



HISTOMORPHOLOGICAL STUDY OF ENDOMETRIAL BIOPSIES OF PERIMENOPAUSAL WOMEN IN ABNORMAL UTERINE BLEEDING -A STUDY AT TERTIARY CARE CENTRE

Pathology

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ABSTRACT

Background: Abnormal uterine bleeding (AUB) is one of the common complaints in women in perimenopausal age group. Endometrial sampling is needed to investigate the cause of AUB.

Aim: This study was conducted to evaluate the causes of AUB in perimenopausal age group and endometrial sampling by dilatation and curettage to identify various endometrial pathological patterns.

Study Design: A type of prospective observational study conducted in department of pathology JMC Jhalawar.

Materials And Methods: This study was done at the Department of Pathology, Jhalawar Medical College, Jhalawar during the period of one year from October 2020 to October 2021. Perimenopausal women (41-50 yrs.) with AUB who underwent dilatation and curettage were included in the study.

Result: The commonest histopathological finding was secretory endometrium (38.33%) followed by proliferative endometrium (27.5%), hormonal imbalance (9.16%), simple hyperplasia without atypia (6.66%), disordered proliferative endometrium (5.83%) product of gestation (3.33%), menstrual endometrium (2.5%), chronic endometritis (1.66%) and endometrial polyp (0.83%). Endometrial carcinoma was diagnosed in 4 patients (3.33%).

Conclusion: Endometrial causes of AUB evaluated by histopathological examination of curettings revealed that proliferative and secretory endometrium was the commonest diagnosis followed by hormonal imbalance.

KEYWORDS

Abnormal uterine bleeding, Dilatation and curettage, Disordered proliferative endometrium, Hormonal imbalance, Menstrual/proliferative/secretory endometrium, Perimenopausal women.

INTRODUCTION

Abnormal uterine bleeding (AUB) is defined as any uterine bleeding that is more than the normal volume, of longer duration and varying in regularity or frequency. Majority of all gynaecological outpatient attendants are for AUB^[1].

Perimenopause is the period 2-8 years preceding the menopause and 1 year after final menses (WHO). However a better definition is the phase preceding the onset of menopause, occurring around the age of 40-50 years (beginning at age 47.5, lasting for 4 years) during which the regular menstrual cycle of a woman transitions to a pattern of irregular cycles^[3]. Perimenopausal bleeding refers to the symptoms of excessive, unexpected, prolonged, or acyclic bleeding, regardless of the diagnosis or cause.^[4]

This study was conducted to evaluate the incidence of abnormal uterine bleeding in perimenopausal women; And analyzing the histomorphological pattern of endometrium in abnormal uterine bleeding in perimenopausal age group.

MATERIALS AND METHODS

This prospective observational study consists of endometrial biopsies of randomly selected 120 cases with AUB in perimenopausal age group of 40-50 years. This study was conducted during the period of October 2020 to October 2021 in the Department of Pathology, Jhalawar Medical College, Jhalawar after obtaining permission from institutional research board.

Inclusion Criteria:

All cases that are clinically diagnosed as AUB and are in the perimenopausal age group of 40-50 years.

Exclusion Criteria:

- Endometrium from patients of other age groups.
- Inadequate and suboptimal endometrial sampling.

Method Of Collection Of Data:

The endometrial biopsies were collected from AUB patients in perimenopausal age group of 40-50 years. The endometrial curettage samples were fixed in 10% formalin, histopathological slides were prepared and stained with Hematoxylin and Eosin stain.

Investigations Required For Study

Preparation Of Specimens: -

FIXATION: -

It is important to properly fix a biopsy specimen to stabilize proteins and prevent tissue decay. The fixative used was 10% formalin solution³¹.

Gross Examination: -

The three-dimensional size and shape of the biopsy was assessed. The biopsy was submitted for routine processing. In automated histology processor, the specimen first pass through increasing concentrations of ethanol for dehydration, then through xylene for lipid extraction and clearing of alcohol².

Finally, the tissues were infiltrated with several changes of hot, melted paraffin (or Paraplast) to provide a matrix so that the tissue can be stabilized and cut easily.

Following processing, the specimens were embedded with the cut surface down into the cassette base mold, in the liquid paraffin, which was allowed to harden. To prevent tangentially- oriented sections, it is important that this cut- surface be firmly embedded in the base of this mold. The specimens are then cut on a rotary microtome into sections, approximately 5µm thick³¹.

The sections were then submitted for Haematoxylin and Eosin staining. Haematoxylin and Eosin stain: - Haematoxylin Xylene I and II Absolute alcohol I and II 90% alcohol 1% eosin.

