

ORIGINAL ARTICLE

A Study of Transvaginal Ultrasonography in diagnosis of Endometrial Pathology in abnormal Uterine Bleeding

SYEDA ALI¹, FARYAL AKHTAR², MAHAM MUNIR AWAN³, MUSTAFA ALI SIDDIQUI⁴, HAMMAD AHMAD SAQIB⁵, MAHWISH ZAHRA⁶, M.M. KHAN⁷

¹Associate Professor Gynecology Department Nishtar Medical University Multan

²Assistant Professor Gyanae Department Multan Medical & Dental College Multan

³Associate Professor of Radiology Nishtar Medical University Multan

⁴Professor Radiology Department CPEIC Multan.

⁵Assistant Professor Radiology CPEIC Multan

⁶Assistant Professor Paediatric Radiology Children Hospital & Institute of Child Health Multan

⁷Professor Community Medicine Department NM&DC

Correspondence to: Dr. Faryal Akhtar, Email: faryal_akhtar@yahoo.com, Cell: 03317126549

ABSTRACT

Objective: To evaluate the utility of transvaginal ultrasonography (TVS) in assessing the pathologic causes of Abnormal Uterine Bleeding (AUB).

Methodology: The descriptive study was conducted in Gynecology Unit Nishtar Hospital Multan from July-2021 to July-2022. A total of 80 women with diagnosis of AUB were recruited. Every patient with an AUB underwent TVS. The thickness of the endometrium, its echogenicity, the size of the uterus, and any uterine or adnexal abnormality observed.

Results: Mean age was 46.16±9.50 years with range 25-60 years. Regarding menopausal status, 35 (43.75%) females were pre-menopausal and 45 (56.25%) were post-menopausal. On TVS findings, normal proliferative endometrium was found in 26 (32.5%) cases, endometrial polyps in 22 (27.5%) cases, myomas in 12 (15.0%) cases, hyperplasia in 12 (15.0%) cases, endometrial atrophy in 5 (6.25%) cases, and suspicious looking endometrium in 3 (3.75%) cases.

Practical Implications: The study is very useful, knowledgeable, cost efficient and cost effective.

Conclusion: TVS is a safe, rapid and cost-effective modality for the diagnosis of endometrial pathologies. Endometrial polyps, myomas and hyperplasia are common cause of AUB.

Keywords: Transvaginal ultrasonography, abnormal uterine bleeding, polyps.

INTRODUCTION

Any type of bleeding that is deemed abnormally excessive for a given patient in terms of duration, frequency, or amount is known as abnormal uterine bleeding (AUB).¹ It is a typical reason for women of all ages to see their gynecologist, and it directly contributes to a significant burden on society, families, and women's health care. Up to 50% of perimenopausal women and 10–30% of women in reproductive age are affected by it. It is the cause of nearly two-thirds of hysterectomies and more than one-third of gynecologic consultations.^{2,3}

Despite being a typical gynecological presentation, AUB is frequently complex and challenging to diagnose. For the treatment of AUB, a thorough history and physical examination are essential.⁴ Since endometrial hyperplasia and benign uterine diseases account for at least 70% of cases of AUB, a gynecologist can provide the most effective treatment by examining the uterine cavity.⁵

Transvaginal ultrasound, endometrial aspiration, endometrial biopsy, dilatation and curettage, and office hysteroscopy are the most frequently performed investigations.⁶ Trans Vaginal Ultrasound has become a key modality in the study of AUB in recent years. High resolution images of the pelvic organs are available with TVS, along with quick diagnoses of uterine and adnexal pathologies, measurements of endometrial thickness and endometrium's echogenicity. By examining vascular patterns and calculating uterine artery indices, the addition of Color Doppler (CDTU) to TVS aids in the evaluation of blood flow (Resistive index and Pulsatility index). In this study, we established the role of TVS in assessing the root causes of AUB.^{7,8}

There is vast gap of conducting this study at this region. The study is very useful, cost effective and knowledgeable.

METHODOLOGY

The descriptive study was conducted in Gynecology Unit Nishtar Hospital Multan from July-2021 to July-2022. A total of 80 women with diagnosis of AUB were recruited in this study. Pregnant females, those having coagulation disorders, breast cancer or carcinoma of genital organs were excluded.

Data regarding patient's demographics and menopausal status was collected from each female.

Every patient with an AUB underwent TVS. The thickness of the endometrium, its echogenicity, the size of the uterus, and any uterine or adnexal pathology were all observed.

Data analysis was performed using SPSS v23. Frequency and percentage was used to present spectrum of endometrial pathology.

