EJPMR, 2026, 13(10), 398-422 **Research Article** **Impact Factor: 8.158**

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

ISSN (O): 2394-3211
ISSN (P): 3051-2573
Coden USA: EJPMAG

MANAGEMENT OF ABNORMAL UTERINE BLEEDING: A PROSPECTIVE OBSERVATIONAL STUDY IN A TERTIARY CARE HOSPITAL IN MANDYA

Mehdiya Aqsa[1], Vidyashree M.[2], Dr. Manu P. R.*

[1,2]Doctor of Pharmacy, PHARM. D., Rajiv Gandhi University of Health Sciences, Bangalore, Karnataka.
[*]Pharm D., Assistant Professor, Department of Pharmacy Practice, Bharathi College of Pharmacy, Bharathinagara, Karnataka- 571422.

***Corresponding Author: Dr. Manu P. R.**

Pharm D., Assistant Professor, Department of Pharmacy Practice, Bharathi College of Pharmacy, Bharathinagara, Karnataka- 571422. **DOI:** https://doi.org/10.5281/zenodo.23275150

How to cite this Article: Mehdiya Aqsa1, Vidyashree M.2, Dr. Manu P. R.*. (2026) Management Of Abnormal Uterine Bleeding: A Prospectiveobservational Study In A Tertiary Care Hospital In Mandya. European Journal of Pharmaceuticaland Medical Research, 13(10), 398–422.
This work is licensed under Creative Commons Attribution 4.0 International license.

Article Received on 05/09/2026 **Article Revised on 25/09/2026** **Article Published on 01/10/2026**

ABSTRACT

Background: Abnormal uterine bleeding (AUB) is a frequent gynecological disorder affecting women of reproductive age and beyond. It presents as irregular, heavy, or prolonged bleeding, negatively impacting the quality of life for a significant proportion of women globally. The FIGO PALM -COEIN classification facilitates the distinction between structural and non-structural etio logies of AUB, supporting evidence-based management strategies. Objective: To analyze the pharmacological treatments, causative factors, risk profile, and management approaches for AUB in women attending the Obstetrics and Gynecology Department at MIMS Ter tiary Care Hospital, Mandya. **Methodology:** This prospective observational study enrolled 172 women aged 18—50 years who presented with AUB. Patient demographic information, menstrual history, comorbidities, structural findings (via USG and PALM-COEIN classification), diagnostic modalities, and treatment regimens were systematically recorded and analyzed utilizing descriptive statistics and a structured patient profile format. **Results:** Women aged 39—50 years comprised the majority of cases (51%), with irregular heavy bleeding being reported by 76.2%, frequently accompanied by pelvic pain and dysmenorrhea (55.2%). Thyroid disorders were the predominant comorbidity (87%), followed by PCOS (7%) and diabetes (3%). Structural etiologies determined using PALM-COEIN classification revealed leiomyoma as the leading cause (54.7%), with polyp (19.8%), adenomyosis (15.1%), and endometriosis (10.5%) also commonly seen. Most cases (64%) were managed surgically, while 36% received medical treatment. Meprate (48 .4%) and Regesterone (33.9%) were the preferred oral hormonal agents, both representing progestin therapy. Paracetamol was the most commonly prescribed analgesic (51.9%), and Tranexamic acid (53%) was slightly favored over Mefenamic acid (47%) for antifibrinolytic intervention. Postoperative support centered on iron and vitamin supplementation, with Metronidazole and Ceftriaxone as the primary antibiotic regimen. **Conclusion:** AUB most often affects middleaged women, manifesting with irregular heavy bleeding and thyroid gland dysfunction as the most frequent comorbidity. Leiomyoma remains the principal structural cause. Surgical management predominates, while rational, individualized medical therapy supports comprehensive, patient-centered care. Early diagnosis and tailored treatment improve outcomes in AUB.

KEYWORDS: Abnormal uterine bleeding, Leiomyoma, Tranexamic acid, Surgical management.

1. INTRODUCTION

The term "Abnormal Uterine Bleeding [AUB]" refers to abnormalities in the menstrual cycle, which can be either acute or chronic and involve the frequency, regularity, duration, and volume of flow outside of pregnancy. Excessive bleeding is known as acute AUB, and it needs to be stopped right away to prevent further blood loss. Menstrual bleeding irregularities for the majority of the preceding six months are referred to as chronic AUB. Acute AUB can occur alone or in conjunction with chronic AUB.[1] The symptoms of acute and chronic AUB are the same; however, the former lasts longer. Additional symptoms might be: bleeding following periods more than 35 days or less than 21 days following

sexual activity, or no periods for more than three months.[2]

AUB, such as oligomenorrhea (regular bleeding more than every 35 days), polymenorrhea (regular bleeding more often than 21 days), menorrhagia (heavy menses), and metrorrhagia (bleeding in between regular menses). Pelvic discomfort, which is referred to as dysmenorrhea, is not included in the diagnostic criteria for AUB, even though it may be linked to some of its causes.[2]

1.1 EPIDEMIOLOGICAL DATA OF AUB

The reported prevalence of AUB in India is about 17.9%. Previous studies have shown that prevalence varies between different regions, and it ranges between10-30%.

A cross-sectional study of 2262 women between the ages of 18 and 45 revealed that 33.4% of them had moderateto-severe dysmenorrhea (95% CI 31.4—35.4%). those who had menorrhagia had a 1.92-fold greater incidence of dysmenorrhea (95% CI 1.4—2.6) than those who experienced regular periods. Menorrhagia was reported by 30—35% of women in a postal survey of 4610 women in Scotland between the ages of 25 and 44, and one-fifth of these women said that their periods were problematic.[3]

From November 2016 to May 2017, 1053 women with chronic AUB, ages 15 to 55, were assessed. Use the PALM-COEIN classification to determine the prevalence of the causes of chronic AUB. With 608 instances (57.7%), AUB-Ovulatory disorder was the most common finding in women with chronic AUB. 171 (16.2%) women had AUB-Polyp, 130 (12%) had AUBLeiomyoma, 52 (4.94%) had AUB-Endometriosis, 23 (2%) had iatrogenic, 20 (1.9%) had Malignancy, 10 (1%) had Coagulopathy, and 10 (0.9%) had Non-classified.[4]

1.2 ETIOLOGY

AUB was reinterpreted by the FIGO Menstrual Disorders Group (FMDG) and the Fédération Internationale Gynécologie Obstétrique (FIGO) in 2009. Definitions, terminology, and the fundamental aetiological categories were to be standardized. It was intended that this would make it easier to compare and investigate similar patient groups, support research, and enhance evidence-based therapy. It would also be a useful tool for determining relevant aetiologies.[5]

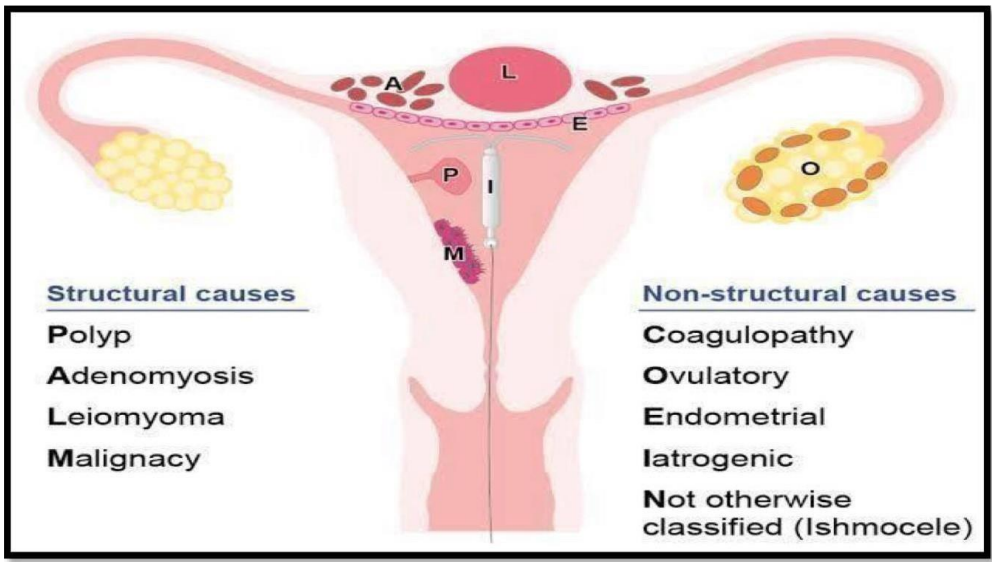


Fig. 1: The classification of PALM COEIN.

The term PALM-COEIN is increasingly being used to classify reasons for bleeding when it is deemed abnormal. These causes include polyps, adenomyosis, leiomyoma, malignancy(including hyperplasia), coagulopathy, ovulatory problems, endometrial, iatrogenic, and not otherwise characterized. While the "COEIN" is non-structural, the "PALM" is evaluated visually using imaging and histology.[5]

Following submucosal (SM) and other (O) divisions based on the location, leiomyoma (fibroids) are further classified into nine tertiary groups that are derived from the Wamsteker classification. These are utilized by the European Society for Gynecological Endoscopy (ESGE) and accepted by the European Society for Human Reproduction and Embryology(ESHRE).[5]

The PALM-COEIN categorization system acknowledges that women may have several underlying aetiologies and that many women may actually be asymptomatic in the event of anatomical anomalies.[5]

1.2.1 STRUCTURAL ETIOLOGIES

A. POLYP [PI

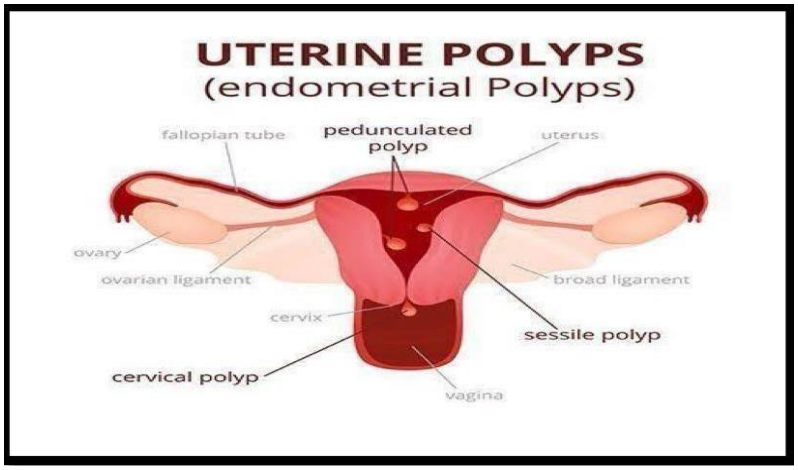


Fig. 2: The Polyp.

Focused tissue growths known as endometrial or or be asymptomatic. Although the majority are benign, endocervical polyps can induce intermenstrual bleeding there is a chance that they could develop into cancer.[5]

B. ADENOMYOSIS [Al

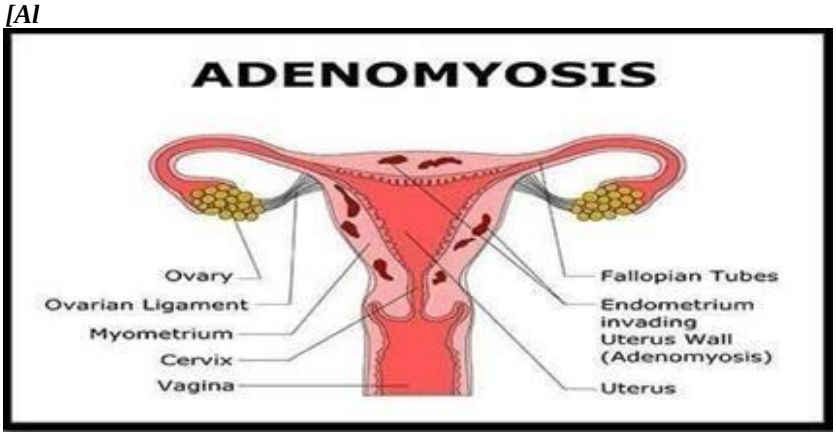


Fig. 3: The Adenomyosis.

This condition is characterized by the presence of uterine hypertrophy and is frequently linked to heavy, endometrial tissue inside the uterine muscle. It can cause painful, or protracted menstruation.[5]

C. LEIOMYOMA [Ll]

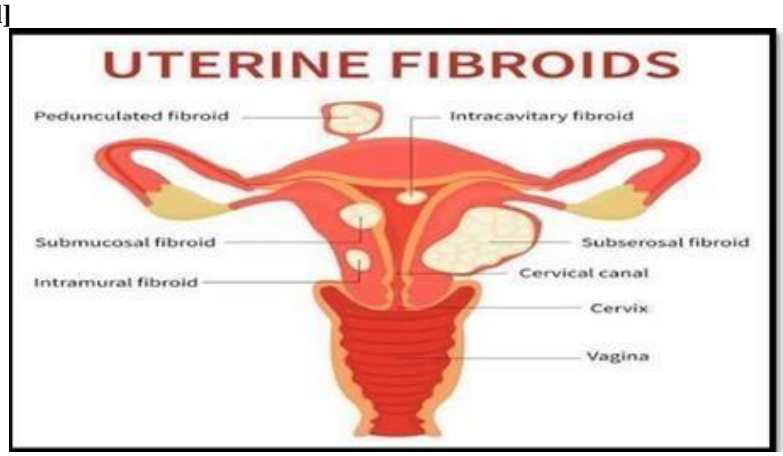


Fig. 4: The Leiomyoma.

