Research Article

Clinicopathological Study on Abnormal Uterine Bleeding (AUB) Patients Undergoing Hysterectomy

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ABSTRACT
Aims and objectives: This study aims to analyze the clinicopathological profiles of women with AUB undergoing hysterectomy and correlate clinical diagnoses with final histopathological findings.
Material and method: This is a prospective observational study conducted at the SMS Medical College in Department of Pathology in collaboration with Department of Obstetrics and Gynaecology over one year of study period from Feb.2024 to March 2025.
Results and conclusion: In our studies, perimenopausal age (40-49yrs) is the most common age group for hysterectomy. Leiomyoma being the most common structural pathology and hormonal imbalance was the most common endometrial pathology. A case of endometrial carcinoma was detected histologically which was not previously suspected in clinico-radiologically. Our study confirms that histopathological evaluation of endometrium is a useful tool for detecting non-structural causes of AUB

Keywords: Abnormal Uterine Bleeding, Perimenopausal Age, Endometrial Pathology, Leiomyoma.

INTRODUCTION

Abnormal uterine bleeding (AUB) is one of the most common gynecological complaints among women of reproductive and peri-menopausal age which is defined as any variation from the normal menstrual cycle which includes changes in regularity, frequency of menses, duration of flow, or amount of blood loss.

It significantly affects women's quality of life and is a frequent cause for gynecological consultations and hospital admissions [1]. The etiology of AUB is multifactorial, ranging from benign functional disturbances to malignant neoplasms [2]. Hysterectomy is the definitive management for diseases like adenomyosis, dysfunctional bleeding, fibroid, prolapsed uterus and malignant uterine and adnexal lesions [3]. Histopathology is the cornerstone for providing the exact diagnosis and to justify the indication of hysterectomy.

The study aims to determine the frequency of various histopathological lesions in the hysterectomy specimen received in SMS Medical College and the distribution of different lesions in relation to age and to correlate the histopathological diagnosis with clinical diagnosis.

Prevalence and Impact

Globally, it is estimated that up to 30% of women will experience AUB at some point in their lives [4]. In developing countries, the burden is even higher due to limited access to healthcare and delayed presentation [5]. Chronic AUB can lead to anemia, fatigue, and significant psychosocial distress, emphasizing the need for timely diagnosis and management [6].

Diagnostic Approaches

Diagnosis of AUB involves a combination of clinical evaluation, laboratory investigations, and imaging studies. The PALM-COEIN classification by FIGO has standardized the terminology and categorization of causes, separating structural causes (Polyp, Adenomyosis, Leiomyoma, Malignancy and hyperplasia) from non-structural causes (Coagulopathy, Ovulatory dysfunction, Endometrial, Iatrogenic, Not yet classified) [7]. However, in resource-limited settings, histopathological examination after hysterectomy remains the gold standard for definitive diagnosis [8].

Rationale for Hysterectomy

While conservative management using hormonal and non-hormonal therapies is often attempted, hysterectomy becomes necessary when these measures fail, or when malignancy is suspected or confirmed [9]. Hysterectomy not only provides symptomatic relief but also allows for a thorough pathological evaluation to rule out premalignant or malignant lesions [10].

Clinicopathological Correlation

A thorough clinicopathological study bridges the gap between clinical diagnosis and histopathological findings, helping to refine preoperative assessments and management strategies [11]. Multiple studies have reported varying rates of concordance between clinical and histopathological diagnoses, highlighting the importance of such research [12].

Objectives

This study aims to:

- Analyze the clinicopathological profiles of women with AUB undergoing hysterectomy.
- Correlate clinical diagnoses with final histopathological findings.
- Assess the distribution of various pathological lesions in hysterectomy specimens for AUB

MATERIAL AND METHODS

This is a prospective observational study conducted at the SMS Medical College in Department of Pathology in collaboration with Department of Obstetrics and Gynaecology over one year of study period from Feb.2024 to March 2025 with approval from institutional ethical committee.The sample size was (n=120)

Study Population

Inclusion Criteria:

- Women presenting with AUB who underwent hysterectomy.
- Women with complete clinical and histopathological records availableand those who gave consent for this study.

Exclusion Criteria:

- All AUB patients who did not undergo hysterectomy.
- Hysterectomies performed for indications other than AUB (e.g., prolapse, obstetric emergencies).
- Incomplete records.
- Known cases of malignancy.

Data Collection

Data were retrieved from hospital records, including:

- Demographic details (age, parity, socioeconomic status).
- Clinical presentation (duration, pattern of bleeding, associated symptoms).
- Preoperative investigations (CBC, USG findings, endometrial sampling if done).
- Intraoperative findings.

