

Abnormal uterine bleeding in perimenopausal women: Correlation with sonographic findings and histopathological examination of hysterectomy specimens

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ABSTRACT

Background: Abnormal uterine bleeding (AUB) is a frequently encountered gynecologic complaint in perimenopausal woman and also the most common cause of hysterectomy in this age group.

Objective: Evaluation of various clinical presentations of perimenopausal AUB and its ultrasonographic and histopathological correlation of hysterectomy specimens.

Materials and Methods: This study was carried out in the Department of Obstetrics and Gynaecology among perimenopausal women who underwent hysterectomy for AUB. The clinical presentations, ultrasonographic findings, and histopathological reports of hysterectomy specimen were correlated.

Results: Among 103 number of hysterectomized cases for AUB, most of the patients were between 40 and 45 years of age (67.97%) and menorrhagia was the dominant clinical presentation. The majority (45.63%) of cases were diagnosed as fibroid uterus by ultrasonography with 89.13% sensitivity and 89.47% specificity. Histopathological reports of myometrium showed 44.66% fibromyoma, followed by 34.95% of the normal myometrium. Histopathology of endometrium revealed hyperplasia in the most cases (56.31%) where simple typical type was the predominant.

Conclusion: Uterine fibroid was the leading cause of AUB and radiological, pathological evaluation correlated well to diagnose fibroid.

Key Words: Abnormal uterine bleeding, histopathology, perimenopausal woman, ultrasonography

INTRODUCTION

Abnormal uterine bleeding (AUB) is a symptom and not a disease. It is one of the most frequently encountered complaints in gynecologic practice. It accounts for more than 70% of all gynecological consultations in the peri- and

post-menopausal age group.^[1] It occurs in various forms such as menorrhagia, polymenorrhagia, polymenorrhagia, metrorrhagia, and menometrorrhagia.^[2] The International Federation of Gynaecology and Obstetrics in November 2010, accepted a new classification system for causes of AUB in the reproductive years. The system based on the acronym (polyps, adenomyosis, leiomyoma, malignancy and hyperplasia-coagulopathy, ovulatory disorders, endometrial

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causes, iatrogenic, not classified) was developed in response to concerns about the design and interpretation of basic science and clinical investigation that relates to the problem of AUB.^[3]

AUB may be an expression of hormonal milieu, or it could be the clinical presentation of benign or malignant lesions of female genital tract in perimenopausal woman. However, there are no detectable structural abnormalities in majority of cases, and this is called dysfunctional uterine bleeding (DUB). DUB, fibroid uterus, and adenomyosis are the common hyperoestrogenic conditions where endometrium remains in the proliferative phase and if untreated may lead to endometrial carcinoma. Therefore, clinical examination and investigations are essential to find out the etiological factor in a perimenopausal patient presenting with AUB. Ultrasonography (USG) can be used to exclude organic pathology for AUB. It is well accepted that various disease pathology can be detected accurately by histopathological examination (HPE). The current study was carried out to evaluate various clinical presentations of perimenopausal AUB and to correlate ultrasonographic findings with histopathological examination in those patients undergoing hysterectomy.

MATERIALS AND METHODS

This study was conducted in a tertiary care hospital in a time span of 1-year from July 1, 2014, to June 30, 2015. The study population consists of perimenopausal women within the age group of 40 years to within 1 year of menopause who underwent hysterectomy for AUB. The proper institutional ethical clearance was taken for the study. After obtaining informed consent from selected patients, the relevant data such as age, parity, menstrual symptoms, and other associated findings in clinical examination were recorded. In all these women, transvaginal ultrasonographic evaluation was done. The clinical presentations and ultrasonographic findings were correlated. Histopathology examination report of hysterectomy specimens such as endometrial, myometrial, and cervical findings was correlated with sonographic reports, and results were analyzed using Graph Pad Software, Inc; Version 3.1.

RESULTS

One hundred and three numbers of patients with AUB who underwent hysterectomy were included in this study. A correlation between age, parity is depicted in Table 1. Most of the patients were between 40 and 45 years of age (67.97%). The highest number of AUB in this study was para 4 or more (42.71%) followed by para 3 (26.21%).

The different menstrual pattern of AUB, as well as duration of symptoms, was shown in Table 2. The majority of patients gave a history of menstrual problem between 3 and 6 months 56 (54.37%), and menorrhagia was the dominant presentation.

Ultrasonographically 47 (45.63%) cases were fibroid uterus, 30 cases (29.12%) were bulky uterus, 11 cases (10.69%) were adenomyosis, and 12 (11.65%) cases were diagnosed as thickened endometrium [Table 3]. Majority of patients diagnosed as fibroid uterus, bulky uterus, adenomyosis, and thickened endometrium by USG had presented with menorrhagia which is shown in Table 4. Of the nine postmenopausal bleeding, four patients had findings of endometrial thickening in USG.

