e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2024; 16(3); 630-634

Original Research Article

A Retrospective Assessment of the Correlation of Endometrial Thickness by Trans-Vaginal Sonography and Histopathology in Women with Abnormal Uterine Bleeding

Swati Sinha[1], Hit Narayan Prasad[2], Sanjay Kumar Suman[3]

[1]Senior Resident, Department of Obstetrics & Gynecology, IGIMS, Patna, Bihar, India

[2]Senior Resident, Department of Radiology, IGIMS, Patna, Bihar, India

[3]Professor and HOD, Department of Radiology, IGIMS, Patna, Bihar, India

Received: 03-01-2024 / Revised: 19-02-2024 / Accepted: 28-03-2024
Corresponding Author: Dr. Hit Narayan Prasad
Conflict of interest: Nil

Abstract

Aim: The aim of the present study was to assess the effectiveness of trans-vaginal ultrasound (TVS) to determine the endometrial thickness and its correlation with histopathology in abnormal uterine bleeding.

Methods: A total of 100 patients who presented to the Gynecology OPD, IGIMS, Patna, Bihar, India from July 2021 to December 2021 with clinical presentation of abnormal uterine bleeding were studied. These patients were in peri-menopausal and postmenopausal age groups. They were referred to the department of Radiodiagnosis for transvaginal ultrasound examination.

Results: Majority of the patients were between 40-45 years (37%) in the present study. Among 100 patients, menorrhagia was present in 41 cases (41%). In our study, 45 patients (45%) had an ET between 8-10 mm and 20 patients (20%) had an ET between 10-15 mm. In our study, 40 (40%) patients showed endometrial hyperplasia and 34 (34%) patients showed proliferative type of endometrium. Among 40 patients of endometrial hyperplasia, only 4 patients (10%) had atypical hyperplasia. Majority 65% had simple hyperplasia.

Conclusion: The present study concluded that in abnormal uterine bleeding, the first investigation should be transvaginal ultrasound. In peri- menopausal patients if the endometrial thickness exceeds 10mm, a dilatation and curettage procedure is to be done to rule out any endometrial hyperplasia. No complications were seen with the procedure in this study. In postmenopausal women dilatation and curettage is recommended if endometrial thickness exceeds 5 mm. The method of measuring the endometrium, the experience and skill of the radiologist influence the TVS results. Histopathology plays a major role in the definitive diagnosis.

Keywords: Abnormal Uterine Bleeding (AUB), Endometrium, Trans-vaginalsonography (TVS), endometrial thickness, histopathology, endometrial hyperplasia

Introduction

The perimenopausal period or climacteric begins with the irregularity of the menstruation cycle and extends up to 1 year after permanent cessation of menses. [1] 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 heavy menstrual bleeding. [2] The presentation of abnormal uterine bleeding (AUB) in perimenopausal patients may include a spectrum of menstrual disorders. [3]

Modalities for diagnosis have evolved from the traditional dilation and curettage (D and C) of the uterus to immunohistochemical markers, transvag inal ultrasound (TVS), color Doppler, sonosalpin gography, and hysteroscopy. Histopathology is still considered the gold standard technique. However, it is an invasive procedure with the risk of various complications. The discovery of a noninvasive or minimally invasive technique that is easily performed, accepted, and tolerated well by patients, cheap, highly sensitive, and specific to study the endometrial pathology is warranted. TVS is a reliable method with wide-ranging applicability and clinical efficiency whose acceptance by both healthcare providers and patients is widespread. [4] Evaluation of endometrial thickness by ultrasonic measurement has considerable significance in diagnosing benign and neoplastic endometrial lesions in women of all ages. [5]

In women with postmenopausal bleeding, numerous studies have established TVS-ET as an initial screening procedure to ascertain whether a cut off limit for endometrial thickness can be proposed to rule out endometrial pathology. [3,6] Endometrial stripe cut off values widely ranging from 3 to 14 mm have been suggested in various studies to detect endometrial pathology in premenopausal women also. [7,8] There are, however, scarce studies undertaken to determine the cut off limit of ET in perimenopausal women for choosing patients to offer an invasive endometrial sampling. Along with TVS, the role of Doppler is debated with studies depicting conflicting results. [9,10]

The aim of the present study was to assess the effectiveness of trans-vaginal ultrasound (TVS) to determine the endometrial thickness and its correlation with histopathology in abnormal uterine bleeding.

Materials and Methods

A total of 100 patients who presented to the Gynecology OPD, IGIMS, Patna, Bihar, India from July 2021 to December 2021 with clinical presentation of abnormal uterine bleeding were studied. These patients were in peri-menopausal and postmenopausal age groups. They were referred to the department of Radiodiagnosis for transvaginal ultrasound examination. Endometrial thickness was measured and documented. A transducer of 7.5 MHz was used during menstrual cycle and the endometrial thickness was measured in the sagittal plane. This was followed by the dilatation and curettage procedure.

