Prevalence of Endometrial Polyps in Women with Abnormal Uterine Bleeding in Babylon: A Cross-Sectional Study

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***Abstract*—Abnormal uterine bleeding (AUB) is one of the most frequent gynecological complaints, and endometrial polyps represent an important underlying cause. This study aimed to determine the prevalence of endometrial polyps among women presenting with AUB in Babylon, to identify associated demographic and clinical risk factors, and to evaluate the diagnostic performance of transvaginal ultrasound (TVUS) compared with hysteroscopy. A cross-sectional study was conducted on 200 women aged 18–50 years who attended gynecology outpatient clinics between September 2024 and September 2025. Sociodemographic and clinical data were recorded, and all participants underwent TVUS followed by diagnostic hysteroscopy, which served as the gold standard. The mean age of participants was 44.3 ± 6.0 years, and the mean body mass index (BMI) was 28.4 ± 4.9 kg/m². Endometrial polyps were identified in 29.5% of cases on TVUS and 32.5% on hysteroscopy, with additional findings including submucosal fibroids (22.5%), endometrial hyperplasia (12.5%), adenomyosis (7.5%), and endometrial cancer (3.5%). Women with polyps tended to be older and have a higher BMI compared with those without polyps, though these associations were not statistically significant. TVUS demonstrated a sensitivity of 76.9%, specificity of 93.3%, and an overall diagnostic accuracy of 88% in detecting polyps relative to hysteroscopy. These findings indicate that endometrial polyps are a prevalent cause of AUB in Babylon, affecting nearly one-third of symptomatic women. TVUS is a useful, non-invasive first-line diagnostic tool, but hysteroscopy remains the gold standard for definitive diagnosis and management.**

***Keywords*—Abnormal uterine bleeding, Endometrial polyps, Transvaginal ultrasound, Hysteroscopy, Prevalence, Gynecology**

INTRODUCTION

Abnormal uterine bleeding (AUB) is one of the most common gynecological complaints worldwide, affecting women across reproductive and postmenopausal age groups. It encompasses any deviation from the normal menstrual cycle, including changes in frequency, regularity, duration, and volume of bleeding. Structural abnormalities of the uterus are a leading cause of AUB, and among these, endometrial polyps represent a significant contributor (1). Endometrial polyps are localized overgrowths of the endometrial tissue, which may consist of glands, stroma, and blood vessels, and are typically attached to the uterine wall by a thin stalk (pedunculated) or a broad base (sessile). They can vary in number and size, ranging from a few millimeters to several centimeters, and may be solitary or multiple (2).

The prevalence of endometrial polyps among women presenting with AUB varies widely in the literature, with estimates ranging from 7% to 34%, and tends to increase with advancing age, particularly in perimenopausal and postmenopausal women (1). The prevalence of endometrial polyps in Iraq varies across studies, influenced by factors such as study design, patient population, and diagnostic methods. A study conducted at Sulaimani Maternity Teaching Hospital reported that endometrial polyps were found in 20% of women with abnormal uterine bleeding (3). Another study from Baghdad Teaching Hospital found a prevalence of 33.4% among women referred for fertility evaluation (4).

The pathogenesis is multifactorial, involving hormonal influences such as unopposed estrogen stimulation, obesity, hypertension, tamoxifen use, and chronic endometrial inflammation (5). Polyps may also develop in response to local growth factors and angiogenesis within the endometrial tissue (6). Clinically, endometrial polyps may be asymptomatic, discovered incidentally during imaging, or present with symptoms of variable severity. Symptomatic polyps commonly cause menorrhagia, metrorrhagia, intermenstrual bleeding, or postmenopausal bleeding, significantly affecting quality of life. Rarely, polyps may be associated with infertility or recurrent pregnancy loss due to interference with implantation (7).

Diagnosis of endometrial polyps relies on imaging techniques. Transvaginal ultrasound is often the first-line tool, detecting endometrial thickening or focal lesions. Sonohysterography enhances diagnostic accuracy by distending the uterine cavity with saline, providing clearer visualization of polyps (8). However, hysteroscopy remains the gold standard, allowing direct visualization, precise localization, and the option for simultaneous biopsy, which is essential for excluding hyperplasia or malignancy. Histopathological evaluation of removed polyps determines their benign, premalignant, or malignant nature (9).

