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## Original Research Article

# Histopathological evaluation of endometrial curettage in cases of abnormal uterine bleeding and its correlation with age of patient

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## ABSTRACT

**Background:** Abnormal uterine bleeding (AUB) is defined as a pattern of bleeding that does not correspond with the duration, amount and frequency of the flow of a normal menstrual cycle. The cause of AUB varies according to the age, endometrial response to hormones and its variations and other structural lesions. Endometrial sampling by endometrium curettage is safe and easy technique and its histopathological analysis is considered the gold standard for diagnosis of the etiology of AUB. Aims and objective was to evaluate the spectrum of endometrial histology in cases of AUB, to find out age wise incidence of AUB, and to find out age wise incidence of various histological pattern of endometrium in AUB.

**Methods:** An observational study was conducted on dilatation and curettage material which were obtained from 110 women with a complaint of AUB attending the gynecology outpatient department (OPD) at tertiary care hospital, Rajkot, Gujarat during one year (August 2020 to July 2021).

**Results:** Maximum number of cases of AUB were noted in the age group of (31-40) years (44 cases, 40%). Most common observed histopathological pattern in this study was normal cyclical patterns including proliferative endometrium (34.5%) and secretory endometrium (21%).

**Conclusions:** Histopathological evaluation of endometrium is indicated in women over the age of 35 years presenting with AUB to rule out preneoplastic lesions and malignancies.

**Keywords:** Abnormal uterine bleeding, Dilatation and curettage material, Histopathology

## INTRODUCTION

Abnormal uterine bleeding (AUB) is a most common menstrual disorder affecting all age groups of women and also reflects serious underlying pathology.<sup>1</sup> Approximately 30% of all gynecological patient attendants have complain of AUB.<sup>2</sup> In 8–50% cases of endometrial carcinoma, most common presentation is AUB.<sup>3</sup> AUB is defined as a pattern of bleeding that does not correspond with the duration, amount and frequency of the flow of a normal menstrual cycle.<sup>4</sup> The cause of AUB varies according to the age, endometrial response to hormones and its variations and other structural lesions.<sup>5</sup> The FIGO has classified the causes for AUB into 2 group:

structural/organic and non-structural/non organic. The PALM-COEIN system is etio-pathogenesis based, with PALM describing structural causes and COEIN denoting non- structural causes of AUB (Table 1).<sup>6,7</sup> Dysfunctional uterine bleeding (DUB) is present in 50% of the women with AUB that includes abnormal bleeding due to non-organic causes.<sup>5</sup>

Endometrial sampling and subsequent histopathological study remain the gold standard for diagnosis of causes of AUB.<sup>8</sup> For endometrial sampling, endometrium curettage is safe and easy technique and its histopathological analysis is considered the gold standard for diagnosis of the etiology of AUB along with reasonable reporting time

and diagnostic accuracy.<sup>9</sup> Endometrial curettages exhibit a wide range of histopathological patterns due to normal and abnormal cyclical changes, drugs, hormones, infections,

metabolic disease and malignancies.<sup>10</sup> So, management of AUB is not complete without tissue diagnosis especially in perimenopause and post menopause.<sup>11</sup>

**Table 1: Classification of causes of AUB (FIGO-2011).**

Structural causes (PALM)		Nonstructural systemic causes (COEIN)	
<b>Polyp</b>	AUB-P	Coagulopathy	AUB-C
<b>Adenomyosis</b>	AUB-A	Ovulatory dysfunction	AUB-O
<b>Leiomyoma</b>	AUB-L	Endometrial	AUB-E
Submucosal myoma	AUB-L SM		
Other myoma	AUB-LO		
<b>Malignancy and hyperplasia</b>	AUB-M	Iatrogenic	AUB-I
		Not yet identified	AUB-N

AUB: Abnormal uterine bleeding

**Aims and objectives**

Primary objective was to evaluate the spectrum of endometrial histology in cases of AUB.

Secondary objectives were to find out age wise incidence of AUB, and to find out age wise incidence of various histological pattern of endometrium in AUB.

**METHODS**

An observational study was conducted on dilatation and curettage material which were obtained from 110 women with a complaint of AUB attending the gynecology outpatient department (OPD) at tertiary care hospital, Rajkot, Gujarat during one year (August 2020 to July 2021).

**Inclusion criteria**

Any women with complain of abnormal uterine bleeding irrespective of any age groups were included.

