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Case Report

Laparoscopic Gastrectomy and Transvaginal Specimen Extraction in a Morbidly Obese Patient with Gastric Cancer

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Laparoscopic gastrectomy for cancer has some significant postoperative benefits over open surgery with similar oncologic outcomes. This procedure is more popular in the Far East countries where obesity is not a serious public health problem. In the Western countries, laparoscopic gastrectomy for cancer is not a common procedure, yet obesity is more common. Herein, we aimed to demonstrate the feasibility of laparoscopic gastrectomy for advanced gastric cancer in a morbidly obese patient. Additionally, we used natural orifice specimen extraction as an option to decrease wound-related complications, which are more prevalent in morbidly obese patients. In this case, we performed a fully laparoscopic subtotal gastrectomy with lymph node dissection and Roux-en-Y gastrojejunostomy with the specimen extracted through the vagina. To the best of our knowledge, this was the first report of a natural orifice surgery in a morbidly obese patient with gastric cancer.

Key Words: Stomach neoplasms; Natural orifice endoscopic surgery; Laparoscopy; Obesity

Introduction

Natural orifice transluminal endoscopic surgery (NOTES) was introduced as a new approach and surgical procedures can be performed primarily through natural orifices, such as the mouth, anus, or vagina. Natural orifice specimen extraction (NOSE), as a part of NOTES, allows for specimen extraction through natural orifices without additional abdominal incisions. Both NOTES and NOSE aim to shorten recovery times, decrease the risk of abdominal wall hernia and surgical site infection, and reduce visible scarring.[1] They are typically preferred in cholecystectomy, appendectomy, and colorectal resections, but rarely in gastric surgery. These techniques may have a particular role with morbidly obese patients in decreasing the occurrence of wound-related complications and providing a more rapid recovery. Herein, we aimed to demonstrate the feasibility of transvaginal extraction of a gastrectomy specimen in a morbidly obese patient with gastric cancer.

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Case Report

A 58-year-old female was admitted for abdominal pain and dyspepsia lasting one year. Despite her recent weight loss, she was still morbidly obese (body mass index 44.2 kg/m^2). She also had diabetes and hypertension. Upper gastrointestinal endoscopy revealed an adenocarcinoma at the gastric antrum. Computed tomography indicated a 45 mm mass in the antrum with no metastatic distant focus. Her laboratory tests were unremarkable except for mild anemia (hemoglobin: 12.0 g/dl). After patient consent was obtained, we planned a fully laparoscopic gastrectomy with transvaginal specimen extraction. She was placed in the lithotomy position and five trocars were applied to the abdomen as described before.[2] A xiphoidal 5 mm port for a Nathanson liver retractor, three 12 mm trocars (at the intersection of the

Fig. 1. Transvaginal extraction of the stomach.

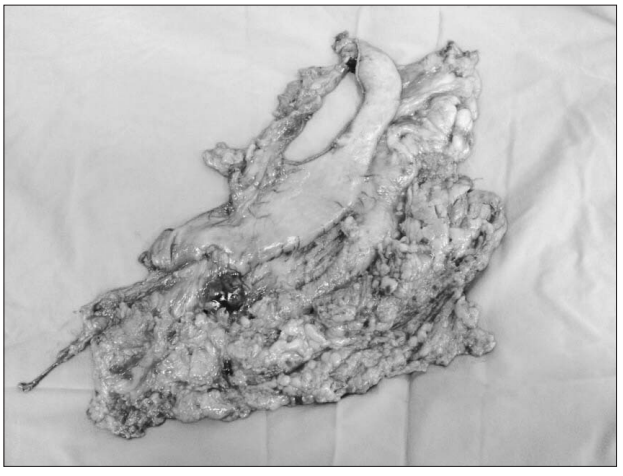

Fig. 2. View of specimen including subtotal gastrectomy, omentectomy, and D2 lymph node dissection.

