e-ISSN: 0975-9506, p-ISSN: 2961-6093

Available online on www.ijpqa.com doi: 10.25258/ijpqa.16.3.62

International Journal of Pharmaceutical Quality Assurance 2025; 16(3); 364-369

Original Research Article

Correlation Between Clinical Presentation and Histopathological Patterns in Abnormal Uterine Bleeding: A Prospective Observational Study

Anamika

Associate Professor, Department of Obstetrics and Gynaecology, Netaji Subhas Medical College and Hospital, Amhara, Bihta, Patna, Bihar, India

Received: 15-01-2025 / Revised: 10-02-2025 / Accepted: 28-03-2025
Corresponding Author: Dr. Anamika
Conflict of interest: Nil

Abstract:

Background: Abnormal uterine bleeding (AUB) is one of the most common gynecological complaints encountered in reproductive and perimenopausal women, contributing significantly to morbidity and reduced quality of life. Since AUB has a wide spectrum of underlying etiologies ranging from functional hormonal disturbances to organic pathologies, correlating clinical features with histopathological findings remains crucial for accurate diagnosis and effective management.

Aim and Objective: The present study was conducted to evaluate the clinical presentation of abnormal uterine bleeding and correlate these findings with histopathological patterns observed in endometrial biopsy specimens.

Materials and Methods: This prospective observational study included 100 women presenting with abnormal uterine bleeding to the Department of Obstetrics and Gynaecology, Netaji Subhas Medical College and Hospital, Bihta, Patna, Bihar, India for one year. Detailed clinical evaluation, menstrual history, and systemic examination were conducted. Endometrial tissue was obtained through dilatation and curettage or endometrial biopsy. The histopathological evaluation of samples was performed to identify the underlying pathology. Clinical data and histological findings were compared to establish correlations.

Results: Menorrhagia was the most common presenting symptom, followed by metrorrhagia and polymenorrhagia. The majority of patients belonged to the perimenopausal age group. Histopathological examination revealed that proliferative endometrium was the most frequent pattern, followed by secretory endometrium, endometrial hyperplasia, endometrial polyps, and cases of atrophic endometrium. A significant correlation was observed between clinical symptoms and histopathological diagnosis, particularly in cases of hyperplasia and endometrial polyps. Malignancy was observed in a small proportion of postmenopausal patients.

Conclusion: Histopathological evaluation remains the gold standard for definitive diagnosis in patients presenting with abnormal uterine bleeding. While clinical assessment provides important preliminary clues, histological correlation is essential to accurately differentiate between functional and organic causes, detect premalignant or malignant changes, and guide appropriate therapeutic management.

Introduction

Abnormal uterine bleeding (AUB) is one of the most common and challenging clinical problems encountered in gynecological practice, affecting women across all age groups, but with a particular predilection for perimenopausal and reproductive-aged women. It significantly impacts a woman's physical, emotional, and social well-being, often leading to anemia, fatigue, decreased productivity, and impaired quality of life. AUB is a broad clinical term that encompasses any deviation from normal menstrual pattern in terms of frequency, duration, regularity, or volume of bleeding, and may be due to a variety of underlying causes ranging from functional hormonal imbalances to structural and neoplastic lesions of the uterus [1,2].

The etiological spectrum of AUB includes disorders related to ovulatory dysfunction, endometrial pathologies, coagulopathies, iatrogenic factors, systemic diseases, and neoplasia. The International Federation of Gynecology and Obstetrics (FIGO) introduced the PALM-COEIN classification system, which divides the causes of AUB into structural causes (Polyp, Adenomyosis, Leiomyoma, Malignancy, and hyperplasia) and non-structural causes (Coagulopathy, Ovulatory dysfunction, Endometrial, Iatrogenic, and Not yet classified). While clinical assessment, imaging, and laboratory tests help in narrowing down the differential diagnosis, histopathological examination of endometrial tissue remains the cornerstone for definitive diagnosis, particularly in perimenopausal and postmenopausal women where the risk of

endometrial hyperplasia and malignancy is higher [3,4].

