ORIGINAL ARTICLE

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Determination of Risk Factors for Endometrial Polyp Formation in Patients Who Had

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Abstract

Objective: We aimed to evaluate the risk factors of patients who underwent endometrial sampling due to abnormal uterine bleeding (AUB) and were found to have endometrial polyps.

Methods: Patients who applied to İstanbul Bahçelievler State Hospital Gynecology and Obstetrics Clinic with complaints of abAUB between September 2022 and December 2023 were retrospectively investigated. Patients were grouped as endometrial polyp and other pathologies according to the pathology results. Both groups were compared in terms of age, gravida, parity, type of birth, height, weight, body mass index, comorbidities, presence of accompanying cervical polyps, age at menarche, age at menopause, and hemoglobin values.

Results: The mean age of menarche of the endometrial polyp group was lower than that in the other pathologies group (p=0.0001). The mean BMI was significantly higher in the polyp group than in the other pathologies group (p=0.0001). In addition, hypertension was found to be significantly higher in the polyp group (p=0.009).

Conclusion: In our study, we found that early age at menarche, high body mass index, and hypertension were important risk factors for the development of endometrial polyps. Therefore, we recommend detailed anamnesis in clinically compatible patients, question these risk factors in their medical history, and warn them of the development of endometrial polyps if present.

Keywords: Endometrial polyp, hypertension, body mass index

INTRODUCTION

Normal menstrual bleeding is defined as regular bleeding between 5 and 80 mL, occurring every 24-38 days and lasting 4-8 days. It has been shown in previous studies that it is seen in one-third of women, especially in reproductive age (1). According to the International Federation of Gynecology and Obstetrics (FIGO), abnormal uterine bleeding (AUB) can be acute or chronic. Bleeding that occurs for most of the last 6 months and is abnormal in terms of amount, regularity and timing is defined as chronic AUB (2). Bleeding that requires immediate intervention by a physician is referred to as acute AUB.

FIGO Systems 1 and 2 are used to evaluate patients with AUB. This system was developed to allow physicians to define normal and abnormal menstrual bleeding in a common terminology. FIGO System 1 is an anamnesis-based evaluation based on the frequency, duration, pattern, and flow volume of menstrual bleeding, and the presence or absence of intermenstrual bleeding. In this way, it is aimed to reach a preliminary diagnosis regarding the disorder that causes AUB with the history taken from the patient.

The FIGO System 2, which was first defined in 2011 and revised in 2018, categorizes possible causes of AUB. This classification defines polyps, adenomyosis, leiomyoma, malignancy, and

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hyperplasia (PALM), which can be detected by imaging methods or histopathological evaluation, as structural causes. Coagulopathy, ovulatory dysfunction, endometrial and iatrogenic causes (COEI) constitute non-structural causes. In addition, potential contributors (N) that cannot be classified in any other way are also categorized (3).

Endometrial polyp is the excessive proliferation of endometrial stroma and glands extending into the uterine cavity (4). Their size, location, structure, and number may vary, and these differences cause changes in symptoms. While they may be asymptomatic, they may experience intermenstrual bleeding, postmenstrual spotting, or AUB that may cause significant blood loss. The pathogenesis and natural course of endometrial polyps are not clearly known. Some risk factors for breast cancer, such as advanced age, estrogen exposure, and tamoxifen use for breast cancer (5). Although it is frequently observed in the reproductive period, it can also occur in the postmenopausal period. Polyps are mostly benign. However, malignancy risk factors such as increasing age (>60), postmenopausal status, AUB over the age of 40 years, tamoxifen use, additional diseases (such as diabetes, hypertension, obesity) and hereditary cancer syndromes have been identified (6). Studies on the malignancy probability of endometrial polyps have shown different results, ranging from 0.5% to 5% (7).

Endometrial sampling should be recommended for patients over the age of 45 who complain of AUB and for patients under the age of 45 who have unopposed estrogen exposure, do not respond to treatment, and have malignancy risk factors, such as obesity and polycystic ovary syndrome.

In this study, we aimed to investigate the risk factors of patients who applied to our hospital with complaints of AUB. Endometrial sampling was performed, and endometrial polyps were detected as a result of pathology.

METHODS

The study was initiated with the approval of the Non-Interventional Clinical Research Ethics Committee of University of Health Sciences Turkey, Prof. Dr. Cemil Taşçıoğlu City Hospital (approval number: 48670771-514.99-233702584, date: 09/01/2024). All procedures were performed adhered to the ethical principles of the Helsinki Declaration. Informed consent was obtained from all patients.

In this study, we retrospectively investigated patients who applied to İstanbul Bahçelievler State Hospital Gynecology and Obstetrics Clinic with complaints of AUB, including postmenopausal bleeding, between September 2022 and December 2023 were retrospectively investigated. Anamnesis information, pelvic examination and ultrasonography findings, laboratory parameters, and pathology results of patients who underwent endometrial sampling were recorded.

Patients were grouped as endometrial polyp and other pathologies according to pathology results. Risk factors in patients with endometrial polyps were evaluated by comparing the age, gravida, parity, mode of delivery, height, weight, body mass index, comorbidities, presence of accompanying cervical polyps, age at menarche, age at menopause, and hemoglobin values.

