

Assessing the Effectiveness of a Weight Reduction Program in Hospitalized Obese Patients Undergoing Laparoscopic Surgery

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Abstract

Investigate the efficacy of a hospitalized weight reduction program before laparoscopic surgery among high body mass index (BMI) patients with endometrial cancer. The patients were housed in a shared room, received exercise guidance, and restricted to a total caloric intake of 1200 kcal. A physiotherapist and a dietitian provided pedometer and nutritional guidance, respectively. The primary outcome was weight reduction. Among the 16 patients included, 12 (75%) had Stage I endometrial cancer and 10 (62.5%) underwent laparoscopic surgery. Weight and BMI at first consultation were 88.4 ± 10.4 kg and 34.8 ± 3.9 kg/m², respectively. The rate of weight reduction was $6.5\% \pm 2.5\%$; on average, BMI decreased by 2.1 ± 1.0 kg/m². The duration from initial consultation to surgery was 39.1 ± 11.4 days. Hospitalization duration until weight reduction was 20.8 ± 8.0 days; there were no surgical complications. Our hospitalized weight reduction program may be effective for obese endometrial cancer patients.

Keywords: Endometrial neoplasms, laparoscopy, obesity

INTRODUCTION

Both laparotomy and laparoscopic surgery are performed to treat women with endometrial cancer or for lymph node resection.^[1] Laparotomy and laparoscopy result in similar postsurgical complications, such as cardiac, pulmonary, and gastrointestinal complications and hemorrhage.^[2] Although laparoscopic surgery for endometrial cancer is generally more feasible than laparotomy regarding surgical risk and oncologic outcome, obese women have a greater surgical risk.^[3-5] The rate of early-stage disease increases with a higher body mass index (BMI). In addition, well-differentiated tumors and endometrioid histology are associated with higher BMI, while lymph node metastases are less commonly observed in those with higher BMI. Furthermore, the number of dissected lymph nodes and the rate of lymphadenectomy is significantly lower in high BMI patients. Surgical complications are more frequently observed

in obese women. Similarly, in colon surgery, high BMI is associated with surgical complications.^[6] For example, the incidence of open laparotomy conversion increases with a gradual increase in BMI^[3] as well as wound infection, venous thrombophlebitis, and long hospital stay. Moreover, although obese women have a high risk of complications with surgery for endometrial cancer, minimally invasive surgery has been shown to reduce this risk.^[7]

Laparoscopic surgery is associated with high risk in high BMI patients with endometrial cancer, and thus, efforts to reduce surgical complications are essential. Therefore, our institute initiated a hospitalized weight reduction program. Here, we report the efficacy of the program for effective weight loss during hospitalization before laparoscopic surgery.

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SUBJECTS AND METHODS

In our institute, surgeons hospitalized endometrial cancer patients in whom surgery was deemed complicated by advanced obesity following preoperative vaginal bimanual examination so that they could lose weight. This retrospective study was approved by the Institutional Review Board of our institution (approval no. S19-127). Due to retrospective nature of the study, the ethics committee had waived the requirement of informed consent from the patients. We reviewed the medical records of endometrial cancer patients who were enrolled in the hospitalized weight reduction program at our center between January 2017 and February 2020. This study conformed to the provisions of the Declaration of Helsinki of 1995 (revised in Tokyo, 2004). The patients were restricted to a diet of 1200 kcal/day and received nutritional guidance from a dietitian, a pedometer from a physiotherapist, as well as regular exercise guidance. Patients were allowed to eat only meals provided by the hospital. The daily food intake included: 200 g carbohydrates, 40 g fats, and 70 g proteins. Dietitians interacted with patients twice before surgery, and all patients admitted to the weight reduction program were hospitalized. The physiotherapist indicated to the patients that they must achieve a minimum of 15,000 steps/day according to the pedometer. In addition, patients exercised on a bicycle ergometer (load 40 W) three times a week. This protocol was developed in a conference involving our institute's doctor, dietitian (for nutritional guidance) and physiotherapist, and nurse. Because the doctor and nurse had previously experienced a case with complications, such as wound infection, bleeding, and venous thrombosis, we, therefore, proposed a new idea of preoperative management for obese patients after extensive deliberation. Patients who had been hospitalized for the weight reduction

program were admitted to rooms shared with another patient enrolled in the same program. The patients were hospitalized, as soon as possible, after the first visit. The surgery was scheduled at the first visit, and patients underwent surgery 4 weeks after the first visit. There was no bimanual vaginal re-examination, and surgery was performed at a fixed date regardless of weight reduction achievement.

