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Original Research Article

Correlation of Endometrial Thickness and Histopathological Study in Patients of Abnormal Uterine Bleeding (AUB) in Perimenopausal Age

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Abstract

Introduction: Menstrual irregularity and abnormal heavy menstruation accounts for up to 35% of women attending Gynecology department. The histopathological evaluation of endometrial curettage yields various results ranging from physiological to pathological lesions and helps for an early diagnosis of endometrial carcinoma which carries a risk of 5-10% in perimenopausal women.

Aims and Objectives: To assess the correlation of endometrial thickness and histopathological study in abnormal uterine bleeding of perimenopausal women and its contribution in the clinical diagnosis and management.

Materials and Methods: This cross-sectional study was conducted at the M.K.C.G. Medical College Hospital Berhampur (Odisha), India from September 2019 to September 2021. Perimenopausal women with AUB were first examined clinically to rule out other gynecological abnormalities and followed by relevant hematological investigations. TVS was done in all patients for measuring endometrial thickness followed by endometrial biopsy for HP study and hysterectomy was done if required. Analysis was done by MS-Excel sheet after results were tabulated.

Results: Out of 250 women, 33.2% women were found to have adenomyosis as commonest pathology, 38% presented as heavy menstrual bleeding as the commonest form of AUB. Endometrial thickness (ET) was more than 8 mm in majority of women (55.6%) who were subjected to endometrial biopsy. Biopsy revealed 32% had proliferative pattern as commonest form and 13.6% had endometrial hyperplasia. Out of the 145 women, who had undergone hysterectomy adenomyosis came out as the commonest pathology (42.8%) and 4.1% as carcinoma endometrium.

Conclusion: ET more than 8 mm is most often associated with abnormal histopathology. Endometrial biopsy should be employed whenever indicated to obtain a tissue diagnosis to exclude endometrial cancer.

Introduction

Common at two extremes of reproductive age i.e. puberty and around menopause, reported to occur in 9-14% women, 50% of affected women are aged 40-50 yrs [1]. The acceptable abnormal menstrual bleeding patterns are described as heavy menstrual bleeding (HMB), heavy and prolonged menstrual bleeding (HPMB), intermenstrual bleeding (IMB), prolonged menstrual bleeding (PMB) and frequent menstrual bleeding (FMB) in this context of AUB [2].

Transvaginal sonography (TVS) is considered as gold standard in assessing endometrial thickness (ET) and other uterine and pelvic pathology [3]. Endometrial biopsy is indicated in menstrual irregularities in women over age of 40, high risk for endometrial carcinoma, persistent abnormal bleeding, post-menopausal bleeding, prior hormone replacement therapy, family history of endometrial or colonic cancer, polycystic ovarian syndrome, tamoxifen therapy for breast cancer, unopposed oestrogen therapy, follow up cases of conservative management of endometrial hyperplasia and pre surgical evaluation of intracavitary fibroids. It is contraindicated in pregnancy, pelvic inflammatory disease and coagulopathies. Endometrial biopsy excludes intrauterine pathology and provides sample of endometrium to determine its functional state thereby providing a guide to etiology and treatment [4].

Lithingo Lotha et al. conducted a study on clinicopathological evaluation of abnormal uterine bleeding in perimenopausal women in 2016 and found fibroid uterus followed by DUB as the most common cause in perimenopausal women[5]. Luca Giannella et al. 2019 studied prediction of endometrial hyperplasia and cancer among perimenopausal women with AUB and found that presence of 2 or more risk factors with ET>11 mm increased the predictability [6]. So the varieties of consensus regarding outcome of study on women of AUB led to the idea of performing another study on this to arrive at a better conclusion.

Aims and Objectives:

To correlate endometrial thickness and histopathological study in patients of abnormal uterine bleeding of perimenopausal women and its contribution in clinical diagnosis and management.

Materials and methods:

The present study is a cross sectional study design conducted at the M.K.C.G. Medical College Hospital Berhampur (Odisha), India from September 2019 to September 2021. Perimenopausal women (45-55 yrs) who were admitted to in-patient department (IPD) with abnormal uterine bleeding were selected by convenient sampling. Pregnancy related normal or abnormal bleeding, uterine bleeding due to intra uterine devices, TB endometrium and inadequate specimen, blood dyscrasia, isolated cervical or vaginal pathology and women with AUB <45yrs and >55yrs were excluded from this study.