Histopathological reports of myometrium were as follows: fibroid 46 (44.66%), adenomyosis 21 (20.39%), and normal myometrium 36 (34.95%) [Table 5]. Of 47 ultrasonographically diagnosed fibroid uterus, 41 were

Table 1: Distribution of age and parity (n=103)

Parity	Years			Total (%)
	40-45	>45-50	>50	
0	2	1	0	3 (2.91)
1	9	1	0	10 (9.70)
2	15	2	2	19 (18.44)
3	18	6	3	27 (26.21)
≥4	26	13	5	44 (42.71)
Total (%)	70 (67.97)	23 (22.33)	10 (9.70)	103 (100)

Table 2: Distribution of menstrual complain and duration (n=103)

Complaints	Months				Total (%)
	1-3	>3-6	>6-12	>12	
Menorrhagia	8	28	5	4	45 (43.69)
Polymenorrhagia	3	7	2	2	14 (13.59)
Metrorrhagia	4	10	3	2	19 (18.45)
Menometrorrhagia	4	8	2	2	16 (15.54)
Postmenopausal bleeding	4	3	2	0	9 (8.73)
Total (%)	23 (22.33)	56 (54.37)	14 (13.60)	10 (9.70)	103 (100)

Table 3: Ultrasonography findings (n=103)

Diagnosis	No (%)
Fibroid uterus	47 (45.63)
Bulky uterus	30 (29.12)
Adenomyosis	11 (10.69)
Thickened endometrium	12 (11.65)
Endometrial polyp	2 (1.94)
Malignancy	1 (0.97)

Table 4: Patient distribution with respect to bleeding pattern and ultrasonography findings

USG findings	Menorrhagia	Metrorrhagia	Polymenorrhagia	Menometrorrhagia	Postmenopausal bleeding
Fibroid uterus	20	9	7	8	3
Bulky uterus	14	6	4	5	1
Adenomyosis	7	1	1	2	-
Thickened endometrium	4	1	2	1	4
Endometrial polyp	-	2	-	-	-
Malignancy	-	-	-	-	1

USG: Ultrasonography

confirmed by histopathologically, and 6 turned out as adenomyosis. Hysterectomy for adenomyosis was done in 11 cases and 10 confirmed by HPE as well. Out of the thirty cases of the bulky uterus in USG, which were clinically diagnosed as DUB, subsequent HPE report revealed normal myometrium in 22 cases, adenomyosis in five, and fibromyoma in three cases. Histopathology of endometrium showed hyperplastic endometrium in 58 cases (56.31%), secretory in 20 cases (19.42%), proliferative in 14 cases (13.59%), inflammatory in two cases, and carcinoma endometrium in two cases. Out of 58 endometrial hyperplasia diagnosed by HPE, USG detected thick endometrium in 12 cases. Among the 12 USG detected thick endometrium, four cases were postmenopausal women (endometrial thickness >5 mm). Simple typical hyperplasia was the dominant HPE finding [Table 6]. Out of the two HPE confirmed carcinoma endometrium cases, USG detected thick endometrium in one case and bulky uterus in the other. USG detected thick endometrium which turned out to carcinoma endometrium in HPE was a postmenopausal woman. There were 59 (57.28%) inflammatory cervix, one carcinoma of cervix and two cases of cervical intraepithelial neoplasia (CIN) in HPE.

Table 7 shows the validity of USG in the detection of fibromyoma and adenomyosis in perimenopausal women. The results reveal that the sensitivity is lower in diagnosis of adenomyosis (47.62%).

DISCUSSION

AUB is one of the main gynecological reasons of hysterectomy and accounts for two-thirds of all hysterectomies.^[4] In this study, 103 numbers of perimenopausal hysterectomized patients were analyzed. Most number of patients (69.67%) were between 40 and 45 years age group. The common menstrual problem was menorrhagia (43.69%). This finding was comparable with the study of Jetley *et al.*^[5] and Shobha,^[6] in which clinical presentation as menorrhagia in AUB evaluation revealed 46.4% and 46.6%, respectively. It appeared in this study that the maximum patients attended hospital for treatment after suffering for 3–6 months (54.37%)

which was comparable to the study of Kathuria and Bhatnagar (50%).^[7]

In this study, ultrasonographic diagnosis of fibromyoma of the uterus was 47 (45.63%). Out of these, 41 were confirmed by histopathologically, and six turned out as adenomyosis. The sensitivity of USG for the diagnosis of leiomyoma was 89.13%, and the specificity was 89.47%, which is similar to the study done by Dueholm *et al.*^[8]

In this study, 21 cases were diagnosed as adenomyosis by histopathologically, ultrasound diagnosed 11 of them. Ultrasound was able to suggest adenomyosis with sensitivity of 47.62%, specificity of 98.78%, positive predictive value of 90.91%, and negative predictive value 80.04% [Table 7]. Table 8 shows a comparison of sensitivity, specificity, PPV, and NPV of this study with several previous studies that investigated the diagnosis of adenomyosis. The sensitivity in this study is lower as compared to the studies of Siedler *et al*, Ascher *et al*, Reinhold *et al*, Atzori *et al* and Atri *et al* but the specificity is the almost similar of those reported.^[9-13] Hence, USG has a limitation in tissue characterization in diagnosis adenomyosis.

