

**Laparoscopic Hysterectomy: One Center Experience Of 5 Years**

Laparoskopik Histerektomi: 5 Yıllık Tek Merkez Deneyimi

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**ÖZ**

**Amaç :** Hastanemizde yapılan laparoskopik histerektomi vakalarının, hasta özelliklerini, operasyon endikasyonlarını, cerrahi tekniği ve postoperatif sonuçlarını değerlendirmek ve komplikasyonları analiz etmek.

**Gereç ve Yöntemler :** Aralık 2009 ve Ocak 2015 tarihleri arasındaki laparoskopik histerektomi operasyonları retrospektif olarak değerlendirildi.

**Bulgular :** Doksan iki hastaya laparoskopik histerektomi yapıldı; 58 hasta total laparoskopik histerektomi ve bilateral salpingooferektomi (TLH-BSO), 33 TLH, 4 laparoskopik asiste vajinal histerektomi (LAVH), 1 TLH-Burch gerçekleştirildi. Altı operasyonda laparotomiye geçildi (%6,5 başarısızlık oranı). Ortalama yaş 47.62 ± 6.33 (35-66), ortalama operasyon süresi 139 ± 44 dakika (60-375), ortalama hospitalizasyon süresi 3.1 ± 2.0 (1-13) gün idi.

Histerektomi endikasyonları; endometrial hiperplazi (n=39, 42.4%), myoma uteri (n=24, 26.1%), menometroraji (n=20, 21.7%), HSIL sonrası pozitif cerrahi sınır (n=6, 6.5%), adneksiyal kitle (n=3, 3.3%) idi.

Post-operatif komplikasyonlar; 7 hastada ateş, 2 hastada vajinal kaf hematomu idi. Kaf enfeksiyonu, insizyon yeri enfeksiyonu, mesane perforasyonu, ureterovajinal fistül, trokar-yeri hernisi ve pulmoner emboli birer hastada görüldü. Üretrovajinal fistül gelişen hastada geçirilmiş mesane opereasyonu öyküsü, mesane perforasyonu gelişen hastada ise geçirilmiş 2 adet sezeryan öyküsü mevcuttu Trokar yeri hernisi saptanan hastada tanı, postoperatif ikinci günde gelişen ileus tablosu sonucu yapılan ultrasonografi ile kondu.

**Sonuç :** Laparoskopik açık cerrahiyle karşılaştırıldığında avantajları ile laparoskopik yaygınlaşmış ve cerrahiye yeni bir vizyon getirmiştir. Total laparoskopik histerektomi serilerinde ateş, enfeksiyon, trokar yeri hernisi, pulmoner emboli, mesane perforasyonu ve üretrovajinal fistül gibi komplikasyonlar görülebilir. Hastaların dikkatli seçimi, yeterli eğitim ve post-operatif yakın takip morbiditeyi azaltmada önemlidir.

**Anahtar Kelimeler :** Laparoskopik histerektomi, post-operatif komplikasyonlar

**ABSTRACT**

**Objective :** To evaluate the laparoscopic hysterectomy cases performed in our hospital; regarding the patient characteristics, operation indications, surgical technique and postoperative outcomes and analyze the complications in order to reduce their occurrence.

**Material and Method :** Laparoscopic hysterectomy operations performed in our clinic from December 2009 to January 2015 were analyzed retrospectively.

**Results :** Ninety two patients underwent laparoscopic hysterectomy; 58 total laparoscopic hysterectomy and bilateral salpingo-ooforectomy (TLH-BSO), 33 TLH, 4 laparoscopy assisted vaginal hysterectomy (LAVH), 1 TLH-Burch was performed. Six operations were converted to laparotomy (6,5% failure rate). Mean age was 47.62 ± 6.33 years(35-66). Mean operating time was 139 ± 44 min (60-375). Mean duration of hospital stay was 3.1 ± 2.0 days (1-13).

Hysterectomy indications were endometrial hyperplasia (n=39, 42.4%), myoma uteri (n=24, 26.1%), menometrorrhagia (n=20, 21.7%), positive surgical margin in HSIL (n=6, 6.5%), adnexal mass (n=3, 3.3%).

Post-operative complications were fever in 7 patients, vaginal cuff hematoma in 2 patients, vaginal cuff infection in 4 patients and incision-site infection in one patient. Other complications were; bladder perforation, ureterovaginal fistula, trocar-site hernia, and pulmonary embolism. The patient who developed ureterovaginal fistula had a history of bladder operation and the patient with bladder perforation had a history of two cesarean sections.