Management of endometrial polyps depends on clinical presentation, size, number, and risk of malignancy. Asymptomatic, small polyps may be monitored conservatively, particularly in premenopausal women. Symptomatic polyps, polyps in postmenopausal women, or those with suspicious features are treated with hysteroscopic polypectomy, which is both diagnostic and therapeutic. Surgical removal not only alleviates symptoms but also allows histopathological assessment to rule out malignancy. In addition, addressing underlying risk factors, such as obesity or hormonal therapy, is important to prevent recurrence (10, 11, 12).

This study aimed to determine the prevalence of endometrial polyps in women presenting with AUB in Babylon, to identify demographic and clinical risk factors associated with endometrial polyps, and to assess the role of transvaginal ultrasound and hysteroscopy in diagnosis.

METHODS

This research was designed as a cross-sectional study and was carried out in the gynecology outpatient clinics of Babylon over one year, from September 1, 2024, to September 1, 2025. The primary aim was to determine the prevalence of endometrial polyps among women presenting with abnormal uterine bleeding (AUB). Secondary objectives were to identify demographic and clinical risk factors associated with endometrial polyps and to evaluate the diagnostic accuracy of transvaginal ultrasound (TVUS) compared with hysteroscopy.

The study population consisted of women aged 18–50 years who presented with AUB, defined as bleeding outside the normal volume, duration, or regularity of the menstrual cycle (13). Exclusion criteria included pregnancy, a known history of endometrial or other gynecological malignancies, and current use of hormonal therapy, as these factors could interfere with study outcomes.

A total of 200 participants were recruited using consecutive sampling, enrolling all eligible women presenting during the study period until the sample size was achieved. Data collection was conducted using a structured case record form. Sociodemographic characteristics (age, residence, level of education, marital status, parity, and socioeconomic status) were recorded through face-to-face interviews. Clinical history covered detailed menstrual patterns, including cycle length, duration, frequency, and volume of bleeding, as well as intermenstrual or postcoital bleeding and dysmenorrhea. Obstetric history (parity, miscarriages) was also documented. Anthropometric measurements, including height, weight, and body mass index (BMI), were measured using standardized procedures.

All participants underwent transvaginal ultrasound (TVUS) performed by an experienced radiologist to evaluate the uterus and endometrial cavity. Whenever possible, TVUS was conducted during the follicular phase of the menstrual cycle to optimize visualization of endometrial polyps. The radiologist performing TVUS was blinded to any previous clinical or hysteroscopic findings, ensuring that the assessment was independent and minimizing potential diagnostic bias. Diagnostic criteria for polyps included the identification of a well-defined focal echogenic mass within the endometrium, with or without a single feeding vessel on Doppler imaging (14).

Following sonographic evaluation, all participants underwent diagnostic hysteroscopy performed under aseptic conditions by a trained gynecologist. Hysteroscopy was conducted in the follicular phase whenever possible to optimize visualization of the uterine cavity. It served as the gold standard for diagnosis, allowing direct visualization and documentation of polyp characteristics, including size, number, and anatomical location. When deemed

necessary, hysteroscopic-guided biopsies were obtained to rule out hyperplasia or malignancy.

Data were analyzed using SPSS version 26. Descriptive statistics, including means and standard deviations for continuous variables and frequencies with percentages for categorical variables, were used to summarize participant characteristics and prevalence rates. Associations between potential risk factors and the presence of endometrial polyps were assessed using chi-square tests for categorical data and independent t-tests for continuous data. Binary logistic regression analysis was employed to identify independent predictors of endometrial polyps. The diagnostic accuracy of TVUS was evaluated against hysteroscopy, calculating sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV). A p-value of less than 0.05 was considered statistically significant.

Written informed consent was obtained from all participants after providing a clear explanation of the study objectives, procedures, and potential risks. Confidentiality of data was maintained by assigning unique study identifiers and securely storing participant information, ensuring that no personal identifiers were disclosed in research reports.

