



(RESEARCH ARTICLE)



## Histopathological spectrum of endometrial biopsies in abnormal uterine bleeding at tertiary care centre, Jodhpur

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### Abstract

**Introduction:** Abnormal uterine bleeding (AUB) shows spectrum of patterns on histopathology and pathologist plays a vital role in reporting of endometrial biopsies and helps in differentiating nonneoplastic lesion from neoplastic lesions, early detection of the precursor lesions and exclusion of malignancy.

**Aim** - The aim of this study is to study the spectrum of endometrial patterns in women with AUB and to correlate it with the different age groups.

**Materials and Methods:** 200 samples of endometrial biopsies with AUB were received from the gynecology department, processed and stained with hematoxylin & eosin and subjected to histopathological examination.

**Results:** The peak incidence is observed in the age group of 41-50 years. The predominant histological pattern observed is secretory and proliferative pattern and disordered endometrium (68%) followed by endometrial hyperplasia (10%) and the least common pattern is atrophic endometrium (1%). 2% cases are of endometrial carcinoma found in our study.

**Conclusion:** AUB significantly affects the quality life of women and leads to anemia. Hence histopathological examination should be considered which plays a critical role in early diagnosis of endometrial pathology and to provide appropriate gynecological management. Endometrial sampling is an effective diagnostic tool and it needs to be considered in all patients from peri- and post-menopausal age groups with AUB so to provide appropriate management.

**Keywords:** AUB; Endometrial biopsy; Endometrial hyperplasia; Endometrial carcinoma; Proliferative phase; Secretory phase

### 1. Introduction

Abnormal uterine bleeding (AUB) is the most common health issue seen in women in their reproductive age. AUB is defined as any bleeding pattern that differs in frequency, duration, and amount from a pattern observed during normal menstrual cycles or menopause. It can be presented as heavy menstrual bleeding, irregular bleeding, oligomenorrhea hypomenorrhea, polymenorrhea or postmenopausal bleed. It affects women of every age group from adolescence to menopause. [1] AUB is due to several factors deranging homeostasis like hormonal imbalances, infections, structural lesions, and malignancy. Based on these possible underlying etiologies, the International Federation of Gynaecology and Obstetrics (FIGO) in 2011 devised a classification named PALM-COEIN for the etiology of AUB. PALM accounts for structural features like polyps, adenomyosis, leiomyoma, and malignancy. COEIN addresses non-structural causes like coagulation defects, ovulatory dysfunction, endometrial causes, iatrogenic causes, and non-classified ones [2].

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Endometrial biopsy is used as a diagnostic aid in AUB. It is done as a first-line test in women >45 years of age presenting with AUB. Endometrial biopsy is also done in patients <45 years of age with a history of unopposed estrogen exposure, failed medical management and persistent AUB [3]. The prime idea is to rule out the precursor lesions like endometrial hyperplasia and endometrial carcinoma [2]. The present study was done to determine the histopathological spectrum of endometrium in women presenting with abnormal uterine bleeding. Endometrial biopsies of patients with AUB, in whom gestational causes were ruled out, were included in this study. It reflects the underlying pathology as simple as hormonal imbalance or carcinoma requiring aggressive treatment [2].

### Aim and Objective

- To study the spectrum of endometrial patterns in women with AUB in reproductive age group
- To correlate histomorphological patterns with the different age groups.

## 2. Materials and Methods

The study is conducted in the Department of Pathology, S.N. medical college, Jodhpur, Rajasthan. A total 200 cases of endometrial biopsies received from the obstetrics and gynecology department from August 2023 to September 2023, are subjected to histopathological evaluation. The study included endometrial samples of 200 patients who had been advised for endometrial sampling for non-gestational causes. Endometrial curettage done in the case of AUB due to gestational causes like incomplete abortion, missed abortion and retained products of conception was excluded from the study. The relevant clinical details like age, presenting complaints, and menstrual details including last menstrual period, amount of flow and regularity were collected from the case records of patients. The endometrial samples received were fixed in 10% formalin. The fixed tissue is subjected to processing, paraffin blocks made and sectioned under microtomy (4 to 5 microns thickness), stained with Hematoxylin and Eosin stain and evaluated under light microscope. Histopathological evaluation of endometrial biopsies was done and clinical correlation made. The endometrial samples are categorized into reproductive (18-40 years), perimenopausal (41-50 years), and postmenopausal (>50 years) based on patient age groups and correlated with histomorphological pattern.

## 3. Results

The study comprises 200 endometrial biopsies which were diagnosed as AUB. The peak incidence is seen in age group of 41-50 years (46%) (Table 1). The endometrial biopsies are grouped into reproductive, perimenopausal and postmenopausal group based on the age of the patient and correlated with endometrial patterns (Table 2).

