



Research Article

Hysteroscopic Evaluation of Postmenopausal Bleeding

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Abstract

Background: Postmenopausal bleeding (PMB) is a common gynecological condition presented to national health institutes, and assessing the exact reason for postmenopausal bleeding is essential to detect the emergency status and to plan appropriately for management. For that, diagnostic technology is very important in PMB. Hysteroscopy has proven to be a useful tool in visualizing and identifying common causes of PMB. **Objective:** To evaluate the role of hysteroscopy in identifying the most common causes of PMB and correlate clinically with histopathological findings. **Methods:** A cross-sectional study was conducted in the period from March 1, 2019, to February 28, 2025, involving 80 women with symptomatic ongoing postmenopausal bleeding who had been referred to hysteroscopy. Information was gathered from patient-based questionnaires, in addition to hysteroscopy and histopathology findings. **Results:** Most women were aged 50–59 years (51.2%), had a parity of ≥ 5 (62.5%), were overweight or obese (86.3%), and had been menopausal for ≤ 10 years (51.2%). Hysteroscopy detected abnormalities in 97.5% of cases. Histopathology confirmed abnormal findings comprising polyps (36.3%), hyperplasia (18.7%), submucous fibroids (16.3%), atrophic endometrium (15%), and endometrial adenocarcinoma (10%). Increased age was significantly associated with malignant lesions ($p < 0.001$). Hysteroscopy showed high diagnostic accuracy for endometrial polyps (98.7%), submucous myoma (100%), atrophic endometrium (93.7%), and irregular growth (97.5%), but lower accuracy for polypoidal endometrium (71.2%). **Conclusions:** Hysteroscopy is a reliable and useful tool in visualizing the causes of postmenopausal bleeding and has shown that endometrial polyps are the most common cause of PMB.

Keywords: Hysteroscopy, Histopathology, Postmenopausal bleeding.

تقييم الرحم بالمنظار لنزيف ما بعد انقطاع الطمث

الخلاصة

الخلفية: نزيف ما بعد انقطاع الطمث (PMB) هو حالة نسائية شائعة يتم معالجتها في المؤسسات الصحية. تقييم السبب الدقيق لنزيف ما بعد انقطاع الطمث ضروري للكشف عن الحالات الطارئة والتخطيط بشكل مناسب للعلاج. لذلك، تعد تقنية التشخيص مهمة جداً في PMB. أثبتت تنظير الرحم أنه أداة مفيدة في تصور وتحديد الأسباب الشائعة لـ PMB. **الهدف:** تقييم دور تنظير الرحم في تحديد الأسباب الأكثر شيوعاً لـ PMB والارتباط سريرياً بالنتائج النسيجية المرضية. **الطرائق:** أجريت دراسة مقطعية في الفترة من 1 مارس 2019 إلى 28 فبراير 2025، شملت 80 امرأة مصابة بنزيف مستمر بعد انقطاع الطمث بأعراض تم إحالتهم إلى تنظير الرحم. تم جمع المعلومات من ملف المريض، بالإضافة إلى نتائج تنظير الرحم والتحليل النسيجي المرضي. **النتائج:** كانت معظم النساء تتراوح أعمارهن بين 50-59 عاماً (51.2%)، وكان لديهن تكافؤ ≤ 5 (62.5%)، وكان يعانين من زيادة الوزن أو السمنة (86.3%)، وكان في سن اليأس لمدة ≥ 10 سنوات (51.2%). كشف تنظير الرحم عن تشوهات في 97.5% من الحالات. أكد التحليل النسيجي النتائج غير الطبيعية التي تشمل الأورام الحميدة (36.3%)، وتضخم (18.7%)، والأورام الليفية تحت المخاطية (16.3%)، وبطانة الرحم الضمورية (15%)، وسرطان بطانة الرحم الغدي (10%). ارتبط تقدم العمر بشكل كبير بالآفات الخبيثة. أظهر تنظير الرحم دقة تشخيصية عالية لسلائل لبطانة الرحم (98.7%)، والورم العضلي تحت المخاطي (100%)، وبطانة الرحم الضمورية (93.7%)، والنمو غير المنتظم (97.5%)، ولكن دقة أقل لبطانة الرحم متعددة الأبعاد (71.2%). **الاستنتاجات:** تنظير الرحم هو أداة موثوقة ومفيدة في تصور أسباب نزيف ما بعد انقطاع الطمث وقد أظهر أن سلائل لبطانة الرحم هي السبب الأكثر شيوعاً لـ PMB.

