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HISTOPATHOLOGICAL STUDY OF ENDOMETRIUM IN ABNORMAL UTERINE BLEEDING IN REFERENCE TO DIFFERENT AGE GROUPS, PARITY AND CLINICAL SYMPTOMATOLOGY

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ABSTRACT

Background: Abnormal uterine bleeding is the commonest presenting symptom and major gynecological problem responsible for as many as one-third of all out patient gynecologic visit. An understanding of the varieties in the normal morphological appearance of the endometrium provides an essential background for the evaluation of endometrial pathology. **Aims**: To study the histopathology of endometrial biopsies in patients presenting with abnormal uterine bleeding and its correlation with age, parity and bleeding pattern **Methods**: This was a study done at tertiary care hospital from 2012-2014. Endometrial biopsies obtained from 100 cases of patients presenting with abnormal uterine bleeding were studied followed by correlation of endometrial histopathology with parity, age and bleeding pattern. **Results**: The most common age group presenting with abnormal uterine bleeding was 41-50 years (31%).The commonest pathology was proliferative endometrium (29%).The commonest bleeding pattern was menorrhagia (88%) and highest incidence was seen in multiparous women (58%). **Conclusion**: Endometrial biopsy should be recommended during the workup of patients presenting with abnormal uterine bleeding to exclude organic pathology of endometrium

KEYWORDS: Abnormal uterine bleeding, Menorrhagia, Endometrium, Endometrial biopsy.

INTRODUCTION

Abnormal uterine bleeding is defined as any bleeding pattern that differs in the frequency, duration and amount from a pattern observed during a normal menstrual cycle or menopause. It is a common problem having a long list of causes in different age groups.[1,2]

AUB is the commonest presenting symptom and major gynecological problem responsible for as many as one-third of all out patient gynecologic visit. Menorrhagia affects 10-30% of menstruating women at any one time, and may occur at some time during the perimenopause in upto 50% of women.[3]

The endometrium which lines the uterine cavity is one of the most dynamic tissues in the human body; an interesting tissue for histopathologic study. It is characterized by cyclic processes of cell proliferation, differentiation and death in response to sex steroids elaborated in the ovary. The endometrial sampling is chosen to evaluate abnormal uterine bleeding because it has several advantages over other diagnostic methods.

Endometrial curettage is relatively inexpensive and accurate as an outpatient procedure. The only disadvantage of endometrial biopsy is that, it is an invasive procedure.

An understanding of the varieties in the normal morphological appearance of the endometrium provides an essential background for the evaluation of endometrial pathology.[4]

MATERIALS AND METHODS

Study design: A Prospective comparative analysis

Place of research: The study was carried out in the department of pathology of Bharati Vidhyapeeth University and Medical College, Pune

Time frame of the study: A period of 2 years from the year 2012 to 2014.

Ethics approval: The study was approved by the Intuitional Ethics Committee; inform consent form was taken from the participants.

Inclusion criteria: All endometrial biopsies done in patients presented with abnormal uterine bleeding in any age group were included.

Exclusion criteria: Women with systemic or non pelvic causes of bleeding, without adequate history, without adequate samples and unfixed specimens.

Methodology:

Detailed clinical history was collected from the patients along with relevant investigations. 100 endometrial curettage samples received during the period of 2012-2014 for the reason of abnormal uterine bleeding in the Department of Pathology for histopathological diagnosis. The endometrial curettage material fixed in 10% formalin was processed routinely and 3 to 4 micrometre thick sections were prepared from paraffin embedded tissue. These sections were stained with haematoxylin and eosin stains and studied for the cause of abnormal uterine bleeding. The clinical details of the patients were noted.

STATISTICAL ANALYSIS

The clinical and histopathological data was collected and was transformed to a master chart which was then subjected to statistical analysis using chi square test. The findings were arranged in tables and graphs using Microsoft excel sheet.

RESULTS

Table 1. Distribution of patients according to age

Age (Yrs)	Number of patients	Percentage (%)
≤ 20	3	3.0
21 - 30	28	28.0
31 - 40	27	27.0
41 - 50	31	31.0
51 – 60	8	8.0
≥ 60	3	3.0
Total	100	100.0

The maximum number of cases were seen in the age group of 41-50 years (31%) and minimum number of cases were seen in the age group of ≤ 20 years (3%).

