

Video case report

## Laparoscopic gastrojejunostomy revision: a novel approach to intractable marginal ulcer management

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Marginal ulcers are a known complication after Roux-en-Y gastric bypass, with a variable incidence of .6–16% [1,2]. Initial therapy involves elimination of the inciting risk factors [3] and medical management with a proton pump inhibitor and sucralfate therapy [4]. Although most marginal ulcers will heal with such treatment, approximately one third of patients will require operative intervention [5]. Surgery typically involves total revision of the gastrojejunostomy [6]. Revisional bariatric surgery, however, is technically difficult and has been associated with high morbidity and mortality rates. This approach can threaten the integrity of the gastric pouch and potentially necessitate an esophageal anastomosis. We present a case study of an intractable marginal ulcer managed surgically through a nontraditional technique that aims to reduce such risk.

### Case report

The patient was a 40-year-old woman with a body mass index of 48 kg/m<sup>2</sup>. Her history was significant for medically treated hypertension, hyperlipidemia, and 2 cesarean sections. She denied smoking, alcohol, or drug use. After the usual preoperative evaluation, including negative findings on a serum *Helicobacter pylori* test, she underwent laparoscopic antecolic, antegastric Roux-en-Y gastric bypass with a 100-cm Roux limb. The gastrojejunostomy was con-

structed using linear endo-GIA staplers (Covidien, Norwalk, CT). Her intraoperative course was remarkable for unusual bleeding from her peripheral intravenous catheter site and all staple lines, requiring multiple hemostatic measures. Postoperatively, she was diagnosed with von Willebrand disease that was exacerbated by the perioperative use of hetastarch and subcutaneous heparin.

Two months later, the patient had developed food intolerance and epigastric pain. An upper endoscopy evaluation revealed a 1-cm marginal ulcer without an embedded visible foreign body, for which medical therapy was initiated. *H. pylori* testing was negative for infection. A Gastrografin upper gastrointestinal series and abdominal computed tomography with contrast did not reveal any evidence of a gastrogastric fistula. She underwent a 4-month course of high-dose proton pump inhibitor and sucralfate therapy. She remained symptomatic, leading to multiple hospitalizations and narcotic addiction. Surgical revision was offered when, despite aggressive medical therapy, failure of ulcer resolution was demonstrated by endoscopy.

The marginal ulcer revision was approached laparoscopically. The left lateral lobe of the liver was densely adherent to the entire anterior gastric pouch and the gastrojejunostomy. On careful dissection of the gastrojejunostomy from the liver bed, it became quite evident that additional dissection would lead to either complete loss of the anterior pouch wall or hepatic parenchymal bleeding, or both. Thus, we proceeded with excision of the anterior wall at the gastrojejunostomy anastomosis. Intraoperative endoscopy was then used to evaluate the remaining tissue. The posterior wall was intact, and the remaining gastric and jejunal margins had bleeding, healthy tissue that could easily be reapproximated without tension.

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The anterior wall defect was closed over the gastroscope and in 2 layers using 2-0 Vicryl running and interrupted sutures, respectively. An intraoperative immersion leak test was negative. Tisseel fibrin sealant was injected over the gastrojejunal anastomosis, and omentum and gastrosplenic fat were wrapped and secured over the fresh suture line, as described by Saber and Jackson [7]. A 24F gastrostomy tube was placed in the gastric remnant, followed by placement of a 19F drain overlying the surgical site.

A postoperative upper gastrointestinal study revealed no evidence of leakage, with prompt contrast emptying into the Roux limb. She was discharged home within 1 week, tolerating a full liquid diet. Her postoperative course was generally unremarkable, except for the persistence of her narcotic addiction, leading to multiple visits to different emergency rooms. Subsequent endoscopy demonstrated no evidence of a marginal ulcer at 3 months postoperatively.

## Discussion

Our case has demonstrated a novel approach for the management of a nonhealing marginal ulcer after laparoscopic gastric bypass. The etiology of marginal ulcers remains unknown and is thought to be multifactorial [4]. In our patient, we believe that its early occurrence resulted from a combination of anastomotic ischemia (perhaps related to the perioperative bleeding diathesis) and subsequently discovered patient factors such as noncompliance with proton pump inhibitor and sucralfate therapy, a liberal consumption of ibuprofen, and possible methamphetamine use according to the results of a urine drug screening test.

Revisional bariatric surgery is considered to be high risk, with reported major complication rates of 10–30%. These data largely reflect the complications after open revisional surgery, for which the complication rates are greater than those with primary bariatric surgery and include a greater leak rate, wound infections, longer operative times, greater risk of deep vein thrombosis and pulmonary embolus, greater intraoperative blood loss, and death [8]. Although no randomized controlled trials have been done, the current data suggest that laparoscopic revisional surgery, when performed by those with advanced minimally invasive and bariatric surgery expertise, is safe and feasible and offers advantages compared with the open approach [9–11]. These advantages include decreased blood loss [5,8], less postoperative pain, quicker recovery time, a shorter hospital stay, and decreased surgical wound complications [6,11].

In our patient, the risks of revisional bariatric surgery were minimized through the use of a simple wide excision of an anterior marginal ulcer without the need for complete anastomotic reconstruction. The latter approach, which would have been required had the ulcer been located laterally or posteriorly, might have resulted in total gastric pouch compromise, necessitating thoracotomy and esophagojejunostomy, both of which have a high morbidity rate. Intra-

operative endoscopy, furthermore, was a very useful adjunct, because it provided reassurance that the remaining gastric and jejunal tissues were well-vascularized, free of ulcer, and could be primarily reapproximated in a tension-free manner. Thus far, this innovative approach has proved effective in the management of a nonhealing anterior gastrojejunostomy ulcer. However, long-term follow-up is required to confirm its durability and its role as a viable alternative to standard reconstruction in all similar cases.

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## Disclosures

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## Appendix

### Supplementary data

The video associated with this article can be found, in the online version, at [www.SOARD.org](http://www.SOARD.org) under “Multimedia Library.”

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