

## Clinical and Histopathological Correlation in Abnormal Uterine Bleeding: A Comprehensive Study

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### Abstract:

**Background:** Abnormal uterine bleeding (AUB) is a prevalent yet complex gynaecological condition with many aetiologies, necessitating precise evaluation for suitable therapy. While clinical diagnosis provides a first assessment, histological examination remains the definitive standard for confirming underlying aetiologies and guiding appropriate therapeutic choices.

**Objective:** The objective is to correlate histological findings with clinical manifestations in patients undergoing hysterectomy for abnormal uterine bleeding, therefore enhancing diagnostic precision and therapeutic approaches.

**Methods:** This prospective observational study involved 74 patients Undergoing hysterectomy for abnormal uterine bleeding at the Department of Obstetrics and Gynaecology, Jagannath Gupta Institute of Medical Sciences and Hospital, Budge budge, Kolkata, India. Hysterectomy specimens underwent histological examination, ultrasonic evaluation, and clinical assessment. The statistical correlation between clinical and histological diagnoses was included in the data analysis.

**Results:** The perimenopausal age group of 41 to 45 years, including 29.7%, exhibited the highest prevalence of abnormal uterine bleeding (AUB). The most prevalent presentation was menorrhagia (40.5%). Histopathological findings revealed proliferative endometrium (27.0%) and secretory endometrium (24.3%), following endometrial hyperplasia (18.9%), fibroids (16.2%), and adenomyosis (8.1%). 5.4% of patients exhibited malignancy. Histological analysis confirmed many illnesses, with dysfunctional uterine bleeding (DUB) being the predominant clinical diagnosis at 33.8%. This underscores its critical role in diagnosis and therapy.

**Conclusion:** Histological research is essential for establishing a clinical diagnosis of AUB and preventing misinterpretation. Patient outcomes can be improved by carefully choosing a hysterectomy and, where possible, reviewing conservative therapy options.

**Keywords:** Abnormal Uterine Bleeding, Clinical Correlation, Endometrial Pathology, Gynecological Disorders, Histopathology, Hysterectomy.

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### Introduction

Abnormal uterine bleeding (AUB) is a prevalent although complex clinical manifestation. It encompasses haemorrhage resulting from pregnancy, iatrogenic factors, systemic disorders, genital tract pathologies, and dysfunctional uterine haemorrhage [1]. Normal menstruation is characterised by bleeding from the secretory endometrium linked to ovulatory cycles, lasting no more than five days. Any bleeding that does not meet these criteria is classified as abnormal uterine haemorrhage [2]. Hysterectomy is among the most prevalent surgical interventions in gynaecology globally [3]. This is a primary technique for the surgical treatment of abnormal uterine bleeding. Hysterectomy can be performed using vaginal or abdominal methods. The histology and disease

patterns of the uterus exhibit considerable diversity due to hormonal influences. The clinical diagnosis of abnormal uterine bleeding provides insight into uterine morphology.

Histopathological examination of the hysterectomy specimen is essential for diagnostic confirmation, significantly influencing patient care. AUB is a prevalent gynaecological issue globally [4]. The aetiology, age distribution of the condition, assessment methods, medicinal or surgical therapy, and differential diagnosis are well elucidated by Janet R. Albers et al. in 2004 [4]. Dicker asserts that a hysterectomy is warranted when the risks associated with retaining the uterus above those of its excision, or when debilitating symptoms exist for

which effective medical interventions are unavailable [5]. The enhancement of hospital care, accessibility of blood transfusions, sophisticated anaesthesia, and, most importantly, the introduction of antibiotics has accompanied in a new age, consequently expanding the indications for hysterectomy while minimising postoperative morbidity and death.