Table 2. Distribution of patients according to parity

Parity	Number	Percentage (%)
Nulliparous	8	8.0
Primiparous	34	34.0
Multiparous	58	58.0
Total	100	100.0

The incidence of AUB was found to be highest in multiparous (58%) women.

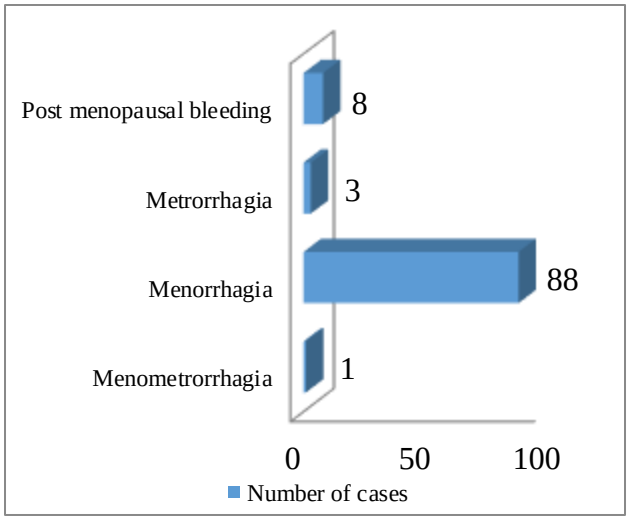

Figure 1. Graph showing distribution of bleeding pattern

Menorrhagia was the most common symptom accounting for 88% of the patients followed by postmenopausal bleeding accounting for 8% with the least being menometrorrhagia(1%).

Table 3. Pattern of distribution of histopathological findings

Histopathological findings	Number	(%)
Proliferative phase	29	29.0
Simple hyperplasia without atypia	22	22.0
Pregnancy and related complications	18	18.0
Secretory phase	15	15.0
Exogenous hormonal effect	11	11.0
Endometrial carcinoma	4	4.0
Endometrial polyp	1	1.0
Total	100	100.0

Proliferative phase was the most common finding accounting for 29% followed by simple hyperplasia without atypia, pregnancy and related complications, secretory phase, exogenous hormonal effect, endometrial carcinoma and endometrial polyp.

Table 4. Histopathological findings among various age groups

Age(Yrs)	EC*	EP †	Exogenous hormone effect	H.mole‡	POC§	Proliferative phase	Secretory phase	Simple hyperplasia without atypia	Total
≤ 20	0	0	0	1	1	1	0	0	3
21-30	0	0	2	3	10	8	2	3	28
31 -40	0	0	1	0	3	7	9	7	27
41-50	2	0	8	0	0	8	3	10	31
51 -60	2	0	0	0	0	5	0	1	8
> 60	0	1	0	0	0	0	1	1	3
Total	4	1	11	4	14	29	15	22	100

* EC – Endometrial carcinoma, † EP – Endometrial Polyp, ‡ H.mole – Hydatidiform mole, § POC – Products of conception

Table 5. Histopathological findings in correlation with parity

Parity	Histopathological findings								Total
	EC*	EP†	Exogenous hormone effect	H.mole‡	POC §	Proliferative phase	Secretory phase	Simple hyperplasia without atypia	
Nullipara	0	0	1	1	1	4	0	1	8
Primipara	0	0	1	2	13	6	9	3	34
Multipara	4	1	9	1	0	19	6	18	58
Total	4	1	11	4	14	29	15	22	100

* Endometrial carcinoma, †Endometrial Polyp, ‡Hydatidiform mole, § Products of conception

