

Role of Bariatric Surgery in Patients With Endometrial Cancer: A Case Report and Review of Literature

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Abstract

Objective: The standard surgery for endometrial cancer can be deferred in some situations, including morbid obesity, comorbidities, and the patient's desire for fertility. One of the options to improve patients' circumstances is bariatric surgery.

Case report: This study presented two patients with stage IA, grade I endometrioid endometrial adenocarcinoma. Both patients had morbid obesity and had comorbidities. In case 1, because of fertility preservation, and in case 2, because of severe comorbidities, hormone therapy was started, followed by bariatric surgery after counseling patients. Both patients had acceptable changes in body mass index during follow-up, so cancer surgery through laparoscopy was done. Both patients did not need adjuvant therapy; months after cancer surgery, there is no recurrence, and their body mass index is also decreasing.

Conclusion: Bariatric surgery can improve outcomes in patients with morbid obesity who suffer endometrial cancer.

Keywords: Endometrial Neoplasms; Morbid Obesity; Bariatric Surgery

Introduction

Endometrial cancer is one of the most common gynecological cancers. 4% of patients are under 40

years old, and more than 70% of them are nulliparous at the time of diagnosis (1). However, endometrial cancer is still more common in older women, and the mortality rate is higher in these women (2). Over decades, the link between obesity, metabolic syndrome, and endometrial cancer has been proven and accepted (3). Obesity has the strongest

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association with endometrial cancer compared to other cancers (4). In premenopausal women, regular expression of estrogen by ovaries causes endometrial proliferation (5). After menopause, peripheral adipose tissue is the primary source of estrogen synthesis (6). Adipose tissue cells are a significant source of the aromatase enzyme, and this enzyme converts androgens to estrogens (7, 8). Aromatase levels and its activity increase with age and adipose tissue, causing an estrogen-dependent endometrial proliferation in postmenopausal women (4, 6). Also, local contact of the endometrium with estrogen metabolites may cause gene mutations associated with DNA repair systems (4). According to the latest National Comprehensive Cancer Network guidelines, uterine preservation is an accessible and safe option for young women with endometrial cancer who want to have children, and its criteria include Stage IA, Grade 1, endometrioid type, and no evidence of distant metastasis (1, 9). The standard endometrial cancer surgery can be postponed in people who have comorbidities or want to save their fertility, and medical treatments are acceptable options in these situations. In this study, we investigated two patients with endometrial cancer and morbid obesity who met the criteria for medical treatment and first underwent hormone therapy and sleeve surgery to change in BMI and then endometrial cancer surgery.

Case report

Case 1: The patient was a G1A1 33-year-old female with an endometrioid endometrial adenocarcinoma grade 1 pathology and was referred to the gynecology clinic. The patient had oligomenorrhea for a long time and developed hypermenorrhea in recent months. In her medical history, hypothyroidism, polycystic ovarian disease, eight years of infertility, and a body mass index (BMI) of 54.6 Kg/m² were significant. Additional examinations revealed an endometrial thickness of 12 mm in sonography, and magnetic resonance imaging showed no evidence of endometrial mass, myometrial invasion, or lymphadenopathy. Lung computed tomography scan and CA125 were also normal. Due to the initial stage of the disease (stage IA, G1) and the patient's desire to maintain fertility, medical treatment with Megestrol 80 mg twice daily was started. Following two samples of normal pathology every 3 months which were taken by dilation and curettage and appropriate response to hormone therapy during follow-up, the patient was referred to a dietary clinic.

Due to the dietary service's recommendation for a change in BMI with surgical approaches, after consultation with the patient, she was referred to the bariatric surgery team. Twelve months after the cancer diagnosis and 11 months after the start of hormone therapy, the patient underwent laparoscopic sleeve gastrectomy, and hormone therapy followed it. Seven months after the sleeve, the patient's BMI decreased to 44.2 kg/m², and the change in BMI trend was favorable. During follow-up, she underwent hysteroscopy and curettage based on abnormal ultrasound and increased endometrial thickness. Foci of well-diff adenocarcinoma was reported in pathology, and according to this, she underwent a laparoscopic hysterectomy, bilateral salpingectomy, and bilateral lymphadenectomy with preservation of both ovaries. There were no complications during and after surgery, and she was discharged 48 hours later. This patient underwent endometrial cancer surgery 22 months after the cancer diagnosis, 21 months after hormone therapy, and nine months after sleeve with a BMI of 43.8 Kg/m².

