



“CORRELATION OF ENDOMETRIAL THICKNESS BY TRANSVAGINAL ULTRASONOGRAPHY AND HISTOPATHOLOGY IN WOMEN WITH PERIMENOPAUSAL BLEEDING”

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KEYWORDS :

INTRODUCTION

In 2001, the stages of reproductive aging workshop (STRAW) defines 'Perimenopause' as the period beginning with menopausal transition and ending 12 months after the last menstrual period.^{1,2} This may last for 4-8 years. Perimenopausal period is often characterized by menstrual irregularities in frequency and volume, due to fluctuating estrogen levels and these changes are unpredictable.

In India the incidence of dysfunctional uterine bleeding (DUB) is 20%.³ It accounts for more than 70% of all gynaecological consultations in the perimenopausal age group.⁴

Dysfunctional uterine bleeding is the abnormal uterine bleeding from the uterine cavity in the absence of any organic lesion, that is pregnancy, bleeding disorders or any palpable pelvic pathology.⁵

The trans-vaginal ultrasonography is non-invasive diagnostic modality of studying endometrial abnormalities and its thickness accurately so it helps to exclude any organic pathology in case of AUB.

The high frequency transducer that is 5-10Mhz with higher resolution, placed nearer to the region of interest, permits better visualization of the uterus and the endometrium.⁶

Dilatation and curettage is an invasive procedure for evaluation of histopathological abnormalities of the endometrium it helps in early detection of precancerous lesions like endometrial hyperplasia.

It is a blind procedure, so there is a chance of missing a small or focal lesion.⁷

The present study aims to evaluate endometrial thickness with trans-vaginal ultrasonography and its correlation with histopathology so as to find out cut off value, which is derived from the measurement of endometrial thickness.

AIMS AND OBJECTIVES

To evaluate endometrial thickness with trans-vaginal ultrasonography and its correlation with histopathology in women with perimenopausal bleeding.

A cut off value derived from the measurement of endometrial thickness is obtained to decide the risk of endometrial abnormalities in women with perimenopausal bleeding.

To assess whether measurement of endometrial thickness by TVS helps to differentiate from the other causes of peri-menopausal bleeding.

MATERIAL AND METHODS

This is a prospective pilot study conducted at our institute. We included all patients coming with C/O abnormal uterine bleeding from 38yrs onwards i.e. perimenopausal period to outpatient department of gynaecology. We excluded women on hormonal treatment, women with per-vaginal bleeding related to pregnancy, genital tract carcinomas excluding CA endometrium and patients with IUCD. 100 cases of perimenopausal women with abnormal uterine bleeding were scheduled for trans-vaginal ultrasonography and endometrial sampling.

Just before sampling, a vaginal probe ultrasonography examination was performed using a 7.5 Mhz.

METHODS OF COLLECTION OF DATA

Detailed history of patient was taken and clinical examination done to rule out other gynaecological abnormalities. All investigations and pre-anaesthetic check-ups were done. Trans-vaginal ultrasonography was performed in all these women using a high frequency transvaginal probe (5-10 Mhz) by experienced sonologist.

Endometrial cavity was examined and both longitudinal and coronal views scanned, and antero-posterior measurements of endometrial thickness were taken from longitudinal axis views.

Later Dilatation and Curettage/ Endometrial biopsy was performed within 24 hours of ultrasonography and the specimen was sent for Histopathological examination. And then ultrasonographic measurements of endometrial thickness were correlated with the Histopathological report and results were analysed.

RESULTS

TABLE 1:- Results of trans-vaginal sonography examination and histopathological outcome.

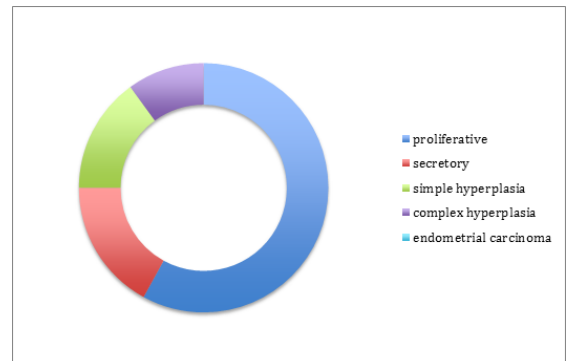
Histopathological diagnosis	NO.	%	E.T.(mm)
Low risk:			
Proliferative	58	58%	6.6 mm
Secretory	17	17%	9.2 mm
High risk :			
-simple hyperplasia	15	15%	14.5 mm
-complex hyperplasia	10	10%	11.5 mm
-Endometrial carcinoma	0	0%	-

