

## A Histomorphological Study of Abnormal Uterine Bleeding

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### Abstract

The study is a prospective study undertaken on endometrial curettings from clinically diagnosed cases of abnormal uterine bleeding (AUB). The objectives were to analyze the histomorphological patterns of endometrium in clinically diagnosed cases of AUB in different age groups in comparison with the other similar studies. Patients from all the age groups were included in the study and all types of pregnancy complications were excluded from the study. The endometrial biopsy material, fixed in 10% formalin was processed, sections were cut from blocks prepared from paraffin, stained with H&E and studied. A total of 100 endometrial biopsies from clinically diagnosed AUB patients were studied histopathologically. Out of these 46% were simple hyperplasia, 22% were proliferative endometrium, 9% were complex hyperplasia, 8% were secretory phase, disordered proliferative endometrium and endometrial polyp were 4% each, anovulatory endometrium and adenocarcinoma were 2% each, chronic endometritis, inadequate secretory phase and pillendometrium were 1% each. Majority of the patients in the present study were in the age groups of 41-50 yrs. Most common presenting complaint in the present study was menorrhagia. In conclusion it is observed that AUB is most common in perimenopausal age groups with histomorphological pattern of simple hyperplasia, followed by normal proliferative pattern, secretory pattern and endometrial carcinoma is seen in older age groups and most commonly presenting with post menopausal bleeding. Histopathological findings in the endometrial biopsies of these patients help to detect & differentiate between functional causes and organic lesions there by facilitating appropriate patient management.

**Keywords:** Abnormal Uterine Bleeding; Simple Hyperplasia; Menorrhagia.

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### Introduction

Women suffer from many gynaecological diseases. One amongst them is abnormal uterine bleeding which has a significant morbidity, in that it interferes with their personal, family and social lives. Women today experience more menstrual cycles than their ancestors did. This is mainly due to the decreased parity and a reduction in lactational amenorrhea. Abnormal uterine bleeding is many a times the reason for their non-attendance at workplace.

Although uterine bleeding is a normal physiological occurrence, nevertheless its character varies considerably for most women. The broad range in normal variation of menstrual cycle causes a difficulty in identifying abnormal patterns. The problem is that the uterine bleeding has a wide range of diagnostic possibilities and a confusion is generated when review and reports fail to outline the diagnostic evaluation of the patient who presents with an abnormal uterine bleeding pattern.

With the medical advancements combined with an increasing awareness in gynaecological problems, women gain access to most of the diagnostic and therapeutic modalities. Since other investigation modalities might be expensive and unavailable in a considerable section of the society, (Ex., hormonal assay, immunohistochemistry etc), endometrial biopsy

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is the first choice in an invasive procedure in the evaluation of abnormal uterine bleeding.

#### Objectives

1. To study various histomorphological patterns of endometrium in patients with abnormal uterine bleeding.
2. To study the incidence and spectrum of endometrial lesions in relation to age.

#### Methodology

The study was conducted on 100 consecutive endometrial curetting done by dilatation and curetting (D&C) received for histopathological examination in the department of pathology, K.V.G. Medical College, Sullia, during a period of two years. The endometrial curettage were done in the department of gynaecology for cases diagnosed for abnormal uterine bleeding after excluding all other pathologies from clinical examination, lab investigations, ultrasound scan, and when endometrial thickness was more than 5-8mm.

All Patients with irregular per vaginal bleeding at any age are included in the study except Patients with pregnancy complications like threatened or incomplete abortion, miscarriage, molar pregnancy, ectopic pregnancy, acute PID, In situ intrauterine contraceptive device.

Curetting samples were received in 10% formalin, minimum of 24 hrs was allowed for proper tissue processing. After the processing and paraffin embedding tissue sections are stained by haematoxylin and eosin (H&E) and studied for various histomorphological patterns.

#### Results

A total of 100 endometrial curettings were studied. The ages of patients were from 20-70 years. They were divided into seven age groups. Maximum frequency is observed in 41-50y (46.0%), followed by 31-40y (25.0%), 51-60y (14.0%), 21-30y (11.0%), 61-70y (3.0%) and 1.0 % in <20yrs (Table 1).

