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Original Research Article

Comparative study of endometrial thickness with transabdominal ultrasonography and pelvis in perimenopausal women presenting with abnormal uterine bleeding and correlation with its histopathological findings

Rita D., Pallavi Sourya K. A.*, Lathasri A.

Department of Obstetrics and Gynecology, NMCH and RC, Raichur, Karnataka, India

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***Correspondence:**
Dr. Pallavi Sourya K. A.,
E-mail: pallavisouryaka@gmail.com

ABSTRACT

Background: Heavy menstrual bleeding is the most common presenting menstrual complaint in women of perimenopausal age group. Diagnostics tests to investigate the causes of abnormal bleeding are transabdominal ultrasonography (TAS), TVS, endometrial biopsy and uterine curettage which is invasive procedure performed under anesthesia. The objectives of this study were to correlate the transabdominal ultrasonography results with the histopathological findings to discriminate normal from pathological endometrium.
Methods: Comparative study including 100 perimenopausal women with abnormal uterine bleeding. Endometrial thickness was measured by TAS and then D and C was performed for all the patients.
Results: Out of 100 women, (86) had normal and (14) had an abnormal endometrium. 43 were of 41-45 years and 65 patients presented with complaint of heavy menstrual bleeding. Fibroid uterus (24%) was the commonest uterine pathology detected on TAS. 53 of patients had endometrial thickness in the range 10-11.9 mm. Most common finding on HPE was secretory endometrium (44). Endometrial carcinoma was found in 1. Endometrial thickness <12mm was associated with least abnormal endometrial pathology.
Conclusions: Irrespective of endometrial thickness all perimenopausal women with HMB should be subjected to TAS followed by D and C which helps in early detection and missing out of endometrial carcinoma.

Keywords: Dilatation and curettage, Endometrial thickness, Heavy menstrual bleeding, Perimenopause, Transabdominal ultrasonography

INTRODUCTION

Heavy menstrual bleeding is one of the most common health problems encountered by women. It affects about 20% women of reproductive age, and accounts for almost two thirds of all hysterectomies. Gynecologists are often unable to identify the cause of abnormal bleeding even after a thorough history and physical examination.[1]

The International Federation of Gynecology and Obstetrics working group on menstrual disorders has recently developed a classification system (PALM-COEIN) for causes of the heavy menstrual bleeding in non-gravid women of reproductive age.[2] There are nine main categories, which are arranged according to the acronym PALM-COEIN: Polyp; adenomyosis; leiomyoma; malignancy and hyperplasia; coagulopathy; ovulatory dysfunction; endometrial; iatrogenic; and not yet classified.

The endometrium of the ovulating reproductive-age woman fluctuates in single-layer thickness from 2 mm in the early follicular phase to 6 mm in the late luteal phase. The endometrial thickness in the menstrual phase is typically 4 mm and up to12 mm in the late luteal phase.[3]

The perimenopausal period or climacteric begins with the irregularity of the menstruation cycle and extends up to 1 year after permanent cessation of menses. It refers to the time period in the late reproductive years generally in the late 40s to early 50s.

During this climacteric period, menstrual cycles become occasionally anovulatory due to a gradual decrease in the recruitment of ovarian follicles with a subsequent decline in the level of oestradiol. This downturn of the hormonal milieu causes increased incidence of prolonged cycles of amenorrhoea alternating with menstrual disorders.[4] The presentation of heavy menstrual bleeding in perimenopausal patients may include a spectrum of menstrual disorders.[3]

In women with postmenopausal bleeding, numerous studies have established USG abdomen and pelvis-ET as an initial screening procedure to ascertain whether a cut off limit for endometrial thickness proposed as 4mm to rule out endometrial pathology.[4]

The objective of the study was to compare endometrial thickness with transabdominal and pelvis ultrasonography in perimenopausal women presenting with abnormal uterine bleeding and correlation with its histopathological findings. Also, to determine the cut off limit of ET in perimenopausal women for choosing patients to offer an invasive endometrial sampling.