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INTRODUCTION

Menopause is defined as a perpetual standstill of menstruation caused by a lack of ovarian follicular activity in women and confirmed clinically by one year of amenorrhea [1]. Postmenopausal bleeding (PMB) is defined as uterine bleeding following menopause (after 1 year of amenorrhea). PMB is the cause of about two-thirds of all gynecological medical consultations among postmenopausal women [2]. More than ninety percent of postmenopausal women with endometrial malignancy presented clinically

with PMB, and about 10% of women who presented with postmenopausal bleeding were diagnosed with endometrial carcinoma [3]. However, some cases of cervical cancer presented with PMB [4,5]. In addition to bleeding, menopause is accompanied by negative effects on different body organs [6]. Post menopausal bleeding is most commonly caused by endometrial atrophy and less commonly caused by endometrial hyperplasia, endometrial polyps, uterine fibroids, infection, medications, and endometrial cancer [7]. As atrophy is the most common cause, low estrogen status after menopause causes genitourinary atrophy

that leads to chronic endometritis, presented clinically by vaginal spots or light hemorrhage. On the contrary, unopposed estrogen exposure sometimes causes premalignant or malignant endometrial diseases [8]. Increased age, high body mass index, use of tamoxifen, earlier menarche, later menopause, hypertension, diabetes mellitus, and hormonal treatment are common risk factors of endometrial carcinoma in women [9]. Assessing the exact reason for postmenopausal bleeding (PMB) is essential to detect the emergency status and to plan appropriately for management. For that, diagnostic technology is very important in the PMB [10]. The imaging option, especially transvaginal ultrasonography (TVUS), is an effective and valid non-invasive technique for earlier diagnosis of PMB, making it the first-line procedure in women with PMB [11]. A thick endometrium of > 4 mm will require histopathology to assess the exact cause of bleeding; histopathological examination remains the gold standard in the diagnosis of PMB [12]. Dilation and curettage (D & C) were used to obtain the samples for histopathological examination; however, the D & C is an invasive technique, needs analgesics, and is accompanied by high co-morbidity rates. Additionally, the false negative rate reached 10% in PMB cases checked by D & C, and sometimes the real causes of PMB are still vague, as this method will not accurately visualize or cover the whole area of the endometrium [13]. With the technological advancement of hysteroscopy, the use of D & C has decreased, and the norms have shifted to obtaining a visual assessment associated with a more accurate sample-gathering technique [14]. The hysteroscopy is an accurate, well-tolerated, minimally invasive, easily applicable office technique used for screening and diagnosis of endometrial pathology in a short time and with less pain and discomfort for women [15]. Nowadays, hysteroscopy is a highly validated diagnostic method among the public in evaluating abnormal uterine bleeding in premenopausal, perimenopausal, and postmenopausal women. It is characterized by higher sensitivity and specificity in the diagnosis of endometrial pathologies responsible for postmenopausal bleeding, like atrophy, polyps, fibroids, malignancy, and hyperplasia [16]. The useful applications of hysteroscopy in visualization and sampling for histopathology instead of the invasive D & C, as well as its ease of use as an office procedure, were the main motives to conduct the current study to evaluate the role of hysteroscopy in the identification of the most common causes of PMB correlated clinically with results of histopathological examination to confirm the diagnosis in the sampled Iraqi patients.

