



A Spectrum of Endometrial Histopathology in AUB- An Institutional Experience

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Abstract

Background: Abnormal Uterine bleeding (AUB) defined as bleeding that does not fall within normal ranges of amount, duration, frequency or cyclicity of normal menstrual pattern. AUB is associated with significant morbidity among women of various age groups.

Objectives: 1) To observe histopathological spectrum of endometriumin AUB.

2) To analyse the incidence of various endometrial histopathology associated with AUB occurring in women of different age groups.

Methodology: One year two months retrospective study was done at Department of Pathology, MMC&RI which included 150 cases of clinically diagnosed AUB. Histopathological examination of endometrium obtained from biopsy and hysterectomy specimens were clinically correlated.

Results: Out of 150 cases of AUB, common histopathological observations made were proliferative endometrium (46.7%), Secretary endometrium (23.3%), Atrophic phase (11.3%), Endometrial Hyperplasia (10.7%), Endometrial Adenocarcinoma (5.3%), Serouscarcinoma (0.7%) and threebiopsy (2%) specimens were in adequate for evaluation.

Conclusion: Based on the present study incidence of AUB was high among peri-menopausal age group associated with proliferative endometriumon histopathology. Diagnostic histopathology plays a key role in management of AUB and to rule out early malignancy.

Keywords: Endometrium, Abnormal Uterine Bleeding (AUB), Hyperplasia, Endometrial carcinoma.

Introduction

A normal menstrual cycle varies from one female to another. The average menstrual cycle is 28 days long and lasts for 3-5 days. Abnormal Uterine Bleeding (AUB) is defined as bleeding that does not fall within normal ranges of amount, duration or frequency of normal menstrual pattern¹. AUB

can present as menorrhagia, metrorrhagia, polymenorrhoea, menometrorrhagia, perimenopausal bleeding and postmenopausal bleeding². It is the most common symptom among women of reproductive age presenting to gynaecology clinic³. AUB is one of the major cause of gynaecological morbidity, which can

affect 1 out of every 5 women at some point of the reproductive period⁴. AUB is reported to occur in 9 to 14% women between menarche and menopause. Prevalence of AUB in India is around 17.9%⁵.

It has a significant impact on the quality of life for the women. Women with abnormal bleeding have a lower quality of life compared to general female population.

The International Federation of Gynaecology and Obstetrics (FIGO) Menstrual Disorders Working Group has introduced the acronym **PALM-COEIN** in 2011 to standardise the nomenclature of AUB.

The PALM-COEIN system categorises AUB based on etiological and pathological causes of disorder. PALM describes structural causes, where it stands for (Polyp; Adenomyosis; Leiomyoma; Malignancy and hyperplasia) and COEIN denoting non- structural causes of AUB (Coagulopathy; Ovulatory disorders; Endometrial factors; Iatrogenic; and Not classified)⁶.

Majority of these lesions can be diagnosed by sampling the endometrium which could be effectively used as the first-line diagnostic step in AUB. The endometrial sample provides a tissue diagnosis for wide range of morphologic patterns resulting from both normal and abnormal changes⁷. There are several methods for endometrial sampling like endometrial biopsy, hysteroscopic biopsy, dilatation and curettage. Dilatation and Curettage (D and C) is considered to be a method of choice⁸. D and C is a useful and cost effective method. It serves as a standard tool for assessing patients of AUB mostly in developing countries with limited resources⁹.

The aim of this study was to analyse the different types of endometrial histopathology in patients presenting with the AUB and to find the association between various patterns of abnormal uterine bleeding and histopathological findings.

Materials and Methods

A retrospective study was carried out in the Department of Pathology, of Mysore Medical

College and Research Institute, KR hospital over a period of one year two months from August 2021 to October 2022. The study was initiated after taking approval from Institution Ethics Committee. Patients who presented with abnormal uterine bleeding and underwent D and C, endometrial biopsy and hysterectomy specimens were included in the study. Patients who were on hormonal therapy, pregnant patients with bleeding etc were excluded from the study. Data regarding the age, presenting complaints, procedure done and the histopathological reports were retrieved from the medical records and were recorded in the structured performa. Histopathological findings were correlated with clinical presentation of the patients. Statistical package for social sciences (SPSS-Version 21) was used to carry out the statistical analysis of data. The analysis was done in the form of percentages and proportions and represented as tables.

