

# Laparoscopy or Laparotomy for the Management of Endometrial Cancer

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## ABSTRACT

**Objective:** The aim of this study was to evaluate the feasibility of laparoscopy in the management of early stage endometrial cancer.

**Methods:** Fifty-two patients with endometrial cancer who underwent surgical staging consisting of total hysterectomy, bilateral salpingo-oophorectomy with pelvic lymph node dissection, and cytology between 1998 to 2002 were included in the study. Laparotomy and laparoscopy were randomly offered to patients upon admittance.

**Results:** Of 52 patients, 26 underwent laparotomy and the remaining 26 underwent laparoscopic staging surgery. No significant difference existed between the demographic characteristics of the 2 groups. The mean number of harvested lymph nodes was 18.2 in the laparoscopic group and 21.1 in the laparotomic group ( $P>0.05$ ). Pelvic lymph node metastases were detected in 7.7% of the patients in the laparoscopy group and 15.4% in the laparotomy group, and the difference was not significant. Adjuvant radiotherapy was applied later to 42.3% of the laparoscopy group and 38.5% of the laparotomy group. Operative morbidity was higher in the laparotomy group mainly because of postoperative wound infection, and the patients in the laparotomy group had a longer hospital stay.

**Conclusion:** Laparoscopic surgery is a method that can be applied as well as laparotomy in the management of endometrial cancer. Lymph node number and detection of lymph node metastasis did not differ significantly in laparotomic and laparoscopic approaches. Wound infections were more frequent in laparotomies.

**Key Words:** Laparoscopy, Laparotomy, Endometrial cancer.

## INTRODUCTION

The incidence of endometrial cancer has remained stable, but the number of deaths annually from this disease has doubled since 1987.<sup>1</sup> Despite the fact that many gynecologists believe endometrial cancer is harmless, when compared stage by stage, 5-year survival is identical to that of cervical cancer, which is considered virulent. Thus, we are obligated to reassess the screening, diagnostic, staging, and therapeutic aspects and most importantly the debate on lymphadenectomy during hysterectomy. Currently, an extremely low prevalence is inferred for lymph node involvement in stages Ia, Ib, and grade 1 neoplasm, which comprises 40% to 60% of newly diagnosed patients. Therefore, the removal of regional reactive lymph nodes in this setting seems inappropriate. Furthermore, it is postulated that in early disease stages and when regional nodes are clinically unaffected, nodes should only be sampled for prognostic significance and not removed radically in the vain hope of curing the patient. Indeed, evidence from laboratory studies has shown that many lymphatic and lymphatico-venous shunts that bypass regional lymph nodes exist and allow an early stage lymphatic and hematogenous dissemination of malignant cells.<sup>2-6</sup> On the other hand, removal of lymph nodes if they are grossly positive, lessening the tumor burden, should decrease the amount of suppressive tumor antigens present in the host and reduce the amount of adjuvant therapy required to treat residual disease. Indeed, ineffective nodes are no longer useful to the host but now contribute to increased tumor-induced immunologic suppression.<sup>7</sup>

For tumors infiltrating the inner third of the myometrium, the actual risk of node metastases is substantial for grade 3 histologic type tumors, and for the middle third invasion, the risk of node metastases is substantial for grade 2 and 3 lesions. For tumors infiltrating the outer third, the risk is substantial for all. Thus, the risk is ignorable for superficial invasion and substantial for deep myometrial invasion for all grades (20% to 45%). The negligible risk of

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node metastases (0% to 4%) is also valid for inner one-third myometrial involvement for grades 1 and 2, for middle one-third involvement with grade 1 tumors, and for all aforementioned conditions with no vascular space involvement and no spread to the cervix or adnexa, or both, with histologic type adenocarcinoma and adenoacanthoma. This group comprises 75% of patients. Nevertheless, the common belief among gynecologists of "just to take out the uterus as it is small and well differentiated" is not valid as 10% to 15% of the grade 1 lesions have substantial myometrial invasion exposing the patient to substantial risk for node metastases and thereby necessitating intraoperative assessment of myometrial invasion in those instances as well.

