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Original Research Article

Evaluation of Clinicopathological Characteristics in Postmenopausal Bleeding Patients at a Tertiary Care Center

Renuka Keshri[1], Poojita[2], Srishti Singh[3]

[1]M.B.B.S., M.S., D.G.O., Professor, Department of Obstetrics & Gynaecology, Narayan Medical College & Hospital, Jamuhar, Sasaram, Bihar, India
[2]M.B.B.S., M.S., Associate Professor, Department of Obstetrics & Gynaecology, Narayan Medical College & Hospital, Jamuhar, Sasaram, Bihar, India
[3]M.B.B.S., Junior Resident, Department of Obstetrics & Gynaecology, Narayan Medical College & Hospital, Jamuhar, Sasaram, Bihar, India

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Corresponding Author: Dr. Renuka Keshri
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Abstract:

Objective: This study aims to evaluate the clinicopathological characteristics of postmenopausal bleeding (PMB) in patients at a tertiary care center to identify the prevalence and nature of underlying pathologies.

Methods: We conducted a prospective cohort study of 250 postmenopausal women presenting with PMB from April 1, 2021 to March 31, 2024. Participants underwent a standardized diagnostic workup that included transvaginal ultrasound to assess endometrial thickness, endometrial biopsy, and hysteroscopy where necessary. Data on patient demographics, medical history, and diagnostic outcomes were collected and analyzed.

Results: Of the women studied, 20% were diagnosed with endometrial cancer, 15% with endometrial hyperplasia, and 40% with benign conditions such as polyps or atrophic endometritis. The remaining 25% showed no significant pathology. Diagnostic protocols involving ultrasound and biopsy demonstrated high sensitivity and specificity, particularly for detecting endometrial cancer. Logistic regression identified higher BMI and age over 65 years as significant risk factors for malignant outcomes.

Conclusion: The high prevalence of significant pathologies among women presenting with PMB highlights the importance of comprehensive diagnostic evaluation in this population. The study supports the efficacy of a multi-modal diagnostic approach in accurately detecting and differentiating between benign and malignant causes of PMB, emphasizing the need for prompt and thorough evaluation to improve patient management and outcomes.

Keywords: Postmenopausal Bleeding, Endometrial Cancer, Diagnostic Evaluation, Tertiary Care, Ultrasound, Biopsy, Hysteroscopy.

Introduction

Postmenopausal bleeding (PMB) represents a significant clinical concern, manifesting in women who have not menstruated for at least 12 months. It is a relatively common occurrence, impacting about 10% of women in the postmenopausal phase. While the symptom is often linked to benign conditions such as atrophic vaginitis or polyps, it can also be the first sign of more severe issues like endometrial hyperplasia or malignancies, notably endometrial cancer. Endometrial cancer, in particular, accounts for a substantial proportion of gynecologic cancers in developed nations and is closely associated with PMB.

The implications of postmenopausal bleeding are profound, necessitating a thorough and prompt evaluation to determine its etiology. Given the wide range of potential underlying causes, a detailed clinicopathological assessment is essential. Such evaluations are best conducted in tertiary care centers where advanced diagnostic tools, including high-resolution imaging and sophisticated laboratory techniques, are readily available. These facilities also boast a multidisciplinary team of specialists who can provide comprehensive care.

This study aims to delve into the clinicopathological characteristics of PMB in patients at a tertiary care center, with a focus on delineating the spectrum of underlying causes. By doing so, it seeks to shed light on the patterns of prevalence, pinpoint diagnostic challenges, and explore the therapeutic outcomes of different conditions causing PMB. The ultimate goal is to enhance diagnostic accuracy and develop tailored treatment strategies that improve the prognosis and quality of life for postmenopausal women experiencing this distressing symptom. This

research not only contributes to the academic and clinical understanding of PMB but also underscores the importance of vigilant, patient-centered care in the postmenopausal population.

Methodology of the Study

Study Design and Duration: This study is designed as a prospective cohort analysis of patients presenting with postmenopausal bleeding (PMB). The duration of the study spans three years, from April 1, 2021 to March 31, 2024. The setting is a tertiary care center equipped with comprehensive diagnostic and treatment facilities.

Study Population: The study population includes all women who presented to the gynecology department with symptoms of postmenopausal bleeding during the study period. Inclusion criteria are defined as clinically postmenopausal women (no menstruation for at least 12 months) who have reported unscheduled bleeding. Exclusion criteria include patients with bleeding disorders diagnosed before menopause and those who do not consent to participate in the study.

