

Comparison of Laparoscopic Hysterectomy Morbidity for Gynecologic, Oncologic, and Benign Gynecologic Conditions

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ABSTRACT

Objectives: We compared the perioperative morbidity of laparoscopic hysterectomy for gynecologic oncologic (group A) and benign gynecologic (group B) indications at a single institution.

Methods: This is a retrospective analysis of 159 consecutive cases of laparoscopic hysterectomy at a tertiary care university hospital. It includes 74 women with gynecologic cancers and 85 women with benign gynecologic conditions.

Results: Patients in group A were significantly older and had higher body mass index ($P \leq 0.001$). The differences in mean blood loss (A, 201.1 mL; B, 183.6 mL, $P = 0.504$), conversion to laparotomy (2 for each group), and wound infection (none) were not significant in the 2 groups. The mean operating time (253.2 and 188.2 minutes, $P < 0.001$) and the mean length of hospital stay (3.5 days and 2.5 days, $P < 0.001$) were significantly longer in group A. Transfusion was required for 2 patients in group A and 4 in group B. One intraoperative injury to the bladder occurred in group A.

Conclusions: In spite of older age and longer operative time in cancer patients, there was no difference in perioperative complications associated with laparoscopic hysterectomy for gynecologic malignancies compared with benign gynecologic conditions.

Key Words: Laparoscopic hysterectomy, Perioperative morbidity, Gynecologic cancers.

INTRODUCTION

Hysterectomy is a common operation, with up to 600,000 procedures undertaken annually in the United States. The advent of laparoscopic approaches to hysterectomy offers the prospect of improved outcomes and gains in cost effectiveness through reduced severity of convalescence and shorter length of hospital stay. For women who require hysterectomy, the appropriate route of surgery is determined by anatomic considerations, the type of pathologic condition expected, patient preference, and physician experience and training.

Prospective randomized trials have demonstrated that total laparoscopic hysterectomy (TLH) and laparoscopically assisted vaginal hysterectomy (LAVH) for benign indications are associated with faster recovery, less postoperative pain, less blood loss, fewer transfusions, and similar complication rates compared with abdominal hysterectomy.¹ However, due to fewer studies and less experience, the outcomes of laparoscopic hysterectomy for oncologic indications are less clear. We hypothesize that there is no difference in surgical outcome of patients who undergo laparoscopic hysterectomy for oncologic and benign gynecologic conditions. We compared the perioperative morbidity of 159 consecutive laparoscopic hysterectomies for gynecologic oncologic and benign gynecologic indications at our institution.

METHODS

From July 2000 to June 2004, 159 patients underwent laparoscopic hysterectomy for gynecologic oncologic (group A) and benign gynecologic (group B) conditions at the Division of Gynecologic Oncology, Mount Sinai Medical Center (**Table 1**). The indications for hysterectomy in 74 oncologic patients included cervical, endometrial, ovarian, and other cancers (**Table 2**). The indications for 85 patients in group B included symptomatic fibroids, benign adnexal mass, endometriosis with chronic pain and endometrial hyperplasia (**Table 3**). Attending gynecologic oncologists who were assisted by fellows and residents in training performed all procedures. Our surgical techniques for various types of laparoscopic hysterectomies have previously been described.² After obtaining

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Table 1.
Patient Demographic Data

	Group A (n = 74)* M (SD)	Group B (n = 85)* M (SD)	P Value†
Age (yrs)	57 (12.3)	51.2 (9.7)	0.001
Body mass index (kg/m ²)	27.7 (6.7)	24.3 (3.9)	0.001
Gravidity	3 (1.5)	3.5 (1.6)	NS
Parity	1.7 (1.3)	2.5 (0.5)	0.001

*Group A = laparoscopic hysterectomy for gynecologic cancers; Group B = laparoscopic hysterectomy for gynecologic benign conditions; M (SD) = mean (standard deviation).

†t test.

Institutional Review Board (IRB) approval, patient information including age, body mass index (BMI), preoperative diagnosis, type of procedure, estimated blood loss, pathologic findings, and perioperative complications (**Table 4**) were obtained from hospital and clinic charts. Perioperative complications included those that occurred during surgery or within 30 days of hospital discharge. The data were analyzed with SPSS 10.1 (SPSS Inc, Chicago, IL) using the *t* test for comparison of surgical data between 2 groups. P<0.05 was defined as significant.

RESULTS

Seventy-four patients underwent laparoscopic hysterectomy for gynecologic cancers (group A). The indications included 49 endometrial, 15 cervical, 7 ovarian, and 3 other gynecologic cancers. The procedures in this group included 46 LAVHs, 24 total laparoscopic radical hyster-

ectomies (TLRH), 2 TLH, and 2 laparoscopic supracervical hysterectomies (LSH). The additional indicated procedures in this group included salpingo-oophorectomy, pelvic and para-aortic lymphadenectomy, omentectomy, cystoscopy, and sigmoidoscopy.

In group B, 85 patients underwent laparoscopic hysterectomy for benign conditions. The indications included 33 adnexal masses, 18 symptomatic uterine myomas, 10 cases of persistent pelvic endometriosis, and 24 other benign gynecologic conditions. The procedures in this group included 59 LAVHs, 15 TLHs, and 11 LSHs (**Table 3**). The additional indicated procedures in this group included salpingo-oophorectomy, colpopexy, urethropexy, and cystoscopy.