Results

In this study, total of 150cases of AUB were analysed. Patient's age ranged from 21 to 75 years. Maximum number of patients with AUB presented in the age group of 31 to 40 years followed by 41 to 50 years (**Table 1**).

The most common clinical presentation was menorrhagia in 35.3% (53/150), followed by polymenorrhagia 21.3% (32/150), metrorrhagia 20.0% (30/150), postmenopausal bleeding 13.4% (20/150) and polymenorrhoea 10.0% (15/150) (**Table 2**).

Among 150 cases of AUB endometrial histopathology were obtained by 72 samples of D and C, 37 samples from endometrial biopsy, 23 samples from hysterectomy, 18 samples were obtained by hysteroscopic biopsies.

Most common histopathology was proliferative endometrium 46.7% (70/150), followed by secretory endometrium 23.3% (35/150) and Atrophic endometrium 11.3% (17/150). Endometrial hyperplasia including with and without atypia was noted in 10.6% (16/150), endometrial adenocarcinoma was present in 5.3%

(8/150) cases. Inadequate biopsy were reported in 2.0% (3/150), serous carcinoma was reported in 0.7% (1/150) (**Table 3**).

We tried to study and correlate histopathology of endometrium with clinical presentations. In our study menorrhagia (35.3%) was the commonest complaint and among them, histopathological

findings showed proliferative endometrium in 66.0% (35/53) and secretory endometrium in 30.2% (16/53) cases. Among the postmenopausal age group who presented with postmenopausal bleeding, histopathology showed endometrial malignancy in 30.0% (6/20) cases (**Table 4**).

Table 1. Distribution of patients based on age group.

Age Group (in years)	No of cases (Total 150)	Percentage of cases
21-30	12	8%
31-40	54	36%
41-50	46	31%
51-60	21	0.7%
61-70	12	8%
71-80	5	3.3%

Table 2. Distribution of patients based on clinical presentation.

Clinical presentation	No of cases (Total 150)	Percentage of cases
Menorrhagia	53	35.3%
Polymenorrhagia	32	21.3%
Metrorrhagia	30	20.0%
Polymenorrhoea	15	10.0%
Post menopausal bleeding	20	13.4%

Table 3. Distribution of cases based on endometrial histopathology spectrum

Endometrial Histopathology	No of cases (Total 150)	Percentage of cases
Proliferative endometrium	70	46.7%
Secretory endometrium	35	23.3%
Atrophic endometrium	17	11.3%
Endometrial hyperplasia	16	10.7%
Endometrial adenocarcinoma	8	5.3%
Serous carcinoma	1	0.7%
Inadequate sample	3	2%

