ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 09, 2023

HISTOPATHOLOGICAL STUDY OF ENDOMETRIUM AND ITS CLINICOPATHOLOGICAL CORRELATION IN ABNORMAL UTERINE BLEEDING

Dr. Divya Malviya[1], Dr. W.K. Raut[2], Dr. Niharika Rawat[3], Dr. Megha Agrawal[4]

[1]P.G. Resident, PCMS & RC, Bhopal

[2]Professor, PCMS & RC, Bhopal

[3]Associate Professor, PCMS & RC, Bhopal

[4]Assistant Professor, PCMS & RC, Bhopal

Corresponding author
Dr. Megha Agrawal
Email id: meghaa62@gmail.com

ABSTRACT

Background: Abnormal uterine bleeding (AUB) refers to irregularities in menstrual cycle involving frequency, regulatory, duration and volume of flow outside of pregnancy. AUB refers to any non-physiologic uterine bleeding.[1] It affects great majority of women and is one of the most common problems in their life, most commonly occurring at menarche and peri-menopausal age. It is one of the most common indications for performing endometrial biopsies and curettage. A normal menstrual cycle has a frequency of 24–38 days and lasts 2-7 days with 5–80 ml of blood loss. Variations in any of these parameters constitute abnormal uterine bleeding.

Aim: To study the morphology of endometrial lesions in cases presenting with AUB at PCMS hospital {BHOPAL}.

Methods: The study was observational, analytical, retrospective and prospective that was carried out for period from Feb 2022 to June 2023 in department of pathology; at Peoples medical college of medical science and research Centre, Bhopal {MP}. Total 118 patients who were clinically diagnosed as AUB were studied. The samples received were endometrial biopsies, endometrial curettage, and hysterectomy specimens for study.

Results: In cases of endometrial polyps, endometrium showed no other abnormality. Chronic endometritis was seen in 2 cases {1.6%} 3 cases of endometrial hyperplasia were seen in study. 2 cases {1.6 %} of non-atypical hyperplasia and 1 case {0.8%} of atypical hyperplasia was observed in this study. 1 case {0.8%} of endometrial carcinoma was found in this study. Maximum numbers of patients {69.4%} were found in perimenopausal age group (40-49 years). 19 patients {16.2%} were in reproductive age group (< 40 years) 17 patients {14.4%} were in post-menopausal age group (>49years)

Conclusion: Endometrial biopsy is important investigation in diagnosis of cases of AUB. Findings in endometrial biopsy in AUB cases show wide range of histopathological finding, ranging from normal appearing endometrium to endometrial carcinoma which can be diagnosed on endometrial biopsy for its proper management.

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 09, 2023

Keywords: Endometrial, Abnormal Uterine Bleeding, PCMS Hospital, Hyperplasia

INTRODUCTION

Revisions to the terminology were first published in 2007 followed by updates from the International Federation of Obstetrics and Gynecology (FIGO) in 2011 and 2018. The FIGO system first defined abnormal uterine bleeding, then gave and acronym for common etiologies. These descriptions apply to chronic, non-gestational AUB. In 2018, the committee added intermenstrual bleeding and defined irregular bleeding as outside the 75th percentile [4]

AUB can also be divided into acute versus chronic. Acute AUB is excessive bleeding that requires immediate intervention to prevent further blood loss. Acute AUB can occur on its own or superimposed on chronic AUB, which refers to irregularities in menstrual bleeding for most of the previous 6 months.[5]

Taking into account, age, menstrual phase and usage of exogenous hormones, histological alterations of endometrium might identify the underlying pathology.[6] Researchers have found that variety of factors including exercise, endocrinopathies, neoplasms, drugs and even undiscovered etiologies can contribute to the condition.[7]

Common practice by the gynecologist is that women with abnormal uterine bleeding should undergo endometrial biopsy to rule out organic pathology. Considering a patient's age and menstrual history is crucial because the causes of abnormal uterine bleeding change with age of the women. Post-menopausal women are more prone to display indication of atrophy and organic disorders, while women of child bearing age are more likely to experience abortion and pregnancy related complication.[6-8]

MATERIALS AND PROCEDURE

MATERIALS

- Endometrium biopsy was received in 10% formalin.
- Endometrial curettage material was received in 10% formalin.
- Hysterectomy specimen was received in 10% formalin.
- Instruments for grossing:- Grossing table, knife, scalpel, scissors, forceps, measuring scale.
- Automated tissue processor.
- Tissue embedding and block making.
- Rotary microtome for section cutting.
- H & E staining of tissue sections.
- Microscope

PROCEDURE

- Deparaffinise by placing the slide in xylene for 10-15 minutes.
- Section rehydration is accomplished by gradually introducing alcohol into the section before eventually bringing it to water.
- Haematoxylin staining is placed to the slide for 8–10 minutes.
- Slides are rinsed in water.
- Differentiation is done by dipping the slide in a solution of 1% acid alcohol for 10 seconds.

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 09, 2023

- Slides were rinsed in water again.
- Blueing is done by dipping the section in Scott's tap water for 2-10 minutes.
- Counterstained with 1% aqueous solution of eosin for 1-3 min.
- Slides rinsed in tap water.
- Before mounting, the sections have to be dehydrated, which is done by passing the sections in series of ascending grades of alcohol and finally cleared in xylene, 2-3 dip in each solution.
- Slides mounted with DPX

RESULTS

Total number of cases of AUB studied was 118, out of which 48 were endometrial biopsy samples and 70 were hysterectomy specimens {table-1}

Age wise distribution of endometrial pattern and lesions were as shown in table no. 2

Cases of AUB showing proliferative endometrium and secretary endometrium were most predominently seen in age group of 40-49 years.