Histopathological examination results.

Histopathological Techniques

Uterine specimens were fixed in 10% formalin, sectioned, and processed using standard histopathological techniques. Staining with hematoxylin and eosin was performed. Special stains were used where indicated.

Statistical Analysis

Data were analyzed using [Statistical Software, e.g., SPSS v26]. Descriptive statistics were used for demographic variables. Chi-square test was applied to assess the correlation between clinical and histopathological diagnoses. P-value <0.05 was considered statistically significant.

Ethical Considerations

The study was approved by the Institutional Ethics Committee ([Approval No.]), and patient confidentiality was maintained throughout.

RESULTS

Table 1: Demographic Distribution of Study Population

Age Group (years)	Number of Patients (n=120)	Percentage (%)
30-39	25	20.8
40-49	65	54.2
50-59	30	25.0

This table shows perimenopausal age group (40-49) has the highest prevalence of AUB.

Table 2: Clinical Presentation of AUB

Clinical Pattern	Number of Patients	Percentage (%)
Menorrhagia	72	60.0

Dysmenorrhoea	68	56.6
Metrorrhagia	18	15.0
Polymenorrhea	12	10.0
Postmenopausal Bleeding	10	8.3

Table shows distribution of cases according to their clinical presentation, menorrhagia was the most common clinical symptom i.e. in 72/120, followed by dysmenorrhoa (68/120)

Table 3: Preoperative Clinical Diagnosis

Diagnosis	Number of Cases	Percentage (%)
Leiomyoma	68	56.66
Adenomyosis	12	10
Leiomyoma + Adenomyosis	6	5
Endometrial Hyperplasia	10	8.3
Polyp	9	7.5
Endometriosis	1	0.83
Ovarian cyst	10	8.33
AUB without any organic pathology (AUB-O)	4	3.33

Table 3 shows distribution of cases according to clinical diagnosis, most common clinical diagnosis being leiomyoma (61.66%), followed by adenomyosis (15%), other causes include endometrial hyperplasia, polyp, ovarian cyst, endometriosis and AUB without any organic cause.

Table 4: Histopathological Findings in Hysterectomy Specimen Other than Endometrial

| Pathological Lesion	Number of Cases	Percentage (%)
Leiomyoma	70	58.33
Adenomyosis	15	12.5
Pathological Lesion	Number of Cases	Percentage (%)
Leiomyoma + Adenomyosis	7	5.83
Endometriosis	2	1.6
Ovarian cyst	6	5
Polyp	9	7.5
No histological findings other than endometrial	11	9.16

Table 5: Histopathological Findings in Hysterectomy Specimen Endometrial

| Histopathological diagnosis	No. of cases	Percentage (%)
Disordered proliferative phase(DPP)	60	50
Endometrial hyperplasia	7	5.83
Proliferative phase	18	15
Secretary phase	8	6.66
Pill effect	4	3.3
Endometrial carcinoma	1	0.83
Atrophic endometrium	22	18.33

Hormonal imbalance (DPP) oestrogen dominance pattern was the most common endometrial pathology (50.0%) while normal endometrial cyclic pattern of proliferative and secretary endometrium was seen in (21.66%) of patients.