METHODS

Study design and settings

A cross-sectional study was held within the period between the 1st of March 2019 and 28th of February 2025 in the Obstetrics and Gynecology Department, Azadi Teaching Hospital, Kirkuk. This study included

80 women who presented with ongoing postmenopausal bleeding and were referred to undergo diagnostic hysteroscopy after initial imaging. The researcher gathered women's data; these data included thorough Demographics and obstetric/gynecological history and characteristics (age, parity history, body mass index, and menopause duration). The hysteroscopy procedure was then carried out, associated with sample acquisition for histopathology. The findings of hysteroscopy and histopathology examination were then recorded for further analysis. There was no missing data in the current study.

Intervention and outcomes measurement

The hysteroscope used was a Karl Storz™ 4 mm scope with a 5 mm sheath, with an oblique lens of 30 degrees, with Ringer's lactate as distention media, and a camera (Karl Storz™ telecom II camera). The findings of hysteroscopy were noted, and an endometrial biopsy was sent for histopathological examination. The other instruments, like the speculum, the vassellum, with biopsy forceps, were used in the procedure. Causes of postmenopausal bleeding were identified by hysteroscopy and then recorded for analyzing the most common causes of PMB. Histopathology was then implemented in the faculty lab to reveal the final diagnosis and correlate clinically with hysteroscopic findings.

Inclusion criteria

Patients aged 50 years or more, post menopause (lack of menstruation for at least one year) and having ongoing vaginal bleeding.

Exclusion criteria

Women receiving drugs affecting coagulation, women on hormonal therapy as hormonal replacement therapy, women with a history of bleeding tendency as immune thrombocytopenic purpura, women with a history of associated ovarian swelling as benign ovarian cysts, abnormal cervical pathology, uterine cancer, and women who refused to participate in the study.

Sample size

Convenient sampling technique was utilized in the current study; all women presenting to the study faculty with ongoing PMB that matched the inclusion criteria during the study period were involved in the study.

Ethical considerations

The study protocol was approved by the local Research Ethics Committee of the College of Medicine, University of Kirkuk. All participants provide signed consent before enrollment in the study.

Statistical analysis

The collected data were analyzed using the Statistical Package for Social Sciences (SPSS). Statistical analysis was performed using chi-square and Fisher's exact tests. Two-by-two tables were used to measure the validity findings of hysteroscopy in comparison to histopathology. A p -value < 0.05 was considered for significant differences.

RESULTS

The present study enrolled 80 women with postmenopausal bleeding (PMB), with a mean age of 59 years; 51.2% of them were in the age group of 50-59 years. The parity history showed nulliparity in 10% of women with PMB, and 62.5% of them had a parity history of 5 or more. The mean body mass index of the studied women was 29.6 kg/m²; 41.3% of them were obese. The mean menopause duration of women was 12 years; 48.8% of them had a menopause duration of more than 10 years (Table 1).

Table 1: Basic characteristics of women with PMB

Variables	n (%)
Age (year)	(59±7)
50-59	41(51.2)
60-69	30(37.5)
≥70	9(11.3)
Parity history	
Nulliparity	8(10.0)
Para 1-4	22(27.5)
Para ≥5	50(62.5)
Body mass index (kg/m ²)	(29.6±4.4)
Normal	11 (13.7)
Overweight	36(45.0)
Obese	33(41.3)
Menopause duration (year)	(12±7.5)
≤10 years	41(51.2)
>10 years	39(48.8)
Total	80 (100.0%)

Values were expressed as frequency, percentage, and mean±SD.

The hysteroscopy showed that only two women had normal findings, while abnormal findings were endometrial polyps (37.5%), extensive polypoidal endometrium (25%), submucous myoma (16.3%),

atrophic endometrium (11.2%), and irregular endometrial growths with bleeding surface (7.5%) (Table 2).

Table 2: Hysteroscopy findings of women with PMB

Hysteroscopy appearance	n (%)
Endometrial polyps	30(37.5)
Extensive polypoidal endometrium	20(25)
Submucous myoma	13(16.3)
Atrophic endometrium	9(11.2)
Irregular endometrial growths with bleeding	6(7.5)
Normal	2(2.5)
Total	80(100)

The histopathological examination revealed that three women had normal findings, while abnormal findings were endometrial polyps (36.3%), endometrial hyperplasia (18.7%), submucous fibroids (16.3%), atrophic endometrium (15%), and endometrial adenocarcinoma (10%) (Table 3).

