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Comparison of Patients with Adenomyosis Detected in Hysterectomy Material and Patients with Other Benign Pathologies: Retrospective Study

Histerektomi Materyalinde Adenomyozis Saptanan Hastalarla Diğer Benign Patolojilerin Saptandığı Hastaların Karşılaştırılması: Retropektif Çalışma

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ABSTRACT

Objective: Analysis of the risk factors of adenomyosis may be useful in evaluating the effects of etiologic factors. The aim of our research is to compare the risk factors of individuals who were operated on for benign gynecological reasons, patients with Adenomyosis detected in the hysterectomy material, and patients with other benign pathologies. **Material and Methods:** To make an analysis on the role of risk variables for adenomyosis, we retrospectively evaluated theidata of 352 women who had hysterectomy iniour hospital at the interval of January 2019 - November 2022. All cases were diagnosed according to postoperative histopathologic examination. **Results:** Smoking, Mirena®, number of parities, age at first pregnancy, presence of dilation and curettage, dysmenorrhea, menstrual intensity, dyspareunia, intermenstrual pelvic pain, and delivery type were substantially correlated with adenomyosis ($p<0.05$). Accordingly, the existence of adenomyosis was proportionally higher in non-smokers, <5 years smokers. Accordingly, the existence of adenomyosis was observed to be proportionally greater in females with the age at first pregnancy (25-30) and age at menarche (>14). Accordingly, the existence of adenomyosis was observed to be proportionally higher in females with dysmenorrhea, dyspareunia, and cesarean section. Accordingly, the existence of adenomyosis was shown to be proportionally higher in females with Mirena®. **Conclusion:** Because of its symptoms, adenomyosis has a detrimental effect on a sizeable portion of patients' quality of life. Further research in this area is required, as evidenced by the high prevalence of adenomyosis seen following hysterectomy procedures carried out as a result of these symptoms.

Keywords: Adenomyosis; epidemiology; hysterectomy

ÖZET

Amaç: Adenomiyozisin risk faktörlerinin analizi, etiyolojiye ait nedenlerin etkilerini değerlendirmede yararlı olabilir. Çalışmamızın amacı benign jinekolojik nedenlerle opere edilen hastalarda, histerektomi materyalinde Adenomyozis saptanan hastalarla diğer benign patolojilerin saptandığı hastaların risk faktörlerinin karşılaştırılmasıdır. **Gereç ve Yöntemler:** Adenomyozis risk faktörlerinin rolünü analiz etmek için Ocak 2019 ile Kasım 2022 tarihleri arasında hastanemizde histerektomi yapılan 352 kadının verilerini retrospektif olarak değerlendirdik. Tüm olguların tanısı postoperatif histopatalojik incelemeye göre konuldu. **Bulgular:** Sigara kullanımı, Mirena®, parite sayısı, ilk gebelik yaşı, kürtaj varlığı, dismenore, mens şiddeti, disparoni, intermenstrual pelvik ağrı ve doğum tipi ile adenomyozis varlığı arasında istatistiksel bazda anlamlıxbir ilişki mevcuttur ($p<0.05$). Sigara içmeyen ve 5 yıldan az sigara içenlerde adenomyozis varlığı oransal olarak daha yüksek saptanmıştır. İlk gebelik yaşı (25-30) ve ilk adet görme yaşı (>14) olan kadınlarda adenomyozis varlığı orantısal olarak daha yüksek bulunmuştur. Dismenore, Disparoni varlığında ve sezaryen geçiren kadınlarda adenomyozis varlığı orantısal olarak daha yüksek bulundu. Mirena® kullanan kadınlarda adenomyozis varlığı oransal olarak daha yüksek bulundu. **Sonuç:** Adenomyozis semptomları nedeniyle önemli bir hasta grubunda yaşam kalitesini olumsuz etkilemektedir. Bu semptomlar nedeniyle yapılan histerektomi operasyonları sonrasında yüksek oranda saptanan adenomyozis bu konuda daha fazla çalışmaya ihtiyaç duyulduğunu göstermektedir.