**Exclusion criteria**

Patient presented with following criteria were excluded from the study: unsatisfactory samples like only blood clots and fibrin and no endometrial glands/stroma; AUB due to gestational causes like tubal pregnancy, molar pregnancy and abortion; hormone therapy within the last 6 months; and cervical pathology e.g. cervical cancer.

**Processing of biopsy specimen**

Endometrial samples were obtained by dilatation and curettage under sedation as an office procedure. All specimen sent for histology were fixed in 10% neutral buffered formalin and submitted to routine tissue processing and paraffin embedding.

Sections of 5 μ thickness were made, slides were stained by hematoxylin-eosin (H&E) and slides were examined under light microscope. Recent World Health

Organization (WHO) classification of tumors of female reproductive organs will be used for reporting of endometrial curettage.

**Data collection**

Relevant clinical data including age, complain of patients, obstetric history, menstrual history, drug history and clinical diagnosis were taken from histopathological requisition form. Histopathological diagnosis related record was obtained from histopathological reports.

**Data analysis**

Statistical analysis was done after collecting the primary data. Data were entered in Microsoft excel and analysis was done in the form of percentages and proportions and it were represented in tables.

**RESULTS**

Maximum number of cases of AUB were noted in the age group of (31-40) years (44 cases, 40%) followed by age group (41-50) years (32 cases, 29.1%), age group (21-30) years (21 cases 19.1%), age group (51-60) years (10 cases, 9%), age group (61-70) years (2 cases, 1.8%) and minimum no. of cases were noted in the (18-20) years (1 case, 0.9%) (Table 2).

**Table 2: Age distribution in cases of AUB.**

Age group	No. of cases	Percentage (%)
<b>18-20</b>	1	0.9
<b>21-30</b>	21	19.1
<b>31-40</b>	44	40
<b>41-50</b>	32	29.1
<b>51-60</b>	10	9
<b>61-70</b>	2	1.8
<b>Total</b>	110	100

AUB: Abnormal uterine bleeding

Most common observed histopathological pattern in this study was normal cyclical patterns including proliferative

endometrium (34.5%) and secretory endometrium (21%) followed by simple endometrium hyperplasia without atypia (13.6%), distorted proliferative endometrium (8.2%), atrophied endometrium (4.5%), endometrium hyperplasia with atypia (4.5%), product of conception (3.6%), endometritis (2.8%), benign endometrial polyp (2.8%), endometrial adenocarcinoma (1.8%), decidual reaction of endometrium (1.8%), and cystic endometrial hyperplasia (0.9%) (Table 3).

Most of the cases of proliferative and secretory endometrium were noted in age group of (31-40) years. Out of total 15 cases (13.6%) of simple endometrial hyperplasia without atypia, 12 cases were noted in group of (31-50) years followed by age group of (21-30) years (2 cases) and age group of (51-60) years (1 case). Endometritis was more common in the age group of (21-30) years. All cases of atrophic endometrium (5 cases) and endometrial carcinoma (2 cases) were noted in elderly patients (>50 years) (Table 4).

**Table 3: Histopathological spectrum of endometrium in cases of AUB.**

Histopathological findings	No. of cases	Percentage (%)
<b>Proliferative endometrium</b>	38	34.5
<b>Secretory endometrium</b>	23	21.0
<b>Distorted proliferative endometrium</b>	9	8.2
<b>Cystic endometrial hyperplasia</b>	1	0.9
<b>Atrophied endometrium</b>	5	4.5
<b>Simple endometrial hyperplasia without atypia</b>	15	13.6
<b>Endometrial hyperplasia with atypia</b>	5	4.5
<b>Decidual reaction of endometrium</b>	2	1.8
<b>Product of conception</b>	4	3.6
<b>Endometritis</b>	3	2.8
<b>Benign endometrial polyp</b>	3	2.8
<b>Endometrioid adenocarcinoma-high grade</b>	2	1.8
<b>Total</b>	110	100

AUB: Abnormal uterine bleeding.

