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Clinical, Sonological and Histopathological Spectrum of Abnormal Uterine Bleeding in Perimenopausal Women

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ABSTRACT

Background: *Abnormal uterine bleeding is a common problem for menstruating women, particularly at the beginning (adolescence) and end (Premenopausal) of their reproductive years .While rarely life threatening AUB exerts a large emotional and physical toll on women. Variations from the normal cyclical pattern in the premenopausal age may be due to physiological hormonal changes on one hand or may be due to neoplastic changes either benign or malignant, on the other hand. Therefore accurate diagnosis of the causative factor of AUB in this age group is of utmost importance, so that appropriate management can be established. And this study aims to understand the clinical, sonological and histopathological features of abnormal uterine bleeding in the perimenopausal age group.*

Objective

1. *To identify the clinical pattern of AUB in perimenopausal women*
2. *To understand the transvaginal ultrasonographic picture of the endometrium in perimenopausal women with AUB*
3. *To study the histopathological features of endometrium in perimenopausal women with AUB*

Methods: *It is an observational study, Conducted for one year from June 2015-June 2016 in Department of Obstetrics and Gynecology, Govt: Medical College, Kottayam. Perimenopausal women attending the gynaecology OPD with complaints of abnormal uterine bleeding were studied. Their clinical, transvaginal ultra sound and endometrial histopathological characteristics were collected with the help of a preformed proforma. The findings thus obtained were analyzed with the help of SPSS software.*

Results and Conclusions: *The clinical pattern was studied under the following headings Regularity – the patterns in the descending order of frequency were regular menses (71.6%), irregular menses (25.8%) and amenorrhea (2.7%).*

Frequency – the patterns were normal (59.1%), infrequent (25.8%) and frequent (12.7%) in the decreasing order of frequency

Heaviness - heavy and prolonged bleeding was the most common pattern (70.2%) followed by heavy (16.4%) and normal bleeding (10.7%).

Flow duration – prolonged flow duration was present in the majority (74.7%) followed by normal (21.8%) and shortened flow (0.9%).

Irregular nonmenstrual flow was present in a minority of those with AUB (10.2%).

The ultrasonographic appearance was studied under the following headings
Endometrial thickness – normal thickness was the commonest (54.2%) finding followed by thickness more than 12mm (43.6%) and thickness less than 5 mm was the least common finding (2.2%).
Endometrial echogenicity – a uniformly echogenic endometrium was present in all with hyperechoic pattern being the most common (85.3%). Three layered (12.4%) and hypoechoic (2.2%) patterns were also present.
Endo-myometrial junction – major proportion of sample had a regular endo-myometrial junction (94.2%). Irregular endo-myometrial junction was the other pattern seen (4.9%)
Uterine artery resistance index – high resistant flow pattern was seen in perimenopausal women with AUB with most having a value more than 0.8 (62.2% on right and 61.8% on left). The mean value for right RI was 0.81 and that for left RI was 0.8.
Uterine artery pulsatility index - The mean value of PI on right was 1.8 and that of left was1.9.
Histopathological spectrum – the histological appearances of endometrium of perimenopausal women ranged from proliferative (54.2%) and secretory endometrium (35.1%) through simple (0.9%) and complex hyperplasia without atypia (0.4%) to endometrial carcinoma (0.4%).
Keywords: *Heavy and prolonged bleeding, endometrial echogenicity, proliferative, secretory.*

Introduction

Abnormal uterine bleeding (AUB) is a common problem for menstruating women, particularly those at the beginning (adolescence) and end (perimenopause) of their reproductive years. While rarely life threatening AUB exerts a large emotional and physical toll on women. AUB can substantially impair a woman's quality of life, leading her not only to miss work but also social and athletic events. It can make it difficult for her to leave the house and lead a normal lifestyle at times and can interfere with sexual activity. Heavy periods can cause pain and discomfort and increase the risk for iron-deficiency anemia. Acute excessive bleeding can lead to hemodynamic instability, requiring hospitalization for fluid volume management, blood transfusion, and/or intravenous estrogen therapy (which prompts the endometrium to grow rapidly and cover exposed epithelial surfaces). Unopposed estrogen release is linked to an increased risk for endometrial hyperplasia and carcinoma, while anovulation is associated with infertility.