Anahtar Kelimeler: Adenomyozis; epidemiyoloji; histerektomi

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The location of the stromal tissue and endometrial gland inside the deep myometrial tissue is known as adenomyosis. However, its pathophysiology has yet to be fully elucidated. It is stated that the damage occurring in the border region between the endometrium, and myometrium causes ectopic endometrial localization, which stimulates myometrial hypertrophy, and hyperplasia.[1,2] Adenomyosis is a common pathology that causes enlargement of the uterus in general, but its diagnosis is still controversial.[3] Although its incidence is reported to be 20-30% in the general population, the presence of adenomyosis has been defined in approximately 65-70% of hysterectomy materials.[4] In endometriosis patients, it was found to be associated with adenomyosis at a rate of 27%. In infertile cases, this rate increased to 70%.[5,6] The metabolic, and molecular abnormalities caused by endometrial tissue damage cause myometrial invasion by increasing local estrogen production, and secondary cytokine expression together with angiogenesis, and proliferation.[7] Adenomyosis can be observed together with many endometrial, and myometrial pathologies.[8]

In a study, adenomyosis was found in 42.7% of patients diagnosed with endometriosis with severe dyspareunia, and dysmenorrhea.[9] The adenomyosis incidence rises with age until menopause, and then decreases.[10] Multiparity is linked to a higher incidence of adenomyosis.[4,10] Menstrual characteristics, smoking, and history of curettage are considered among the risk factors.[11] Once the number of pregnancies rises, the frequency of adenomyosis also rises significantly.[12] After abortions, and recurrent curettages, the damage that occurs at the endometrial-myometrial border is exacerbated by peristaltic movements increased by the way for the invagination of endometrial tissues into the myometrium.[13-15] It is a fact supported by studies that cells belonging to endometriosis are much more invasive than normally located intrauterine endometrial cells.[16] Similarly, stromal cells of adenomyosis were found to invade collagen more rapidly, while myocytes were shown to help endometrial cell invasion.[17] This sensitivity is also adequate in the pathology of adenomyosis. The estrogen values measured in the menstrual blood samples of the adenomyosis patients were higher than those measured in intravenous blood, indicating that local hyperestrogenemia plays a role in the adenomyosis pathophysiology.[18] To analyze the role of adenomyosis risk factors, we examined the data from 352 women who had undergone hysterectomy at our clinic. Evaluation of adenomyosis risk indicators may be helpful in assessing the impact of etiological factors. The aim of our research is to compare the risk factors of individuals who were operated on for benign gynecological reasons, patients with Adenomyosis detected in the hysterectomy material, and patients with other benign pathologies.

MATERIAL AND METHODS

In this investigation, the data from 376 females who underwent hysterectomy in our clinic at the time interval of January 2019-November 2022 were analyzed. 24 patients (6.4%) who were found to have malignancy on pathology, and underwent hysterectomy for obstetric reasons were not included in the investigation. The investigation had 352 patients in total. Every patient was diagnosed based on the postoperative histological analysis. After the gynecologicalxexamination, in the preoperative period, data on reproductive and menstrual variables, guided medical history, and sociodemographic traits were gathered. Symptoms of dysmenorrhea, intermenstrual pelvic pain and dyspareunia were revealed through patient interviews. Information on previous abortions due to gynecological indications was confirmed retrospectively by clinical records. The literature's reports of adenomyosis risk factors guided the selection of data that would be gathered for the study. Axtotal of 352 females aged 31-71 years were interviewed before hysterectomy. Of these patients, 32.6% (115 patients) were operated for myoma uteri, 35.5% (125 patients) for menometrorrhagia, 23.8% (84 patients) for ovarian cyst, and 7.9% (28 patients) for prolapse. Since there was no oncology service available in our hospital, patients with clinics suggestive of malignancy were referred to the upper center without surgery. Pathology reports provided information on the existence of endometriosis, adenomyosis, and endometrial hyperplasia. When the distance (~2.5 mm) between the afflicted myometrial region and the lower boundary of the endometrium exceeded half of

