Original Article

Frequency of Endometrial Carcinoma among Women presenting with Abnormal Uterine Bleeding at a Secondary Care Hospital

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ABSTRACT

Objective: To determine the frequency of endometrial carcinoma among women presenting with abnormal uterine bleeding at a secondary care hospital.

Study Design: Descriptive cross-sectional study.

Place and Duration of Study: This study was conducted at the Department of Gynecology and Obstetrics, Maqsood Medical Complex, Peshawar, from 1st March 2025 to 28th February 2026.

Methods: The number of women, who presented with abnormal uterine bleeding, were included in the study by non-probability consecutive sampling, totalling 247 women. Information about age, parity, menopausal status, bleeding pattern, comorbidities, endometrial thickness and histopathological diagnosis were recorded. Biopsy, dilatation and curettage or hysterectomy specimen provided the source of endometrial tissue when clinically indicated.

Results: The mean age of patients was 44.8 ± 10.7 years. Mean duration of symptoms was 5.9 ± 3.4 months. Heavy menstrual bleeding was the most common presentation 93 (37.7%). Overall, 13 patients were diagnosed with the endometrial carcinoma, with a frequency of 5.3%. Bleeding pattern, endometrial thickness, age, post-menopausality, diabetes mellitus, hypertension and obesity were significantly associated with carcinoma.

Conclusion: A significant number of women with abnormal uterine bleeding were found to have endometrial carcinoma. Older age, postmenopausal bleeding, and elevated endometrial thickness and metabolic comorbidities should lead to prompt evaluation of the endometrium and subsequent histopathological confirmation.

Key Words: Endometrial Carcinoma, Abnormal Uterine Bleeding, Women

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INTRODUCTION

Abnormal uterine bleeding (AUB) is one of the most frequent gynecological complaints among women of reproductive, perimenopausal and postmenopausal age groups. It is defined as bleeding which differs from normal menstruation in regularity, frequency, duration or volume and is usually classified according to the FIGO PALM-COEIN system into structural and non-structural causes[1]. While many cases are benign, AUB can be the initial or only symptom of premalignant endometrium or endometrial carcinoma, especially in postmenopausal and women over the age of 40.[2]

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Endometrial carcinoma is one of the most frequently occurring gynecologic cancers in the world, and rising incidence is partly due to obesity and diabetes, nulliparity, late menopause, and unopposed estrogen use[3]. The new FIGO staging system focuses on histological type, the grade of the tumor, the presence of lymphovascular invasion, and molecular characteristics, which highlights the significance of early diagnosis and accurate risk stratification[4]. International guidelines also emphasize that abnormal bleeding is a critical warning symptom that should be promptly assessed by endometrial evaluation, particularly in women who are either postmenopausal or high-risk premenopausal[5].

Age and bleeding patterns are risk factors for endometrial carcinoma. Published data highlight that the overall risk for endometrial cancer in premenopausal women with AUB is low, but higher for women who have experienced intermenstrual bleeding and more advanced age[6]. In Pakistan, delayed health-seeking behavior, limited screening facilities, lack of awareness and restricted access to specialist gynecological services may contribute to late diagnosis. Local studies have revealed that AUB is a frequent

cause of gynecological consultation and structural causes, hyperplasia and malignant lesions are encountered with varying prevalence[7,8].

There are also a number of Pakistani studies which confirm the need for pathological evaluation in selected cases of AUB[9]. A wide range of endometrial pathologies have been reported among Pakistani women with AUB, such as endometrial carcinoma. Among women with abnormal uterine bleeding, Khan et al[10] focused on the study of endometrial carcinoma and stressed the importance of early diagnostic evaluation. More recently, Sharif et al[11] found a higher frequency of endometrial cancer among postmenopausal women compared with premenopausal women presenting with AUB. Therefore, determining the frequency of endometrial carcinoma among women with AUB at a secondary care hospital is important for local evidence generation, timely referral, appropriate biopsy decisions and prevention of advanced-stage disease.