Thus, the need for lymph node assessment during surgery is the most challenging issue among gynecologists. Secondly, what is the best way to assess lymph nodes is another debate. Several methods of lymph node dissection have been proposed for different situations although these differ from one surgeon to the next. The adequacy of clinical assessment of lymph nodes and sampling lymphadenectomy has been a subject of controversy for years. Meticulous inspection and palpation bidigitally are refined exercises for the gynecologic oncologist, but slightly more than one half of the suspicious pelvic and paraaortic nodes reveal metastases while only 5% of the unsuspecting nodes bear malignant cells.<sup>8</sup> Thus, one should bear in mind the possibility of undetected metastases of regional nodes by traditional methods during surgery. In addition, some tumor cells can only be detected by immuno-histochemical analysis and thereby pass unrecorded. Thus, the real incidence of tumor involvement might have been underestimated due to the technique used for pathologic assessment and limited node dissection. "Do we need to do complete dissection for positive detection, because negative staging does not necessarily identify a subset that does not need further therapy" is another debate. On the other hand, the concern about "what would be the false negativity rate to be accepted by the surgeon and the patient?" is another important issue. The question arises of morbidity assessment after lymph node evaluation for that individual. These issues must be discussed with the patient in detail before surgery.

Hence, being the most prevalent gynecological cancer, endometrial cancer does not require a radical hysterectomy but lymph node evaluation in its early stage. As gynecologic oncology surgeons have gained more experience and skill in different techniques and procedures, and more interest in minimally invasive surgery, the lapa-

roscopic approach has found applications in the treatment of endometrial cancer. With the application of video and improvement in the armamentarium of video, laparoscopic surgery changed from being performed in an operating room by one man frustrated because of the lack of the ability of other operating room staff to follow and participate in this surgical procedure, to being performed in an amphitheater, allowing not only the assistant and other operating room staff to see the actual procedure and follow the sequences but also assist the surgeon better. These advances resulted in accelerated improvement in operative laparoscopy and proved to be an important aid to education because of the advantage of using monitors during the operation and taping the surgery for repetitive education.

Laparoscopic-assisted surgical staging (LASS) of early stage endometrial cancer, although remaining a controversial subject, is an attractive alternative to the traditional laparotomic approach. Nevertheless, one should bear in mind that the first purpose of the staging is to provide a common language and uniformity for comparison instead of aiding therapy and management issues. Thus, standardizing "the needed and not needed" for staging must be the first aim despite there still existing some conflicting ideas regarding the system of staging.

Laparoscopy has a similar success rate when compared with laparotomic staging, and it can be accepted as less invasive. Studies have shown that the lymph node yield from laparoscopy is equivalent to that of laparotomy. Feasibility of laparoscopic staging in incompletely staged endometrial cancer patients is another subject of interest. Although laparoscopic pelvic and paraaortic lymphadenectomy is accepted as feasible, randomized studies are still awaited to standardize its indications and applications.

## METHODS

The patient population consisted of 52 early stage endometrial cancer patients who presented to Akdeniz University Obstetrics and Gynecology Department between 1998 and 2002. All underwent staging surgery comprising total hysterectomy, bilateral salpingo-oophorectomy, and pelvic lymph node sampling by the same 2 surgeons (CGZ, TS), using the same technique and instruments. The patients were randomly assigned to the surgical approach and informed before surgery about the type of surgery they were to undergo. One group comprised 26 patients managed by traditional laparotomic surgery, while the other comprised 26 patients who underwent laparoscopic

surgery. The patients who were clinically thought to have advanced disease were not included in the study. The main outcomes studied were operative time, blood transfusion, intraoperative and postoperative complications, duration of hospital stay, number of lymph nodes obtained and lymph node positivity. Statistical analysis was performed by the Mann Whitney *U* Test, and *P* values <0.05 were considered statistically significant.

## RESULTS

The demographic characteristics were not statistically significant between the 2 groups. The laparotomy group had an average age of 54.9 (range, 36 to 77) and an average gravidity of 3.8 (range, 0 to 9). The laparoscopy group had an average age of 56.6 (range, 40 to 72) and an average gravidity of 3.6 (range, 0 to 8). Body mass indexes were not significantly different between laparotomy and laparoscopy groups, being 26.2 vs 24.4 respectively.