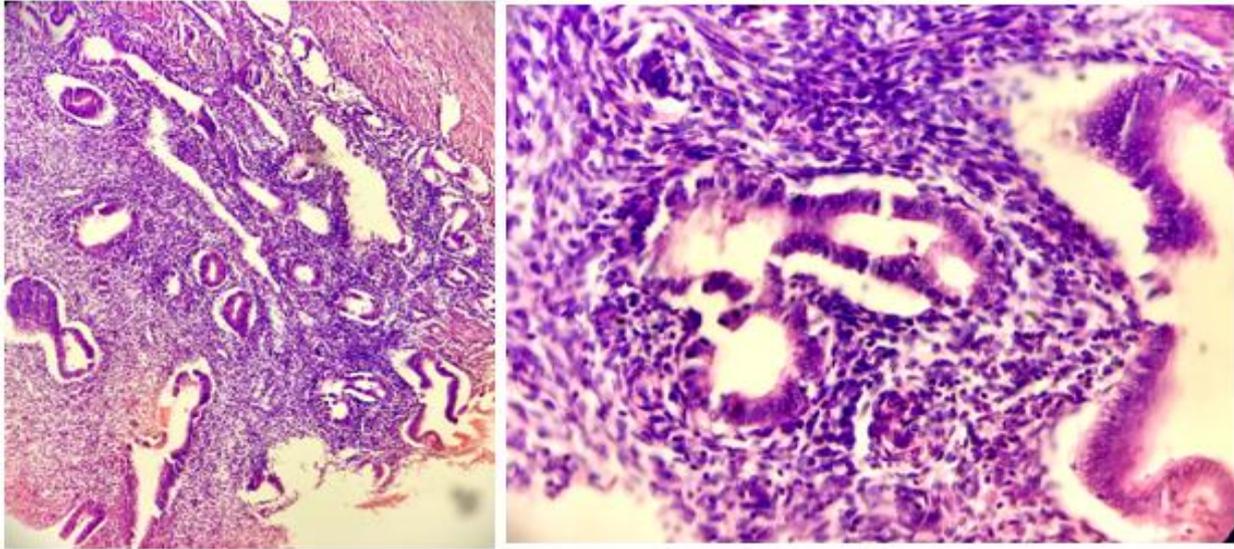


Figure 1. Histopathology of Proliferative Endometrium

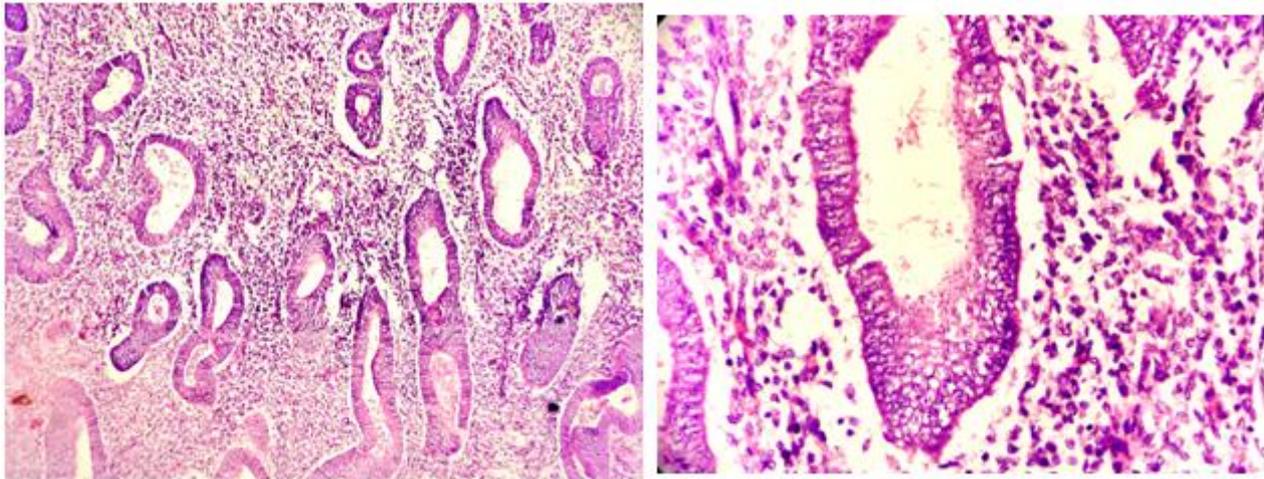


Figure 2. Histopathology of Secretory Endometrium