According to the final pathology based on The International Federation of Gynecology and Obstetrics, the cancer was reported as stage IA1 and grade 1 and endometrioid type, without lymph node involvement and lympho-vascular space invasion, and no adjuvant treatment was required. Thirty-five months after sleeve surgery, our patient has reached a BMI of 36.5, and there is no evidence of recurrence during twenty-two months of follow-up and monitoring.

Case 2: A G4L4 54-year-old woman was referred to the gynecological clinic with postmenopausal bleeding and an abnormal transvaginal ultrasound with an endometrial thickness of 11 mm. The patient had multiple comorbidities, including diabetes, hypertension, ischemic heart disease, liver cirrhosis, and morbid obesity, with a BMI of 49.1 Kg/m². Endometrioid endometrial cancer was reported in the pathology resulting from hysteroscopy and diagnostic curettage.

Further evaluation showed no myometrial invasion or lymphadenopathy in magnetic resonance imaging, CA125 was normal, and lung computed tomography had mild cardiomegaly. Due to the underlying medical problems and the early stages of cancer, hormonal treatment with 80 mg of megestrol was started twice a day after consultation with the patient. One month later, she underwent a laparoscopic sleeve gastrectomy. Hormone therapy

was continued after surgery. She changed her BMI continuously, and her BMI reached 39.5 Kg/m², 4 months after the sleeve. The patient underwent a laparoscopic hysterectomy, bilateral salpingo-oophorectomy, and lymph node dissection. There were no complications during and after surgery, and she was discharged from the hospital two days later. According to the pathology report, there was no tumor residue in the uterine cavity, and all 23 lymph nodes were free of tumor; based on the FIGO system, the final stage of IA1 and grade 1 was reported. Therefore, she had no indication for adjuvant treatment and was observed. Twenty-four months after sleeve surgery, BMI reached 30.8, and there was no evidence of recurrence within nineteen months after cancer surgery.

Discussion

Bariatric surgery plays a vital role in preventing cancer. In the study by Bruno et al., it was found that bariatric surgery has a potential effect on preventing cancers, especially breast and endometrial cancer, in postmenopausal ages (10). A study by Mackenzie et al. (11) also found that bariatric surgery was associated with a reduced risk of hormone-related cancers, including breast, endometrium, and prostate (11). Women with endometrial cancer with morbid obesity have a higher mortality rate than people with normal BMI (12). Despite the important role of obesity in developing endometrial cancer, physicians do not properly consider obesity a risk factor. They do not provide appropriate counseling regarding changes in BMI and lifestyle changes during screening, diagnosis, and follow-up of endometrial cancer (13). Change in BMI and related surgery is potentially a cost-effective procedure in low-risk patients with the early stages of endometrial cancer, at least in improving quality of life (14). In some cases, immediate surgery is impossible due to patients' willingness for pregnancy or medical illness, and alternative methods can be used. In the study by Fiascone et al. (15), the role of depo medroxyprogesterone acetate in patients with type 1 endometrial cancer who underwent delayed surgery was investigated, and it was found that the glandular cellularity was reduced in these patients. Also, in the study of Pal et al. (16), by examining 17 patients with grade 1 and grade 2 endometrial cancer treated with levonorgestrel intrauterine device, it was found that 67% and 75% of patients responded to this treatment, respectively, during six months and reached normal

histology. In the present study, we examined two patients with endometrial cancer and morbid obesity; the first patient was young and desired to conceive, and the second was in menopause and had concomitant comorbidities. Due to these circumstances, hormonal treatment, and encouragement to change BMI were performed initially.

