



# Analyzing Hysterectomies Performed at Our Clinic between 2009 and 2011

Züleyha Gedik Cevahir, Derya Sivri Aydın, Çiğdem Yavuz Yurtsever, Besim Haluk Bacanakgil, Ahmet Birtan Boran

## Abstract

**Objective:** To analyze patients who underwent hysterectomy for benign lesions.

**Methods:** We retrospectively analyzed 711 patients who underwent hysterectomy for benign lesions.

**Results:** Hysterectomy was performed abdominally in 87.2% (n=620) of the patients, vaginally in 12.8% (n=91) of the patients. The mean age of the patients who underwent abdominal hysterectomy was 50 ( $\pm 9$ ) years, whereas that of the other group was 63 ( $\pm 11$ ) years. The most common indication of abdominal hysterectomy was leiomyoma and the only indication of vaginal hysterectomy was uterine prolapse. The complication rate of abdominal hysterectomy was 29.5%, whereas that of vaginal hysterectomy was 12.2%. It was determined that the rate of hospitalization and of postoperative fever was higher and the decrease in the hematocrit level was smaller in the patients who underwent abdominal hysterectomy compared with those who underwent vaginal hysterectomy.

**Conclusion:** We determined that abdominal hysterectomy was preferred, abdominal hysterectomy was most frequently performed in cases of leiomyomas, and vaginal hysterectomy was only performed in patients with genital prolapse. The overall complication rate of vaginal hysterectomy was less than that of abdominal hysterectomy.

**Keywords:** Hysterectomy, indication, rate of complication

## Introduction

Hysterectomy is the most common major operation performed by gynecologists for many indications such as dysfunctional uterine bleeding, myoma uteri, uterovaginal prolapse, endometriosis, adenomyosis, pelvic inflammatory disease, pelvic pain, gynecological cancers, and obstetric complications (1). It is the second most performed operation after cesarean sections in all obstetric and gynecology practices in the US (2). Hysterectomy types can be divided into three groups: abdominal or vaginal, depending on the surgical region, and laparoscopic, depending on the technique performed. The rate of hysterectomy in the world changes between 6.1 and 8.6 for 1000 women at all ages. The largest group comprises of women between the ages of 20 and 49 years, who undergo hysterectomy. Hysterectomy rates, indications, and mean ages differ greatly among the countries and even different regions of the same country. There are differences of up to 6 times between the US, having the highest rate of hysterectomy, and Norway, Sweden, and UK, having the lowest rate of hysterectomy (3-6).

Vaginal hysterectomy (VH) is advantageous because of a lower surgical trauma rate, and abdominal hysterectomy (AH) is advantageous because of a higher rate of recovery (7). It should be noted that VH is not an appropriate approach in patients having a large adnexal mass or uterus and in those having undergone gynecological surgery (8). Although VH has advantages compared with the others, AH is performed in patients not suitable for VH conditions. Different physicians may administer different treatments for the same patient. It is considered that this uncertainty arises from difficulties of diagnosis, differences of evaluation among physicians, and the treatment preference of the patient (5-7).

In this study, we aimed to evaluate the general analysis of hysterectomies performed for benign reasons in our clinics and ages, application symptoms, operation indications, operation types, postoperative pathology results, preoperative hematocrit values, hematocrit changes before and after the operation, postoperative complications, and duration of hospitalization of the patients who have undergone AH and VH.

## Methods

In total, 711 patients who underwent hysterectomy because of benign reasons between January 2009 and December 2010 in the İstanbul Education and Research Hospital Gynecology and Ob-

Clinic of Gynecology and Obstetrics, İstanbul Training and Research Hospital, İstanbul, Türkiye

### Address for Correspondence:

Derya Sivri Aydın, İstanbul Eğitim ve Araştırma Hastanesi, Kadın Hastalıkları ve Doğum Kliniği, İstanbul, Türkiye  
Phone: +90 530 941 54 32  
E-mail: deryasivri@hotmail.com

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stetrics Clinic were included in the study. The study was retrospective, and the cases were determined by scanning the patient files of our hospital archive. The patients who underwent hysterectomy because of cancer or those who were diagnosed with malignant cancers during operation or as a result of postoperative pathology were excluded from the study.