The trocar-site herniation was diagnosed by ultrasonography which is performed due to ileus symptoms of the patient on post-operative second day

**Conclusion :** Laparoscopy has pervaded and brought a new vision to surgery with its advantages compared to open surgery; complications like fever, infection, trocar site hernia, pulmonary embolism, bladder perforation and ureterovaginal fistula may occur in total laparoscopic hysterectomy series. Careful selection of patients, adequate training and post-operative close follow up is essential to reduce the morbidities.

**Keywords :** Laparoscopic hysterectomy, post-operative complications

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## Introduction

Laparoscopic hysterectomy is a well-accepted surgical technique in gynecology. As an alternative to total abdominal hysterectomy; laparoscopy can take part in this procedure as total laparoscopic hysterectomy (TLH), laparoscopic supracervical hysterectomy or laparoscopy assisted vaginal hysterectomy (LAVH).

In this study, our aim was to evaluate the laparoscopic hysterectomy cases performed in our hospital; regarding the patient characteristics, operation indications, surgical technique and postoperative outcomes and analyze the complications in order to reduce their occurrence.

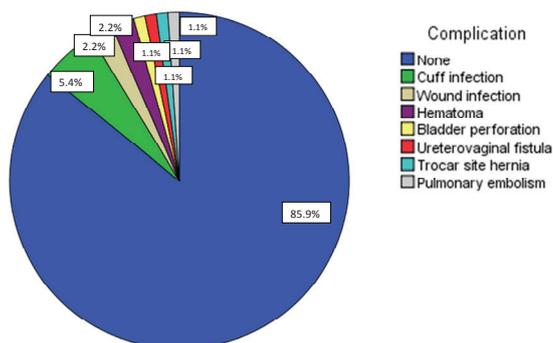
## Materials and Methods

This retrospective study was conducted at gynecology and oncology clinics of Zekai Tahir Burak Women's Health Care, Training and Research Hospital, Ankara, Turkey and laparoscopic hysterectomy operations performed between December 2009 and January 2015 were analyzed retrospectively. Included operations in this study were total laparoscopic hysterectomy with or without salpingo-oophorectomy and laparoscopy assisted vaginal hysterectomy. The data reviewed for analysis included patients' age, indication of the operation, surgical technique, duration of the operation, pre-operative and post-operative hemoglobin changes, duration of hospital stay and post-operative complications and these data were documented from electronic medical records of hospital and by reviewing patient's charts. Statistical analysis were performed using Statistical Package for Social Sciences version 17.0 (SPSS Inc., Chicago, IL, USA).

## Results

During 5-years period, ninety two laparoscopic hysterectomy procedures were performed; 58 of the operations were total laparoscopic hysterectomy and bilateral salpingo-oophorectomy (TLH-BSO), 33 operations were TLH, 4 patients had LAVH, one patient underwent TLH-Burch. Conversion to open surgery was required in six patients (6.5% failure rate); one case was converted to laparotomy because of intra-abdominal adhesions and five patients required oncological staging with a frozen-section analysis diagnosis of endometrial cancer. Mean age was  $47.62 \pm 6.33$  years (35-66). Mean body-mass index of patients was  $29.6 \pm 5.0$  (20.0 – 42.8). Mean operating time was  $139 \pm 44$  min (60-375). Mean duration of hospital stay was  $3.1 \pm 2.0$  days (1-13). Hysterectomy indications were endometrial hyperplasia ( $n=39$ , 42.4%), myoma uteri ( $n=24$ , 26.1%), menometrorrhagia ( $n=20$ , 21.7%), positive surgical margin after conization in patients with HSIL ( $n=6$ , 6.5%), and adnexal mass ( $n=3$ , 3.3%) (Figure 1).

Figure 1: Percentage of complications in TLH cases.



Seven patients were hospitalized in post-operative period with fever symptoms, 4 of these patients had positive vaginal culture, vaginal cuff hematoma was detected in 2 patients and all of these patients were treated with antibiotics. Incision-site infection developed in one patient whose operation was converted to laparotomy with infraumbilical median incision. In terms of urological complications; bladder perforation occurred in one patient and one patient developed ureterovaginal fistula. Trocar-site hernia was presented with ileus in one patient on post-operative second day and laparotomy was performed. One patient presented with dyspnea on post-operative fifth day and was diagnosed with pulmonary embolism.