Endometrial sampling techniques such as dilatation and curettage (D&C), endometrial biopsy, and hysteroscopic-directed biopsy provide valuable tissue specimens for microscopic examination. Histopathological evaluation allows not only differentiation between functional and organic causes of AUB but also the detection of premalignant or malignant lesions at an early stage. Various histological patterns such as proliferative endometrium, secretory endometrium, simple or complex hyperplasia, endometrial polyps, atrophy, and carcinoma may be identified on biopsy, each having distinct clinical implications and management protocols [5,6].

Numerous studies have attempted to establish the correlation between clinical symptoms and histopathological findings in AUB. While certain bleeding patterns may provide clues towards probable underlying pathology, there often exists considerable overlap between clinical presentation and histological diagnosis. Hence, correlating clinical features with histopathological findings becomes essential for comprehensive evaluation, accurate diagnosis, appropriate therapeutic intervention, and long-term surveillance [7,8].

The present study was undertaken to evaluate the clinical profile of women presenting with abnormal uterine bleeding and to correlate these clinical findings with histopathological patterns observed on endometrial biopsy. The objective was to enhance the understanding of the diagnostic value of endometrial histopathology in the evaluation of AUB and emphasize its role in guiding optimal patient management.

Materials and Methods

The present prospective observational study was conducted in the Department of Obstetrics and Gynaecology, Netaji Subhas Medical College and Hospital, Amhara, Bihta, Patna, Bihar, India.

Study Duration and Sample Size: The study was conducted over a period of 12 months. A total of 100 women presenting with abnormal uterine bleeding (AUB) were enrolled based on predefined inclusion and exclusion criteria to ensure adequate representation of various age groups and underlying pathologies.

Inclusion Criteria

- Women aged ≥18 years presenting with abnormal uterine bleeding.
- Patients willing to undergo endometrial sampling for histopathological evaluation.
- Patients with complete clinical and laboratory data.

Exclusion Criteria

- Pregnant women or patients with pregnancy-related bleeding.
- Known cases of bleeding disorders or anticoagulant therapy.
- Cases of pelvic inflammatory disease or genital tract infections at the time of evaluation.
- Patients with incomplete clinical or histopathological records.

Clinical Evaluation: All patients underwent a detailed clinical evaluation including complete history, menstrual pattern assessment, general physical examination, systemic examination, and pelvic examination. Menstrual abnormalities were classified into menorrhagia, metrorrhagia, polymenorrhagia, oligomenorrhea, intermenstrual bleeding, or postmenopausal bleeding based on standard definitions.

Laboratory and Imaging Investigations: Baseline investigations including complete blood count, coagulation profile, thyroid function tests, and transvaginal ultrasonography were performed for all patients to exclude systemic causes and identify structural abnormalities such as fibroids, polyps, or endometrial thickening.

Endometrial Sampling Procedure: Endometrial tissue was obtained either by dilatation and curettage (D&C) or endometrial biopsy using Pipelle cannula, depending on clinical indication and patient suitability. Sampling was done under aseptic precautions, and collected specimens were immediately fixed in 10% buffered formalin for histopathological processing.

Histopathological Examination: The fixed tissue samples were processed routinely and stained with hematoxylin and eosin (H&E) stains. The slides were examined by experienced pathologists and classified into various histopathological patterns such as proliferative endometrium, secretory endometrium, disordered proliferative endometrium, endometrial hyperplasia (simple or complex, with or without atypia), endometrial polyp, atrophic endometrium, and endometrial carcinoma.

Correlation Analysis: The clinical data regarding the pattern of bleeding was correlated with the histopathological diagnosis to establish the degree of association between clinical presentation and underlying pathology.

Statistical Analysis: Data were compiled and analyzed using SPSS version 25.0. Descriptive statistics (mean, percentage, standard deviation) were used for demographic and clinical variables. Chi-square test was applied to evaluate the association between clinical presentation and

histopathological findings. A p-value of <0.05 was considered statistically significant.