RESULTS

In the study period, a total of 124 endometrial cancer surgeries were performed, from which 16 patients were enrolled in the weight reduction program; 12 patients (75%) had Stage I endometrial cancer, and 10 (62.5%) patients were treated with laparoscopic surgery. Patient characteristics are shown in Table 1. Ten (62.5%) patients had diabetes mellitus, and weight and BMI at first consultation were 88.4 ± 10.4 kg and 34.8 ± 3.9 kg/m², respectively. The rate of weight reduction was $6.5\% \pm 2.5\%$, while patient BMI decreased by 2.1 ± 1.0 kg/m². The duration from initial consultation to surgery was 39.1 ± 11.4 days. Further, hospitalization duration until weight reduction was 20.8 ± 8.0 days, and no intraoperative complications were observed. Postsurgery, one patient developed a surgical site infection, and another patient developed a pelvic abscess. At the time of the surgery, the subcutaneous fat had not decreased; however, the mesenteric fat was reduced, and the surgery was relatively easy.

DISCUSSION

In our institute, patients who underwent the hospitalized weight reduction treatment experienced an average decrease in weight of 6.5 kg, a weight reduction rate of 6.5%, and

Table 1: Demographic and clinical characteristics of women admitted to the weight reduction program before surgery

	<i>n</i> (%)	Median, range	Mean±SD
FIGO stage			
I	12 (75)		
II	2 (12.5)		
III	2 (12.5)		
Age (years)		51 (38-59)	49.5±7.1
DM	10 (62.5)		
Laparoscopy	10 (62.5)		
Lymph node dissection	6 (37.5)		
BMI (kg/m ²)		33.8 (28.6-41.9)	34.8±3.9
Weight at first consultation (kg)		87.4 (69.8-101.6)	88.4±10.4
Weight just before surgery (kg)		82.2 (66.8-98.4)	82.7±9.8
Weight reduction (kg)		5.0 (2.6-11.8)	5.8±2.5
Weight decrease rate (%)		5.6 (2.6-12.0)	6.5±2.5
BMI reduction (kg/m ²)		2.1 (1.0-4.5)	2.1±1.0
Days from initial consultation to surgery (days)		37 (23-65)	39.1±11.4
Hospitalization days for weight reduction (days)		20 (11-44)	20.8±8.0

FIGO: Federacion Internacional Ginecologia Obstetricia, DM: Diabetes mellitus, BMI: Body mass index, SD: Standard deviation

a BMI reduction of 2.1 kg/m². The average hospitalization time was 20.8 ± 8.0 days. These findings suggest that our approach is quite effective. A weight reduction of 5%–10% is recommended for obese patients with a BMI of ≥30 kg/m².^[8] In bariatric surgery for obesity, weight loss before surgery is associated with a marked reduction in the risk of postoperative complications.^[9] In a similar program for obese patients with gastric cancer, a mean weight loss of 4.5%, corresponding to 3.2 kg, was reported, indicating the relative superiority of our approach.^[10] In the gynecologic field, there have been no reports on weight reduction programs before surgery. Thus, to our knowledge, this is the first such study that was performed as we often treat obese women with endometrial cancer at our center. In our hospitalized weight reduction program, patients were guided not only by nurses and doctors but also by dietitians and physiotherapists. Furthermore, the housing of patients in shared rooms similarly facilitated their weight reduction, as working in solidarity with many people promotes efficacy and compliance. Regular use of a self-recording pedometer motivated patients through digitized and self-recorded data.^[11]

Further, the decrease in mesenteric fat meant that during the laparoscopic surgery, the operative field was less likely to be obstructed by the small intestine and that the fat in the rectum was reduced, resulting in less obstruction of the operative field by the rectum. During hysterectomy, a large-sized rectum can sometimes interfere with the operative field. Resolution of such situations is important for practicing gynecological surgeons.