An age specific comparative analysis of the clinical presentation with the bleeding patterns revealed that the majority of the women were found to have menorrhagia (47%) followed by metrorrhagia (24%), menometrorrhagia (10%), polymenorrhagia (2%), and postmenopausal (17%).

The age of the patients presenting with AUB ranged from 18 to 67 years with a mean age of 43 years. Out of 100 AUB cases, 37cases (37%) were in reproductive age group, 46 cases (46.0%) were of perimenopausal age group and 17 cases (17.0%) belonged to the postmenopausal age group (Table 2).

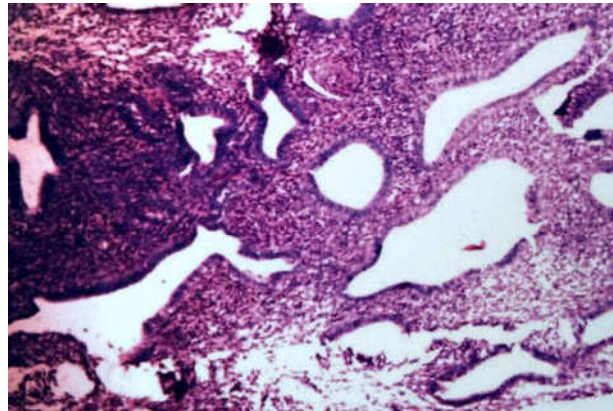


Fig. 1: Simple hyperplasia without atypia showing cystically dilated glands with compact stroma (H&E, 10x10)

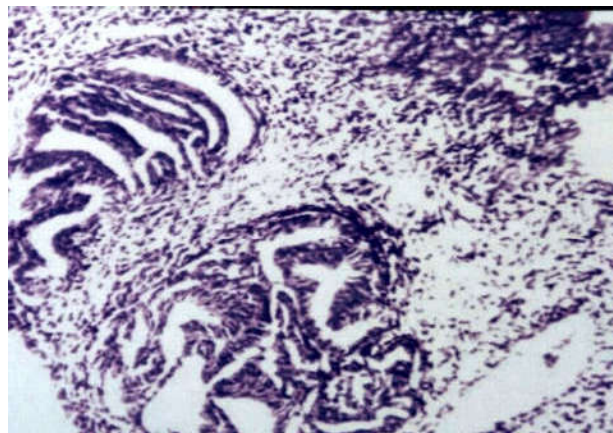


Fig. 2: Complex hyperplasia without atypia showing branching pattern of endometrial glands (H&E, 10x10)

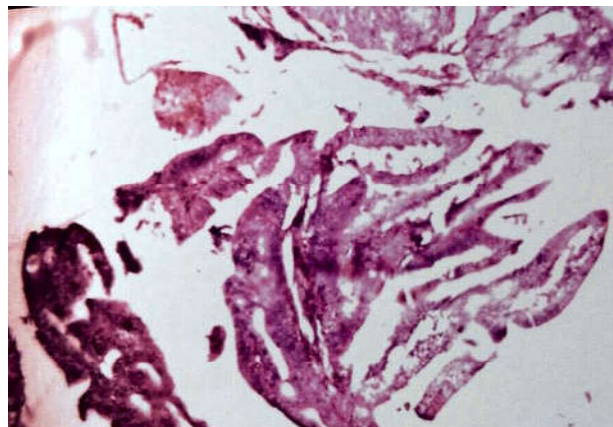


Fig. 3: Villoglandular pattern of endometrial carcinoma showing nuclear atypia with mitotic figures (H&E, 10x10)

**Table 1:** Age group of patients presenting with AUB

Sl. No.	Age group	No. of cases	Percentage (%)
1	<20	1	1.0
2	21-30	11	11.0
3	31-40	25	25.0
4	41-50	46	46.0
6	51-60	14	14.0
7	61-70	3	3.0
	<b>Total</b>	<b>100</b>	<b>100.0</b>

**Table 2:** AUB cases according to the menstrual phases

Sl. No	Age in years	Total	Percentage (%)
1	18-40 years (Reproductive)	37	37.0
2	41-50 years (Perimenopausal)	46	46.0
3	>51 years (Postmenopausal)	17	17.0
	<b>Total</b>	<b>100</b>	<b>100.0</b>