The files were examined, and the patients' ages, complaints at admission to the outpatient clinic, operation indications, operation types, preoperative pathologies, preoperative hematocrit values, postoperative hematocrit changes, blood transfusion requirements, postoperative pathology results, complications during and after the operation, and duration of hospitalization were recorded.

The age of the patients, their complaints at admission to the outpatient clinic, and operation indications were determined. The patients who underwent unilateral salpingectomy (USO) and bilateral salpingectomy (BSO) were also included. Hematocrit values were measured during the preoperative operation preparation period and at the postoperative 12<sup>th</sup> hour. The days from the date of the operation till discharge from the hospital were accepted as the duration of hospitalization. In this period, the presence of complications, complication types, complication rates and treatments for complications were examined. Early and late complications were detected. Early period was determined as the first 10 days. The fever of the patients measured in the postoperative 24<sup>th</sup> and 48<sup>th</sup> hours were examined. Those whose temperature was 38 degrees and over were recorded according to their hysterectomies. Ten hysterectomies with abscess and obstetric causes were not included while calculating postoperative fever rates.

### Statistical analysis

The data were analyzed using The Statistical Package for the Social Sciences (SPSS, Armonk, NY, USA) (IBM statistics version 20). The comparisons between the hysterectomy types were conducted using Students' t-test and chi-square tests.  $P < 0.05$  was considered to be statistically significant.

### Results

In total, 87.2% (n=620) of the hysterectomies performed in our clinic were abdominal, and 12.8% (n=91) of them were vaginal. Total abdominal hysterectomy (TAH) was applied to 80 patients, TAH and BSO to 483 patients, VH to 91 patients, TAH and USO to 36 patients, and subtotal hysterectomy (SH) to 21 patients. The mean age of the patients who underwent AH was 50 years ( $\pm 9$ ) and who underwent VH was 63 years ( $\pm 11$ ). The difference with regard to age groups was statistically significant ( $p < 0.05$ ).

The complaints for examination were abnormal vaginal bleeding in 47.5 % of patients (n=338), abdominal pain in 12.1% (n=136), sagging in the genital area in 12.1% (n=86), postmenopausal bleeding in 9.8% (n=70), urinary incontinence in 2.8% (n=20), postpartum hemorrhage in 0.4% (n=3), and diseases detected without presenting any symptoms in 6% (n=42) patients.

Hysterectomy was performed because of the indication of leiomyoma in 53.3% patients (n=379), uterine prolapse in 12.7% (n=90), adnexal mass in 12.7% (n=90), and treatment-resistant abnormal uterine bleeding in 12.1% (n=86). While AH was most frequently performed with leiomyoma indication, all of the VHs were per-

formed with descensus uteri or prolapsus uteri. Hysterectomy indications are seen in Table 1.

When hysterectomy indications are examined according to age groups, it was seen that 65% (n=80) of the hysterectomies between the ages of 35 and 44 years and 60% of the cases between the ages of 45 and 54 years (n=255) were performed because of leiomyoma. The indication of 60.8% of the patients over the age of 65 years who underwent hysterectomy was uterine prolapse. Hysterectomy indication distribution according to the age groups is seen in Table 2. The mean preoperative hematocrit values in the VH group were 37.8 ( $\pm 4.1$ ) g/dL, and they were 35.7 ( $\pm 4.1$ ) g/dL in the AH group. The mean postoperative hematocrit values in the VH group were 32.0 ( $\pm 3.2$ ) g/dL, and they were 31.2 ( $\pm 4.0$ ) g/dL in the AH group. A statistically significant higher hematocrit decrease was detected in the VH group ( $p < 0.005$ ).

The mean duration of hospitalization in the VH group was 3.9 ( $\pm 1.0$ ) days, and it was 4.4 ( $\pm 3.0$ ) days in the AH group. The difference between two groups was statistically significant ( $p < 0.005$ ).

Various complications in the early stage have been observed in 22.4% (n=139) of the patients who underwent AH and in 11% (n=11) of the patients who underwent VH. Early-stage complication rates in AH and VH are seen in Table 3. After excluding 10 of 620 patients undergoing AH with respect to postoperative fever complications because they had the indications of abscess and obstetric reason, fever above 38°C was detected in 4.9% (n=30) of patients. After VHs, 4.4% (n=4) of patients had high temperature above 38°C. There was no significant difference with regard to febrile morbidity between the two groups ( $p = 0.54$ ).

