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FREQUENCY OF CA ENDOMETRIUM IN PATIENTS PRESENTING WITH POST MENOPAUSAL BLEEDING

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Abstract

Background: *Postmenopausal bleeding (PMB) is a common clinical presentation that requires thorough evaluation, as it may indicate underlying endometrial carcinoma (EC), especially in women with associated risk factors such as obesity, diabetes, and hypertension.*

Objectives: *To determine the frequency of endometrial carcinoma in women presenting with postmenopausal bleeding and to assess its association with potential risk factors.*

Study Design & Setting: *A descriptive cross-sectional study conducted at the Gynecology Department of FMH College of Medicine & Dentistry, Lahore over a six-month period from November 15, 2024 to May 16, 2025.*

Methodology: *A total of 210 women aged above 50 years presenting with PMB were included through consecutive non-probability sampling. After obtaining informed consent, all patients underwent transvaginal ultrasonography (TVUS) followed by endometrial biopsy in suspected cases. Demographic and clinical data including age, BMI, comorbidities, and bleeding patterns were recorded. Data analysis was performed using SPSS version 26. Chi-square test was used for post-stratification analysis, with $p < 0.05$ considered statistically significant.*

Results: *Endometrial carcinoma was diagnosed in **54 (25.7%)** women. Most of these cases were diagnosed at **Stage I (59.3%)**. **Significant** associations were observed with age > 60 years ($p = 0.003$), BMI > 27 kg/m² ($p = 0.001$), diabetes ($p = 0.006$), hypertension ($p = 0.008$), and endometrial thickness > 8 mm ($p < 0.001$).*

Conclusion: *A significant proportion of postmenopausal bleeding cases were found to have endometrial carcinoma. Risk stratification based on clinical parameters may aid in early detection and improved outcomes*

INTRODUCTION

Endometrial carcinoma is most communal gynecological carcinoma. It is responsible for 5% carcinoma cases over the globe with 2% mortality rate.[1] In Western world North America and European parts have much higher prevalence than other developed countries. This ascending incidence could be a consequence of high obesity rate in addition to early menarche, aging, late menopause, post-menopausal estrogens and nulliparity.[2] Within last decade the incidence of endometrial carcinoma has devastatingly increased.[3-5]

Diagnosis of majority of endometrial carcinoma is at localized staging and could be surgically cured with a five-year survival rate in 95% of the cases. However, in situations of late diagnosis and stage IV the rate of survival decreases up to 16–45%.[7,8] Unfortunately, there has been a limited data on early diagnosis strategies for endometrial carcinoma. In addition to this there are no recommendations for general population screening against endometrial carcinoma. Beside this study is conducted on identifying high risk population for evaluating them against endometrial carcinoma.[9,10]

Post-menopausal bleeding is a vaginal bleeding which is produced after the termination of menstrual bleeding as a result of menopause. Post-menopausal bleeding is a common endometrial carcinoma symptom which represents for two third of all the gynecological visits among perimenopausal as well as post-menopausal females.[11] Perimenopausal bleeding is referred to an irregular bleeding until the menstruation completely ceases. It is also termed as menopausal transition. Women with post-menopausal bleeding are required to undergo some additional testing such as trans-vaginal ultrasonography (TVUS) followed by dilation, curettage, endometrial biopsy and on diagnosis of endometrial carcinoma, they undergo hysterectomy and other required tests in accordance to the various clinical settings.[12]

Post-menopausal bleeding is mostly associated with endometrial polyps which is a benign condition and might result from spontaneous bleeding in females on hormone therapies.[13] There have been various studies on association of post-menopausal bleeding with endometrial carcinoma varying between 3–25%.[14,15] The average risk of endometrial carcinoma in women with post-menopausal bleeding and receiving hormone therapy was lower than those women who were having post-menopausal bleeding but were not on hormone therapy at all. However, in conditions where the post-menopausal bleeding continues even after six months of hormone therapy would trigger alarm and requires assessment for endometrial cancers.[16]

MATERIALS AND METHODS

After obtaining ethical approval from the Institutional Review Board (IRB), a descriptive cross-sectional study was conducted at the Gynecology Department of FMH College of Medicine & Dentistry, Lahore. The study spanned a period of six months, from November 15, 2024, to May 16, 2025. The sample size was calculated to be 210 based on a reported incidence of endometrial cancer in 25% of women with postmenopausal bleeding, with a margin of error of 6% at a 95% confidence level.

Inclusion criteria were women aged above 50 years, those experiencing postmenopausal bleeding one year or more after their last menstrual period as the cessation of menstruation for 12 consecutive months without any physiological cause. Postmenopausal bleeding was considered as any vaginal bleeding occurring a year or more after the last menstrual period. Women were excluded if they had a clinical history of bleeding disorders, had been previously diagnosed with any malignancy, or had received hormone therapy for less than six months.