A hysterectomy is an effective procedure for alleviating symptoms and enhancing patient happiness. It offers a conclusive treatment for several uterine and adnexal conditions, including fibroids, dysfunctional uterine bleeding (DUB), endometriosis, adenomyosis, pelvic organ prolapse, pelvic inflammatory disease (PID), and malignancy. Histopathological analysis of surgical specimens possesses ethical, legal, diagnostic, and therapeutic importance [6]. The objective of this research is to examine the link between clinical presentation and histological findings in patients with abnormal uterine bleeding, facilitating precise diagnosis and successful therapy.

### Methodology

**Study Design:** This research is a prospective observational study carried out in the Department of Obstetrics and Gynaecology, Jagannath Gupta Institute of Medical Sciences and Hospital, Budge budge, Kolkata, India for one year. Seventy-four individuals who undergone hysterectomy were recruited.

### Study Population:

#### Inclusion Criteria:

- Women above the age of 35 years.
- Patients who have abdominal or vaginal hysterectomy to address abnormal and excessive bleeding.

#### Exclusion Criteria:

- Instances of utero-vaginal prolapse.
- Patients effectively managed conservatively for anomalous uterine haemorrhage.

**Patient Selection:** Each case was meticulously chosen through departmental deliberation. All patients had a clinical assessment, subsequently followed by

an ultrasound examination, either abdominal or transvaginal. The results were aligned with the clinical diagnosis. Patients with an unidentifiable source of bleeding were categorised as having Dysfunctional Uterine Bleeding (DUB). Only those necessitating a hysterectomy were incorporated into the research.

### Surgical Methods:

- **Non-Descent Vaginal Hysterectomy (NDVH):** Optimal for the majority of cases when practicable.
- **Abdominal Hysterectomy:** Indicated in instances when NDVH proved challenging due to uterine dimensions, concomitant adnexal disease, or numerous surgical adhesions from prior interventions.

### Histopathological Examination:

- Specimens were dispatched to the Histopathology Department in formalin, accompanied by comprehensive clinical information.
- Before surgery, all patients received a comprehensive series of tests, an ultrasound examination, and a Pap smear.

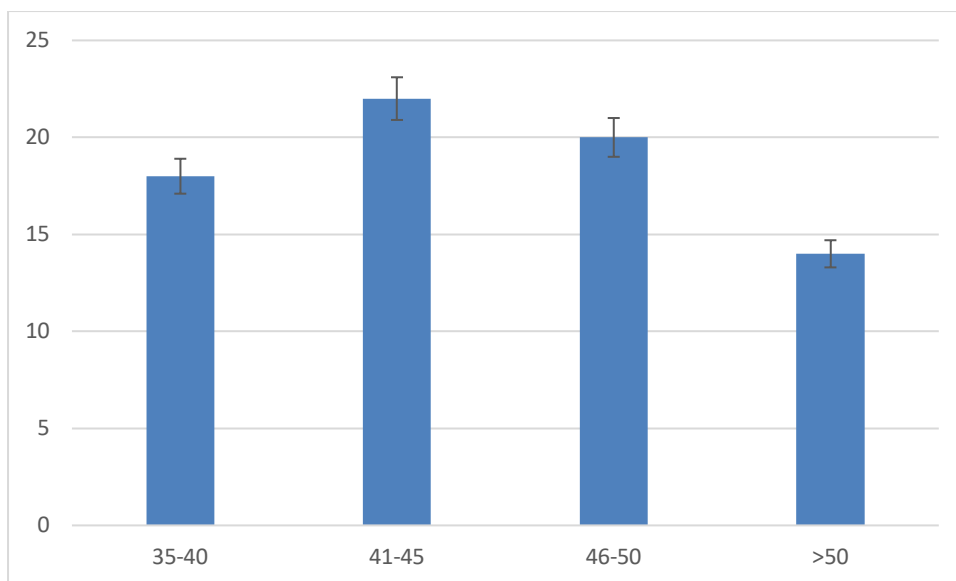
**Statistical Analysis:** The relationship between clinical diagnosis and histological results was statistically examined utilising suitable statistical test, e.g., Chi-square test, t-test. The sensitivity and specificity of clinical diagnosis relative to histological findings were computed, with results given in tables, charts, and graphs for clarity of understanding.