RESULTS

Mean age was 46.16±9.50 years with range 25-60 years. Regarding menopausal status, 35 (43.75%) females were pre-menopausal and 45 (56.25%) were post-menopausal (Figure 1).

On TVS findings, normal proliferative endometrium was found in 26 (32.5%) cases, endometrial polyps in 22 (27.5%) cases, myomas in 12 (15.0%) cases, hyperplasia in 12 (15.0%) cases, endometrial atrophy in 5 (6.25%) cases, and suspicious looking endometrium in 3 (3.75%) cases (Table 1).

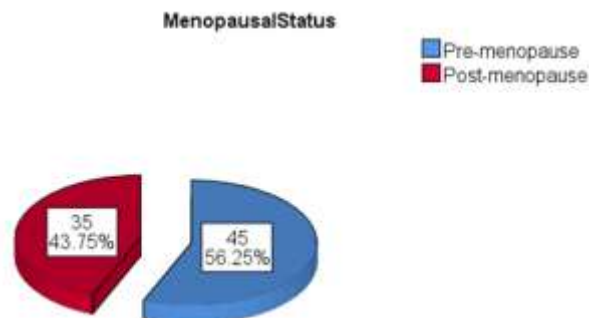


Figure 1. Menopausal Status of Females.

Table 1. Frequency of TVS Findings.

Normal Proliferative	26 (32.5%)
Polyp	22 (27.5%)
Myomas	12 (15.0%)
Hyperplasia	12 (15.0%)
Atrophy	05 (6.25%)
Suspicious looking endometrium	03 (3.75%)

DISCUSSION

The first signs of AUB may appear when a woman begins to experience menstruation for the first time.¹⁰ Although AUB is most common in women of reproductive age, it remains a common problem even after women reach menopause. As a result, the clinicopathological spectrum of uterine diseases that may be involved, as well as the management strategy that is adopted, is highly dependent on the individual's risk profile at the time of presentation.⁹

The first thing that needs to be done in order to determine a diagnosis is to evaluate the "quantity" of menstrual blood loss and how it is affecting the patient. To rule out the possibility of a more serious underlying condition, a thorough physical examination is required.¹⁰ In humans, transvaginal ultrasonography is frequently used for the diagnosis of intracavitary lesions such as endometrial polyps and endometrial hyperplasia in premenopausal women who exhibit AUB. This type of ultrasound has a sensitivity of up to 92% and a specificity of up to 93%.¹¹

This study found that the average age of the patients was 46.16 years, which correlates with the findings of the studies conducted by Vercellini P et al and Vitner D et al, which found that the average age was 41.57.8 years and 41.813.49 years, respectively.^{12, 13}

In this study TVS showed normal uterus in 32.5% case and abnormal in 67.5% cases. Paolo Vercellini et al. normal findings in 39% cases of AUB, and Towbin et al. reported normal findings in 59% cases of AUB.^{12, 14}

Endometrial polyps are localized intrauterine overgrowths and are one of the common gynaecological conditions associated with AUB, infertility and malignancy in women. The typical appearance of an endometrial polyp on ultrasonography is a well-defined, homogeneous, polypoid lesion that may be isoechoic to the endometrium with preservation of the endometrial-myometrial interface.¹⁵

Endometrial hyperplasia is another major cause of AUB and is also considered to be a precursor for the development of endometrial cancer in women.¹⁶

A study by Agrawal et al. on utility of TVS for pathological evaluation of AUB, reported normal endometrium in 15% cases, polyps in 20% cases, hyperplasia in 58.75% cases, and fibroids in 5% cases.¹⁷

A study conducted in Pakistan by Najeeb et al. reported normal examination in 32.6% cases, polyps in 26.9% cases, hyperplasia in 14.9% cases, suspicious looking endometrium in 1.41% cases and myoma in 14.9% cases.¹⁸

Due to the close proximity of the endometrial probe to the endometrium when using the transvaginal route, image resolution has been significantly improved. This improvement is enhanced when the bladder is not full, as this causes the uterus to be compressed, which enables the detection of abnormal endometrium in addition to intracavitary lesions.^{19, 20} When done correctly, ultrasound imaging poses almost no danger and produces almost no unwanted effects. The value of such imaging as a medical tool can be improved by raising the standard of the equipment that is utilized and elevating the expertise of the medical staff that operates the equipment.

CONCLUSION

TVS is a safe, rapid, useful, knowledgeable cost efficient and cost-effective modality for the diagnosis of endometrial pathologies.