Inclusion Criteria

1. Women 40 years of age (peri-menopausal) and menopausal with AUB

Exclusion Criteria

1. Patients with AUB in other age groups
2. Carcinoma of the genital tract
3. Pregnancy

The longitudinal axis of the uterus was used to identify the endometrial tissue. The plane where the endometrial cavity was to be followed from cervical canal to upper fundal border of uterine cavity was identified and endometrial thickness was measured. The three distinct layers identifiable in the longitudinal view are the outermost layer of perimetrium, the middle thick layer of myometrium and the innermost lining endometrium. The endometrium is highly echogenic and has a surrounding hypoechogenic area of inner myometrium. The measurement is taken from basalis anterior to contra lateral basalis (posterior) part. In the present study, measurement of the full thickness of endometrium was performed and the thickest portion of the endometrium was considered. The best plane for measuring the endometrium is the Antero – Posterior (AP) pelvic plane.

Procedure

Informed and written consent was taken from all the patients.

1. Detailed clinical evaluation was done by noting the history of complaints followed by complete clinical examination. Routine investigations were done in all the cases.
2. On an empty bladder, a Trans-vaginal sonography with a 7.5MHz transducer was performed.
3. Endometrial thickness was noted as a two-layer thickness in the antero-posterior dimension, that too only the maximally thick area was considered.
4. Dilatation and curettage procedure was carried out in the operation theater under short general anesthesia.
5. The endometrial sample was collected and sent to the histopathology section. There the tissue was processed by routine histopathology and the slides were examined by light microscopy.
6. The TVS findings and the histopathology findings were compared and correlated.

Results

Table 1: Age distribution of patients

Age in years	No. of cases	Percentage (%)
40 – 45	37	37
46 – 50	33	33
51 – 55	20	20
56 – 60	10	10
Total	100	100

Majority of the patients were between 40-45 years (37%) in the present study.

Table 2: Clinical Presentation

Various menstrual patterns	No. of cases	Percentage (%)
Menorrhagia	41	41
Polymenorrhagia	29	29
Postmenopausal bleeding	30	30
Total	100	100

Among 100 patients, menorrhagia was present in 41 cases (41%).

Table 3: Endometrial Thickness

Endometrial Thickness (mm)	No. of cases	Percentage (%)
< 5mm	5	5
5 – 8 mm	25	25
8 – 10 mm	45	45
10 – 15 mm	20	20
>15 mm	5	5
Total	100	100

In our study, 45 patients (45%) had an ET between 8-10 mm and 20 patients (20%) had an ET between 10-15 mm.

Table 4: Endometrial patterns on histopathology

Histopathology of endometrium	No. of cases	Percentage (%)
Proliferative endometrium	34	34
Secretory endometrium	20	20
Endometrial hyperplasia	40	40
Atrophic endometrium	4	4
Endometrial cancer	2	2
Total	100	100

In our study, 40 (40%) patients showed endometrial hyperplasia and 34 (34%) patients showed proliferative type of endometrium.

Table 5: Morphology of endometrial hyperplasia

Type of endometrial hyperplasia	No. of cases	Percentage (%)
Simple hyperplasia	26	65
Complex hyperplasia	10	25
Atypical hyperplasia	4	10
Total	40	100

Among 40 patients of endometrial hyperplasia, only 4 patients (10%) had atypical hyperplasia. Majority 65% had simple hyperplasia.

Discussion

Abnormal uterine bleeding is one of the common presenting complaints encountered by a gynecologist. [11] It is common during the extremes of reproductive life, following pregnancy and during breast feeding. It is also common irrespective of the age of women. AUB affects 50% of peri-menopausal women. The type of investigations are different for different age groups. Endometrial carcinoma is another common condition that is seen with advancing age and this condition also presents frequently as AUB. Hence, thorough evaluation of all AUB cases is a must.

Majority of the patients were between 40-45 years (37%) in the present study. Among 100 patients, menorrhagia was present in 41 cases (41%). In our study, 45 patients (45%) had an ET between 8-10 mm and 20 patients (20%) had an ET between 10-15 mm. Endometrial thickness taken as cut off in postmenopausal age is 4-5mm. [12] Sonographic measurement of endometrial thickness has to be done first in postmenopausal bleeding to decide whether further investigations are needed to rule out malignancy. [13] Early diagnosis and immediate treatment can be started if asymptomatic postmenopausal patients are screened. [14]

In 10-25% of patients, dilatation and curettage alone may miss an existing endometrial pathology. Dilatation and curettage is associated with complications like perforation of uterus and infection which has led to new methods of

endometrial sampling. [15] In our study, 40 (40%) patients showed endometrial hyperplasia and 34 (34%) patients showed proliferative type of endometrium. Among 40 patients of endometrial hyperplasia, only 4 patients (10%) had atypical hyperplasia. Majority 65% had simple hyperplasia. Biopsy or curettage has to be at an appropriate time so as to get tissue for diagnosis. [16] Interpretation of D and C result requires clinical information like age, parity and menstrual history. [17] Endometrial assessment by endometrial biopsy or curettage is indicated in perimenopausal and postmenopausal women to rule out endometrial hyperplasia or carcinoma. [18] Histopathological evaluation is a must to rule out malignancy in postmenopausal bleeding. [19]

Conclusion

The present study concluded that in abnormal uterine bleeding, the first investigation should be transvaginal ultrasound. In peri- menopausal patients if the endometrial thickness exceeds 10mm, a dilatation and curettage procedure is to be done to rule out any endometrial hyperplasia. No complications were seen with the procedure in this study. In postmenopausal women dilatation and curettage is recommended if endometrial thickness exceeds 5 mm. The method of measuring the endometrium, the experience and skill of the radiologist influence the TVS results. Histopathology plays a major role in the definitive diagnosis.