**Expected Outcome:** This study seeks to determine the relationship between clinical presentation and histological findings in individuals with abnormal uterine bleeding, facilitating precise diagnosis and successful therapy.

### Results

Table 1 indicates that the predominant age group of patients receiving hysterectomy for AUB was 41-45 years (29.7%), followed by the 46-50 years age group (27.0%). A few (18.9%) were above 50 years old, suggesting that AUB is predominantly observed during the perimenopausal phase.

| Age Group (Years) | Number of Patients (n=74) | Percentage (%) |
|-------------------|---------------------------|----------------|
| 35-40             | 18                        | 24.30%         |
| 41-45             | 22                        | 29.70%         |
| 46-50             | 20                        | 27.00%         |
| >50               | 14                        | 18.90%         |

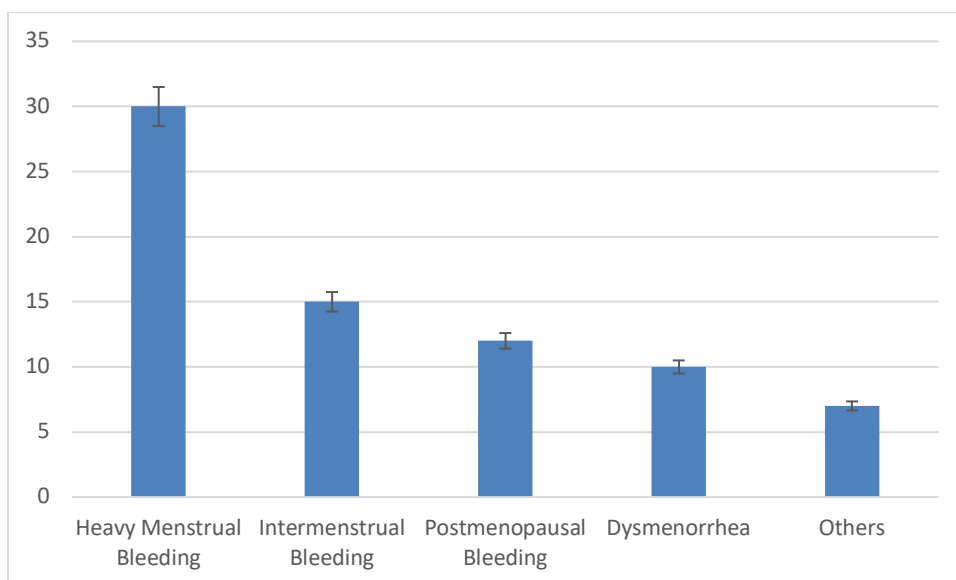


**Graph 1: Age Distribution of Patients**

Table 2 illustrates the Intermenstrual bleeding (20.3%), Postmenopausal bleeding (16.2%), and heavy menstrual bleeding (40.5%) were the most frequent clinical presentations. Dysmenorrhea and

other symptoms constituted a lesser percentage of patients, illustrating the diverse clinical presentations of AUB.

| Clinical Symptoms        | Number of Patients (n=74) | Percentage (%) |
|--------------------------|---------------------------|----------------|
| Heavy Menstrual Bleeding | 30                        | 40.50%         |
| Intermenstrual Bleeding  | 15                        | 20.30%         |
| Postmenopausal Bleeding  | 12                        | 16.20%         |
| Dysmenorrhea             | 10                        | 13.50%         |
| Others                   | 7                         | 9.50%          |



