



HISTOLOGY AND SONOGRAPHY CORRELATION OF ENDOMETRIAL THICKNESS IN PERIMENOPAUSAL WOMEN WITH AUB

Dr. Sana Samreen Mohammad *	Junior Resident, Dept of Obstetrics and Gynaecology, Dr. Vithalrao Vikhe Patil Foundation's, Medical College and Hospital, Ahmednagar *Corresponding Author
Dr. Urmila Gavali	Prof., Dept of Obstetrics and Gynaecology, Dr. Vithalrao Vikhe Patil Foundation's, Medical College and Hospital, Ahmednagar.
Dr. Gautam S Aher	Head of Department, Dept of Obstetrics and Gynaecology, Dr. Vithalrao Vikhe Patil Foundation's, Medical College and Hospital, Ahmednagar.
Dr. Suhas Shinde	Prof. Dept of Obstetrics and Gynaecology, Dr. Vithalrao Vikhe Patil Foundation's, Medical College and Hospital, Ahmednagar

ABSTRACT

Introduction : One of the most prevalent and problematic symptoms in the perimenopausal age range is abnormal uterine bleeding (AUB). In this age range, excessive menstrual bleeding is the most prevalent form of AUB. Women with AUB who are between the ages of 40 and 50 are at risk for both atypical endometrial hyperplasia and endometrial cancer. Therefore, it is critical to assess women with perimenopausal heavy menstrual bleeding as soon as possible. Present study was conducted with the aim to correlate the endometrial thickness with the histopathology in the peri-menopausal females presenting with abnormal uterine bleeding (AUB) and to identify cut off value of endometrial thickness in order to reach at some consensus regarding when to intervene so that not a single endometrial pathology will be missed. **Aims:** This study was carried out to evaluate endometrial thickness (ET) by ultrasound and HPE of endometrium and its clinical correlation in perimenopausal women with AUB. **Methods:** This was a retrospective study done on patients of perimenopausal age group (40-52 years) who presented with AUB to the department of obstetrics and gynaecology in a tertiary level teaching hospital, Ahilyanagar, Maharashtra. All the women were clinically evaluated. Ultrasound study of endometrial pattern and thickness was done followed by Dilatation and Curettage (D&C) and histopathological reports were tabulated and analysed. **Results :** In this study, 126 women presented with perimenopausal bleeding were taken into study. Endometrial thickness was taken by TVS and HPE were correlated. Majority of the women were between 44 to 47 years (50.7%). Majority of the patients had endometrial thickness between 11-15mm (50%) and 3 patient had endometrial thickness >20mm. The most common being Fibroid in 40 (31.7) followed by Adenomyosis was present in 20 (15.8%) women. Histopathological examination, revealed proliferative endometrium was the most common histological pattern detected and adenocarcinoma of the endometrium was detected in 2 patients. When the US findings of the endometrial thickness were correlated with the Histopathological examination report, it was found that out of the 41 patients with endometrial thickness between 11 and 15 mm, 30 showed proliferative changes. At endometrial thickness between 16 and 20 mm, hyperplastic changes were the predominant HPE findings with 2 of the patients showing complex hyperplasia with atypia. In patients with endometrial thickness ≥ 20 mm, carcinoma of the endometrium was detected in 2 patients. **Conclusion:** Transvaginal sonography and histopathological examination are the standard diagnostic procedures for the assessment of abnormal uterine bleeding and for early detection of precancerous lesion like endometrial hyperplasia and endometrial cancer.

KEYWORDS :

INTRODUCTION

The onset of endocrinological, biological, and clinical menopausal symptoms is known as the perimenopause, according to the World Health Organization. Perimenopause, as used in therapeutic settings, is the time frame from the start of menopausal symptoms to a year following menopause. The hormonal shift from reproductive age to menopause is marked by this time. Indian women often experience the perimenopause between the ages of 40 and 52. [1]

In the perimenopausal age range, abnormal uterine bleeding (AUB) is a prevalent and problematic symptom. Heavy, scanty, infrequent, frequent, severe, or intermenstrual bleeding are some of the patterns of AUB that may occur in this age range. For 90% of women in the perimenopausal age range, AUB is the reason for their gynecological clinic appointments [2]. In this age range, heavy menstrual bleeding (HMB) is the most prevalent form of AUB [3].

