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Original Research Article

## Retrospective study of histopathological pattern of endometrium in abnormal uterine bleeding

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### ABSTRACT

**Background:** Abnormal uterine bleeding (AUB) is a common gynaecological complaint associated with considerable morbidity. It significantly affects the patient's family personal and social life. The aim of this study was to analyse the histopathological patterns of endometrium in patients presenting with AUB.

**Methods:** This is a retrospective study conducted in the teaching hospital in the department of obstetrics and gynecology along with the pathology department. All patients with AUB were included in the study. This study of 138 samples both from hysterectomy specimens and endometrial biopsy were included.

**Results:** The specimen obtained for examination of the endometrial samples 86 comprised from dilatation and curettage and rest 52 samples were obtained from hysterectomy specimens. Most common histopathological pattern was found to be proliferative endometrium, followed by disordered proliferative endometrium and atrophic endometrium.

**Conclusions:** Study of the histopathological pattern of the endometrial biopsies can be included in the initial evaluation of women with AUB when the cause of bleeding is not known along with ultrasound examination, then using it as the last modality for diagnostic and therapeutic purposes, irrespective of age group.

**Keywords:** Abnormal uterine bleeding, Endometrial biopsy, Histopathology, Hysterectomy

### INTRODUCTION

AUB is defined as any bleeding from the genital tract when there is a deviation from the normal in terms of frequency, cyclicality, duration or quantity.<sup>1</sup> The most common presentations are menorrhagia, polymenorrhoea, metrorrhagia and intermenstrual bleeding. Dilatation and curettage are the mainstay of the endometrial sampling since long time. Fractional curettage allows a separate sampling of both the endometrial and endocervical tissue. Hysteroscopy which is the Gold standard method has almost replaced the curettage as the uterine cavity can be

observed through the scope and the area in question can be curetted.<sup>2</sup>

Transvaginal or transabdominal ultrasonography is another useful adjunctive technique for examining the endometrium in the evaluation of AUB. The underlying disease can be detected by the histological variations of endometrium, taking into account the age of the woman, the phase of the menstrual cycle, and the use of the any exogenous hormones. Pregnancy-related and dysfunctional uterine bleeding are more common in younger patients whereas atrophy and organic lesions

become more frequent in older individuals.<sup>3</sup> Patients with history of anovulation, obesity, hypertension, diabetes and exogenous oestrogen use are at increased risk for hyperplasia and adenocarcinoma. Early evaluation in the perimenopausal and postmenopausal age group is essential to confirm the lesion and to rule out malignancy.<sup>4</sup>

AUB is a very common menstrual symptom in women of reproductive years. AUB is a diagnosis of exclusion.<sup>5</sup> The causes include organic and non-organic. The organic may be grouped into reproductive tract diseases and systemic diseases with iatrogenic causes which, is reported in more than 70% in reproductive and perimenopausal women. In perimenopausal period pregnancy, endometritis, cervicitis and cancer cervix with clotting factors disorders, hypothyroidism, liver and chronic renal diseases should be considered. During menopause endometrial causes includes hyperplasia, atrophy, polyp, fibroids and endometritis. In adolescent's coagulation disorders should be excluded. Coagulopathies would affect 13% of women with heavy bleeding.<sup>6</sup>

Heavy menstrual bleeding (HMB) is the commonest complaint. It affects 14-25% of women of reproductive age. The terminologies menorrhagia, polymenorrhagia menometrorrhagia and dysfunctional uterine bleeding are poorly defined and confusing. So, a new classification system for the umbrella diagnosis of AUB would define as abnormal uterine bleeding with heavy menstrual bleeding (AUB/HMB) abnormal uterine bleeding between periods (AUM/IMB).<sup>4</sup>

Midcycle bleeding may indicate a transient oestrogen decline, while late cycle bleeding may indicate progesterone deficiency. Anovulatory DUB is due to the disturbance of the HPO axis. It causes irregular, prolonged and at times heavy menstrual flow. Postmenopausal bleeding is a common symptom and may be due to benign or malignant pathologies and systemic disorders. Endometrial biopsy is equally important in evaluating patients for infertility in terms of the dating of the endometrium. Its histological appearance is used to document the ovulation and to assess the hormonal status.<sup>5</sup>

Objective of this study was to study the histopathological patterns of endometrium among the patients with abnormal uterine bleeding.

## METHODS

This retrospective cross-sectional study was undertaken to assess the histopathological patterns of endometrium among the patients with AUB in the department of obstetrics and gynecology along with the pathology department at Sri Muthukumaran Medical College Hospital and Research Institute, Chennai during the study period June 2018 to December 2019.

All the female patients, who underwent uterine biopsy and hysterectomy for the complaints of abnormal uterine bleeding in the department of obstetrics and gynecology during the study period were included in the study. Pregnant females and patients who were on treatment with hormonal pills were excluded from the study. The study included a total of 138 biopsy and hysterectomy samples.

Biopsy was done either through pipelle biopsy method or through dilatation and curettage. The pipelle biopsy method is a procedure done in the outpatient department, less painful and little discomfort with minimal risk. Usually nonsteroidal anti-inflammatory drug is sufficient before procedure. After antiseptic swabbing of cervix, Pipelle is introduced through the cervix. Usually, a tenaculum is needed to stabilize the anterior lip. Pipelle is introduced till resistance is felt. Pipelle stilette inside is retracted to create suction and it is withdrawn up to internal os, and introduced many times gently for thorough sampling.

