Laparoscopic treatment of endometrial cancer: feasibility and results

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Abstract

Objective: The aim of this study was to compare laparoscopic and abdominal approach in the treatment of endometrial cancer in our department.

Study design: From January 1999 to November 2002, 77 patients underwent surgery for stages I–III endometrial cancer. The first group of 36 patients had abdominal hysterectomy as well as salpingo-oophorectomy, with or without lymphadenectomy. The remaining 41 patients received laparoscopic assisted vaginal hysterectomy as well as salpingo-oophorectomy, with or without lymphadenectomy.

In this retrospective study, we have compared the surgical results, the short- and long-term morbidity and the outcome of the two patient groups.

Results: Body mass index (BMI) was significantly higher in the laparoscopic group (27.3 versus 24.6; \(p = 0.009\)). The average time for surgery was significantly longer for the laparoscopic group (143.6 min versus 109.7 min; \(p = 0.0001\)), but lymphadenectomy was performed in more patients (63.4% versus 25%; \(p = 0.001\)).

Postoperative hospital stay was significantly longer in patients undergoing the abdominal approach (4.59 days versus 3.18 days; \(p < 0.0001\)). No blood transfusions were performed and the rates of complications were similar in the two groups. No differences were found in recurrence and survival rate.

Conclusions: In our experience, laparoscopic and abdominal surgery can achieve similar results in the treatment of endometrial cancer. In our series, even with the BMI and the number of lymphadenectomies being higher in the laparoscopic group, the rates of complications were similar in the two groups.

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1. Introduction

Endometrial carcinoma is the most frequently diagnosed gynecologic cancer in the western world with an incident rate of 25 new cases per 100,000 women [1]. Since 1988, endometrial carcinoma has been surgically staged. The traditional approach for staging, as well as for treatment, is an exploratory laparotomy through a midline incision with total abdominal hysterectomy, bilateral salpingo-oophorectomy, peritoneal washing and, in patients with selected high risk factors, pelvic and para-aortic lymph nodes dissection. A less invasive vaginal approach was reserved for low risk patients with comorbidity [2,3]; however a complete staging was not allowed.

In the past decade, laparoscopic surgery has gained widespread acceptance in the treatment of benign gynecological diseases. In gynecological oncology, most efforts have been focused on demonstrating the ability to perform lymphadenectomy by laparoscopy [1,2]. Many different studies have evaluated the feasibility and the results of laparoscopic surgical staging of endometrial cancer retrospectively [9–19].
Only one randomized study has been published on this topic thus far [20], and it shows the advantages of laparoscopic treatment of endometrial carcinoma.

Our study was performed in order to evaluate whether or not laparoscopic treatment of endometrial cancer was feasible in our institution and to compare it with the traditional abdominal approach.

2. Materials and methods

From January 1999 to November 2002, 77 patients with stages I–III endometrial cancer were treated at the Department of Gynecologic Oncology, University of Turin. The first group of 36 patients received laparotomy and underwent total abdominal hysterectomy (TAH) as well as salpingo-oophorectomy and peritoneal washing, with or without lymphadenectomy. The remaining 41 patients had laparoscopic assisted vaginal hysterectomy (LAVH) as well as salpingo-oophorectomy and peritoneal washing, with or without lymphadenectomy. Patients in the abdominal group were treated according to a randomized lymphadenectomy trial currently being conducted in our country. Patients with histologic grade (G) 2 tumor and infiltration of the outer half of the myometrium, all the patients with G3 tumor and patients with invasion of the outer half of the myometrium were included in this trial. All patients treated laparoscopically underwent LAVH according to the technique described below. To evaluate the feasibility and morbidity of laparoscopic lymphadenectomy, all patients with G2 and G3 cancer or patients having the outer half of the myometrium infiltrated received pelvic lymphadenectomy. All the patients had antibiotic and anti-thrombotic prophylaxis.