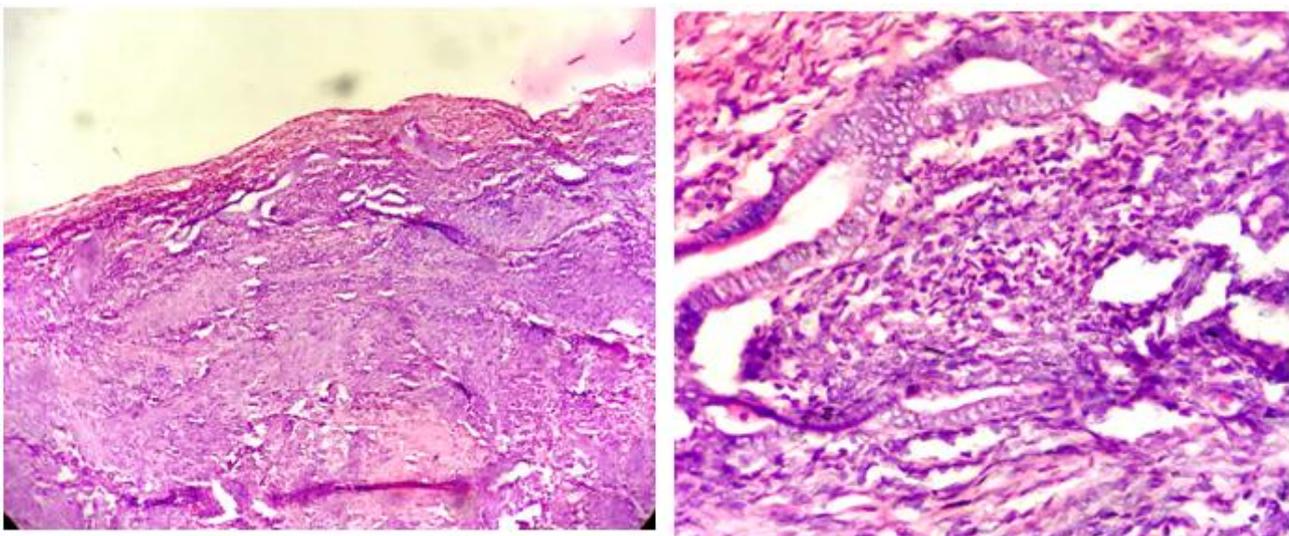


Figure 3. Histopathology of Atrophic Endometrium

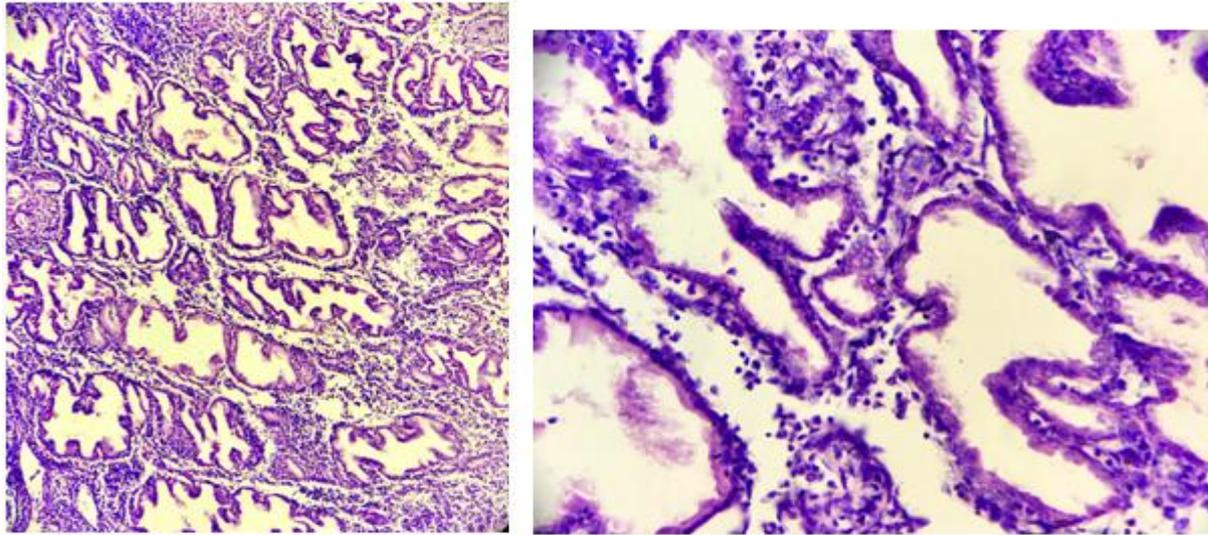


Figure 4. Histopathology of Endometrial Hyperplasia (without atypia)