The majority of the patients had stage I disease (67.3%), and endometrioid type of endometrial cancer was more common (Tables 1, 2, and 3). The average number of harvested lymph nodes in each patient was also compared. The number of lymph nodes was not significantly different between the groups ( $P>0.05$ ). The laparoscopic group had an average number of 18.2 (range, 9 to 31), and the laparotomic group 21.1 (range, 9 to 38). Two (7.7%) patients in the laparoscopy group and 4 (15.4%) in the laparotomy group had pelvic lymph node metastasis. Eleven patients (42.3%) in the laparoscopy group and 10

Histologic Type	Laparotomy Group (n = 26)	Laparoscopy Group (n = 26)
Endometrioid	20 (77%)	19 (73.1%)
Clear cell	2 (7.7%)	2 (7.7%)
Adenosquamous	—	1 (3.8%)
Serous	1 (3.8%)	3 (11.5%)
Mucinous	—	1 (3.8%)
Undifferentiated	1 (3.8%)	—
Mixed	2 (7.7%)	—
Total	26	26

(38.5%) in the laparotomy group were later scheduled for adjuvant radiation therapy.

The laparoscopic group had significantly shorter hospitalization than did the laparotomy group (4.1 vs 8.2 days,  $z \geq 1.96$ ,  $P<0.05$ ). Operative time of laparoscopy being close to that of laparotomy was encouraging (155 vs 144 minutes,  $P>0.05$ ).

In terms of postoperative and intraoperative complications, the laparoscopic approach had none, while wound complications occurred in 5 patients in the laparotomy group, of which one was evisceration and needed reoperation for closure. Eight units of red blood cell suspension were transfused to the laparotomy group patients and 6 units to the laparoscopy group patients.

## DISCUSSION

Nowadays, the laparoscope allows us to carry out almost any procedure that can be done by laparotomy in gynecologic practice. Laparoscopically assisted vaginal hysterectomies and laparoscopic total hysterectomies for benign conditions are being applied widely even in patients with large uteri. However, in the management of gynecologic cancers, the laparoscope had a lesser role, until pelvic and paraaortic lymph node dissections became feasible in the 1990s. Following this achievement, the laparoscope has gained importance among gynecologic oncologists especially in patients with early endometrial and cervical cancers. Nevertheless, the laparoscopic technique was not well defined or standardized. Every surgeon was doubtful about the outcome of this type of surgery. Because of such doubt, many institutions established pilot studies and some prospective small-scale trials. At any rate, some were successful with speeded up publication encouraging

**Table 1.**

Study Groups Compared According to Stage

Stage	Laparotomy Group (n = 26)	Laparoscopy Group (n = 26)
I	14 (54%)	21 (80.8%)
II	4 (15%)	2 (7.7%)
III	8 (31%)	3 (11.5%)

**Table 2.**

Histologic Grades of the Study Groups

Grade	Laparotomy Group (n = 26)	Laparoscopy Group (n = 26)
1	14 (54%)	15 (58%)
2	6 (23%)	5 (19%)
3	6 (23%)	6 (23%)

surgeons to switch to this type of surgery. Laparoscopically assisted vaginal hysterectomy with lymph node evaluation is now an alternative treatment for endometrial cancer in properly selected patients. The goal is to minimize the morbidity of treatment instead of satisfying surgeons' new enthusiasm to use the technique.

Laparoscopically assisted surgical staging for endometrial cancer in experienced hands can be performed with equal success and safety with minimal morbidity. It has the advantages of less pain, early resumption of normal activities, and overall improved quality of life. Many authors are in agreement that it results in significantly less blood loss and shorter hospitalization. The only drawback seems to be the longer operating time reported in most studies.<sup>9-11</sup>

Scribner et al<sup>10</sup> compared laparoscopy and laparotomy in a similar number of patients as in our study. They concluded that although the early hospital discharge is an advantage, longer surgical time and higher anesthetic costs of the laparoscopic approach offset this gain, and total costs appear not to differ statistically. In contrast to Scribner's study, Gemignani et al,<sup>11</sup> found the overall charges in the laparoscopy group significantly lower than that of laparotomy group, considering fewer postoperative complications seen with the laparoscopic approach, a factor that lowers overall hospital charges. In these 2 studies, the laparoscopy group had a significantly longer operating room time (237 vs 157 minutes in Scribner's study and 214 vs 144 minutes in Gemignani's study); however, in our study, the duration of the operation for the 2 groups was similar (155 vs 144 minutes).