History of the patient was taken and clinical examination was done to rule out other gynecological abnormalities followed by relevant hematological investigations. TVS was done for measuring endometrial thickness and exclusion of other pelvic pathology followed by endometrial biopsy for histopathological study in all patients. All women except complex hyperplasia were treated medically, failing which subjected for hysterectomy. Uterine specimens of women undergoing hysterectomy were subjected for histopathological examination and analysis done by MS-Excel sheet after results were tabulated.

Results

In the study of 250 women, 190 women (76%) were in the age group of 45-50 years and 60 women (24%) were in 51-55 years. Initially according to distribution of causes of women with AUB studied, 83 women (33.2%) had adenomyosis, 60 women (24%) had fibroid, 31 women (12.4%) had anovulation, 20 women (8%) had endometrial polyp, 17 women (6.8%) had malignancy, 16 women (6.4%) had both adenomyosis and fibroid, 7 women(2.8%) had endometrial pathology, 6 women (2.4%) had anovulation associated with fibroids, 3 women(1.2%) had polyp with anovulation, 3 women(1.2%) had adenomyosis with endometrial hyperplasia , 2 women(0.8%) had fibroids with endometrial polyps, and 2 women (0.8%) had AUB-N.

According to clinical presentation, 95 women (38%) presented as heavy menstrual bleeding (HMB), 43 women (17.2 %) presented as heavy prolonged menstrual bleeding (HPMB), 40 women (16%) as prolonged menstrual bleeding (PMB), 38 women (15.2 %) as frequent menstrual bleeding (FMB) and 34 women (13.6%) as intermenstural bleeding (IMB). Detailed outcome of the HPE reports of women were as follows:

i) Out of 95 women with heavy menstrual bleeding (HMB), 36 women (37.8%) had proliferative endometrium, 18 women (18.9%) had disordered proliferative endometrium(DPE), 12 women (12.6%) had endometrial hyperplasia, 10 women(10.5%) had secretory endometrium, 8 women (8.4%) had non secretory endometrium, 6 women (6.3%) had endometrial polyp and 5 women (5.2%) had scanty and atrophic endometrium.

ii) Out of 43 women with heavy and prolonged menstrual bleeding (HPMB), 16 women (37.2%) had proliferative endometrium, 8 women (18.6%) had secretory endometrium, 8 women (18.2%) had endometrial hyperplasia, 5 women (11.6%) had DPE, 5 women (11.6%) had non secretory endometrium, and one woman (2.3%) had endometrial polyp.

iii) Out of 40 women with PMB, 13 women (32.5%) had secretory endometrium, 9 women (22.5%) had DPE, 7 women (17.8%) had proliferative endometrium, 4 women (10%) had non secretory endometrium, 3 women(7.5%) had endometrial hyperplasia, 2 women(5%) had endometrial polyp and 2 women(5%) had scanty and atrophic endometrium.

iv) Out of 38 women with frequent menstrual bleeding (FMB), 16 women (42.1%) had non secretory endometrium, 9 women (23.7%) had proliferative endometrium, 8 women (21%) had endometrial hyperplasia, 2 women (5.3%) had secretory endometrium, 2 women (5.3%) had DPE and one woman (2.7%) had endometrial polyp.

v) Out of 34 women with intermenstrual bleeding (IMB), 12 women (35.3%) had proliferative endometrium, 9 women (26.5%) had secretory endometrium, 4 women (11.8%) had DPE, 4 women (11.8%) had endometrial polyp, 3 women (8.8%) had endometrial hyperplasia and 2 women (5.9%) had non secretory endometrium. (Table)

Table 1: Women of AUB with clinical patterns of Bleeding

Histopathological Study	HMB		HPMB		PMB		FMB		IMB		Total
	Nos (n=95)	%	Nos (n=43)	%	Nos (n=40)	%	Nos (n=38)	%	Nos (n=34)	%	
Proliferative phase	36	37.89	16	37.20	7	17.50	9	23.68	12	35.29	80
Secretory phase	10	10.52	8	18.60	13	32.50	2	5.26	9	26.47	42
DPE	18	18.94	5	11.62	9	22.5	2	5.26	4	11.76	38
Non secretory	8	8.42	5	11.62	4	10.00	16	42.10	2	5.88	35
Simple hyperplasia without atypia	8	8.42	2	4.65	1	2.50	2	5.26	2	5.88	34
Complex hyperplasia without atypia	2	2.10	5	11.62	1	2.50	3	7.89	1	2.94	
Cystoglandular hyperplasia	2	2.10	1	2.32	1	2.50	3	7.89	0	0	
Endometrial Polyp	6	6.31	1	2.32	2	5.00	1	2.63	4	11.76	14
Scanty/Atrophic Endometrium	5	5.26	0	0	2	5.00	0	0	0	0	7