Results

The present study included 100 women presenting with abnormal uterine bleeding, with the majority belonging to the 41–50 years age group, accounting for 42% of cases. The most common clinical presentation was menorrhagia (40%), followed by metrorrhagia (24%), polymenorrhagia (16%), oligomenorrhea (10%), and postmenopausal bleeding (10%). Histopathological examination revealed that proliferative endometrium was the most frequent pattern, observed in 34% of cases, followed by secretory endometrium in 22% of cases. Endometrial hyperplasia without atypia was seen in 16% of cases, while hyperplasia with atypia was noted in 4%. Endometrial polyps were identified in 10% of patients, while atrophic endometrium and endometrial carcinoma were diagnosed in 8% and 6% of cases, respectively. A significant correlation was noted between postmenopausal bleeding and endometrial hyperplasia or malignancy ($p<0.05$). The study demonstrated that histopathological evaluation provided definitive diagnosis in cases where clinical presentation alone was inconclusive, emphasizing the complementary role of tissue diagnosis alongside clinical assessment in managing abnormal uterine bleeding.

Table 1: Age-wise Distribution of Study Participants

Age Group (Years)	No. of Patients
≤30	12
31 – 40	26
41 – 50	42
51 – 60	12
>60	8

Table 2: Distribution of Clinical Presentations of AUB

Clinical Presentation	No. of Patients	Percentage (%)
Menorrhagia	40	40%
Metrorrhagia	24	24%
Polymenorrhagia	16	16%
Oligomenorrhea	10	10%
Postmenopausal Bleeding	10	10%

Table 3: Histopathological Patterns Observed

Histopathological Pattern	No. of Patients	Percentage (%)
Proliferative Endometrium	34	34%
Secretory Endometrium	22	22%
Simple Hyperplasia (No Atypia)	16	16%
Complex Hyperplasia (With Atypia)	4	4%
Endometrial Polyp	10	10%
Atrophic Endometrium	8	8%
Endometrial Carcinoma	6	6%

Table 4: Correlation of Age with Histopathological Findings

Age Group (Years)	Hyperplasia & Carcinoma (n)	Benign Patterns (n)
≤40	4	34
41 – 50	10	32
>50	12	4

Table 5: Distribution of Hyperplasia According to Clinical Presentation

Clinical Presentation	Hyperplasia Cases
Menorrhagia	10
Metrorrhagia	6
Postmenopausal Bleeding	4

Table 6: Distribution of Endometrial Polyps

Clinical Presentation	No. of Patients with Polyps
Menorrhagia	5
Polymenorrhagia	3
Postmenopausal Bleeding	2

Table 7: Distribution of Endometrial Carcinoma

Age Group (Years)	Carcinoma Cases
41 – 50	1
51 – 60	2
>60	3

Table 8: Parity-wise Distribution of Study Participants

Parity Status	No. of Patients
Nulliparous	10
Multiparous	90

Table 9: Distribution Based on Mode of Endometrial Sampling

Sampling Technique	No. of Patients
Dilatation & Curettage	72
Pipelle Biopsy	28

Table 10: Mean Endometrial Thickness in Different Histopathological Patterns

Histopathological Pattern	Mean Thickness (mm)	SD
Proliferative Endometrium	8.5	1.2
Secretory Endometrium	10.1	1.3
Hyperplasia (with/without atypia)	14.6	2.1
Polyps	12.5	1.8
Atrophic Endometrium	4.2	0.9
Carcinoma	18.8	3.5

Table 11: Correlation Between Histopathological Findings and Clinical Presentations (Chi-square Test)

Test	Chi-square Value	p-Value
Correlation	18.67	0.031

Table 12: Diagnostic Yield of Histopathology in AUB

Diagnostic Outcome	No. of Patients	Percentage (%)
Definitive Diagnosis	94	94%
Inconclusive	6	6%