No. – Number of Patients

% - Percentage

E.T. - Endometrial thickness

Sensitivity	Specificity	Positive predictive value(ppv)	Negative predictive value(npv)
100%	68.80%	42.37%	100%



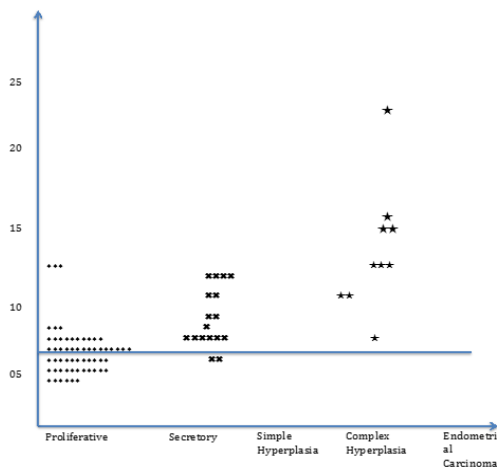
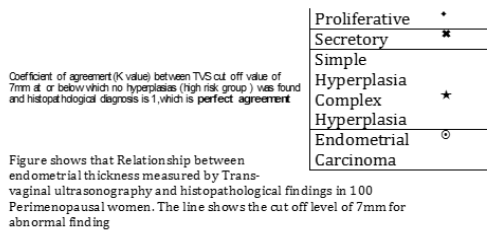
Low risk includes atrophic, Proliferative, Secretory Endometrium and High-risk group/ abnormal included Simple, Complex Hyperplasia.

Our study showing sonographic endometrial thickness of 7mm was an optimal cut off point that gave a sensitivity 100% and specificity of 68.80%, with positive predictive value 42.37% and negative predictive value 100%.

So this study shows that a sonographic endometrial thickness cut off point of 7mm excluded any abnormal endometrium and atleast 44% reduction in the number of curettages in the perimenopausal women.

TABLE NO:-2 Histopathological diagnosis according to the Endometrial thickness.

Histolo-pathologic Diagnosis	Endometrial Thickness in mm						Total
	0-5	5-10	10-15	15-20	20-25	25-30	
Proliferative	15	42	1	1	-	-	58
Secretory	-	13	04	-	-	-	17
Simple hyperplasia	-	2	7	4	2	-	15
Complex hyperplasia	-	4	4	1	1	-	10
Endometrial carcinoma	-	-	--	-	-	-	-



A line shows the cut off level of 7mm for abnormal findings.

Endometrial thickness of 7mm was an optimal cut off point that gave a Sensitivity of 100%, Specificity of 68.80%, Positive predictive value 42.37% and Negative predictive value of 100%.

So this study shows that a sonographic endometrial thickness cut off point 7mm excluded any abnormal Endometrium and atleast 44% reduction in the number of curettages in the perimenopausal women.

DISCUSSION

Perimenopausal bleeding is a common disorder and usually diagnostic curettage is required to diagnose the endometrial abnormalities.

This study shows that, the trans-vaginal sonography being a cheap, non-invasive, and it needs no anaesthesia, it is helpful for detecting endometrial pathology in many cases.

AUB occurs in 9-14% of perimenopausal age group, and it significantly affects the quality of life and imposing financial burden.⁸

S.Gvanberg⁹ et al showed that, Trans-vaginal sonography is an excellent diagnostic tool for the detection of gynaecological diseases. It helps to make early diagnosis, by detecting endometrial thicknesses.

Spandofer et al¹⁰ showed that, In general if endometrial thickness is more than 8mm, is considered suspicious of endometrial pathology In perimenopausal women with abnormal uterine bleeding and thus further investigations are recommended.

In the present study it was observed that maximum no of cases i.e 63 were between 41-46 years age group. The mean age of the cases in the present study was 46.8.