The perimenopause is often characterised by menstrual cycle irregularities in frequency and volume, due to fluctuating estrogen levels. These changes are unpredictable and are unique for each woman. Although irregular bleeding patterns are a normal and expected part of perimenopause, the incidence of uterine pathology and associated medical complications also increase in this age group. [4]

Long anovulatory periods with unopposed estrogen stimulation may result in endometrial hyperplasia, thus increasing the risk of endometrial cancers. Therefore, AUB in the perimenopausal period assumes significance. AUB accounts for about 70% of all gynaecologic outpatient visits in the perimenopausal women. [5]

The TVUS is a simple and non-invasive diagnostic modality of studying the endometrial pattern and its thickness accurately, and at the

same time to exclude organic pathology in cases of AUB. The high frequency transducer placed nearer to the region of interest permits better visualisation of the uterus and the endometrium. [6]

Histopathological examination (HPE) by endometrial biopsy is the gold standard diagnostic tool in evaluation of AUB. [7]

Traditional uterine dilatation and curettage (D and C) methods have given way to immunohistochemical markers, transvaginal ultrasonography (TVS), color Doppler, sonosalpingography, and hysteroscopy as diagnostic tools. The gold standard procedure is still histopathology. However, there is a chance of many consequences because it is an intrusive surgery. It is necessary to find a noninvasive or minimally invasive method that is simple to use, well-received by patients, inexpensive, highly sensitive, and specific for studying endometrial pathology. TVS is a dependable technique that is widely accepted by patients and healthcare professionals for its broad application and therapeutic effectiveness. [8]

However, together with TVUS the D&C still remains a very cost effective, practical and dependable approach for investigating AUB. In addition, accurate histopathological diagnosis also facilitates the implementation of optimal treatment strategies. The present study aims to correlate the clinical findings with sonographic assessment and histopathology of the endometrium.

Aims

This study was carried out to evaluate endometrial thickness (ET) by ultrasound and HPE of endometrium and its clinical correlation in perimenopausal women with AUB

Objectives

Present study was conducted with the following objectives:

1. To assess the endometrial thickness by trans vaginal and transabdominal ultrasonography.
2. To see correlation of histopathology with endometrial thickness in abnormal uterine bleeding (AUB) in perimenopausal women.
3. The current study also throws some light about various causes of AUB as per PALM-COIEN prevalent in our locality.
4. To find the cutoff for endometrial thickness that delineates the abnormal from normal histology.

Methodology

This was a retrospective study done on patients of perimenopausal age group (40-52 years) who presented with AUB to the department of obstetrics and gynaecology in a tertiary level teaching hospital, Ahilyanagar, Maharashtra.

Type of Study: Cross-sectional study

Study Setting: Patients in OPD & IPD fulfilling including and excluding criteria.

Study Population: Patients who fulfill the including and excluding criteria in obstetrics and gynaecology department in our hospital.

Sample Size: A total number of 126 patients in the perimenopausal age group who presented with AUB and in whom both TVS and endometrial biopsy were performed.

Inclusion Criteria

All cases of abnormal uterine bleeding in the perimenopausal age group that is 40 years and above and who have not attained menopause.

Exclusion Criteria

1. Patient with AUB in any other age group other than the perimenopausal age group.
2. Any vaginal or cervical cause of bleeding
3. Patient with blood dyscrasias.
4. Pregnancy related causes of bleeding.
5. Patient with h/o of drug intake (Anticoagulant & hormone replacement therapy)

The patients coming to OPD who fulfill the inclusion criteria are selected for the study. A detailed clinical history, obstetrical and gynecological history were taken for these patients. Further, a detailed clinical examination done as per designed proforma.

Menstrual History was recorded for each patient's menstrual cycle length, the number of days of menstruation, amount of blood loss and regularity of cycle.

Per speculum examination was performed on these patients under study to note abnormal discharge, erosion, cervical hypertrophy or cervical polyp to rule out any cervical cause of bleeding.

Per vaginal examination was performed to know about the size of uterus, cervical and adnexal abnormality.

Laboratory investigations including CBC, coagulation profile, random blood sugar, Urine analysis, liver and kidney function, thyroid profile & a urine pregnancy test were carried out for every patient in the study to rule out other causes of AUB.

Informed consent was given before the endometrial samples were sent for histopathological investigation (HPE). In accordance with their histological diagnosis, the ladies received the suggested treatment. We manually tallied and analyzed the histopathology reports, ultrasonography results, symptom profiles, and demographic characteristics in percentages.

RESULTS

In this study, 126 women presented with perimenopausal bleeding were taken into study. Endometrial thickness was taken by TVS and HPE were correlated.

Majority of the women were between 44 to 47 years (50.7%) . Least common age group was between 48 to 50 years (27.1%)(Table 1).

Table 01. Distribution According To Age Group.

Age group (years)	Frequency	Percentage(%)
40-43	28	22.2
44-47	64	50.7
48-52	33	26.1

Majority of the patients had endometrial thickness between 11-15mm(50%) and 3 patient had endometrial thickness >20mm (Table 2).

Table 2. Distribution According To Endometrial Thickness.

