

Mediastinum & Esophagus: Case Report

Esophagectomy for Cancer After One Anastomosis Gastric Bypass

Lee Ann Santore, BS,¹
Chris Tarczynski, MSN, RN,²
Mohamad K. Abou Chaar, MD,¹
Omar Ghanem, MD,³ and
Shanda H. Blackmon, MD, MPH¹



One anastomosis gastric bypass (OAGB) is growing in popularity, although it is potentially associated with biliary gastritis and gastroesophageal reflux esophagitis, with a potential rise in esophageal carcinoma. We describe the surgical management of a 53-year-old man with history of OAGB in whom biliary reflux and esophageal adenocarcinoma developed. We performed a minimally invasive Ivor Lewis esophagectomy, resected the sleeved stomach pouch, created a new conduit out of the remnant greater curve of the remnant stomach with blood supply from an intact gastroepiploic artery, and created an esophagogastric anastomosis. This report may guide surgical management in the event that OAGB patients develop esophageal cancer.

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The one anastomosis gastric bypass (OAGB), also referred to as a mini gastric bypass, is a restrictive and hypoabsorptive bariatric procedure to induce weight loss in patients with obesity. It has been gaining popularity since the early 2000s, when it was first described as an alternative to the standard Roux-en-Y gastric bypass¹ by tailoring the stomach into a long tube (pouch) that is anastomosed to jejunum in a loop rather than in a Roux-en-Y configuration. The simplified anatomy of this procedure has been postulated to have decreased morbidity (fewer internal

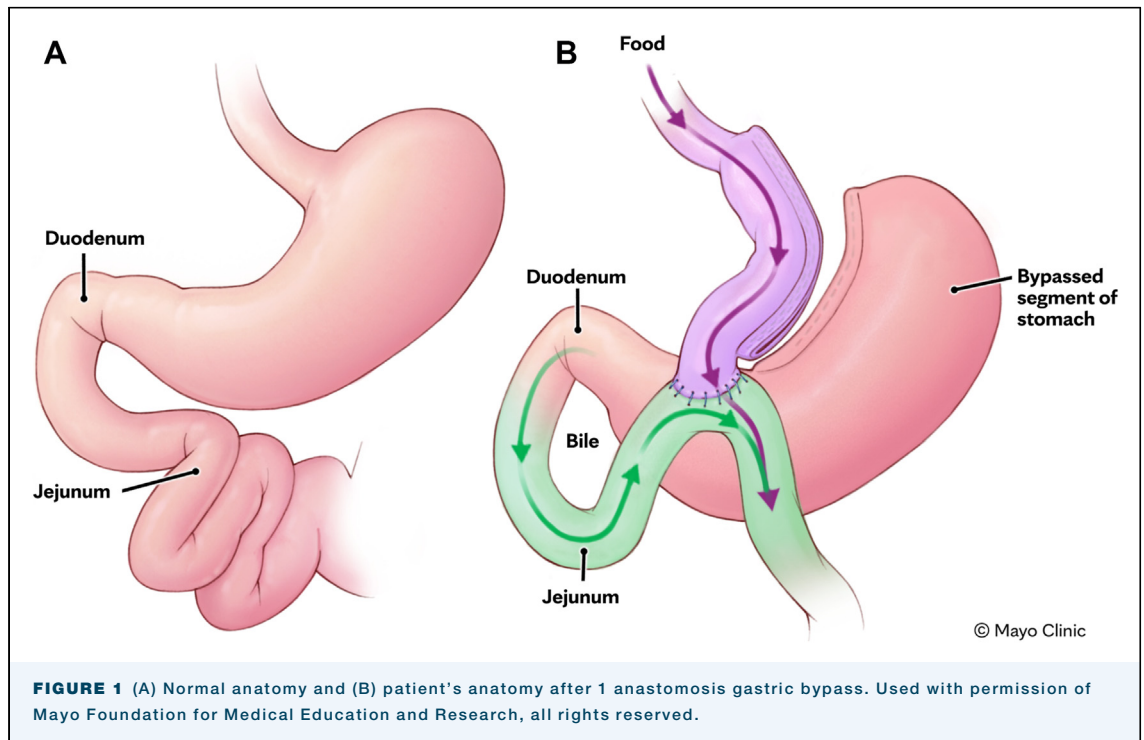
hernias, Roux stasis syndrome) than the standard Roux-en-Y gastric bypass.² However, it has been suggested that the absence of a Roux in the OAGB allows increased biliary gastritis and gastroesophageal reflux³ and a possible increase in the risk of gastric and esophageal cancers.⁴ The unique anatomy of OAGB patients in whom esophageal cancer develops can make performing a radical esophagectomy challenging. Here we describe the presentation and surgical management of a 53-year-old man with no reflux history before OAGB who was found to have an esophageal mass with associated biliary reflux.