METHODS

This study was conducted at Navodaya Medical College and Research Centre Raichur after ethical committee clearance from the institute. This is a comparative study conducted over a period of 1 year from June 2021 to July 2022. Study was conducted on a sample size of 100 women of perimenopausal age group presented with abnormal uterine bleeding.

Detailed history of menstrual abnormalities, duration of complaints, obstetric, medical, surgical history and details of previous treatment taken were noted. All the women were clinically evaluated for general, systemic and gynecological examinations. Though TVS is better than TAS as most of the patients presented with PV bleeding hence transabdominal ultrasonography in my study following which endometrial biopsy has to be taken.

All data collected was organized in MS Excel sheet. XLSTAT in MS excel was used for data analysis. Data collected was analyzed by descriptive statistics, chi-square test for association of two categorical variables and student t test for quantitative data as applicable. P<0.05 was considered significant.

Inclusion criteria

All perimenopausal women of age between 40-51 with abnormal uterine bleeding were included.

Exclusion criteria

Pregnancy and pregnancy-related conditions, Females not in perimenopausal age group, patients with a bleeding disorder, patients with known liver/renal diseases, endocrine disorders like hyper- or hypothyroiditis, patients on medications like hormonal treatment, steroids, neuroleptics, anticoagu-lants and cytotoxic agents, hormone-producing ovarian tumors in USG, use of IUCD, recent uterine perforation, patients with infectious cause, patients with neoplasia or CIN changes and injuries of vulva and vagina were excluded.

RESULTS

A total of 100 patients, aged between 40 to 51 years were included in the study (Figure 1).

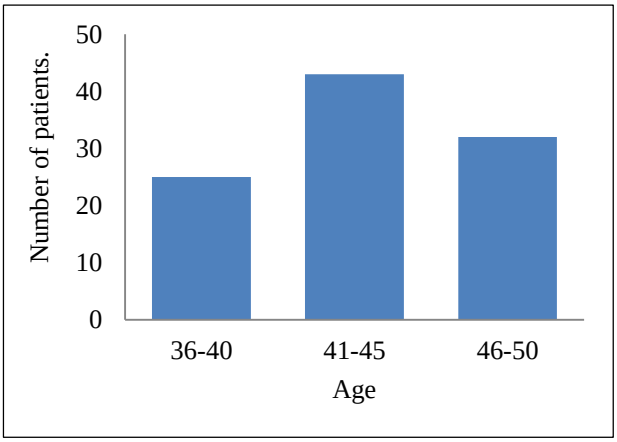

Figure 1: Distribution of patients according to age.

Among 100 patients in the study group, most of the patients were between 41-45 years (43.33%). The mean age of patients was 44.04±3.33 years (Table 1).

Table 1: Distribution of patients according to menstrual complaints.

Menstrual complaints	No. of patients (n=100)
Menorrhagia/HMB	65
Polymenorrhoea	18
Polymenorrhagia	8
Oligomenorrhagia	4
Metrorrhagia	3
Menometrorrhagia	1
Oligomenorrhoea	1
Total	100

Majority of women (65) presented with HMB followed by (18) polymennorhoea, (8) Polymennorhagia, (4) oligomennorhagia, (3) metrorrhagia, (1) menometrorhagia, (1) oligomenorrhoea (Figure 2).

