

Evaluation of 902 Total Abdominal Hysterectomies Performed for Benign Reasons

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OBJECTIVE: Hysterectomy is the most frequently performed major surgery and is the most common major abdominal operation following cesarean section. The most common indication is uterine leiomyoma. The objective of this study is to evaluate the abdominal hysterectomy indications, intraoperative and postoperative complications and surgical morbidity.

STUDY DESIGN: Demographic information, surgical indications, intraoperative and postoperative complications, hospitalization periods and clinical follow-up information of the patients who underwent abdominal hysterectomy at Hacettepe University Hospital, Department of Obstetrics and Gynecology between 2000 and 2004 were retrieved from patients' files and follow-up forms. Statistical evaluations were performed using SPSS 10.0 for Windows program and $p < 0.05$ values were considered as statistically significant.

RESULTS: Among 902 patients in whom abdominal hysterectomy was performed the mean age was 47.9 (range: 30-77), and the most common hysterectomy indication was uterine leiomyoma ($n=552$, 61.2%). While abdominal hysterectomy alone was performed in only 87 patients (9.6%), bilateral salphingo-oophorectomy was added in 746 patients (82.7%) and unilateral salphingo-oophorectomy was performed in 69 patients (7.7%) together with hysterectomy. Among patients in whom bilateral salphingo-oophorectomy was performed, 569 (76.3%) were in pre-menopausal period. In 119 patients (13.2%) an additional surgical intervention was applied during operation. Burch procedure and appendectomy were performed in 5.5% and 3.8% of patients, respectively. Mean operation time was 1.21 hours and mean hospitalization period was 6.28 days. Intraoperative complication rate was 0.6% and visceral organ injury was the most commonly seen complication. Postoperative complications were seen in 17.1% of the patients and the most frequent postoperative complications were febrile morbidity and wound infection (10.1% and 4.3%, respectively). Preoperative and postoperative mean hemoglobin values were 11.9 and 10.3 gr/dL, respectively, and 7.5% of the patients received erythrocyte transfusion postoperatively. No operation related deaths were observed during the study period.

CONCLUSION: Abdominal hysterectomy, the most frequently performed operation of gynecology clinics, is an effective treatment modality in relieving symptoms and increasing quality of life with relatively lower complication rates. However, its morbidity and complications is agreed to be higher when compared with those of vaginal hysterectomy. Therefore, vaginal approach should always be preferred if possible. When abdominal route is mandatory, an appropriate antibiotic prophylaxis should be used to decrease the rate of febrile morbidity which is the most commonly seen postoperative complication.

Keywords: Abdominal hysterectomy, Postoperative complications, Intraoperative complications

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Introduction

Hysterectomy is the most frequently performed major gynecologic surgery and is the most common major abdominal operation following cesarean section.^{1,2} It offers definitive

cure for many indications and is accepted to be a successful operation in terms of relieving women of their presenting symptoms and providing them high levels of satisfaction.³

Its frequency has been increasing since Charles Clay first performed hysterectomy in 1843. In USA, it has been estimated that 30% of women will have had a hysterectomy by the age of 60 years.¹

More than 90% of hysterectomies are performed for benign disorders and although hysterectomy practice patterns can differ even within the same country, the indications of the operation generally show similarities throughout the world and uterine leiomyomas take the first place in this respect.^{4,5,6}

Although the popularity of other routes of hysterectomy

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has been increasing recently, the majority of hysterectomies are still performed by using the abdominal route.^{4,7} It has been reported that 60% of hysterectomies are performed via the abdominal route and 37% via the vaginal route.⁸ However, the morbidity of abdominal route is greater when compared with the vaginal route in terms of hemorrhage, infection and wound problems despite it is the much more commonly preferred route for hysterectomy.⁷

In this study, we aimed to evaluate the indications and morbidity of abdominal hysterectomy performed for benign reasons.