References

1. Munro M. G., Critchley H. O. D. Broder M. S., Fraser I. S. FIGO classification system (PALM-COEIN) for causes of abnormal uterine bleeding in nongravid women of reproductive age. International Journal of Gynecology & Obstetrics . 2011;113(1):3–13.
2. Kotdawala P., Kotdawala S., Nagar N. Evaluation of endometrium in peri-menopausal abnormal uterine bleeding. Journal of Mid-Life Health . 2013;4(1):16–21.
3. Takreem A., Danish N., Razaq S. Incidence of endometrial hyperplasia in 100 cases presenting with polymenorrhagia/menorrhagia in perimenupausal women. Journal of Ayub Medical College: JAMC . 2009;21(2):60–63.
4. Nazim F., Hayat Z., Hannan A., Ikram U., Nazim K. Role of transvaginal ultrasound in identifying endometrial hyperplasia. Journal of Ayub Medical College: JAMC . 2013;25(1-2) :100–102.
5. Ryszard B., Rzepka-Górska I. Transvaginal ultrasonography in the diagnosis of endometrial and uterine cavity changes in perimenopausal women] Ginekologia Polska . 2002;73(11):985–990.
6. Somen B., Jamra Y., Sharma S., Dongre N. A study of role of colour Doppler in evaluation of abnormal uterine bleeding at medicine and gynecology departments at a tertiary care Institute of Central India. International Journal of Reproduction, Contraception, Obstetrics and Gynecology . 2016;5(4):989–993.
7. Sherelle L.-N., Ragavendra N., Parmenter E. K., Grant E. G. False-normal appearance of the endometrium on conventional transvaginal sonography. American Journal of Roentge nology . 2002;178(1):129–133.
8. Dijkhuizen F. P., de Vries L. D., Mol B. W. J. Brölmann H. A. Peters H. M. Moret E., Heintz A. P. Comparison of transvaginal ultrasonography and saline infusion sonography for the detection of intracavitary abnormalities in premenopausal women. Ultrasound in Obstetrics and Gynecology . 20 00;15(5):372–376.
9. Mine K.-P., Gungor T., Mollamahmutoglu L. The evaluation of endometrial tumors by transvaginal and doppler ultrasonography. Archives of Gynecology and Obstetrics . 2007; 277(6):495–499.
10. Sawicki V., Spiewankiewicz B., Stelmachów J., Cendrowski K. Color doppler assessment of blood flow in endometrial cancer. European Journal of Gynaecological Oncology. 2005;26 (3):279–284.
11. Mishra D, Sultan S. FIGO'S PALM–COEIN Classification of abnormal uterine bleeding: A Clinico-Histopathological correlation in Indian setting. The Journal of Obstetrics and Gynecology of India. 2017 Apr;67:119-25.
12. Hebbar S, Chaya V, Rai L, Ramachandran A. Factors influencing endometrial thickness in postmenopausal women. Annals of Medical and Health sciences Research 2014;4:608-14.
13. Breijer MC, Peters JAH, Opmeer BC, Clark TJ, Verheijen RMH, B.W.J. mol,A. Timm errmans. Capacity of endometrial thickness measurement to diagnose endometrial carcinoma in asymptomatic postmenopausal women: a systematic review and meta-analysis. Ultrasound ObstetGynecol 2012;40:6 21-9.
14. Thickened endometrium in asymptomatic postmenopausal women: Is biopsy mandatory? Med J Cairo Univ2011;79:723-7.
15. Khan S, Hameed S ,Umber A. Histopathological pattern of endometrium on diagnostic D&C in patients with abnormal uterine bleeding .ANNALS.2011;17:166-70.
16. Prajapati R, Daveshwar M. Clinic- pathol ogical correlation of endometrial pattern in patients with abnormal uterine bleeding.Int J Res Med. 2015;4:128-32.
17. SajithaK, Shetty K, Padma K, Jayaprakash Shetty H,Kishan Prasad L, Permi HS, Hegde P: Study of histopathological patterns of

endometrium in AUB.Chrismed Journal of Health and Research 2014;1:76-81.
18. Shobha Rani MS, Mallika M. Histopath ological study of perimenopausal Abnormal uterine bleeding.Scholars Academic Journal of Biosciences2016;4:33-7.
19. Singh P,Diwivedi P, Mendiratta S. Correlation of endometrial thickness with the histop athological pattern of endometrium in postmenopausal bleeding. The journal of Obstetrics and Gynecology of India 2016;66: 42-6.