Table 6: Correlation between Clinical and Histopathological Diagnosis

| Clinical Diagnosis	Concordant Cases	Discordant Cases	Concordance Rate (%)
Leiomyoma	74	3	96.10
Adenomyosis	18	4	81.81
Endometrial hyperplasia	7	3	70
Polyp	9	0	100
Ovarian cyst	6	4	60
Endometriosis	1	1	50
Endometrial hyperplasia	7	3	70
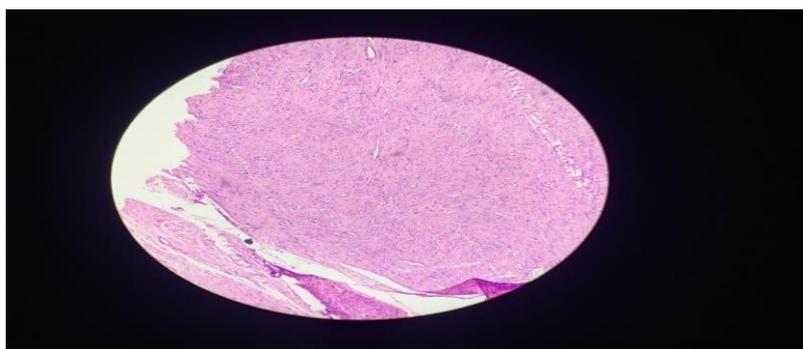
Leiomyoma -H&E section shows mature smooth muscle cell fibres
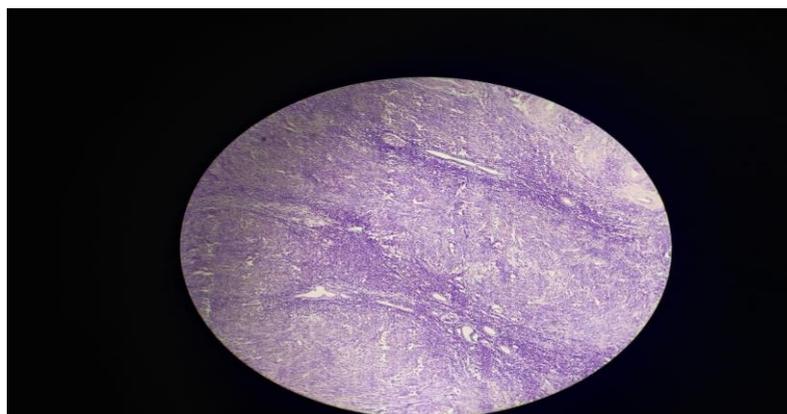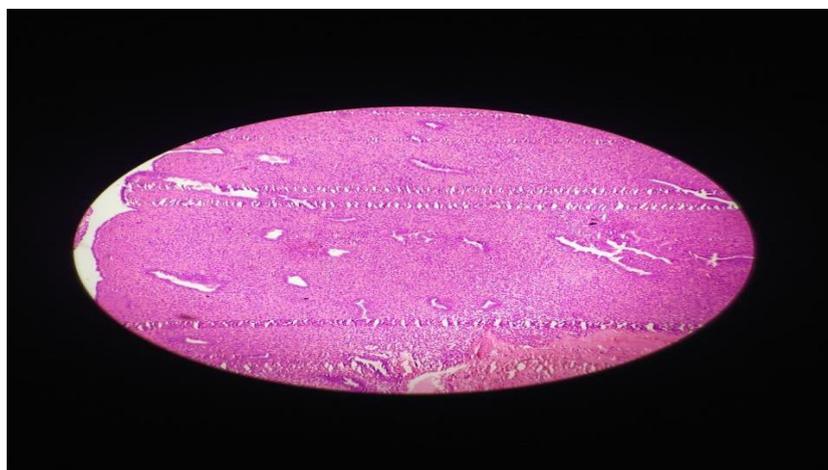

Adenomyosis. H&E section shows endometrial glands and endometrial stroma in between myometrium
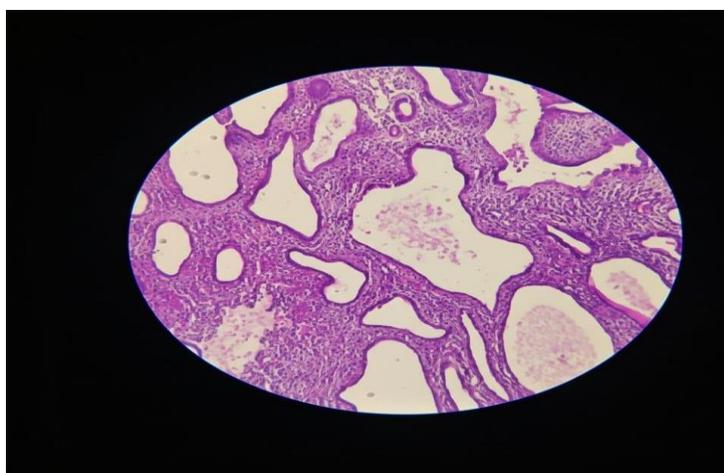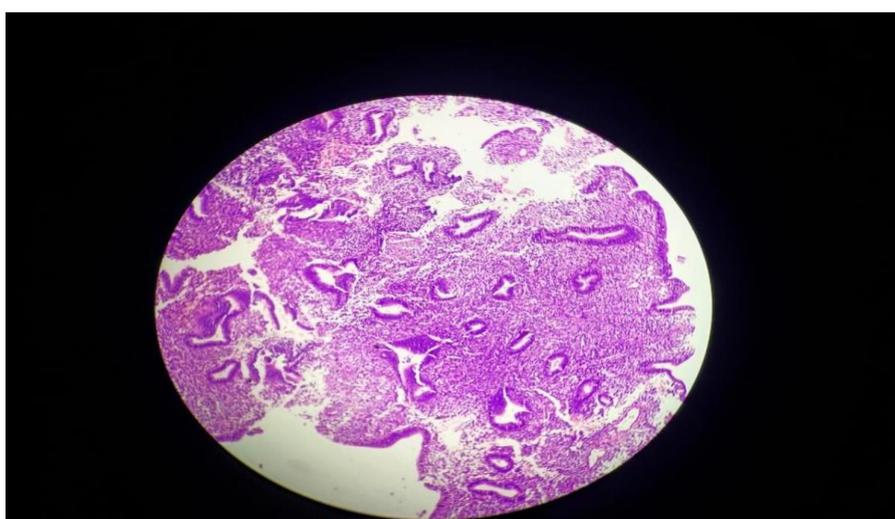