**Table 3:** Histomorphological patterns of endometrium in patients presenting with AUB

S. No.	Type of Endometrium	No. of cases	Percentage
1	Simple hyperplasia without atypia	46	1.0
2	Proliferative phase	22	22.0
3	Complex hyperplasia	9	1.0
4	Secretory phase	8	2.0
5	Disordered proliferative endometrium	4	9.0
6	Endometrial polyp	4	4.0
7	Anovulatory endometrium	2	4.0
8	Inadequate secretory phase	1	1.0
9	Pill endometrium	1	1.0
10	Adenocarcinoma of endometrium	1	1.0
11	Chronic endometritis	1	46.0
12	Well differentiated villo-glandular carcinoma	1	1.0
13	<b>Total</b>	<b>100</b>	<b>100</b>

**Table 4:** Histomorphological patterns of endometrium in AUB in various age groups

Sl. No	Age group	Diagnosis	No. of cases	Percentage (%)
1	<20	Simple hyperplasia	1	1.0
		<b>Total</b>	<b>1</b>	<b>1.0</b>
2	21-30	Pill endometrium	1	1.0
		Proliferative phase	5	5.0
		Secretory phase	1	1.0
		Simple hyperplasia	4	4.0
		<b>Total</b>	<b>11</b>	<b>11.0</b>
3	31-40	Chronic endometritis	1	1.0
		Complex hyperplasia without atypia	2	2.0
		Disordered proliferative endometrium	2	2.0
		Proliferative phase	6	6.0
		Secretory phase	4	4.0
		Simple hyperplasia	10	10.0
		<b>Total</b>	<b>25</b>	<b>25.0</b>
4	41-50	Anovulatory endometrium	2	2.0
		Complex hyperplasia without atypia	4	4.0
		Endometrial polyp	3	3.0
		Inadequate secretory phase	1	1.0
		Proliferative phase	7	7.0
		Secretory phase	3	3.0
		Simple hyperplasia	26	26.0
		<b>Total</b>	<b>46</b>	<b>46.0</b>
6	51-60	Adeno carcinoma of endometrium	1	1.0
		Complex hyperplasia without atypia	3	3.0

		Disordered proliferative endometrium	1	1.0
		Proliferative phase	4	4.0
		Simple hyperplasia	4	4.0
		Well differentiated villo-glandular carcinoma	1	1.0
		<b>Total</b>	<b>14</b>	<b>14.0</b>
7	61-70	Disordered proliferative endometrium	1	1.0
		Endometrial polyp	1	1.0
		Simple hyperplasia	1	1.0
		<b>Total</b>	<b>3</b>	<b>3.0</b>

Histopathological examination of the endometrium shows various histological patterns in 100 AUB cases (Table 3 & 4). The most common histopathological pattern observed is Simple hyperplasia (46%), Proliferative phase was second most common pathology (22%) followed by complex hyperplasia without atypia (9%), along with other benign endometrial lesions as well as adenocarcinoma patterns (1%).

### Discussion

Normal menstruation is defined as bleeding from the secretory endometrium associated with an ovulatory cycle not exceeding a length of 5 days. Any bleeding not fulfilling this criteria is referred to as an Abnormal Uterine Bleeding (AUB) [1].

AUB refers to a range of abnormal premenopausal or post-menopausal uterine bleeding symptoms and in a woman of reproductive age is defined as bleeding at abnormal or unexpected times, or by excessive flow (>80ml) at the time of an expected menses. Any bleeding should be considered abnormal in post-menopausal women except for those with predictable withdrawal bleeding taking hormone replacement therapy [2].

AUB is associated with conditions like uterine myomas, adenomyosis, less commonly/ rarely with endometriosis, endometrial polyps and endometrial adenocarcinoma. The mechanisms by which these conditions cause excessive bleeding are poorly understood, but anecdotal evidence suggests that large, thin walled and fragile surface vessels underlie the menorrhagia occurring with myomata and endometrial carcinoma. This disturbed angiogenesis is most likely a consequence of uncoordinated release of antigenic factors from the tumours themselves [3].

Dysfunctional uterine bleeding (DUB) is defined as 'excessive bleeding (excessively heavy, prolonged or frequent) of uterine origin which is not due to demonstrable pelvic disease, complications of pregnancy or systemic disease'. Dysfunctional uterine bleeding accounts for 50% of all cases of excessive

menstruation[4].