On study of endometrial thickness (ET) of 250 women, 84 women (33.6%) had ET 8-10 mm, 76 women (30.4%) had ET-5-7 mm, 47 women (18.8%) had ET 12-16mm, 35 women (14%) had ET 2-4 mm, 6 women (2.4%) had ET 18-22mm and 2 women (0.8%) had ET 24-28 mm(139 women had ET >8mm and 111 women had ET< 8 mm). Out of all women studied, 207 women (82.8 %) were due to structural causes (PALM) and 43 women (17.2 %) cases were due to functional causes (COEIN) according to FIGO classification of AUB(2011).

Study of endometrial thickness of all the women according to bleeding pattern resulted as follows : out of 95 women with HMB 52 women (54.73%) had ET ≥ 8 mm and 43 women (45.2%) had ET < 8 mm, out of 43 women with HPMB 25 women (58.13%) had ET ≥ 8mm and 18 women (41.8%) had ET < 8 mm, out of 40 women with PMB 22 women (55%) had ET ≥ 8 mm and 18 women (45%) had ET < 8 mm, out of 38 women with FMB, 22 women (57.89%) had ET ≥ 8 mm and 16 women (42.10%) had ET < 8 mm, out of 34 women with IMB, 18 women (52.94%) had ET ≥ 8 mm and 16 women (47%) had ET < 8 mm.(Figure-1)

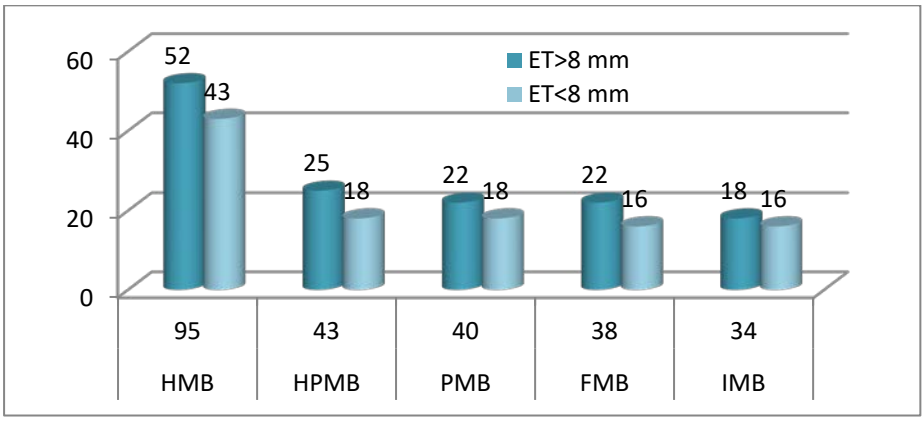

Figure 1: Distribution of Endometrial thickness according to clinical pattern

Out of all women subjected for endometrial biopsy, 80 women (32%) had proliferative endometrium, 42 women (16.8%) had secretory endometrium, 38 women (15.2%)

had disordered proliferative endometrium (DPE), 35 women (14%) had non secretory endometrium, 34 women (13.6%) had endometrial hyperplasia, 14 women (5.6%) had endometrial polyp and 7 women (2.8%) had scanty and atrophic endometrium.

Details of the HP finding in accordance to endometrial thickness were as follows; ET is more than 8 mm in 37 women (46.25%), 21 women (50%), 30 women (78.94%), 18 women (51.42%), 27 women (79.84%) and 6 women (42.8%) out of 80 women with proliferative endometrium, 42 women with secretory endometrium, 38 women with DPE, 35 women with non-secretory endometrium, 34 women with endometrial hyperplasia and 14 women with endometrial polyp respectively. Endometrial thickness is less than 8 mm in 43 women (53.7%), 21women (50%), 8 women (21.05%), 17 women(48.57%), 7 women (20.58%) and 8 women (57.2%) out of 80 women with proliferative endometrium, 42 women with secretory endometrium, 38 women with DPE, 35 women with non-secretory endometrium, 34 women with endometrial hyperplasia and 14 women with endometrial polyp respectively. All women (n=7) with atrophic endometrium had ET ≤ 4 mm. (Figure-2)