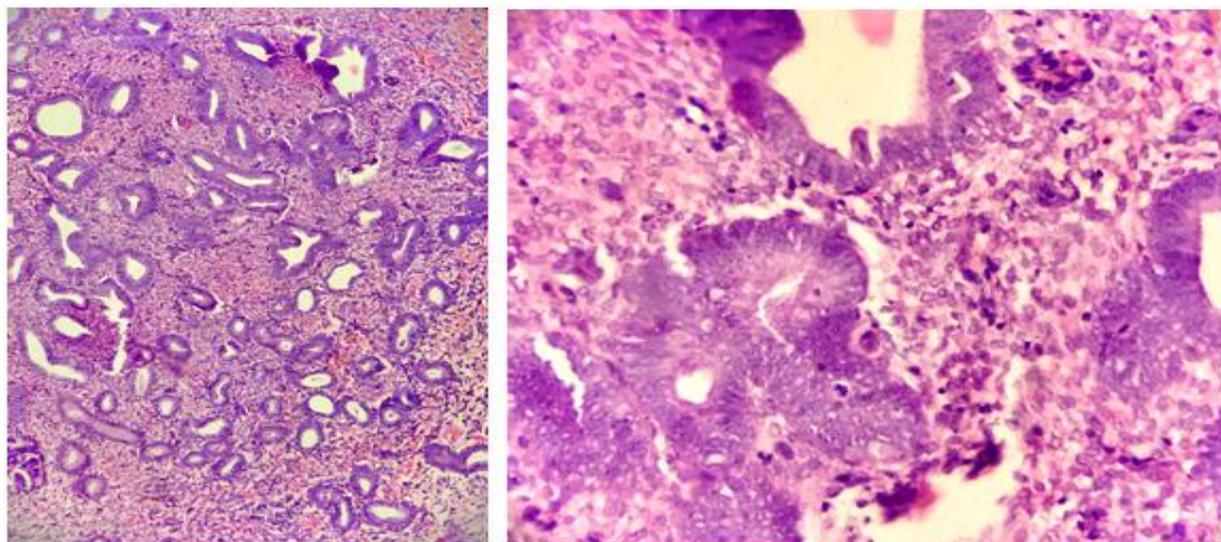


Figure 5. Histopathology of Endometrial Hyperplasia (with atypia)