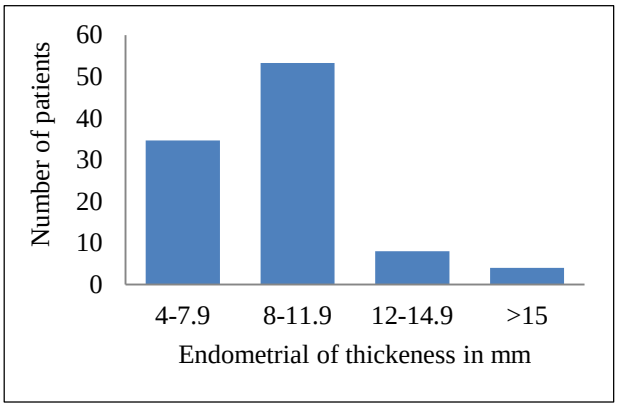

Figure 2: Distribution of patient's endometrial thickness on TAS.

In the study group majority had fibroid uterus (24%) followed by adenomyosis (15.3%), endometrial hyperplasia (8.6%), ovarian cyst (3.33%), endometrial polyp (2.67%), one case each of endometritis, cervical polyp, ovarian dermoid, ovarian functional tumor, PCOS, endometrial cyst, hydrosalpinx, cystitis (Table 2).

Table 2: Distribution of patients histopathological examination report after D and C.

HPE findings	No of patients (n=100)
Proliferative endometrium	40
Secretory endometrium	45
Simple hyperplasia	5
Complex hyperplasia	2
Endometrial carcinoma	4
Endometritis	1
Endometrial polyp	3
Total	100

Table 3: Distribution of patients endometrial thickness in USG and their correlation of histopathological findings.

ET in USG HPE	4-7.9mm	8-11.9mm	12-14.9mm	>15mm	Total
Proliferative endometrium	21	19	0	0	41
Secretory endometrium	13	32	1	0	47
Hyperplasia without atypia	0	1	4	1	6
Hyperplasia with atypia	0	0	1	1	2
Suspicious of adenocarcinoma	0	0	0	0	0
Well differentiated adenocarcinoma	0	0	0	0	0
Adenocarcinoma papillary type	0	0	0	1	1
Endometritis	0	1	0	0	1
Endometrial polyp	0	1	2	0	3

In the study 35 patients had endometrial thickness between 4-7.9 mm, 53 patients had endometrial thickness between 8-11.9 mm, 8 had endometrial thickness between 12-14.9mm, 4 had endometrial thickness >15mm (Table 3).

Table 4: Correlation of endometrial thickness with hyperplasia.

ET HPE	<12 mm	>12 mm	Total	P value
Normal histology	81	5	86	**<0.05**
Abnormal histology	3	11	14	
Total	84	16	100	

Secretory endometrium (45) was the most common histological pattern followed by 40 proliferative endometrium. Endometrial carcinoma was 3, endometrial hyperplasia 7 endometrial polyps were 3 and endometritis was 1.

In this study 85% of women with normal endometrium had an endometrial thickness of less than 12mm below which there was no endometrial pathology except for 1 case with simple hyperplasia 1 case of endometrial polyp and 1 case with endometritis. Above this cutoff level were found to associate with endometrial pathology except for 1 case of secretory phase.

In this study 85 patients had normal HPE findings with ET <12mm hence in perimenopausal women with AUB, when endometrial thickness of 12mm on trans-abdominal ultrasound was taken as cut off, modality had sensitivity of 96.24% and specificity of 94.12 %, positive predictive value 99.2%, negative predictive value 76.19%. P-value with chi square test was found to be <0.05 (Table 4).

DISCUSSION

In present study 81 out of 84 patients had normal HPE findings with ET <12mm and 11 out of 16 patients had

abnormal HPE hence in perimenopausal women with heavy menstrual bleeding, when endometrial thickness of 12mm on trans-abdominal ultrasound was taken as cut off.

Table 5: Comparison of mean age of heavy menstrual bleeding in present study and other studies.

Study group	Mean age with HMB
Present study	44.04
Upadhyaya and Malla et al[5]	43.15
Dasgupta et al[6]	46.2
Ayesha et al[10]	44.9

The present study, the age of the patients ranged from 40 to 51 years. According to the study majority of the cases of AUB is between 41-45 years of age, which is comparable with Upadhyaya and Malla et al (43.15 years), with Ayesha et al (44.9 years) and Dasgupta et al (46.2 years) (Table 5).[5,6]

Table 6: Comparison of normal histopathological findings in present study and other studies.