Data Collection: Data was collected from electronic health records (EHRs) and patient medical files, ensuring adherence to patient confidentiality and data protection laws. The collected data includes patient demographics (age, body mass index, reproductive history), medical history (comorbidities, medication use, family history of gynecological cancers), details of the bleeding episodes, and results from diagnostic tests (ultrasound, biopsy, hysteroscopy).

Diagnostic Evaluation: Patients were subjected to a standardized diagnostic workup that includes:

Transvaginal ultrasound: To assess endometrial thickness and detect abnormalities such as polyps or fibroids.

Endometrial biopsy: Conducted if the endometrial thickness is greater than 4 mm or if ultrasound findings are inconclusive or suggest malignancy.

Hysteroscopy: Offered to patients with persistent bleeding, inconclusive ultrasound and biopsy results, or when direct visualization of the uterine cavity is necessary.

Data Analysis: Statistical analysis was performed using statistical software. Descriptive statistics are used to summarize patient characteristics, incidence, and types of pathologies found. Inferential statistics involved the use of chi-square tests for categorical data and t-tests or ANOVA for continuous variables, to identify significant relationships and differences between outcomes and patient characteristics. Logistic regression was employed to assess risk factors associated with malignant findings.

Ethical Considerations: The study was conducted by the ethical standards of the institutional review board (IRB) at the tertiary care center. All participants provided informed consent before inclusion in the study.

Results of the Study

Participant Demographics and Presentation: Over the three-year study period, a total of 250 postmenopausal women presented with symptoms of postmenopausal bleeding. The average age of participants was 62 years, ranging from 51 to 85 years. The majority of the women were overweight, with an average body mass index (BMI) of 29. Most participants (70%) had undergone natural menopause, while the remainder had menopause induced by surgery or medical treatment.

Diagnostic Findings

Endometrial Thickness: Transvaginal ultrasound showed that 60% of patients had an endometrial thickness greater than 4 mm.

Pathological Outcomes: Endometrial biopsy and subsequent histopathological examination revealed that 20% of the cases were diagnosed with endometrial cancer. Endometrial hyperplasia was identified in 15% of the patients, while benign conditions such as polyps and atrophic endometritis accounted for 40% of the cases. The remaining 25% had no significant pathology identified.

Hysteroscopy Results: Hysteroscopy was performed in 30% of the patients, primarily when the ultrasound and biopsy results were inconclusive. It confirmed the biopsy findings in the majority of cases and provided additional diagnostic clarity in 10% of the cases, where initial biopsy results were inconclusive or contradictory.

Statistical Analysis

Risk Factors: Logistic regression analysis indicated that a higher BMI (above 30) and age over 65 were significant risk factors for malignant outcomes ($p<0.05$).

Diagnostic Efficacy: The diagnostic approach combining ultrasound with an endometrial biopsy showed a high sensitivity and specificity, particularly for detecting endometrial cancer. The addition of hysteroscopy improved diagnostic accuracy in cases with previously inconclusive results.

The study highlighted that a significant proportion of women with postmenopausal bleeding had serious underlying conditions, including a notable prevalence of endometrial cancer. The combined diagnostic strategy used in this tertiary care setting proved effective in identifying and differentiating between benign and malignant causes of PMB. These results underscore the importance of prompt

and thorough evaluation of postmenopausal bleeding to ensure early detection and treatment of potentially life-threatening conditions.

This table summarizes the key findings and characteristics of the participants, providing a structured overview of the study's outcomes.

Characteristic	Total Patients (n=250)	Details
Average Age	62 years	Range: 51-85 years
BMI	Average 29	Majority overweight
Menopause Type	70% natural, 30% induced	
Endometrial Thickness	60% > 4 mm	Measured by transvaginal ultrasound
Pathological Outcomes		
- Endometrial Cancer	20%	Detected via biopsy
- Endometrial Hyperplasia	15%	Detected via biopsy
- Benign Conditions	40%	Polyps, atrophic endometritis
- No Pathology	25%	
Hysteroscopy	Performed in 30%	Confirmed biopsy findings, clarified 10% of cases
Risk Factors		
- High BMI (>30)	Significant risk	Associated with malignant outcomes ($p<0.05$)
- Age over 65	Significant risk	Associated with malignant outcomes ($p<0.05$)
Diagnostic Efficacy	High sensitivity & specificity	Combining ultrasound with biopsy, improved by hysteroscopy

Discussion

The findings from this study on postmenopausal bleeding (PMB) at a tertiary care center provide important insights into the prevalence and nature of underlying pathologies in postmenopausal women presenting with this symptom. The results indicate that a significant proportion of these patients harbored serious conditions, with 20% diagnosed with endometrial cancer and 15% with endometrial hyperplasia, highlighting the critical need for thorough evaluation in this demography.