It is commonly referred to as fibroids; it is a benign cause heavy or protracted menstrual bleeding. The smooth muscle tumor that, if large or submucosal, can majority of leiomyomas have no symptoms.[5]

D. MALIGNANCY AND HYPERPLASIA [Ml

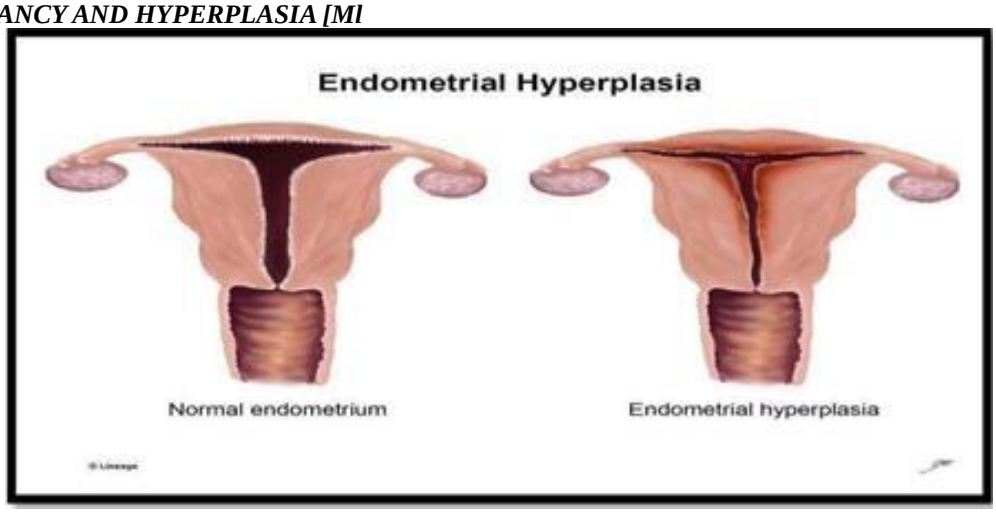


Fig. 5: The Malignancy and Hyperplasia.

These include malignancies and endometrial hyperplasia, which frequently manifest as erratic bleeding. Risk factors include extended exposure to estrogen without progesterone's interference.[5]

1.2.2 NON-STRUCTURAL ETIOLOGIES

E. COAGULOPATHY [Cl

Heavy menstrual bleeding is frequently caused by systemic bleeding diseases, such as von. Willebrand disease, especially in adolescents and young adults.[5]

F. OVULATORY DYSFUNCTION [01

Infrequent, irregular, heavy, or protracted bleeding can result from inconsistent ovulation caused by conditions such as thyroid dysfunction, hypothalamic abnormalities, or polycystic ovarian syndrome.(PCOS)

G. ENDOMETRIAL DISORDERIEI

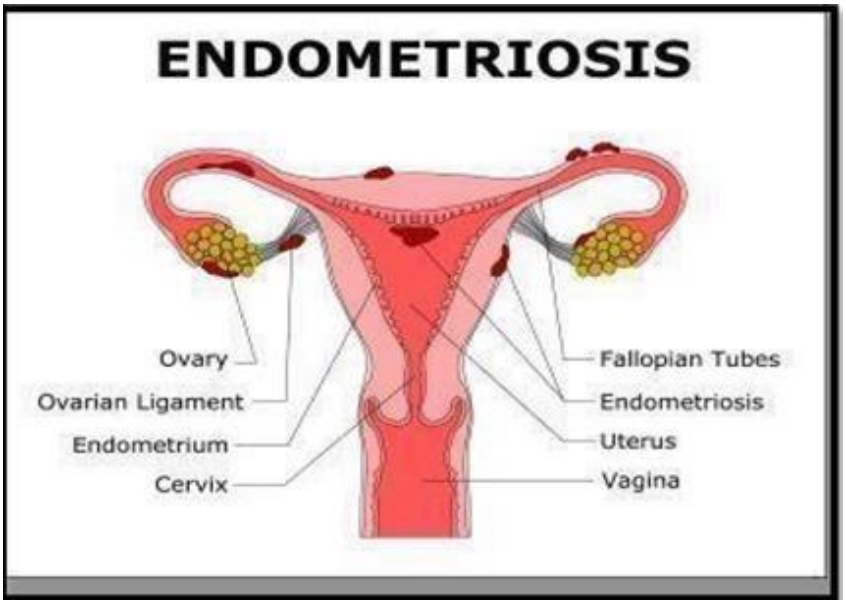


Fig. 6: The Endometrial Disorder.

Localized problems with the endometrium's capacity to regulate bleeding are known as endometrial diseases, and they may be brought on by inflammation, infection, or anomalies in vasoconstriction.[5]

H. IAOTROGENIC [Il

Abnormal bleeding can be caused by medications (such as tamoxifen, anticoagulants, or hormonal contraceptives) or surgical trauma (such as Asherman syndrome). Interestingly, AUB associated with anticoagulants has been moved to this category.[5]

1. NOT OTHERWISE CATEGORIZED [NI

This category includes uncommon or poorly known causes, such as cesarean scar abnormalities, persistent endometritis, or arteriovenous malformations.[5]

1.3 PATHOPHYSIOLOGY

Estrogen is generated during an anovulatory cycle, but no corpus luteum forms. As a result, progesterone is not normally secreted in cycles, and estrogen stimulates the endometrium without any resistance. The endometrium grows until it outgrows its blood supply without progesterone's help; it then sloughs incompletely and bleeds irregularly, sometimes heavily or for several days.

The endometrium may become hyperplastic and occasionally contain atypical or malignant cells if this aberrant process keeps happening.

Progesterone production is prolonged in patients with ovulatory cycles when they experience aberrant uterine bleeding; this leads to irregular endometrial shedding, most likely because estrogen levels stay low close to the bleeding threshold (as happens during menses). If estrogen levels are elevated in obese women, ovulatory AUB may develop, which can cause amenorrhea to alternate with irregular or protracted bleeding.[6]

1.3.1 ETIOPATHOGENESIS

AUB is a complex and multifaceted etiopathogenesis, which includes coagulation disorders, structural anomalies, hormonal imbalances, and local endometrial dysfunction.

The PALM-COEIN classification was introduced by the International Federation of Gynecology and Obstetrics (FIGO) in 2011. There are two types of causes identified by this classification system: Non-structural (COEINO and Structural.[PALM]

STRUCTURAL CAUSE [PALM]

These are lesions that are typically detectable by histology or imaging (such as ultrasound).

a) POLYP [AUB- P]

The benign growths of glandular and stromal tissue are known as endometrial or cervical polyps. The delicate blood arteries in these l; lesions are prone to bleeding, especially after sexual activity or in between menstrual cycles. Although the precise cause is unknown, hormonal dysregulation, particularly local estrogen sensitivity, may be a contributing factor.[6]

b) ADENOMYSOSIS [AUB-A]

The Ectopic endometrial tissue within the myometrium (uterine muscle) is a characteristic of adenomyosis. These confined glands flow into the muscular layer during the menstrual cycle, causing hypertrophy, inflammation, and aberrant uterine contractility. Menorrhagia, or profuse menstrual bleeding, and dysmenorrhea, or painful menses, are the results of this.

Mechanistically, research indicates that normal myometrial architecture is disrupted by increased inflammatory markers, cytokines, and matrix metalloproteinases(MMPS).[6]

c) LEIOMYOMA [AUB-L]

Leiomyomas (fibroids) are benign tumors of the smooth muscle of the uterus. Submucosal fibroids, in particular, deform the endometrial surface and hinder effective contractions of the uterus, which hinders the vasoconstriction of spiral arteries and causes heavy and protracted bleeding.[6]

d) MALIGNANCY AND HYPERPLASIA [AUB-M]

Endometrial hyperplasia is caused by excessive estrogen stimulation without progesterone (e.g., in PCOS OR OBESITY), and hyperplastic endometrium lacks organized shedding, while fragile vasculature results in irregular or continuous bleeding. Over time, this can develop into endometrial carcinoma, particularly in postmenopausal women.[6]

NON-STRUCTURAL CAUSE [COEIN]

These are caused by systemic or physiological malfunction and cannot be detected by imaging or histology.[6]

e) COAGULOPATHY [AUB-C]

Clotting mechanisms are compromised by systemic bleeding disorders such as von Willebrand disease, platelet function problems, or anticoagulant medication. This causes the menstrual flow to last longer, usually after menarche. Thirteen to twenty percent of AUB in teenagers is caused by coagulopathies.[6]

f) OVULATORY DYSFUNCTION[AUB-O]

One of the most frequent causes ofAUB is this. It happens when anovulation or oligo-ovulation interferes with the regular menstrual cycle. Since there is no corpus luteum in the absence of ovulation, progesterone cannot be produced to offset the proliferative effects of estrogen.[6]

The endometrial lining grows excessively as a result of ongoing estrogen exposure, but because there is no coordinated shedding, delicate veins burst on their own, causing heavy, irregular bleeding.

This pattern is typical in

1. Adolescents (immature HPO axis)
2. Perimenopausal women (Ovarian insufficiency)
3. Women with PCOS, thyroid dysfunction, or hyperprolactinemia.[6]

g) ENDOMETRIAL DYSFUNCTION [AUB-E]

Ovulation is normal in AUB-E however the endometrium reacts to hormones is an unusual reacts to hormones in an unusual way. Systemic illness and structural lesions are absent. Rather, the endometrial tissue's hemostatic balance is upset by local causes.[6]

h) IATROGENIC [AUB-II

Endometrial stability may be compromised by medications and medical equipment.

1. Anticoagulants prevent clot formation.

2. Copper IUDs may cause local inflammation and excessive bleeding.
3. Hormonal contraception, particularly low-dose progesterone-only pills, may result in breakthrough bleeding.[6]

i) NOT YET CATEGORIZED [AUB-N]

This includes uncommon or poorly understood reasons like

- Arteriovenous malformations
- Genetic or immunological endometrial abnormalities
- Chronic endometritis[6]

AIMAND OBJECTIVES

1. AIM AND OBJECTIVES

2.1 AIM: Abnormal Uterine Bleeding (AUB) is a prevalent gynecological disorder affecting millions of women worldwide, significantly impacting their physical, emotional, and social well-being. According to the World Health Organization estimates, AUB accounts for a substantial proportion of Outpatient gynecology visits and often leads to considerable morbidity due to anemia, lost productivity, and reduced quality of life. The etiologies of AUB range from hormonal imbalances and structural uterine pathology to systemic conditions and medications. Despite its high prevalence, the management of AUB remains challenging due to the diversity of underlying causes and patient presentations. The current study aims to analyze the clinical patterns, etiologies, and management strategies of abnormal uterine bleeding in women attending the Obstetrics and Gynaecology department, MIMS, Mandya.

2.2 OBJECTIVES

1. To analyze the efficacy of pharmacological treatments for AUB.
2. To determine the causes and management of AUB.
3. Identify the risk factors for the development of AUB.

PRACTICE, BHARATHI

3. REVIEW OF LITERATURE

1. Olivia C Garcia et al., [20231. According to this study, hormonal tests, imaging, and biopsy are used to diagnose abnormal uterine bleeding (AUB), which is classified using the PALM COEIN system. Medical treatments and surgical procedures, like as ablation, are available as forms of treatment. The Medscape article offers a thorough rundown of AUB management.
Nevertheless, it is devoid of current epidemiological data and treatment patterns relevant to a certain location, particularly in settings with limited resources. This emphasizes the necessity of conducting prospective, localized research to close the current gap in clinical practice.

2. Rajani Vaidya et al.,[2022]. The article reviews literature on abnormal uterine bleeding (AUB), focusing on its prevalence and clinical correlates in women. AUB was found in 18.3% of the study population. The literature emphasizes varied etiologies across age groups, including endometrial pathologies, and underscores the need for routine evaluation, such as biopsies, in diagnosing underlying causes. The study's lacuna lies in the absence of detailed etiological breakdowns by demographic factors. The article lacks a detailed breakdown of etiologies by age group, socioeconomic status, or other demographic variables, limiting deeper insight into risk stratification.

3. Yu Sun et al.,[2018] This study shows that the primary causes of chronic AUB in 1,053 women were found to be polyps(16.2%) and ovulatory dysfunction(57.7%) in this crosssectional Chinese investigation that used FIGO's PALM COEIN categorization. It emphasizes how useful classification is in clinical contexts. Nevertheless, it is devoid of information on long-term monitoring, treatment results, and patient-reported quality of life metrics. The necessity for longitudinal research to evaluate the efficacy of therapy and its influence on women's day-today functioning is underscored by this disparity.

4. Manisha Palep Singh et al., [2007] According to this study, the epidemiology of abnormal uterine bleeding (AUB) is described in this review, which also defines menorrhagia (80ml), metrorrhagia, and irregular bleeding. It describes prevalent patterns and socioeconomic variables and emphasizes the substantial impact on job productivity. Women who experience heavy periods are 28% less likely to work. The study's primary cross-sectional design and lack of longitudinal tracking of individual reproductive histories, however, are major limitations. Furthermore, it provides little information about the molecular mechanisms underlying the condition or the outcomes reported by patients, highlighting the necessity of prospective cohort studies that include qualitative quality of life evaluations.