This study had a few limitations, including its retrospective design, limited sample size, and single-center design. Therefore, further studies with a larger sample size evaluating the usefulness of a reduction program with admission in decreasing surgery-related complications are warranted to validate these results.

In conclusion, according to our hospitalized weight reduction program, patients were admitted to a shared room and guided by a dietitian/physiotherapist, provided a diet of 1200 kcal, and asked to regularly use an automatic pedometer.

This approach may be effective for obesity reduction in endometrial cancer patients.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Deura I, Shimada M, Azuma Y, Komatsu H, Nagira K, Sawada M, *et al.* Comparison of laparoscopic surgery and conventional laparotomy for surgical staging of patients with presumed low-risk endometrial cancer: The current state of Japan. *Taiwan J Obstet Gynecol* 2019;58:99-104.
2. Galaal K, Donkers H, Bryant A, Lopes AD. Laparoscopy versus laparotomy for the management of early stage endometrial cancer. *Cochrane Database Syst Rev* 2018;10:CD006655.
3. Walker JL, Piedmonte MR, Spirtos NM, Eisenkop SM, Schlaerth JB, Mannel RS, *et al.* Laparoscopy compared with laparotomy for comprehensive surgical staging of uterine cancer: Gynecologic Oncology Group Study LAP2. *J Clin Oncol* 2009;27:5331-6.
4. Walker JL, Piedmonte MR, Spirtos NM, Eisenkop SM, Schlaerth JB, Mannel RS, *et al.* Recurrence and survival after random assignment to laparoscopy versus laparotomy for comprehensive surgical staging of uterine cancer: Gynecologic Oncology Group LAP2 Study. *J Clin Oncol* 2012;30:695-700.
5. Gunderson CC, Java J, Moore KN, Walker JL. The impact of obesity on surgical staging, complications, and survival with uterine cancer: A Gynecologic Oncology Group LAP2 ancillary data study. *Gynecol Oncol* 2014;133:23-7.
6. Bell S, Kong JC, Wale R, Staples M, Oliva K, Wilkins S, *et al.* The effect of increasing body mass index on laparoscopic surgery for colon and rectal cancer. *Colorectal Dis* 2018;20:778-88.
7. Raventós-Tato RM, de la Torre-Fernández de Vega J, Sánchez-Iglesias JL, Díaz-Feijóo B, Sabadell J, Pérez-Benavente MA, *et al.* Surgical approaches in women with endometrial cancer with a body mass index greater than 35 kg/m². *J Obstet Gynaecol Res* 2019;45:195-202.
8. Rexrode KM, Hennekens CH, Willett WC, Colditz GA, Stampfer MJ, Rich-Edwards JW, *et al.* A prospective study of body mass index, weight change, and risk of stroke in women. *JAMA* 1997;277:1539-45.
9. Anderin C, Gustafsson UO, Heijbel N, Thorell A. Weight loss before bariatric surgery and postoperative complications: Data from the Scandinavian Obesity Registry (SOREg). *Ann Surg* 2015;261:909-13.
10. Inoue K, Yoshiuchi S, Yoshida M, Nakamura N, Nakajima S, Kitamura A, *et al.* Preoperative weight loss program involving a 20-day very low-calorie diet for obesity before laparoscopic gastrectomy for gastric cancer. *Asian J Endosc Surg* 2019;12:43-50.
11. Madigan CD, Aveyard P, Jolly K, Denley J, Lewis A, Daley AJ. Regular self-weighing to promote weight maintenance after intentional weight loss: A quasi-randomized controlled trial. *J Public Health (Oxf)* 2014;36:259-67.