PROCEDURE FOR HEMATOXYLIN AND EOSIN STAINING:-

- Dewaxing:- Paraffin sections placed in xylene for 2 minutes.
- Rehydration:- Transferred to absolute alcohol for 1 minute. Section drained and placed in 90% alcohol for 1 minute.
- Section drained and placed in 70% alcohol for 1 minute
- Section transferred to haematoxylin for 10-40 minutes.
- Slides were transferred to slide washing tray for bluing for 10 minutes.
- Section dipped in acid alcohol (1% HCl in 70% alcohol), agitated for few seconds for differentiation.
- Washed in tap water (5 minutes).

- Dip the section in an alkaline solution followed by a 5-minute tap water wash.
- Stain in 1% eosin Y for 10 minutes.
- Wash in running tap water for 1-5 minutes
- After draining, slides transferred to 3 changes of acetone for dehydration.
- Sections transferred to xylene I and xylene II until completely clear.
- Sections mounted with DPX.

RESULTS:-

Nuclei: - blue/black

Cytoplasm: - varying shades of pink Muscle fibres: - deep pink/ red

RBC: - Orange/ red

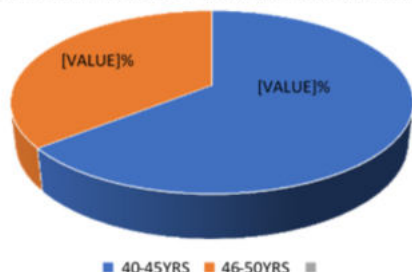
RESULTS:

In this study, age incidence of perimenopausal bleeding cases 77cases (64.1%) were observed between the age group of 40-45 years, and between the age group of 46-50 years 43 cases (35.83%) were observed. So the maximum incidence of perimenopausal bleeding were seen in the age group of 40-45years (64.1%).

Table 1: Age Ncidence Oerimenopausal Bleeding Cases

AGE GROUP	NO. OF CASES	PERCENTAGE
40-45YRS	77	64.1
46-50YRS	43	35.83
TOTAL	120	100

FIGURE:1AGE INCIDENCE OF PERIMENOPAUSAL BLEEDING CASES



The most common histomorphological pattern in this study was secretory endometrium 42 cases(35%) followed by proliferative endometrium 40 cases (33.33%).

Among 120 perimenopausal cases number of cases in 40-45year age group were 77 among them most common pattern was secretory endometrium 29 cases (37.66%).

And 43 cases were in 46-50year age group among them most common pattern was secretory endometrium 13 cases (30.23%).

Table 2: Age Incidence Of Various Histomorphological Endometrium Patterns

Type Of Endometrium	No. of Cases 40-45years	%	No. of Cases 46-50years	%	Total No. of Cases	TOTAL%
Proliferative Endometrium	28	36.36	12	27.90	40	33.33
Secretory Endometrium	29	37.66	13	30.23	42	35
Menstrual Endometrium	2	2.59	1	2.32	3	2.5
Atrophic Endometrium	-	-	2	4.65	2	1.66
Hormonal Imbalance	5	6.49	6	13.95	11	9.16
Product Of Gestation	4	5.19	-	-	4	3.33
Arias Stella Reaction	2	2.59	-	-	2	1.66
Chronic Endometritis	2	2.59	-	-	2	1.66
Endometrial Polyp	-	-	1	2.32	1	0.83
Simple Endometrial Hyperplasia Without Atypia	5	6.49	3	6.97	8	6.66
Atypical Endometrial Hyperplasia	-	-	1	2.32	1	0.83

Endometrial Adenocarcinoma	-	-	4	9.30	4	3.33
Total	77	100	43	100	120	100

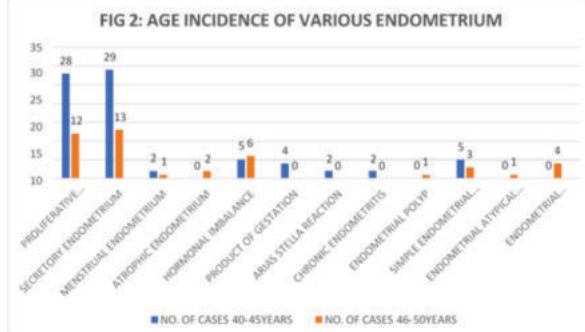


Table 3: Age Incidence Of Proliferative Endometrium And Its Types

Types of Endometrium	No. Of Cases 40-45years	%	No. Of Cases 46-50years	%
Normal Proliferative	20	68.96	7	63.36
Weakly Proliferative	3	10.34	3	27.27
Disordered Proliferative	6	20.68	1	9.09
Total	29	100	11	100

Among 40 cases of proliferative endometrium 29 cases were in 40-45year age group. Most common pattern was of normal proliferative 20(68.96%). 11 cases were in 46-50year age group among which most common was 7(63.36%) normal proliferative phase.