Table 3: Histopathology examination findings of women with PMB

Histopathology findings	n (%)
Endometrial polyps	29(36.3)
Endometrial hyperplasia	15(18.7)
Submucous fibroids	13(16.3)
Atrophic endometrium	12(15)
Endometrial adenocarcinoma	8(10)
Normal	3(3.7)
Total	80(100)

Validity findings of hysteroscopy in comparison to histopathology for differential diagnosis of postmenopausal bleeding were as follows: endometrial polyps (100% sensitivity, 98.03% specificity, 96.6% PPV, 100% NPV, and 98.7% accuracy), polypoidal endometrium (40% sensitivity, 78.4% specificity, 30% PPV, 85% NPV, and 71.2% accuracy), submucous myoma (100% sensitivity, 100% specificity, 100% PPV, 100% NPV, and 100% accuracy), atrophic endometrium (66.7% sensitivity, 98.5% specificity, 88.8% PPV, 94.3% NPV, and 93.7% accuracy), and irregular endometrial growths with bleeding surface (75% sensitivity, 100% specificity, 100% PPV, 97.3% NPV, and 97.5% accuracy) (Table 4).

Table 4: Validity findings of hysteroscopy for PMB causes in comparison to histopathology

Finding	Sensitivity	Specificity	PPV	NPV	Accuracy
Polyps	100	98.03	96.6	100	98.7
Polypoidal endometrium	40	78.4	30	85	71.2
Myoma	100	100	100	100	100
Atrophic endometrium	66.7	98.5	88.8	94.3	93.7
Irregular growths	75	100	100	97.3	97.5

PPV=Positive predictive value, NPV=Negative predictive value.

As shown in Table 5, there was a highly significant relationship between increased age of women with PMB and endometrial cancer ($p<0.001$). There was no significant relationship between parity history, body mass index, menopausal duration, and PMB duration with histopathology examination findings of women with PMB ($p>0.05$). Figure 1 shows an abnormal endometrial growth during hysteroscopy of a sampled patient (A). Later, histopathological examination showed that the abnormal growth specimen was actually an endometrial carcinoma (B).

DISCUSSION

Postmenopausal bleeding is a public gynecological problem. Postmenopausal bleeding is the main reason for office hysteroscopy. Hysteroscopy is regarded as the first-line tool in uterine cavity evaluation [17]. In the present study, the mean age of women with PMB was 59 years; 51.2% of them were in the age group of 50-59 years. These findings are close to the results of a previous Iraqi study, which reported a mean age of women with PMB as 53 years, and 51.5% of them were in the age group of 50-59 years [18].

Table 5: Basic characteristics regarding histopathology findings

Variable	Histopathology finding		p-value
	Malignant	Benign	
Age groups (year)			
50-59 years	1(53.3)	40(50)	<0.001
60-69	3(33.3)	27(41.7)	
≥70	4(13.3)	5(8.3)	
Parity history			
Nulliparity	2(80)	6(83.3)	0.3
Para 1-4	2	20(8.3)	
Para ≥5	4(6.7)	46(8.3)	
Body mass index			
Normal	3	8	0.1
Overweight	2	34	
Obese	3	30	
Menopause duration (year)			
≤10	2	44	0.1
>10	6	28	
Postmenopausal bleeding duration (week)			
1.0	1	22	0.5
>2	7	50	

Values were expressed as frequency and percentage.