Study	Secretory endometrium (%)	Proliferative endometrium (%)
Present study	44	40
Jetley et al[7]	42.4	34.3
Ayesha et al[10]	44.6	40.6

In present study histopathological examination of the endometrial curettage revealed secretory (44.6%) endometrium is the most common histological pattern detected followed by proliferative endometrium (40.6%) which correlated with Jetley et al where secretory endometrium was the most common finding at 42.4% followed by proliferative endometrium 34.3% (Table 6).[7]

Table 7: Comparison of abnormal histopathological findings in present study and other studies.

Study	Hyperplasia without atypia (%)	Endometrial hyperplasia with atypia (%)
Present study	6	2
Doraiswami et al[8]	6.5	2.5
Sheetal et al[8]	7	2.3

In present study endometrial hyperplasia is 8%. Among the endometrial hyperplasia, hyperplasia without atypia is the most commonly encountered endometrial hyperplasia (6%) which is almost similar to the study done by Doraiswami et al, Sheetal et al. Present study showed 2% cases of hyperplasia with atypia which is comparable with study done by Sheetal et al (Table 7).[8]

In present study endometrial carcinoma cases were 3%, endometrial carcinoma was reported which is similar to the other studies 2.6% (Seetal et al) and 3.3% (Hameed et al) respectively (Table 8).[9]

Table 8: Comparison of prevalence of endometrial carcinoma in present study and other studies.

Study	Endometrial carcinoma (%)
Present study	3
Sheetal et al[8]	2.63
Hameed et al[9]	3.3

As endometrial thickness in Noor Ayesha et al and Veena et al is 14mm. In present study ET cutoff is <12mm therefore there will less chances of missing out of cases in our study. There is no clear definition of what constitutes an abnormal endometrial thickness in the still menstruating perimenopausal woman. The upper limit for normal endometrial thickness remains controversial (Table 9).[10,11]

Table 9: Comparison of endometrial thickness cut off in perimenopausal age in present study and other studies.

Study Group	Present study	Ayesha et al[10]	Veena et al[11]
ET Cut off	12 mm	14 mm	14 mm

Kurman et al, classified hyperplasia in to simple and complex and subcategory as atypical.[12] The 2014 revised WHO classification simply separates endometrial hyperplasia into 2 groups-hyperplasia without atypia and atypical hyperplasia.[13] According to the EIN classification all atypical endometrial hyperplasia is classified as endometrial intraepithelial neoplasia.[13] Progesterone was found to cause regression in 90% cases with hyperplasia. The RCOG cutoff of ET is less than 7 mm below which there is no endometrial hyperplasia in a prospective study of 56 women with pcos.[14,15] In studies by Gianella et al, 11 mm was taken as the cut off. The most common presenting symptoms of endometrial hyperplasia is abnormal uterine bleeding. According to studies, the risk of progression of simple hyperplasia to carcinoma is 1% and complex hyperplasia with atypia is 29%.[16]

This study has some limitations. All patients require transabdominal USG as non-invasive procedure to know endometrial thickness, both TAS and TVS are considered. TVS is superior over TAS which is more accurate. In this study TAS is considered wherein most of the patients presented with heavy menstrual bleeding, as TVS is cumbersome procedure, following which D and C was done

CONCLUSION

Heavy menstural bleeding is a common and sometimes a debilitating condition in women of perimenopausal age. Primary goal in evaluation of abnormal uterine bleeding is

to establish specific diagnosis in the most efficient and in a stepwise approach in a least invasive manner possible and also for early detection of carcinoma endometrium. Trans-abdominal sonogram is a simple, non-invasive, easily acceptable, cost-effective, convenient way to indirectly visualize the endometrial cavity and a better diagnostic tool for the evaluation of heavy menstrual bleeding as an initial procedure. Irrespective of endometrial thickness all perimenopausal women with heavy menstrual bleeding should be subjected to TAS followed by D and C which helps in early detection and missing out of endometrial carcinoma.

