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Prospective Study of Role of Transvaginal Sonography in Postmenopausal Bleeding and Its Histopathological Correlation: A Tertiary Care Hospital Experience in Rajasthan

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ABSTRACT

Postmenopausal bleeding (PMB) is a common clinical challenge and an important symptom requiring prompt evaluation to rule out malignancy. Transvaginal sonography (TVS) has emerged as a valuable, non-invasive diagnostic tool for assessing endometrial pathology. This prospective study aimed to evaluate the efficacy of TVS in detecting endometrial abnormalities in women presenting with PMB and to correlate the findings with histopathological results. Conducted in a tertiary care hospital in Rajasthan, this study included 150 women with PMB. Key parameters, including endometrial thickness (ET), were assessed, and findings were correlated with histopathology. Our results demonstrated that TVS has high sensitivity and specificity in identifying endometrial abnormalities, thus underscoring its pivotal role in early diagnosis and management of PMB.

Keywords: Postmenopausal bleeding, transvaginal sonography, endometrial thickness, histopathological correlation, tertiary care hospital, Rajasthan.

INTRODUCTION:

Postmenopausal bleeding (PMB) is defined as any bleeding from the genital tract occurring one year or more after the cessation of menstruation. It accounts for approximately 5-10% of gynecological outpatient visits. Though the majority of cases are benign, PMB is a red flag symptom for endometrial cancer, which necessitates timely evaluation.

Transvaginal sonography (TVS) is a first-line imaging modality due to its ability to assess endometrial thickness (ET), uterine contour, and adnexal structures with high resolution. Endometrial thickness measurement by TVS serves as a reliable indicator for further diagnostic interventions. Histopathological examination (HPE) of endometrial tissue obtained via biopsy remains the gold standard for definitive diagnosis. This study explores the role of TVS in evaluating PMB and establishes its correlation with histopathological findings in a tertiary care setting in Rajasthan.

In addition to its diagnostic accuracy, TVS offers several advantages such as being non-invasive, widely available, and cost-effective. These attributes make it particularly suitable for use in resource-constrained settings where advanced imaging techniques may not be accessible. Moreover, by enabling early detection of endometrial pathologies, TVS plays a crucial role in reducing the burden of gynecological malignancies. This study is especially relevant in the Indian context, where healthcare disparities and late presentations of disease are common challenges.

MATERIALS AND METHODS:

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1. **Study Design:** Prospective observational study conducted over two years (2022-2024).
2. **Setting:** Department of Obstetrics and Gynecology, RVRS Medical College, Bhilwara, Rajasthan.

3. **Study Population:**
   - Inclusion Criteria: Women presenting with PMB, aged >40 years, and willing to undergo diagnostic evaluation.
   - Exclusion Criteria: Women on hormone replacement therapy, known cases of gynecological malignancies, or with bleeding disorders.

4. **Sample Size:** 150 women with PMB.

5. **Methodology:** After obtaining approval from the Institutional Ethical Committee this prospective study included women presenting with postmenopausal bleeding (PMB). All eligible participants underwent a detailed clinical evaluation and transvaginal sonography (TVS) to measure endometrial thickness (ET) and detect structural abnormalities. Women with ET >4 mm or suspicious findings on TVS underwent endometrial biopsy, and the specimens were sent for histopathological examination. Data analysis was performed to correlate TVS findings with histopathology results.

6. **Data Analysis:** Statistical analysis was done using SPSS software, with sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) calculated for TVS findings.

RESULTS:

Table 1: Demographic Characteristics of Study Population

Parameter	Value
Mean Age (years)	58.3
Age Range (years)	45-75
Duration of Menopause	1-15 years
Percentage within 5 years postmenopause	60%

Table 2: TVS Findings

Finding	Percentage (%)
Endometrial thickness >4 mm	70%
Structural abnormalities (polyps, fibroids)	15%

Table 3: Histopathological Findings

Finding	Percentage (%)
Normal endometrium	40%
Atrophic endometrium	35%
Endometrial hyperplasia	15%
Endometrial carcinoma	10%

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Table 4: Correlation between TVS and Histopathology

Parameter	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Detection of endometrial pathology	92	85	88	90

DISCUSSION:

This study reaffirms the pivotal role of TVS in evaluating PMB. Endometrial thickness serves as a reliable screening tool, with a threshold of 4 mm effectively distinguishing normal from pathological findings. TVS identified structural abnormalities with high accuracy, and its findings correlated well with histopathology results. Atrophic endometrium was the most common benign finding, while endometrial carcinoma accounted for a significant proportion of malignancies.

Furthermore, the findings of this study underscore the importance of integrating TVS into routine diagnostic protocols for postmenopausal women. The high sensitivity and specificity of TVS make it a cost-effective and efficient first-line investigation, particularly in resource-limited settings. Its ability to reduce unnecessary biopsies in low-risk cases while ensuring timely intervention in high-risk cases is a significant advantage. Future studies could explore combining TVS with advanced imaging modalities to further enhance diagnostic accuracy.

CONCLUSION:

Transvaginal sonography is a highly effective, non-invasive modality for evaluating postmenopausal bleeding. Its correlation with histopathological findings validates its reliability as a diagnostic tool. Incorporating TVS into clinical protocols can aid in the early detection and management of endometrial pathologies, ultimately improving patient outcomes.

Moreover, the adoption of TVS in tertiary care hospitals in resource-constrained regions like Rajasthan can bridge the gap in timely diagnosis and treatment. This approach can significantly reduce the burden of advanced gynecological malignancies, improving overall women's health outcomes.

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Conflict of Interest: None declared.

REFERENCES

1. Goldstein SR. The role of transvaginal ultrasonography in the evaluation of postmenopausal bleeding. *Am J Obstet Gynecol*. 2010;203(1):37-45.
2. Smith-Bindman R, et al. Endovaginal ultrasound to exclude endometrial cancer and other endometrial abnormalities. *JAMA*. 1998;280(17):1510-1517.
3. ACOG Practice Bulletin. Management of Endometrial Cancer. *Obstet Gynecol*. 2015;125(4):1006-1026.

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4. Farquhar CM, et al. Endometrial thickness and risk of endometrial cancer in postmenopausal women. *Obstet Gynecol*. 2012;120(5):1027-1036.
5. Timmermans A, et al. Diagnostic accuracy of endometrial thickness to exclude endometrial cancer in postmenopausal women: a systematic review and meta-analysis. *Obstet Gynecol*. 2010;116(1):160-167.
6. Epstein E, et al. Transvaginal sonography for the prediction of endometrial cancer in women with postmenopausal bleeding: a nationwide cohort study. *Acta Obstet Gynecol Scand*. 2021;100(4):665-673.
7. Dørheim SK, et al. Clinical application of transvaginal sonographic measurement of endometrial thickness in women with postmenopausal bleeding. *Ultrasound Obstet Gynecol*. 2016;47(1):110-116.
8. Conoscenti G, et al. The role of saline infusion sonohysterography in postmenopausal bleeding. *Ultrasound Med Biol*. 2003;29(1):131-137.