A 53-year-old man with a history of OAGB presented to our clinic for management of newly diagnosed esophageal adenocarcinoma. His OAGB took place 15 years ago and involved a long, 150-cm omega loop of jejunum anastomosed to the distal end of a sleeved stomach pouch (Figure 1), with the remnant greater curve and gastroepiploic vessel intact (Figure 2). He initially presented to an outside hospital with dysphagia and weight loss. An endoscopic ultrasound examination with biopsy specimens revealed the presence of severe bile reflux causing inflammation in the stomach and Los Angeles grade B esophagitis in the lower esophagus as well as a 3-cm tumor in the distal esophagus consistent with invasive, poorly differentiated esophageal adenocarcinoma with signet ring morphology. The tumor was staged as T3 N1 M0. Immunohistochemistry was negative for human epidermal growth factor receptor 2 (HER2/neu). His programmed cell death ligand 1 combined positive score was 5. He began neoadjuvant chemotherapy consisting of 3 cycles of induction leucovorin calcium (folinic acid), fluorouracil, and oxaliplatin (FOLFOX). Positron emission tomography scan showed nearly complete metabolic response in the distal esophagus with a drop of fluorodeoxyglucose from 6.7 to 3.6. A multidisciplinary decision was made to continue with 5-fluorouracil and oxaliplatin during subsequent concurrent radiation (50 Gy in 28 fractions). Thrombocytopenia developed, forcing the patient to skip the last week of radiation and last dose of oxaliplatin. An endoscopic ultrasound examination after neoadjuvant therapy showed scarred mucosa and complete visual resolution of the mass.

We performed a laparoscopic and thoracoscopic Ivor Lewis esophagectomy. We took down the jejunal loop and resected a segment of jejunum followed by primary

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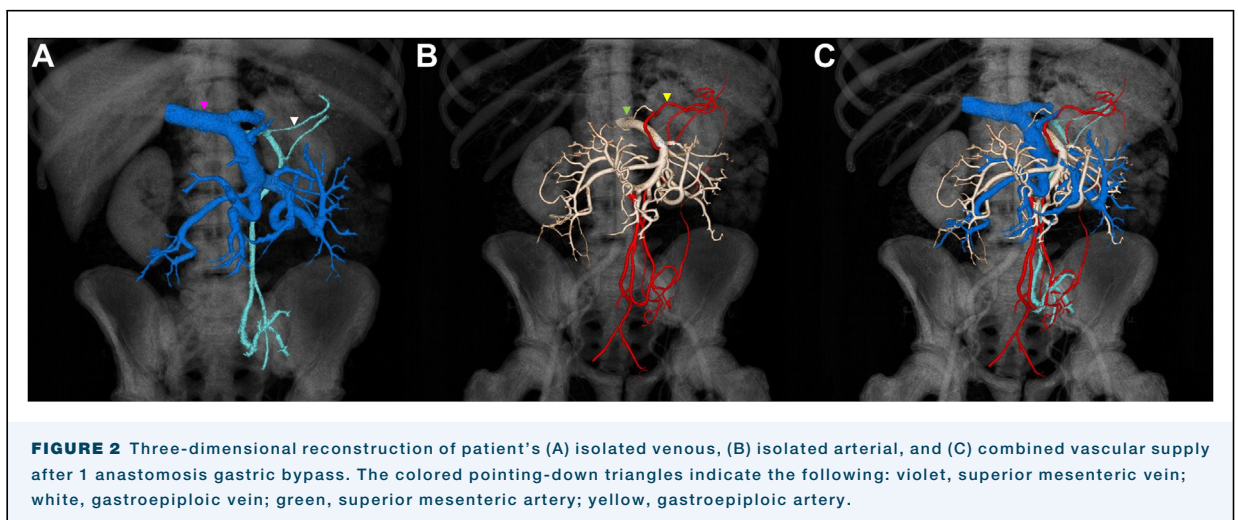
¹Division of Thoracic Surgery, Department of Surgery, Mayo Clinic, Rochester, Minnesota; ²Division of Surgical Services, Department of Nursing, Mayo Clinic, Rochester, Minnesota; and ³Division of Endocrine & Metabolic Surgery, Department of Surgery, Mayo Clinic, Rochester, Minnesota
Address correspondence to Dr Blackmon, Division of Thoracic Surgery, Department of Surgery, Mayo Clinic, 200 1st St SW, MA-12W, Rochester, MN 55905; email: blackmon.shanda@mayo.edu.