5. Beverly A et al., [2025] According to this study, up to one-third of women of reproductive age suffer from a common illness, which is frequently associated with systemic problems, anatomical lesions, or hormonal imbalances. The FIGO PALMCOEIN classification, which separates causes into structural and non-structural groups, is highlighted. A thorough history, pelvic exam, blood work, imaging, and, if necessary, endometrial sampling are all part of the evaluation process. The first line of treatment is medical management, which may involve the use of a levonorgestrel intrauterine device, NSAIDs, tranexamic acid, or hormonal therapy. Refractory cases are saved for surgical treatments like hysterectomy or ablation. For the best results, the literature emphasizes tailored, evidence-based care.

6. Malcolm G. Munro et al.,[2011] The PALM COEIN classification was established by the 2011 FIGO consensus to improve clinical care and research by addressing confusing nomenclature. It divides AUB causes into two categories: non-structural (Coaguloapthy, Ovulatory dysfunction, Endometrial, Iatrogenic, Not otherwise defined) and structural(Polyp, Adenomyosis, Leiomyoma, Malignancy/Hyperplasia).In order to standardize nomenclature, enhance communication, streamline diagnostics and investigations, and promote evidence-based management for women of reproductive age, the system was meticulously designed through international expert collaboration and approved by FIGO.

7. Munro MG et al., [2021] The FIGO PALM COEIN system is recommended by the NEJM study on abnormal uterine bleeding (AUB) to distinguish between structural and non-structural causes, highlighting the condition's high prevalence and impact on quality of life. It describes a methodical assessment that begins with a thorough history, lab work, and imaging, saving biopsy for when it's required. Stabilization is given priority in acute cases, while pharmacological care (Hormones, antifibrinolytics, NSAIDs) is preferred for persistent bleeding. Surgical procedures such as hysterectomy or ablation are saved for refractory cases.

8. Dr. Damian C Crowther et al.,[2024]According to the study, anovulation and hormonal imbalance are the main causes of dysfunctional uterine bleeding (DUB), which is prevalent, particularly in teenagers and perimenopausal women. DUB, which was once an excluding diagnosis, is now treated using organized methods such as the FIGO PALM COEIN system. Firstline medical care continues to focus on treating anemia, controlling bleeding, and regulating cycles. The levonorgestrel intrauterine device(LNG-IUS) provides long-term control, while hormonal therapy, including progestins and combination oral contraceptives, is effective. NSAIDs and tranexamic acid are examples of non-hormonal alternatives. With a focus on customized therapy, iron supplementation is frequently required, and surgery is reserved for refractory cases.

9. Gabriela Parvatta et al., [2025] The article discusses the development of AUB categorization by classifying causes into structural and non-structural groups using the FIGO-endorsed PALM COEIN approach. It emphasizes that patient stabilization should be the top priority in the early management of acute AUB. It should be followed by prompt pharmacological therapy, such as NSAIDs, tranexamic acid, nd hormonal drugs such as IV estrogen, OCPs, and progestins. Clinical history, examination, laboratory testing, ultrasound, and, if necessary, endometrial biopsy are all part of the diagnosis process. Minimally invasive techniques or surgical treatments like hysterectomy or ablation may be performed if medicinal therapy is unsuccessful. A customized, evidencebased strategy to guarantee efficient and customized patient care is supported by the literature.

10. D.C. Dutta et al., [2023] Textbook of Gynecology presents a detailed examination of abnormal uterine bleeding (AUB), highlighting it as a frequent menstrual issue among women. It describes various clinical forms, such as menorrhagia, metrorrhagia, and polymenorrhagia, and underscores the importance of thorough patient history, physical exams, and diagnostic tests. Management strategies-both medical and surgical are discussed depending and the severity of bleeding. The text also stresses the significant effects of AUB on women's health, including anemia and decreased quality of life, underscoring the importance of timely diagnosis and effective treatment in gynecological practice.

11. Munro MG et al.,[2011] According to this study of FIGO Classification PALM COEIN system was created to unify the terminology and diagnostic approach to AUB in women of reproductive age. It organizes causes into two groups: structural (polyp, Adenomyosis, Leiomyoma, Malignancy) and non-structural (Coagulopathy, Ovulatory dysfunction, Endometrial issues, Iatrogenic factors, and Not yet classified conditions). This classification promotes diagnostic accuracy, clinical consistency, and improves the quality of research across studies. By providing a standardized framework, FIGO aids healthcare providers in identifying specific causes of AUB and delivering more precise, effective treatment, while also supporting global standardization in gynecologic terminology.

12. ACOG et al.,[2013] The American College of Obstetricians and Gynecologists (ACOG) categorizes AUB as either acute or chronic based on duration and clinical features. Acute AUB poses immediate health risks due to potential heavy bleeding and requires prompt intervention. Chronic AUB refers to irregular bleeding lasting 6 months or more. ACOG advises a structured diagnostic process, including detailed menstrual history, physical exams, imaging studies, and lab tests. Their guidelines recommend both hormonal and non-hormonal therapies, with surgical options reserved for specific cases. This comprehensive approach aims to optimize outcomes while aligning with each patient's reproductive needs and overall health.

13. Yasir Salih et al., [2024] Among 162 teenage schoolgirls in rural Sudan, a cross-sectional study revealed a high prevalence (64.8%) of abnormal uterine bleeding (AUB), with the most prevalent types being irregular (44.4%), frequent (27.2%), and heavy menstrual bleeding(21 Despite evaluating a number of factors, no meaningful correlations between maternal education, hemoglobin levels, or BMI were discovered. According to the study, AUB is common in teenagers and is probably caused by ovulatory immaturity. The study is restricted to a single geographic area, lacks a

hormonal profile, and does not evaluate psychological impact, all of which compromise generalizability.

14. Shabir Ahmed Choudhury et al.,[2020] According to this study, the treatment of abnormal Uterine Bleeding (AUB) at Silchar Medical College by a one-year prospective observational study. The frequency of AUB among 13,626 gynecological OPD patients was 20.48%. The ladies between the ages of 41 and 45 had the highest occurrence. The most frequent menstrual bleeding was heavy (68%). According to the PALM COEIN classification, the most common subtype was AUB-L (leiomyoma). The most common treatment was a hysterectomy. The study highlights organized classification for improved management and highlights the burden of AUB. Long-term follow-up hormonal examination, and therapy outcome evaluation are absent from the study.

15. Kajal Sinha et A study at AllMS Patna examined 272 adult women, mostly between the ages of 40 and 49, who had abnormal Uterine Bleeding (AUB). Among the presenting symptoms, menorrhagia was the most prevalent. Endometrial causes (AUB-E) were found to be the primary etiology using the PALM COEIN categorization. Histopathologically, the most common result was secretory endometrium, with 81.6% concordance between biopsy and hysterectomy tissues. The importance of histology in the diagnosis and treatment of AUB was highlighted in the study. The effectiveness of different management techniques over time was not evaluated, and there was no followup on treatment outcomes.

16. Khanam A et al.,[2024] Abnormal Uterine Bleeding (AUB) is common in women of reproductive age (—17-18%), and heavy or irregular periods should be evaluated. Research continuously shows that endometrial polyps (about 23%) and leiomyomas (about 41 are the main structural reasons; adenomyosis and hyperplasia also play a big role. Particularly in younger women, non-structural etiologies like PCOS and anovulation are becoming more well acknowledged. First-line medical treatments such as LNG-IUS and tranexamic acid are effective; surgery is reserved for when other treatments don't work. The study does not examine patient-reported quality of life metrics, evaluate the effectiveness of management modalities over time, or provide longitudinal follow-up on post-treatment outcomes.

17. Shuchi Sharma et al.,[2024]This study shows a prospective observational study assessed 640 women with abnormal uterine bleeding (AUB) in a tertiary care hospital in Himachal Pradesh. The majority of patients were in the 40-49 age range, and the most prevalent symptom (56.8%) was metrorrhagia. AUB-L (leiomyoma-related bleeding) was the most common categorization under PALM COEIN, and leiomyoma (28.15%) was the most common in histology (34.1 %). The study confirms that age-related patterns and structural factors are important causes of AUB. The lack of techniques and follow-up results limited our understanding of the effectiveness of the treatment.

18. Shrestha et al., **[2020]** This study shows 79 women with AUB in Nepal, finding 15.1% had thyroid dysunction, mainly hypothyroidism, with menorrhagia being the most frequent pattern. Most women were euthyroid (84.8%). The study emphasized thyroid screening in AUB cases. However, the limitation was a small sample size and a singlecenter setting, reducing generalizability. A larger, multicenter study is required to establish stronger correlations between thyroid status and AUB.

19. Singh et al., [2017] According This study investigated uterine lesions in rural North Indian women with AUB. Menorrhagia was the most common complaint, while proliferative endometrium (18%) and leiomyoma were frequent histological findings. The study highlighted the role of histopathology in diagnosis. However, being limited to a rural tertiary center and lacking correlation with hormonal or metabolic factors, the study could not explain underlying systemic associations with AUB.

20. Kaneria et al.,[2024]According to this study reported 8% of gynecology OPD attendees had AUB, mostly women aged 21—40 years, with menorrhagia (80%) as the predominant complaint. All patients were anemic. The study stresses the burden of AUB in reproductive women. However, the limitation was hospital-based cross-sectional data without treatment or outcome analysis, leaving a gap in understanding the long-term health and fertility consequences of AUB.

21. Khan et al,[2016] According to this study, 120 women with DUB in India were found endometrial hyperplasia (20.5%) as the most common pathology, followed by luteal phase insufficiency (15.6%). The study reinforced biopsy as a diagnostic tool. However, the limitation was the absence of clinical and hormonal correlation, making it difficult to establish causative links between histopathological findings and clinical presentations. Broader prospective studies are needed.

22. Shukla et al., [2017] According to this study, 120 women with AUB, showing perimenopausal women (41—50 years) were most affected, and proliferative endometrium (27%) was the commonest histological finding. Endometrial carcinoma was detected in 1.7% of cases. The study highlights the importance of sampling for early malignancy detection. The gap lies in its retrospective design and lack of follow-up, limiting the ability to assess long-term outcomes of management.

23. Kaneria et al., [2025] According to this study, 100 women with fibroids in Saurashtra, where menorrhagia (38%) and pelvic pain (26%) were most common. Intramural fibroids (56%) predominated, and nearly half

underwent hysterectomy. The study highlights the prevalence of fibroids in reproductive women. However, its single-center, cross-sectional design and lack of longterm follow-up leave gaps in understanding recurrence, fertility outcomes, and the effectiveness of conservative treatments.

24. Pujari et al.,[2021] The study conducted a crosssectional study among 236 reproductive-age women with AUB in North Kerala, finding that the most common bleeding pattern was heavy menstrual bleeding (69%), and 11% had thyroid dysfunction—primarily subclinical hypothyroidism (6.8%). While the study supports TSH screening in AUB, its single-center design and exclusion of structural causes limit broader applicability. Multicenter studies with comprehensive etiological evaluation are needed.

25. Gupta et al., [2022] According to this study conducted a prospective observational study using the FIGO PALM-COEIN classification was conducted to evaluate causes of abnormal uterine bleeding (AUB) in perimenopausal women, highlighting the need for accurate diagnosis and classification for effective management. The study underscores diagnostic rigor, but remains limited by its focus on a single demographic (perimenopausal women) and lacks broader age-range data and correlation with outcomes, leaving a gap in applicability across all reproductive ages.

26. Vaidya et al., [2022] The conducted study shows a retrospective study of perimenopausal women with AUB, reporting a prevalence of 18.3%. Structural causes (77.6%), especially leiomyoma, were most common, and comorbidities like hypertension (30.2%), diabetes (14.2%), and thyroid disorders (6.6%) were evaluated. Ovulatory dysfunction (AUB-O) & endometrial causes (AUB-E) are significantly associated with thyroid disorders.
However, small sample size and limited comorbidity data restrict generalizability and comprehensive risk profiling.

27. Gomathy E et al., [2024] This study shows AUB in perimenopausal women, correlating TVS findings with Pipelle biopsy. The study found proliferative endometrium to be as most common and a strong association between endometrial thickness and histopathology, supporting Pipelle as a simple diagnostic tool. Lack of hysteroscopic correlation, omission of systemic risk factors, single-center small sample, and absence of follow-up outcomes limit generalizability and comprehensive evaluation of focal lesions and comorbidities in AUB.

28. Dr. Vyoma Shah et al, [2024] This study examined knowledge, attitudes, and practices regarding sight-threatening diabetic retinopathy (STDR) among Western Indian patients. The study highlighted poor patient awareness and limited engagement in timely screening, contributing to delayed diagnoses. It lacked comparison across regions, intervention strategies to improve KAP, and follow-up tracking to assess patient behavioral change post-intervention, limiting its applicability in designing effective prevention programs.

29. Rezende GP et [2023] This study conducted a multi-center Brazilian cross-sectional study assessing AUB prevalence by comparing women's self-perception with objective FIGO-defined parameters. They found a 31.4% prevalence, with strong alignment between subjective and objective bleeding traits, along with significant impacts on quality of life and anemia. Reliance on self-reported data, inclusion only of women already seeking care, and lack of rural-based sampling may underrepresent actual AUB prevalence and socioeconomic disparities.

30. Megha S. Kinake et al.,[2021] According to this study conducted a prospective study of 680 AUB cases was conducted at a tertiary care center in Maharashtra. Proliferative endometrium was most common (36.5%), followed by leiomyoma, adenomyosis, and hyperplasia; malignancy was rare (0.44%). The study lacked clinical or imaging correlations, systemic risk factor assessment, follow-up data, and insights on sampling adequacy, limiting its clinical and etiological depth.