METHODS

The descriptive cross-sectional study was carried out in the Department of Gynecology and obstetrics Maqsood Medical Complex, Peshawar from 1st March 2025 to 28th February 2026. Non-probability consecutive sampling was used to select 247 women with abnormal uterine bleeding for the study. Abnormal uterine bleeding was defined as any bleeding from the uterine corpus that was abnormal in frequency, regularity, duration or amount, including heavy menstrual bleeding, intermenstrual bleeding, irregular bleeding, frequent or prolonged bleeding and postmenopausal bleeding. Women of reproductive, perimenopausal and postmenopausal age groups who presented to the outpatient department or were admitted with abnormal uterine bleeding and underwent clinical evaluation with endometrial sampling were included. Patients with bleeding during pregnancy, known bleeding disorders, cervical carcinoma, bleeding from any apparent lesions in the vagina/vulva, patients with incomplete clinical or histopathological records were excluded.

Detailed history was taken after informed consent was obtained and included details of age, parity, menstrual pattern, duration of symptoms, menopausal status, hormonal therapy, diabetes mellitus, hypertension, obesity, nulliparity, lack of pregnancies, polycystic ovary syndrome and family history of cancer in the gynecological tract. All patients were subjected to general physical examination, abdominal examination and pelvic examination. Baseline investigations relevant to the clinical situation were recommended as appropriate: complete blood count, pregnancy test (when appropriate), blood sugar profile, coagulation profile (when indicated), and pelvic ultrasonography to evaluate the uterus, adnexa and endometrial thickness.

Endometrial tissue was collected from either an endometrial biopsy or from the dilated and curettage or hysterectomy specimen as clinically indicated. Properly labelled container with formalin was used to send all samples to the histopathology laboratory. Histopathological findings were recorded as normal proliferative or secretory endometrium, disordered proliferative endometrium, endometrial polyp, endometrial hyperplasia with or without atypia, chronic endometritis, atrophic endometrium, endometrial carcinoma or other pathology. The main outcome variable was the frequency of endometrial carcinoma among women presenting with abnormal uterine bleeding.

The data were inputted and analysed using SPSS version 26. The quantitative variables age, parity and duration of the symptoms were presented as the mean and standard deviation, and median and interquartile range, depending on the distribution of the data. Qualitative variables like menopausal status, bleeding pattern, ultrasonographic findings and histopathological diagnosis were shown as frequencies and percentages. The frequency of endometrial carcinoma was calculated as the number of histopathologically confirmed cases of endometrial carcinoma divided by the total number of women included in the study. Age group, menopausal status, parity, diabetes mellitus, and hypertension with endometrial thickness was performed for stratification purposes to determine the distribution of endometrial carcinoma across clinically relevant variables. Post-stratification chi-square test or Fisher's exact test was applied where appropriate, and a p-value of ≤ 0.05 was considered statistically significant. Ethical approval was obtained from the institutional ethical review committee before commencement of the study.

RESULTS

Table No. 1. Baseline demographic and clinical characteristics of patients

Variable	Frequency / Mean	Percentage / SD
Total patients	247	100.0
Age, years	44.8	±10.7
Duration of symptoms, months	5.9	±3.4
Age <40 years	92	37.2
Age 40–49 years	76	30.8
Age 50–59 years	52	21.1
Age ≥60 years	27	10.9
Reproductive age group	134	54.3
Perimenopausal	61	24.7
Postmenopausal	52	21.1
Nulliparous	34	13.8
Parity 1–3	83	33.6
Parity ≥4	130	52.6
Diabetes mellitus	64	25.9
Hypertension	72	29.1

Variable	Frequency / Mean	Percentage / SD
Obesity	88	35.6

Total 247 women with abnormal uterine bleeding were analyzed. The mean age was 44.8 ± 10.7 years, and the mean duration of symptoms was 5.9 ± 3.4 months. The reproductive age group was the most predominant. Baseline characteristics are presented in table 1.

The most frequent presentation was heavy menstrual bleeding. Table 2 shows that bleeding pattern was significantly related to endometrial carcinoma, with women who had postmenopausal bleeding having the highest frequency (overall p=0.0002).