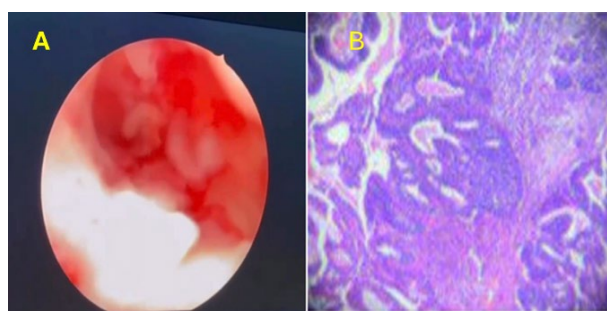


Figure 1: 55-year-old woman with postmenopausal bleeding. (A) Hysteroscopic: Findings of Irregular Endometrial growths. (B) Histopathology: Findings of endometrial adenocarcinoma (1x 100 H&E).

Our study showed that 62.5% of women with PMB had a parity history of 5 or more. A previous study in Iran found that higher parity was associated with a later age at menopause, which may indirectly influence the incidence of PMB due to prolonged hormonal exposure [19]. In our study, the mean body mass index of women with PMB was 29.6 kg/m², and 41.3% of them were obese. Liu *et al.* [20], in a cohort study in China, reported that obesity was a common risk factor for PMB. Our study found that the mean menopause duration of women with PMB was 12 years; 48.8% of them had a menopause duration of more than 10 years. These findings are inconsistent with the results of a prospective study reported by Talwar *et al.* [21] in India, which revealed that about half of the women with PMB had a menopause duration of 3 years. This inconsistency might be attributed to differences in anatomical and sociocultural factors between different communities. In the current study, hysteroscopy showed that only two women had normal findings, while abnormal findings were endometrial polyps (37.5%), extensive polypoidal endometrium (25%), submucous myoma (16.3%), atrophic endometrium (11.2%), and irregular endometrial growths with bleeding surface (7.5%). These findings are in agreement with the results of Mansingh *et al.*'s [22] prospective study in India, which reported that half of the hysteroscopy findings were endometrial polyps. However, our study hysteroscopy results are different from the results of the previous Iraqi cross-sectional study, which stated

that about half of women with PMB had hysteroscopy findings of endometrial hyperplasia [23]. These differences may be attributed to variations in study design, sample size, and demographic characteristics of the study populations, such as age distribution or menopausal duration. Another previous Iraqi study revealed that 45% of hysteroscopy results for women with PMB were normal, while 22% of them were hyperplasia, and 10% were polyps [24]. The histopathological examination in the present study revealed that three women with PMB had normal findings, while abnormal findings were endometrial polyps (36.3%), endometrial hyperplasia (18.7%), submucous fibroids (16.3%), atrophic endometrium (15%), and endometrial adenocarcinoma (10%). These findings are different from the results of a recent Iraqi retrospective study, which found that 28.57% of histopathology results were endometrial hyperplasia, followed by endometrial atrophy (17.65%) and polyp (16.81%); however, endometrial adenocarcinoma was detected in 10.92% of results [25]. These variations may reflect differences in histopathological classification criteria or patient selection criteria between studies [26]. On the other hand, our study's histopathology findings are close to the results of AbdelHameed *et al.* [27], a prospective cohort study in Egypt, which reported that the main histopathology findings of women with PMB were endometrial polyps (55.7%), followed by endometrial hyperplasia (21.1%) and endometrial adenocarcinoma (9.7%). This study found that the validity findings of hysteroscopy in comparison to histopathology for differential diagnosis of postmenopausal bleeding in regard to endometrial polyps were 100% sensitivity, 98.03% specificity, 96.6% PPV, 100% NPV, and 98.7% accuracy. These findings are consistent with the results of a recent Indian observational study, which reported higher validity of hysteroscopy in comparison to histopathology regarding endometrial polyps [28]. Our study showed the validity findings of hysteroscopy in comparison to histopathology for differential diagnosis of postmenopausal bleeding in regard to polypoidal endometrium (40% sensitivity, 78.4% specificity, 30% PPV, 85% NPV, and 71.2% accuracy). These findings coincide with the results of Ferrando *et al.* [29], a retrospective cohort study in the United States of America, which reported low validity of hysteroscopy in comparison to histopathology for differential diagnosis of postmenopausal bleeding in regard to polypoidal endometrium. In our study, the validity findings of hysteroscopy in comparison to histopathology for differential diagnosis of postmenopausal bleeding in regard to submucous myoma were 100% sensitivity, 100% specificity, 100% PPV, 100% NPV, and 100% accuracy. Consistently, Korkmazer *et al.* [30], in a retrospective cross-sectional study in Türkiye, revealed higher accuracy of hysteroscopy in the diagnosis of submucous myoma. Regarding endometrial carcinoma, the validity findings of hysteroscopy in comparison to histopathology for differential diagnosis of postmenopausal bleeding in regard to irregular endometrial growths were 75% sensitivity,