## Discussion

Gynecologic surgeons have been adopting laparoscopic and minimal invasive surgery techniques in recent years. In a report of a gynecology center only the 8% of hysterectomies were performed with laparoscopy in 2004 while this rate increased to more than 50% in 2008 and 72% in 2012 (1). The benefits like less post-operative pain, shorter hospitalization time, quicker return to daily activities are the reason of preference of laparoscopic operations for gynecological procedures by skilled surgeons. Implementation of this procedure to routine practice took time due to its higher cost for departments, long learning curve for surgeons, longer operating time and higher complication risks during the learning period (2). In a study which evaluated the learning curve for laparoscopic hysterectomy, 10 procedures done under the supervision of an experienced gynecological surgeon or 16 cases of unsupervised surgery were recommended for improvement in laparoscopy, which resulted in shorter operating time and less complications (3). We have performed 92 laparoscopic hysterectomies in our center and we aimed to review our clinical experience in surgery in order to evaluate the risk factors and obviate intra-operative and post-operative morbidities in forthcoming operations. Colling et al. compared abdominal hysterectomy with minimal invasive surgery performed by either laparoscopy or robotic technique and reported longer post-operative hospital stay and higher surgical site infection risk with open surgery (4). In a study by Oksuzoglu et al., creatine phosphokinase (CPK) and interleukin-6 (IL-6) levels were measured in abdominal and laparoscopic hysterectomy cases to evaluate the association with tissue trauma and significantly higher blood levels of CPK and IL-6 were found after abdominal hysterectomy comparing to TLH (5).

Within the 92 cases, 6 of them was converted to laparotomy with a failure rate of 6.5%. Five cases was converted to open surgery because of the need for staging with diagnosis if endometrial cancer after frozen section analysis, laparotomy was preferred since we did not have an experience of laparoscopy with oncological staging. One case was converted to laparotomy with infraumbilical median incision due to dense adhesions of stage 4 endometriosis, this patient was also re-admitted to hospital with a diagnosis of wound infection; operation time for this patient was the longest amongst all the cases which was 375 minutes while the mean operating time was  $139 \pm 44$  minutes.

In our practice, mean hospital stay was  $3.1 \pm 2.0$  days. Re-admission rate in 30 days was 8.6% (8 of 92); 7 patients presented with fever and one patient presented with pulmonary embolism. Jennings et al. evaluated predictors of readmission rate in laparoscopic hysterectomy and reported a 30 day readmission rate of 3.1% in 8890 cases, infections 35.7% and surgical complications (24.2%) were the most common causes (6).

Ureterovaginal fistula developed in a 47 year-old patient with a history of blad-

der operation 16 years before laparoscopic hysterectomy, the patient was directed to urology clinic for further treatment. Bladder perforation due to adhesions occurred in one patient who had a history of two cesarean sections, two centimeters defect was repaired with primary sutures, urinary catheter was placed and the patient was hospitalized for five days.

Within the seven patients who were re-admitted to hospital because of post-operative fever symptoms; cuff infection was detected in four patients and cuff hematoma was detected in two patients. All these people were symptomatic within the first week; *Pseudomonas aeruginosa*, *Klebsiella* species, *Escherichia coli* and *Providencia rettgeri* were isolated from vaginal cultures and wide-spectrum antibiotic regimen were chosen for treatment.

Trocar-site hernia developed in one patient from the 5-mm incision site and this 48 years-old patients with normal body mass index (26.2 kg/m<sup>2</sup>) and no known risk factors presented with diarrhea, nausea and vomiting on post-operative third day and the case developed to ileus on postoperative fifth day. The patient was taken to diagnostic laparotomy and incarceration of jejunum was seen in exploration. On post-operative fourth day after laparotomy, the patient was discharged uneventfully. We think that early awakening of the patient from anesthesia before suturing the trocar holes may lead the herniation of bowel during retching of the patients.

Pulmonary embolism was detected in one patient who was 50 years-old and operated with an indication of uterine leiomyoma. The patient had no known risk factors, a normal thrombophilia screening. The operating time was 135 minutes and the patient was discharged on postoperative third day. The patient was re-admitted to hospital on post-operative fourth day with symptoms of chest and leg pain. Pneumonia was suspected on computed tomography but doppler ultrasound revealed acute thrombus in gastrocnemius vein. Levofloxacin, ceftriaxone and low molecular weight heparin was administered.

There have been reports that even same day discharge after laparoscopic hysterectomy operations are not associated with increased risk of readmission to hospital. Melamed et. al investigated the relationship between same day discharge and postoperative complications in laparoscopic hysterectomy cases performed for endometrial cancer and did not find an increased complication rate (7). In one study, same day discharge was reported as a safe and feasible option for carefully selected uncomplicated TLH patients even in presence of leiomyomas, severe adhesions and endometriosis and most common reasons for re-admission in the same day were urinary retention (19%) and nausea (15%) (8).

## Conclusion

Laparoscopy has pervaded and brought a new vision to surgery with its advantages compared to open surgery; complications like fever, infection, trocar site hernia, pulmonary embolism, bladder perforation and ureterovaginal fistula may occur in total laparoscopic hysterectomy series. Careful selection of patients, adequate training and post-operative close follow up is essential to reduce the morbidities due to complications in this minimal invasive surgical technique.

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