



Original Article

Long-term survival outcome of laparoscopic staging surgery for endometrial cancer in Taiwanese experience



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ABSTRACT

Objective: This study aims to evaluate the long-term safety and efficacy of laparoscopic staging surgery (LSS) for endometrial cancer in Taiwanese women.

Materials and Methods: This is a longitudinal study of prospectively registered 105 patients who underwent LSS for endometrial cancer between June 1995 and June 2008.

Results: The mean duration of surgery was 186.8 minutes, and the mean intraoperative blood loss was 220.38 mL. The median number of retrieved pelvic lymph nodes was 18. The intraoperative complication rate was 4.8%, including two cases of ureteral injury and one case each of bladder injury, bowel injury, and vascular injury. No patient required conversion to laparotomy. During the median follow-up of 55.3 months, six cases of recurrence (5.7%) and three tumor-related deaths (2.9%) were recorded. The 5-year disease-free survival and the overall survival were 93.39% and 98.05%, respectively.

Conclusion: The study revealed favorable perioperative outcomes and better long-term survival than reported in the Taiwan Cancer Registry, and similar good surgical results to those reported in the Western studies. Therefore, LSS by experienced surgeons for endometrial cancer is a feasible and efficacious alternative to laparotomy.

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Introduction

Endometrial cancer is one of the most common gynecologic malignancies in the West and accounts for 6% of all cancers in women [1]. Its incidence in the United States is 23.7 cases per 100,000 individuals [2]. In Taiwan, lifestyle-related changes in the recent decades have led to a rise in the incidence of obesity and metabolic syndrome-related diseases, which are potential risk factors for endometrial cancer. The Bureau of Health Promotion (Department of Health, Taipei, Taiwan) reported 302 new cases of endometrial cancer in 1996 and 1165 in 2007, reflecting an increase in the incidence from 2.5 cases to 8.3 cases per 100,000 individuals in Taiwan [3]. Despite the increased incidence, there is no indication that Western and Asian women share similar patterns of endometrial cancer.

With the recent advances in laparoscopic equipment and knowledge, laparoscopic surgery is widely accepted as safe and feasible for managing benign gynecologic disease, and several authors have reported laparoscopic approaches for the treatment of endometrial cancer [4–12]. Laparoscopic staging surgery (LSS) for endometrial cancer reportedly has some short-term advantages over the conventional transabdominal surgery, such as smaller incision, less tissue reaction, meticulous hemostasis, decreased intraoperative blood loss, less postoperative pain, and shorter hospital stay [1,2, 5,7,13]. However, the paucity of long-term follow-up data has led to great concerns about the safety and efficacy of LSS, which at the very least should have equivalent outcomes to open surgery [6,13].

In this longitudinal study, we aimed to assess the long-term outcome of LSS for endometrial cancer in Taiwanese women in terms of disease-free survival, overall survival, and recurrence.

Materials and methods

Study population

Between June 1995 and June 2008, patients at Chang Gung Memorial Hospital, Tao-Yuan, Taiwan, who had histologically

Conflicts of interest: The authors have no conflicts of interest to declare.

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proven endometrial cancer without evidence of extrauterine tumor spread based on clinical assessment and who wished to undergo LSS, were prospectively registered and followed up. Patients with synchronous primary tumor at the time of surgery and those with major medical conditions contraindicated for laparoscopic surgery, such as severe cardiopulmonary disease, were excluded. Finally, 105 consecutive patients were enrolled.

All the enrolled patients gave their written informed consent prior to surgery and specific permission for the use of their personal health information for research purposes. The Human Investigation Review Board of Chang Gung Memorial Hospital reviewed and approved the study.

Surgical procedures

Two experienced surgeons (C.L.L. and K.G.H.) jointly performed most of the surgeries, including peritoneal lavage, total hysterectomy with bilateral salpingo-oophorectomy, and pelvic lymphadenectomy. The current policy of our institution is to perform pelvic and para-aortic lymphadenectomy in all patients with endometrial cancer, according to the revised International Federation of Gynecology and Obstetrics (FIGO) staging of 2009 [14]. Our study was conducted prior to when the consensus for para-aortic lymphadenectomy was established; thus, all the patients underwent pelvic lymphadenectomy, but only patients with known risk factors of metastasis, such as deep myometrial invasion and high-grade tumor, underwent para-aortic lymph node dissection. Biopsy of suspicious lesions was performed after systemic inspection of the peritoneal cavity. Omentectomy was performed for patients with serous papillary carcinoma and clear cell carcinoma. In some patients of reproductive age (younger than 40 years) with early-stage endometrial cancer, the ovaries were preserved after the patients and their families were thoroughly counseled.