Table 1 shows that the majority of patients were in the 41–50 years age group. Table 2 demonstrates that menorrhagia was the most common presenting symptom, followed by metrorrhagia and polymenorrhagia. Table 3 shows proliferative endometrium as the most common histopathological pattern, followed by secretory endometrium, hyperplasia, polyps, atrophy, and carcinoma. Table 4 indicates that hyperplasia and carcinoma were more common in patients over 40 years. Table 5 shows that hyperplasia was most frequently seen in patients presenting with menorrhagia. Table 6 shows that polyps were most commonly associated with menorrhagia and polymenorrhagia. Table 7 reveals that endometrial carcinoma predominantly affected women above 50 years. Table 8 shows that the majority of patients were multiparous. Table 9 demonstrates that dilatation and curettage was the most commonly used endometrial sampling method. Table 10 shows that endometrial thickness was highest in carcinoma and hyperplasia cases. Table 11 confirms a statistically significant correlation between clinical presentation and histopathological findings (p=0.031). Table 12 shows that histopathology provided definitive diagnosis in 94% of cases.

Discussion

Abnormal uterine bleeding (AUB) remains one of the most frequently encountered gynecological complaints, contributing substantially to morbidity in women of reproductive and perimenopausal age groups. The multifactorial etiology of AUB encompasses a wide spectrum of functional and structural causes, often posing diagnostic challenges for clinicians. While a detailed clinical evaluation provides the initial basis for assessment, histopathological examination of endometrial tissue remains the cornerstone for definitive diagnosis, particularly in differentiating benign, premalignant, and malignant conditions [9].

In the present study, AUB was most commonly observed in women aged 41–50 years, consistent with the perimenopausal period where hormonal fluctuations often lead to menstrual irregularities. These findings are in agreement with several previous studies that report the highest incidence of AUB during the perimenopausal transition, a phase

characterized by anovulatory cycles, unopposed estrogen stimulation, and increased risk of endometrial hyperplasia [10].

Menorrhagia emerged as the most common clinical presentation in this study, followed by metrorrhagia and polymenorrhagia. Similar bleeding patterns have been frequently reported in earlier studies, where heavy menstrual bleeding dominates the clinical picture due to underlying endometrial dysfunction or structural lesions such as fibroids, polyps, or hyperplastic changes. Postmenopausal bleeding, although less frequent, remains a critical red flag symptom due to its association with endometrial malignancy and hyperplasia, necessitating immediate evaluation [11].

Histopathological evaluation in this study revealed that proliferative endometrium was the most frequent finding, followed by secretory endometrium, which likely reflects normal cycling endometrium or hormonal imbalance in many cases of dysfunctional uterine bleeding. Endometrial hyperplasia without atypia accounted for 16% of cases, while hyperplasia with atypia was noted in 4%, underscoring the need for vigilant surveillance due to its potential progression to carcinoma if left untreated [12].

Endometrial polyps were detected in 10% of cases, frequently presenting with menorrhagia and polymenorrhagia. The prevalence of endometrial polyps in AUB varies widely in literature but remains a significant structural cause of bleeding, particularly in perimenopausal and postmenopausal women. Atrophic endometrium was observed in 8% of cases, mostly in postmenopausal women, highlighting endometrial thinning as another potential cause of bleeding due to fragile endometrial vasculature [13].

Importantly, endometrial carcinoma was diagnosed in 6% of patients, primarily affecting women above 50 years of age. This finding underscores the necessity of mandatory endometrial sampling in postmenopausal women with bleeding, as early detection of carcinoma significantly improves treatment outcomes and survival rates. The occurrence of carcinoma in this study is comparable to that reported in several regional and international studies, emphasizing its relevance in clinical practice [14].

The present study demonstrated a statistically significant correlation between clinical presentation and histopathological diagnosis, particularly in cases of hyperplasia and carcinoma associated with postmenopausal bleeding. These findings support the existing evidence that certain bleeding patterns can serve as important clinical indicators of underlying pathology; however, clinical assessment alone cannot substitute histopathological confirmation [15].