Patients in group A were significantly older than those in group B (mean ages of 57 years and 51.2 years, respectively, P<0.001). The mean body mass indexes (BMI) were 27.7±6.7 kg/m² in group A and 24.3±3.9 kg/m² in group B (P=0.001) (**Table 1**). There were no significant differences in the mean blood loss (group A, 201.1 mL; group B, 183.6 mL, P=0.504), conversion to laparotomy (2 in each group), and wound infection (none in either group) in the 2 groups. The mean operating time (188.2 and 253.2 min, P<0.001) and the mean length of hospital stay (2.5 days and 3.5 days, P<0.001) were significantly shorter in the benign group. There was one bladder injury during a TLRH in a patient with cervical cancer (group A), which was repaired laparoscopically. Two patients in group A and 4 patients in group B required intraoperative transfusions. Postoperative fever defined as elevated body temperature (>38°C) on 2 occasions occurred in 4 patients in group A and 2 patients in group B (**Table 4**).

Table 2.
Indications for Hysterectomy in Group A

Indication	N	LAVH*	TLRH*	TLH*	LSH*
Endometrial cancer	49	40	9	0	0
Cervical cancer	15	1	13	1	0
Ovarian cancer	7	5	0	0	2
Vaginal cancer	1	0	1	0	0
Peritoneal mesothelioma	1	0	0	1	0
Uterine papillary serous CA	1	0	1	0	0
Total	74	46	24	2	2

*LAVH = laparoscopically assisted vaginal hysterectomy; TLRH = total laparoscopic radical hysterectomy; TLH = total laparoscopic hysterectomy; LSH = laparoscopic supracervical hysterectomy.

Table 3.
Indications for Hysterectomy in Group B

Indication	N	LAVH	TLH	LSH
Symptomatic fibroids and/or fibroid uterus	18	12	0	6
Adnexal mass	33	23	7	3
Endometriosis and pelvic pain	10	4	4	2
Genital prolapse	4	3	1	0
Endometrial hyperplasia	6	6	0	0
Cervical dysplasia	10	7	3	0
Family history of breast/ovarian cancer	2	2	0	0
Breast cancer 1–2 gene mutations	2	2	0	0
Total	85	59	15	11

*LAVH = laparoscopically-assisted vaginal hysterectomy; TLH = total laparoscopic hysterectomy; LSH = laparoscopic supracervical hysterectomy.

Table 4.
Surgical Data Stratified by Groups

	Group A* (mean)	Group B* (mean)	P Value*
Duration of surgery (min)	253.2	188.2	0.001
Hospital stay (days)	3.5	2.5	0.001
Estimated blood loss (mL)	201.1	183.6	0.504
Transfusion (n)	2	4	—
Laparotomy conversion (n)	2	2	—
Intraoperative Bowel injuries (n)	0	0	—
Intraoperative Bladder injuries (n)	1	0	—
Postoperative fever >38°C (n)	4	2	—

*Group A = laparoscopic hysterectomy for gynecologic cancers; Group B = laparoscopic hysterectomy for gynecologic benign conditions.

†t test.

DISCUSSION

Since the introduction of explorative laparoscopy, operative laparoscopic techniques have been applied to a variety of benign adnexal and uterine conditions.³ These successes have prompted the development of laparoscopic techniques for the exploration, staging, and resection of pelvic malignancies. Techniques range from full laparoscopic procedures to laparoscopic-assisted procedures in which a portion of the procedure is performed vaginally.

Laparoscopic hysterectomy has been utilized in the management of gynecologic cancers including endometrial,

cervical, early ovarian, fallopian tube, and vaginal cancers. Laparoscopy has been reported to provide the exact staging and treatment of patients with endometrial cancer with a shorter hospitalization, and earlier recovery, and improved quality of life.⁴ Nonetheless, the number of patients included in such a series has been low, and additional data are required concerning long-term survival in patients treated using the laparoscopic approach. A randomized clinical trial to compare the effectiveness of laparoscopic surgery with standard surgery in treating patients with endometrial cancer is being conducted by the Gynecologic Oncology Group (GOG-LAP2). Meanwhile, no evidence supports prohibiting laparoscopic surgery in patients with endometrial cancer.

Until recently, laparoscopic radical hysterectomy had not been widely accepted in the United States. The first case of a laparoscopic radical hysterectomy and paraaortic and pelvic lymphadenectomy to treat a stage IA2 carcinoma of the cervix was reported by Nezhat et al⁵ in 1992. Subsequently, several reports from authorities worldwide^{6,7} have described various methods and techniques to streamline the operation while achieving the maximum efficacy in terms of oncologic outcome and minimization of perioperative complications. To date, no randomized trials have compared laparoscopic versus open radical hysterectomy; such a randomized trial for malignancies would require an unattainable number of patients.⁸ However, many nonrandomized reports suggest that the advantages of laparoscopy in oncology are similar to those proven for benign diseases, including faster recovery, fewer complications, and less blood loss.^{9–11}

We hypothesized that the perioperative morbidity of laparoscopic hysterectomy is comparable in patients with benign and oncologic gynecologic conditions. In our series, the same operators in both groups performed the procedures, and the same perioperative care protocols were followed. In spite of the older age and longer procedures in the cancer group, the mean blood loss, conversion to laparotomy, and wound infection rates were similar in the 2 groups. As expected, the mean operative time and the mean length of hospital stay were longer in the cancer group without affecting the postoperative complication rate. To the best of our knowledge, this is the first report comparing laparoscopic surgery morbidity in benign and gynecologic oncologic patients in a single institution. We believe this study is consistent with previous retrospective studies showing the feasibility and safety of laparoscopic hysterectomy for gynecologic oncologic indications.

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