AUB in perimenopausal age group is a common but ill-defined entity which needs proper evaluation. In general, women present themselves to the gynecologists whenever there is a departure from their personal menstrual experiences. Variations from the normal cyclical pattern in the perimenopausal age may be due to physiological hormonal changes on one hand or may be due to neoplastic changes either benign or malignant, on the other hand. The average age for women with endometrial cancer is 61years, but 5% to 30% of cases occur in premenopausal women[1]. Women under the age of 50 share many of the risk factors for endometrial cancer of older women including obesity, diabetes, nulliparity, history of PCOS, and family history of hereditary non-polyposis colorectal cancer.

In abnormal uterine bleeding in women over 35 years of age and in those under 35 years where the abnormal bleeding is not helped by medication, diagnostic tests for endometrial hyperplasia and cancer may be performed. Transvaginal ultrasound may be done to measure the thickness of the endometrium. The only way to tell for certain that cancer is present is to take a small sample of tissue from the endometrium and to study it under a microscope. This can be done with an endometrial biopsy, dilatation and curettage or hysteroscopy[2]. The histopathological report may be endometrial hyperplasia. Endometrial hyperplasia is an important condition to identify as it may cause abnormal bleeding and can precede or occur simultaneously with endometrial cancer. The most commonly used classification system for endometrial hyperplasia is the World Health Organization system, which has four categories: simple hyperplasia without atypia, complex hyperplasia without atypia, simple atypical hyperplasia and complex atypical hyperplasia[3]. Simple atypical hyperplasia turns into cancer in

about 8% of cases if it's not treated. If it's not treated, complex atypical hyperplasia (CAH) has a risk of becoming cancerous in up to 29% of cases. Progression to carcinoma in simple and complex hyperplasia without atypia occurs in 1% and 3% of cases[4]. The best treatment option for atypical hyperplasia, especially complex atypical hyperplasia is hysterectomy if one does not want to have any more children, since the risk of cancer is increased[2]. As many as 25-43 % of atypical hyperplasia detected on curettage or endometrial biopsy will have an associated well differentiated endometrial carcinoma detected on hysterectomy[5]. The WHO classification of 1994 was made more difficult by the development and parallel use of a further classification system: benign hyperplasia and endometrial intraepithelial neoplasia (EIN).The WHO has clarified the matter in its latest classification of endometrial hyperplasia published in 2014. It now only differentiates between 2 categories of endometrial hyperplasia: 1) hyperplasia without atypia 2) atypical hyperplasia/ endometrioid intraepithelial neoplasia[6].

Therefore, accurate diagnosis of the causative factor of AUB in this age group is of utmost importance so that appropriate management can be established. And here is an attempt to understand the clinical, sonological and histopathological features of abnormal uterine bleeding in the perimenopausal age group.

Objective

1. To identify the clinical pattern of AUB in perimenopausal women
2. To understand the transvaginal ultrasonographic picture of the endometrium in perimenopausal women with AUB
3. To study the histopathological features of endometrium in perimenopausal women with AUB

Methodology

Study Design: Descriptive study

Study Setting: Department of Obstetrics and Gynaecology, Govt. Medical College, Kottayam

Study Period: One year (June 2015 – June 2016)

Study Population: Perimenopausal women attending the gynaecology OPD with complaints of abnormal uterine bleeding

Inclusion Criteria

Patients with complaints of abnormal uterine bleeding in the age group 40 – 55 years

Exclusion Criteria

Those patients with organic pelvic pathology like fibroid, cervical polyp, malignancies, systemic illness like bleeding disorders, thyroid abnormalities will be excluded.