reconstruction. We placed a feeding jejunostomy tube and injected 100 IU of Botox into the pylorus. We also performed a mediastinal and abdominal lymphadenectomy. Finally, we resected the sleeved stomach pouch and created a new conduit out of the ischemically conditioned remnant greater curve of the stomach with blood supply from the intact gastroepiploic artery. Once that was complete, we created an esophagogastric anastomosis, with a 25-mm OrVil circular stapler

(Medtronic), and used an omental pedicled graft to buttress around the anastomosis in the event of a leak to prevent esophagobronchial fistula. Just before completion of the anastomosis, a nasogastric tube was placed into the conduit without difficulty. Videotaping of the entire case was performed (Video).

The specimen was sent for pathologic evaluation, which revealed a 1-mm T1b NO MO moderately differentiated esophageal adenocarcinoma, with negative margins



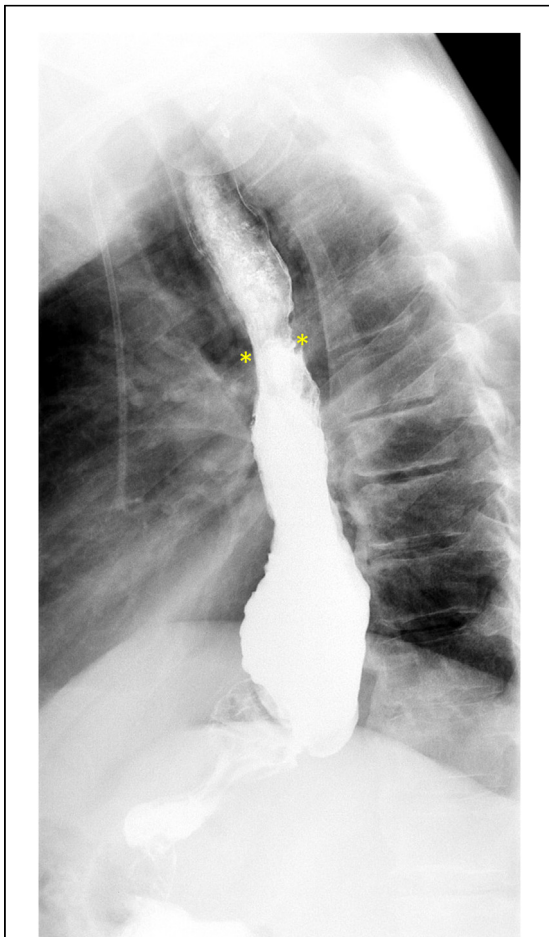


FIGURE 3 Postoperative esophagogram with asterisks highlighting the site of the anastomosis.

(Figure 3). He is eating without difficulty and doing well on his 5-month follow-up visit.

COMMENT

The OAGB, although previously thought to be a controversial procedure, is becoming more common because of the decreased technical demand needed by the surgeon with similarly reasonable patient outcomes.⁵ Hence, we may potentially see increased bile gastritis and gastroesophageal reflux and, consequentially, a potential increase in esophageal cancer in this population of patients.⁶ The unique anatomy of OAGB makes surgical planning challenging but typically should enable the use of a gastric conduit. The prior separation from the left gastric artery may serve as ischemic preconditioning, possibly making the conduit healthier than if it were created with no prior surgical intervention, as in this case. The ability to use the remnant stomach as the esophageal conduit allows reconstruction that spares the colon⁷ or jejunum,⁸ does not require the creation of a microvascular blood supply through “supercharging,”⁸ and thus allows a less complex procedure with a shorter recovery time. This case report highlights the surgical technique and management as a guide in the event that esophageal cancer develops in OAGB patients.

The *Video* can be viewed in the online version of this article [<https://doi.org/10.1016/j.atssr.2023.03.020>] on <http://www.annalsthoracicsurgery.org>.

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DISCLOSURES

Shanda Blackmon reports a relationship with Medtronic that includes: consulting or advisory and funding grants; and with STERIS that includes: funding grants. Shanda Blackmon has been issued a patent for an anastomotic esophageal stent.

PATIENT CONSENT

Obtained.

and 21 negative nodes. The patient had an uncomplicated postoperative course on our Multidisciplinary Esophagectomy Recovery Initiative Team (MERIT) pathway and normal findings on postoperative esophagography

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