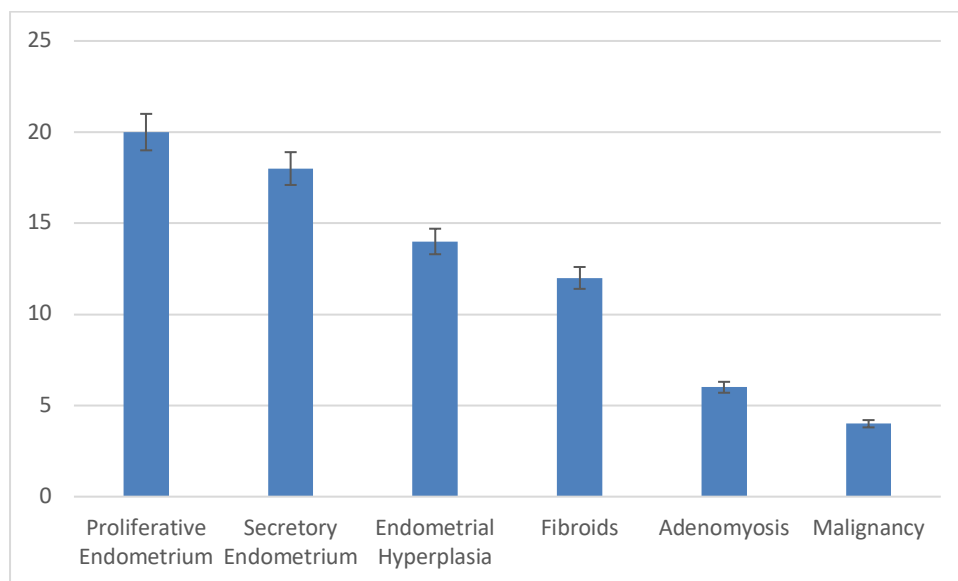
**Graph 2: Clinical Presentation of AUB Patients**

Table 3 demonstrates that the most prevalent finding in the histopathological investigation was proliferative endometrium (27.0%), succeeded by secretory endometrium (24.3%) and endometrial hyperplasia (18.9%). Fibroids were seen in 16.2% of

instances, but adenomyosis and malignancy were recognized in 8.1% and 5.4% of instances, correspondingly. These findings underscore the significance of histopathology in validating the

underlying aetiology of abnormal uterine bleeding (AUB).

| Histopathological Diagnosis | Number of Cases | Percentage (%) |
|-----------------------------|-----------------|----------------|
| Proliferative Endometrium   | 20              | 27.00%         |
| Secretory Endometrium       | 18              | 24.30%         |
| Endometrial Hyperplasia     | 14              | 18.90%         |
| Fibroids                    | 12              | 16.20%         |
| Adenomyosis                 | 6               | 8.10%          |
| Malignancy                  | 4               | 5.40%          |