Material and Method

Demographic information, surgical indications, intraoperative and postoperative complications, period of hospitalization, clinical follow-up data of the patients who underwent abdominal hysterectomy for benign reasons between 2000 and 2004 at Hacettepe University Faculty of Medicine, Department of Obstetrics and Gynecology were retrospectively evaluated by using the patients' files and follow-up forms.

Ages, gravidity and parity numbers, medical histories, and menopausal statuses of the patients were recorded as demographic data. In addition, information about operation indications, performed procedures, intraoperative and postoperative complications, preoperative and postoperative hemoglobin values, antibiotic administration and hospitalization periods were collected by screening the file information and patient monitoring forms. Operation times were obtained from anesthesia monitoring forms.

All hysterectomies were performed for benign disorders by the same consultant surgeon and all were type I simple hysterectomy. Only total hysterectomies were included in the study since no subtotal hysterectomy was performed in our clinic during the study period.

Febrile morbidity was considered as at least two measurements over 38 degrees excluding the first 24 hours after the operation.

Chi-square and t-test were performed for statistical analyses by using SPSS 10.0 for Windows program, and significance value was set to $p < 0.05$.

Results

902 patients underwent abdominal hysterectomy for benign gynecological disorders during the study period. The mean age of the patients was 47.9 years (range 30-77) (Table 1). 85% of the patients were in the age group of 30-54. The indication of the operation of the youngest patient was a tubo-

ovarian abscess which could not be cured with several conservative approaches. Mean gravidity and parity number was 4.1 and 2.6, respectively (Table 1).

Table 1: Age, gravidity and parity of patients

	Mean \pm SD*	Range
Age	47.9 \pm 7.7	30-77
Gravidity	4.1 \pm 2.5	0-17
Parity	2.6 \pm 1.5	0-11

*Standard deviation

While 718 of the patients (79.6%) were premenopausal, 184 (20.4%) were postmenopausal. Of the 718 patients who were premenopausal, 569 (79.2%) underwent bilateral salpingo-oophorectomy. The mean age of the premenopausal patients undergoing BSO was 46.5. In addition, 78.6% of these patients were under 50 years of age.

554 patients (61.4%) had no remarkable medical history. Hypertension (found in 231 patients, 26.6%), goiter (found in 87 patients, 9.6%), and diabetes mellitus (found in 63 patients, 7%) were the most frequently observed medical disorders.

Among indications, uterine leiomyoma was the most commonly observed one which was seen in 552 of the patients (61.2%) followed by abnormal uterine bleeding found in 156 of the patients (17.3%). The indication was benign pelvic or adnexial mass in 137 patients, stress urinary incontinence in 29 patients and pelvic abscess in 28 (Table 2).

Table 2: Hysterectomy indications

Indication	Frequency	%
Myoma uteri	552	61.2
Abnormal uterine bleeding	156	17.3
Pelvic or adnexial mass	137	15.2
Stress urinary incontinence	29	3.2
Pelvic abscess	28	3.1

Mean operation time was 1.21 hours. Mean hospital stay of the patients was 6.2 days.

Hysterectomy alone was performed in only 87 (9.6%) patients. In addition to hysterectomy, bilateral salpingo-oophorectomy (BSO) was performed in 746 (82.7%) patients and unilateral salpingo-oophorectomy in 69 (7.7%).

Additional surgical interventions were performed in 119 patients (13.2%) during hysterectomy. Among these, Burch procedure takes the first place with 50 patients (5.5%). Appendectomy follows it with 34 patients (3.8%). Other procedures include adhesiolysis (2.2%), omentectomy (0.8%), cystectomy (0.3%), hernia repair (0.3%), and abdominoplasty (0.2%) (Table 3).

