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Healing of Complicated Gastric Leaks in Bariatric Patients Using Endoscopic Clips

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ABSTRACT

Introduction: Endoscopists have used clipping devices to successfully close acute, iatrogenic perforations throughout the gastrointestinal tract. We applied this technology to our bariatric patients, who tend to present with a more delayed anastomotic leak, to determine whether these leaks and fistulae would also heal with endoclip application.

Case Description: We describe a small series of 2 clinically stable bariatric patients who presented with postoperative anastomotic leaks who met criteria for nonoperative therapy. The first underwent a laparoscopic Roux-en-Y gastric bypass and presented postoperatively with a leak at her gastrojejunal anastomosis. The location was not amenable to stent placement; therefore, 2 endoclips were placed. The leak was sealed by fluoroscopic examination 14 d later. The second had a reversal of a previous gastric bypass, creating a new gastrogastric anastomosis. A leak was found at this new connection postoperatively. After failure of a stent to seal the leak, 8 endoclips were used. This patient also had successful closure of her leak on fluoroscopy 14 d postprocedure.

Discussion: Anastomotic leaks after bariatric surgery can incur severe morbidity, cost, and detriment to patients' quality of life. Unstable patients require operative intervention. Stable patients are candidates for more-conservative measures. Endoscopic stents have been successful in closing gastric leaks, though some are not anatomically amenable to stent placement, and stents also have the potential to migrate distally. We demonstrate 2 cases of successful closure of leaks in bariatric patients by using endoclips and suggest that this be considered an option in appropriate cases.

Key Words: Bariatrics, Anastomotic leak, Endoscopy instrumentation.

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INTRODUCTION

Anastomotic gastric leaks remain a dreaded complication in bariatric surgery. Various management strategies include exploratory surgery with drain placement, endoscopic stenting, or image-guided percutaneous catheter placement, or a combination of these methods. The strategy utilized is guided by patient clinical stability. A patient with clinical sepsis or hemodynamic instability requires operative intervention and rapid source control of their enteric leak. If a patient is stable by clinical parameters, endoscopic and percutaneous approaches may be entertained. If nonoperative measures are taken, a standard treatment algorithm of nil per os, intravenous (IV) hydration, and IV antibiotics is immediately used.

The gastroenterology literature includes another option for closure of gastrointestinal (GI) perforations: placement of endoscopic clips (endoclips). With the increased interest in natural orifice transluminal endoscopic surgery (NOTES), and the more-widespread application of endoscopic mucosal resection (EMR) and endoscopic submucosal dissection, there has been simultaneous interest in how to most effectively close iatrogenic perforations. Results using clipping devices in this acute setting have had excellent outcomes.[1] Our experience with the following 2 patients demonstrates that endoclips can also be effective in achieving successful closure in the more chronic and inflamed leaks and fistulas that can occur in our bariatric population.

CASE REPORT

Patient 1

A 43-y-old female (body mass index = 49) underwent an uneventful laparoscopic Roux-en-Y gastric bypass (RYGB) and was discharged home on postoperative day (POD) 3.

Figure 1. patient 1: UGI series with GJ anastomotic leak.

She presented to the emergency department on POD 11 with complaints of abdominal pain and fever. An abdominal computed tomography (CT) scan demonstrated a fluid collection near the gastrojejunal (GJ) anastomosis. The patient was hemodynamically stable on presentation. A subsequent upper GI (UGI) series confirmed a contained leak at the GJ anastomosis **(Figure 1)**. During endoscopic examination, the anastomosis appeared erythematous and ulcerated, and fluoroscopy showed a small, linear extravasation of contrast. The endoscopist felt that an intraluminal stent would be ineffective because of the large luminal diameter at this location. Therefore, 2 endoscopic clips were placed at the area of extravasation. A percutaneous drain was also placed into the adjacent fluid collection by our radiology department. The patient had only clear liquids by mouth and completed a course of antibiotics. A follow-up UGI series done 14 d postprocedure showed no further anastomotic leak.

Patient 2

A 44-y-old female with a history of an RYGB 6 y previously presented with a gastrogastric (GG) fistula secondary to a chronic marginal ulcer. The patient ultimately required reversal of her gastric bypass with takedown of her fistula and creation of a new GG anastomosis. She was discharged home on POD 4 from this operation. She was readmitted to the hospital on POD 7 with complaints of abdominal pain and general malaise. An abdominal CT scan showed extraluminal air around the GG anastomosis, and a subsequent UGI series confirmed a leak at this site. The patient remained nontoxic and hemodynamically stable during this time. On endoscopic examination, the GG anastomosis was found to have some surrounding ulceration, and contrast extravasation was confirmed on fluoroscopic images. Two endoscopic clips were placed across the defect, but because a small leak persisted, the endoscopist also placed a covered esophageal stent across the anastomosis. A percutaneous drain was placed in the adjacent fluid collection by radiology. The patient presented again on POD 15 and was found to have migration of this stent and persistence of the leak on UGI series, along with distal migration of the stent **(Figure 2)**. The patient was again brought to the endoscopy suite; the previously placed stent was removed and had subsequent placement of 8 clips across the full extent of the mucosal defect **(Figure 3)**. The patient was given a course of antibiotics and allowed only clear liquids by mouth. The patient henceforth did well, and a follow-up UGI series done 14 d after this final procedure showed healing of the anastomotic leak.

Figure 2. patient 2: UGI series with persistent leak at GG anastomosis and stent migration.

Figure 3. patient 2: final endoclip placement with sealing of leak.

DISCUSSION

The use of endoclips for closure of iatrogenic foregut perforations is not novel. In 1999, Kaneko et al.[2] reported on the use of a clipping device to close iatrogenic duodenal perforations during EMR. Minami et al.[3] published their series of 117 patients who had gastric perforations during EMR and had 98% success in healing with endoclips. Raju[4] wrote an excellent review of the literature in 2009 that supports the use of endoclips and other tissue-approximation devices in closing iatrogenic perforations in NOTES procedures. An acute perforation of a GJ anastomosis after a balloon dilatation is found in the bariatric literature[5] that describes successful closure with the application of 4 endoclips.

Bariatric patients often present with GI anastomotic leaks in a delayed fashion. In these cases, the tissue is much more inflamed and ulcerated, and there is an assumption that this more-friable tissue will be more difficult to successfully approximate with endoclips. The European literature introduces an overthe-scope clip device that has been used successfully in a few case reports of bariatric patients with more chronic leaks and fistulas.[6,7] Reportedly, these devices can grasp and approximate a larger amount of tissue and have shown promising results in small series of complicated GI leaks. There are also a few series in the GI literature reporting the use of advanced endoscopic strategies with combinations of stents, clips, and synthetic glue to address leaks after RYGB.[8,9]

We have achieved success in our 2 complicated bariatric patients using readily available instruments. With the collaborative effort between surgeons and gastroenterologists, we were able to avoid subsequent operative intervention and morbidity. We suggest that the use of endoclip closure be considered in stable patients with delayed presentations of foregut anastomotic leaks after bariatric surgery, particularly if the area has failed endoscopic stenting or is not anatomically amenable to stent placement. Importantly, this is only a very small case series that suggests a possible nonoperative strategy in appropriately identified patients. Further investigation in the form of a larger series or collaborative clinical trial is certainly warranted to verify the reproducibility of our results on a larger scale.

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