Postoperative wound site infection was observed in 5.8% (n=41) of patients after AH, and it was observed in 0.1% (n=1) of patients after VH.

Late complications such as wound site opening [4.0% (n=25) patients], stump hematoma [1.7% (n=11) patients], stump infection [0.8% (n=5) patients], pelvic abscess (n=2), and vesicovaginal fistula (n=1) were observed.

**Table 1. The indications of hysterectomies performed in our clinic**

Indications	n	%
Adnexal mass	90	12.7
Dysfunctional uterine bleeding (DUB)	86	12.1
Endometrial pathologies (simple-atypical hyperplasia, polyp)	29	4.1
Urinary incontinence+descensus uteri	8	1.1
Myoma uteri	379	53.3
Obstetric pathologies	4	0.6
Prolapsus uteri	90	12.7
Cervical dysplasia	19	2.7
Tubo-ovarian abscess	6	0.8
Total	711	100.0

**Table 2. The distribution of hysterectomy indications according to age groups**

	15–24	25–34	35–44	45–54	55–64	65 and above	Total	%
Adnexal mass		3	9	52	14	12	90	12.6
Dysfunctional uterine bleeding			12	66	7	1	86	12.0
Endometrial pathologies			8	10	7	4	29	4.1
Urinary incontinence			2	5	4	3	14	2.0
Myoma uteri		2	80	255	39		376	52.7
Obstetric pathologies		1	2	1			4	0.6
Prolapsus uteri	1		2	19	26	42	90	12.6
Cervical dysplasia			6	8	5		19	2.7
Tubo-ovarian abscess			1	3	2		6	0.8
Total	1	6	122	419	104	62	714	100.0
%	0.28	0.8	17.1	58.7	14.6	8.7	714	100.0

**Table 3. The indications of hysterectomies performed in our clinic**

	Abdominal n=	Abdominal %	Vaginal n=	Vaginal %
Fever	40	6.5	2	2.2
Urinary system infection	10	1.6	1	1.1
Bowel injury	2	0.3	-	-
Bladder injury	3	0.5	1	1.1
Catheter infection	7	1.1	1	1.1
Bleeding	22	3.6	2	2.2
Ureter injury	1	0.2	-	-
Postoperative wound infection	41	6.6	1	1.1
No indication	481	77.6	-	89
Total	620	100	91	100

In 3.5% (n=25) patients who developed postoperative wound site infection, wound site opening took place in the late stage and secondary suturation was required.

The general complication rate was found to be 29.5% in AH and 12.2% in VH.

When postoperative pathology results were examined, myoma uteri was detected in 49.5% of AHs and adenomyosis with myoma uteri were detected in 16.7% (n=103), whereas endometrial pathologies was detected in 41.8% (n=38) of VHs and myoma uteri was detected in 22% (n=20). Postoperative pathology results according to hysterectomy types are indicated in Table 4.

## Discussion

The anatomy of the patient and the experience of the surgeon are crucial in the selection of the type of hysterectomy, and VH is performed in cases having mobile and lighter than 280 g uterus (9). Despite the advantages of VH, many surgeons abstain from conducting VH in cases whose uterus size is larger than 280 g, those who have undergone previous pelvic surgeries, those having a pelvic inflammatory medical history, severe endometriosis, adnexal

**Table 4. Postoperative pathology results according to the types of hysterectomy**

	Abdominal hysterectomy		Vaginal hysterectomy	
	n	%	n	%
Myoma uteri+adenomyosis	103	16.7	8	8.8
Adenomyosis	32	5.2	8	8.8
Simple adnexal cysts	66	10.7		
Endometrioma	22	3.5		
Endometrial pathologies (simple-atypical hyperplasia, endometritis)	55	8.9	38	41.8
Hydatidiform mole	1	0.2		
Myoma uteri	307	49.5	20	22.0
Normal	18	2.9	16	17.6
Cervical pathology (CIN I, CIN II, CIN III)	12	1.9	1	1.1
Tubal abscess	4	0.6		
Total	620	100.0	91	100.0

mass, or salpingoophorectomy indication, and those without a descensus uteri.