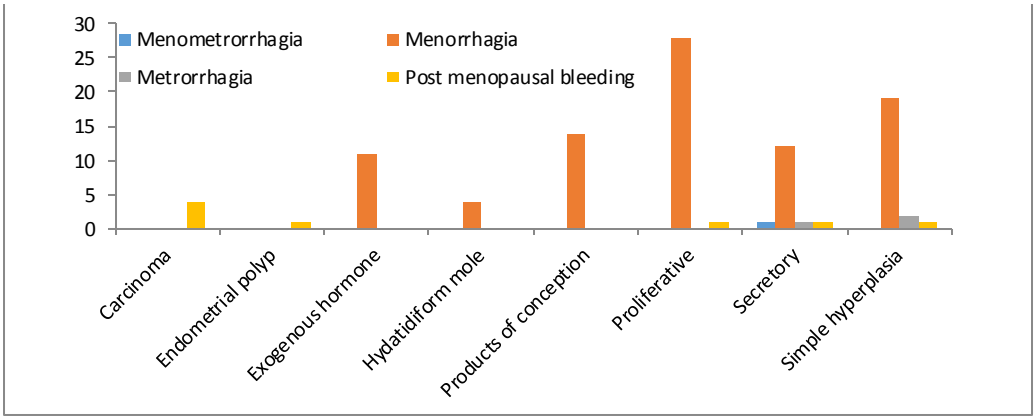

Figure 2. Graph depicting histopathological findings in correlation with bleeding patterns

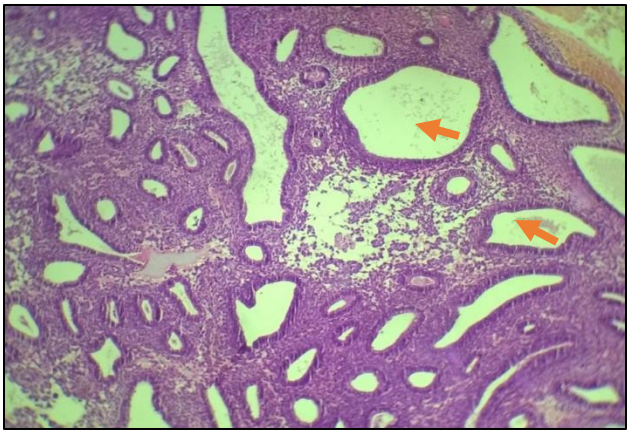

Figure 3. H & E (100x) Simple hyperplasia without atypia with large cystically dilated glands against compact stroma

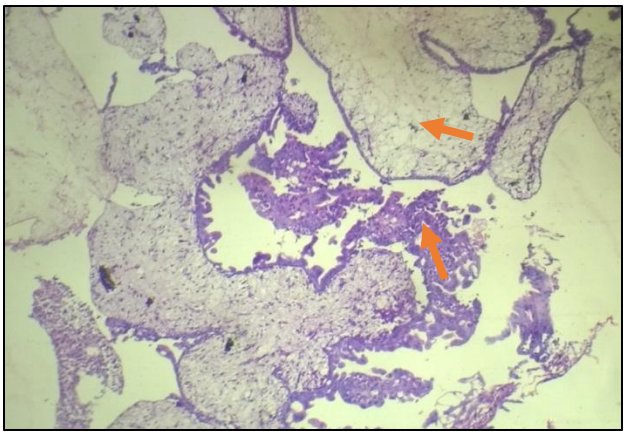

Figure 4. H & E (100x) Hydatidiform mole : Chorionic villi showing hydropic change and increase trophoblastic proliferation

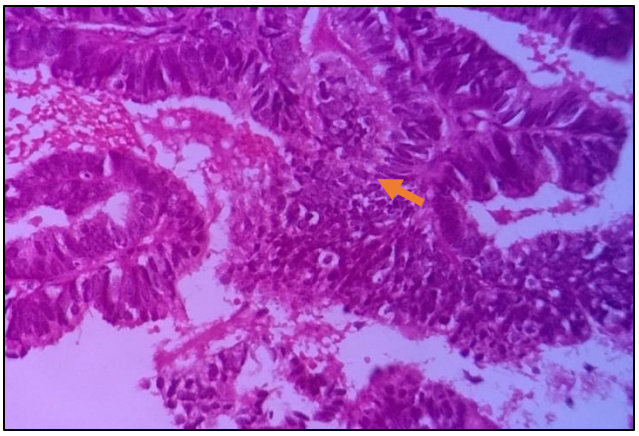

Figure 5. H & E (400x) Endometrial adenocarcinoma

DISCUSSION

Endometrial tissue is vulnerable for pathological lesions, as it is hormonally sensitive and responsive tissue which constantly undergoes changes throughout the reproductive life.

Abnormal uterine bleeding is one of the common reason for female patients to consult gynaecologist. AUB affects one-third of female at one or the other time in their life span. It include bleeding from structural causes like polyps, endometrial hyperplasia, chronic endometritis, proliferative endometrium, fibroids, carcinoma and pregnancy related complications and dysfunctional uterine bleeding.

