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Laparoscopic treatment of early-stage endometrial cancer with and without uterine manipulator: Our experience and review of literature

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ABSTRACT

Objective: The aim of this study was to retrospectively compare in a series of 110 patients with early-stage endometrial cancer recurrence rate and surgical outcomes after total laparoscopic (LPS) hysterectomy with lymphadenectomy performed with or without uterine manipulator.
Study design: 110 patients with clinical stage I endometrial cancer were enrolled in a retrospective study and underwent surgical staging comprised of LPS hysterectomy, bilateral salpingo-oophorectomy, and in all cases we performed systematic bilateral pelvic lymphadenectomy with uterine manipulator (Group 1, 55 patients) or without (Group 2, 55 patients).
Results: The rate of positive cytology and LVSI did not significantly differ between Group 1 and Group 2. 1 patient of the Group 1 had a bladder injury and another patient of Group 2 had an ureteral stricture temporarily treated with a stent. 1 patient of the Group 1 had a bowel occlusion due to a port site hernia under the left 10 mm port, resolved with a bowel resection and an end-to-end anastomosis. In 1 patient of the Group 1 and 2 patients of Group 2 we observed a vaginal cuff dehiscence and in 1 case of Group 2 a pelvic lymphocyst was reported. Postoperative fever was reported in 3 patients of the Group 1 and in 5 patients of group 2 ($p = 0.07$).
Conclusions: Our study confirms that use of uterine manipulator for laparoscopic treatment of endometrial cancer does not increase positive peritoneal citology, LVSI and recurrence rate.

1. Introduction

The advantages of laparoscopic (LPS) surgery have made it increasingly attractive as an alternative to traditional approaches for treatment of gynaecologic malignancies, especially endometrial cancers [1–4].

Laparoscopic treatment of endometrial cancer offers many advantages compared to the open approach [1] primarily considering the less postoperative pain, better visibility of the operative field, and shorter hospital stay as the main benefit [2].

Although long-term risks for recurrence and survival after LPS for endometrial cancer are not well documented, this procedure does not seem to modify the incidence of recurrences or the overall survival [1,3], although the uterine manipulation during laparoscopic hysterectomy for endometrial cancer.

However, there are concerns about the possible increased incidence of positive peritoneal cytology and cancer cell spillage potential because of retrograde dissemination of endometrial cancer cells when the uterine manipulator is inserted [1–3].

A previous study showed that LPS hysterectomy for endometrial cancer is associated with an higher incidence of positive peritoneal citology [4–9].

A recent prospective randomized study reported that LPS surgery does not increase the positive peritoneal citology among women with endometrial carcinoma [1–4].

More recently, the use of uterine manipulator during LPS hysterectomies for endometrial cancer has been associated with

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vascular pseudoinvasion in cases of low risk endometrial cancer [6–8].

The aim of this study was to retrospectively compare recurrence rate, positive peritoneal citology and lymphovascular space invasion (LVSI) after total laparoscopic (LPS) hysterectomy with lymphadenectomy in a series of 110 patients with early-stage endometrial cancer with or without uterine manipulator and to evaluate surgical outcomes.

2. Materials and methods

Between November 2009 and January 2015, we enrolled in a retrospective study 110 consecutive patients with clinical stage I endometrial cancer who underwent LPS hysterectomy, bilateral salpingo-oophorectomy with pelvic and aortic lymph node dissection (Table 1) with and without intrauterine manipulator at the Department of Obstetrics and Gynecology of University Medical School of Padova, Italy.

For the purpose of the study, 110 patients with clinical stage I endometrial cancer (disease limited to the uterine corpus) were selected. The staging of the patients was done according to the FIGO staging system.

The study was approved by our institutional review board and all women gave their informed consent.

All the patients who underwent LPS were informed that LPT would be carried out if difficulties were encountered with the LPS approach, and all women gave their informed consent.

Preoperative work-up consisted of gynaecologic and rectal examination, ultrasonographic and hysteroscopic assessment with endometrial biopsy, chest X-ray radiograph, and MRI scan to exclude the suspicion of metastatic disease.

Patients with evidence of more advanced clinical stages based on routine preoperative workup that included clinical examination and radio-imaging studies, patients treated with prior pelvic radiotherapy and/or chemotherapy, and patients with no available follow-up information were excluded.

The surgeons involved in the current protocol (R.T, P.L.,E.C) were competent in both LPS procedures: from 2009 to 2012 we performed all the procedures with manipulator while from 2013 to 2015 without manipulator.