100% specificity, 100% PPV, 97.3% NPV, and 97.5% accuracy. These findings are close to the results of a previous Egyptian retrospective study, which reported that hysteroscopic sensitivity in detecting malignant lesions was 83.3%, while its specificity was 96.87% [31]. Aligning with the current study results, a recent Iraqi study by Al-Asadi *et al.* in 2022 [32] showed that hysteroscopy was more accurate with higher sensitivity in diagnosing endometrial polyps (100%) and fibroids (83%). On the other hand, hysteroscopy showed low sensitivity in detecting endometrial cancer (50%). The combined use of hysteroscopy and histopathology allowed for a comprehensive evaluation of endometrial pathology, with high validity for detecting endometrial polyps (98.7% accuracy) and submucous myoma (100% accuracy), consistent with regional and international studies [27, 30]. Moreover, our findings on endometrial polyps and adenocarcinoma align closely with prospective cohort studies in Iraq, Egypt, and India, supporting the generalizability of certain outcomes within similar populations [28,32].

Study limitations

Although the current study involved a relatively decent sample of women presenting with PMB, multiple limitations must be acknowledged. First, the single-centered nature of the study may limit the generalizability of findings. Second, the lack of follow-up for the recurrence of PMB prevents assessment of long-term outcomes or recurrent pathology. Thirdly, both hysteroscopy and histopathology are operator-dependent, and while performed by experienced specialists, inter-observer variability cannot be entirely excluded. Fourth, the absence of complementary imaging modalities, such as transvaginal ultrasound, may have limited the diagnostic scope. Finally, the hospital-based setting may introduce selection bias, as patients referred to a tertiary care center may have more complex clinical presentations compared to the general population.

Conclusion

The common cause of postmenopausal bleeding is endometrial polyps. Hysteroscopy has an acceptable validity in identifying causes of postmenopausal bleeding. This study recommended the use of hysteroscopy in screening and diagnosis of postmenopausal bleeding.

Conflict of interests

The author declares no conflict of interest.

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Data sharing statement

Supplementary data is available from the corresponding author on a reasonable request.