3.1 CLINICAL MANIFESTATION OF AUB

Unusual uterine bleeding can have an impact on your quality of life in addition to being a physical issue. AUB affected women may encounter: Weakness or exhaustion brought on by blood loss, low hemoglobin, or anemia, or disturbance of regular work or school schedules. Anxiety or emotional tension, pain, or discomfort during sexual activity. Reproductive health or fertility.

Between menstrual cycles, bleeding periods lasting more than seven days, Menstrual flow that is heavy (soaking through tampons or pads every hour). After menopause, bleeding or spotting following a sexual encounter, extremely erratic menstrual cycles, Periods occurring less frequently than every 35 days, or more frequently than every 21 days.

3.2 DIAGNOSIS OF AUB

Abnormal Uterine Bleeding (AUB) is a common gynecological issue among women of reproductive age, marked by deviations in menstrual frequency, regularity, duration, or volume. Accurate diagnosis is crucial to determine the cause, guide effective treatment, and enhance patient outcomes.[8]

1. Menstrual history
2. Complete blood count (CBC), Pregnancy test, and hormone measurements(such as prolactin and thyroid-stimulating hormone [TSH]).
3. Transvaginal ultrasonography is often used for pelvic imaging investigation.
4. Procedure (such as hysteroscopy or endometrial sampling)

When the quantity or time of vaginal bleeding deviates from regular menstruation, women should be assessed to determine the reason for irregular uterine bleeding. Even in young teenagers and perimenopausal women, pregnancy should be avoided.[8]

Adolescents with anemia or those who need to be hospitalized for bleeding, as well as individuals with a family history or other risk factors for coagulation disorders, should be evaluated for coagulation disorders. In addition to helping choose the best laboratory or imaging tests, the pattern of abnormal uterine bleeding frequently indicates potential reasons (for example, regular cycles with protracted or severe bleeding signal structural issues; irregular bleeding or amenorrhea is generally related to ovulatory dysfunction).[8]

Adolescents with anemia or those who need to be hospitalized for bleeding, as well as individuals with a family history or other risk factors for coagulation disorders, should be evaluated for coagulation disorders.[8]

A. Lab investigations Usually, many tests are conducted

1. A Pregnancy test using blood or urine.
2. CBC, or Complete Blood Count.
3. Prolactin, Thyroid Stimulating Hormone (TSH), and occasionally urine, Luteinizing hormone [LH], or Progesterone levels.
4. Pregnancy testing should be performed on all women with AUB who are of reproductive age.

CBC is often performed. Women who get heavy periods on a regular basis may suffer from severe anemia. Serum ferritin, a marker of bodily iron reserves, is taken if women with heavy, persistent bleeding are suspected of having iron deficiency anemia.[8]

Since thyroid problems and hyperprolactinemia are frequent causes of AUB, TSH and prolactin levels are typically examined, even in the absence of galactorrhea.[8]

Some physicians assess blood progesterone levels during the luteal phase (after day 14 of a normal menstrual cycle or when basal body temperature increases, as occurs during this period) to establish whether a patient is anovulatory or ovulatory. When the levels are> 3ng/ml(> or equal to 9.75 nmol/L), ovulation is likely to have taken place. A home test kit for urine LH levels, which are monitored daily for a few days starting at or after cycle day 9, is an additional alternative for patients.[8]

Additional tests, such as the following, are performed based on the findings of the history and physical examinations

1. If polycystic ovarian syndrome is suspected, measure the levels of testosterone and dehydroepiandrosterone sulfate (DHEAS).
2. Blood pressure, body mass index, and serum glucose and cholesterol levels if polycystic ovarian syndrome is suspected.
3. Estradiol levels and Follicle Stimulating Hormone (FSH) if primary ovarian insufficiency is suspected
4. Coagulation tests to determine whether women are at risk for bleeding, bruises, or coagulation problems.[8]

   Tests used to rule out further reasons for vaginal bleeding include
5. A biopsy when a worrisome cervical lesion is discovered during a pelvic examination, or a cervical cancer screening test (such as the Papanicolaou [Pap] test or the Human Papillomavirus [HPV] test) if the patient is scheduled for routine screening.
6. If cervicitis or pelvic inflammatory disease is suspected, testing for Neisseria gonorrhoeae and Chlamydia species is necessary.[8]

Imaging or Procedures

i. Transvaginal ultrasonography

For the majority of patients, transvaginal ultrasonography is performed a part of the AUB examination. In particular, it is carried out if women possess any of the following:

1. It is not possible to properly analyze a pelvic examination that indicates a structural lesion or pelvic organs, other symptoms, or a bleeding pattern.

2. Endometrial cancer risk factors, such as obesity, diabetes, hypertension, polycystic ovarian syndrome, chronic eugonadal anovulation, and other illnesses linked to extended exposure to unopposed estrogen, 45 years of age or older (earlier if women have risk factors), bleeding that persists even after doing empirical hormone treatment.[8]

Most polyps, fibroids, various masses, ovarian abnormalities, adenomyosis, and endometrial thickness are among the structural abnormalities that can be seen by transvaginal ultrasonography.[8]

Additional testing may be required to find smaller intrauterine tumors (such as submucous myomas or tiny endometrial polyps) if focal thickening is found. When assessing such anomalies, sonohysterography ultrasonography performed after saline is pumped into the uterus can be used to plan the removal of intrauterine masses and assess if hysteroscopy, a more invasive procedure, is necessary. It is also possible to do hysteroscopy without sonohysterography.[8]

Measurement of endometrial thickness (endometrial stripe) by transvaginal ultrasonography may be utilized as a first-line diagnostic to assess for endometrial neoplasia (hyperplasia (hyperplasia or cancer) in some women experiencing postmenopausal hemorrhage. Endometrial cancer risk factors, such as recent or ongoing tamoxifen treatment.[8]

ii. Recurrent or Ongoing Bleeding

Ultrasonography was used to identify endometrial thickness greater than 4 to 5mm (as a follow-up test). Because endometrial thickness changes throughout the menstrual cycle, it is not utilized to assess endometrial neoplasia in premenopausal women

- 2 to 4mm throughout the menstrual cycle, 5 to 7mm during the early proliferative phase (cycle days 614).
- Phase of late proliferation:< 1 Imm
- Phase of secretion: 7-16 mm

Although MRI is costly and not the first-line imaging test for patients with AUB, it offers comprehensive pictures that are helpful in surgical planning.[8]

In order to rule out cancer or hyperplasia in women who have any of the following conditions, an endometrial biopsy is typically advised:

- Age > or equal to 45 (Under 45-year-old with one or more endometrial cancer risk factors).
- After a normal first assessment and treatment, abnormal bleeding that persists or recurs.[8]

Transvaginal ultrasonography results of abnormal endometrial findings in postmenopausal individuals (endometrial thickness > 4 to 5 mm or with focal or irregular endometrial thickening). Uncertain ultrasonography results in a patient who may have endometrial cancer.[8]

Although only around 25% of the endometrium is examined during an endometrial sample (which can be performed as a dilation and curettage operation or an office endometrial biopsy), the sensitivity for identifying abnormal cells is over 97%. Since secretory endometrium is absent from the majority of endometrial biopsy specimens, anovulation is confirmed by the presence of proliferative or dysynchronous endometrium.[8]

iii. Directed biopsy

In order to directly view the endometrial cavity and do targeted biopsies of isolated endometrial abnormalities, a directed biopsy (with hysteroscopy)may be performed.[8]

3.3. MANAGEMENT

Surgery or medicine can be used to treat menorrhagia, and not everyone requires a referral to secondary care. When a pathology is established, such as in uterine fibroids, surgery is such as uterine fibroids, surgery is typically recommended. Depending on the cause or the woman's desire to maintain her fertility, both hormonal and non-hormonal treatments may be utilized. When there is no structural or histological abnormality evident, or when fibroids smaller than 3cm in diameter are not **distorting the uterine cavity, pharmacological** treatment should be considered for menorrhagia or heavy menstrual flow. Rather than referring a patient to surgery right away, a second pharmaceutical treatment should be attempted if the first one has failed.[9]

Initial therapy for a minimum of 12 months, which should remain in place. The bleeding has improved for women with menorrhagia, and they are likely to stick with this treatment. The IUS is more successful than oral medications, endometrial ablation, and hysterectomy. It also reduces bleeding, improves quality of life, and is more generally accepted over the long.[9]

Treatment in the second line includes non-steroidal antiinflammatory medications (NSAIDs) such as mefenamic acid, tranexamic acid, and the combined oral contraceptive (COC) are examples of.[19]

Treatment in the third line is Progesterone-like medroxyprogesterone acetate, which is injected every 12 weeks, or norethisterone, which is 5mg daily from day 5 to day 26.[9]

3.4 MEDICAL MANAGEMENT

3.4.1 ORAL CONTRACEPTIVES

Oral contraceptive pills (OCPs) reduce the risk of iron deficiency anemia, suppress endometrial growth, restore regular bleeding patterns, and decrease monthly flow. If administered in a continuous or cyclic regimen, OCPs can effectively reduce abnormal bleeding.[9]

Acute episodes of severe bleeding point to lining accumulation and a setting of extended estrogenic exposure. Pseudodecidualization of the enlarged endometrium usually controls bleeding during the first 24 hours. If the flow doesn't stop within a day, look for a different cause**.**[9]

Potential risk factors for OCP-related problems may be significantly influenced by the kind of OCP and underlying patient characteristics. Contraceptives containing drosperone have been linked in studies to a higher incidence of nonfatal venous thromboembolic events (blood clots) than those containing levonorgestrel.[9]

An intrauterine device that releases levonorgestrel is considered to be the first-line treatment for teenagers who experience heavy menstrual flow.[9]

3.4.2 ESTROGEN

When a patient is clinically stable but the situation is severe and requires hospitalization, intravenous estrogen alone is recommended. It is advised to take 25mg of Premarin every 4-6 hours for up to 24 hours. Usually, bleeding stops rapidly. A D&C is recommended if the bleeding is not stopped within 12 to 24 hours. Extended uterine bleeding indicates that the cavity's epithelial lining has gradually deteriorated. A progestin is unlikely to stop bleeding in this situation. Endometrial growth will quickly return to normal when estrogen is used alone.[9]

3.4.3 PROGESTIN

Progestin exposure, either continuous or episodic, is necessary for the chronic management of AUB. Given the numerous other advantages, including as reduced blood loss, ovarian cancer prevention, lowered androgens, and decreased dysmenorrhea, oral contraceptives are the most effective way to do this in patients without contraindications.[9]

For patients who are contraindicated for pills, cyclic progestin utilizing either norethindrone acetate 92.55mg/d) or medroxyprogesterone acetate (10mg/d) for 12 days each month results in predictable uterine withdrawal bleeding, but not contraception. Women who are at risk for pregnancy may take cyclic natural progesterone (200 mg/d), however, this may make them more sleepy and may not reduce blood loss as much as progestins.[9]

A progestin-secreting IUD that regulates the endometrium via a local release of levonorgestrel, avoiding elevated systemic levels, may be considered for certain women, such as those who cannot tolerate systemic progestins/ progesterone or who are contraindicated for estrogen-containing agents.[9]

3.4.4 ANOVULATORY BLEEDING AND BLEEDING DISORDERS

Rarely, a bleeding condition may also be present in a young patient with anovulatory hemorrhage. Patients with known coagulation abnormalities have had abnormal uterine bleeding treated with desmopressin, a synthetic analogue of arginine vasopressin. After treatment, von Willebrand factor and factor VIl rise quickly for approximately 6 hours.[9]

3.4.5 SURGICAL MANAGEMENT

In AUB, surgical procedures are regarded as second-line choices and are saved for instances that are not responsive to therapeutic treatment or AUB that has structural reasons, such as endometrial polyps and submucosal leiomyomas.[10]

3.4.6 INTRAUTERINE TAMPONADE

In obstetrics, intrauterine balloons are commonly used to treat postpartum bleeding. The Bakri balloon is specifically used to treat uterine atony. In order to stop acute, non-gestational bleeding, particularly in teenagers with coagulopathies that are resistant to therapeutic treatment, literature also describes the use of a Foley catheter inflated with distilled water or saline. This method appears to be a promising, low-risk, low-cost treatment alternative. With an ongoing clinical balloon stay in the uterus for 2 to 48 hours. It is advised to use a size 26 Foley catheter with 20-30 mL of saline. But there isn't enough solid data to suggest this as a standard practice.[10]

3.4.7 DILATION AND CURETTAGE/HYSTEROSCOPY

Due to the possibility of adhesion formation, dilation and curettage are considered to be reserved choices. They might, nevertheless, be an important factor in some situations. lt is crucial to stress that when curettage is done 'blindly'. lt might not address the structural lesions that are causing the bleeding. Hysteroscopy should be given priority whenever feasible in order to visualize the uterine cavity and treat localized lesions such as polyps and submucosal leiomyomas. Additionally, endometrial ablation becomes a feasible option with the use of a resectoscope. However, there is a lack of information about its application in acute cases, including difficulties in visualizing lesions during active bleeding and little evidence about when it should be used. The endometrium can be histopathologically evaluated by curettage or hysteroscopy. Although they are not always available, options include radiofrequency ablation and intrauterine balloons.[10]

3.4.8 UTERINE ARTERY EMBOLIZATION

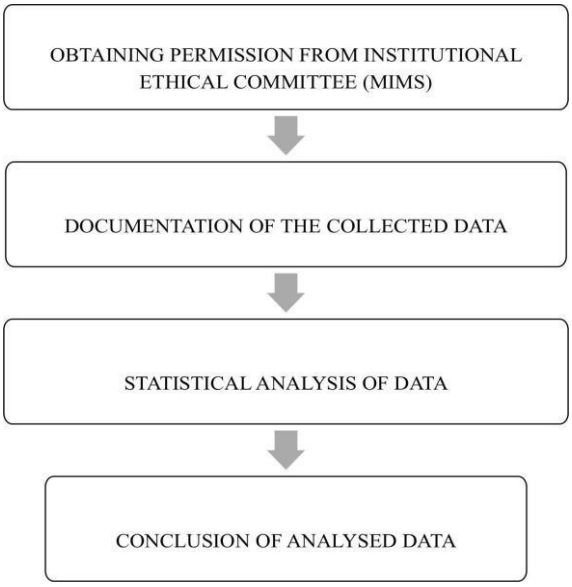
This method is employed in some obstetric hemorrhage instances; however, there is little information on how it works in AUB-a. It could be taken into consideration when therapeutic treatment is unsuccessful for women who are not candidates for surgery or when fertility preservation is desired. When arteriovenous malformations are present, embolization may be the best course of treatment, according to reports.[10]

3.4.9 HYSTRECTOMY

For women with AUB-a, hysterectomy is the last resort and is typically reserved for situations in which medical therapy is not appropriate or when treatment has failed, or when the extent of the bleeding justifies it. It might also be carried out in reaction to underlying medical issues. A vaginal hysterectomy, laparotomy, or choice needs to be carefully thought out, especially for women who are still totally fertile.[10]

3. METHODOLOGY

4.1 STUDY FLOW CHART



4.2 STUDY DESIGN

Prospective observational study.