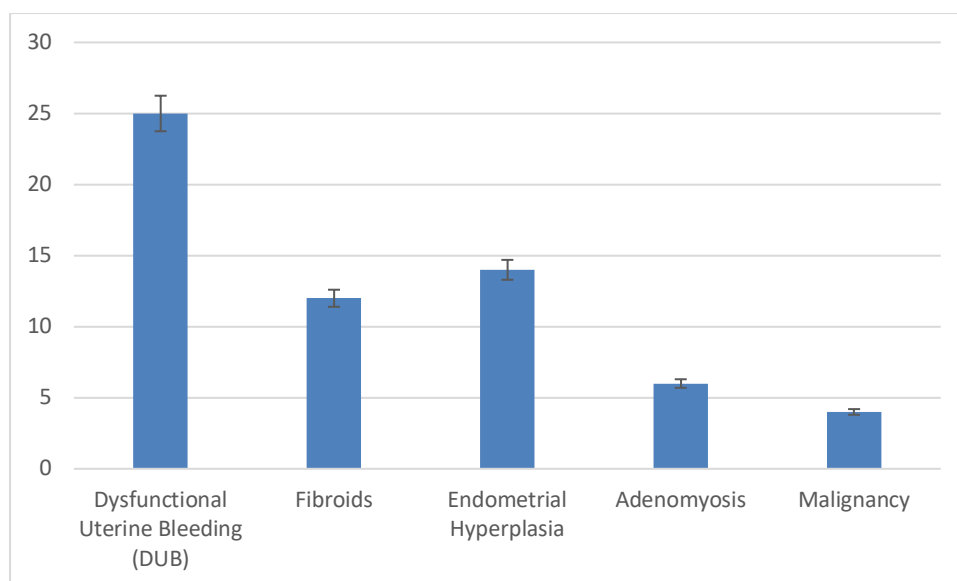


**Graph 3: Histopathological Findings**

Table 4 indicates that Dysfunctional Uterine Bleeding (DUB) was the most often diagnosed disease, verified histopathologically in 33.8% of patients. Fibroids (16.2%) and endometrial hyperplasia (18.9%) were often associated with

clinical diagnosis. Adenomyosis and malignancy represented minor proportions (8.1% and 5.4%, respectively), underscoring the necessity for meticulous assessment and histological verification prior to determining therapeutic approaches.

| Clinical Diagnosis                   | Confirmed Histopathological Cases | Percentage (%) |
|--------------------------------------|-----------------------------------|----------------|
| Dysfunctional Uterine Bleeding (DUB) | 25                                | 33.80%         |
| Fibroids                             | 12                                | 16.20%         |
| Endometrial Hyperplasia              | 14                                | 18.90%         |
| Adenomyosis                          | 6                                 | 8.10%          |
| Malignancy                           | 4                                 | 5.40%          |



**Graph 4: Correlation Between Clinical and Histopathological Diagnosis**

### Discussion

This study's findings provide significant insight into the relationship between clinical presentation and histological diagnosis in individuals with AUB. The predominant cohort of patients was within the perimenopausal age bracket, with the peak frequency noted in the 41-45 years age range (29.7%). This indicates that hormonal variations in this demographic have a substantial role in the onset of AUB. These findings correspond with other research indicating a heightened prevalence of AUB in women nearing menopause. Research carried out from April 2021 to June 2022 examined the factors affecting AUB in perimenopausal women. The study indicated that abnormal uterine bleeding during the menopausal transition arises from reproductive endocrine abnormalities and both physiological and pathological alterations, significantly affecting women's health (Tian et al., 2024) [7].

Conversely, Marnach et al. (2019) evaluated the demographic profile of patients with abnormal uterine bleeding and discovered that 45% of women were aged 25-30 years, while just 10% were aged 41-45 years. This indicates that AUB is equally common in younger women, suggesting that causes outside perimenopausal hormone changes may play a role in its occurrence [8]. Cross-sectional research conducted by Almuhaithb et al. in 2024, which examined 500 medical records of women aged 20-50 years with abnormal uterine bleeding (AUB), revealed that the predominant age group among participants was 20-29 years, comprising 43% of the sample. This data contradicts research highlighting a greater frequency in the perimenopausal demographic and indicates that AUB also significantly impacts younger women [9].

Clinical symptoms exhibited variability across patients, with heavy menstrual bleeding being the predominant manifestation (40.5%), succeeded by intermenstrual bleeding (20.3%) and postmenopausal bleeding (16.2%). This underscores the diverse characteristics of AUB and the necessity for a comprehensive clinical evaluation to inform therapeutic strategies. Although clinical diagnosis is vital in the preliminary assessment, histological confirmation is necessary for precise diagnosis and suitable treatment. Research in the 'Journal of Clinical and Diagnostic Research' indicated that among women AUB, 54% exhibited menorrhagia, 20% exhibited metrorrhagia, and 16% exhibited postmenopausal haemorrhage. These findings align with the consequences of our study, emphasising the prevalence of HMB in instances with AUB [10].