the low-power field, an adenomyosis diagnosis was made.[19] The presence of stroma, and epithelium of the endometrial type led to the diagnosis of endometriosis. After hysterectomy, individuals with, and without adenomyosis had their risk factors assessed. The assessment parameters considered the patients' educational background, smoking habits, use of Mirena® and copper IUD, oral contraceptive use, age at first pregnancy, number of births, presence of dilation and curettage (D/C), menopause existence, menstrual cycle, number of menstruation days, bleeding intensity, dyspareunia existence, dysmenorrhea existence, and pelvic pain existence during the intermenstrual period. Our exclusion criteria were the presence of curettage in the last 6 months, patients who underwent hysterectomy for obstetric reasons, and patients whose last pathology result was compatible with malignancy. The study was carried out taking the Declaration of Helsinki principles into consideration. Participants in our investigation filled out an Informed Consent form. Statistical data analyses were conducted using the SPSS version 20.0 program. In the study, descriptive statistics were calculated regarding the data obtained from the participants. After summarizing the descriptive statistics, hypothesis tests were started. Independent groups t-test was employed to analyze the differencesibetween the means of the measurement data for the binary categories. The Chi-Square Test was utilised to find out and analyse the relations between categorical variables. There was a 95% Confidence Interval (CI) used to analyze the results. The p-value, which was less than 0.05, was accepted as statistically significant. The ethics committee approval of this study was received from the Ethics Committee of Dokuz Eylül University Hospital (Date: 13.09.2023, decision no: 2023/9-20).

RESULTS

In our study, it was determined that 71.3% of the participants were university graduates and 29% were smokers. Oral contraceptives were used by 34.7% of participants, copper IUDs were used by 17%, and Levonorgestrel IUDs were used by 14.8%. A total of 18.2% of these patients had been smoking for less than 5 years, 10.8% had smoked for over five years, 54% of the participants had never given birth or had given only 1 birth, and 46% of the participants had 2 or more births. There was no statistically significant relation between the presence of adenomyosis with university graduation, oral contraceptive use, copper IUD use ($p>0.05$). However, the occurrence of adenomyosis and smoking for more than five years were shown to be statistically significantly correlated (p:0.003, p:0.007, respectively). Adenomyosis and the existence of a levonorgestrel-releasing intrauterine device were statistically significantly correlated (p:0.014). Adenomyosis existence and parity number were statistically significantly correlated (p:.002) (Table 1).

The age of the participants at the first pregnancy was in the <25 age group with a rate of 24.4%. Age at the first pregnancy of the participants was between 25, and 30 years with a rate of 25.6%. Age at the first pregnancy of the participants was in the > 30 age group with a rate of 20.7%. The age of first menstruation of 56% of the participants was between 12-14, and 80.4% of the participants were in the premenopausal period. The menstrual cycle duration was found to be 24-32 days in 84.7% of the participants. The spontaneous abortion rate was found to be 20.5%. Abortion was present in 5.4% of the participants. The delivery type was normal spontaneous vaginal delivery in 49.1%. There was no statistically significant relationship between the adenomyosis presence, and spontaneous abortion, menopausal status, and menstrual cycle duration ($p>.05$). Nevertheless, there were statistically significant relationships between the occurence of adenomyosis with the first pregnancy age (p:0.002). The age at menarche and the occurrence of adenomyosis had statistically significant correlations (p:0.001). The occurrence of dilatation and curettage was correlated statistically significantly with the existence of adenomyosis (p:0.046). There were statistically significant correlations between the method of delivery and the occurrence of adenomyosis (p:0.000) (Table 2).

Dysmenorrhea was detected in 30.1% of the participants, dyspareunia was detected in 28.7%, and intermenstrual pelvic pain was detected in 30.4%. In 67.6% of the participants, the number of menstruation days was determined to be less than 5 days. Men-

TABLE 1: Comparisoniof demographic factors according to the presence of adenomyosis.