Table 3: Additional surgical interventions performed during hysterectomy

Surgical intervention	Number	%
Burch procedure	50	5.5
Appendectomy	34	3.8
Adhesiolysis	20	2.2
Omentectomy	7	0.8
Cystectomy	3	0.3
Hernia repair	3	0.3
Abdominoplasty	2	0.2

Appendectomy was performed with a suspicion of appendicitis or because of adhesions or pelvic abscess involving the appendix vermiformis and appendicitis was diagnosed pathologically in 4 of the patients out of 34 in whom appendectomy was performed. In the remaining 30 patients, normal appendix or lymphoid hyperplasia was found. While the average hospitalization period was 6.79 days for the appendectomized patients, it was 6.28 days for those patients in whom appendectomy was not performed. However, the difference was not statistically significant ($p>0.05$).

Preoperative and postoperative mean hemoglobin values of the patients were 11.87 g/dL and 10.28 g/dL, respectively. Furthermore, 234 (25.9%) of the patient had postoperative anemic values when postoperative anemia limit was considered as 10 g/dl. Erythrocyte suspension transfusion was performed in 68 (7.5%) of the patients.

Intraoperative complication was encountered in 5 patients (0.5%) and postoperative complication in 154 patients (17.1%). While visceral organ injuries and ureteral injury constituted the intraoperative complications, the most common postoperative complication was febrile morbidity which was seen in 91 patients (10.1%). Wound infection was diagnosed in 39 patients (4.3%). Other postoperative complications were urinary tract infections, urinary retention and injury of visceral organs, urine retention, hematoma formation, myocardial infarction and deep venous thrombosis (Table 4).

Table 4: Intraoperative and postoperative complications

Complications	Number	%
Intraoperative	5	0.5
Visceral organ injuries	4	0.4
Ureteral injury	1	0.1
Postoperative	154	17.1
Febrile morbidity	91	10.1
Wound infection	39	4.3
Urinary tract infection	16	1.8
Urinary retention	3	0.3
Hematoma formation	2	0.2
Myocardial infarction	2	0.2
Deep venous thrombosis	1	0.1

No operative mortality was observed during the study period.

Wound infection was found to have a statistically significant relation with diabetes mellitus and advanced age (Table 5 and 6). No statistically significant relation was found between appendectomy and wound infection.

Table 5: Relation of diabetes mellitus and wound infection

Diabetes mellitus	Wound infection		Total
	Present (n)	Absent (n)	
Present (n)	15	48	63
Absent (n)	24	815	839
Total	39	863	902

$p<0.05$

Table 6: Relation of age and wound infection

Age (years)	Wound infection		Total
	Present (n)	Absent (n)	
Present (n)	32	797	829
Absent (n)	7	66	73
Total	39	863	902

$p<0.05$

Discussion

More than 500.000 women undergo hysterectomy every year in USA.⁶ Yearly hysterectomy numbers have been increasing throughout the world for years and abdominal approach is maintaining its position in the first place.⁴ However, especially in the recent years, because of relatively higher complication rates, the abdominal approach has been started to be questioned with the appearance of other alternative modalities like laparoscopic assisted vaginal hysterectomy and studies reporting higher complications for abdominal hysterectomy were started to be published one after another. Nevertheless, many well-designed studies show that the single important complication increasing with abdominal approach when compared with other modalities is postoperative fever.⁹ In some recent studies, it was found that hospitalization period was also found to be longer in abdominal route.¹⁰ In a study, complication rate was found to be 33.9% for abdominal hysterectomy, 23.8% for vaginal hysterectomy, and 20.9% for laparoscopic hysterectomy.⁹ The point which agreement has been achieved is that concerns for complication rate is not the sole of the dilemma and should not be the most important factor in selecting the hysterectomy route.

Subtotal hysterectomies (STH) were considered to be surgical techniques of reduced popularity, and risks and disad-

vantages of leaving the cervix behind were agreed upon.¹¹ However, some authors argue that the smaller anatomic trauma would be very advantageous in terms of postoperative complications, by re-considering an old subject matter of research. Meanwhile, it is observed that there is a shift to subtotal hysterectomies from total hysterectomies in USA between 1991 and 1994.⁶ Evidence showing whether this shift is due to changes in preferences of physicians or in patient profile, or to other unknown reasons has not been appeared yet.