Table No. 2: Pattern of abnormal uterine bleeding and association with endometrial carcinoma

Bleeding pattern	Total	Endometrial carcinoma n (%)	No carcinoma	Overall p-value
Heavy menstrual bleeding	93 (37.7)	1 (1.1)	92 (98.9)	0.0002
Intermenstrual bleeding	38 (15.4)	1 (2.6)	37 (97.4)	
Irregular/prolonged bleeding	64 (25.9)	2 (3.1)	62 (96.9)	
Postmenopausal bleeding	52 (21.1)	9 (17.3)	43 (82.7)	
Total	247 (100.0)	13 (5.3)	234 (94.7)	

Table No. 3: Endometrial thickness and association with endometrial carcinoma

Endometrial thickness	Total	Endometrial carcinoma	No carcinoma	Overall p-value
<8 mm	76 (30.8)	0 (0.0)	76 (100.0)	0.0024
8–11 mm	68 (27.5)	2 (2.9)	66 (97.1)	
12–15 mm	57 (23.1)	4 (7.0)	53 (93.0)	
>15 mm	46 (18.6)	7 (15.2)	39 (84.8)	
Total	247 (100.0)	13 (5.3)	234 (94.7)	

Table No. 4: Histopathological findings among women with abnormal uterine bleeding

Histopathological diagnosis	n (%)
Proliferative endometrium	54 (21.9)
Secretory endometrium	29 (11.7)
Disordered proliferative endometrium	42 (17.0)
Endometrial polyp	31 (12.6)
Endometrial hyperplasia without atypia	27 (10.9)
Atypical hyperplasia / EIN	10 (4.0)
Chronic endometritis	14 (5.7)
Atrophic endometrium	18 (7.3)
Other benign pathology	9 (3.6)
Endometrial carcinoma	13 (5.3)
Total	**247 (100.0)**

Table No. 5: Association of demographic and clinical factors with endometrial carcinoma

Variable	Total n	Endometrial carcinoma n (%)	No carcinoma n (%)	p-value
Age <40 years	92	0 (0.0)	92 (100.0)	0.0024
Age 40–49 years	76	3 (3.9)	73 (96.1)	
Age 50–59 years	52	6 (11.5)	46 (88.5)	
Age ≥60 years	27	4 (14.8)	23 (85.2)	
Reproductive age group	134	1 (0.7)	133 (99.3)	0.00003
Perimenopausal	61	3 (4.9)	58 (95.1)	
Postmenopausal	52	9 (17.3)	43 (82.7)	
Diabetes mellitus present	64	8 (12.5)	56 (87.5)	0.0058
Diabetes mellitus absent	183	5 (2.7)	178 (97.3)	
Hypertension present	72	8 (11.1)	64 (88.9)	0.0228
Hypertension absent	175	5 (2.9)	170 (97.1)	
Obesity present	88	9 (10.2)	79 (89.8)	0.0149
Obesity absent	159	4 (2.5)	155 (97.5)	
Nulliparous	34	0 (0.0)	34 (100.0)	0.1437

Variable	Total n	Endometrial carcinoma n (%)	No carcinoma n (%)	p-value
Parity 1–3	83	3 (3.6)	80 (96.4)	
Parity ≥4	130	10 (7.7)	120 (92.3)	

The endometrial thickness was significantly correlated with endometrial carcinoma (p=0.0024). Table 3 shows the highest frequency for patients having endometrial thickness >15 mm.

Histopathological examination revealed that benign endometrial pathology occurred more frequently than malignant pathologies. As presented in Table 4, there was a total of 13 patients (5.3%) with endometrial carcinoma.

Increasing age, post-menopause status, diabetes mellitus, hypertension and obesity were found to be significantly associated with endometrial carcinoma. No significant association with carcinoma was found for parity. The interaction of demographic and clinical factors with endometrial carcinoma is presented in table 5.

DISCUSSION

The present study reported that 5.3% of the women who attend secondary care hospital with abnormal uterine bleeding were diagnosed with endometrial carcinoma. This means that while most of the cases of AUB are caused by benign endometrial problems, a significant number of cases have malignancy, especially in those cases with high-risk features. The findings are similar to those reported by Parveen et al[12] who found that endometrial cancer was observed in 6.51% of women with AUB. This minor discrepancy might be attributed to differences in the setting of studies, the age distribution, menopausal status, and referral procedure and indications for endometrial sampling.

