



Radiodiagnosis

EVALUATION OF ENDOMETRIUM IN PERIMENOPAUSAL WOMEN WITH ABNORMAL UTERINE BLEEDING BY TRANSVAGINAL ULTRASONOGRAPHY

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ABSTRACT **BACKGROUND AND PURPOSE:** AUB accounts for more than 50% of all gynaecologists' consultation in the perimenopausal years, causing burden on the quality of the woman's life. The aim of our study was to evaluate the accuracy of TVS to diagnose endometrial pathology causing abnormal uterine bleeding in perimenopausal women with histopathological correlation.

RESULTS: Total 100 perimenopausal women were included, the most common age-group was 48-51 years, 51% patients presented with menorrhagia. 79% patients were multiparous. 35% of patients had ET>16mm. On TVS, ET>8mm had significantly higher chance to be abnormal histopathologically. 7% and 10% patients revealed endometrial malignancy on TVS and HPE respectively. The sensitivity, specificity, PPV, NPV of TVS for benign lesions was 99%, 60%, 96% and 86% respectively and sensitivity, specificity, PPV, NPV of TVS for malignant lesion was 60%, 99%, 86% and 96% respectively.

CONCLUSION: Perimenopausal women with ET>8 mm on TVS, should undergo histopathological evaluation.

KEYWORDS : AUB, TVS, Perimenopausal, Endometrial Thickness.

INTRODUCTION

The 'perimenopause' is the period beginning with menopausal transition and ending 12 months after the last menstrual period¹. This may last for 4-8 years. During this period, the endocrinological, biological and clinical features of approaching menopause commence. In perimenopause, fluctuating estrogen levels affect volume and frequency of menses, which is unpredictable and unique for each woman. Abnormal uterine bleeding accounts for more than 50% of all gynaecologist's consultation in the perimenopausal years, which causes financial and emotional burden on the quality of the woman's life.

Prolonged unopposed estrogen stimulation in anovulatory cycles causes endometrial hyperplasia, thus increasing the risk of endometrial cancers. Therefore, diagnosing the proper cause of AUB in perimenopausal women become essential, for proper intervention at the earliest possible time. The TVS being simple and non-invasive, permits better visualization of uterus, endometrium and adnexa. So we planned to assess the diagnostic accuracy of TVS in various uterine causes of AUB by correlating it with histopathology.

AIMS AND OBJECTIVE:

To evaluate the accuracy of TVS to diagnose organic endometrial pathology causing abnormal uterine bleeding in perimenopausal women with histopathological correlation.

MATERIALS AND METHODS

This prospective study was done in the Department of Radiodiagnosis

Table 1: Comparing ET on TVS with endometrial histopathology.

ET (in mm) on TVS	No. of cases on TVS	Endometrial histopathology (N=100)								
		Normal endometrium (n=51)			Abnormal endometrium (n=49)					
		proliferative	Secretory	Total	Endometrial hyperplasia	Atrophic endometrium	polyp	endometritis	Endometrial carcinomas	Total
<4	18	18	0	18	0	0	0	0	0	0
04-8	21	11	7	18	1	2	0	0	0	3
08-12	11	5	4	9	1	1	0	0	0	2
12-16	15	0	5	5	4	0	5	1	0	10
>16	35	0	1	1	11	0	8	5	10	34
Total	100	34	17	51	17	3	13	6	10	49

of Mahatma Gandhi Memorial Medical College & M. Y. Hospital, Indore, Madhya Pradesh, India after getting approval by Institutional Scientific Review Board. 100 cases of perimenopausal women with clinically diagnosed AUB were examined by transvaginal sonogram. TVS was performed independent of the phase of menstrual cycle using 7.5 MHz transvaginal transducer of Siemens USG machine. Women excluded: Age <39 or >51 years, menopausal women, Women on hormonal treatment, IUCD in situ, endocrine disorders, bleeding disorders, cervical or vaginal cause of bleeding, pregnancy, traumatic bleeding and unmarried.

RESULTS:

Out of 100 perimenopausal women in our study, the mean age of women was 46 years and majority (39%) of them belonged to the age group 48-51 years. Majority of the women were multiparous (79%). Common clinical presentation of AUB in perimenopausal women in our study was menorrhagia (51%) followed by menometrorrhagia (19%).

In our study, 35% women had ET>16mm on TVS followed by 21% of women having ET between 4-8mm range. On histopathology of the endometrial in 100 perimenopausal women in our study, the most common HPE finding was normal proliferative endometrium (34%) followed by normal secretory endometrium (17%). Among the abnormal endometrium, endometrial hyperplasia (17%) was most common finding (Table 1).