Sample Size : $N= Z^{(1-\alpha/2)2} (1-p)p /E^2 P$

α = Type I error (fixed at 5% level)

P = Proportion having endometrial hyperplasia (.32)

E = Relative precision, taken as 20% of p

Sample size, $N = 1.96^2 *0.68*0.32/(20/100 *0.32)^2 =204$

Anticipating 10% dropout rate final sample size 225

Funding Agency: self

Study Tool: Proforma

Study Procedure

This is a descriptive study where the investigator herself evaluates the patients. A detailed history will be taken from the patient to understand the clinical pattern of bleeding. The menstrual pattern during the last 90 days will be evaluated. General, systemic and local examination will be done. A transvaginal sonographic evaluation of patients will be conducted in the department of radiodiagnosis here. Also a histopathological evaluation of the patients will be done for which fractional curettage will be done in the obstetrics and gynaecology department itself. The histopathological evaluation of the samples collected will be conducted at the department of pathology here. The transvaginal and histopathological examination will be conducted after getting permission from the respective departments. The sonographic and pathological examination findings are critically evaluated. To aid in the data collection a proforma is formulated. A pictorial blood assessment chart and scoring system for assessment of menstrual blood loss is also made use of [8].

Data Management and Statistical Analysis

The observed values will be entered in Microsoft excel and the data obtained will be statistically analysed on SPSS.

Observations and Results

Table 1: Regularity of Menses

Regularity	Frequency	Percent
Irregular	58	25.8
Regular	161	71.6
Amenorrhea	6	2.7
Total	225	100.0

of the patterns describing regularity of the menses majority (71.6%) had regular menses, 25.8% had irregular menses and 2.7% had amenorrhea.

Table 2: Frequency of Menses

Frequency	Frequency	Percent
Infrequent	58	25.8
Normal	133	59.1
Frequent	28	12.4
Not Applicable	6	2.7
Total	225	100.0

The frequency of menses was normal in the majority of women studied (59.1%). It was infrequent in 25.8 % and frequent in 12.7%. It was not commentable in 2.7%

Table 3: Heaviness of Bleeding

Heaviness	Frequency	Percent
Normal	24	10.7
Heavy Menstrual Bleed	37	16.4
Heavy And Prolonged	158	70.2
Not Applicable	6	2.7
Total	225	100.0

Among the perimenopausal women included in the study majority had heavy and prolonged bleeding (70.2%). Heavy menstrual bleeding was present in 16.4 % of the women while normal bleeding was present in 10.7% of women only. It was not commentable in 2.7% cases.

Table 4: Flow Duration

	Frequency	Percent
Prolonged	168	74.7
Normal	49	21.8
Shortened	2	0.9
No Information	6	2.7
Total	225	100.0

Major proportion of the study sample had prolonged duration of menstrual flow (74.7%). While normal duration of flow was seen in 21.8% of the study sample, a shortened flow duration was seen in 0.9% of the sample. It was not commendable in 2.7 % cases.

Table 5: Irregular Non menstrual Bleed

Irregular Non Menstrual Bleed	Frequency	Percent
Present	24	10.2
Absent	201	89.8
Total	225	100.0

Irregular non menstrual bleeding was an uncommon finding in the study, being absent in 89.8% of cases. Only 10.2 % had irregular non menstrual bleed.

Table 6: Occurrence of Dysmenorrhea

Dysmenorrhea	Frequency	Percent
Spasmodic	78	34.7
Congestive	41	18.2
Nil	106	47.1
Total	225	100.0

Dysmenorrhea was present in almost a little more than half of the sample. It was of the spasmodic type in 34.7% of cases and congestive in 18.2 % of cases. It was absent in 47.1% of cases.

Table 7: Endometrial Thickness of the Sample

Endometrial Thickness (Mm)	Frequency	Percent
<=4	5	2.2
5-12	122	54.2
>12	98	43.6
Total	225	100.0

The women in the study group had endometrial thickness in the range 5-12mm in 54.2%, less than 4 mm in 2.2% and more than 12mm in 43.6% cases. The mean endometrial thickness of the sample was 11.6mm.

Table 8: Endometrial Echogenecity

Endometrial Echogenecity	Frequency	Percent
Hypoechoic	5	2.2
Hyper Echoic	192	85.3
Three Layer Pattern	28	12.4
Total	225	100.0

All the samples had a uniform echogenicity for endometrium with it being hyperechoic in 85.3% of cases and hypoechoic in 2.2% cases. The three layered pattern was seen in 12.4% cases.