Dilatation and Curettage (D and C) was done in some patients which is an OT procedure done for the patients who opted for anesthesia where the same procedure is done under anesthesia. D and C is a single step procedure, whereas Fractional curettage is two step procedure where endocervical curetting done before passing sound and dilator and sample collected in a separate container followed by dilatation of internal os after passing the sound in order to know the length and direction of uterus. Once sufficient dilatation has occurred, the sharp end of curette is passed and the anterior, posterior wall, two lateral walls and finally fundus of the uterus curetted and the specimen is collected in a container containing 10% formalin and sent to pathology lab, for processing.

Preparation of pathology Slides were done by fixing the endometrial tissues in 10% formalin and processed. The paraffin embedded tissues were sectioned at 3-4 um and then stained with hematoxylin and eosin stain. Sections were studied by pathologists, under light microscope along with patient's detail.

## Statistical analysis

Analysis was done using Statistical package for social sciences and the results were presented using descriptive statistics.

## RESULTS

In this study, age of patients ranged from 25-67 years with mean and standard deviation of 48.21±11.72 years. The most common age group presenting in this study is perimenopausal group accounting to 49.3% of participants, followed by 28.98% and 21.7% of participants in the age group 25-40 years and more than 50 years of age (Table 1).

**Table 1: Proportion of participants in different age group.**

Age group	Frequency	Percentage
Reproductive age group (25-40 years)	40	28.98%
Perimenopausal age group (41-50 years)	68	49.27%
Postmenopausal age group (> 50 years)	30	21.7%

The retrospective study included total of 138 endometrial samples presenting with AUB. Out of 138 cases, functional cause was the predominant finding for AUB in reproductive age group whereas organic causes were predominant in perimenopausal age group. The most common age group presenting in this study is perimenopausal group accounting to 68% and the most common pattern in this age is proliferative endometrium was found more common, followed by disordered proliferative endometrium (43.47%) and atropic endometrium (14.4%) (Table 2).

**Table 2: Distribution of histopathologic patterns of endometrium.**

Histopathological pattern	Reproductive group	Perimenopausal group	Postmenopausal group
Proliferative endometrium	22 (15%)	30 (21%)	4 (2.8%)
Secretory endometrium	6 (4.3%)	5 (3.6%)	0 (0.0%)
Disordered endometrium	10 (7.2%)	16 (11.5%)	0 (0.0%)
Endometrial hyperplasia without atypia	3 (2.17%)	12 (8.6%)	6 (4.34%)
Endometrial hyperplasia with atypia	3 (2.17%)	2 (1.44%)	6 (4.34%)
Atropic endometrium	0 (0.0%)	0 (0.0%)	6 (4.34%)
Carcinoma	0 (0.0%)	1 (0.72%)	2 (1.44%)
Endometritis	2 (1.44%)	2 (1.44%)	0 (0.0%)

## DISCUSSION

AUB is a common disorder in gynecology and accounts for 30-40% of cases in the outpatient clinic.<sup>7</sup> It occurs in about 25-30% of reproductive age and 50% of perimenopausal women. In adolescents the prevalence varies with years after menarche. The cycles during the initial three years following menarche will be predominantly anovulatory. It includes both organic and non-organic cause of uterine bleeding.<sup>3</sup> The maximum number of patients in this study belongs to the age group was 41-50 years. The pathological lesions at this age group were endometrial hyperplasia (8.6%) and disordered proliferative endometrium (16%). The reason for AUB at this perimenopausal age group may be due to anovulatory cycles consequent to decrease in ovarian follicles and estradiol levels.<sup>8</sup> The reason for increased incidence of AUB in this age group may be due to the fact that these patients are in their climacteric period as women approach menopause. Excessive and irregular uterine bleeding continues to be one of the most frequently encountered complaints in gynecology and one of the most common and perplexing problem both to the patient and the gynecologist. AUB is the diagnosis of exclusion in which no specific organic cause can be attributed to as the reason for the bleeding. The diagnosis is mostly based on patient's symptom and clinical findings. In most of the cases a pelvic ultrasound is useful to find out for the structural causes of AUB. In about 25% of the cases the abnormal bleeding is the result of well-defined organic abnormality. AUB occurs in

reproductive women of all age groups but is more common in adolescent and perimenopausal women.<sup>7</sup>

Many studies have revealed that occurrence of menstrual disorders increase with advancing age.<sup>5,7</sup> A gradual increase in patients with respect to age was also observed in this study. The most common age group presenting with AUB in this study was 41-50 years. Increased number in this age group could be due to the fact as menopause approaches, decreased number of ovarian follicles and their increased resistance to gonadotropic stimulation results in low level of oestrogen of which cannot keep the endometrium growing. Histopathological examination of the biopsies and curetting's revealed various patterns ranging from physiological to pathological lesions of endometrium.

In this study, proliferative endometrium was seen in all three age groups. Disordered proliferative pattern lies at one end of the spectrum of proliferative lesions of the endometrium that includes carcinoma at the other end with intervening stages of hyperplasia. In this study 10% in the reproductive age group and 11.5% in the perimenopausal age group were diagnosed, with disordered proliferative endometrium.<sup>9</sup> It is often as a result of intra uterine contraceptive devices, pregnancy and incomplete abortions. The endometrial biopsies and curetting's on histopathology revealed various patterns ranging from normal endometrium to malignancy. The incidence of endometrial hyperplasia and endometrial carcinoma are more common in the perimenopausal and post-menopausal women. Hence histopathological

evaluation of the endometrium is specially recommended in women of these age groups presenting with AUB to rule out the possibility of preneoplastic condition or malignancy.

## CONCLUSION

Study of the histopathological pattern of the endometrial biopsies can be included in the initial evaluation of women with AUB when the cause of bleeding is not known along with ultrasound examination, then using it as the last modality for diagnostic and therapeutic purposes, irrespective of age groups. Correlation with range of endometrial thickness on ultrasound helps to delineate functional causes from organic causes but specific diagnosis is only possible with endometrial biopsy.

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