		Adenomyosis n (%)	Other Pathologies n (%)	Total n (%)	p*
University Graduation	Yes	55 (21.9)	196 (78.1)	251 (71.3)	0.333
	No	27 (26.7)	74 (73.3)	101 (28.7)	
Smoking	Yes	13 (12.7)	89 (87.3)	102 (29)	0.003
	No	69 (27.6)	181 (72.4)	250 (71)	
>5 Years of Smoking	Yes	7 (18.4)	31 (81.6)	38 (10.8)	0.007
	No	6 (9.4)	58 (90.6)	64 (18.2)	
	-	69 (27.6)	181 (72.4)	250 (71)	
Oral Contraceptive Use	Yes	24 (19.7)	98 (80.3)	122 (34.7)	0.241
	No	58 (25.2)	172 (74.8)	230 (65.3)	
Copper IUD	Yes	14 (23.3)	46 (76.7)	60 (17)	0.994
	No	68 (23.2)	224 (76.8)	292 (83)	
Levonorgestrel IUD	Yes	19 (36.5)	33 (63.5)	52 (14.8)	0.014
	No	63 (21)	237 (79)	300 (85.2)	
Parity	0	12 (11.8)	90 (88.2)	102 (29)	0.002
	1	20 (22.7)	68 (77.3)	88 (25)	
	>1	50 (30.9)	112 (69.1)	162 (46)	

IUD: Intrauterine device, n: Number of total patients

TABLE 2: Comparison of reproductive factors according to the presence of adenomyosis.

		Adenomyosis n (%)	Other Pathologies n (%)	Totaln (%)	p*
First pregnancy age	No pregnancy	12 (11.7)	91 (88.3)	103 (29.3)	0.002
	< 25	25 (29.1)	61 (70.9)	86 (24.4)	
	25-30	30 (33.3)	60 (66.7)	90 (25.6)	
	>30	15 (20.5)	58 (79.5)	73 (20.7)	
Spontaneous Abortion	Yes	21 (29.2)	51 (70.8)	72 (20.5)	0.186
	No	61 (21.8)	219 (78.2)	280 (79.5)	
Age at menarche	<12	14 (18.7)	61 (81.3)	75 (21.3)	0.001
	12-14	35 (17.8)	162 (82.2)	197 (56.0)	
	>14	33 (41.3)	47 (58.8)	80 (22.7)	
Menopause Status	Premenopause	64 (22.6)	219 (77.4)	283 (80.4)	0.541
	Postmenopause	18 (26.1)	51 (73.9)	69 (19.6)	
Menstrual Cycle Duration	<24	14 (34.1)	27 (65.9)	41 (11.6)	0.216
	24-32	65 (21.8)	233 (78.2)	298 (84.7)	
	>32	3 (23.1)	10 (76.9)	13 (3.7)	
Presence of Dilation and Curettage	Yes	8 (42.1)	11 (57.9)	19 (5.4)	0.046
	No	74 (22.2)	259 (77.8)	333 (94.6)	
Delivery Type	No delivery	12 (11.9)	89 (88.1)	101 (28.7)	0.000
	C/S	32 (41)	46 (59)	78 (22.2)	
	NSPD	38 (22)	135 (78)	173 (49.1)	
	82 (23.3)	270 (76.7)	352 (100)		

NSPD: Normal Spontaneous Vaginally Delivery, C/S: cesarean section

struation severity was described as mild in 70.2% of the participants. Thereiwere statistically significant correlations between dysmenorrhea and adenomyosis (p:0.000). There were statistically significant correlations between the number of days of menstruation and the severity of the menstrual cycle and the existence of adenomyosis (p:0.004, p:0.011respectively). Intermenstrual pelvic discomfort and the occurrence of adenomyosis with dyspareunia were shown to be statistically significantly correlated (p:0.018, p:0.002 respectively) (Table 3).

TABLE 3: Comparison of menstrual factors according to the presence of adenomyosis.