Table 9: Endo-Myometrial Junction

Endo- Myometrial Junction	Frequency	Percent
Regular	212	94.2
Irregular	11	4.9
No Information	2	0.9
Total	225	100.0

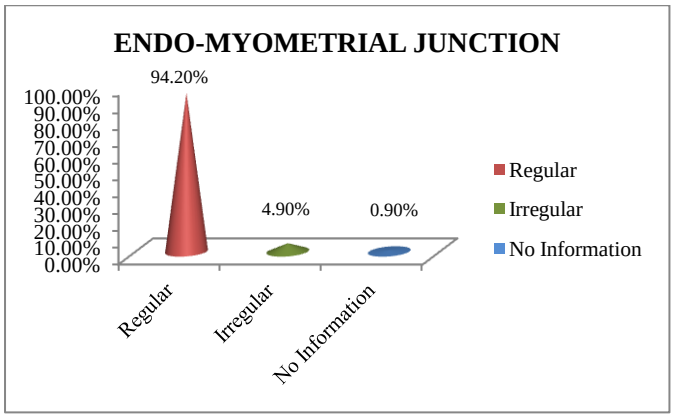

Figure 1: Distribution of Emdo-Myometrial Junction

Major proportion of women (94.2%) with abnormal uterine bleeding in the study had a regular endo-myometrial junction. Irregular endo-myometrial junction was present in 4.9% of cases and 2 cases were there where it was not commented.

Table 10: Histopathology Report

Histopathology Report	Frequency	Percent
Proliferative	122	54.2
Secretory	79	35.1
Simple Hyperplasia Without Atypia	2	0.9
Complex Hyperplasia Without Atypia	1	0.4
Endometrial Carcinoma	1	0.4
Endometrial Polyp	1	0.4
Others	19	8.4
Total	225	100.0

The histopsthology results of endometrial sampling in perimenopausal women with AUB showed a predominance of proliferative endometrium in 54.2% cases followed by secretory endometrium in 35.1% cases. Other findings were rare with 2 cases of simple endometrial hyperplasia without atypia and a case each of complex atypical hypaerplasia without atypia, endometrial carcinoma and endometrial polyp. The diagnoses in the 'others' category included 4 cases of lytic endometrium and 8 cases where specimen was inadequate and mainly contained haemmorhagic tissue. Minimal glandular or stromal cells were found in 7 cases.

Table 11: Histopathology Subtypes

HPR Subtypes	Frequency	Percent
Proliferative endometrium	40	17.8
Disordered proliferative endometrium	82	36.4
Secretory endometrium	62	27.6
Crumbling secretory endometrium	16	7.1
No subtypes	25	11.1
Total	225	100.0

Of the 122 cases of proliferative endometrium obtained on histological examination 82 cases were disordered proliferative accounting to 36.4% of total cases. Of the 79 cases of secretory endometrium 16 were crumbling secretory comprising 7.1% of total.

Table 12: HPR and Regularity of Menses Cross Tabulation

HPR	Regularity						Total	
	Irregular		Regular		Amenorrhea			
	No	%	No	%	No	%	No	%
Proliferative	34	27.9	85	69.7	3	2.5	122	100.0%
Secretory	19	24.1	58	73.4	2	2.5	79	100.0%
Simple Hyperplasia Without Atypia	1	50.0	1	50.0	0	0.0	2	100.0%
Complex Hyperplasia Without Atypia	1	100.0	0	0.0	0	0.0	1	100.0%
Endometrial Carcinoma	0	0.0	1	100.0	0	0.0	1	100.0%
Endometrial Polyp	0	0.0	1	100.0	0	0.0	1	100.0%
Others	3	15.8	15	78.9	1	5.3	19	100.0%
Total	58	25.8	161	71.6	6	2.7	225	100.0

Chi square= 6.1, p=.911

The perimenopausal women with AUB whose endometrial sample was proliferative 27.9% had irregular menses, 69.7% had regular menses and 2.5% had amenorrhea. With secretory endometrium 24.1% had irregular menses, 73.4 % had regular menses and 2.5% had amenorrhea. Of the 2 cases of simple endometrial hyperplasia one had irregular and one had regular menses. Complex hyperplasia presented with irregular menses. Endometrial carcinoma an endometrial polyp had regular menses. The varying percentages of the patterns of regularity among different histological group were found to be insignificant by the application of the chi square test.