The hysterectomies because of benign diseases are conducted most commonly in uterine leiomyomas, dysfunctional uterus bleeding, and genital prolapsus indication (6, 7-11).

Myomas are the pelvic tumors that are seen in women most frequently; therefore, they account for a great number of hysterectomies (12). The most common indication of hysterectomies performed in our clinic is myoma uteri, which is consistent with the literature. Although this rate is 30% in some studies, it can increase up to 60% in other studies (13-15). In a study conducted in France, the indications for hysterectomy were myoma uteri in 66.7% of patients, dysfunctional uterus bleeding in 13.8%, endometrioma in 10%, and endometrial hyperplasia in 3.9%. These rates differ according to countries. In USA, hysterectomies were performed be-

cause of myoma uteri in 30% of cases, dysfunctional uterus bleeding in 12.5%, adnexal mass in 8.1%, pain in 8%, and endometriosis in 5.3%. In this study, the indications for performing hysterectomy were leiomyoma in 53.3% of patients, uterine prolapse in 12.7%, adnexal mass in 12.7%, and treatment-resistant abnormal uterine bleeding in 12.1%. In the studies conducted in USA and Europa, the rate of hysterectomies performed because of genital prolapse varies between 5% and 15% (6, 7, 13, 14, 16, 17). In our study, the rates were found to be similar. The number of hysterectomy due to an obstetric reason was detected to be lower than 1% than that in similar studies (18). It is thought that the use of hysterectomy in cervical dysplasia treatment is radical (19). Our study is consistent with this finding.

In a study performed in Denmark, the most frequent age group undergoing hysterectomy in 1988 was 36–45 years, but it increased to 46–55 years in 1998. In VH, the highest rate was in the age group of 55 years and over (20). In USA, 75% of hysterectomies were performed for women between 20 and 49 years of age (17, 21, 22). Fertility desire was one of the most important factors in these patient while planning the treatment.

The types of hysterectomy are reported differently in the studies conducted in Europe and USA. In the study of Debodinance in France (16), of the total hysterectomy procedures conducted, 30.5% were AH, 64.8% were VH, and 4.7% were laparoscopy-guided vaginal hysterectomy (LAVH). In addition, 305 of VH cases underwent salpingo-oophorectomy. Lambaudie et al. (23) reported the types of hysterectomy as 77.9% VH, 11.9% LAVH, and 10.2% AH. In Denmark, Gimbel et al. (20) examined all hysterectomy procedures conducted between 1988 and 1998, and they found that approximately 80% of all hysterectomies were abdominal. They observed that the number of AHs decreased by 38%, and the number of VHs increased by 107% during this 10-year period.

In our clinic, the number of VH was less compared with that in USA and European countries (24-27). This may be because we implemented VH only in descensus uteri or prolapsus uteri patients.

In the study of Marana et al. (21), no statistically significant difference was found between two groups in terms of preoperative hematocrit levels. However, estimated blood loss and decrease in hematocrit level on the postoperative first day were found to be lower in VH than those in AH, similar to that in our study. On the other hand, Meikle et al. (28) and Deaver et al. (29) revealed that the decrease in hematocrit value was higher in AH than that in VH.

The most common complications are fever, wound infection, bleeding, and urinary tract infection. Lambaudine et al. evaluated 1604 hysterectomy cases in their study and observed intraoperative and early postoperative complications in these patients. Urinary system injury was observed in 1% of patients, intestinal system injury developed in 0.6% of patients, and bleeding was seen in 2.8% patients (24).

In a study conducted in USA, the rate of total complication was 42.8% in AHs, but 24.5% in VHs. The risk of one or more postoperative complication development was found to be 1.7 times higher in AHs (10). Similarly, in our study, it was revealed that the frequency of complications was higher in AH. No difference was found with respect to febrile morbidity.

## Conclusion

In our clinic, we detected that AH was more preferred, and it was frequently performed for myoma, whereas VH was only applied in patients with genital prolapse. It was found that VH was more advantageous than AH with respect to the rate of general complications, postoperative fever development, and duration of hospitalization, but disadvantageous in terms of decrease in hematocrit levels.

**Ethics Committee Approval:** Ethics committee approval was not received due to the retrospective nature of this study.

**Informed Consent:** Due to the retrospective nature of this study, informed consent was waived.

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