H& E section showing endometrial hyperplasia without atypia.
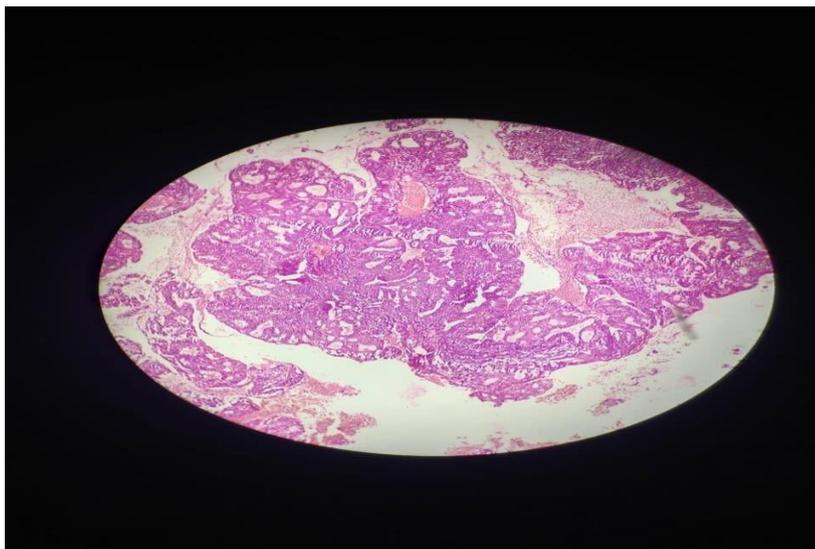
H& E section showing endom etroid carcinoma with myometrial invasion.

H& E section showing endometrium under exogenous hormonal effect (progestin effect)

H&E section showing endometrium in disordered proliferative phase.

DISCUSSION

Demographic Profile

The majority of patients in this study were aged 40-49 years (54.2%), consistent with previous reports indicating a higher prevalence of AUB and hysterectomy in the perimenopausal age group [13, 14]. The higher incidence in this age group may be attributed to hormonal fluctuations, increased incidence of structural uterine pathologies, and cumulative exposure to risk factors over time [15].

Clinical Patterns

Menorrhagia was the most common presenting complaint, similar to the findings of Saravana A et al. [16] and Kolur A et al. [17]. This suggests that heavy menstrual bleeding remains the predominant symptom prompting women to seek medical attention and definitive surgical management.

Clinicopathological Correlation

The most frequent clinical diagnosis was leiomyoma (61.66%), followed by adenomyosis(15%) and endometrial hyperplasia(8.3%). Histopathology confirmed leiomyoma as the most common lesion, which aligns with the existing literature [18, 19]. However, the concordance rate between clinical and pathological diagnosis was not absolute, highlighting the limitations of clinical and imaging-based assessments alone.

Diagnostic Challenges

Our study found a concordance rate of 96.10% for leiomyoma, but lower rates for adenomyosis (81.81%) and endometrial hyperplasia (70%). This is in line with reports by Singh et al. [20], who emphasized the diagnostic difficulty in adenomyosis due to its diffuse nature and overlapping symptoms with other conditions. The discordant cases underline the importance of histopathological examination for accurate diagnosis and appropriate management.

Significance of Malignant Findings

A small but significant proportion (0.83%) of patients were found to have endometrial carcinoma, not suspected clinically. This underscores the critical role of histopathology in identifying unsuspected malignancies, as also reported by Mishra et al. [21].

Limitations

The retrospective nature of the study, potential selection bias, and dependence on record accuracy are notable limitations. Prospective, multicentric studies with larger sample sizes would provide more robust evidence.

CONCLUSION

In our studies, perimenopausal age (40-49yrs) is the most common age group for hysterectomy. Leiomyoma being the most common structural pathology and hormonal imbalance was the most common endometrial pathology A case of endometrial carcinoma was detected histologically which was not previously suspected in clinico-radiologically. Our study confirms that histopathological evaluation of endometrium is a useful tool for detecting non- structural causes of AUB .This study reinforces the necessity of histopathological evaluation of hysterectomy specimens in all cases of AUB, even when benign disease is suspected clinically.

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