Table 13: HPR and Menstrual Heaviness Cross Tabulation

HPR	Endometrial Echogenecity						Total	
	Hypoechoic		Hyper Echoic		Three Layer Pattern			
	No	%	No	%	No	%	No	%
Proliferative	5	4.1	92	75.4	25	20.5	122	100.0
Secretory	0	0.0	78	98.7	1	1.3	79	100.0
Simple Hyperplasia Without Atypia	0	0.0	2	100.0	0	0.0	2	100.0
Complex Hyperplasia Without Atypia	0	0.0	0	0.0	1	100.0	1	100.0
Endometrial Carcinoma	0	0.0	1	100.0	0	0.0	1	100.0
Endometrial Polyp	0	0.0	1	100.0	0	0.0	1	100.0
Others	0	0.0	18	94.7	1	5.3	19	100.0
Total	5	2.2	192	85.3	28	12.4	225	100.0

Chi square=31.5, p=.026

Of the AUB cases with proliferative endometrium 4.9% had normal menses, 20.5% had heavy menstrual bleed and 72.1% had heavy and prolonged bleeding. When the endometrium was secretory 17.7% had normal, 10.1% had heavy and 69.6% had heavy and prolonged bleeding. The menstrual bleed was heavy in simple hyperplasia without atypia, heavy and prolonged in complex hyperplasia without atypia and endometrial polyp and normal in endometrial carcinoma. A significant difference was found to be present by applying chi square test among the various histology groups with regard to heaviness of blood flow.

Table 14: HPR and Endometrial Echogenecity Cross Tabulation

HPR	Endometrial Echogenecity						Total	
	Hypoechoic		Hyper Echoic		Three Layer Pattern			
	No	%	No	%	No	%	No	%
Proliferative	5	4.1	92	75.4	25	20.5	122	100.0
Secretory	0	0.0	78	98.7	1	1.3	79	100.0
Simple Hyperplasia Without Atypia	0	0.0	2	100.0	0	0.0	2	100.0
Complex Hyperplasia Without Atypia	0	0.0	0	0.0	1	100.0	1	100.0
Endometrial Carcinoma	0	0.0	1	100.0	0	0.0	1	100.0
Endometrial Polyp	0	0.0	1	100.0	0	0.0	1	100.0
Others	0	0.0	18	94.7	1	5.3	19	100.0
Total	5	2.2	192	85.3	28	12.4	225	100.0

Chi square=30.1, p=.003

Those with proliferative endometrium had hypoechoic (4.1%), hyperechoic (75.4%) and three layered pattern (20.5%) of echogenicity. Those with secretory endometrium had hyperechoic (98.7%) and three layered (1.35%) pattern. Hyperechoic pattern was seen with simple hyperplasia without atypia, endometrial carcinoma and endometrial polyp. Complex hyperplasia without hyperplasia had three layered pattern. The differences in the echogenicity among various histiology groups were found to be significant by applying the chi square test.

Discussion

In the present observational study consisting of 225 perimenopausal women with AUB 26.7% of women were in the age group 40-44 years, 53.8% of women were in the age group 45-49 years and 19.6% were in the age group 50-55 years. All were married. Majority of the women in the study (85.8%) were multiparous whereas primipara were 12.9% and nullipara were only 1.3%. In the study group 82.2% of women were sterilised whereas 17. 8% were not sterilised. Majority of this study sample (77.8%) had their menarchal age in the range 12 - 14 years with the mean age being 13.6 years.

More than half of the present study sample had abnormal uterine bleeding for 6 months or more. Some even (14.7) had it for more than a year. Those with complaints for less than 6 months constituted 45.3% of the sample.

Of the patterns describing regularity of the menses of the present study sample majority (71.6%) had regular menses, 25.8% had irregular menses and 2.7% had amenorrhea.