REFERENCES

1. Carugno J. Clinical management of vaginal bleeding in postmenopausal women. *Climacteric*. 2020;23:343-349. 20200401. doi: 10.1080/13697137.2020.1739642.
2. Santoro N, Roeca C, Peters BA, Neal-Perry G. The Menopause transition: Signs, symptoms, and management options. *J Clin Endocrinol Metab*. 2021;106:1-15. doi: 10.1210/clinem/dgaa764.
3. Giannella L, Mfuta K, Setti T, Cerami LB, Bergamini E, Boselli F. A risk-scoring model for the prediction of endometrial cancer among symptomatic postmenopausal women with endometrial thickness > 4 mm. *Biomed Res Int*. 2014;2014:130569. doi: 10.1155/2014/130569.
4. Ali S, Sattar Salih H, Saadoon N. Exploring women's challenge to Pap smear attendance and colposcopy referral: A qualitative study. *Malaysian J Med Health Sci*. 2022;18:150-155. doi: 10.47836/mjmhs18.4.21.
5. Ali SM, Clark MT, Khedher Ghalib A, Skirton H, Donaldson C. "We don't have up to date knowledge about the disease" Practical challenges encountered in delivery of cervical cancer screening in Iraq. *Eur J Cancer Care (Engl)*. 2021;30:e13457. doi: 10.1111/ecc.13457.
6. Akram A. Risk factors and prevalence of osteoporosis amidst postmenopausal females turning up the diabetes and endocrinology clinic at Azadi Teaching Hospital at Kirkuk /Iraq. *Kirkuk J Med Sci*. 2022;10:160-72. doi: 10.32894/kjms.2022.174641.
7. Kumari K, Paswan MK, Kundan M, Ambedkar SN. A prospective study of endometrial histopathology in postmenopausal women in Jharkhand. *J Family Med Prim Care*. 2024;13:1696-700. doi: 10.4103/jfmpe.jfmpe_1331_23.
8. Ibrahim RO, Omer SH, Fattah CN. The Correlation between hormonal disturbance in PCOS women and serum level of kisspeptin. *Int J Endocrinol*. 2020;2020:6237141. doi: 10.1155/2020/6237141.
9. Burbos N, Musonda P, Giarenis I, Shiner AM, Giamougiannis P, Morris EP, et al. Predicting the risk of endometrial cancer in postmenopausal women presenting with vaginal bleeding: the Norwich DEFAB risk assessment tool. *Br J Cancer*. 2010;102:1201-1206. doi: 10.1038/sj.bjc.6605620.
10. Abdul Hasan M, Hashimi B, Qasim A, Al Ameen M. Prevalence of abnormal Pap smears among sample of Iraqi women attending Al Elweiya cervical screening unit in Baghdad. *J Cardiovasc Dis Res*. 2020;11:120-124. doi: 10.31838/jcdr.2020.11.02.18.
11. Van den Bosch T. Ultrasound in the diagnosis of endometrial and intracavitary pathology: an update. *Australas J Ultrasound Med*. 2012;15:7-12. doi: 10.1002/j.2205-0140.2012.tb00135.x.
12. ACOG Committee Opinion No. 734: The Role of transvaginal ultrasonography in evaluating the endometrium of women with postmenopausal bleeding. *Obstet Gynecol*. 2018;131:e124-e29. doi: 10.1097/aog.0000000000002631.
13. Dimitraki M, Tsikouras P, Bouchlariotou S, Dafopoulos A, Liberis V, Maroulis G, et al. Clinical evaluation of women with PMB. Is it always necessary an endometrial biopsy to be performed? A review of the literature. *Arch Gynecol Obstet*. 2011;283:261-266. doi: 10.1007/s00404-010-1601-3.
14. Cooper NA, Barton PM, Breijer M, Caffrey O, Opmeer BC, Timmermans A, et al. Cost-effectiveness of diagnostic strategies for the management of abnormal uterine bleeding (heavy menstrual bleeding and post-menopausal bleeding): a decision analysis. *Health Technol Assess*. 2014;18:1-201, v-vi. doi: 10.3310/hta18240.
15. Shen Y, Yang W, Liu J, Zhang Y. Minimally invasive approaches for the early detection of endometrial cancer. *Mol Cancer*. 2023;22:53. doi: 10.1186/s12943-023-01757-3.
16. Trojano G, Damiani GR, Casavola VC, Loiacono R, Malvasi A, Pellegrino A, et al. The role of hysteroscopy in evaluating postmenopausal asymptomatic women with thickened endometrium. *Gynecol Minim Invasive Ther*. 2018;7:6-9. doi: 10.4103/gmit.Gmit_10_17.
17. Omar AA, Seham A, Al-Kharabsheh AM, Alshara E, Sindiani AM, Hamdan O, et al. Clinical and sonographic evaluation of postmenopausal bleeding (PMB) followed by diagnostic and/or therapeutic hysteroscopy and guided biopsy in