4.3 STUDY SITE

6 months from getting approval from the Ethics committee.

4.4 STUDY POPULATION

Patient who was admitted to the Inpatient Department of Obstetric and Gynaecology, MIMS, Mandya.

4.5 SAMPLE SIZE

198.87-200

4.6 SAMPLE FORMULA:

$N=4PQ/d^2[4*0.42(1-0.42)/(0.05)^2]$

Where N = Required sample size,

1. = Prevalence ofAUB0.42
2. = I-P & d absolute error (0.07)

4.7 SAMPLING METHOD

Convenience sample

4.8 CRITERIA FOR SAMPLE COLLECTION

4.8.1. Inclusion Criteria

1. A patient aged 18-50 years old.
2. Confirmed diagnosis of AUB.
3. Patient is currently on pharmacological treatment for this condition.

Patient is willing to give informed consent.

4.8.2. Exclusion Criteria

- Pregnant and lactating women.
- A patient with post-surgery and radiotherapy.

4.9 METHOD OF DATA COLLECTION

Patients undergoing treatment for Abnormal Uterine Bleeding in the Department of OBG at MIMS, Mandya, were included in the study. Relevant information was obtained from their medical records. A patient profile form was developed to collect sociodemographic data such as name, age, complete blood count, pelvic ultrasound, thyroid function test, treatment details, and other pertinent information related to Abnormal Uterine Bleeding.

4.10 ANALYSIS

The collected data was thoroughly examined and evaluated for prevention, cause, risk factor, and management linked with AUB. Data was entered in an Excel sheet, and descriptive statistics like percentages, mean, etc., will be calculated. Microsoft Word and Excel were used to generate bar graphs, pie charts, and tables.

5. RESULTS AND DISCUSSION

The Prospective cross sectional study was conducted in the Obstetrics and Gynaecology Department at MIMS Tertiary Care Hospital, Mandya. A total of 172 patient case records in IMS were enrolled in the study based on the inclusion criteria. The demographic details, such as age, sex, and treatment details, from the patient's case records were recorded in a suitably designed patient profile form.

5.1 AGE WISE DISTRIBUTION

In the present study, the majority of patients with AUB belonged to the age group of 39—50 years (51 This finding is in line with previous studies where the prevalence of AUB was highest among perimenopausal women. Vaidya et al. (2022) reported a significantly higher prevalence of AUB in women approaching menopause, while Sun et al. (2018) also highlighted that abnormal bleeding peaks in the late reproductive and perimenopausal women are the most vulnerable to perimenopausal age group. Thus, our results strongly

abnormal uterine bleeding. Correlate with global and Indian evidence that.

Table 1: Distribution of Patients Based on Age.

AGE GROUP	NUMBER OF PATIENTS (n)	PERCENTAGE[%]
18-28	36	21 %
29-38	48	28%
39-50	88	51%
	Mean +SD	34.5+9.19

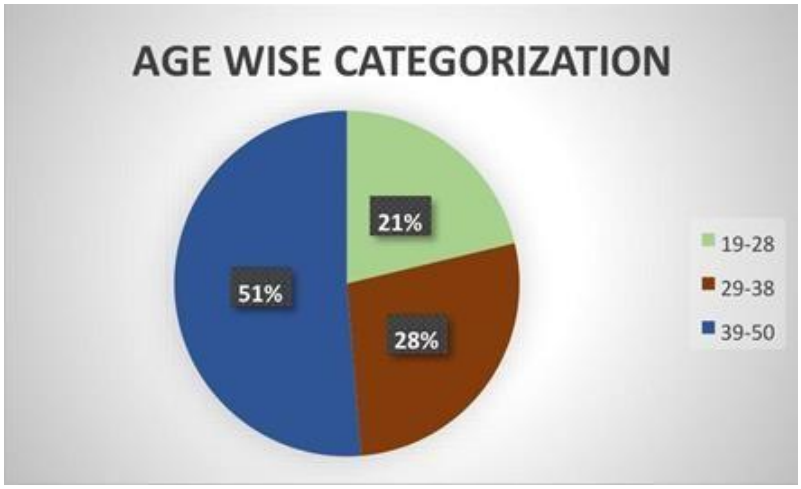


Figure 7: Distribution of Patients Based on Age.

5.2 DISTRIBUTION OF PATIENTS BASED ON MARITAL STATUS In the present study conducted among 172 patients, the population, which may be relevant when interpreting majority (63%, n 108) were married, while 37% (n 64) were unmarried. This distribution indicates that married individuals constituted a larger proportion of the study demographic influences on the study findings.

Table 2: Distribution of Patients Based on Marital Status.

MARITAL STATUS	NUMBER OF PATIENTS(n)	PERCENTAGE[%]
0 (Unmarried)	64	37%
1 (Married)	108	63%

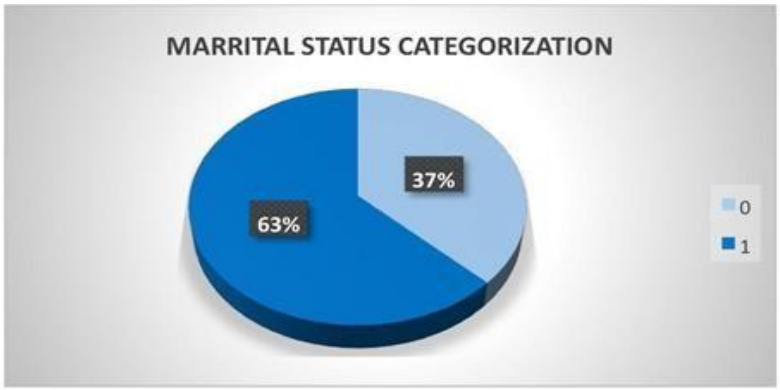


Figure 8: Distribution of Patients Based on Marital Status.

5.3 DISTRIBUTION OF PATIENTS BASED ON MENSTRUAL HISTORY

In our study, irregular heavy bleeding was the most common menstrual complaint (76.2%), followed by irregular heavy bleeding with scanty flow. This observation is consistent with the findings of Sinha et al. (2018) from Bihar, where menorrhagia and irregular heavy cycles were predominant presentations. Similarly, Sharma et al. (2025) also identified irregular and heavy

cycles as the leading symptom of AUB. Hence, the clinical profile of our patients aligns with several Indian studies, reinforcing that irregular heavy bleeding remains the most common presenting complaint in AUB.

Table 3: Distribution of Patients Based on Menstrual History.

MENSTRUAL HISTORY CATEGORY	NUMBER OF PATIENTS (n)	PERCENTAGE[%]
Regular, Heavy, Scanty	1	0.6%
Irregular, Heavy	131	76.2%
Heavy, Scanty, Irregular	27	15.7%
Fatigue, Irregular, Dizziness	10	5.85
Fatigue, Irregular		1.7%
Total	172	100%

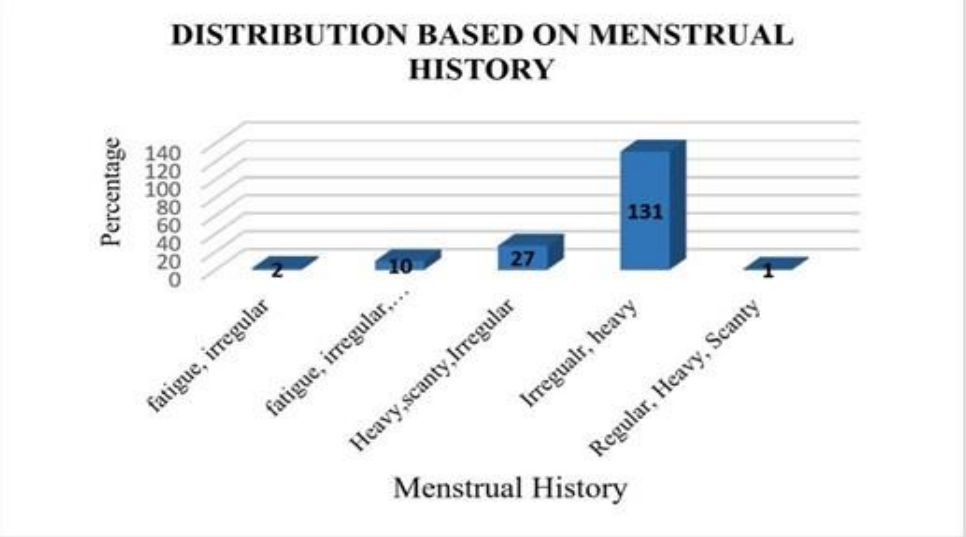


Figure 9: Distribution of Patients Based on Menstrual History.

5.4 DISTRIBUTION OF PATIENTS BASED ON THE DURATION OF BLEEDING

Prolonged bleeding lasting 15—20 days was most commonly reported in this study. Such extended duration of menstrual flow is a hallmark feature of AUB, and our findings correlate with existing literature. GPnotebook (2024) and Pinkerton (2023, MSD Manual) have documented that abnormal uterine bleeding frequently manifests as prolonged or heavy menstrual cycles extending beyond the normal range. Therefore, our observation is in agreement with standard diagnostic descriptions of AUB across international guidelines.

Table 4: Distribution of Patients Based on the Duration of Bleeding.

DURATION OF BLEEDING	NUMBER OF PATIENTS (n)	PERCENTAGE[%]
1 month	26	15.1%
1 week	27	15.7%
10 days	25	14.5%
15 days	41	23.85
2 months	5	2.95
2 weeks	9	5.2%
20 days	39	22.7%

1 month 1 week 10 days 15 days 2 months 2 weeks 20 days Duration of Bleeding

DURATION OF BLEEDING

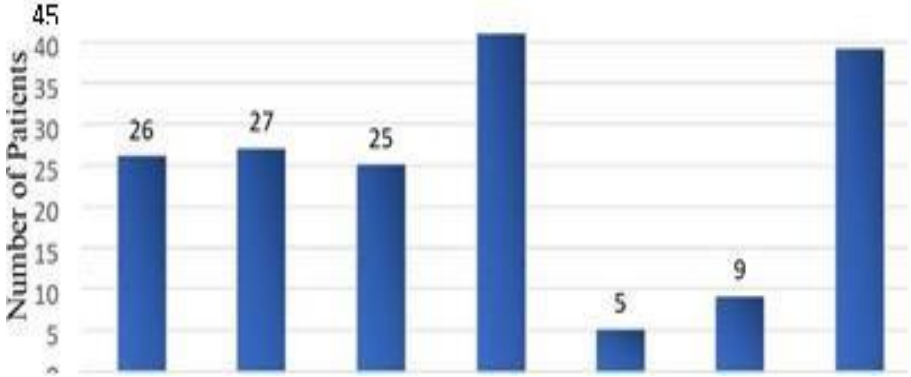


Figure 10: Distribution of patients based on Duration of Bleeding.

5.5 DISTRIBUTION OF PATIENTS BASED ON SYMPTOMS

In this study, the most common symptom was pelvic pain with dysmenorrhea, reported in 95 patients (55.2%). This was followed by polymenorrhea in 36 patients (20.9%), pelvic pain in 24 patients (14.0%), pelvic pain with anemia-related symptoms in 8 patients (4.7%), dysmenorrhea in 7 patients (4.1 %), pelvic pain alone in 5 patients (2.9%), and anemia-related symptoms alone in 4 patients (2.3%).

Table 5: Distribution of Patients Based on Symptoms.