After obtaining ethical clearance and informed consent, eligible women presenting with PMB were clinically assessed and examined. Those who met the inclusion criteria were registered as study participants. All women with PMB underwent trans-vaginal ultrasonography (TVUS). In cases where abnormalities were suspected, an endometrial biopsy was performed. If the biopsy results were positive for malignancy, further assessment was conducted using MRI or CT scan. The ultrasound procedure was carried out by inserting a transducer into the vagina while the patient lay on her back. Sound waves emitted by the transducer generated pelvic images, including views of the endometrial lining. Biopsy was performed using an endometrial suction catheter, which was inserted through the cervix into the

uterine cavity and rotated to obtain tissue samples for histopathological evaluation.

All the relevant demographic data, as well as anthropometric data, clinical history including polyp generation, and diagnosis including EC staging (if presented), were documented in a well-structured questionnaire. Endometrial cancer was defined as a malignancy arising from the endometrial lining of the uterus. It was the result of abnormal growth of cells with the potential to invade or spread to other parts of the body. Diagnosis was made using ultrasound followed by endometrial biopsy. This data was used in formulating the outcomes of the study, which included frequency assessment of endometrial CA positivity among women with post-menopausal bleeding cases. Effect modifiers of the study were age, BMI, polyps, frequency of bleeding, diabetes, hypertension, and increased endometrial thickness.

Data was analyzed using PSS-26.0. Quantitative variables including age, BMI, and endometrial thickness were presented as mean ± standard deviations, while qualitative variables such as polyps' existence, hypertension, diabetes, and frequency of bleeding were analyzed in the form of frequencies and percentages. Chi-square test analysis was performed. Post-stratification for variables like age, BMI, polyps, frequency of bleeding, diabetes, hypertension, and increased endometrial thickness was done. A p-value < 0.05 was considered significant.

RESULTS

The mean age of the participants was 61.3 ± 6.8 years, and the average body mass index (BMI) was 27.4 ± 3.5 kg/m², indicating that a substantial proportion were overweight. The mean duration since menopause was 9.6 ± 4.2 years. Among the study population, 43.8% (n = 92) were hypertensive, and 36.2% (n = 76) had diabetes mellitus. The mean endometrial thickness recorded on transvaginal ultrasound was 9.8 ± 2.7 mm, suggesting a tendency toward thickened endometrium in this cohort. Endometrial polyps were observed in 22.9% (n = 48) of participants. Regarding bleeding patterns, 51.9% (n = 109) reported a single episode of postmenopausal bleeding, while 48.1% (n = 101) had experienced more than one episode given in table 1. As shown in Table 2, endometrial carcinoma was confirmed by biopsy in 54 patients (25.7%), while 156 patients (74.3%) had negative biopsy results.

Table 3 shows that among the 54 biopsy-confirmed cases of endometrial carcinoma, 32 (59.3%) were diagnosed at Stage I, 11 (20.4%) at Stage II, 7 (13.0%) at Stage III, and 4 (7.4%) at Stage IV according to FIGO staging.

Table 4 shows significant associations between endometrial carcinoma and multiple variables. The frequency of EC was higher in women aged >60 years (70.4%) compared to those ≤60 years (29.6%) ($p = 0.003$), and in those with BMI >27 (77.8%) versus ≤27 (22.2%) ($p = 0.001$). EC was more common in patients with polyps (35.2%) than those without (18.6%) ($p = 0.017$), and in those with multiple bleeding episodes (68.5%) compared to a single episode (31.5%) ($p = 0.001$). Additionally, EC was more prevalent in diabetic patients (51.9%) vs. non-diabetics (48.1%) ($p = 0.006$), and in those with hypertension (59.3%) vs. those without (40.7%) ($p = 0.008$). A strong association was observed with endometrial thickness: 90.7% of EC cases had thickness >8 mm compared to 9.3% with ≤8 mm ($p < 0.001$).

Table 1: Demographic and Clinical Characteristics of Study Participants (n = 210)

Variable	Mean ± SD / n (%)
Age (years)	61.3 ± 6.8
Body Mass Index (BMI, kg/m²)	27.4 ± 3.5
Duration of Menopause (years)	9.6 ± 4.2
Hypertension	92 (43.8%)
Diabetes Mellitus	76 (36.2%)
Endometrial Thickness (mm)	9.8 ± 2.7
Presence of Endometrial Polyps	48 (22.9%)

Frequency of Bleeding Episodes	1 episode 109 (51.9%)
	>1 episode 101 (48.1%)

Table 2: Endometrial Carcinoma Biopsy Findings (n = 210)