Despite all of these arguments abdominal route still maintains its leading position. This may also be caused because the abdominal approach provides the possibility of performing other interventions during the operation including appendectomy and adnexectomy. Even for symptomatic pelvic organ prolapse in which abdominal route is not commonly preferred, a Burch procedure may be added to hysterectomy for primary surgical treatment of genuine stress incontinence since Burch procedure has an effectiveness similar to that of sling procedures for primary surgical treatment of genuine stress urinary incontinence.¹² In our series, unilateral or bilateral adnexectomy was performed in 90.4% of patients and an additional surgical procedure other than adnexectomy was performed in 13.2%.

The most common indication of hysterectomy is reported to be uterine leiomyoma.^{4,5,6} This was also observed in our patients, but the ratio was relatively higher (61.2%). The reason for this is thought to be socio-demographic characteristics and availability of health services that could easily be reached.

The rate of complications of abdominal hysterectomy was reported to be as high as 42.8% in a traditional study.¹³ The rates are not reported to be high nowadays possibly because of the use of prophylactic antibiotics since most of the complications arise from infections in both past and present. The infectious morbidity, the most common complication related with abdominal hysterectomy, was reported to be 10.5% and 28.4% in two of the recent studies.^{9,10} The total complication rate was found to be 17.6% in our study and the most frequently encountered ones were febrile morbidity (10.1%) and wound infection (4.3%). Our study also revealed that the wound infections have a strong relation with presence of diabetes mellitus and advanced age. The most probable reason for this may be the slowing down of metabolism and weakening of immune system with both of these two conditions.

Prophylactic antibiotics may help decreasing the rates of febrile morbidity, the most commonly seen complication of abdominal hysterectomy. In a placebo-controlled, randomized study, it was demonstrated that a single dose of cefazolin administered 30 minute before an elective abdominal hysterectomy effectively decreased the rate of infectious morbidity (26.9% vs. 10.3%).¹⁴ Therefore, a routine use of antibiotic pro-

phylaxis with appropriate single dose agents should always be considered before performing an elective abdominal hysterectomy in order to minimize the complications resulting from infections.

When patients in whom appendectomy was performed were evaluated, no relation was found between postoperative complications and the removal of appendix. Similar results were reported in a recent study in which incidental appendectomy was not found to increase the rate of postoperative complication rates.¹⁵

One of the interesting results of our study is the high rates of bilateral salphingo-oophorectomy performed in premenopausal patients. Of 902 patients, 718 were premenopausal, and bilateral salphingo-oophorectomy was performed in 79.2% of them. Although all oophorectomies were not prophylactic, it was a rather high ratio when compared with the data in the literature. In our series, a high incidence of bilateral salphingo-oophorectomy is seen even before 50 years of age and the mean age of the patients faced with a surgical menopause was 46.5. Although whether or not to leave grossly normal ovaries still remains as a dilemma many surgeons prefer to remove the adnexa in postmenopausal patients during abdominal hysterectomy, however the frankly revealed risks of long-term use of hormone replacement should always be kept in mind and routine removal of functional ovaries should be limited only to patients having a genetic risk of malignancy.

As a conclusion, although there are many alternative treatment methods, and many alternative surgical routes, abdominal hysterectomy, which has been commonly and reliably used for 150 years with rather low rates of complications, continues to be most preferred cure method for many gynecologic pathologies. We attempted to reflect the experience of Hacettepe University in abdominal hysterectomy. However, it should be remembered that the reality behind all these numbers and statistics and the benefits of these results we had obtained may be overlooked if they are not evaluated with a holistic approach together with the health system that they are directly related.