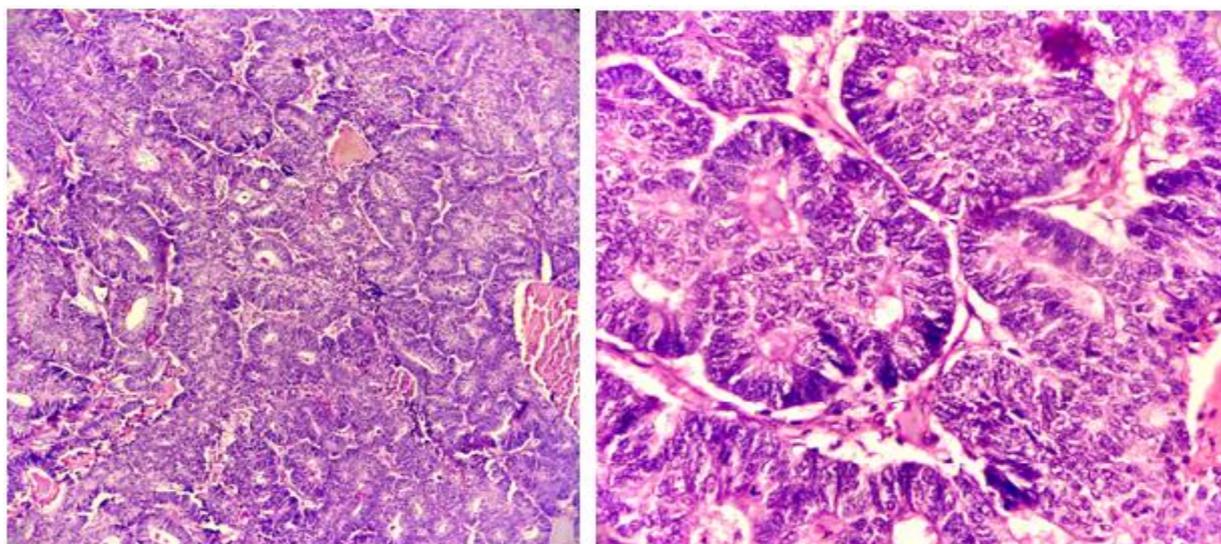


Figure 6. Histopathology of Endometrial Adenocarcinoma

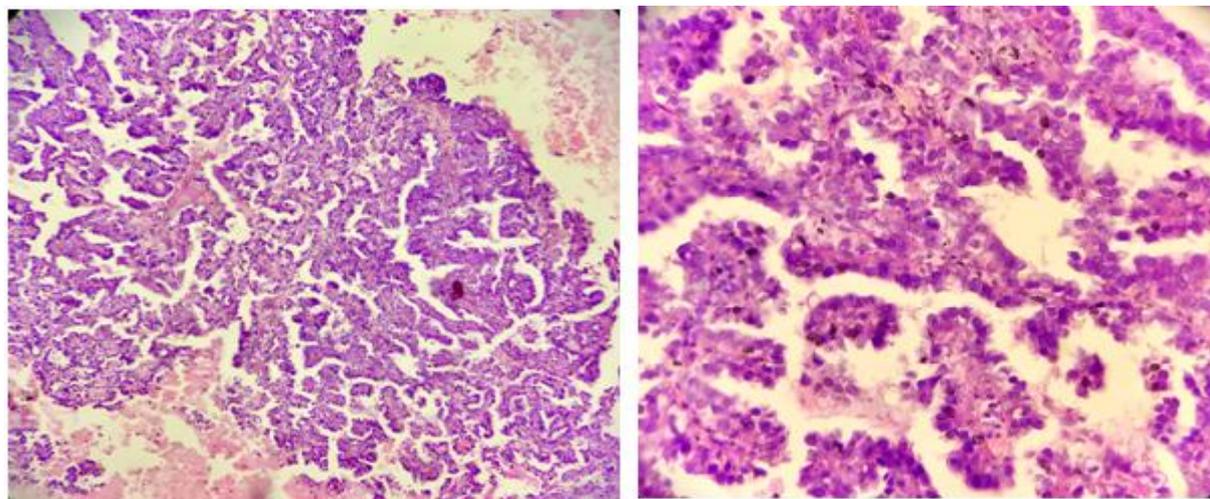


Figure 7. Histopathology of Endometrial Serouscarcinoma

Table 4. Distribution of cases based on clinical presentation and endometrial histopathology

Clinical presentation	Proliferative EM	Secretory EM	Atrophic EM	Endometrial hyperplasia	Endometrial malignancy	Inadequate	Total (%)
Menorrhagia	35	16	-	2	-	-	53 (35.3%)
Polymenorrhagia	15	8	3	3	1	2	32 (21.3%)
Metrorrhagia	12	9	4	4	1	-	30 (20.0%)
Polymenorrhoea	8	2	3	1	1	-	15 (10.0%)
Post menopausal bleeding	-	-	7	6	6	1	20 (13.4%)

Discussion

The internationally prevalence of abnormal uterine bleeding among reproductive age group women is estimated to be between 3% to 30%, with a higher incidence occurring around menarche and perimenopausal women. AUB is of concern because it may have medical and social problems as excessive bleeding may cause interference in daily activities and sexual life¹⁰. AUB needs complete evaluation by the combination of physical examination, ultrasound findings and histopathological diagnosis¹¹. Majority of AUB cases have benign pathology on histopathological evaluation, thus histopathology of endometrium is an important parameter for a conservative approach, in order to avoid unnecessary hysterectomies. Endometrial histopathology is the gold-standard for establishment of diagnosis and management of the patients with AUB. It also plays an important role

in diagnosis of endometrial carcinoma and preneoplastic conditions at the earliest. It is also required in evaluating patients where bleeding is not improving after medical therapy¹².