Majority of cases in 40-45year age group and in 46-50year age group were of normal proliferative type. Disordered proliferation was more common in 40-45years age group as compared to 46-50year age group. Majority of cases in 40-45year age group were of endometrial hyperplasia without atypia and in 46-50year age group majority of cases were of endometrial hyperplasia with atypia.

Table 4: Age Incidence Of Endometrial Hyperplasia And Its Types

TYPES OF ENDOMETRIUM	NO. OF CASES 40-45YEARS	%	NO. OF CASES 46-50YEARS	%
Endometrial Hyperplasia Without Atypia	5	100	3	75
Atypical Endometrial Hyperplasia	-	-	1	25
Total	5	100	4	100

In this study no. of cases 40-45year age group 74(97.3%) were benign and 2 (2.63%) were inflammatory and in 46-50 years 40(90.90%) were benign and 4(9.09%) were malignant.

Table 5: Age Wise Distribution Various Types Of Endometrium

	NO OF CASES IN 40-45 YEARS	%	NO OF CASES IN 46-50 YEARS	%
INFLAMMATORY	2	2.63	-	-
BENIGN	74	97.3	40	90.90
MALIGNANT	-	-	4	9.09
TOTAL	76	100	44	100

DISCUSSION:

In this study 120 cases of abnormal uterine bleeding in perimenopausal age group (40-50years) were analysed at our hospital from October 2020 to October 2021.

In our study 63.33% women with abnormal uterine bleeding are in age group between 40-45 years and 36.67% women were between age groups of 46 – 50 years. Higher incidence of AUB among age group 40-45years reflects organic as well as inorganic causes of AUB which is corresponding to the study done by Archana Bhosle et.al⁸ with 40-45 year age group (76.1%), and 46-50year age group (24.10%).

PATTERNS OF ENDOMETRIUM

In our study group of 120 women with AUB, endometrial biopsy report

was secretory phase in 35%, proliferative phase in 33.33%, hormonal imbalance in 9.16%, simple hyperplasia without atypia in 6.66%, product of gestation in 3.33%, menstrual endometrium in 2.5%, endometrial adenocarcinoma in 3.33%, chronic endometritis in 1.66%, Arias stella reaction 1.66%, atrophic endometrium 1.66%, endometrial atypical hyperplasia 0.83% and endometrial polyp in 0.83% which is closely related to study done by Vani S et al.¹⁴ (proliferative 30.3%, secretory 25.97%, hyperplasia 18.18% and polyp 2.60%) and Byna et al.¹⁷ (normal endometrium 66.14%, endometrial hyperplasia 18.84%, polyp 4.61% and hormonal imbalance 9.2%)

Table 6 : Various Patterns Of Endometrium

HISTOPATHOLOGICAL DIAGNOSIS	Vani S et.al ¹⁴	Monica et.al ¹⁵	CURRENT STUDY
PROLIFERATIVE ENDOMETRIUM	30.3%	10.75%	33.33%
SECRETORY ENDOMETRIUM	25.97%	10.75%	35%
MENSTRUAL ENDOMETRIUM		2.85%	2.5%
ATROPHIC ENDOMETRIUM	5.62%	0.86%	1.66%
HORMONAL IMBALANCE	2.60%	16.45%	9.16%
PRODUCT OF GESTATION	4.76%	1.89%	3.33%
ARIAS STELLA REACTION		0.86%	1.66%
CHRONIC ENDOMETRITIS	2.16%	1.89%	1.66%
ENDOMETRIAL POLYP	2.60%	1.26%	0.83%
ENDOMETRIAL HYPERPLASIA WITHOUT ATYPIA	18.18%	51.26%	6.66%
ATYPICAL ENDOMETRIAL HYPERPLASIA	1.29%	1.89%	0.83%
ENDOMETRIAL ADENOCARCINOMA	0.86%	1.26%	3.33%

Among the various patterns of endometrium observed, the number of cases of secretory endometrium and its variants were higher (35%) in the present study in comparison to other studies of Vani S et al.¹⁴ and Monika et al.¹⁵.