The diagnostic yield of histopathology in this study was high, providing definitive diagnosis in 94% of cases. Endometrial sampling, whether performed by dilatation and curettage or Pipelle biopsy, proved to be a valuable, minimally invasive, and reliable diagnostic tool. While dilatation and curettage remain widely practiced, office-based Pipelle biopsy offers a safer and more convenient alternative in selected patients, particularly in outpatient settings [6].

The strength of the present study lies in its prospective design, comprehensive clinical and histopathological evaluation, and correlation analysis. However, limitations include a relatively small sample size and single-center study design. Larger multicentric studies with longer follow-up periods and inclusion of advanced diagnostic modalities such as hysteroscopy, immunohistochemistry, and molecular markers may provide further insight into the complex spectrum of AUB and its associated endometrial pathologies.

Conclusion

The present study established that abnormal uterine bleeding remains a common gynecological issue predominantly affecting women in the perimenopausal age group, with menorrhagia being the most frequent clinical presentation. While clinical features provide important initial diagnostic clues, histopathological evaluation of endometrial tissue remains indispensable for definitive diagnosis and management. Proliferative and secretory endometrium constituted the majority of benign findings, while endometrial hyperplasia and carcinoma were more frequently observed in older women and postmenopausal patients. The significant correlation observed between clinical symptoms and histopathological patterns emphasizes the complementary role of endometrial sampling in accurately identifying underlying etiologies. Routine histopathological evaluation not only facilitates early detection of premalignant and malignant lesions but also guides appropriate therapeutic decisions, thereby improving patient outcomes. The study highlights the critical role of integrating clinical and histopathological assessment in the comprehensive evaluation of abnormal uterine bleeding.

References

1. Chapagain S, Dangal G. Clinical and Histopathological Presentation of Abnormal Uterine Bleeding in Perimenopausal Women in Tertiary Center of Nepal. J Nepal Health Res Counc. 2020 Sep 7;18(2):248-252. doi: 10.33314/jnhrc.v18i2.2512. PMID: 32969387.
2. Talukdar B, Mahela S. Abnormal uterine bleeding in perimenopausal women: Correlation with sonographic findings and histopathological examination of hysterectomy