RESULTS

The study population included 200 women with abnormal uterine bleeding, with a mean age of 44.26 ± 5.98 years, predominantly urban residents (59%) and married (77%). The majority had a BMI in the overweight range (28.4 ± 4.86 kg/m²), and educational levels were 27.5% with college or higher education. (Table 1)

Table 1. Sociodemographic and Anthropometric Characteristics of the Study Population (n = 200)

Variables		No	%
Age	Mean ± SD	44.26 ± 5.98	
Residency	Rural	82	41.0
	Urban	118	59.0
Educational level	Illiterate	25	12.5
	Primary	53	26.5
	Secondary	67	33.5
	College and higher education	55	27.5
Marital status	Single	46	23.0
	Married	154	77.0
Parity	Nullipara	66	33.0
	1-4	111	55.5
	>5	23	11.5
Weight	Mean ± SD	75.5 ± 12.32	
Height	Mean ± SD	160.2 ± 6.52	
BMI	Mean ± SD	28.4 ± 4.86	

Menstrual assessment revealed a mean cycle length of 28.5 ± 2.5 days and a mean bleeding duration of 6.9 ± 2.3 days, with 43% experiencing intermenstrual bleeding, 21.5% postcoital bleeding, and 60.5% dysmenorrhea. (Table 2)

Table 2. Menstrual Characteristics of the Study Population (n = 200)

Variables	No	%
Cycle length (days)	28.5 ±2.5	
Bleeding duration	6.9 ± 2.3	
Intermenstrual bleeding	86	43.0
Postcoital bleeding	43	21.5
Dysmenorrhea	121	60.5

Transvaginal ultrasonography identified endometrial polyps in 29.5% of women, submucosal fibroids in 20.5%, endometrial hyperplasia in 11%, adenomyosis in 5%, and endometrial cancer in 2.5%, while 31.5% had normal endometrium. (Table 3)

Table 3. TVUS Findings (n = 200)

Variables	No	%
Endometrial thickness (mm)	8.5 ± 1.2	
Endometrial polyps	59	29.5
Submucosal fibroids	41	20.5
Endometrial hyperplasia	22	11.0
Adenomyosis	10	5.0
Endometrial cancer	5	2.5
Normal endometrium	63	31.5
Total	200	100.0

Hysteroscopy confirmed a higher prevalence of polyps (32.5%) and fibroids (22.5%), with hyperplasia in 12.5%, adenomyosis in 7.5%, cancer in 3.5%, and normal findings in 21.5%, highlighting its superior diagnostic accuracy. (Table 4)

Table 4. Hysteroscopic Findings (n = 200)

Variables	No.	%
Endometrial polyps	65	32.5
Submucosal fibroids	45	22.5
Endometrial hyperplasia	25	12.5
Adenomyosis	15	7.5
Endometrial cancer	7	3.5
Normal endometrium	43	21.5
Total	200	100.0

Comparison of baseline characteristics between women with polyps and other diagnoses showed slightly higher age and BMI among those with polyps, though differences were not statistically significant, and parity distribution was similar. (Table 5)

Table 5. Comparison of Baseline Characteristics Between Women with Endometrial Polyps and Other Diagnoses

Variables		Polyp (n=65)	Other diagnosis (n=135)	p-value
Age (years)		45.2 5.4	43.8 6.1	0.12
BMI (kg/m2)		29.3 4.5	28.0 5.1	0.08
Parity	Nullipara	20 (30.8)	46 (34.1)	0.91
	1-4	37 (56.9)	74 (54.8)	
	≥ 5	8 (12.3)	15 (11.1)	

Overall, TVUS demonstrated good sensitivity (76.9%), high specificity (93.3%), and an overall accuracy of 88% for detecting endometrial polyps compared with hysteroscopy, supporting its role as a reliable first-line, non-invasive diagnostic tool while confirming that hysteroscopy remains the gold standard.

Table 6. Diagnostic Performance of TVUS for Endometrial Polyps Compared with Hysteroscopy

TVUS	Hysteroscopy positive	Hysteroscopy negative	Total
Polyp detected	50	9	59
Polyp not detected	15	126	141
Total	65	135	200
Sensitivity	76.9 %		
Specificity	93.3%		
Accuracy	88.0%		

DISCUSSION

Abnormal uterine bleeding (AUB) is among the most frequent gynecological complaints and represents a major cause of morbidity, impaired quality of life, and healthcare expenditure worldwide. It affects women across reproductive and postmenopausal age groups and may result from structural, hormonal, or systemic factors. Among structural causes, endometrial polyps constitute a significant proportion, being responsible for intermenstrual, heavy, or postmenopausal bleeding, and occasionally infertility. Their clinical importance lies not only in the burden of symptoms but also in the small yet significant risk of atypia or malignant transformation, particularly in peri- and postmenopausal women. Therefore, determining the prevalence of endometrial polyps in women with AUB is essential to guide clinical decision-making and optimize diagnostic strategies.