Endometrial curettage is the most common mean for assessing AUB. In this procedure, scrapping of endometrial lining and histopathological examination of tissue is done without injuring the nearby structures. This procedure is well accepted by the patients.

The highest incidence of AUB was noted in the 41-50 years age group in the present study which is in concordance with the results of the studies by Sutherland [5](1950), Anusuya Das [6](1964), Muzaffar [7](2005) and Saraswathi [8](2011). In the present study, the highest incidence of AUB was seen in multiparous(58%), which is in concordance with the results of the studies by Bhattacharji [9](46%), Devi PK [10](8.6%), Joshi and Deshpande [11](61.5%), Mehrotra VG [12](46%), Sadia K [13](54%) and Smita S Patne[14] (2013).

In the present study, menorrhagia was the commonest type of bleeding (88%) followed by postmenopausal bleeding (8%), metrorrhagia (3%) and menometrorrhagia (1%), whereas in the study by Mehrotra VG [12] showed menorrhagia was the commonest type of bleeding followed by polymenorrhea, metrorrhagia and postmenopausal bleeding.

Table 6. Comparison of histopathological findings

Histopathological findings	Patil et al[15]	Pilli et al[16]	Zawar et al[17]	Present study
Proliferative phase	22	34	43	29
Endometrial hyperplasia	40	44	37	22
Malignancy	1	0	0	4
Endometrial polyp	-	1	0	1

Secretory phase	19	**13**	**12**	**15**
Atrophic endometrium	-	**0**	**2**	
Endometritis	-	**0**	**0**	
Miscellaneous	18	**8**	**5**	**29**
Total (%)	100	**100**	**100**	**100**

Comparison of histopathological findings of endometrium in various studies reveals that about half of the patients with AUB had normal proliferative or secretory phase endometrium. The bleeding in the proliferative phase may be due to anovulatory cycles and bleeding in the secretory phase is due to ovulatory dysfunctional uterine bleeding. In the present study, proliferative phase endometrium was seen in 29% cases which is seen in concordance with the results of studies by Patil et al [15](2013). Secretory phase endometrium was seen in 15% cases which is in concordance with the results of the study by Patil et al [15] (2013).

Miscellaneous group in the present study includes products of conception (14%), hydatidiform mole (4%) and hormonal effect endometrium (11%) while the miscellaneous patterns reported by Patil et al [15] included irregular ripening(16% cases), secretory hyperplasia (one case) and Arias stella reaction (one case).

Pregnancy related bleeding was seen in 15% cases, 72.2% of which were in the age group 21-30 years. Potential causes of pregnancy related bleeding include spontaneous pregnancy loss (miscarriage), ectopic pregnancy, placenta previa, abruption placentae, and trophoblastic disease. In the present study, effect of hormone was seen in 11% cases. Our study reported high incidence of exogenous hormone changes in the endometrium as compared to other studies by Jairajpuri ZS et al [18] in 1.7% patients and Muzaffar et al [7] in 2.3% patients. Majority of the patients were in the age group of 41-50 years age group similar to the data obtained by Muzaffar et al [7] whereas Jairajpuri ZS et al reported majority of the cases were in the 31-40 years age group.

In the present study, endometrial carcinoma was seen in 4 patients. Out of these, 2 cases were in the 41-50 years age group and other 2 cases in the 51-60 years age group. All of them were of villoglandular type endometrial adenocarcinoma and presented with postmenopausal bleeding. Studies done by Sarwat Ara et al [19] reported endometrial carcinoma in 3 cases (1.86%),

One case of endometrial polyp was seen in the postmenopausal age group presented with postmenopausal bleeding. The incidence was much lower than 12% observed by Talat Mirza et al [20].

CONCLUSION

In conclusion, endometrial biopsy in AUB cases is a simple, cost-effective and appropriate method that provide accurate diagnostic yield. The present study highlights the importance of endometrial biopsy in detecting organic and non organic causes of AUB. Endometrial causes are age related and it was found to be statistically significant (P<.001) in the present study. Maximum incidence of AUB was seen in 41-50 years age group and the commonest pattern in these patients was simple hyperplasia without atypia.

Hence, endometrial biopsy should be recommended in patients presenting with AUB especially after the age of 40 years to exclude organic pathology of endometrium and to plan appropriate patient management.

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