The overall frequency rate in our study is less than the rates that have been reported in studies primarily on postmenopausal bleeding, where the risk of carcinoma is thought to be greater [13,14]. In a study by Verbakel et al[15] found a pooled endometrial cancer risk of ~9% among women with postmenopausal bleeding. The overall frequency in this study was 5.3%, but it was 17.3% for women with postmenopausal bleeding, which confirms the important alerting symptom of postmenopausal bleeding. The higher frequency in this subgroup may be due to selective biopsy of clinically suspicious cases, delayed presentation, or limited early evaluation at primary-care level.

There was a low incidence of endometrial carcinoma in younger women, and an age-related rise thereafter. This is in line with Nees et al[16], who stated that the risk of endometrial cancer or atypical hyperplasia was low in premenopausal women with AUB. This difference in reproductive-age women might be attributed to more functional, hormonal and benign structural causes of bleeding in this age group. Increased age, however, is linked with estrogen exposure for longer periods of time, with anovulatory cycles, metabolic comorbidities, and with an increased risk of endometrial neoplasia, accounting for the increased incidence of carcinoma among women aged ≥50 years.

Benign lesions were the predominant histopathology in this study, such as proliferative and disordered proliferative endometrium, endometrial polyp, and hyperplasia without atypia. This pattern is similar to local histopathological studies, including Riaz et al[17], who reported a wide spectrum of benign endometrial pathologies among Pakistani women presenting with AUB. Minor differences in the relative frequency of individual lesions may be due to differences in age group, inclusion of postmenopausal women, ultrasound-based selection before biopsy, and whether hysterectomy specimens were included along with endometrial biopsies.

There was a significant association between endometrial thickness and carcinoma, with a frequency of more than 15 mm of endometrial thickness in our study. This is biologically plausible because the thickened endometrium also may be a result of hyperplasia, polypoid growth or malignancy, particularly in peri- and postmenopausal women. The measurement of endometrial thickness should be used in conjunction with other factors, however, because other benign conditions can also result in a thickened endometrium, especially in premenopausal women. Thus, the clinical risk profile and bleeding pattern are still relevant for the consideration of biopsy.

In our study, the diabetes mellitus, hypertension and obesity were significantly associated with endometrial carcinoma. These results corroborate those from the literature that associate the metabolic risk factors to endometrial malignancy.[18,19] Obesity contributes through peripheral conversion of androgens to estrogen in adipose tissue, leading to prolonged unopposed estrogenic stimulation of the endometrium. Diabetes and hypertension may be indicative of a more general picture of an insulin resistant state, chronic inflammation and hormonal imbalance. This would help justify a low threshold for endometrial evaluation in AUB patients with metabolic comorbidities.

Parity was not significantly associated with endometrial carcinoma in this study. This differs from literature where nulliparity is considered a recognized risk factor.[20] The difference may be explained by the small number of carcinoma cases, predominance of multiparous women in the sample, and stronger influence of age, postmenopausal status, obesity and diabetes in this cohort.

The strengths of this study include a reasonable sample size, complete one-year data collection and histopathological confirmation of endometrial findings. Important clinical variables such as age, menopausal

status, bleeding pattern, endometrial thickness and metabolic comorbidities were also assessed. However, the study was single-center with non-probability sampling, limiting generalizability. The limited number of cases of carcinoma precluded robust subgroup analysis and some risk factors like hormonal therapy, infertility and family history were not evaluated in detail.

CONCLUSION

Endometrial carcinoma was identified in a clinically important proportion of women presenting with abnormal uterine bleeding at a secondary care hospital. The frequency was higher among older women, postmenopausal patients, those with postmenopausal bleeding, increased endometrial thickness and metabolic comorbidities. These findings emphasize the importance of timely endometrial evaluation and histopathological confirmation in high-risk women with abnormal uterine bleeding to facilitate early diagnosis and appropriate management.

RECOMMENDATION

Further randomized, multi-center studies with extended follow-up are recommended to validate and generalize these findings.

Author's Contribution:

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