SYMPTOM	NUMBER OF PATIENTS (n)	PERCENTAGE [^{0}/01
Pelvic pain	24	13.4%
Pelvic pain/Heavy menstrual bleeding	95	53.1%
Pelvic pain/Polymenorrhea	5	2.8%
Polymenorrhea	36	20.1%
Pelvic pain/Anemia	8	4.5%
Dysmenorrhea	7	3.9%
Anemia-related symptoms	4	2.2%

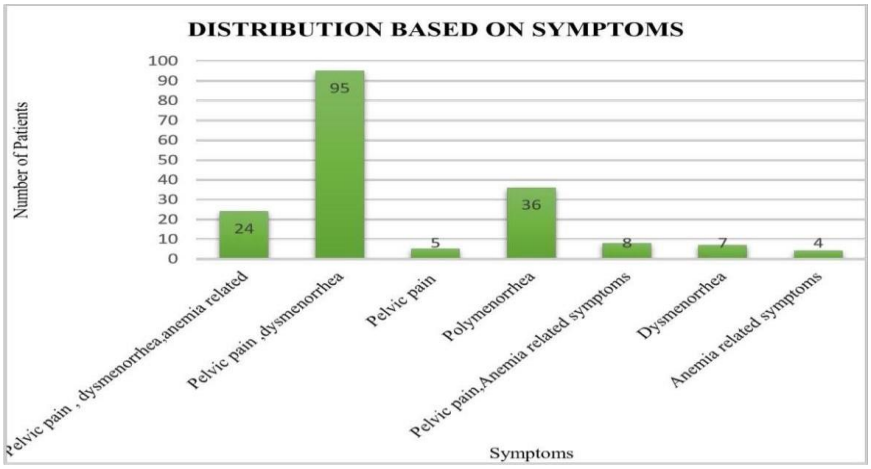


Figure 11: Distribution of Patients Based on Symptoms.

5.6 DISTRIBUTION OF PATIENTS BASED ON COMORBIDITIES

Thyroid dysfunction was the most common comorbidity associated with AUB in our study (87%), followed by PCOS and diabetes. This finding is highly consistent with published data. Thakur et al. (2020) in Nepal reported a strong association between thyroid dysfunction and abnormal bleeding patterns, while Pujari et al. (2021) in Kerala also identified thyroid disorders as a significant contributor to AUB. These correlations strengthen the evidence that thyroid dysfunction is a major systemic factor influencing abnormal uterine bleeding.

Table 6: Distribution of Patients Based on Comorbidities.

COMORBIDITY	NUMBER OF PATIENTS(n)	PERCENTAGE[%]
Migraine	5	3%
PCOS	12	7%
T2DM	5	3%
Thyroid	150	87%

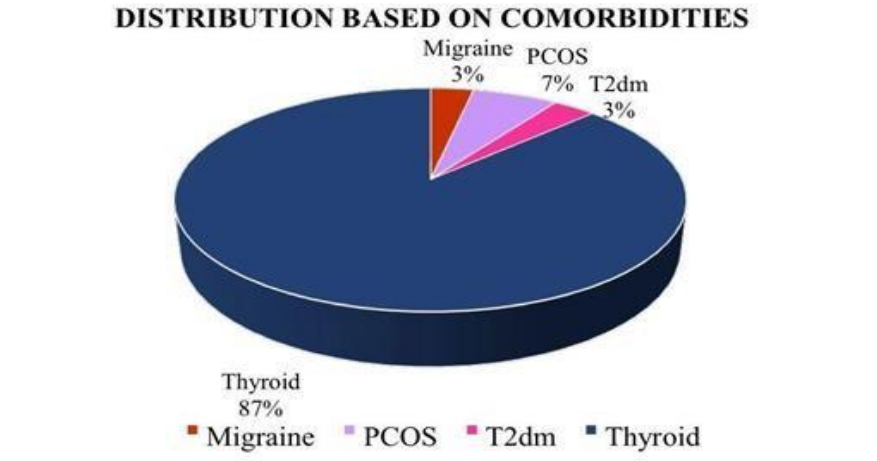


Figure 12: Distribution of Patients Based on comorbidities.

5.7 DISTRIBUTION BASED ON USG FINDINGS BY "PALM COEIN" CLASSIFICATION

Using the PALM—COEIN classification, leiomyoma (54.7%) emerged as the leading cause of AUB in our study, followed by polyps, adenomyosis, and endometriosis. This pattern is supported by earlier studies. Munro et al. (2011) through the FIGO Working. Group emphasized leiomyomas as a predominant structural cause of AUB. Similarly, Singh et al. (2016) and Choudhury & Nath (2020) from India also reported leiomyomas as the most frequent etiological factor in women with abnormal bleeding. Therefore, our results align with both international classification systems and regional tertiary care findings.

Table 7: Distribution Based on USG Findings by "PALM COEIN" Classification.

USG FINDINGS	NUMBER OF PATIENTS (n)	PERCENTAGE [%]
Leiomyoma	94	54.7%
Polyp	34	19.8%
Adenomyosis	26	15.1%
Endometriosis	18	10.5%

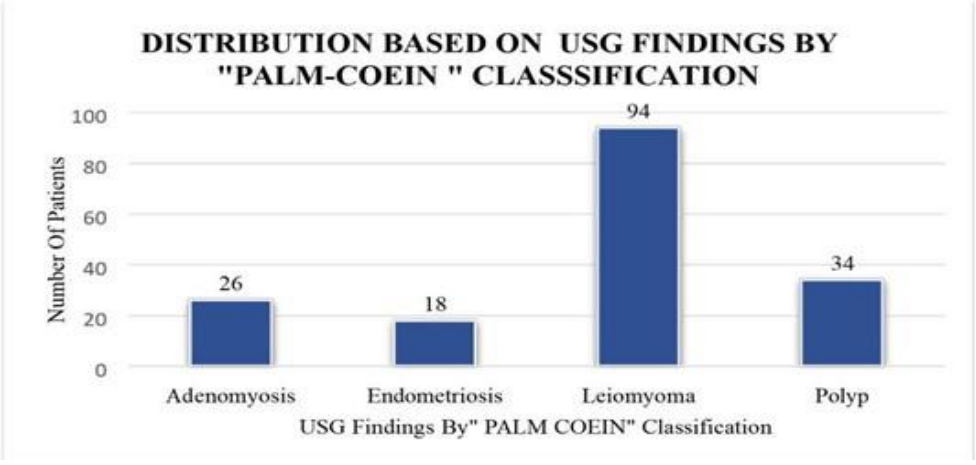


Figure 13: Distribution of patients based on USG Findings by "PALM-COEIN" Classification.

5.8 DISTRIBUTION BASED ON DIAGNOSTIC TEST In this study, the most frequently used diagnostic combination was CBC, ultrasound, and peripheral smear, performed in 74.4% (n 128) of patients. This was followed by CBC, peripheral smear, and ultrasound in17.4% (n = 30). Other combinations, such as CBC with TFT and ultrasound, biopsy, or histopathology, were used less commonly, ranging between 13% of cases. These findings indicate that CBC with ultrasound and peripheral smear formed the cornerstone of diagnostic evaluation in patients with abnormal uterine bleeding.

Table 8: Distribution Based on Diagnostic Test.

DIAGNOSTIC TEST COMBINATION	NUMBER OF PATIENTS (n)	PERCENTAGE [^{0}/01
CBC, Ultrasound, Peripheral smear	128	74.4%
CBC, Peripheral smear, Ultrasound	30	17.4%
CBC, TFT, Ultrasound, Peripheral smear	3	1.7%
CBC, Ultrasound, biopsy	2	1.2%
CBC, TFT, Ultrasound	3	1.7%
CBC, TFT, Ultrasound, Histopathology	2	1.2%
CBC, Ultrasound, Histopathology	6	

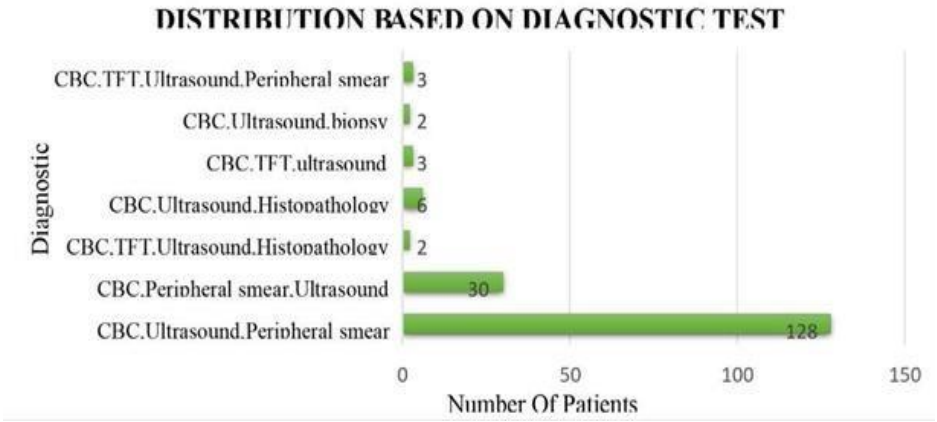


Figure 14: Distribution of Patients Based On Diagnostic Test.

DISTRIBUTION BASED ON TREATMENT

In the present study, surgical management (64%) was more commonly adopted than medical management (36%), with progestin therapy, particularly Meprate (48.4%), being the most frequently prescribed drug among medical options. These results are comparable with ACOG guidelines (2013, reaffirmed 2024), which recommend surgical intervention for structural causes such as fibroids. Rezende et al. (2025) also highlighted the widespread use of progestins such as medroxyprogesterone (Meprate) and norethisterone in consistent with both international recommendations and medical management of AUB. Thus, our findings are contemporary clinical practice.

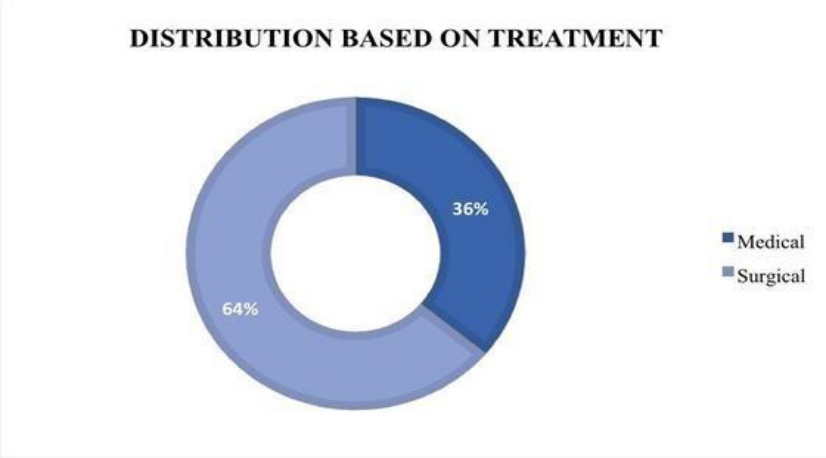


Figure 15: Distribution of Patients Based on Treatment.

5.10 DISTRIBUTION BASED ON OCP MEDICATION PRESCRIBED *FORAUB*

Among the patients managed medically with OCPs, Meprate was the most commonly prescribed drug, used in 48.4% (n 30) of cases. This was followed by Regesterone in 33.9% (n 21). Ethinyl estradiol and Ulipristal acetate were each used in 8.1% (n 5), while the combination of Meprate with Regesterone was used rarely, in only 1.6% (n 1). This shows that progestinbased therapy, especially Meprate, was the preferred choice in the medical management of AUB.

Table 9: Distribution based on OCP Medication Prescribed for AUB.

OCP MEDICATION	NUMBER OF PATIENTS(n)	PERCENTAGE[%]
Ethinyl estradiol	5	8.1%
Meprate	30	48.4%
Meprate+Regesterone	1	1.6%
Regesterone	21	33.9%
Ulipristal acetate	5	8.1%

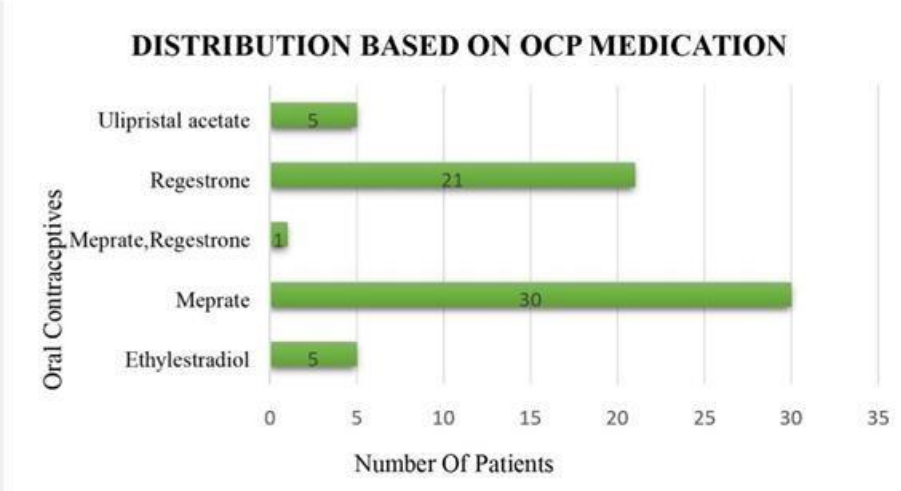


Figure 16: Distribution of Patients Based on OCP Medication.