Biopsy Result	Frequency (n)	Percentage (%)
Positive (Yes)	54	25.7%
Negative (No)	156	74.3%

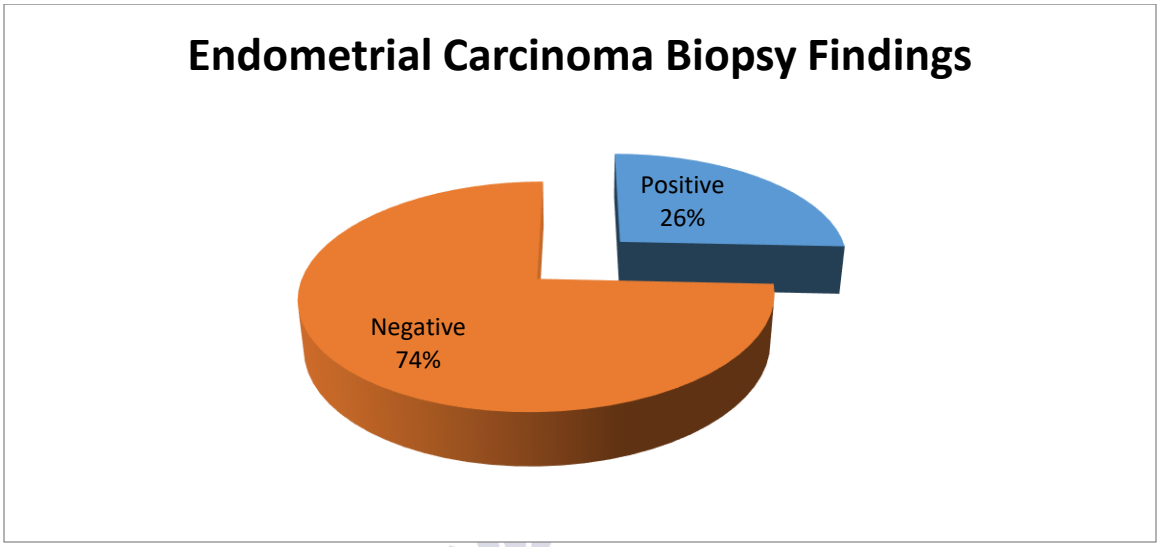

Figure 1: Endometrial Carcinoma Biopsy Findings

Table 3: Staging of Endometrial Carcinoma Among Biopsy-Confirmed Cases (n = 54)

FIGO Stage	Frequency (n)	Percentage (%)
Stage I	32	59.3%
Stage II	11	20.4%
Stage III	7	13.0%
Stage IV	4	7.4%

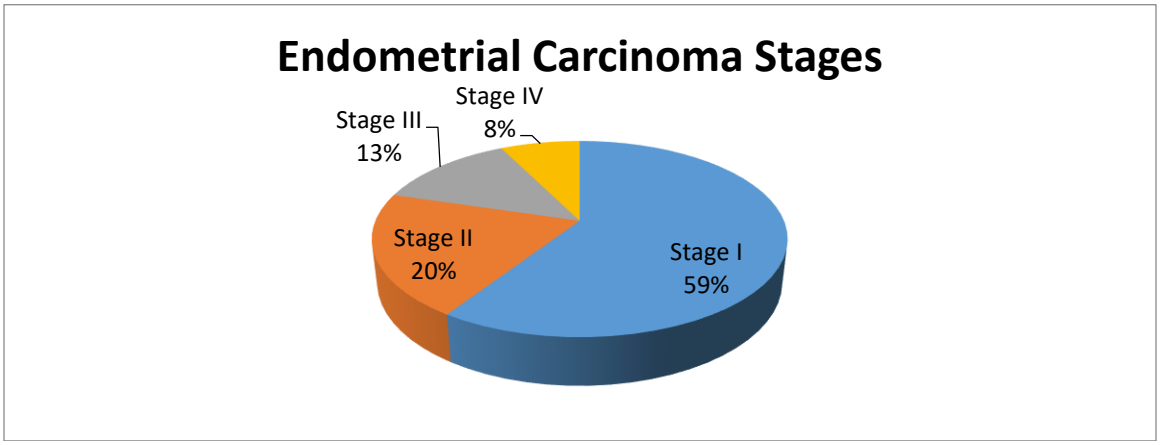

Figure II: Staging of Endometrial Carcinoma Among Biopsy-Confirmed Cases

Table 4: Post-Stratification of Endometrial Carcinoma With Effect Modifiers (n = 210)

