



THE ROLE OF TRANSVAGINAL ULTRASOUND IN ABNORMAL UTERINE BLEEDING IN PERIMENOPAUSAL WOMEN AND ITS HISTOPATHOLOGICAL CORRELATION

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ABSTRACT

BACKGROUND: Abnormal uterine bleeding accounts for more than 50% of all gynaecologist's consultation in the perimenopausal years.

AIMS AND OBJECTIVE: To evaluate the accuracy of TVS to diagnose organic uterine 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. Uterine fibroid was the commonest uterine pathology (42%). 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, Et, Perimenopausal.

INTRODUCTION

In 2001, the Stages-of-Reproductive-Aging-Workshop (STRAW) defined 'perimenopause' as 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, volume and frequency of menses vary due to fluctuating estrogen levels, 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, so that proper intervention can be initiated at the earliest possible time. The TVS is a simple, non-invasive, easily available and cheap diagnostic modality to assess the organic cause of AUB. It 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 uterine pathology causing abnormal uterine bleeding in perimenopausal women with histopathological correlation.

MATERIALS AND METHODS

This prospective study was done in the Department of

Table 1: Comparing ET on TVS with endometrial histopathology.

| ET (in mm) on TVS | No. of cases on TVS | Endometrial histopathology |
|-------------------|---------------------|----------------------------|
|-------------------|---------------------|----------------------------|

Radiodiagnosis of Mahatma Gandhi Memorial Medical College & M. Y. Hospital, Indore, Madhya Pradesh, India after getting approval by Institutional Scientific Review Board. A total of 152 perimenopausal patients between 39 to 51 years of age, who were referred to our department with clinical symptom of bleeding per vagina underwent transvaginal ultrasound using Siemens USG machine. Out of 152 patients, 18 patients were lost during the course of study and in 34 patients histopathological correlation was not established. Therefore, the final study group comprised of 100 perimenopausal patients. 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%).

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

| | | Normal endometrium | | Abnormal endometrium | | | | |
|-------|-----|--------------------|-----------|-------------------------|----------------------|-------|--------------|------------------------|
| | | proliferative | Secretory | Endometrial hyperplasia | Atrophic endometrium | polyp | endometritis | Endometrial carcinomas |
| <4 | 18 | 18 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4-8 | 21 | 11 | 7 | 1 | 2 | 0 | 0 | 0 |
| 8-12 | 11 | 5 | 4 | 1 | 1 | 0 | 0 | 0 |
| 12-16 | 15 | 0 | 5 | 4 | 0 | 5 | 1 | 0 |
| >16 | 35 | 0 | 1 | 11 | 0 | 8 | 5 | 10 |
| Total | 100 | 34 | 17 | 17 | 3 | 13 | 6 | 10 |

On retrospectively comparing ET on TVS with final HPE of endometrium (table 1), in 34(97%) out of 35 patients with ET>16mm on TVS, had pathological endometrial histopathology. Similarly, in 10(66%) out of 15 patients with ET between 12-16mm on TVS and 2(18%) out of 11 patients with ET between 8-12 mm on TVS, had pathological endometrial histopathology respectively. While, only 3 (14%) out of 21 patients with ET between 4-8mm on TVS, had pathological endometrial histopathology and all the cases with ET<4 mm on TVS had normal endometrial histopathology. In our study, 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 histopathologically (X^2 -value=43.65, P <0.001).

Finally, 156 pelvic lesions were diagnosed in 100 perimenopausal women on TVS. Out of these 156 pelvic lesions, 124 lesions were confirmed by histopathology. 7 out of these 124, were diagnosed malignant (endometrial carcinoma) and rest 117 as benign lesions on TVS (Table 3). The most common diagnosed benign lesion on TVS was uterine fibroids (42%) followed by adenomyosis (23%). Other benign lesions found were endometrial hyperplasia (15%), polyp (15%) and endometritis (8%).

The final HPE reported 10 cases of endometrial carcinoma and rest 114 cases as benign in nature.

Table 3: Distribution of final TVS diagnosis in 100 perimenopausal women presenting with abnormal uterine bleeding compared with final HPE.

| TVS DIAGNOSIS/MODALITY | ON TVS | ON HPE |
|---|--------|--------|
| Intramural fibroid | 31 | 30 |
| Submucosal fibroid | 16 | 16 |
| Subserosal fibroid | 9 | 9 |
| Adenomyosis | 23 | 26 |
| polyp | 15 | 13 |
| Hyperplasia | 15 | 14 |
| Endometritis | 8 | 6 |
| Endometrial carcinoma | 7 | 10 |
| Total no. of lesion in 100 perimenopausal | 124 | 124 |

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 al², 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 al¹ 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 al⁵ 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 al⁶ 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=43.65, P <0.001). In our study the most common benign and overall pathology diagnosed on TVS was uterine fibroids found in 43% of the cases. Among these 12 women had multiple uterine fibroids and 19 women had other associated pelvic pathologies along with uterine fibroids. The most common type of fibroid on TVS was intramural followed by submucosal. This is in accordance with a study conducted by Archana et al⁷ in 2018 which revealed fibroids in 41% of cases.

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 DR et al¹ 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 revealed a total of 153 lesions on TVS examination. Out of these, 124 lesions were correlated histopathologically. TVS diagnosed 7 lesions as malignant and 117 cases as benign. On histopathology 10 cases were identified as malignant and 114 cases were diagnosed as benign.

(Table 4) Our study revealed that TVS has excellent statistical results in detecting and characterizing various pelvic pathologies.

Table4: The sensitivity, specificity, PPV and NPV of TVS for various pelvic pathologies.

| TVS diagnosis | Sensitivity (%) | Specificity (%) | PPV (%) | NPV (%) |
|------------------|-----------------|-----------------|---------|---------|
| Benign lesion | 99 | 60 | 96 | 86 |
| Malignant lesion | 60 | 99 | 86 | 96 |

| | | | | |
|-------------------------|----|----|----|----|
| Uterine fibroid | 91 | 91 | 89 | 92 |
| Adenomyosis | 71 | 96 | 86 | 92 |
| Endometrial hyperplasia | 76 | 98 | 86 | 94 |

The sensitivity, specificity, PPV and NPV of TVS in our study is in agreement with previous studies of Urvashi *et al*⁸, Acharya *et al*⁹ and Ritu *et al*⁹. 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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