In this study, the prevalence of endometrial polyps was 32.5% using hysteroscopy, which is considered the gold standard, and 29.5% by transvaginal ultrasound (TVUS). This prevalence is consistent with figures reported internationally, which range between 7% and 34% depending on population characteristics and diagnostic techniques [15, 16]. Regional studies from Iraq have shown variable results: 20% in Sulaimani [17] and 33.4% in Baghdad [18]. The higher prevalence in our cohort may be explained by the relatively older mean age of participants (44.3 years), as polyps are more frequent in perimenopausal women [19]. Additionally, higher body mass index (mean 28.4 kg/m²) could have contributed, given obesity and unopposed estrogen stimulation are recognized risk factors [20].

Our analysis also revealed that women with polyps tended to have slightly higher age and BMI compared with those without polyps, although these associations did not reach statistical significance. Previous studies have confirmed older age, obesity, hypertension, and tamoxifen use as independent predictors [21, 22]. The absence of statistical significance in our study may relate to sample size or the relatively homogeneous characteristics of our population.

TVUS demonstrated good diagnostic accuracy in our cohort, with a sensitivity of 76.9%, specificity of 93.3%, and overall accuracy of 88% compared with

hysteroscopy. These findings are in line with other studies reporting sensitivity ranging from 70% to 86% and specificities from 80% to 95% [20,23]. The high specificity in our series underscores the reliability of TVUS in ruling out polyps, although its moderate sensitivity suggests some lesions may be missed, especially small sessile polyps or those obscured by endometrial thickening. Sonohysterography has been shown to increase sensitivity up to 90–95% [24], but this was not applied in our study.

In addition to polyps, hysteroscopy identified other structural abnormalities such as fibroids (22.5%), hyperplasia (12.5%), adenomyosis (7.5%), and malignancy (3.5%). These findings emphasize that while polyps are common, AUB is multifactorial, and a thorough evaluation is essential to avoid underdiagnosis of serious pathology. The detection of malignancy in 3.5% of patients highlights the value of histopathological assessment, consistent with literature reporting malignancy in 1–5% of polyps, particularly in older women [25].

Our findings carry important clinical implications. First, TVUS remains a valuable, non-invasive, and widely available first-line diagnostic tool. Its high specificity justifies its use as an initial screening modality, reserving hysteroscopy for confirmation, treatment, and histological sampling. Second, the relatively high prevalence of polyps in our study underscores the need for clinicians in Babylon and similar settings to maintain a high index of suspicion when evaluating women with AUB, particularly in perimenopausal and overweight patients. Third, the integration of hysteroscopy as both a diagnostic and therapeutic procedure provides a cost-effective and efficient management pathway.

The differences observed between our study and other regional and international reports may be attributed to variations in patient demographics, inclusion criteria (AUB versus infertility populations), diagnostic techniques (TVUS, sonohysterography, hysteroscopy), and healthcare access. Moreover, cultural and lifestyle factors influencing obesity, parity, and healthcare-seeking behavior may also contribute.

The strengths of this study include its prospective design, use of consecutive sampling to minimize selection bias, and comparison of TVUS with hysteroscopy as the gold standard. However, several limitations should be acknowledged. First, the study was conducted in a single center, which may limit generalizability. Second, although the sample size was adequate, subgroup analyses for risk factors such as obesity and parity may have been underpowered. Third, long-term follow-up was not undertaken, preventing evaluation of recurrence rates or outcomes after polypectomy. Finally, sonohysterography, which could improve diagnostic accuracy, was not employed due to resource constraints.

CONCLUSION AND RECOMMENDATIONS

this study demonstrated that endometrial polyps are a common cause of AUB in Babylon, affecting nearly one-third of symptomatic women. TVUS offers reliable first-line evaluation, but hysteroscopy remains indispensable for definitive diagnosis and management. The relatively high prevalence observed highlights the importance of early detection and comprehensive assessment of AUB to exclude malignancy and improve patient outcomes. Future studies with larger multicenter cohorts, incorporation of sonohysterography, and long-term follow-up after treatment are warranted to strengthen the evidence base and guide clinical practice.

Conflicts of Interests: None

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Ethical Approvals: Ethical approval for the study was obtained from the relevant institutional review board, and informed consent was acquired from all participants prior to their inclusion in the study.

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