A study published in the 'Journal of Clinical and Diagnostic Research' highlighted the essential function of histopathological assessment in detecting abnormal uterine bleeding (AUB). The research revealed that histological analysis of endometrial specimens yielded conclusive diagnoses, informing suitable therapeutic approaches. This emphasises the imperative of histological confirmation, as indicated by your study, for precise diagnosis and treatment strategy in AUB patients [11].

Histopathological analysis indicated that proliferative endometrial (27.0%) and secretory endometrium (24.3%) were the predominant results, suggesting that several patients had typical cyclical alterations despite their symptoms. Endometrial hyperplasia (18.9%), fibroids (16.2%), and adenomyosis (8.1%) were prevalent results, suggesting that structural abnormalities substantially contribute to abnormal uterine bleeding (AUB). Malignancy was detected in 5.4%

of patients, underscoring the need of histological assessment in identifying severe diseases that may necessitate intensive intervention. Conversely, research examining endometrial histology in women with abnormal uterine bleeding indicated a reduced prevalence of proliferative endometrium (23.97%) and secretory endometrium (13.01%), implying diversity in histological patterns among diverse ethnicities [12]. Research evaluating endometrial biopsies in cases of abnormal uterine bleeding revealed that proliferative endometrium constituted 30.80% and secretory endometrium 28.00% of cases, suggesting a somewhat even distribution between both stages [13].

In the comparison of clinical and histological diagnosis, it was noted that DUB was the most commonly diagnosed disorder clinically, representing 33.8% of cases. histological results revealed other underlying conditions, including fibroids (16.2%), endometrial hyperplasia (18.9%), and adenomyosis (8.1%), underscoring the necessity of histological assessment to prevent misdiagnosis and facilitate efficient treatment. A research examining endometrial samples from individuals with abnormal uterine bleeding indicated that typical cyclical alterations, encompassing proliferative and secretory endometrium, constituted 72.7% of cases, with the proliferative phase representing 40.7% and the secretory phase 32.0%. Sunitha Research investigating the histological spectrum in cases of abnormal uterine bleeding (AUB) revealed that proliferative endometrium was observed in 46.69% of patients, while secretory endometrium was identified in 13.23%, suggesting that a considerable proportion demonstrated typical cyclical changes while experiencing symptomatic bleeding [14].

This study highlights the significance of combining clinical evaluation with histological examination in the treatment of AUB. Although clinical assessment establishes a preliminary diagnostic framework, histopathology is the definitive standard for determining the aetiology of abnormal uterine bleeding (AUB). These findings underscore the necessity for careful patient selection for hysterectomy, ensuring that only those with verified clinical anomalies get surgical intervention. Furthermore, conservative therapy alternatives should be used wherever possible to reduce superfluous surgical interventions. A research conducted by Verma et al. in 2019 examined endometrial biopsies from patients with abnormal uterine bleeding (AUB) and found that typical cyclical alterations, comprising proliferative and secretory endometrium, represented 72.7% of cases, with the proliferative phase at 40.7% and the secretory phase at 32.0% [15]. Kinake et al. investigated the histological spectrum in instances of abnormal uterine bleeding (AUB) and discovered

that proliferative endometrium was present in 46.69% of patients, while secretory endometrium was observed in 13.23%, suggesting that a considerable proportion had typical cyclical alterations while experiencing symptomatic bleeding [16].

### Conclusion

This study emphasises the essential integration of clinical evaluation and histological examination in the diagnosis and management of AUB. Although clinical assessment offers a preliminary diagnosis, histopathology is the definitive standard for validating underlying causes, hence facilitating precise treatment recommendations. The significant occurrence of proliferative and secretory endometrium indicates typical cyclical alterations, whereas problems such as fibroids, hyperplasia, and cancer highlight the necessity for comprehensive assessment. Prudent patient selection for hysterectomy is crucial, with conservative care deemed appropriate when possible. Histopathological evaluation ultimately improves diagnostic precision, facilitating optimal patient care and minimising needless surgical procedures in the management of AUB.

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