Choudhary Jaya et al¹¹, showed that out of 50 patients ranged from 40-55 year, majority of patient were in age group of 40-44 year (48%) and minimum 14% in age group of 50-55 yr.

Kumar AK,¹² found that maximum age incidence was between 41-45 years- 42%.

In present study, it was observed that 16 (16.0) cases were Nulliparous 48 (48.0) cases were primipara, 36 (36.0) cases were Multipara.

Col B.K. Goyal et al¹³, found that Parity distribution of the subjects ranged between 0 and 5.

Meena Mayuri et al¹⁴, found that mean parity of women was 3.6 ± 1.5. Sangeeta Rai Mukhopadhyay et al¹⁵ found that the commonest affected were para 3 or more.

Kumar AK¹², found that Among 50 patients, 45 cases (90%) were multipara and 5 cases (10%) were primipara. Among 45 cases of multipara, 5 cases were grand multipara.

Saroj A. Bolde et al¹⁶, found that main age group was 30-49 years (72.24%).

Sheetal G Patil et al¹⁷, found that patients with para 3 or more (33%) were most affected and least affected were para 1 (10%).

In this study, it was observed that 8 (8.0) cases were Undernourished, 45 (45.0) cases were having Normal weight, 31 (31.0) cases were overweight and 16 (16.0) cases were Obese. The mean BMI of cases 23.70 ± 3.74.

Meena Mayuri et al¹⁴, in their study have shown that mean BMI of their patients was 22.02 ± 1.89.

In the present study, it is observed that 8% cases were Socio-economic class 1, 18% cases were Socio-economic class 2, 32% cases were Socio-economic class 3, 24% cases were Socio-economic class 4 and 18% cases were Socio-economic class 5.

Sheetal G Patil et al¹⁷, found that closely 59% were middle class, 18% to higher class and 23% were of poor socioeconomic class. These are comparable to our study.

In the present study, it is observed that 34% cases were having complaint of Infertility, 42% cases were having complaint of pain in abdomen, 26% cases were having complaint of Dysmenorrhea.

Sheetal G Patil¹⁷ et al, found that infertility was associated complaint in one third patients, pain in abdomen (26%) and dysmenorrhea (18%).

In the present study, it is observed that 52% cases were having Menorrhagia, 20% cases were having Metrorrhagia, 12% cases were having Polymenorrhea, 6% cases were having Polymenorrhagia and 10% cases were having Menometrorrhagia.

Malavalli Kempasiddaiah Girija¹⁸ et al, observed that 28% cases were having Menorrhagia, 20% cases were having Polymenorrhea, 28% cases were having Polymenorrhagia and 15% cases were having Menometrorrhagia, post coital bleeding in 9% cases, the prevalence of menstrual abnormalities are comparable with present study.

Col B.K. Goyal et al³, found that Menorrhagia was the commonest problem amongst their patients (n=58) followed by metrorrhagia (n =32). Menometrorrhagia and continuous bleeding for >21 days were less common symptoms seen in 7 and 3 women respectively, similar as in present study.

Archana Bhosle et al¹⁹, found that half of the patients presented with

menorrhagia, 28.2% with polymenorrhagia, 12.2% had intermenstrual bleeding and 6.5% had metrorrhagia. The most common associated symptom was dysmenorrhoea found in 70% of women in 40 - 45 yrs of age and 25% in 46 - 50 yrs of age, comparable with our study.

Sangeeta Rai Mukhopadhyay¹⁵ et al, found that Menorrhagia form the largest group (36%) followed by post-menopausal bleeding and metrorrhagia (20%), similar to our study.

In the present study, it is observed that 5% cases were having less than 7 g/dl HB level, 26% cases were having 7- <9 g/dl Hb level, 58% cases were having 9 - <11 g/dl Hb level and 11% cases were having \geq 11 g/dl Hb level.

Sheetal G Patil et al¹⁷, found that patients with hemoglobin <6 gm% were five percent, hemoglobin between 6 and 8g% was seen in 28% patients. These patients requisite blood transfusion prior to hysteroscopy and curettage.

Most of the patients with AUB fall in the perimenopausal age group; Hence thorough evaluation is needed to rule out endometrial carcinoma or its precursor lesion i.e Endometrial Hyperplasia.