The frequency of menses was normal in the majority of women studied (59.1%) in this research. It was infrequent in 25.8 % and frequent in 12.7%. It was not commentable in 2.7%.

Among the perimenopausal women included in this study majority had heavy and prolonged bleeding (70.2%). Heavy menstrual bleeding was present in 16.4 % of the women while normal bleeding was present in 10.7% of women only. It was not commentable in 2.7% cases.

Major proportion of the present study sample had prolonged duration of menstrual flow (74.7%). While normal duration of flow was seen in 21.8% of the study sample, a shortened flow duration was seen in 0.9% of the sample. It was not commendable in 2.7 % cases.

Since the introduction of newer terminologies of abnormal uterine bleeding by FIGO no major studies have been undertaken so far describing the menstrual abnormalities in those terms. However there are plenty of studies utilising the older terminologies. The older terms do not describe the menstrual abnormalities with regard to the four characteristics - regularity, frequency, heaviness and flow duration.

In the study conducted by Mahapatra M menorrhagia was the most common bleeding

pattern[13]. The study of S Sudhamani revealed similar results. Considering the defenition of menorrhagia the present study also has similar results with regard to regularity and flow duration.

Dysmenorrhea was present in almost a little more than half of the sample of present study. It was of the spasmodic type in 34.7% of cases and congestive in 18.2 % of cases. It was absent in 47.1% of cases. The lower incidence of congestive dysmenorrhea in this study may be due to the fact that it's main causes are endometriosis, adenomyosis, fibroids, infections, intrauterine devices[7]etc and not endometrial pathology or ovulatory dysfunction.

Although previous studies indicate that mean cycle length is greater in women at the extremes of body mass and composition; both high and low body mass index (BMI), body fat mass, and body lean mass are associated with an increased mean cycle length[14,15], majority of the sample of the current study had BMI in the normal range (77.3%). The rest (22.7%) were overweight. The average BMI of the current sample was 23.6 kg/m^2. Due to obesity there is increased aromatisation of androgen to estrogen in the peripheral tissues causing menstrual abnormalities. The reduced levels of SHBG will accentuate the condition further[35].

The women in the current study group had endometrial thickness in the range 5-12mm in 54.2%, less than 4 mm in 2.2% and more than 12mm in 43.6% cases. The mean endometrial thickness of the sample was 11.6mm. Though a normal endometrial thickness was the commonest finding in the present study it should not be considered a lighter fact as Nalaboff et al in their article "Imaging the Endometrium: Disease and Normal Variants" explained that the ultrasound appearance of endometrial hyperplasia can simulate that of normal thickening during the secretory phase[16]. The cases with abnormal histological findings in the current study namely disordered proliferatve (47.6%), crumbling secretory (68.8%), simple (50%) and complex hyperplasia without atypia (100%), endometrial carcinoma (100%) were having endometrial thickness more than 12mm. This is in accordance with the results of the study conducted by Paraskevaidis E et al[12].

In 2001, the Society of Radiologists in Ultrasound established the threshold endometrial thickness for intervention at 5 mm, which confers 96% sensitivity for detection of endometrial cancer[17]. In perimenopausal and postmenopausal women with abnormal bleeding, the risk of endometrial hyperplasia or cancer is considered remote when the endometrial thickness is less than 4 or 5 mm[16,17,18].

Those with proliferative endometrium in the current study had hypoechoic (4.1%), hyperechoic (75.4%) and three layered pattern (20.5%) of echogenicity. Those with secretory endometrium had hyperechoic (98.7%) and three layered (1.35%) pattern. Hyperechoic pattern was seen with simple hyperplasia without atypia, endometrial carcinoma and endometrial polyp. Complex hyperplasia without hyperplasia had three layered pattern. The differences in the echogenicity among various histiology groups were found to be significant by applying the chi square test.

Similar to this study finding Peter W Callen explains in his article that most patients with either a proliferative endometrium or endometrial hyperplasia will have an echogenic sonographic appearance[18]. Atri et al in their study reveals that most endometrial carcinomas (88%) were either diffusely or partially echogenic, 12% were isoechoic and there was no endometrial carcinoma that was purely hypoechoic[19]. The endometrial carcinoma case in this study also had hyperechoic appearance on ultrasound.