Variable	Category	EC Present (n=54)	EC Absent (n=156)	p-value
Age (years)	≤ 60	16 (29.6%)	84 (53.8%)	0.003
	> 60	38 (70.4%)	72 (46.2%)	
BMI (kg/m²)	≤ 27	12 (22.2%)	76 (48.7%)	0.001
	> 27	42 (77.8%)	80 (51.3%)	
Endometrial Polyps	Absent	35 (64.8%)	127 (81.4%)	0.017
	Present	19 (35.2%)	29 (18.6%)	
Frequency of Bleeding	Single Episode	17 (31.5%)	92 (59.0%)	0.001
	Multiple Episodes	37 (68.5%)	64 (41.0%)	
Diabetes Mellitus	No	26 (48.1%)	108 (69.2%)	0.006
	Yes	28 (51.9%)	48 (30.8%)	
Hypertension	No	22 (40.7%)	96 (61.5%)	0.008
	Yes	32 (59.3%)	60 (38.5%)	
Endometrial Thickness (mm)	≤ 8 mm	5 (9.3%)	92 (59.0%)	<0.001
	> 8 mm	49 (90.7%)	64 (41.0%)	

DISCUSSION

Postmenopausal bleeding (PMB) is a significant clinical concern, often warranting investigation due to its association with malignancy. Among various causes, endometrial carcinoma (EC) is a life-threatening yet potentially curable cancer if diagnosed early. The prevalence of EC in women with PMB varies globally, ranging from 10% to 25%. Transvaginal ultrasonography followed by endometrial biopsy remains the diagnostic standard. Identifying associated risk factors such as age, BMI, and comorbidities is crucial for early detection. This study aimed to assess the frequency of EC and its correlation with clinical risk factors in women presenting with PMB.

In the present study, endometrial carcinoma (EC) was diagnosed in 25.7% of women presenting with postmenopausal bleeding (PMB), a frequency that aligns closely with previously reported figures. Jadoon et al. (2019) reported a similar EC frequency of 23%, with the majority of patients falling in the 61–70 years age group (54.3%), closely reflecting our findings where the mean age was 61.3 ± 6.8 years and 70.4% of EC cases occurred in patients aged above 60 years. Their study also noted a 35% prevalence of hypertension and 20% diabetes mellitus, whereas our study found comparatively higher rates of 43.8% and 36.2% respectively, highlighting an increasing trend of metabolic risk factors among postmenopausal women.[19] In another study, Zaib et al. (2018) documented EC in 16.43% of cases, slightly lower than our finding of 25.7%, possibly due to their reliance on Doppler ultrasound rather than histopathological confirmation. Their patient population also had a broader age distribution, with 54.29% aged 56–70 years, consistent with our elderly-dominant cohort.[20] Similarly, Nasim et al. (2025) reported an EC rate of 19.7% among postmenopausal women, with a mean age of 55.07 ± 11.33 years, somewhat younger than our population. Their study also noted a higher frequency of benign findings such as hyperplasia (33%) and polyps (23.6%), whereas in our cohort, 22.9% had endometrial polyps, and endometrial thickness >8 mm was significantly associated with EC (90.7%, $p < 0.001$).[21]

Sharif et al. (2024) observed a lower EC rate of 8.90% in postmenopausal women with abnormal uterine bleeding (AUB), which contrasts with our significantly higher incidence. Their younger mean age (48.52 ± 7.02 years) and inclusion of premenopausal women may explain this difference. Mohiuddin et al. (2024) also reported a lower EC rate of 20.1% in PMB cases, though still comparable to our results. Interestingly, 73.3% of their malignant cases were confirmed as endometrial adenocarcinoma, which likely parallels our histological distribution, though specific subtypes

were not detailed in our study.[22] Across studies, advancing age, increased BMI, hypertension, diabetes, and endometrial thickening were consistently reported as risk factors associated with endometrial malignancy. Our findings support this as statistically significant associations were observed for age >60 years ($p = 0.003$), BMI >27 kg/m² ($p = 0.001$), hypertension ($p = 0.008$), diabetes ($p = 0.006$), and increased endometrial thickness ($p < 0.001$). Moreover, 59.3% of EC cases in our study were diagnosed at Stage I, emphasizing the potential benefit of early evaluation and biopsy in PMB cases.[23]

This study provides localized data on the burden of EC among postmenopausal women in a developing country context. A structured diagnostic approach, including biopsy-confirmed cases, strengthens the reliability of findings. Inclusion of relevant effect modifiers adds depth to risk factor analysis. However, the study is limited by its single-center design, which may restrict generalizability. MRI or CT for staging was done selectively, which may have introduced variability. Also, recall bias regarding the frequency of bleeding episodes could affect accuracy.

CONCLUSION

Endometrial carcinoma was diagnosed in 25.7% of women presenting with postmenopausal bleeding. Significant associations were found with age, BMI, diabetes, hypertension, and endometrial thickness. Early screening and timely intervention in high-risk individuals can improve outcomes.

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