**Table 1** Age wise distribution of endometrial biopsies in AUB

AGE (years)	No. of cases (N)	Percentage (%)
18-40	70	35
41-50	92	46
>50	38	19
TOTAL	200	100

**Table 2** Age wise distribution of AUB due to functional and organic causes.

	Histopathological patterns	Age groups			Total	Percentage
		18-40	41-50	>50		
Functional causes	Proliferative phase endometrium	10	14	6	30	15
	Secretory phase endometrium	28	32	10	70	35
	Disordered proliferative endometrium	14	18	4	36	18
	Menstrual phase endometrium	2	0	0	2	1
	Atrophic endometrium	0	0	2	2	1
	Total	54	64	22	140	70

Organic causes	Chronic nonspecific endometritis	2	2	0	4	2
	Endometrial polyp	4	2	2	8	4
	Endometrial hyperplasia without atypia	4	10	4	18	9
	Endometrial hyperplasia with atypia	0	0	2	2	
	Endometrial carcinoma	0	0	4	4	2
	Hormonal /pill endometrium	4	2	0	6	3
	Endometrial breakdown	0	8	0	8	4
	Scanty endometrium biopsy	2	4	4	10	5
	Total	16	28	16	60	30

The predominant histomorphological pattern observed is secretory, proliferative and disordered endometrium (68%) followed by endometrial hyperplasia (10%). The least common pattern is atrophic endometrium (1%). 2% cases are of endometrial carcinoma (Table 2).

The functional cause of uterine bleeding was considerably higher (70%) when compared to organic lesions (30%). In the reproductive and perimenopausal ages, the cause of AUB was more functional and less because of organic lesions, whereas in post-menopausal age, both functional and organic causes were responsible for AUB. The functional as well as the organic cause of AUB was not significantly associated with age group ( $p=0.67$  and  $p=0.99$ , respectively). The functional causes among all age groups were proliferative phase endometrium (15%), secretory phase endometrium (35%), disordered proliferative endometrium (18%), menstrual endometrium (1%) and atrophic endometrium (1%). AUB due to the organic cause was found in 60 patients of various age groups. Endometrial hyperplasia without atypia was the most common histological pattern among the organic causes found in 18 cases (9%), atypical endometrial hyperplasia (1%), endometrial polyp (4%), endometrial carcinoma (4%). Among the 16 patients of the post-menopausal age group, 4 cases had endometrial hyperplasia without atypia, 2 cases had atypical endometrial hyperplasia, 2 cases had endometrial polyp and 4 had endometrial carcinoma.

#### 4. Discussion

AUB describes bleeding per vagina that does not fall in the criteria of regular menstrual bleeding. It can be due to various causes such as functional, organic or pharmacological agents. The etiology also varies according to the age group as well. Endometrial sampling is a safe procedure that helps to evaluate the endometrium and lead to diagnosis.

In our study of 200 cases, the peak incidence is seen among the age group of 41-50 years (92 cases, 46%) It is in concordance to other studies by Ishani Gupta *et al.* (40.4%), Sharma K *et al.* (37.26%), Puvitha R.D *et al.* (48.70%) [4,5]. Histopathological examination of the endometrial biopsies shows spectrum of patterns in which normal cyclical pattern i.e. proliferative and secretory phase of endometrium (100/200, 50%) is the most recurrent pattern and predominantly observed in reproductive and perimenopausal age groups. Similar results were reported in study by Sharma K *et al.* [5].

Disordered proliferative pattern (DPE) is characterised by the absence of uniform glandular development and resembles simple hyperplasia but it is focal in the process rather than diffuse [6]. In our study, 36 cases (18%) show DPE It is important to diagnose DPE at an early stage to prevent the disease progression.

It is very important for pathologists to diagnose endometrial hyperplasia, the precursor lesion of endometrial carcinoma. The overall risk of progression of endometrial hyperplasia to malignancy is 5-10% [8]. In our study Endometrial hyperplasia is the third dominant pattern (20/200 cases, 10%). 90% cases of endometrial hyperplasia show no atypia and 10% shows atypia as observed in a study by Sharma K *et al.* [5]. The incidence of endometrial malignancy is low (2%) in our study which is comparable to study by Dwivedi S. S *et al.* (1.85%) and seen in postmenopausal age group and perimenopausal age group [9].

Chronic endometritis is the inflammatory endometrium infiltrated by plasma cells [10]. The incidence in our study is 2%. In our study 2 cases of atrophic endometrium seen and all are present in postmenopausal age group. No cases of

atrophic pattern have been reported in the reproductive and perimenopausal age group and the same is observed in study by Prabha G *et al.* [7]

Pill endometrium is characterised by atrophic glands, pseudodecidualization along with inflammatory infiltrate due to exogenous hormonal treatment containing progesterone. 3% of these cases were reported in our study which is comparable with Sharma K *et al.*, 12 cases (3.28%) [5]. Highest is observed in reproductive age group and cases are not reported in postmenopausal age group.

#### Abbreviations

- AUB – abnormal uterine bleeding,
- DPE- Disordered proliferative pattern

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## 5. Conclusion

AUB is the most common complaint found among the patients in the gynecology outpatient department. The increased awareness and better accessibility to healthcare facilities also contribute to the increase in cases presenting with AUB. AUB requires thorough and prompt evaluation as it can be a clinical manifestation of underlying fatal diseases like endometrial carcinoma. In the present study, we found that women in the perimenopausal age group were the most common to present with AUB. The presenting complaints were variable. The most common histopathological feature was the normal cyclical endometrium including proliferative and secretory phase endometrium. Among the organic lesions, endometrial hyperplasia was the commonest pattern though atypical hyperplasia contributed less. Endometrial carcinomas were found in fewer numbers. Endometrial sampling is an effective diagnostic tool and it needs to be considered in all patients from peri- and post-menopausal age groups with AUB so to provide appropriate management.

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## Compliance with ethical standards

### Disclosure of conflict of interest

No conflict of interest to be disclosed.

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