The right uterine artery resistance index was more than 0.8 in 62.2% cases and in 37.8% cases it was less than 0.8 in the present study. The mean value of right uterine artery resistance index was 0.81. The left uterine artery resistance was more than .8 in 61.8% cases and in 38.2 % cases it was less than 0.8. The mean value of left uterine artery resistance index was 0.8.

The mean values of right and left uterine artery RI in this study in various endometrial histological appearances were 0.81 and 0.79 in proliferative, 0.82 and 0.81 in secretory, 0.82 and 0.82 in simple

hyperplasia without atypia, 0.78 and 0.74 in complex hyperplasia without atypia, 0.78 and .82 in endometrial carcinoma, 0.88 and 0.9 in endometrial polyp and 0.82 an 0.83 in other histological findings. However the differences were not found to be significant by F test applied separately to right and left values.

The study by Weiner Z et al (1993) where they performed Doppler studies of the uterine artery in 85 women with postmenopausal and perimenopausal bleeding yielded similar results as the present study. When malignant changes were detected in the endometrium, uterine artery resistance index was always below 0.83 same was the case with current study also[20].

The study by Incim Bezirciogluet al showed that statistically, uterine artery PI, RI, radial artery PI, spiral artery PI, and RI were also significantly lower in patients with malign histopathology. In multivariate regression model, only uterine artery PI was identified as independent determinant of malignant endometrium[21]. But in the present study though the PI was lower for endometrial carcinoma and complex hyperplasia without atypia than other benign pathologies a significant difference could not be demonstrated.

The value of Doppler and colour Doppler ultrasound in distinguishing benign from malignant endometrial disease is controversial. It has been suggested that low-impedance blood flow at Doppler ultrasound can be associated with malignancy[22]. Increased focal vascularity may be seen at colour Doppler ultrasound in both benign and malignant diseases of the endometrium. Significant overlap in Doppler indices (ie, peak systolic velocity, resistive index, pulsatility index) in benign and malignant endometrial processes reduces the value of Doppler ultrasound in characterizing / endometrial masses. Colour and power Doppler ultrasound may occasionally aid in determining the presence and extent of tumour invasion and ensuring that biopsies are directed toward regions with increased blood flow[23].

The histopsthology results of endometrial sampling in perimenopausal women with AUB of this study showed a predominance of proliferative endometrium in 54.2% cases followed by secretory endometrium in 35.1% cases. Of the 122 cases of proliferative endometrium obtained on histological examination 82 cases were disordered proliferative accounting to 36.4% of total cases. Of the 79 cases of secretory endometrium 16 were crumbling secretory comprising 7.1% of total. Other /findings were rare with 2 cases of simple endometrial hyperplasia without atypia and a case each of complex atypical hyperplasia without atypia, endometrial carcinoma and endometrial polyp. The diagnoses in the 'others' category included 3 cases of lytic endometrium and 8 cases where specimen was inadequate and mainly contained haemmorhagic tissue. Minimal glandular or stromal cells were found in 7 cases.

Similar results were obtained by Damle RP et al, in their study where the predominant histopathological pattern in peri-menopausal age group was proliferative endometrium (35.22)[24]. The percent-ages were corresponding to that obtained in the study by EbrahimSoleymani et al with regard to endometrial hyperplasia and carcinoma[25].

sensitivity of dialatation and curettage when compared with the histological findings of subsequent hysterectomy was 30.2%, the specificity was 72.3%, the positive predictive value was 77.1%, and the negative predictive value was 25.1%. AkhavanS et al in their study demonstrated that sensitivity and specificity of dilatation and curettage for diagnosis of abnormal uterine bleeding was 78.1% and 79.16% respectively[26].