Table 1 showed that, as the endometrial thickness increases, its chance of being abnormal on HPE becomes more likely. Maximum number of abnormal endometrium (34%) on HPE was found in women with ET>16mm on TVS. On statistical analysis for relation of Endometrial Thickness with probability of abnormal endometrial findings on histopathology revealed that ET>8 mm on TVS had significantly higher chance of being abnormal histopathologically (X^2 -value=24.75, P<0.05).

In our study, Out of these 100 patients, 7% were diagnosed with malignant endometrial lesions (endometrial carcinoma) and rest 93% as benign lesions or normal finding on TVS. However, the final HPE reported 10% cases of endometrial carcinoma and rest 90% cases as benign in nature. The most common diagnosed endometrial histopathology was proliferative endometrium (35%) followed by secretory endometrium (15%) and endometrial hyperplasia (15%). Other benign lesion found were polyp (13%) and endometritis (6%). HPE showed endometrial carcinoma (malignant) in 10% cases.

DISCUSSION:

AUB is the most common gynaecological complaint among women in perimenopausal age group. In our study, analysis of patients according to bleeding pattern, the most common AUB pattern was menorrhagia (51%) which was comparable to the study conducted by Acharya *et al*², who observed that 50% patients with menstrual complaints were of menorrhagia.

Majority of the women were multiparous (79%) followed by primipara (16%). This distribution of parity is similar to the study by Shobhita GL *et al* in 2015³.

In our study most of the cases (35%) had ET in >16 mm followed by 4-8 mm range. All the cases of endometrial hyperplasia (10%) and endometrial carcinoma (7%) had ET of >16 mm on TVS. These findings were in accordance with study done by Aliya A. *et al*¹ in 2009, in which all the cases of endometrial hyperplasia and endometrial carcinoma had ET above 15 mm.

In 34 (97%) patients out of 35 patients with ET>16mm on TVS, had pathological endometrium on histopathology and 10 (66%) out of 15 patients with ET between 12-16 mm on TVS, had pathological endometrium on histopathology. While among 8-12 mm and 4-8 mm ET on TVS, only 18% and 14% of cases showed pathological thickening on HPE respectively. However, patients with ET<4 mm revealed normal histopathology. A Study by Machado *et al*¹ in 2005 concluded that ET less than 5 mm did not need D&C as none of these patients had atypia or malignancy, which was also corroborated in the present study.

There is no clear definition of what constitutes an abnormal ET in the still menstruating perimenopausal woman. The upper limit for normal ET remains controversial, but most studies, like that of Chatapavit *et al*¹ have reported transvaginal sonographic ET 8 mm as the abnormal cut off value, necessitating further investigations. In our study, 49 patients had abnormal endometrial on HPE. 46 patients out of 49 patients, had ET >8mm and only 3 patients had ET < 8 mm. Patients with ET > 8 mm on TVS has significant higher chance of having abnormal endometrium (X^2 -value=24.75, P<0.05).

In our study, TVS diagnosed 7 cases of endometrial carcinoma (7%) and 10 cases of endometrial hyperplasia (10%). All these cases were having ET>16 mm on TVS and were present in late perimenopausal age group. This is in accordance with the previous population-based study by Susan D Reed *et al*¹ in 2009, which revealed that the incidence of endometrial hyperplasia with and without atypia peaks in the late perimenopausal and postmenopausal years.

Our study on 100 perimenopausal women presenting with AUB, TVS diagnosed 7 lesions as malignant and 93 cases as benign or normal finding. On histopathology 10 cases were identified as malignant and 90 cases were diagnosed as benign.

Our study revealed that TVS has excellent statistical results in detecting and characterizing various endometrial pathologies (Table 2).

Table 2: The sensitivity, specificity, PPV and NPV of TVS for various endometrial ultrasonography diagnosis. (N=100)

TVS diagnosis	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
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Benign lesion	99	60	96	86
Malignant lesion	60	99	86	96
Endometrial hyperplasia	76	98	86	94

The sensitivity, specificity, PPV and NPV of TVS in our study is in agreement with previous studies of Urvasi *et al*¹, Acharya *et al*¹ and Ritu *et al*¹. Therefore, TVS can be practically used as initial and one of the best diagnostic modalities to assess the pelvic pathologies.

CONCLUSION:

AUB is a common and debilitating condition with high direct and indirect costs. The data from our study on statistical analysis for relation of ET with probability of abnormal endometrial findings on histopathology revealed that ET > 8 mm on TVS had statistically significant higher chance to be abnormal. Therefore, ET > 8 mm on TVS in perimenopausal women, irrespective of phase of menstrual cycle, echogenicity of the endometrium, its margin or any added abnormality should be subjected to histopathology.

In our study, the diagnostic value of TVS turned out to be excellent for almost all uterine pathologies. The sensitivity, specificity, PPV, NPV of TVS for benign lesions was 99%, 60%, 96% and 86% respectively and sensitivity, specificity, PPV, NPV of TVS for malignant lesion was 60%, 99%, 86% and 96% respectively.

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