Exclusion criteria for the two groups were ovarian lesions, obvious metastasis beyond the uterus, contraindications for general anaesthesia, and systemic infections.

Patients were not considered candidates for the LPS approach and were excluded when any of the following criteria were present: a bulky uterus ≥12-week size or where vaginal removal of the uterus may require morcellation; documented significant cardiopulmonary disease defined as a history of cardiac failure, myocardial infarction, unstable angina, or pulmonary obstructive disease poorly controlled or contraindicating prolonged Trendelenburg position. Prior abdominal surgery was not considered a contraindication for the LPS approach.

According to the FIGO staging system, all the patients underwent surgical staging consisting of inspection of intraperitoneal cavity, peritoneal washing, total hysterectomy, bilateral salpingo-oophorectomy, and in all cases we performed systematic bilateral pelvic lymphadenectomy.

Para-aortic lymphadenectomy with the superior border of the dissection being the inferior mesenteric artery would be performed in all cases with positive pelvic lymph nodes discovered at frozen section evaluation, in patients with poorly differentiated tumours with myometrial invasion greater than 50% (IB).

Vaginal cuff brachytherapy alone was prescribed for patients with FIGO stage IA G2, G3.

Adjuvant whole pelvic radiation was recommended for patients with surgical stage IB, II in combination with vaginal cuff brachytherapy.

Chemotherapy was offered only to patients with FIGO stage III–IV in combination in some cases with radiotherapy.

The patient characteristics reported were age, weight, body mass index (BMI), stage, histological type, tumour grade, operative time, estimated blood loss, perioperative blood transfusions, number and status of lymph nodes obtained, myometrial invasion, length of hospital stay, time to resumption of normal bladder function, intraoperative and postoperative complications, overall survival and disease-free survival.

The surgical technique utilized for the LPS hysterectomy with lymphadenectomy has been described in a previous report [5,15,16] and was similar in both group.

After a carbon dioxide pneumoperitoneum by Veress needle (Auto-Suture™, Norwalk, CT) was induced at the level of umbilicus, a 10 mm trocar (Karl Storz, Tuttlingen, Germany) that incorporates the zero-degree laparoscope (Karl Storz, Tuttlingen, Germany) was inserted through an umbilical vertical incision and the entrance into the abdominal cavity was made under direct visualization; the laparoscope was connected to a video monitor.

The pelvic cavity was visualized and both fallopian tubes were coagulated, then uterine manipulator was inserted (Wattiez Manipulator, Clermont-Ferrand, Karl Storz, Tuttlingen, Germany).

Pelvic irrigation was performed using 200 mL of normal saline

Table 1
Intraoperative data.

Intraoperative data	Laparoscopy group 1 (n 55)	Laparoscopy group 2 (n 55)	Valore P
Blood loss (ml; mean ± SD) (95% CI)	70 ± 15, 30–90	80 mL ± 20, 50–260	P = 0.07
Median haemoglobin decline (g/dl)	1.6, range 0.4–2.6	1.4, range 0.4–2.8	P < 0.01
Operative time (min; mean ± SD) (95% CI)	161 ± 20, 113– 220	178 ± 20, 120–230	P = 0.08
Subcutaneous emphysema	5 (9%)	4 (7.2%)	P = 0.07
Vaginal cuff Deischence	3 (5.4%)	2 (3.6%)	P < 0.01
Postoperative fever (%)	3 (5%)	5 (9%)	P < 0.01
Bladder injury	1 (1.8%)	2 (3.6%)	P = 0.09
Ureteral fistula	1 (1.8%)	2 (3.6%)	N.S.
Ureteral stricture	0	1 (1.8%)	N.S.
bowel occlusion	1 (1.8%)	0	N.S.
Hospital stay (days; mean ± SD) (95% CI)	3.1 ± 0.4, range 2–9	3.3 ± 0.6, range 2–10	P < 0.01
Postoperative haematoma	1 (1.8%)	0	N.S.
Port-site haematoma	3 (5.4%)	5 (9%)	P = 0.07
Recurrence (No.) (%)	3 (5.4%)	2 (3.6%)	P = 0.08
Lymphorrhea	7 (12.7%)	6 (10.9%)	
Time of postoperative ileus (hour; mean ± SD) (95% CI)	25 ± 5, 6–36	23 ± 5, 8–39	P < 0.01

BMI = body mass index; N.S. = not significative.