transverse umbilical line and right/left midclavicular lines and at the midline 5 cm inferior to the umbilicus), and a working 5 mm trocar (right subcostal) were placed. A total omentectomy, subtotal gastrectomy, D2 lymph node dissection, and Roux-en-Y gastrojejunostomy were completed exclusively by laparoscopy. An additional suprapubic 5 mm trocar was placed for retraction of the upper uterus and better visualization of the vagina. The posterior fornix of the vagina was opened using laparoscopic vision and the specimen was extracted transvaginally through the posterior fornix (Fig. 1, 2; Written informed consent was obtained from the patient for publication of this Case Report and any accompanying images.). The posterior fornix was closed with a running absorbable suture. Operating time and blood loss were 430 minutes and 50 ml, respectively. The postoperative course was uneventful with the exception of the use of two units of red cell packs due to intra-abdominal self-limited oozing. She was discharged on day five. Histopathological examination demonstrated a pT3N2M0 (American Joint Committee on Cancer 7th edition), 3.5 cm diameter adenocarcinoma. Twenty-two lymph nodes were retrieved with three metastatic locations along the greater curvature. She received adjuvant chemo-radiotherapy (six cycles of 5-flouuracil and folinic acid plus 45 Gy radiotherapy). She had no recurrence well after the 7.5-month follow-up.

Discussion

Laparoscopic gastrectomy for cancer provides some significant postoperative benefits over open surgery with similar oncologic outcomes. Laparoscopic gastrectomy can result in less blood loss, similar or lower rates of postoperative complications, faster recovery of bowel function, less postoperative pain, shorter hospitalization, better convalescence period, and better lung function.[2] Globally, laparoscopic gastrectomy for cancer is more popular in Far East countries such as Japan and South Korea.[2] Yet, in these countries, obesity is not common and is not a serious health concern like in many western countries. Recently, a study on western patients undergoing laparoscopic gastrectomy demonstrated a higher risk of wound-related complications and thromboembolism when compared to open gastrectomy.[3] This was attributed to the higher body mass index of the western patients. Those authors discussed the necessity of risk reduction strategies for wound infection and thromboembolism in laparoscopic gastrectomy, particularly for obese patients.[3] It was previously demonstrated that laparoscopic gastrectomy combined with NOSE for advanced gastric cancer may provide a smooth postoperative course without any wound-related complications.[4] Additionally, we systematically reviewed 90 cases of laparoscopic right colon resections with transvaginal extractions and found no wound-related complications.[5] Our preliminary observations pointed out that natural orifice surgery may decrease the risk of abdominal wound-related complications. Moreover, the risk of thromboembolism may also be reduced if the recovery period of the patients can be further shortened with smaller wounds and fewer wound complications.[4,5] Lastly, decreasing the postoperative wound-related complications can offer earlier initiation of the postoperative chemo-radiotherapy, or, at least, it may avoid any delay for adjuvant therapies due to wound-related complications.[4,5]

Previous studies reported satisfactory oncological results in patients with early and advanced gastric cancers by laparoscopic gastrectomy,[6-8] but the number of the studies related with natural orifice surgery were very limited.[9,10] There are four potential natural orifices for the extraction of surgical specimens of the abdomen.[11] The transurethral removal was described only for urological specimens. The transcolonic route is only suitable for colorectal resections. As far as we know, there was no report that described the transrectal extraction of a specimen, except the colon or rectum. Transoral specimen extraction was described only for small sized gastric cancers in the early stages.[12] We experienced eight cases of transoral extraction of gastric specimens, but all of them were of a benign nature. These included six sleeve gastrectomies and two gastrectomies for pyloric obstruction due to duodenal ulcers. Transvaginal extraction has been reported in patients with gastric submucosal tumors and early gastric cancers.[9,10] We previously reported the first case of laparoscopic gastrectomy and transvaginal extraction for an advanced gastric cancer in a non-obese patient.[4] This previous experience encouraged us to adopt a technique for a morbidly obese patient who had a higher risk of wound complications and thromboembolism.

In conclusion, we wanted to highlight the potential advantages of natural orifice surgery regarding issues concerning laparoscopic gastric surgery, particularly in morbidly obese patients. We can advert to the limitations of the transvaginal specimen extraction as being male gender, patient refusal, unsuitable vaginal access, and large specimen size.

Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

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