In perimenopausal age group endometrial assessment is performed to diagnose malignancy or pre-malignant conditions and to evaluate the hormonal influences on the endometrium^{3,4}.

CONCLUSION:

In our study of abnormal uterine bleeding in perimenopausal age group majority of endometrial pattern were of normal endometrium (secretory and proliferative); chronic endometritis, atrophic endometrium and endometrial polyp have variable incidence under hormonal influence and although incidence of endometrial hyperplasia and endometrial carcinoma were low but they are high risk features in perimenopausal age group therefore any AUB in perimenopausal age group should be evaluated thoroughly to rule out any organic or inorganic cause^{4,5}.

REFERENCES:

- Dutta D.C. Text book of gynaecology including contraception: "Abnormal menstrual bleeding". Chapter 13, 3rd edition, Calcutta, New Central Book Agency, 2001: 175-186.
- Howkins and Bourne Shaw's Text book of gynaecology: "Menorrhagia and dysfunctional uterine bleeding (DUB)". Chapter 22, Edt. By Padubidri V.G. and Shirish N.D. 13th edition, New Delhi, Elsevier, 2004: 291-299.
- Stanley J. Robboy MD FCAP, Malcolm C. Anderson FRCPath FRCOG. Robboy's Pathology of the Female Reproductive Tract. 2nd ed.; 2009.
- Ackerman L.V. "Dysfunctional uterine bleeding and hyperplasia". Surgical Pathology. 7th edition, St. Louis, C.V. Mosby, 1989.
- WHO Classification of female genital tumors 5th edition tumors of uterine corpus 245 271
- WHO Scientific Group 1996 Research on the menopause in the 1990's. A report of the WHO Scientific Group. World Health Organization, Geneva, Switzerland, vol 866:1-79.
- Guyton and Hall Text book of Medical Physiology. 7th ed. WB Saunders Company: 2007: 1016-1019.
- Archana Bhosle, Michelle Fonseca, Evaluation and Histopathological Correlation of Abnormal Uterine Bleeding in Perimenopausal Women Bombay Hospital Journal, Vol.52, No.1, 2010.
- Mariam Abid, Atif Ali Hashmi, Babar Malik, Saroona Haroon, Naveen Faridi, Muhammad Muzzammil Edhi, et al. Clinical pattern and spectrum of endometrial pathologies in patients with abnormal uterine bleeding in Pakistan: need to adopt a more conservative approach to treatment. BMC Women's Health. 2014; 14: p. 132.
- Shazia Riaz, Faiza Ibrar, endometrial pathology by endometrial curettage in menorrhagia in premenopausal age group, J Ayub Med Coll Abbottabad 2010;22(3).
- Layla S Abdullah, Nabeel S Bondagji, Histopathological Pattern of Endometrial Sampling Performed for Abnormal Uterine Bleeding, Bahrain Medical Bulletin, Vol. 33, No. 4, December 2011.
- Zeeba S. Jairajpuri, S. Rana, S. Jetley. Atypical uterine bleeding-Histopathological study of endometrium A study of 638 cases. Al Ameen J Med Sci. 2013; 6(1): p. 21-28.
- Nabanita Chakraborty, Rajasri Chunder, Barnali Mukherjee, Soham Chakraborty Histopathological Study of Endometrium in Patients of Perimenopausal Age Group in a tertiary care Hospital in West Bengal Asian Journal of Medical Sciences Sep 2021 Vol 12 Issue 9

- Vani B. S, Vani R, Jijiya Bai P. Histopathological evaluation of endometrial biopsies and curettings in abnormal uterine bleeding. Trop J Path Micro 2019;5(4):190-197.
- Monika Bobde, Meera Mahajan, Chandrashekhar Bhale. Histopathological study of breast lesions in rural tertiary care medical college in India. MedPulse International Journal of Pathology. October 2019; 12(1):41-48.
- Chitra T, Manjani S, Madhumitha R, et al. Histopathology of endometrial curettings in perimenopausal women with abnormal uterine bleeding. J. Evolution Med. Dent. Sci. 2016;5(24):1285-1290, DOI: 10.14260/jemds/2016/30
- Byna P, Siddula S, Kolli S, Shaik MV. Histopathological correlation of abnormal uterine bleeding in perimenopausal women Int J Reprod Contracept Obstet Gynecol 2015;4:1875-8.
- Shwetha A, Asha M, Vaishnav K. Histopathological study of endometrium in abnormal uterine bleeding in women of all age groups in western rajasthan (400 cases). Int J Basic App Med Sci. 2014;4(3):15-8.