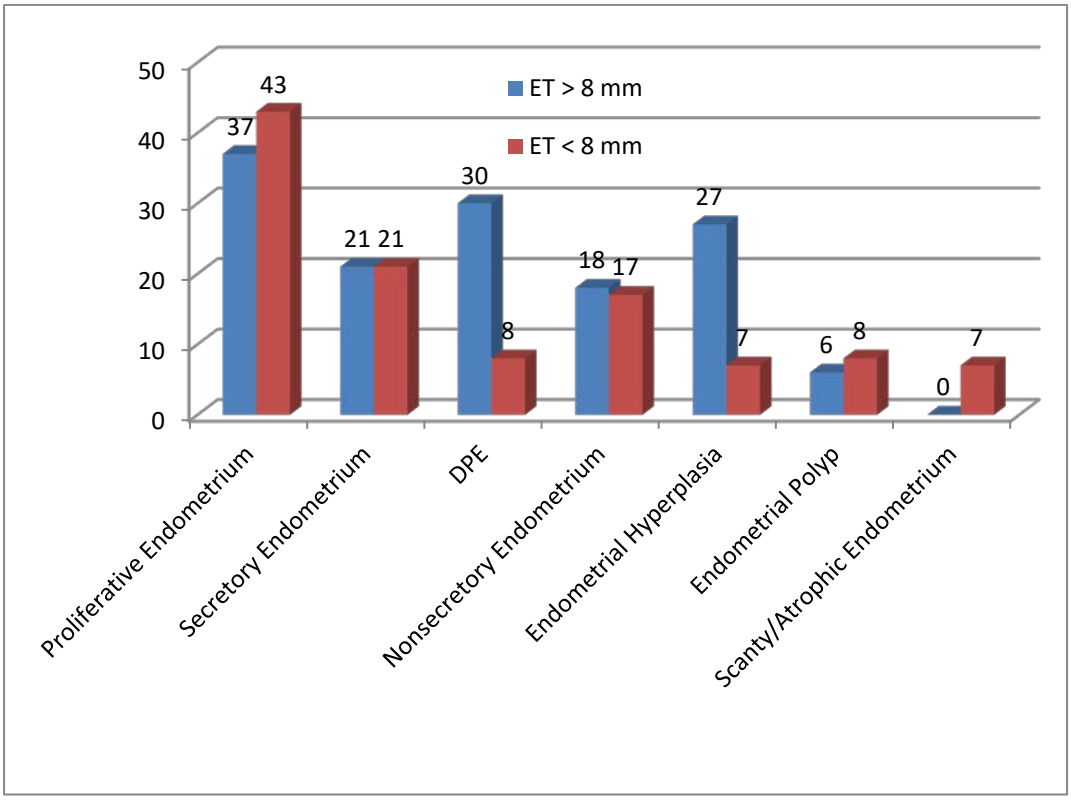

Figure 2: Correlation of ET with histopathological finding of AUB patients

On histopathological examination of patient undergone hysterectomy (n=145), 62 women (42.8%) were diagnosed as adenomyosis, 55 women (38%) were as fibroid, 12 women (8.2%) were as adenomyosis with intramural fibroid, 10 women (6.9%) were as endometrial hyperplasia, 6 women (4.1%) were as carcinoma endometrium(Figure-III).