Endometrial thickness (mm)	Frequency	Percentage(%)
<5	4	3.3
5-10	46	36.7
11-15	63	50
16-20	10	7.5
>20	3	2.5

Adenomyosis and fibroid uterus were the two diseases discovered during the ultrasound examination of the uterus. The most common being Fibroid in 40 (31.7) followed by Adenomyosis was present in 20 (15.8%) women. (Table 3)

Table 3: Distribution Of The Patients According To The Usf Findings (Palm-Coein)

USG Findings	Frequency	Percentage(%)
Normal	32	25.3
Fibroid	40	31.7
Endometrial Polyp	10	7.9
Endometrial Hyperplasia	18	14.2
Adenomyosis	20	15.8
Collection in endometrial cavity	4	3.17
Carcinoma/Neoplastic etiology	2	1.58

Histopathological examination of the endometrial curetting revealed 38 patients to have proliferative endometrium followed by 11 patients reported to have disordered proliferative endometrium. Hyperplastic changes were found in 30 patients, though only 7 of them had complex hyperplasia with atypia. Adenocarcinoma of the endometrium was detected in 2 patients. Proliferative endometrium was the most common histological pattern detected. (Table 4).

Table 4. Distribution According To Histopathological Findings.

Histopathological findings	Frequency	Percentage(%)
Secretory Endometrium	30	23.8
Proliferative Endometrium	38	30.1
Atrophic Endometrium	5	3.9
Disordered Endometrium	11	8.7
Hyperplasia with atypia	7	5.5
Hyperplasia without atypia	23	18.2
Tissue inadequate for diagnosis	2	1.58
Benign Endometrial Polyp	8	6.3
Endometrial Carcinoma	2	1.58

When the US findings of the endometrial thickness were correlated with the Histopathological examination report, it was found that out of the 41 patients with endometrial thickness between 11 and 15 mm, 30 showed proliferative changes. At endometrial thickness between 16 and 20 mm, hyperplastic changes were the predominant HPE findings with 2 of the patients showing complex hyperplasia with atypia. In patients with endometrial thickness ≥ 20 mm, carcinoma of the endometrium was detected in 2 patients (Table 5).

Table 5. Correlation Of Endometrial Thickness And Histopathological Findings.

Histopathological findings	<5	5-10	11-15	16-20	≥ 20	Total
Proliferative Endometrium	0	13	30	3	0	46
Secretory Endometrium	2	29	8	0	0	39
Atrophic Endometrium	2	1	0	0	0	3
Disordered Endometrium	9	6	1	0	0	10
Endometrial polyp	1	5	1	0	0	7
Hyperplasia without atypia	1	5	3	2	0	11
Hyperplasia with atypia	0	1	3	2	0	6
Tissue inadequate for diagnosis	0	1	1	0	0	2
Endometrial Carcinoma	0	0	0	1	1	2

DISCUSSION

Abnormal Uterine Bleeding (AUB) is defined as the bleeding pattern that differs in frequency, duration and amount from a pattern observed during normal menstrual cycle or after menopause. (9)

It occurs in various forms such as menorrhagia, metrorrhagia, menometrorrhagia, oligomenorrhea, polymenorrhea. (10)

It refers to the symptoms of excessive, prolonged, unexpected or acyclic bleeding regardless of diagnosis or cause. (11)

AUB is the most common complain of any age seeking gynaecological health care. Transvaginal sonography and endometrial biopsy are the two diagnostic tests most frequently used to investigate the cause of bleeding.

64 (50.7%) of the 126 perimenopausal women with AUB in our research were between the ages of 44 and 47 (Table 1).

Similar incidence of presenting complaints were found in the study conducted by Mune SB, Verma A et al, Bhosle A et al, Sharma M et al.(12). The similar finding in this study may be due to similar socioeconomic status, environment and race.

In this study, the TVS findings showed that majority of the patient had endometrial thickness of 11-15 mm(50%) followed by 5-10 mm(36.7%), 16-20mm(7.5%) and >20mm(2.5), (Table-2). In contrast, only 19% of women had ET less than 8 mm in a study by Mathew et al. [13] and 29% in a study by Sah et al. [14].

Table 3 shows that 31.7% of the women in our research had fibroid on ultrasound assessment. According to the findings of the Daga et al. study, 39.4% of women had fibroid [15]. This is less than that. An additional benign uterine disorder linked to AUB is adenomyosis. Of the women in our research, 15.8% had adenomyosis. This is comparable to the 15.4% found in the Daga et al. research[15].

The most prevalent histology in our investigation was a proliferative pattern (38%), which was followed by a secretory pattern (30%) (Table 4). The research by Manjari et al., which found that the perimenopausal age group had a greater incidence of proliferative pattern (40%) is comparable to this one. The high frequency of anovulatory cycles in the perimenopausal age, which results from the depletion of ovarian follicles, may account for the high occurrence of the proliferative pattern.