- Jordanian hospitals. *Medicina (Kaunas)*. 2020;56. doi: 10.3390/medicina56040147.
18. Raheem A, Ghafel H. Evaluation of bleeding characteristics among menopausal women at maternity hospitals in Baghdad city. *Kufa J Nurs Sci*. 2021;11:1-12. doi: 10.36321/kjns.vi20211.474.
 19. Abdollahi AA, Qorbani M, Asayesh H, Rezapour A, Noroozi M, Mansourian M, et al. The menopausal age and associated factors in Gorgan, Iran. *Med J Islam Repub Iran*. 2013;27:50-56.
 20. Liu F, Cheung ECW, Lao TT. Obesity increases endometrial cancer risk in Chinese women with postmenopausal bleeding. *Menopause*. 2021;28:1093-1098. doi: 10.1097/gme.0000000000001822.
 21. Talwar S, Kaur H, Tapasvi I, Nibhoria S, Tapasvi C. Clinical and histopathological characteristics in women with postmenopausal bleeding: A study of 120 women in a tertiary care hospital in Punjab. *Cureus*. 2024;16:e51690. doi: 10.7759/cureus.51690.
 22. Mansingh S, Dhillon A, Sood S, Anne S, Godi P. Hysteroscopic evaluation of postmenopausal bleeding patients and its correlation with histopathological examination. *Int J Reprod Contracept Obstet Gynecol*. 2020;9:3215. doi: 10.18203/2320-1770.ijrcog20203298.
 23. Hamood MA. The role of hysteroscopy in diagnosis of suspected endometrial pathology and its histopathological correlation. *Int J Clin Obstet Gynaecol*. 2019;3:37-42. doi: 10.33545/gynae.2019.v3.i5a.328.
 24. Al Adami MS, Al Taie ID. Diagnostic hysteroscopy versus diagnostic curettage for evaluation of endometrial pathology in patients with abnormal uterine bleeding. *J Fac Med Baghdad*. 2010;51:361-364. doi: 10.32007/jfacmedbagdad.5141081.
 25. Flayah MJ, Hussein AG. Clinicopathological assessment of postmenopausal bleeding in a sample of Iraqi patients. *Iraqi Postgrad Med J*. 2024;23:73-80. doi: 10.52573/ipmj.2024.183106.
 26. Khademi K, Kaveh MH, Nazari M, Asadollahi A. Perceived lack of behavioral control is a barrier to a healthy lifestyle in post-menopause: a qualitative study. *J Health Popul Nutr*. 2024;43:180. doi: 10.1186/s41043-024-00674-5.
 27. AbdelHameed AM, Rabei NH, Dikary MM, Farid LA. Hysteroscopy in the evaluation of postmenopausal bleeding. *Egypt J Hosp Med*. 2022;89:6297-6304. doi: 10.21608/ejhm.2022.268972.
 28. Das S, Mondal R. Comparison of hysteroscopy and histopathology in diagnosing abnormal uterine bleeding: an experience from a tertiary care center of eastern India. *New Indian J OBGYN*. 2021;7:135-141. doi: 10.21276/obgyn.2021.7.2.5.
 29. Ferrando CA, Lintel MK, Bradley LD. Comparing endometrial biopsy results with hysteroscopic pathology in women presenting with abnormal and postmenopausal uterine bleeding. *J Gynecol Obstet Hum Reprod*. 2023;52:102685. doi: 10.1016/j.jogoh.2023.102685.
 30. Korkmazer E, Solak N, Üstünyurt E, Tokgöz VY. Role of hysteroscopy in evaluation of postmenopausal bleeding hysteroscopy in menopause. *J Clin Obstet Gynecol*. 2015;25:1300-1306. doi: 10.5336/gynobstet.2014-42527.
 31. Rasheedy R, Abbas A. Hysteroscopic findings in postmenopausal bleeding and its correlation with histopathology: Does clinical experience matter? *Egypt J Geriatr Gerontol*. 2018;5:1-6. doi: 10.21608/ejgg.2018.30882.
 32. Al-Asadi F, Jasim SK. Accuracy of office hysteroscopy in diagnosis of endometrial pathologies compared to ultrasound and histopathology in Baghdad Teaching Hospital. *J Popul Ther Clin Pharmacol*. 2022;29:e104-e108. doi: 10.47750/jptcp.2022.954.