Bulky uterus was the sole USG finding in 30 numbers of cases which were clinically diagnosed as DUB. Out of these, histopathologically revealed normal myometrium in 22 cases, adenomyosis in five cases, and fibromyoma in three cases. Histopathologically endometrial hyperplasia was observed in 19 numbers of cases of bulky uterus; two cases revealed CIN I and one case showed carcinoma endometrium.

In this study, USG detected thickened endometrium in 12 cases. Out of these 12 cases, 4 cases clinically presented as postmenopausal bleeding. Among those 4 cases, histopathologically 3 were diagnosed as endometrial hyperplasia and 1 was endometrial carcinoma. Hence, all patients of postmenopausal bleeding with thickened endometrium on USG, HPE revealed abnormal endometrial pathology.

In this study, HPE confirmed endometrial hyperplasia in 58 (56.31%) of cases of which simple typical type was

Table 5: Histopathological examination findings in relation to ultrasonography diagnosis

USG diagnosis	HPE findings									
	Myometrium					Endometrium				
	changes	changes	changes	changes	changes	Polyp	Atrophic endometrium	Inflammatory endo	Carcinoma endometrium	Normal Inflammatory cervix
Fibroid Uterus (n=47)	41	6	9	12	22	-	4	-	-	27
Bulky uterus (n=30)	3	5	2	6	19	-	-	2	1	16
Adenomyosis (n=11)	1	10	3	2	6	-	-	-	-	8
Thickened endometrium (n=12)	1	-	-	-	10	1	-	-	1	8
Endometrial polyp (n=2)	-	-	-	-	-	2	-	-	-	1
Malignancy (carcinoma cervix) (n=1)	-	-	-	-	1	-	-	-	-	-
Total	46	21	14	20	58	3	4	2	2	59

USG: Ultrasonography, HPE: Histopathological examination, CIN: Cervical intraepithelial neoplasia

Table 6: Endometrial hyperplasia on histopathological examination (n=58)

Types of hyperplasia	No
Simple typical	48
Complex typical	5
Simple atypical	1
Complex atypical	4

Table 7: Specificity and sensitivity of ultrasonography diagnosis with histopathological examination diagnosis

USG diagnosis	HPE report						
	Present	Absent	Total	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Fibroid							
Present	41	6	47	89.13	89.47	87.23	91.07
Absent	5	51	56				
Adenomyosis							
Present	10	1	11	47.62	98.78	90.91	88.04
Absent	11	81	92				

USG: Ultrasonography, HPE: Histopathological examination, PPV: Positive predictive value, NPV: Negative predictive value

Table 8: Sensitivity, specificity, positive, and negative predictive values of transvaginal sonography for the diagnosis of adenomyosis from previous series compared with this series^[9-13]

References	n	Sensitivity	Specificity	PPV	NPV
Siedler <i>et al.</i>	80	63	97	71	-
Ascher <i>et al.</i>	17	52.9	66.6	90	20
Reinhold <i>et al.</i>	100	86	86	71	94
Atzori <i>et al.</i>	175	86.6	96.2	68.4	98
Atri <i>et al.</i>	102	81	71	54	90
Present study	103	47.62	98.78	90.91	80.04

PPV: Positive predictive values, NPV: Negative predictive values

the predominant (46.60%). In the studies done by Khare. found endometrial hyperplasia in 23%, 22.6%, and 36.2%, respectively which were lower than our study.^[14-16]

CONCLUSION

In our study, uterine fibroid was the leading cause of AUB for which hysterectomy was done. Radiological and pathological evaluation correlated well to diagnose fibroids. USG has good specificity to diagnose adenomyosis, however, because of low sensitivity it is important not to rule out adenomyosis based on USG findings alone. USG alone is not sufficient to diagnose endometrial hyperplasia. However, USG detected thick endometrium in postmenopausal woman is a good indicator of endometrial pathology. Regarding endometrial finding, histopathology revealed hyperplasia in majority of cases of which simple typical type was the predominant.

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Conflicts of interest

There are no conflicts of interest.

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