		Adenomyosis n (%)	Other Pathologies n (%)	Total n (%)	p*
Dysmenorrhea	Yes	38 (35.8)	68 (64.2)	106 (30.1)	0.000
	No	44 (17.9)	202 (82.1)	246 (69.9)	
Menstruation Severity	Mild	47 (19)	200 (81)	247 (70.2)	0.004
	Severe	35 (33.3)	70 (66.7)	105 (29.8)	
Number of Menstruation Days	< 5	46 (19.3)	192 (80.7)	238 (67.6)	0.011
	> 5	36 (31.6)	78 (68.4)	114 (32.4)	
Dyspareunia	Yes	32 (31.7)	69 (68.3)	101 (28.7)	0.018
	No	50 (19.9)	201 (80.1)	251 (71.3)	
Intermenstrual Pelvic Pain	Yes	36 (33.6)	71 (66.4)	107 (30.4)	0.002
	No	46 (18.8)	199 (81.2)	245 (69.6)	

DISCUSSION

The data obtained in our study, which we conducted to compare the risk factors of patients with Adenomyosis detected in the hysterectomy material and patients with other benign pathologies in patients operated on for benign gynecological reasons, contributed to our clinical experience. The studied population included females with hysterectomies for different etiologies. Therefore, our study included a group of women who had undergone surgery for various reasons. Although patients diagnosed with adenomyosis in the hysterectomy material and patients with other benign pathologies were included in the study, it is not possible to generalize the results to all females with adenomyosis.

Adenomyosis diagnosis is dependent on the awareness of the pathologist doing the examination(20). It is thought that objective evaluation was applied in our study since it had a retrospective design, and the pathologist was blinded to the study. The analysis covered every patient who had undergone a hysterectomy, and the diagnostic techniques were not altered throughout the investigation.

Even though data regarding menstrual symptoms, and menstrual bleeding density may be partially under-reported from patient, and physician origin, the information bias is not expected to be significantly different in patients with or without adenomyosis, as all patient data were collected prior to hysterectomy. Similar thoughts can be taken into account regarding the possible underreporting of both induced, and spontaneous abortions.

In the research, the overall incidence of adenomyosis was determined to be 23.3%. The rates reported in different studies occur in a wide spectrum within the range of 5-70%.[20-23] The reason for these differences, and wide-spectrum rates can be attributed to various demographics, and diagnostic criteria.[4] In another research with the same criteria, and identical clinical context, a prevalence of approximately 20 % was revealed.[11]

The presence of adenomyosis was found to be proportionally lower in those who were smoking, and among those who had been smoking for more than 5 years. The lower incidence of adenomyosis in smokers may be interpreted by hormonally-mediated processes. In this investigation conducted by Kristen et al., it was found that smokers had lower estrogen levels and it was suggested that adenomyosis was estrogen-dependent.[24] In the meta-analysis conducted by Mishra et al. there are studies in which the relationship between smokers and adenomyosis cannot be clearly demonstrated. It is thought that the difference in these studies is due to the fact that the frequency and duration of smoking were not questioned clearly.[20]

In the study of Paolo et al., where they evaluated the epidemiological factors related to adenomyosis, the relationships between the number of births and adenomyosis are revealed.[11] According to Tasuku et al. study, multiparous females had a higher risk of developing adenomyosis in their uteruses than nulliparous women.[25] In our study, adenomyosis was found to be increased in relation to having given birth, and the number of births. It is thought that ade-

nomyosis foci might be added to thexmyometrium due to the offensive effect of trophoblast during pregnancy on the elongation of myometrial fibers. The hormonal environment of pregnancy can help adenomyosis islets to develop.

According to Adolf et al. study, it was revealed that the use of combined oral contraceptives reduces the risk of adenomyosis.[26] Similarly, Etrusco et al. revealed in their research that the use of combined oral contraceptives reduces the risk of adenomyosis. However, this study emphasized that progestin content is a determining factor in treatment.[27] In our study, no correlation was observed between the use of oral contraceptives and the adenomyosis risk. In our study did not analyze the age at first usage, or the kind of oral contraceptives used. However, the reason for the incompatibility with the literature was thought to be our patients' inadequate compliance with the usage of oral contraceptives and their irregular use.