Ultrasonography and histopathological evaluation of the endometrium, is the gold standard of diagnosis in current scenario.

In the present study, menorrhagia is the most common clinical presentation seen in 52% cases followed by Metrorrhagia at 20% which is similar to Jetley²¹ et al; in which they had studied in 290 perimenopausal patients in New Delhi.

Proliferative endometrium was the most common findings on histopathology.

The mean endometrial thickness was 6.6mm in proliferative phase & 9.2mm in secretory phase. These findings are consistent with similar studies carried out by Acharya Veena²⁰ et al. in 2003.

In the earlier mentioned study by Jetley²¹ et al, However the secretory endometrium was most common finding at 32.4% followed by proliferative endometrium.

Our study showed that Hyperplasias were not found in ET <8mm; these findings are consistent with similar studies by Chatapavit²² et al., concluded that endometrial thickness of 8mm or less likely to be associated with malignant pathology in perimenopausal women with abnormal uterine bleeding. The upper limit for normal endometrial thickness remains controversial, but most studies have reported transvaginal sonographic evaluation of endometrial thickness 8mm as the abnormal cut off value, necessitating further investigations.

Tong song and co-workers²³ suggested that endometrial thickness of <7mm gave 100% sensitivity and 46% specificity with normal histopathology; which is similar with our study showing sonographic endometrial thickness of 7mm was an optimal cut off point that gave a sensitivity 100% and specificity of 68.80%, with positive predictive value 42.37% and negative predictive value 100%. So this study shows that a sonographic endometrial thickness cut off point of 7mm excluded any abnormal endometrium and at least 30% reduction in the number of curettages in the perimenopausal women.

In the present study, proliferative endometrium was found in 58% cases, and in 17% cases, secretory endometrium was the diagnosis. Similar studies was done by Bhosle et al¹⁹, shows that 66.1% had proliferative endometrium, 16.1% had secretory endometrium and 17.8% had simple hyperplasia without atypia.

Maximum cases with proliferative endometrium had endometrial thickness between 5-10mm. and secretory endometrium had Endometrial Thickness between 5-10mm.

Simple endometrial hyperplasia was found in 15% cases having maximum cases with endometrial thickness between 10-15mm.

Complex hyperplasia was found in 10% of cases, having maximum cases with endometrial thickness between 10-15mm.

In 58% cases, histopathologic diagnosis was Proliferative

endometrium., therefore Proliferative endometrium was the commonest finding.

Dr.Amna Wajeed²⁴ et al., showed that an endometrial cut off 8mm in perimenopausal for detecting benign and malignant lesions of endometrium. So it was having sensitivity of 92.3% and specificity of 68.96% with an endometrial thickness cut off of 8mm for endometrial hyperplasia.

CONCLUSION

TVS has been used for studying the endometrial growth in perimenopausal women. With high frequency transducers, the endometrium thickness can be easily measured. We decided to evaluate whether it would be possible to use endometrial thickness as the sole parameter for diagnosing endometrial pathologic features.

The role of TVS in measurement of endometrial thickness in perimenopausal women with bleeding has been well established, with multiple articles in the literature, each describing the authors own recommendations on measurement, cut offs with which to suspect endometrial pathology. Many of these studies contain small number of women investigated at a single medical centre.

In this study 100 patients of perimenopausal bleeding were studied. They were subjected to TVS prior to D and C/endometrial biopsy fractional curettage and ultrasonographic measurements of endometrial thickness were correlated with the histopathological findings to find out endometrial thickness cut off point.

This study indicates that a vaginosonographically measured endometrial thickness of 7mm and above in perimenopausal women with abnormal uterine bleeding is a suitable threshold for screening endometrial abnormalities especially carcinoma/hyperplasia. TVS also helps as a sensitive tool to other pelvic pathologies i.e in evaluating other associated findings.

With further experience TVS might be used in routine clinical screening to select cases for diagnostic curettage in perimenopausal women with abnormal uterine bleeding and thus endometrial thickness below 7 mm seem justified to refrain from curettage.

In conclusion a safety margin of error should be taken into consideration when recommending a cut off level for the endometrial thickness between pathological and non pathological endometrium as measured by TVS.

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