5.11 DISTRIBUTION BASED ON ANALGESICS PRESCRIBED FOR AUB

was given in 5 patients (9.6%), ACSP + Diclofenac in 3 patients (5.8%), ACSP + Paracetamol in 2 patients Among the analgesics prescribed, Paracetamol alone was (3.8%), and Cyclopam + ACSP in 1 patient (1.9%). the most common, used in 27 patients (51.9%). ACSP Combination therapies included Paracetamol + (9.6%). These findings clearly indicate that Paracetamol, Dicyclomine in 4 patients (7.7%), Paracetamol + Meftal either alone or in combination, was the most preferred in 5 patients (9.6%), and Tramadol + ACSP in 5 patients analgesic for AUB management.

Table 10: Distribution based on Analgesics prescribed for AUB.

ANALGESICS COMBINATION	NUMBER OF PATIENTS (n)	PERCENTAGE[%]
ACSP	5	9.6%
ACSP+Dic10fenac	3	5.8%
ACSP+Paracetamol	2	3.8%
Cyclopam+ACSP	1	1.9%
Paracetamol	27	51.9%
Paracetamol+Dicyclomine	4	7.7%
Paracetamol+Meftal	5	9.6%
Tramad01+ACSP	5	9.6%

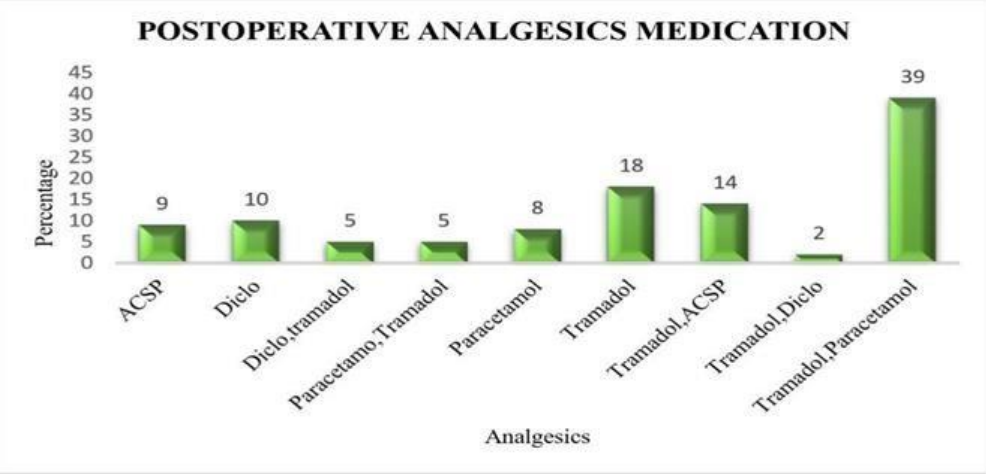


Figure 17: Distribution Based on Analgesics prescribed for AUB.

5.12 DISTRIBUTION PROFILE OF TRANEXAMIC ACID shows a slight preference for Tranexamic acid over ***MEFENAMIC ACID*** Mefenamic acid in AUB management. In the management of AUB with analgesics, Tranexamic acid was prescribed in 38 patients (53%), while. Mefenamic acid was given to 34 patients (47%). This

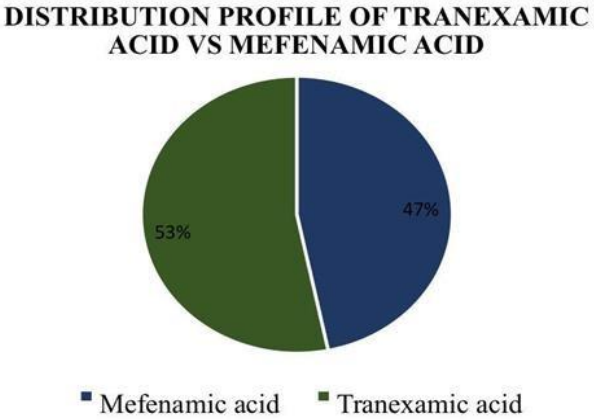


Figure 18: Distribution profile of Tranexamic acid vs Mefenamic acid.

PRESCRIBING OF IRONAND VITAMIN MEDICATION

Among the 172 patients, 110 patients underwent surgical treatment. FSFA + PRBC was the most prescribed iron therapy, given to 13 patients (11.8%), followed by FSFA + Vitamin B in 11 patients (26.8%). FSFA + B complex was used in 7 cases (6.3%), while FSFA alone and FSFA + PRBC + Vitamin B were each prescribed in 4 patients (3.6%). Vitamin B alone was the least prescribed, given to only 2 patients (1.8%). This shows that combination therapy, particularly FSFA with PRBC or Vitamin B, was preferred over monotherapy.

Table 11: Prescribing of Iron and Vitamin Medication.

PRESCRIPTION TYPE	NUMBER OF PATIENTS (n)	PERCENTAGE[%]
FSFA	4	3.6%
FSFA, B complex	7	6.3%
FSFA, PRBC	13	11.8%
FSFA, PRBC, Vitamin B	4	3.6%
FSFA, Vitamin B	11	10%
Vitamin B	2	1.8 %

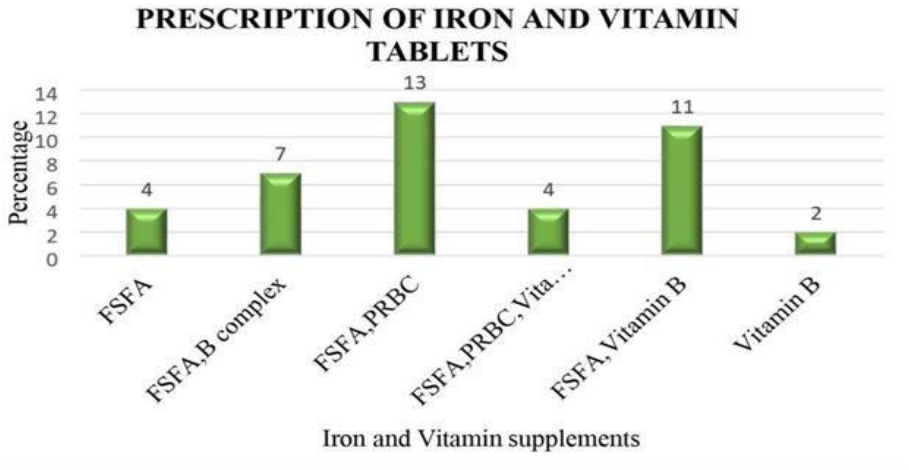


Figure 19: Prescribing Iron and Vitamin Medication.

5.14 PRESCRIBING OF POSTOPERATIVE ANALGESICS *MEDICATION*

Among the postoperative AUB patients, the most commonly prescribed regimen was Tramadol with Paracetamol in 39 patients (35.4%). This was followed by Paracetamol alone in 18 patients (16.3%), Tramadol with ACSP in 14 patients (12.7%), and Tramadol alone in 10 patients (8.1 Additionally, ACSP alone was given to 9 patients (9%), while Diclofenac with Tramadol was prescribed to 5 patients (4.5%). The results highlight that multimodal analgesia, particularly the combination of Tramadol with Paracetamol, was preferred for effective postoperative pain management.

Table 12: Prescribing of Postoperative Analgesics Medications.

Drugs	NUMBER OF PATIENTS	Percentage[%]
Tramadol+Paracetamol	39	35.4%
Tramad01+ACSP	14	12.7%
Paracetamol	18	16.3%
Diclofenac +Tramadol	5	4.5%
ACSP	10	90/0
Tramadol+Paracetamol	2	1.8%
Tramadol	9	8.1%
Total	97	88.1%

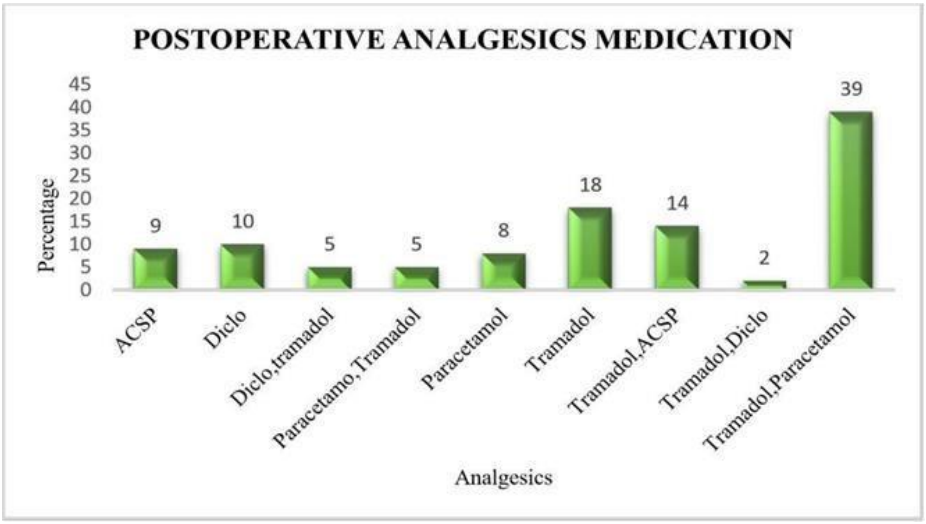


Figure 20: Prescribing of Postoperative Analgesic Medication.

5.15 PRESCRIBING OF POSTOPERATIVE ANTIBIOTIC *MEDICATION*

Among the antibiotics prescribed, the most common combination was Metrogyl, Ceftriaxone (—43 patients, —45%), followed by Metrogyl, Cefotaxim (z25 patients, —26%). Other regimens included Metrogyl, Doxycycline (—10 patients, —11%), Metrogyl alone (—12 patients, —12%), and Doxycycline alone (z5 patients, —5%). Less frequently used antibiotics were Ceftriaxone (4 patients, —4%), Cefotaxim (3 patients, —3%), Cefixime (4 patients, —4%), and Doxycycline + Cefotaxim (1 patient, —1%). This indicates that combination therapy, 54 especially Metrogyl with thirdgeneration cephalosporins, was the most preferred choice for managing postoperative AUB.

Table 13: Prescribing of Postoperative Antibiotic Medication.

DRUGS	NUMBER OF PATIENTS	PERCENTAGE [^{0}/01]
Metrogyl, Ceftriaxone	42	38.1%
Metrogyl, Cefotaxim	22	20%
Metrogyl, Doxycycline	10	90/0
Doxycycline, Cefotaxim	2	1.8%
Metrogyl	12	10.9%
Doxycycline	5	4.5%
Ceftriaxone	8	7.2%
Cefotaxim	3	2.7%

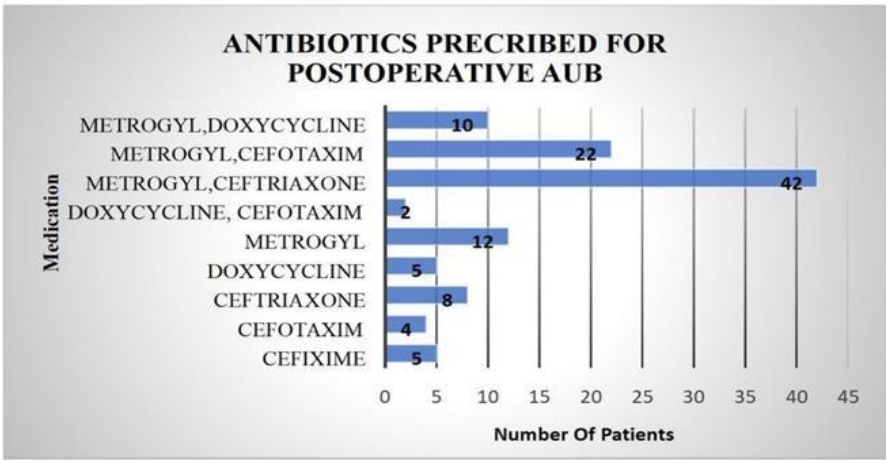


Figure 21: Prescribing of Postoperative Antibiotic Medications.

5.16 POSTOPERATIVE SUPPORTIVE THERAPY AMONG *SURGICALLY TREATED AUB PATIENTS*

Out of 172 patients with abnormal uterine bleeding, 62 patients (36%) were managed with medical treatment, while the remaining 110 patients (64%) underwent surgical intervention. Among the surgically treated group, postoperative prescriptions included iron and vitamin supplementation as supportive therapy (Figure X). The majority received Ferrous Sulphate with Folic Acid (FSFA) in combination with B complex in 41 patients (37.2%), followed by B complex alone in 17 patients (15.4%), FSFA alone in 16 patients (14.5%), and Vitamin C (Limcee) with B complex in 14 patients (12.7%). A smaller proportion were prescribed FSFA with B complex along with PRBC transfusion in 13 patients (11.8%), and PRBC transfusion alone in 9 patients (8. I %).

Table 14: Postoperative Supportive Therapy among Surgically Treated AUB Patients.

SUPPLEMENT COMBINATION	NUMBER OF PATIENTS(n)	PERCENATGE[%]
FSFA	16	14.5%
B complex	17	15.4%
FSFA, B complex	41	37.2%
FSFA, B complex, PRBC	13	11.8%
PRBC	9	8.1%
Vitamin Limcee, B complex	14	12.7%

CONCLUSION

Most AUB cases occurred in women aged 39—50 years (51 with irregular heavy bleeding (76.2%) as the leading symptom and thyroid disorders (87%) as the most common comorbidity. Leiomyoma was the predominant structural cause (54.7%). The majority received surgical management (64%), and the most commonly prescribed drugs were Progestins (Meprate 48.4%, Regesterone 33.9%), Paracetamol (51.9%), and Tranexamic acid (53%). Postoperative management often included antibiotics (Metrogyl + Ceftriaxone, 38.1 %) and iron/vitamin supplementation. The study highlights the importance of appropriate diagnosis and rational, individualized treatment to optimize outcomes in AUB.