Another randomized study<sup>12</sup> comparing the laparoscopic-vaginal approach with the conventional abdominal approach for treatment of patients with endometrial cancer was performed including 70 patients with endometrial cancer FIGO stage I-III. Thirty-seven patients were treated in the laparoscopic group versus 33 patients in the laparotomy group. Lymph node dissection was performed in 25 patients by laparoscopy and in 24 patients by laparotomy. Blood loss and transfusion rates were significantly lower in the laparoscopic group. Yield of pelvic and paraaortic lymph nodes, duration of surgery, and incidence of postoperative complications were similar for both groups. Overall and recurrence-free survival did not differ significantly for both groups.<sup>12</sup>

While comparing laparotomy and laparoscopy, the number of residual nodes following lymphadenectomy has also been studied because lymph nodes left in situ might have had microscopic metastases. In a review by Lecuru

and Taurelle,<sup>13</sup> laparoscopic pelvic lymphadenectomy was declared able to retrieve 90% to 95% of the nodes, which was similar to that of laparotomy. Laparoscopy has been proven to be adequate and efficient in pelvic lymphadenectomy. Laparoscopic paraaortic lymphadenectomy can be substituted for its open counterpart regarding lymph node yield and accuracy in recovery of positive nodes as well.<sup>14</sup>

Port-site metastases are one of the most often addressed issues in patients undergoing a laparoscopic procedure for any kind of gynecologic cancer. Dragging cancerous tissue through a small incision and exfoliation from the surface and implantation into the healing wounds are the main reasons for an increased likelihood of metastases or recurrences at that sites. However, in gynecologic cancers port-site recurrences are always associated with either disseminated intraperitoneal disease or cyst rupture. The question of contamination and increasing tumor growth because of CO<sub>2</sub> laparoscopy and the effect of pneumoperitoneum on survival remains obscure. However, surgeons should take some preventive measures, such as avoiding cyst rupture, gentle handling of the cancerous tissue, avoiding the rupture of the lymph node capsule, and including the port sites in the radiation field in patients undergoing postoperative irradiation. In this study, no port-site metastases occurred.

Morbidities related only to laparoscopic surgery are of some concern, and injuries are generally related to trocar installation. These morbidities are mostly bowel, vascular, and bladder injuries. Increasing numbers of advanced laparoscopic applications like expanded lymph node dissections and more radicalness in treating gynecologic cancers have caused surgeons to face other complications as well. Injury to vein tributaries during laparoscopic lymphadenectomy may cause major hemorrhage from the adjacent veins.<sup>15</sup> Pelvic plexus bleeding may also occur because of inappropriate dissection.<sup>16</sup> It might not be easy sometimes to overcome such bleeding even during laparotomy because of the depth of the location of bleeding, preventing easy access to the area. A laparoscope with 5- to 7-fold magnification could sometimes be superior in identifying such deep bleeding locations; however, difficulty in suturing or unavailability of vascular clamps may prevent the appropriate approach. In our study group, no such complication requiring laparotomy occurred in the laparoscopically managed patients.

Almost 90% of the patients in the laparoscopy group had stage I or II disease following surgical staging, whereas only 70% of the patients in the laparotomy group had

early stage disease. However, the breakout of stage III subsets showed us that such patients are not identifiable before surgery, and therefore this could be incidental because we never felt that “we’re glad that we opened this patient; it would be dreadful if we put the scope for the first time during surgery.” We conclude that the laparoscope seems to be very useful in a select group as it reduces postoperative morbidity offering quick recovery with the same success and efficacy. However, experience is of the utmost importance, and there is no way to start scoping without proper training. Feeling ready does not mean that one will be good in the operating room, and thus being supervised should not be overlooked before integrating such a procedure into clinical practice.

## CONCLUSION

Laparoscopy is as good as laparotomy in the management of endometrial cancer. Shorter hospital stay and less postoperative morbidity are advantages of laparoscopic surgery. Duration of laparoscopic surgery does not seem to be different from that of laparotomy.

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