**Table 4: Distribution of AUB cases according to histopathological diagnosis in different age groups.**

Histopathological findings	Age groups						Total
	18-20	21-30	31-40	41-50	51-60	61-70	
<b>Proliferative endometrium</b>	0	7	21	9	1	0	38
<b>Secretory endometrium</b>	0	5	11	7	0	0	23
<b>Distorted proliferative endometrium</b>	0	0	2	7	0	0	9
<b>Cystic endometrial hyperplasia</b>	0	0	1	0	0	0	1
<b>Atrophied endometrium</b>	0	0	0	0	4	1	5
<b>Simple endometrial hyperplasia without atypia</b>	0	2	6	6	1	0	15
<b>Endometrial hyperplasia with atypia</b>	0	0	0	2	2	1	5
<b>Decidual reaction of endometrium</b>	0	2	0	0	0	0	2
<b>Product of conception</b>	1	1	2	0	0	0	4
<b>Endometritis</b>	0	3	0	0	0	0	3
<b>Benign endometrial polyp</b>	0	1	1	1	0	0	3
<b>Endometrioid adenocarcinoma- high grade</b>	0	0	0	0	2	0	2
<b>Total</b>	1	21	45	32	9	2	110

**DISCUSSION**

In this study, age of patient ranged from 19-68 years and most of cases of AUB noted in age group (31-40) years (40%) which is comparable with Dirgha et al while Riju et al, Vani et al and Nayak et al showed that most of cases of AUB were noted in age group (41-50) years.<sup>12-15</sup>

In this study, the endometrial histopathological pattern was determined by considering age of the patient, date of onset

of last menstrual period, length of menstrual cycle and iatrogenic use of hormones.<sup>18,19</sup> In our study, most commonly observed endometrial histopathological pattern was normal cycling pattern including proliferative endometrium (34.5%) and secretory endometrium (21%) which was comparable with Vani et al and Prasannalakshmi et al while in Rujuta et al simple endometrial hyperplasia without atypia and proliferative endometrium and in Riju et al product of conception and proliferative endometrium were most common

findings.<sup>13,14,16,17</sup> Normal cycling pattern was common in age group of (31-40) years which was comparable with Vani et al.<sup>14</sup>

All cases of endometrial carcinoma (2 cases) were noted in (51-60) age group and both were endometrioid adenocarcinoma which was comparable with Prathipa et al.<sup>20</sup>

**Table 5: Comparison of histopathological findings of endometrium in cases of AUB with different studies.**

Histopathological findings	Present study (%)	Rujuta et al <sup>16</sup> (%)	Riju et al <sup>13</sup> (%)	Prasannalakshmi et al <sup>17</sup> (%)	Vani et al <sup>14</sup> (%)
<b>Proliferative endometrium</b>	34.5	32.51	37.2	56	30.30
<b>Secretory endometrium</b>	21.0	12.32	18.6	34	25.97
<b>Distorted proliferative endometrium</b>	8.2	0	11.60	0.50	5.62
<b>Cystic endometrial hyperplasia</b>	0.9	0	0	0.90	0
<b>Atrophied endometrium</b>	4.5	0	26.7	3.50	1.00
<b>Simple endometrial hyperplasia without atypia</b>	13.6	25.61	32.60	1.20	18.18
<b>Endometrial hyperplasia with atypia</b>	4.5	0.49	0	0	1.29
<b>Decidual reaction of endometrium</b>	1.8	5.91	0	0	4.76
<b>Product of conception</b>	3.6	4.92	54.30	0	0
<b>Endometritis</b>	2.8	1.47	2.20	0.70	2.16
<b>Benign endometrial polyp</b>	2.8	2.46	0	0.50	2.60
<b>Endometrioid adenocarcinoma</b>	1.8	0.90	2.20	2.70	0.86
<b>H. mole</b>	0	0.90	8.70	0	0

## CONCLUSION

Histopathological patterns of endometrial biopsy and curettage of women presenting with AUB is variable. These ranges from simple physiological to much more complex pathological lesions. D and C method of endometrial sampling is an effective and reliable diagnostic test. Among the patients with no organic pathology, normal physiological patterns with proliferative, secretory and menstrual changes were observed. The present study shows that endometrial hyperplasia is the most common histopathological pattern of endometrium for AUB in perimenopausal women in our region. In addition, endometrial hyperplasia and carcinoma together also constitute a significant proportion of cases among the organic causes, thereby highlighting the importance of endometrial curetting and biopsy as a diagnostic procedure in the evaluation of AUB in perimenopausal and postmenopausal age group to exclude preneoplastic and neoplastic conditions. Thus, histopathological evaluation of endometrium is indicated in women over the age of 35 years presenting with AUB to rule out preneoplastic lesions and malignancies.

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