Statistical Analysis

In this study, statistical analyses were performed using the NCSS (Number Cruncher Statistical System) 2007 Statistical Software (Utah, USA) package program. In the evaluation of the data, in addition to descriptive statistical methods (mean, standard deviation, median, interquartile range), the distribution of the variables was examined using the Shapiro-Wilk normality test. The independent t-test was used to compare pairwise groups of variables with normal distribution, and the Mann-Whitney U test was used to compare pairwise groups of variables that did not show normal distribution. The chi-square test was used for comparisons of qualitative data. Logistic regression analysis was performed to identify factors affecting endometrial polyps. The results were evaluated at the significance level of $p<0.05$.

RESULTS

A total of 161 patients were included in the study. The pathology causing AUB in 59 of the patients (36%) was endometrial polyp, and 53 of these patients (30.5%) were in the postmenopausal period. The mean age of patients with endometrial polyps was 49.36 years, and that of patients with non-polyp pathology was 48.83 years. Although the mean age at menarche was lower in the endometrial polyp group than in the other pathologies groups, the mean gravida and parity were significantly higher. In addition, normal birth rates were found to be higher in the polyp group than in the other pathologies group (Table 1).

The mean BMI of the endometrial polyp group was significantly higher than that of the other pathologies group (Figure 1). In addition, 32.2% of the patients in the endometrial polyp group had a known diagnosis of hypertension, whereas this rate was 14.7% in patients with other pathologies ($p=0.009$). There were no significant differences between the two groups with respect to diabetes mellitus (Table 2).

The mean hemoglobin values at the first admission in the endometrial polyp group were calculated as 11.05±1.47 g/dL, and in the other pathologies group, 12.54±1.42 g/dL. The difference between the two groups was statistically significant (Figure 2).

Cervical polyps were also present in 32.2% of patients in the endometrial polyp group and in 40.2% of patients in the other pathologies group (Table 3). Logistic regression analysis was performed to determine the factors affecting the development of endometrial polyps. Results showed that the risk of polyp development increased with decreasing age of menopause (Table 4).

Table 1. Evaluation of patients in terms of age, age at menarche and gravida parity and mode of delivery

		Other pathologies n=102		Endometrial polyp n=59		p
Age	Mean±SD	48.83±8.27		49.36±8.77		0.706*
Age at menarche	Mean±SD	12.49±0.85		11.9±0.76		**0.0001***
Gravida	Mean±SD	2.85±1,66		3.32±1.38		**0.001†**
	Median (IQR)	2 (2-3)		2 (2-4)		
Parity	Mean±SD	2.61±1.52		2.90±1.21		**0.009†**
	Median (IQR)	2 (2-3)		2 (2-4)		
Mode of delivery	VB	45	44.12%	44	74.58%	**0.001+**
	C/S	41	40.20%	13	22.03%	
	VB+C/S	16	15.69%	2	3.39%	

*Independent t-test, †Mann-Whitney U test, +Chi-square test
VB: Vaginal birth, C/S: Cesarean Section, IQR: Interquartile range, SD: Standard deviation

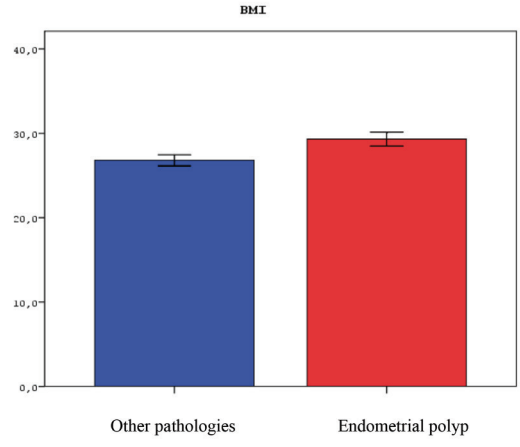

Figure 1. Mean BMI values of both groups
BMI: Body mass index

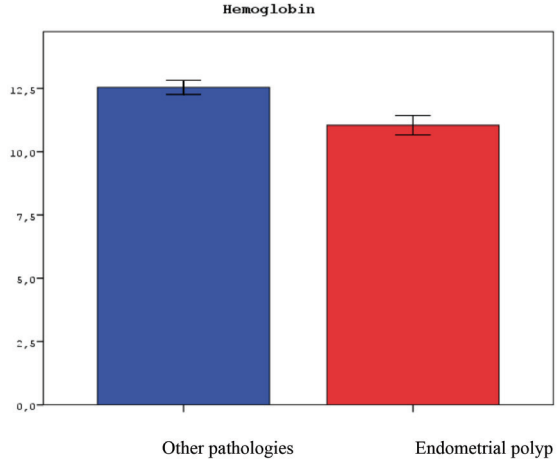

Figure 2. Mean hemoglobin values of both groups

Table 2. Association of endometrial polyp with BMI, DM, and HT

		Other pathologies n=102		Endometrial polyp n=59		p
BMI	Mean±SD	26.8±3.37		29.32±3.15		**0.0001***
DM	No	86	84.31%	49	83.05%	0.834+
	Yes	16	15.69%	10	16.95%	
HT	No	87	85.29%	40	67.80%	**0.009+**
	Yes	15	14.71%	19	32.20%	