İyi Huylu Nedenlerle Yapılan 902 Total Abdominal Histerektomi Vakasının Değerlendirilmesi

AMAÇ: Histerektomi en sık yapılan majör cerrahi işlem olmasının yanı sıra, sezeryandan sonra en sık uygulanan abdominal cerrahidir. Endikasyon olarak uterin miyomlar karşımıza çıkmaktadır. Bu çalışmada amacımız, histerektomi endikasyonlarını, intraoperatif ve postoperatif komplikasyonları değerlendirmek ve cerrahi morbiditeyi belirlemektir.

GEREÇ VE YÖNTEM: Çalışmada 2000-2004 yılları arasında Hacettepe Üniversitesi Kadın Hastalıkları ve Doğum Ana Bilim Dalı'nda gerçekleştirilen total abdominal histerektomi olgularına yer verilmiştir. Hastaların demografik özellikleri, cerrahi endikasyonları, intraoperatif ve postoperatif komplikasyonlar, hastanede kalış süreleri ve klinik takip süreleri hasta dosyalarından ve takip formlarından elde edilmiştir. İstatistiksel değerlendirme SPSS for Windows 10.0 programı kullanılarak yapılmıştır.

BULGULAR: Total abdominal histerektomi yapılan 902 hastanın ortalama yaşı; 47,9 (30-77) olarak belirlenmiştir ve en sık histerektomi endikasyonu olarak uterus miyomları (n=552, %61,2) karşımıza çıkmaktadır. Seksen yedi hastada (%9,6) sadece abdominal histerektomi yapılmış iken, 746 hastaya (%82,7) bilateral salpingooferektomi eklenmiş; 69 (%7,7) hastaya ise unilateral salpingooferektomi eklenmiştir. Bilateral salpingooferektomi yapılan hastaların 569'unun (%76,3) premenopozal periyotta olduğu belirlenmiştir. Yüz on dokuz hastada (%13,2) ek cerrahi girişimler uygulanmıştır. Burch kolposüspanasyonu ve apendektomi işleminin uygulanma sıklığı sırası ile %5,5 ve %3,8 olarak saptanmıştır. Ortalama ameliyat süresi 1.21 saat ve ortalama hasta yatış süresi 6,28 gün olarak saptanmıştır. İntraoperatif komplikasyon görülme sıklığı %0,6 olarak belirlenmiş olup, viseral organ yaralanması en çok karşımıza çıkmaktadır. Postoperatif komplikasyonların görülme sıklığı %17,1 olarak belirlenmiştir; en sık karşımıza çıkan komplikasyon febril morbidite ve yara yeri enfeksiyonu olarak belirlenmiştir (%10,1; %4,3). Preoperatif ve postoperatif ortalama hemoglobin değerleri sırasıyla 11,9 ve 10,3 gr/dL idi. Postoperatif dönemde hastaların %7,5'inin kan ve kan ürünü transfüzyonuna ihtiyacı olmuştur. Çalışma süresince mortalite ile karşılaşılmaştır.

SONUÇ: Jinekoloji kliniklerinde en sık olarak uygulanan operasyon olan abdominal histerektomi, semptomların giderilmesinde ve hastanın yaşam kalitesinin artırılmasında önem arz eden düşük komplikasyon oranına sahip tedavi şekillerinden bir tanesidir. Ancak vajinal histerektomi ile karşılaştırıldığında morbidite ve komplikasyonlarının yüksek olduğuna inanılmaktadır. Bu nedenle vajinal yol, imkan olduğu takdirde tercih edilecek yöntemdir. Eğer abdominal yol gerekli ise, uygun antibiyotik profilaksisi kullanmak en sık görülen komplikasyon olan febril morbiditenin azalması açısından gerekli ve önemlidir.

Anahtar Kelimeler: Abdominal histerektomi, İntraoperatif komplikasyonlar, Postoperatif komplikasyonlar

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