Disordered proliferative endometrium cases were most frequently seen in age group of 40-49 years followed by 30-39 years.

Atrophic endometrium cases were most frequently seen in age group of 50-59 years , followed by age group 40-49 years and 60-69 years.

4 cases of atrophic endometrium with progesterone effect were seen in age group 40-49 years, 1 case was seen in age group of 30-39 years.

2 cases of chronic endometritis were seen in age group of 40-49 years.

All 4 cases of endometrial polyps were seen in age group of 40-49 years.

1 case of non-atypical endometrial hyperplasia was seen in age group of 40-49 years, while other cases were seen in age group of 50-59 years.

One case of endometrial atypical hyperplasia seen in the study was found in age group of 50-59 years.

One case of endometrial carcinoma was seen in study was found in age group of 40-49 years.

It is observed that maximum numbers of cases of AUB {83%} both, with or without organic lesions were found in age group of 40-49 years.

On statistical analysis of this study, results show significant [$p<0.001$], association of endometrial causes of AUB on histopathology and age group of study subjects.

DISCUSSION

In our study and other studies on AUB, there are no cases or few cases in the adolescent age group (<20 years). It may be due to avoidance of invasive procedures in the group. The prevalence of primary coagulation disorders in the adolescent requiring hospitalization ranged from 3-20 %, hence all adolescents with menorrhagia should undergo evaluation for coagulopathy [39].

Our study also revealed that occurance of menstrual disorders increase with advancing age. The commonest age group in our study was 41-49 years, for cases presenting with AUB.

Similar observations was reported by Yusuf et al,[46]

Mujaffal et al [47] and Singh et al [48] and other studies, in their study of endometrium in cases of AUB.

In most of the studies the cases of AUB was more common in the women more than 40 years of age[48]

In many instances, AUB is due to the occurance of an anovulatory cycle in perimenopausal period.[49]

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 09, 2023

In our study , like several other studies , showed that proliferative lesions like disordered proliferative pattern , hyperplasia and benign endometrial polyps occur more commonly in age group of 40-49 years[47,48,50 ,51 ,52].

The reason for this increased incidence of AUB in this age group of 40-49 years may be due to women approaching menopause, cycles shorten and often become intermittently anovulatory due to decline in number of ovarian follicles and estradiol levels.

The incidence of AUB between 51-70 years was lower as compared to age group 41-49 years. The reasons for this may be due to management of AUB at earlier age group, thereby decreasing the incidence in later age group. In our study no. of cases in this age group was 18 {15.2%} and there were 6 cases of cyclic endometrium, 10 cases of atrophic endometrium and 2 cases of endometrial hyperplasia.

Prominent number of cases of AUB showed cyclic endometrium in proliferative, secretary and atrophic pattern and there were no specific organic causes. In our study 80% of patients did not show any specific pathology for AUB. In other studies also majority of cases lacked a well-defined organic cause.

CONCLUSION

Aim of the study was study the morphology of endometrium in cases of AUB. It was also aimed to study the age wise incidence of endometrial lesions found. Gross and histopathological study was carried out in the study. The findings in the study were as follows:-

1) The most commonly affected age group in cases of AUB is 40-49 years (83/118%) , followed by 30-39 years (16/118%) and 50-59years (15/118%)

2) On statistical analysis results of our study show significant ($p<0.001$) association of endometrial causes of AUB on histopathology and age patterns of study subjects.

3) The most common finding in AUB cases is the presence of proliferative endometrium in 51.6% cases, followed by secretory endometrium (16.9%) , atrophic endometrium (11.6%) , discorded proliferative endometrium (7.6%) , atrophy endometrium with progesterone effect 4.2%) ,endometrium polyp (3.3%) , endometrial hyperplasia (2.4%) , chronic endometritis (1.6%) and endometrial carcinoma (0.8%)

4) Most of the observations in the study are within the range of observations in the other studies.

5) However in our study we found the lower incidence of endometrial hyperplasia as compared to other studies.

6) In our study, we found 5 cases of atrophic endometrium with progesterone effect (4.2%). Not uncommonly, endometrial biopsy is done in patients taking hormones, example when abnormal bleeding occurs, when hormones do not correct suspected DUB or when effect of hormones on endometrium is assessed. Hysterectomy may be done in patients taking hormones.

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ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 09, 2023

Table 1: Total Number of endometrial biopsy and hysterectomy specimen

Endometrial Biopsy	Hysterectomy specimen	Total Case
48	70	118

Table 2: Age wise distribution of endometrial patterns in AUB

Histopathological Diagnosis	20-29	30-39	40-49	50-59	60-69	Total
Proliferative Endometrium	1	8	48	4	0	61
Secretary Endometrium	0	4	14	2	0	20
Disordered Proliferative Endometrium	0	3	6	0	0	9
Atrophic Endometrium	0	0	3	7	3	13
Atrophic Endometrium due to Progesterone effect	0	1	4	0	0	5
Chronic Endometritis	0	0	2	0	0	2
Endometrial Polyp	0	0	4	0	0	4
Non atypical Hyperplasia	0	0	1	1	0	2
Atypical Hyperplasia	0	0	0	1	0	1
Endometrial Carcinoma	0	0	1	0	0	1
Total	1	16	83	15	3	118

Table 7: Endometrial Findings in Cases of Fibroids

Proliferative endometrium	12
Secretary endometrium	3
Endometrium with Progesterone effect.	1
Non atypical endometrial hyperplasia.(Simple Hyperplasia without Atypia)	1
Total Cases of Fibroids	17