In the present study, out of 100 cases of AUB, 1 case was in <20 yrs age group, 11 cases were between 21-30 yrs, 25 cases were between 31-40 yrs, 46 cases were in 41-50 yrs, 14 cases were in 51-60 yrs and 3 cases were between 61-70 yrs age group.

Maximum number of cases was seen in 41-50yrs of age group followed by 31-40 yrs of age group and minimum number of cases were seen in <20 yrs age group and 51-70 yrs of age group.

Incidence of AUB was less in age group of <20 yrs in our study, as found in a similar studies done by Jignasha et al [5]. As invasive procedures are normally avoided in this age group and this cannot be considered as true incidence. Smita et al [6] showed 8% of cases in this age group which was little higher than present study.

Our study significantly revealed that the occurrence of menstrual disorder increases with advancing age and the commonest age group presenting is 41-50 yrs (46%). This is comparable with other similar studies done by Ayesha et al [7] (42%), and Vaidya et al [8] (46.15%). This increase of AUB in this age group may be due to the fact that these patients are there in climacteric period as women approach menopause, cycles shorten and often become intermittently anovulatory due to decline in the number of ovarian follicles and the estradiol level.

In present study incidence of AUB was lower in 51-70 yrs (17%) which is similar to saraswathi et al [9] (14.4%), Vaidya et al [8] (15.88%) and Khare A. et al [10] showed 12.9%. The reason for this finding may be due to the fact that the patients were evaluated much earlier and treated appropriately thereby decreasing the incidence in later age group.

In the present study 47% of women presented with menorrhagia which is far more compared with other patterns. Similar findings are seen in studies done by Naheen et al [11] (41%), Sarwat et al [12] (49.06%), Usha et al [13] (45.8%), and Smita et al [6] (42.85%). Other clinical presentations were, metrorrhagia (24.0%), Postmenopausal bleeding (17%), menometrorrhagia (10%) and polymenorrhea (2%).

In the present study endometrial hyperplasia (55%) is the most common histomorphological pattern seen in perimenopausal, reproductive and post menopausal age group (Figure 1). It is similar to other study done by Ghani et al [14] (41.5%), Smitha et al [6] (41.90%) and Ayesha et al [7] (42%).

In the present study proliferative type of histomorphological pattern was found in (22%) which is similar to other studies as mentioned above. Sajitha et al [15] reported (12.2%) of proliferative endometrium which is very low compared to other studies and also to the present study.

The incidence of complex hyperplasia with atypia (6%) and without atypia (3%) (Figure 2) was a little higher compared to other similar studies. Study done by Sadia et al [16] showed 1.0% complex hyperplasia without atypia and 2.4% with atypia.

Present study revealed 8 cases (8%) of secretory phase which is similar to Sharma et al [17] (8%). Sarwat et al [12] (12.42%), Sajitha et al [15] (16.7%), and Gerald et al [18] showed 19.9%.

Endometrial polyp was seen in 4% of cases in our study and are comparable to other similar studies. Incidence of Adenocarcinoma (2%) (Figure 3) is low in the present study as seen in majority of the studies. Both the cases reported were above 50yrs of age in the present study. In contrast to the above findings, two other studies done by Baral et al [19] (21%) and Dungal et al [20] (9.5%) showed very high incidence of endometrial carcinoma compared to other studies.

In the present study a single case of chronic endometritis (1%) is seen in which is comparable to other studies mentioned above. Ayesha et al [7] in their study showed 24% of chronic endometritis which is much higher. One case of pill endometrium (1%) was reported in the present study which is very low compared to other studies.

## Conclusion

AUB is one of the commonest gynaecological problems encountered in clinical practice. Endometrium is a mirror of histopathology for hormone dependent and non hormone dependent causes of AUB in different age groups and is important in detecting the cause, clinching the diagnosis for a better patient care. Endometrial biopsy can be easily procured in AUB cases by D & C. Histopathological findings in the endometrial biopsies of these patients help to detect & differentiate between functional causes and organic lesions there by facilitating appropriate patient management. As other investigation modalities

like hormonal assay, immunohistochemistry etc., are unavailable and also expensive in a considerable section of the society, endometrial biopsy is the first choice in an invasive procedure in the evaluation of abnormal uterine bleeding.

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