*Independent t-test, +Chi-square test
BMI: Body mass index, DM: Diabetes mellitus, HT: Hipertension, SD: Standard deviation

Table 3. Patients with cervical polyps in both groups						
		Other pathologies n=102		Endometrial polyp n=59		p
Cervical polyp	No	61	59.80%	40	67.80%	0.312+
	Yes	41	40.20%	19	32.20%	
+Chi-square test						

Table 4. Logistic regression analysis		
	OR (%95 CI)	p
Gravida	2.13 (0.27-3.82)	0.475
Parity	0.39 (0.05-3.33)	0.392
Age at menarche	0.43 (0.13-1.42)	0.166
Age at menopause	0.61 (0.4-0.92)	**0.014**
BMI	1 (0.78-1.27)	0.974
HT	1.8 (0.64-2.31)	0.128
BMI: Body mass index, HT: Hypertension OR: Odds ratio, CI: Confidence interval		

DISCUSSION

Endometrial polyps are benign pathologies that can be detected in the reproductive age and postmenopausal period. They usually cause AUB and infertility. Dreisler et al. (8) in their study on Danish women between the ages of 20 and 74, found endometrial polyps in 7.8% of women with AUB. Anastasiadis et al. (9) in their study investigating the prevalence and malignancy potential of endometrial polyps in patients with AUB, detected the prevalence of endometrial polyps to be 8.9%. Günakan et al. (10) investigated endometrial histopathological results and endometrial cancer risk in a geriatric population and found that the most common histopathological finding was endometrial polyp with 26.6%. In our study, endometrial polyps were detected in 36% of women presenting with AUB, and we observed that it was more common than studies in the literature.

In our study, 18 (30.5%) patients with polyps were in the postmenopausal period. We also found that the mean age at menarche in patients with polyps was lower than that in the other pathologies groups. We believe that these differences are related to estrogen exposure.

In the patients who participated in our study, the mean BMI of the endometrial polyp group was significantly higher than that of the other pathologies. Serhat et al. (11) investigated the relationship between diabetes, hypertension, and obesity and endometrial polyp development. They found that the average BMI of the patients in whom they detected polyps was higher than the control group. Wong et al. (12) stated that in endometrial polyps for which they performed hysteroscopic resection, premalignant lesions were more common in older and obese patients. Nappi et al. (13) stated in their study that age, menopause, HT, and obesity were associated with the presence of endometrial polyps in one-way logistic analysis, but there was no similar relationship in multi-way logistic analysis. In another study, Onalan et al. (14) reported that obesity was associated with endometrial polyp development, polyp size, and number of polyps in patients undergoing in vitro fertilization. It is known that estrogen exposure increases with BMI. Based on these results, our study supports the theory of estrogen exposure and polyp development.

In our study, a significant relationship was found between the presence of endometrial polyps and HT, while a similar relationship was not found with DM. Bueloni-dias et al. (15) found that DM, HT, and dyslipidemia were significantly more common in postmenopausal women with endometrial polyps. Hassa et al. (16) similar to our study, stated that hypertension is a risk factor for endometrial polyp, but they did not detect a relationship between DM and endometrial polyp. Baiocchi et al. (17) in their study in which they presented their 12-year experience regarding the risk of malignancy in endometrial polyps, stated that there was a positive correlation between postmenopausal patients, patients over 60 years of age, and the presence of hypertension and the development of malignancy in the polyp.

Study Limitations

Our study was conducted with a large patient group; however, multicenter prospective studies are needed to better evaluate the prognosis.

CONCLUSION

Although endometrial polyps are pathologies with low malignant potential, they need to be treated because they can cause problems such as AUB and infertility. Our study found that early age at menarche, high BMI, and hypertension were important risk factors for the development of endometrial polyps. Therefore, we recommend detailed anamnesis in clinically compatible patients, question these risk factors in their medical history, and warn them of the development of endometrial polyps if present.

Ethics

Ethics Committee Approval: The study was initiated with the approval of the Non-Interventional Clinical Research Ethics Committee of University of Health Sciences Turkey, Prof. Dr. Cemil Taşçıoğlu City Hospital (approval number: 48670771-514.99-233702584, date: 09/01/2024).

Informed Consent: Retrospective study.

Footnotes

Authorship Contributions

Surgical and Medical Practices: Y.Ö., S.G., V.M., Concept: Y.Ö., S.G., V.M., Design: Y.Ö., S.G., V.M., Data Collection or Processing: Y.Ö., S.G., V.M., Analysis or Interpretation: Y.Ö., S.G., V.M., Literature Search: Y.Ö., S.G., V.M., Writing: Y.Ö., S.G., V.M.

Conflict of Interest: Veli Mihmanlı, MD, is a Section Editor in the European Archives of Medical Research. He had no involvement in the peer-review of this article and had no access to information regarding its peer-review. Other authors have nothing to disclose.

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