In our study, total of 150 endometrial samples of AUB patients were analysed. Maximum patients were in the age group of 31 to 40 years. In the study done by Anam Khan et al. and Kumari SR et al., highest incidence of AUB was found in the age group of 41 to 50 years¹³

Age was an important factor as endometrial carcinomas were more commonly associated with increased age as compared to reproductive age group showed benign endometrial histopathology. The most common presenting complaint in present study was menorrhagia (43.3%) and results are comparable to the studies conducted by Sajitha K et al. (47%), Mitaili et al. (48.6%) and Lithingo et al. (49%)¹⁴⁻¹⁶. Polymenorrhagia (20.0%) was the second most common presenting

symptom in this study, however in study done by Thapa S et al (19.8%) and Jairajupri ZS et al metrorrhagia (18%) was the second most common presenting symptom¹⁷⁻¹⁸

In histopathological evaluation, the commonest diagnosis observed was proliferative endometrium in 70 cases (46.6%). Similar findings were also observed by Thapa S et al. (33.3%) Saera et al. (34.6%), Varun N et al. (35%) and Sujata J et al. (37.2%)^{17,19-21}. However in study done by Dr Priyanka Chaudhari et al found secretory endometrium as most common endometrial pathology²⁷ (**Table 5**):

Second common endometrial change that we observed was secretory endometrium, which was present in 35 cases (23.3%) which was comparable to the study by Thapa S et al. (21.9%) and Riju RD et al. (18.6%)^{17,22}. In the present study 8 out of 150 cases (5.3%) were diagnosed as endometrial carcinoma, however in study done by Thapa S et al. had lower rates of endometrial carcinoma which accounted for three cases (1.5%)

of endometrial carcinoma in histopathological study¹⁷. Similar findings have been seen in the past by various other authors in India. Bolde et al. as well as Anupama Set al found similar result of 1.6% and Poonam S et al. demonstrated 1.4% of endometrial carcinoma in postmenopausal age group²³⁻²⁵.

Histopathological evaluation of endometrium plays a very important role in females presenting with AUB. It should be routinely performed for the diagnosis of various endometrial patterns ranging from proliferative, secretory, hyperplasia, atrophic endometrium and endometrial carcinoma. Endometrial biopsy is a safe and cost effective diagnostic step in evaluation of AUB after ruling out medical causes. method of choice for diagnosing various endometrial pathology²⁶. It also plays a very significant role in early detection of endometrial carcinoma and preneoplastic conditions in perimenopausal and postmenopausal patients presenting with AUB.

Table 5 Comparison of most common endometrial histopathology with other studies

Study by	Most common EM histopathology	Percentage of cases
Thapa S et al.	Proliferative EM	33.3%
Saera et al.	Proliferative EM	34.6%
Varun N et al.	Proliferative EM	35.0%
Sujata J et al.	Proliferative EM	37.2%
Dr Priyanka Chaudhari et al	Secretory EM	31.5%
Present study	Proliferative EM	46.7%

Table 6 Comparison of endometrial histopathology spectrum with other studies

Endometrial pattern	Chauhan S et al (2020) N=148	Bindroo S et al (2018) N=250	Ramya C et al (2020) N=2295	Manzoor U et al (2020) N=100	Present study N=150
Proliferative	37.8%	37.2%	46.1%	34%	46.7%
Secretory	10.8%	34%	24.9%	12%	23.3%
Atrophic	4%	7.2%	8.6%	-	11.3%
Hyperplasia	26.7%	16%	9.1%	42%	10.7%
Malignancy	3.3%	0.8%	1.8%	8%	6.0%
Inadequate	-	-	9.6%	5%	2.0%

Conclusion

Abnormal uterine bleeding is one of the most commonest presentation in gynaecology patients. Histopathological examination of the endometrium helps to analyse wide spectrum of pathological changes ranging from normal endometrium to malignancy. Endometrial sampling has to be routinely performed as a basic diagnostic tool in management of abnormal uterine bleeding. Dilatation and curettage is a useful and cost-effective sampling procedure in the evaluation endometrial pathology. Most of the endometrial pathology can be accurately analysed by endometrial sampling, thus it helps in is effective therapy and optimal outcome. This would help in individualising the management of abnormal uterine bleeding based on age group and to avoid unnecessary hysterectomies.

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