SUMMARY

A prospective cross-sectional study involving 172 women with abnormal uterine bleeding (AUB) was conducted at MIMS Tertiary Care Hospital. The analysis focused on demographic details, clinical profiles, comorbidities, diagnostic findings, and treatment patterns. The majority of patients were aged 39—50 years (51%), followed by 29—38 years (28%) and 19—28 years (21 %). Most participants were married (63%) compared to unmarried (37%). Irregular heavy bleeding was the most common presentation (76.2%), followed by heavy, scanty, and irregular bleeding (15.7%), and fatigue with irregular bleeding (7%). The most frequent durations were 15 days (23.8%), 20 days (22.7%), 1 week (15.7%), and 1 month (15.1 The leading symptom was pelvic pain with dysmenorrhea (55.2%), while polymenorrhea occurred in 20.9%, and pelvic pain alone in 14%. Thyroid disorders were the most prevalent comorbidity (87%), along with PCOS (7%), T2DM (3%), and migraine (3%). Leiomyoma (fibroids) was the most common abnormality found on ultrasound (54.7%), followed by polyps (19.8%), adenomyosis (15.1 and endometriosis (10.5%). The most common diagnostic combination was CBC, ultrasound, and peripheral smear (74.4%), followed by CBC, peripheral smear, and ultrasound (17.4%). Surgical management was used in 64% of patients, whereas 36% received medical management. Meprate was the most prescribed OCP (48.4%), followed by Regestrone (33.9%). Paracetamol (51.9%) was the most common analgesic, with various combinations also used. Tranexamic acid (53%) was preferred slightly over Mefenamic acid (47%) for antifibrinolytic therapy. Iron and vitamin supplements, especially combinations like FSFA and PRBC (11.8%), FSFA with Vitamin B (10%), and FSFA with B complex (6.3%), were frequently prescribed. The most common postoperative analgesic was Tramadol + Paracetamol (35.4%). Metrogyl with Ceftriaxone (38. I %) was the most commonly prescribed antibiotic regimen postoperatively.

ACKNOWLEDGEMENT

We thank the Almighty for his choicest blessings showered up on uS for the success of this project work. We take this privilege and pleasure to acknowledge the contributions of many have been inspirational and supportive throughout our work under this project would be impossible without the support of many people, although It is impractical to thank them individually. Our work bears the imprint of all those people we are grateful to. With great pleasure and sense of gratitude, we express our cordial and humble thanks to our eminent respected guide Dr. MANU P R, Professor, & Head, Department of Pharmacy Practice, Bharathi College of Pharmacy, Bharathinagara, for her valuable guidance, keen interest, inspiration, unflinching encouragement and moral support throughout our project work. We express our sincere thanks to her for stimulating discussion, meticulous guidance, illimitable enthusiasm, and support since the beginning of our course. We would like to express our special thanks of gratitude and our glad to MIZH MANI, Director, Health Science and management, for their valuable support. our academic progress.

8. BIBLIOGRAPHY

1. Garcia OC, Sasaki KJ, Talavera F, Casey FE, Lucidi RS. Abnormal (Dysfunctional) Uterine Bleeding: Practice Essentials, Background, Pathophysiology. eMedicine [Internet]. Updated 13 December 2023. https ://emedicine.medscape.com/article/257007overview
2. Vaidya R, Vinayachandran S, Devi S, Prejisha B, Lekshminath G, Sreedharan S, Jahrin PK. Prevalence of Abnormal Uterine Bleeding and its Associated Risk Factors in Women of Perimenopausal Age Group—A Retrospective Study. Journal of Clinical and Diagnostic Research. 2022 Dec; https://jcdr.net/articles/PDF /17252/59994 CE(Vi) PFI(PS 0M) PFA(
3. Sun Y, Wang Y, Mao L, Wen J, Bai W. Prevalence of abnormal uterine bleeding according to the new International Federation of Gynecology and Obstetrics classification in Chinese women of reproductive age: a cross-sectional study. Medicine (Baltimore). 2018 Aug; 97(31): e11457 https://pmc.ncbi.nlm.nih. gov/articles/PMC6081150/
4. Olson DM. The role of prostaglandins in the initiation of parturition. Best. Pract. Res. Clin.,Obstet., Gynaecol., 2003;17(5):717–30. https://www.sciencedirect.com/science/article/abs/pi i/S 152169340700069
5. Pinkerton JV. Abnormal uterine bleeding (Dysfunctional uterine bleeding). In: MSD Manual Professional Version [Internet]. University of Virginia Health System; Reviewed by Goje O. Revised January 2023; Modified March 2024. Available from: https://www.msdmanuals.com/professional/gynecology-

andobstetrics/menstrualabnormalities/abnormaluterine-bleeding
6. Munro MG, Critchley HOD, Broder MS, Fraser IS; FIGO Working Group on Menstrual Disorders. FIGO classification system (PALM-COEIN) for causes of abnormal uterine bleeding in nongravid women of reproductive age. International. Journal of Gynecolog & Obstetrics. 2011 Apr; 113 (1): 3—14 https ://obgyn.onlinelibrary.wiley.com/doi/10.1016/j.ijgo.2010.11.011
7. FIGO Working Group on Menstrual Disorders; Munro MG, Critchley HOD, Broder MS, Fraser IS. FIGO classification system (PALM-COEIN) for causes of abnormal uterine bleeding in nongravid women of reproductive age. International Journal of Gynecology & Obstetrics. 2011 Apr; 113(1): 3-13 https://www.sciencedirect.com/science/article/abs/pii/S0020729211000129
8. Mikes BA, Vadakekut ES, Sparzak PB. Abnormal uterine bleeding. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan—. Last update 21 Feb 2025. Available from: https://www.ncbi.nlm.nih.gov/books/NBK532913/
9. Authoring team. Dysfunctional uterine bleeding. In: GPnotebook [Internet]. Last edited 9 October 2024. https://gpnotebook.com/pages/gynaecology/dysfunctional-uterine-bleeding
10. Rezende GP, Benetti-Pint0 CL, Yela DA, Rosa-eSi1va ACJ de S, Soares JM. Diagnosis and management of acute abnormal uterine bleeding during menacme. Clinics (São Paulo).2025;80:100608. https ://www.elsevier.es/es-revista-clinics22articulodiagnosis-management-acuteabnormaluterine-S1807593225000341
11. FIGO Working Group on Menstrual Disorders; Munro MG, Critchley HOD, Broder MS, Fraser IS. FIGO classification system (PALM-COEIN) for causes of abnormal uterine bleeding in nongravid women of reproductive age. Int J Gynaecol Obstet.2011 Apr;113(1):313. https://www.research.ed.ac.uk/en/publications/figoclassificationsystem-palm-coein-forcauses-ofabnormal-uter?
12. American College of Obstetricians and Gynecologists. Management of acute abnormal uterine bleeding in nonpregnant reproductive-aged women. Committee Opinion No. 557. Obstetrics & Gynecology. 2013 Apr; 121(4):891—6. Reaffirmed 2024. https://www.acog.org/clinical/clinicalguidance/committee-bleeding opinion/articles/2013/04/management-of-acute-abnormal-uterinebleedinginnonpregnant-reproductive-aged-women
13. Salih Y, Almutairi GS, Alhumaidi NH, Alhabardi N, Adam I. Abnormal Uterine Bleeding Among Rural Adolescent Schoolgirls: A Cross-Sectional Study. Medicina. 2025;61(1):33. https://www.mdpi.com/1648-9144/61/l/33?utm sour
14. Choudhury SA, Nath P. Abnormal uterine bleeding; its prevalence, causes and management in a tertiary care hospital. The New Indian Journal of OBGYN. 2020;7(1):52–7. https://journal.barpetaogs.co.in/pdf/0752.pdf
15. Sinha K, Gurung P, Sinha HH, Bhadani PP. Study on abnormal uterine bleeding among adult women in a tertiary care hospital in Bihar, India. Int. J. Reprod., Contracept Obstet Gynecol. 2018 Aug;7(8):3136–3140. https://www.ijrcog.org/index.php/ijrcog/article/view/4994
16. Khanam A, Bushra A, Hossain SN, Akter T, Zahan N, Dina US, Minkin T. Abnormal Uterine Bleeding—lts Causes and Management in Women of Reproductive Age. Obs. Gyne. Review J. Obstet., ,Gynecol.,2024;10(1):66–72. https ://obstetrics.medresearch.in/index.php/joog/article/download/174/301 1
17. Sharma S, Das J, Chopal S. Pattern of abnormal uterine bleeding in a tertiary care hospital. Int. J. Clin., Trials. 2025 Jan–Mar;12(1):7– 10 https ://www.ij clinicaltrials.com/index.php/ijct/article/view/831
18. Thakur M, Maharjan M, Tuladhar H, Dwa Y, Bhandari S, Maskey S, Bajracharya M. Thyroid dysfunction in patients with abnormal uterine bleeding in a tertiary care hospital: a descriptive cross-sectional study. JNMA J Nepal Med. Assoc., 2020 May 30; 58(225): 333-337 https://pmc.ncbi.nlm.nih.gov/articles/PMC7654461/
19. Singh S, Pandey P, Agarwal S, Swarn K, Singh S. Spectrum of uterine lesions presenting as abnormal uterine bleeding in a rural north Indian population: a study from a tertiary care center. Int. J. Res. Med., Sci., 2016 Aug; 4(8): 3250—3254. https ://www.msjonline.org/index.php/ijrms/article/view/1113
20. Kaneria AJ, Kaneriya PA. To study the sociodemographic profile and clinical profile of abnormal uterine bleeding cases attending new civil hospital, Surat, Western India. Indian J Obstet. Gynecol. *Res*.202 https://ijogr.org/archive/volume/Il/issue/2/article/13672#article
21. Khan R, Sherwani RK, Rana S, Hakim S, Jairajpuri ZS. Clinico-pathological patterns in women with dysfunctional uterine bleeding. Iran. J. Pathol., 2016 Winter; 11(1): 20— 26 https ://pmc.ncbi.nlm.nih.gov/articles/PMC4749191
22. Shukla M, Fonseca MN, Kharat D, Tekale P. A study to correlate histopathological findings in patients with abnormal uterine bleeding. Int. J. Reprod Contracept Obstet Gynecol. 2017 Feb;6(2):654– 657 https://www.ijrcog.org/index.php/ijrcog/article/view/1723
23. Kaneria AJ, Gandhi MR, Khandhar SM, Kaneriya PA, Patel ND. Prevalence and clinical presentation of uterine fibroids in Saurashtra region of Gujarat: A crosssectional study. Indian J Obstet Gynecol Res.,

24-2025; 12(3): https ://ij ogr.org/archive/volume/12/issue/3/article/24410
24. Pujari P, Shenoy HT, Chellamma VK. Evaluating patterns of abnormal uterine bleeding in thyroid dysfunction at a tertiary care centre in North Kerala, India. Int J., Health Clin. Res., 2021; 4(6): 66-72 https ://www.ijhcr.com/index.php/ijhcr/article/view/1208
25. Understanding causes of abnormal uterine bleeding in perimenopausal women: a prospective observational study using the FIGO PALM-COEIN classification system. J K Science. Published 10 months ago. https://journal.jkscience.org/index.php/JK-Science/article/view/314
26. Vaidya R, Vinayachandran S, Devi S, Prejisha B, Lekshminath G, Sreedharan S, Jahrin PK. Prevalence of abnormal uterine bleeding and its associated risk factors in women of the perimenopausal age group—A retrospective study. J. Clin. Diagn. Res., 2022 Dec;16(12): QC09-QC13 https://jcdr.net/article fulltext.asp?issn=0973709x&year=2022& month =December & volume=16&issue= 12&page=QC09-OC 13 17252
27. Gomathy E, Vandana V, Sathyashree V. Endometrial study of abnormal uterine bleeding in perimenopausal women. Int J Reprod Contracept Obstet Gynecol. 2024 Mar.; 13(3): 690-694. https://www.ijrcog.org/index.php/ijrcog/article/view/13795
28. Patil D, Sharanbasavraj D, Neelopant S, Munipapanna S, Neeta PN. Etiologies of abnormal uterine bleeding using PALM-COEIN classification at a tertiary care hospital in North Karnataka: a cross-sectional study. Int J Life Sci Biotechnol Pharma Res. 2024 Jun; 13(6):44https ://www.ijlbpr.com/uploadfiles/85vol 13 issue6pp443449.20240701073909 .pdf
29. Rezende GP, Yela Gomes DA, Benetti-Pinto CL. Prevalence of abnormal uterine bleeding in Brazilian women: Association between self-perception and objective parameters. PL0S One. 2023 https oum al.pone.0282605
30. Kinake S M, Watane S, Deshpande S. Clinico-pathological study of abnormal uterine bleeding — a two-year study at a tertiary care center. Int. J. Med. Res. Health. Sci., 2021 Jun; 10(6):1– https://www.ijmrhs.com/medical-research/clinicopathological- study of abnormal uterine-bleedinga-wo-year-study- at-tertiary-care-center-72548. Html