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SURGERY FOR OBESITY  
AND RELATED DISEASES

## Case report

## Laparoscopic colectomy is feasible in the mega-obese patient using a standardized technique

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**Abstract**

The use of laparoscopic colectomy in morbidly obese individuals is controversial. There are significant safety issues including increased risk of bleeding, increased anastomotic leak and high operative conversion rates. We report the first successful laparoscopic colectomy in a patient with the most extreme category of morbid obesity, mega-obesity (body mass index [BMI] > 70). We describe a standardized technique using a completely intracorporeal technique with all resection lines reinforced with a bioabsorbable staple line reinforcement material. This technique has the potential of making laparoscopic colectomy more feasible for patients with morbid obesity in general. (*Surg Obes Relat Dis* 2014;■:00–00.) © 2014 American Society for Metabolic and Bariatric Surgery. All rights reserved.

Obesity is epidemic in the United States with nearly 135 million adults being obese (body mass index [BMI] > 30); 14 million considered morbidly obese (BMI > 40), and an amazing 1 million have the most extreme degree of obesity termed mega-obesity with BMI > 70 [1]. While laparoscopic colon resection has been quite challenging in the obese and morbid obese patient [2–4], no reports have addressed the safety and feasibility in patients with mega-obesity. This case report is the first report to our knowledge examining the feasibility of laparoscopic colectomy for a patient with mega-obesity (BMI > 70).

**Case report**

A 57-year-old female presented with a 3-month history of hematochezia, diarrhea, and iron deficiency anemia. Her past medical history was significant for gastritis, diabetes mellitus, hypertension, chronic obstructive pulmonary disease, pulmonary hypertension, sleep apnea, and congestive heart failure. Her past surgical history was significant for an

open appendectomy for appendicitis. Her physical examination was significant for mega-obesity (BMI = 74), a large abdominal pannus and a scar in the right lower quadrant scar with no abdominal masses. She underwent a colonoscopy, which revealed a 3-cm ulcerated mass in the ascending colon that was biopsied and an esophagogastroduodenoscopy that was normal. Biopsies of the colon mass confirmed a colon adenocarcinoma. A computed tomography scan of the chest and abdomen revealed no evidence of metastatic disease. The patient required perioperative transfusion with 2 units of blood for a hemoglobin of 8.0 and diuresis for chronic heart failure. The patient was consented for a laparoscopic colectomy. The operation was initiated by placing a blunt 12-mm Hassan port into the abdomen (infraumbilical) under direct visualization. The abdomen was insufflated with carbon dioxide via this port and 4 additional extra-long ports (2 12-mm in lower abdomen and 2 5-mm ports in upper abdomen) were placed above the abdominal pannus (Fig 1). A 10-mm 30° laparoscopic camera was inserted via the infraumbilical port. Exploration revealed no evidence of metastasis, but extensive adhesions between the small bowel, right colon and abdominal wall, and an extremely thickened, bulky mesentery. Extensive lysis of adhesions was first performed. The right colon was

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Fig. 1. Port placement. Three 12-mm and 2 5-mm ports were used to perform a totally intracorporeal laparoscopic colectomy for this patient with mega-obesity and a colon cancer of the ascending colon. All ports were placed above the pannus as evidenced by the flat surface.

then mobilized by dividing the lateral peritoneal attachments with sharp dissection using a 5-mm Harmonic Ace (Covidien Co) until the third portion of duodenum was clearly visualized. Since the thickened, mesentery began tearing even with gentle traction, we elected to divide the mesentery and major vascular pedicles with an Endo-GIA Universal stapler with a staple line reinforcement material (SLRM) composed of a bioabsorbable material (Gore Seamguard; WL Gore & Associates, Elkton, MD). The mesentery was divided with 60-cm, 2.5-mm staple loads and major vascular pedicles divided with 60-cm, variable staple height (3.0, 3.5, 4.0 mm) loads. All staple lines were reinforced with SLRM. There was no mesenteric or vascular pedicle bleeding during resection and no surgical clips were needed for hemostasis (Fig. 2). After division of the small bowel and colon with an Endo-GIA 60, 3.5-mm staple loads, the bowel was reconstructed with a side-side stapled intracorporeal anastomosis. The anastomosis was accomplished with Endo-GIA 3.5-mm staple loads fitted with SLRM (Fig 3). The enterotomy was closed with an Endo-GIA 3.5-mm staple load with a SLRM. The anastomosis was created to be 5 cm long. No bleeding occurred during anastomotic construction. The infraumbilical port was enlarged to a 15-mm size for extraction of the specimen in an endocatch bag. The operation was performed completely intracorporeally with no complications, an operative time of 3 hours and forty minutes, and an estimated blood loss of 100 mls with only minimal size incisions despite significant visceral obesity with a large pannus (Fig 4).

