrual cycles. The severity of bleeding and anaemia can help to decide treatment method.[19-22]

General principles

Medical management is first-line, guided by hemodynamic stability, bleeding severity, etiology, and

comorbidities. Follow-up every 3 months with a menstrual diary is advised.

Mild AUB

NSAIDs are usually sufficient.

Moderate AUB

Requires hormonal therapy to stabilize endometrial shedding: Oral progestins (first choice for acute HMB): Medroxyprogesterone 5–10 mg TID, Norethisterone acetate 2.5–5 mg TID, Taper to BID for 2 weeks.

COCS (monophasic, ≥30 µg ethinylestradiol preferred)

1 pill every 8–12 hours until bleeding stops, Then 1 pill daily for at least 21 days, May increase to BID if bleeding recurs, Continue for 3–6 months after withdrawal bleed until Hb ≥12 g/dl, Antiemetics (e.g., ondansetron 4–8 mg) may be needed for estrogen-related nausea, DMPA or LNG-IUS is reserved for those requiring contraception or unable to take pills. Severe AUB (Hemodynamically Stable, Hb 8–10 g/dl). Start with OCPs as in moderate AUB, if no improvement after 2 doses, increase to 3–4 pills/day for 2 days, then taper gradually. Maintain treatment for 3–6 months and ensure close monitoring and iron supplementation.

Severe AUB (hemodynamically unstable)

Hospitalize; prepare for transfusion, Rule out bleeding disorders before starting hormones, First-line: high-dose oral progestins (Medroxyprogesterone 20–40 mg/day, Norethisterone acetate 10–15 mg/day, Taper to BID over 2 weeks 23 alternatively, high-dose COCs (Ethinylestradiol 35-50 µg, if no response after 2 doses of 35 µg, switch to 50 µg pills, dosing schedule-1 pill every 6 hours×2 days, Every 8 hours×2 days, Every 12 hours×2 days, then daily for minimum 6 months; Antiemetics may be needed.[24]

Maintenance: pills with 30–35 µg ethinylestradiol, if bleeding is controlled with 50 µg pills, continue for 1–2 cycles, then switch to 35 µg for 3–6 months.

Alternative and adjunct therapies

Depot MPA (150 mg IM) + oral MPA 20 mg every 8 hours × 9 doses (Taper to every 12 hours for 2 weeks, *Maintenance:* cyclic MPA (10 mg/d) or NETA (5 mg/d) for 12 days/month). If bleeding continues >24–48 hours, consider hemostatic agents (Tranexamic acid: 3–4 g/day in 3 doses for 4–5 days, avoid in patients with active or high risk of thromboembolism, COCs+tranexamic acid=↑ thrombotic risk, other agents like: aminocaproic acid, desmopressin). If unresponsive to medical therapy after 24–36 hours, Consider EUA, endometrial sampling, or therapeutic curettage.

Table 3: Suggested treatment options for abnormal uterine bleeding based on PALM-COEIN etiology.

Etiology	Treatment
Polyp	Hysteroscopic surgical removal Multiple polyps or polypoidal endometrium and fertility is not desired– LNG-IUS can be combined with surgical removal
Adenomyosis	LNG-IUS, if LNG-IUS is not accepted – GNRH agonists with add-back therapy; if it fails OCP, NSAIDS, progestogens
Leiomyoma	Intramural or subserosal myomas (grade 2–6) Tranexamic acid or COCS or NSAIDS, LNG-IUS, if treatment fails myomectomy depending on location. In women >40 years of age, fertility is not desired, for small fibroids (<4–5 cm) – medical management followed by hysterectomy Short-term management (up to 6 months) – GNRH agonists with add-back therapy followed by myomectomy long-term management – LNG-IUS newer medical options: ulipristal acetate or low-dose mifepristone, currently not available in India submucosal myoma (grade 0–1) Hysteroscopic (< 4 cm) or abdominal (open or laparoscopic for > 4 cm)
Malignancy	Atypical endometrial hyperplasia – surgical treatment continued fertility not desired –hysterectomy hyperplasia without atypia LNG-IUS followed by oral progestins or PRMS
COEIN	LNG-IUS or tranexamic acid, NSAIDS, followed by COCS or cyclic oral progestins Medical or surgical treatment failed or contraindicated: GNRH agonists with add-back hormone therapy when steroidal and other options unsuitable: centchroman

CONCLUSION

Abnormal uterine bleeding is a condition that warrants a thorough evaluation to find out the structural / non-structural causes with attention to signs of coagulopathy. Laboratory investigations and imaging studies including transvaginal ultrasonography helps to assess the probable etiology and severity. Medical management includes NSAIDs, tranexamic acid, hormonal therapies (COCs, progestins, LNG-IUS), and GnRH analogs depending on etiology, severity, and fertility preferences. Acute heavy bleeding is managed with high-dose oral progestins or COCs, and adjunctive use of tranexamic acid. Hysteroscopic polypectomy or myomectomy are reserved for refractory cases or where structural lesions exist. Hysterectomy is indicated only for those who fail medical

therapy or do not wish to preserve fertility, particularly in cases with malignancy or persistent hyperplasia. Future studies hopefully will provide better quality evidence to further refine the management of AUB, thereby optimizing outcomes.

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