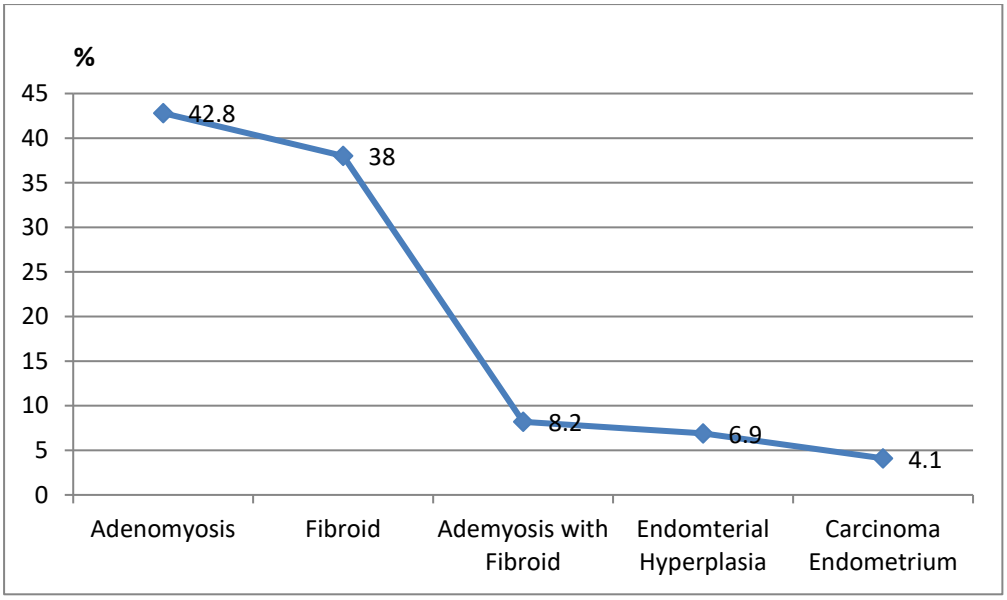

Figure 3: HP Findings in Hysterectomy Specimens

Discussion

In the present study 250 perimenopausal women with AUB in the age group ranging from 45-55 years revealed that 76% women belonged to 45-50 years followed by 24% women belonged to 51-55 years which is comparable to Shivaji Neelgund et al showing maximum cases of AUB belong to 45-50 years as 68.5% [7] and so also Shobha S Pillai et al showing maximum women belonged to age group 48-51 as 40% [8].

The most common symptoms were heavy menstrual bleeding (HMB) which was found in 38% of women followed by HPMB in 17.2% of women, PMB in 16 % of women, FMB in 15.2% of women and IMB in 13.6% of women which is concurrent to that of Dr Jaya Choudhury et al showing HMB as 50%, IMB as 18%, FMB as 16%, HPMB as 4% and irregular as 12% of women which is concurrent to the present study [9]. Shivaji Neelgund et al found that HMB in 40.8% of women, IMB in 16.0% of women and HPMB in 11.5% of women concurring the present study.

Endometrial thickness (ET) was more than 8 mm in majority of women (55.6%) which is comparable to that of Noor Ayesha Begum et al showing ET more than 8 mm in 53.3% which needs attention to find out those women who may progress to endometrial cancer [10].

In histopathology, most common form of endometrium was proliferative endometrium (32%) followed by secretory endometrium (16.8%) which is similar to the study of Desai K et al having proliferative and secretory endometrium as 29% and 20% respectively [11]. Disordered proliferative endometrium (DPE) is an exaggeration of the normal proliferative phase without significant increase in the overall ratio of glands to stroma and is due to persistent estrogen stimulation which was seen in 15.2% of women which is not concurrent to that of Sreelakshmi U et al (6.6%) [12] which needs further evaluation. Endometrial hyperplasia was found in 13.6% of women which is similar to that of Sreelakshmi et al (18.3%). The endometrial hyperplasia was seen more in women with ET > 8mm as compared to women with ET< 8mm. (Table-II) The *p*-value is 0. 002644 (significant at $p<0.05$). [13] This group of women should be followed up at periodic interval for endometrial carcinoma. [14]

Table 2: Comparison between women with hyperplasia with women without hyperplasia

	Women with hyperplasia	Women without hyperplasia	Marginal Row Totals
ET> 8mm	27 (18.9) [3.47]	112 (120.1) [0.55]	139
ET< 8mm	7 (15.1) [4.34]	104 (95.9) [0.68]	111
Marginal Column Totals	34	216	250 (Grand Total)

Out of all women with AUB undergone hysterectomy, adenomyosis was found in 42.8% of women, fibroid in 38% of women, both leiomyoma and adenomyosis in 8.2% of women, endometrial hyperplasia in 6.9% of women, carcinoma endometrium in 4.1% women which is similar to that of Ghazala Rizvi et al showing adenomyosis was the commonest pathology accounting for 46.3%, followed by leiomyoma in 41.4% of women and dual pathology of adenomyosis and leiomyoma in 12.1% of women [13].

Conclusion

The highest rate of AUB patients are seen in perimenopausal age group (45-50 years). Most common clinical presentation was heavy menstrual bleeding (HMB) followed by heavy and prolonged menstrual bleeding (HPMB) and prolonged menstrual bleeding (PMB). Structural causes were responsible for maximum number of cases of AUB in accordance to PALM COEIN classification. ET more than 8 mm is most often associated with abnormal histopathology. Endometrial biopsy was employed in these patients to obtain a tissue diagnosis. In HP finding, proliferative endometrium was found in maximum number of women followed by secretory and disordered proliferative endometrium. Among endometrial hyperplasia, the most common finding was simple endometrial hyperplasia without atypia (79.4%) having ET>8 mm. Endometrial biopsy followed by hysterectomy remains the commonest method of intervention, but alternative procedures like one step treatment i.e. office hysteroscopy can also be used to diagnose abnormal uterine bleeding and treat conditions like endometrial polyps to ensure maximum benefits with least morbidity.

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