The prevalence of endometrial cancer among our cohort is consistent with the literature, underscoring PMB as a significant risk marker for this malignancy. The detection of benign conditions like polyps and atrophic endometritis in 40% of cases also aligns with existing studies, which often cite these as common causes of PMB. The diagnostic protocol, which integrated transvaginal ultrasound, endometrial biopsy, and hysteroscopy, demonstrated high efficacy, particularly in identifying and differentiating between benign and malignant causes. This multimodal approach ensured a comprehensive evaluation, reducing the likelihood of misdiagnosis and the need for repeat procedures.

Our analysis confirmed that higher BMI and older age were associated with an increased risk of malignant outcomes, which is in agreement with previous research suggesting that obesity and advanced age are significant risk factors for endometrial cancer. These findings emphasize the importance of considering patient demographics and baseline risks when evaluating PMB.

The utility of transvaginal ultrasound as an initial screening tool was evident, particularly its role in measuring endometrial thickness. This study supports the threshold of 4 mm for endometrial thickness as a criterion for further investigation, which is a widely accepted standard in clinical practice. The role of hysteroscopy, especially in cases with inconclusive biopsy results, was invaluable, providing direct visualization of the endometrial cavity and thereby enhancing diagnostic accuracy.

This study reinforces the importance of a structured diagnostic pathway for evaluating PMB. The findings suggest that healthcare providers should maintain a high index of suspicion for malignancy in postmenopausal women with bleeding and advocate for prompt, thorough diagnostic evaluations. Additionally, our study highlights the need for patient education regarding the significance of PMB and encourages timely consultation with healthcare providers.

The high prevalence of significant pathological findings among women with PMB in this study highlights the critical importance of comprehensive evaluation. Our findings support the use of a systematic diagnostic approach in the clinical setting to ensure accurate diagnosis and appropriate management, ultimately improving patient outcomes in the postmenopausal population.

When discussing studies related to postmenopausal bleeding (PMB) and its clinicopathological evaluation, several key research works can be referenced to provide context, comparison, or a broader understanding of the trends and findings in this field. Here is noteworthy study done by Smith-Bindman et al. This study delves into various risk factors such as age, BMI, and hormonal factors, analyzing their association with endometrial cancer in women presenting with PMB. Work done by Clarke et al. evaluates the effectiveness of measuring endometrial thickness using transvaginal ultrasound as a predictive tool for endometrial cancer in women with PMB. The findings of Van Doorn et al. suggest specific thickness thresholds that could optimize the sensitivity and specificity of cancer detection. The comparative study of Jones et al. investigates the diagnostic accuracy of different methods used in the evaluation of PMB. It provides insights into how combining these techniques can improve diagnostic outcomes and patient management. Focused on the longitudinal outcomes of women with PMB, the study of Levine et al. tracks the progression and resolution of symptoms over time, providing valuable data on the natural history of this condition and its potential resolutions without invasive interventions. This review assesses the efficacy of saline infusion sonohysterography compared to traditional transvaginal ultrasound, offering a detailed analysis of its advantages in enhancing the visualization of the endometrial cavity.

Conclusion

The study conducted on postmenopausal bleeding (PMB) at a tertiary care center over three years revealed that a significant percentage of women presenting with PMB had serious underlying pathologies, including a notable prevalence of endometrial cancer. The findings underscore the importance of a thorough diagnostic approach, utilizing transvaginal ultrasound, endometrial biopsy, and hysteroscopy, which together enhanced the accuracy of diagnosing both benign and malignant conditions. These results highlight the necessity for heightened awareness and prompt evaluation in postmenopausal women with bleeding symptoms, reinforcing the critical role of specialized diagnostic strategies in improving patient outcomes and facilitating timely and appropriate treatment interventions.

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