Inithe study conducted by Chen et al. Levonorgestrel IUD was proven to be an effective approach in the treatment ofiadenomyosis. It has been shown that the progression of adenomyosis stops in patients who comply with treatment.[28] According to the meta-analysis research conducted by Abbas et al. a potential and successful treatment for adenomyosis is LNG-IUD. When it was used, symptoms were effectively less severe, uterine volume and endometrial thickness were decreased, and test findings were improved.[29] In this present research, the presence of adenomyosis was observed to be statistically higher in patients with a background of Levonorgestrel IUD use. Despite these data, it was not considered that the risk of adenomyosis increased in patients using the Levonorgestrel IUD. On the contrary, it is thought that the use of IUDs with levonorgestrel for treatment due to the complaint of menometrorrhagia before the adenomyosis diagnosis creates this relationship.

Greater educational attainment is linked to greater incomes and earnings as well as access to resources associated to health, such as safe environments, wholesome food, and medical treatment.[30] This is a social determinant of health. Therefore, it is conceivable that a lower level of education might have a negative impact on the likelihood of adenomyosis. Results from two studies evaluating this connection among females undergoing hysterectomy have been inconsistently reported. Seven or more years of schooling was associated with a decreased incidence of adenomyosis compared to fewer than seven years, according to findings from a cross-sectional analysis of Italian females having hysterectomy at an educational clinic.[31] On the other hand, a later research including females having hysterectomy at eighteen Italian hospitals found that more education was associated with a higher incidence of adenomyosis, with the exception of those who had completed 16 years of school.[32] The results of our investigation did not reveal any connection between adenomyosis existence and education level.

There are several ways why an earlier menarche might make adenomyosis more likely.This includes higher parity from a later age at sexual debut and a greater exposure toiestrogen from a more extended ovulatory cycle during the reproductive years.[33] On the other hand, early menarche may indicate a disturbance in the development of the reproductive system earlier in life, which also raises the risk of adenomyosis.[34] However, epidemiologic studies among women having hysterectomy have not supported the hypothesis that an early menarche age is associated with an increased incidence of adenomyosis. These investigations have shown no correlation.[31,32,35] In our investigation, we discovered that women who menarched older than 14 had a greater prevalence of adenomyosis. The inconsistent findings throughout research are probably caused by the way study participants were chosen. Therefore, the correlation between menarche age and hysterectomy reasons may reduce thexsensitivity of a research limited to hysterectomy patients to identify a link with adenomyosis.

If the pregnancy lasts longer than nine weeks, both spontaneous and induced abortion may lead to disruption of the endometrial-myometrial boundary due to the timing of peak trophoblast invasion.[36] The reviews' included papers produced a range of findings. Three studies examining spontaneous abortion in women having hysterectomy were carried out in Italy. While one research found a null link, the other found a substantial correlation between spontaneous

abortion.[31,32,35] All but one of the studies that looked at induced abortion found a robust, positive correlation with adenomyosis.[14,31,32,35] Both pregnancy-related and non-pregnancy-related uterine dilatation and curettage (D&C) procedures are carried out. According to a research done on Danish hysterectomy patients, there is no correlation between the procedure's history and adenomyosis.[38] The study did not specify whether endometrial curettage was recommended. However, adenomyosis was shown to be strongly associated with D&C performed for "gynecological indication only" in another Italian hysterectomy research.[31] The one research that addressed the usage of D&C outside of pregnancy found no connection between it and adenomyosis.[14] In our study, the existence of adenomyosis was observed to be proportionally higher in the presence of dilation and curettage. No relationship was found between spontaneous abortion and the presence of adenomyosis.

One would anticipate that a higher incidence of adenomyosis would follow cesarean birth since it entails disturbance of the endometrial-myometrial interface due to both the surgical process and the trophoblast invasion during pregnancy. Studies on the history of adenomyosis and cesarean birth, however, have not shown any correlation.[14,32,37,38] Given that parity and gravidity were taken into account in each study, it is possible that the effect of a cesarean section on the risk of adenomyosis is negligible in comparison to the risk associated with pregnancy. In the research conducted by Riggs et al., a strongirelationship was found between adenomyosis and previous cesarean section.[39] In our study, a significant and strong relationship was found between cesarean section and adenomyosis. The large number of repeat cesarean sections performed in our nation might be the cause of this.