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REFERENCES

1. Walker MH, Coffey W, Borger J. Menorrhagia. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2023:4.
2. Munro MG, Critchley HO, Broder MS, Fraser IS, FIGO Working Group on Menstrual Disorders. FIGO classification system (PALM-COEIN) for causes of abnormal uterine bleeding in nongravid women of reproductive age. Int J Gynaecol Obstet. 2011;113:3-13.
3. Hoffman BL, Schorge JO, Bradshaw KD, Halvorson LM, Schaffer JI, Corton MM. Williams textbook of gynaecology. 4th ed. New York, NY: McGraw Hill/Medical; 2020: 705.
4. Kotdawala P, Kotdawala S, Nagar N. Evaluation of endometrium in peri-menopausal abnormal uterine bleeding. J Mid-Life Heal. 2013;4(1):16.
5. Sajitha K, Padma SK, Shetty KJ, Kishan Prasad HL, Permi HS, Hegde P. Study of histopathological patterns of endometrium in abnormal uterine bleeding. CHRISMED J Health Res. 2014;1(2):76.
6. Patil SG, Bhute SB, Inamdar SA, Acharya S, Shrivastava DS. Role of diagnostic hysteroscopy in abnormal uterine bleeding and its histopathological correlation. J Gynecol Endosco Surg. 2009;1(2):98.
7. Jetley S, Rana S, Jairajpuri ZS. Morphological spectrum of endometrial pathology in middle aged women with atypical uterine bleeding - a study of 219 cases. J Midlife Heal. 2013;4(4):216-20.
8. Cornitescu F, Tanase F, Simionescu C, Iliescu D. Clinical, histopathological and therapeutic consideration in non-neoplastic abnormal uterine bleeding in menopause transition. Rom J Morphol Embryol. 2011;52(3):759-65.
9. Sur D, Chakravorty R. Correlation of endometrial thickness and histopathology in women with abnormal uterine bleeding. Repro Syst Sexual Dis. 2016;5(4):1-3.
10. Begum NA, Chandra LH, Pukale RS. Evaluation of endometrial thickness with transvaginal ultrasonography in perimenopausal women presenting with abnormal uterine bleeding and correlation with its histopathological findings. Int J Reprod Contracep Obstet Gynecol. 2019;8(11):4496-503.
11. Getpook C, Wattanakumtornkul S. Endometrial thickness screening in premenopausal women with abnormal uterine bleeding. J Obstet Gynaecol Res. 2006;32(6):588-92.
12. Kurman RJ, Kaminski PF, Norris HJ. The behavior of endometrial hyperplasia: a long-term study of "untreated" hyperplasia in 170 patients. Cancer. 1985;56(2):403-12.
13. Palmer JE, Perunovic B, Tidy JA. Endometrial hyperplasia. The Obstet Gynaecol. 2008;10(4):211-6.
14. Cheung AP. Ultrasound and menstrual history in predicting endometrial hyperplasia in polycystic ovary syndrome. Obstet Gynecol. 2001;98(2):325-31.
15. Giannella L, Cerami LB, Setti T, Bergamini E, Boselli F. Prediction of endometrial hyperplasia and cancer among premenopausal women with abnormal uterine bleeding. BioMed Res Inter. 2019;2019:8598152.
16. Royal College of Obstetrician and Gynecologist. Management of Endometrial Hyperplasia (Green-top Guideline No. 67), 2016. Available at: https://www.rcog.org.uk/globalassets/documents/guidelines/green-top-guidelines/gtg_67_endometrial_hyperplasia.pdf. Accessed 01 February 2020.

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