The perimenopausal women with AUB whose endometrial sample was proliferative 27.9% had irregular menses, 69.7% had regular menses and 2.5% had amenorrhea. With secretory endometrium 24.1% had irregular menses, 73.4 % had regular menses and 2.55 had amenorrhea. Complex hyperplasia presented with irregular menses. The single cases of complex endometrial hyperplasia without atypia, endometrial polyp and endometrial carcinoma presented with infrequent, normal and frequent menses respectively. The differences in the percentages of patterns of frequency among the

various histology group were not significant when the chi square test was applied.

Of the AUB cases of this study with proliferative endometrium 4.9% had normal menses, 20.5% had heavy menstrual bleed and 72.1% had heavy and prolonged bleeding. When the endometrium was secretory 17.7% had normal, 10.1% had heavy and 69.6% had heavy and prolonged bleeding. The menstrual bleed was heavy in simple hyperplasia without atypia, heavy and prolonged in complex hyperplasia without atypia and endometrial polyp and normal in endometrial carcinoma. A significant difference was found to be present by applying chi square test among the various histology groups with regard to heaviness of blood flow.

In support to the above results of the present study, the study conducted by Saera Afghan and Ara Yasmeen found out that histopathology showed normal physiological phases of menstrual cycle (proliferative or secretory phases of endometrium) in 76% of case with menorrhagia.

About 90% of women diagnosed with endometrial cancer have abnormal vaginal bleeding, such as a change in their periods or bleeding between periods or after menopause[27]. In the present study the only symptom of endometrial carcinoma was irregular nonmenstrual bleed.

Summary and Conclusion

From the observational study "Clinical, Sonological and Histopathological Spectrum of Abnormal Uterine Bleeding in Perimenopausal Women" involving 225 women in the perimenopausal period with abnormal uterine bleeding the following conclusions have been arrived at:-

Majority of Women had Chronic AUB.

1. Clinical pattern – The clinical pattern was studied under the following headings
2. Regularity – The patterns in the descending order of frequency were regular menses (71.6%), irregular menses (25.8%) and amenorrhea (2.7%).
3. Frequency – The patterns were normal (59.1%), infrequent (25.8%) and frequent (12.7%) in the decreasing order of frequency
4. Heaviness - Heavy and prolonged bleeding was the most common pattern (70.2%) followed by heavy (16.4%) and normal bleeding (10.7%).
5. Flow duration – Prolonged flow duration was present in the majority (74.7%) followed by normal (21.8%) and shortened flow (0.9%).

Irregular nonmenstrual flow was present in a minority of those with AUB (10.2%).

Sonological pattern – the ultrasonographic appearance was studied under the following headings

Endometrial thickness – normal thickness was the commonest (54.2%) finding followed by thickness more than 12mm (43.6%) and thickness less than 5 mm was the least common finding (2.2%).

Endometrial echogenicity – a uniformly echogenic endometrium was present in all with hyperechoic pattern being the most common (85.3%). Three layered (12.4%) and hypoechoic (2.2%) patterns were also present.

Endo-myometrial junction – major proportion of sample had a regular endo-myometrial junction (94.2%). Irregular endo-myometrial junction was the other pattern seen (4.9%)

Uterine artery resistance index – high resistant flow pattern was seen in perimenopausal women with AUB with most having a value more than 0.8 (62.2% on right and 61.8% on left). The mean value for right RI was 0.81 and that for left RI was 0.8.

Uterine artery pulsatility index –The mean value of PI on right was 1.8 and that of left was1.9.

Histopathological spectrum – the histological appearances of endometrium of perimenopausal women ranged from proliferative (54.2%) and secretory endometrium (35.1%) through simple (0.9%) and complex hyperplasia without atypia (0.4%) to endometrial carcinoma (0.4%).

Limitations

1. Blind fractional curettage might have missed abnormal areas in endometrium.
2. The specimen from fractional curettage was inadequate in some samples for proper pathological evaluation

3. Interpersonal variations in describing the sonological appearance of endometrium

Recommendations

1. Evaluation of perimenopausal women with AUB should include endometrial echogenicity along with endometrial thickness.
2. Hysteroscopic directed biopsies would yield better results in women with increased endometrial thickness and abnormal Doppler.
3. Larger studies involving general population should be undertaken to understand the clinical pattern of perimenopausal AUB with regard to the newer terminologies.

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