Premenopausal females are typically thought to be at higher risk for adenomyosis because of larger quantities of circulating estradiol, given the lack of estrogen during menopause.[40] According to this theory, premenopausal and perimenopausal women in a large cohort of female teachers in California had a higher prevalence of surgically proven adenomyosis at baseline than postmenopausal women who were not on hormone therapy.[41] Remarkably, adenomyosis diagnoses were more common in postmenopausal women who used estrogen-only preparations, combination estrogen and progestin preparation, and mixed usage of estrogen-only and combined preparation.[41] A record review research found that individuals with pathology-confirmed adenomyosis had a lower menopausal probability than individuals without this diagnosis among patients receiving hysterectomy.[35] Still another hysterectomy research did not find a correlation.[31] The lack of information in these two trials on hormone treatment at the time of hysterectomy may be a factor in the inconsistent findings between the studies. There was no correlation between menopausal status and the presence adenomyosis in our investigation.

Reduced menstrual periods expose women to higher levels of estrogen and other ovarian steroid hormones. Two studies have found that shorter menstrual cycles are associated with a higher risk of adenomyosis, which is consistent with the function that excess estrogenism plays in disease risk. According to data from a study of patients having hysterectomy, women who had lifetime menstrualipatterns of 26–30 days and ≥31 days were less likely to develop adenomyosis than women whose cycles lasted ≤25 days.[31] On the other hand, no correlation was found in a hysterectomy research that classified lifelong irregular menstrual cycles as lasting either ≤21 days or ≥32 days.[32] In our study, no relationship was found between menstrual cycle duration and the presence of adenomyosis.

The traditional signs and symptoms of adenomyosis have long been recognized to be dysmenorrhea, menorrhagia, and intermenstrual pelvic discomfort. According to recent research published in the literature, about one-third of theipatients had no symptoms. Studies including postmenopausal women would overstate the frequency of silent illness if the symptoms correspond to those at the time of hysterectomy because these females would not be atxrisk for dysmenorrheaxor menorrhagia.[24,42] Only 4.5% of 710 premenopausal adenomyosis cases identified by hysterectomy in a recent research, however, did not have any of the 4 complaints of dysmenorrhea, menorrhagia, persistent pelvic pain, or metror-

rhagia.[12] Research contrasted instances of symptomatic adenomyosis confirmed by hysterectomy with and without other uterine disease.The majority of research comparing hysterectomy patients with and without adenomyosis has found that the characteristic symptoms are positively correlated.[43,44] In our research, statistically significant relationship was observed between the fact of dysmenorrhea, intermenstrual pelvic pain, the severity of menstruation, and adenomyosis.

CONCLUSION

Many people with adenomyosis experience a poorer quality of life as a result of the symptoms that it causes. Further research is necessary on this topic, as evidenced by the high frequency of adenomyosis seen following hysterectomy procedures carried out as a result of these symptoms. Because of the small number of patients in our research, it would be useful to compare the results with prospective cohort studies with larger samples. Another limitation of the study is that the study was conducted retrospectively, and some risk factors in the study were based on patient statements, and the records were examined retrospectively. Although adenomyosis is a common pathologically detected condition in the postoperative period, it is often diagnosed late or even missed by clinicians. With this research, the possibility of adenomyosis in individuals with risk factors should always be kept in mind by clinicians. We recommend that the pathology results of patients diagnosed with adenomyosis, and those who undergo hysterectomy must be compared in future prospective studies, taking into account preoperative imaging methods, and risk factors.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Ufuk Atlıhan;* ***Design:*** *Begüm Ertan;* ***Control/Supervision:*** *Mehmet Güney;* ***Data Collection and/or Processing:*** *Ufuk Atlıhan;* ***Analysis and/or Interpretation:*** *Mehmet Güney;* ***Literature Review:*** *Eyüp Özgözen;* ***Writing the Article:*** *Ufuk Atlıhan;* ***Critical Review:*** *Mehmet Güney.*

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