In most of the operations, five trocars were used, including two 12 mm and three 5 mm trocars. A 10 mm laparoscope was introduced via a skin incision at the midpoint of the umbilicus and xiphoid process (Lee–Huang point) [15–17]. All other ancillary ports were inserted laterally, as described previously [15–17]. Hysterectomy was performed through a laparoscopic vaginal approach or a total laparoscopic approach. The uterus was removed vaginally by careful extraction and dissected as little as possible, without entering the endometrial cavity.

Staging and adjuvant treatment

The final surgical staging was based on the FIGO 1988 staging system. Patients with FIGO stage IA grades 1–3 and FIGO stage IB grade 1 underwent clinical observation. Those with FIGO stage IB grades 2–3 and FIGO stage IC grades 1–2 underwent clinical observation or received whole-pelvic radiation and vaginal brachytherapy or chemotherapy, according to the adverse risk factors. Further, those with FIGO stages IIA and IIB received whole-pelvic radiation and/or vaginal brachytherapy. Patients with advanced stages of endometrial cancer undertook adjuvant therapy with radiotherapy, chemotherapy, or concurrent chemoradiotherapy.

Follow-up examination

All the patients were recalled every 3 months for the first 2 years, every 6 months for the next 3 years, and yearly thereafter. At each visit, their clinical history was recorded, and physical and pelvic examinations were performed along with a collection of vaginal smears. Blood samples were collected for surveillance of tumor markers, including CA125. Abdominopelvic computed

tomography was performed 1 year after treatment or for suspected recurrence. Other diagnostic procedures including ultrasonography and biopsy were performed when indicated, such as for suspected vaginal cuff and pelvic recurrence. Relapse was treated according to the patient's condition. After this treatment, the patients were followed up as previously described.

Data collection and statistical analysis

The recorded surgical parameters were operation time; number of retrieved lymph nodes; intraoperative blood loss; occurrence of intraoperative and postoperative complications, blood transfusion, and fever; and duration of hospitalization. Pathology data included histology type, presence of lymphovascular space invasion (LVSI), cytologic finding, and number of lymph nodes in the pelvic and para-aortic areas. At the end of the study, the pattern of recurrence, disease-free survival, and overall survival were analyzed.

All the data were analyzed using SPSS for Windows release 17.0.0/2008 (IBM-SPSS Inc., Chicago, IL, USA). Descriptive statistics, such as mean, median, range, and percentage, were used to summarize the data. The cumulative event rates (recurrence and death) were calculated by the Kaplan–Meier method, with the time to the first event as the variable.

Results

The patient characteristics and methods of initial diagnosis are summarized in Table 1. Endometrial curettage was the most common method of initial diagnosis (69.5%), followed by hysteroscopic resection (26.7%). Most of the patients (86.7%) had FIGO stage 1 cancer, and 13.34% were at an advanced stage mostly because of lymph node metastasis (Table 1). From the histological findings, 73 patients (69.5%), 18 patients (17.1%), and 14 patients (13.3%) had grade 1, grade 2, and grade 3 cancer, respectively, and the most

Table 1
Patient and tumor characteristics and surgical stage (N = 105).

Age (y)	51.25 ± 0.97
Median parity [median (interquartile range)]	3 (1, 4)
BMI (kg/m ²)	26.78 ± 0.56
Methods of diagnosis	
Endometrial curettage	73 (69.5)
Hysteroscopic resection	28 (26.7)
Hysterectomy	4 (3.8)
FIGO staging ^a	
IA	45 (42.9)
IB	34 (32.4)
IC	12 (11.4)
IIA	2 (1.9)
IIB	1 (0.9)
IIIA	2 (1.9)
IIIB	0 (0)
IIIC	9 (8.6)
Histology	
Endometrioid carcinoma	99 (94.3)
Clear cell carcinoma	3 (2.6)
Serous papillary carcinoma	1 (0.9)
Adenosquamous carcinoma	2 (1.9)
Histologic grade	
Grade 1	73 (69.5)
Grade 2	18 (17.1)
Grade 3	14 (13.3)
Positive cytology of peritoneal lavage	
Present	0 (0)
Absent	105 (100)

Data are presented as n (%) or mean ± SEM, unless otherwise indicated. FIGO = International Federation of Gynecology and Obstetrics; SEM = standard error of the mean.

^a FIGO 1988 staging system.

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