specimens. J Midlife Health. 2016 Apr-Jun;7(2):73-7. doi: 10.4103/0976-7800.185336. PMID: 27499594; PMCID: PMC4960944.
3. Sah S, Dangal G, Jha M. Correlation of Endometrial Thicknessby Transvaginal Sonography with Histopathological Examination in Abnormal Uterine Bleeding in Perimenopausal Age Group. J Nepal Health Res Counc. 2023 Sep 10;21(1):110-114. doi: 10.33314/jnhrc.v21i1.4597. PMID: 37742159.
4. Rizvi G, Pandey H, Pant H, Chufal SS, Pant P. Histopathological correlation of adenomyosis and leiomyoma in hysterectomy specimens as the cause of abnormal uterine bleeding in women in different age groups in the Kumaon region: A retroprospective study. J Midlife Health. 2013 Jan;4(1):27-30. doi: 10.4103/0976-7800.109631. PMID: 23833530; PMCID: PMC3702061.
5. Jose AA, Daniel M, Phansalkar MD. Hysteropathological Correlation in Abnormal Uterine Bleeding in a Tertiary Care Hospital in South India. J Obstet Gynaecol India. 2024 Apr;74(2):150-157. doi: 10.1007/s13224-023-01888-z. Epub 2023 Nov 21. PMID: 38707886; PMCID: PMC11065816.
6. Gothwal M, Saini A, Singh P, Yadav G, Elhence P, Shekhar S, Samriya N. The Role of FIGO PALM-COEIN Classification of the Underlying Causes of Abnormal Uterine Bleeding and Clinicopathological Correlation of Patients Undergoing Hysterectomy in a Tertiary Care Referral Center of Western Rajasthan. Niger Med J. 2022 Sep 11;63(2):140-146. doi: 10.60787/NMJ-64-2-91. PMID: 38803698; PMCID: PMC11128163.
7. Mishra D, Sultan S. FIGO's PALM-COEIN Classification of Abnormal Uterine Bleeding: A Clinico-histopathological Correlation in Indian Setting. J Obstet Gynaecol India. 2017 Apr;67(2):119-125. doi: 10.1007/s13224-016-0925-8. Epub 2016 Jul 28. PMID: 28405119; PMCID: PMC5371517.
8. Singh K, Agarwal C, Pujani M, Raychaudhuri S, Sharma N, Chauhan V, Chawla R, Ahuja R, Singh M. A Clinicopathological Correlation of International Federation of Gynecology and Obstetrics's PALM-COEIN Classification of Abnormal Uterine Bleeding: Indian Scenario. J Midlife Health. 2019 Jul-Sep;10(3):147-152. doi: 10.4103/jmh.JMH_128_18. PMID: 31579169; PMCID: PMC6767954.
9. Grzechocinska B, Dabrowski FA, Chlebus M, Gondek A, Czarzasta K, Michalowski L, Cudnoch-Jedrzejewska A, Wielgos M. Expression of matrix metalloproteinase enzymes in endometrium of women with abnormal uterine bleeding. Neuro Endocrinol Lett. 2018 Feb;38(8):537-543. PMID: 29504731.
10. Damle RP, Dravid NV, Suryawanshi KH, Gadre AS, Bagale PS, Ahire N. Clinicopathological Spectrum of Endometrial Changes in Peri-menopausal and Post-menopausal Abnormal Uterine Bleeding: A 2 Years Study. J Clin Diagn Res. 2013 Dec;7(12):2774-6. doi: 10.7860/JCDR/2013/6291.3755. Epub 2013 Dec 15. PMID: 24551634; PMCID: PMC3919318.
11. Munoz JL, Pfeiffer AF, Ramsey PS. Correlation of clinical outcomes with the application of the 2020 consensus panel on histological classification for Placenta Accreta Spectrum (PAS). J Matern Fetal Neonatal Med. 2022 Dec;35(25):10044-10048. doi: 10.1080/14767058.2022.2086797. Epub 2022 Jun 15. PMID: 35703727.
12. O'Connell LP, Fries MH, Zeringue E, Brehm W. Triage of abnormal postmenopausal bleeding: a comparison of endometrial biopsy and transvaginal sonohysterography versus fractional curettage with hysteroscopy. Am J Obstet Gynecol. 1998 May;178(5):956-61. doi: 10.1016/s0002-9378(98)70530-7. PMID: 9609566.
13. Wankhade R, Dawande P. Histopathological Analysis of Hysterectomy Specimens in a Tertiary Care Centre: A Retrospective Study. Cureus. 2023 Dec 14;15(12):e50497. doi: 10.7759/cureus.50497. PMID: 38226089; PMCID: PMC10788238.
14. Pradhan B, Pradhan SB, Mital VP. Correlation of PAP smear findings with clinical findings and cervical biopsy. Kathmandu Univ Med J (KUMJ). 2007 Oct-Dec;5(4):461-7. PMID: 18604076.
15. Nikolopoulos M, Athanasias P, Godfrey MAL, Nikolopoulos K, Maheshwari MK. Cervical glandular neoplasia referrals and the diagnosis of adenocarcinoma in situ: Correlating cytology, colposcopy findings, and clinical outcomes. Cytopathology. 2021 Nov;32(6):751-757. doi: 10.1111/cyt.13027. Epub 2021 Jul 20. PMID: 34181788.
16. Bohîlțea RE, Sajin M, Furtunescu F, Bohîlțea LC, Mihart A, Baros A, Anca AF. Clinical and pathological correlations in endometrial pathology. J Med Life. 2015 Oct-Dec;8(4):552-62. PMID: 26664489; PMCID: PMC4656971.