After treatment, patients underwent clinical examinations every 4 months for the first 2 years, every 6 months for the subsequent 3 years and every year thereafter. Vaginal pap smear was performed every year. Patients had instrumental examinations in accordance with their clinical status.

Patient characteristics, surgical results, short- and long-term morbidity and outcome were compared in the two groups. Statistical analysis was performed with SPSS software. Nominal and ordinal variables were analyzed with Chi-square test. Student’s T-test was adopted in order to compare continuous variables in a parametric setting.

2.1. Laparoscopic technique

In our institution, laparoscopic technique has been introduced in benign gynecologic diseases and developed especially in infiltrating endometriosis. One of the authors went through a learning curve in other institutions, particularly the Possover one. Afterwards, we start to treat malignant gynecologic diseases.

The first step of LAVH for endometrial cancer is the coagulation of the salpinges. The patient is placed in lithotomic position and the procedure is performed without the use of uterine manipulator. After opening the peritoneum laterally from the infundibulo-pelvic ligament, the ureter is identified and the pararectal space opened. After dissection of the hypogastric artery, the ureter is followed until the crossing of the uterine artery. The uterine artery is coagulated at its origin from the hypogastric artery (Fig. 1). Lymphadenectomy is then performed. Generally,
the paravesical space is opened deeply so that, if bleeding occurs, some space is left for blood. The obturator fossa and the lumbo-sacral fossa are accessed laterally, dissecting the iliac vessels from the pelvic sidewall. This maneuver makes it easier to find and follow the obturator nerve. The lymph nodes are gathered in an endo-bag and extracted. After lymphadenectomy, the infundibulo-pelvic ligaments are severed and further steps, such as detaching the bladder and dissecting the utero-sacral ligaments, are performed according to the difficulty of the vaginal procedure.

3. Results

Table 1 shows patient characteristics. No statistical differences were found in the characteristics of the patients except for body mass index (BMI), which was higher in the laparoscopic group (\( p = 0.009 \)). Likewise, no significant differences were found regarding histology, histological grade and lymph node status.

Table 2 shows surgical procedures and postoperative data. Pelvic lymphadenectomy was performed at a higher rate on patients receiving laparoscopic surgery than on those undergoing abdominal approach (\( p = 0.001 \)). The average number of harvested lymph nodes did not differ in the two groups. The average operation time for the laparoscopic group was significantly higher than the time for the abdominal group (\( p = 0.0001 \)). No patients received blood transfusions. The postoperative hospital stay was significantly lower in the laparoscopic group than in the abdominal group (\( p < 0.0001 \)).

Two postoperative complications were observed in both groups. One patient in the abdominal group suffered cardiac failure. Fever was observed in one LA VH patient. Two of the complications were observed in one patient: she had conversion to laparotomy for gross positive lymph nodes and then underwent a second procedure because of complete wound dehiscence.

No differences were observed concerning long-term complications. In the abdominal group, two patients had incisional hernias. In the laparoscopic group, one patient had pelvic pain after voiding and defecation, while a patient who underwent lymphadenectomy had right leg lymphedema.

At this point, no statistically significant differences have been found between the two groups in regards to the recurrence and survival rate.

In the abdominal group, one patient had a para-aortic node metastasis, which was treated with radiotherapy and chemotherapy; she is now alive with disease. Two patients died of recurrent disease and one patient died of another tumor.

In the laparoscopic group, one patient had a vaginal recurrence, which was treated with radiotherapy; she is now alive without disease. A second patient, who underwent laparoscopic lymphadenectomy, is now undergoing radiotherapy for a para-aortic node metastasis. One of the patients experienced recurrence in the pelvis and peritoneum and died of disease. One patient with pre-existing renal insufficiency died of renal failure.

4. Discussion

Surgery is the standard treatment for endometrial cancer at stages I and II. Five-year survival rates for these patients vary between 70 and 85\% [1].