In this study, the correlation of TVS and HPE, 30 cases had proliferative endometrium at endometrial thickness 11-15mm and a case of endometrial carcinoma was seen at 16-20mm which is similar to the study done by Shobhitha GL et al . In this study, 10 cases had disordered proliferation at less than 5mm which is in contrast to the study done by Das BP et al and Singh M et al. 7 cases had secretory endometrium at 5-10mm which is in contrast to the study done by Das BP et al, Deshmukh V et al. Both simple and complex hyperplasia with atypia was seen in 17 case (16)

CONCLUSIONS

In perimenopausal women presenting with AUB, a speculum examination and palpation should always be performed first.

TVUS is recommended as a first line diagnostic tool as it is relatively inexpensive, safe and non-invasive. It will not only reveal endometrial thickness but also other pelvic pathology.

The primary indication for invasive methods like D&C should be in cases with abnormal thickness of endometrium >8mm or inconclusive TVUS in order to obtain endometrial tissue to exclude precancerous lesion or endometrial cancer.

REFERENCES

- 1) Ahuja M. Age of menopause and determinants of menopause age: A PAN India survey by IMS. *Journal of mid-life health*. 2016 Jul 1;7(3):126-31.
- 2) Vitale SG, Watrowski R, Barra F, D'Alterio MN, Carugno J, Sathyapalan T, Kahramanoglu I, Reyes-Muñoz E, Lin LT, Urman B, Ferrero S. Abnormal uterine bleeding in perimenopausal women: the role of hysteroscopy and its impact on quality of life and sexuality. *Diagnostics*. 2022 May 9;12(5):1176.
- 3) Selvam V, Lakshminarayanan P. A Comprehensive Approach: Correlating Ultrasound Imaging with Endometrial Histopathological Analysis in Perimenopausal Women with Heavy Menstrual Bleeding. *Cureus*. 2024 Mar;16(3).
- 4) Speroff L. Menopause and the perimenopausal transition. *Clinical gynecologic endocrinology and infertility*. 2005.
- 5) Grimes DA. Diagnostic dilatation and curettage: a reappraisal. *Am J Obstet Gynecol*. 1982;142(1):1-6.
- 6) Goldstein SR. The endometrial echo revisited: have we created a monster?. *American journal of obstetrics and gynecology*. 2004 Oct 1;191(4):1092-6.
- 7) Mune SB, Karche AG. Histopathological patterns of endometrial lesions in patients with abnormal uterine Bleeding in rural area of Western Maharashtra. *Indian Journal of Pathology and Oncology*. 2016 Oct;3(4):665-72.
- 8) Kumari P, Gaikwad HS, Nath B. Endometrial Cut Off Thickness as Predictor of Endometrial Pathology in Perimenopausal Women with Abnormal Uterine Bleeding: A Cross-Sectional Study. *Obstetrics and Gynecology International*. 2022;2022(1):5073944.

- 9) Pillai SS. Sonographic and histopathological correlation and evaluation of endometrium in perimenopausal women with abnormal uterine bleeding. *Int J Reprod Contracept Obstet Gynecol*. 2014 Mar 1;3(1):113-7.
- 10) Shobhitha GL, Kumari VI, Priya PL, Sundari BT. Endometrial study by TVS and It's correlation with histopathology in abnormal uterine bleeding. *J Dental Med Sci*. 2015 Apr;14(4):21-32.
- 11) Das BP, Deka N, Saikia J. Evaluation of Endometrium with Sonographic and Histopathological Correlation in Perimenopausal Women with Dysfunctional Uterine Bleeding. *Int J Sci Res*. 2017;6(10):1774-7.
- 12) Sharma M, Khajuria R. Histopathological evaluation of endometrial curettings in perimenopausal women presenting with abnormal uterine bleeding (AUB). *J Evid Based Med Health*. 2018;5:940-42.
- 13) Mathew CT, Maheswari U, Shanmugam K. Co-relation of endometrial thickness by transvaginal sonogram with histopathology pattern in abnormal uterine bleeding: a study from South India. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. 2020 Apr 1;9(4):1416-22.
- 14) Sah S, Dangal G, Jha M. Correlation of Endometrial Thickness by Transvaginal Sonography with Histopathological Examination in Abnormal Uterine Bleeding in Perimenopausal Age Group. *Journal of Nepal Health Research Council*. 2023 Sep 10;21(1):110-4.
- 15) Daga S, Phatak S. Sonography evaluation of abnormal uterine bleeding in perimenopausal women with pathological correlation. *Journal of Datta Meghe Institute of Medical Sciences University*. 2019 Oct 1;14(4):288-92.
- 16) Singh M, Sachan R, Yadav A. Significance of endometrial thickness on transvaginal sonography in heavy menstrual bleeding. *Journal of Current Research in Scientific Medicine*. 2019 Jan 1;5(1):28-32.