By consulting with the patients, bariatric surgery was performed for both. After a change in BMI due to recurrence following medical treatment in case 1 and improvement of medical condition in case 2, standard endometrial cancer surgery was performed. Jernig et al. (17), in a study, investigated the role of counseling patients with endometrial cancer in the early stages of atypical complex hyperplasia. Patients were consulted for change in BMI, 17% refused to see an obesity specialist, and 59% started a change in BMI procedure. Obesity, a significant risk factor for endometrial cancer, also plays a role in the consequences of endometrial cancer surgery, and people with obesity have worse outcomes. Patients with a BMI > 40 Kg/m² have longer hospital stays, more bleeding, and more wound infections than patients with a BMI > 30 Kg/m² (18, 19). Therefore, a change in BMI surgery can be considered an adjuvant treatment in women with obesity and endometrial cancer (20). The patients introduced in our study had no complications during and after surgery and had a good postoperative course. Bariatric surgery may also help improve survival. In a study by Eunjung et al. (21), 1140 patients with endometrial cancer who underwent a change in BMI surgery between 1991 and 2014 after being diagnosed with cancer had fewer death hazards and better survival. Shafa et al.'s study (22) suggested that bariatric surgery with endometrial cancer surgery simultaneously could improve survival. However, there was not enough data to support this issue in some studies and recommend RCT and longer Follow-up (23). The patients presented in our study also had no evidence of recurrence during the 17 and 14-month follow-ups. Four patients with endometrial cancer and bariatric surgery were evaluated by reviewing scientific literature and articles (22-25) (Table 1). All four patients underwent laparoscopic sleeve gastrectomy for change in BMI. Two of them were nulligravid, and two patients were in menopause. Similar to our studied patients, all patients met the criteria for medical treatment. One of the nulligravid patients underwent robotic endometrial cancer surgery after medical treatment and bariatric surgery.

Bariatric Surgery in Endometrial Cancer

Table 1: Reviewing scientific literature and articles

Author	Age & Gravidity	Comorbidity	Type & time of medical treatment	BMI before sleeve(kg/m ²)	BMI in time of cancer surgery (kg/m ²)	Type of endometrial cancer surgery	Complication during surgery	Complication after surgery	Disease-free duration	Last BMI after sleeve
Arab et al., 2020	33, G1AB1	PCO, Hypothyroidism infertility	Oral, 21 months	6/54	43.8, 9 months after sleeve	Laparoscopic	No	No	22 months	36.5, 35 months after sleeve
Arab et al., 2020	54, G4L4	DM, HTN, IHD, cirrhosis	Oral, 5 months	1/49	39.5, 4 months after sleeve	Laparoscopic	No	No	19 months	30.8, 24 months after sleeve
Montemorano et al., 2019	30, NG	Anxiety, depression	Oral, 25 months	95	67.5, 8 months after sleeve	Robotic	No	No	4 months	16, 22months after sleeve
Benito et al., 2015	17, NG	DM, PCO	LNG-IUD, to be continued	36.2	20.3, 9 months after sleeve	No cancer surgery	Not identified	Not identified	9 months	20.3, 9months after sleeve
Sharma et al., 2021	50	-	LNG-IUD, 6 years	71.3	54.3	Laparotomy	No	No	3 years	46.8, Months after sleeve
Shafa et al., 2019	54, G2L2	DM, HTN, Sleep apnea, Fatty liver	LNG-IUD, 5 months	50	Not identified	Robotic simultaneous with sleeve	No	No	12 months	33.6, 12 months after sleeve

The next nulligravid patient is expected to become pregnant due to the appropriate therapeutic response and normal endometrial pathology during the follow-up. Both menopausal patients were candidate for bariatric surgery due to comorbidities. One of these patients underwent laparotomy, total abdominal hysterectomy, and bilateral salpingo-oophorectomy surgery after hormonal treatment and a change in BMI, and the other patient underwent a simultaneous change in BMI and endometrial cancer surgery. Like our studied patients, none reported any complications during and after the cancer surgery, as in our presented cases. None of them received adjuvant treatment after the cancer surgery, and there was no evidence of recurrence during the follow-up period.

Conclusion

Based on the findings, changing BMI surgery as an adjuvant procedure in patients with morbid obesity and endometrial cancer can improve patient's quality of life and increase patient survival. Furthermore, it can reduce the complications of cancer-related surgery. Future studies can provide more robust and definitive results by admitting more patients and longer follow-ups.

Conflict of Interests

Authors declare no conflict of interests.

Acknowledgments

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