Postoperatively the patient required diuretic treatment for chronic heart failure and remained in the intensive care unit for 2 days. The patient remained hemodynamically stable throughout the postoperative course with no transfusions needed and hemoglobins of 10.8, 10.3, 9.8 on postoperative

days 1–3, respectively. The patient's diet was advanced ad-libitum from liquids to solids. On day 3, the patient was tolerating a solid diet and had 3 normal bowel movements. The patient was discharged on day 4 and was subsequently re-examined as an outpatient 4 weeks later. At that time, the patient was asymptomatic with examination revealing a small seroma of the infraumbilical midline port-site that was evacuated in the office. Pathology revealed a stage III (T3 N1) adenocarcinoma with 2 of 29 lymph nodes with metastases with all surgical margins free of cancer. The patient was subsequently referred for adjuvant chemotherapy.

## Discussion

We were able to successfully perform a laparoscopic colectomy in this mega-obese patient with no major intra-operative or postoperative complications, without operative conversion, and a relatively short hospitalization of 4 days despite multiple medical co-morbidities. We were able to

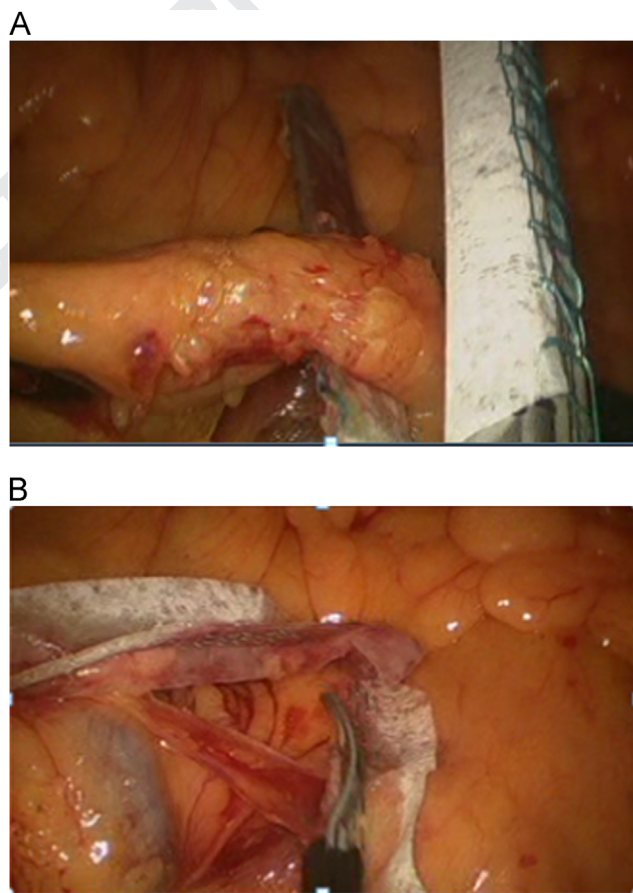


Fig. 2. (A) Vascular pedicle division. All mesenteric vascular pedicles were divided at their origin from the superior mesenteric artery using the Endo-GIA stapler reinforced with SLRM (white material). (B) Deployment of Endo-GIA Stapler with SLRM. The ileocolic vessels are visualized immediately after division. The reinforced vascular staple line is completely hemostatic and required no additional reinforcement with clips.

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