Historically, vaginal hysterectomy has been considered an alternative to abdominal surgery in low risk patients with high comorbidities. Cure rates are similar in this sort of patients but a complete staging is not performed [2,3].
The availability of laparoscopic lymphadenectomy for cervical cancer [4–8] suggested that endometrial carcinoma could also benefit from such a technique, overcoming the limits of vaginal surgery and allowing complete staging of the disease, even if the type of patients was more complicated [9,10]. Traditionally, elevated BMI has been considered a contraindication to laparoscopy, and Childers considered it an exclusion criteria for laparoscopic staging [11]. In the published series, the group undergoing laparoscopic surgery generally had a BMI lower than the patients undergoing laparotomy [12–16]. Scribner evaluated pelvic and para-aortic node dissection in women with a BMI above 28 [10]. A group of 55 patients undergoing laparoscopic lymphadenectomy was compared to a group of 45 patients in which the same procedures were performed by laparotomy. He concluded that obesity is not a contraindication to laparoscopic lymph node dissection, although the overall success rate is significantly higher in patients with a BMI < 35. In our series, patients were not selected on basis of their BMI, although it was higher in the laparoscopic group. Even if para-aortic lymphadenectomy was not performed, this study did not considered overweight a contraindication to laparoscopic surgery.

The operating time of laparoscopic approach has been proven longer than that of traditional surgery [12–15,17,18]. Our data are in accordance with these previously published papers. However, in our series the rate of lymphadenectomies was higher in the laparoscopic group. Furthermore, the lymph node count and visual radicality of the procedure increased with time even after only 1 year of practice.

In our experience, the coagulation of the uterine artery at its origin and the dissection of the pararectal space as first step are important and make the procedure easier. The operating time does not increase significantly and most steps should be performed for the lymphadenectomy in any case. Furthermore, coagulating the uterine artery at the hypogastric origin is important in controlling the ureteral course. In conclusion, we believe that the difference in time is not significant since the postoperative course is significantly better than in the abdominal group.

We did not observe any important intra-operative complications during laparoscopic surgery. Retrospective analyses reported a complication rate similar to [14,18] or even lower [15,17] in the laparoscopic group than in the abdominal group. In our study, the complication rates were similar in the two groups.

The number of lymph nodes yielded was similar in the two groups. Even if the average number of nodes was slightly lower in the laparoscopic lymphadenectomy, this is not significant. The higher number in the laparotomic group may be due to the inclusion of some para-aortic lymph nodes in the laparotomic count. Some papers have shown that laparoscopic lymphadenectomy may obtain similar or even better results than laparotomy [13–18].

Postoperative hospital stay in the laparoscopic group is constant in all studies dealing with laparoscopic treatment of endometrial cancer [12–15,17,18]. Our data are in accordance with this finding. Furthermore, the postoperative hospital stays are virtually constant in our experience.

At this point, patient follow-up is too short to draw final conclusions. However, no statistically significant differences in recurrence and survival rates were found between the two groups of patients. In a retrospective study from Gemignani et al. [15], 69 patients treated by LAVH were compared with 251 patients treated by TAH. Survival and recurrence rates were similar, despite the follow-up period for the laparoscopic group being shorter. In another retrospective study, Obermair et al. [19] compared 226 patients who underwent total laparoscopic hysterectomy with 284 patients who received TAH. Patterns of recurrence and survival were similar in both groups. In a randomized study comparing the laparoscopic-vaginal approach with the conventional abdominal approach, Malur et al. [20] confirmed these findings, however on a smaller number of patients. There are theoretical bases and data to support the finding that the laparoscopic and traditional treatment of endometrial cancer should give similar results at least in selected cases, even if the prospective randomized data are scanty. A GOG study has been started in order to obtain positive data on this topic.

In conclusion, in our initial experience laparoscopic surgery has been effective in treatment of endometrial cancer. Even if the BMI and the number of lymphadenectomies were higher in the laparoscopy group, the rate of complications was similar. In our experience, laparoscopy seems a justified choice for patients with high BMI.

References