Endometrial polyps, myomas and hyperplasia are common cause of AUB.

REFERENCES

1. Khafaga A, Goldstein SR. Abnormal Uterine Bleeding. *Obstet Gynecol Clin North Am.* 2019;46(4):595-605.
2. Wouk N, Helton M. Abnormal Uterine Bleeding in Premenopausal Women. *Am Fam Physician.* 2019;99(7):435-43.
3. Hernandez A, Dietrich JE. Abnormal Uterine Bleeding in the Adolescent. *Obstet Gynecol.* 2020;135(3):615-21.
4. Bar-On S, Ben-David A, Rattan G, Grisaru D. Is outpatient hysteroscopy accurate for the diagnosis of endometrial pathology among perimenopausal and postmenopausal women? *Menopause.* 2018;25(2):160-4.
5. Marnach ML, Laughlin-Tommaso SK. Evaluation and Management of Abnormal Uterine Bleeding. *Mayo Clin Proc.* 2019;94(2):326-35.
6. Munro MG, Critchley HOD, Fraser IS. The two FIGO systems for normal and abnormal uterine bleeding symptoms and classification of causes of abnormal uterine bleeding in the reproductive years: 2018 revisions. *Int J Gynaecol Obstet.* 2018;143(3):393-408.
7. Veena P, Baskaran D, Maurya DK, Kubera NS, Dorairaj J. Addition of power Doppler to grey scale transvaginal ultrasonography for improving the prediction of endometrial pathology in perimenopausal women with abnormal uterine bleeding. *Indian J Med Res.* 2018;148(3):302-8.
8. Garcia AL. Office-based Approach to Evaluation and Management of Abnormal Uterine Bleeding. *Clin Obstet Gynecol.* 2019;62(4):712-26.
9. Bahamondes L, Ali M. Recent advances in managing and understanding menstrual disorders. *F1000prime reports.* 2015;7:33.
10. Abbott JA. Adenomyosis and Abnormal Uterine Bleeding (AUB-A)-Pathogenesis, diagnosis, and management. *Best Pract Res Clin Obstet Gynaecol.* 2017;40:68-81.
11. Shwayder J, Sakhel K. Imaging for uterine myomas and adenomyosis. *J Minim Invasive Gynecol.* 2014;21(3):362-76.
12. Vercellini P, Cortesi I, Oldani S, Moschetta M, De Giorgi O, Crosignani PG. The role of transvaginal ultrasonography and outpatient diagnostic hysteroscopy in the evaluation of patients with menorrhagia. *Hum Reprod.* 1997;12(8):1768-71.
13. Vitner D, Filmer S, Goldstein I, Khatib N, Weiner Z. A comparison between ultrasonography and hysteroscopy in the diagnosis of uterine pathology. *Eur J Obstet Gynecol Reprod Biol.* 2013;171(1):143-5.
14. Towbin NA, Gviazda IM, March CM. Office hysteroscopy versus transvaginal ultrasonography in the evaluation of patients with excessive uterine bleeding. *Am J Obstet Gynecol.* 1996;174(6):1678-82.
15. Hulka CA, Hall DA, McCarthy K, Simeone J. Sonographic findings in patients with adenomyosis: can sonography assist in predicting extent of disease? *AJR Am J Roentgenol.* 2002;179(2):379-83.
16. Smith-Bindman R, Weiss E, Feldstein V. How thick is too thick? When endometrial thickness should prompt biopsy in postmenopausal women without vaginal bleeding. *Ultrasound Obstet Gynecol.* 2004;24(5):558-65.
17. Agrawal N, Garlapati R, Bhardwaj G. Transvaginal ultrasonography as diagnostic modality in evaluation of abnormal uterine bleeding. *Int J Clin Obstet Gynaecol.* 2022; 6(2):48-51.
18. Najeeb R, Awan AS, Bakhtiar U, Akhter S. Role of transvaginal sonography in assessment of abnormal uterine bleeding in perimenopausal age group. *J Ayub Med Coll Abbottabad.* 2010;22(1):87-90.
19. Smith-Bindman R, Kerlikowske K, Feldstein VA, Subak L, Scheidler J, Segal M, et al. Endovaginal ultrasound to exclude endometrial cancer and other endometrial abnormalities. *JAMA.* 1998;280(17):1510-7.
20. Yela DA, Pini PH, Benetti-Pinto CL. Comparison of endometrial assessment by transvaginal ultrasonography and hysteroscopy. *Int J Gynaecol Obstet.* 2018;143(1):32-6.