Technical Article

A novel use of endoscopic cutter: Endoscopic retrieval of a retained nasogastric tube following a robotically assisted laparoscopic biliopancreatic diversion with duodenal switch

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Abstract

Context: A nasogastric tube is utilized routinely by many bariatric surgeons to assist creation of gastrojejunal anastomosis during roux-en-y gastric bypass or duodenojejunal anastomosis during biliopancreatic diversion. However, inadvertent stapling or suturing of the nasogastric tube has been known as a potential complication of this technique. **Case Report:** We describe a successful endoscopic removal of an inadvertently sutured nasogastric tube at the level of the duodenojejunal anastomosis in a 30-year-old woman undergoing a robotically assisted laparoscopic biliopancreatic diversion with duodenal switch for super morbid obesity. **Conclusions:** Endoscopic technique is a feasible and safe minimally invasive technique to release a retained nasogastric tube with preservation of the newly created anastomosis. This option gives major advantages of avoiding a re-operation, as well as the potential general anesthetic complications.

Keywords: Endoscopic retrieveal, Endoscopic cutter, Retained nasogastric tube

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Introduction

In many bariatric centers, a nasogastric tube (NGT) is utilized routinely when creating the gastrojejunal anastomosis during a Roux-en-Y gastric bypass or the duodenojejunal anastomosis in a duodenal switch. One potential complication of this technique includes inadvertent stapling or suturing of the NGT depending on the type of anastomosis performed.

We describe the successful endoscopic removal of an inadvertently sutured NGT at the level of the duodenojejunal anastomosis during a robotically assisted laparoscopic biliopancreatic diversion with duodenal switch (R-LBPD/DS).

Report of Technique

A 30-year-old woman with a body mass index (BMI) of 44.5 underwent an uneventful R-LBPD/DS. The operation had included the use of a #16-Fr red rubber NGT to guide the creation of the robotically assisted double-layered handsewn duodenojejunal anastomosis. On postoperative day (POD) #1, the patient complained of significant epigastric pain during attempts to remove the NGT, which appeared to be fixated to a point on the foregut structure. On endoscopic re-evaluation under twilight anesthesia in the operating room, the NGT was found to have been inadvertently sutured at the level of the duodenojejunal anastomosis (Figure 1). An endoscopic cutter was initially introduced via a regular front-view gastroscope, however the challenging degree of angulation resulted in inadequate visualization. We then switched to a sideview ERCP scope which provided superior view and more favorable angulation toward the anastomosis (Figure 2). The endoscopic cutter was successfully utilized to cut and release the NGT, leaving the anastomotic suture intact. The anastomosis was carefully inspected, which appeared to be intact and watertight (Figure 3).

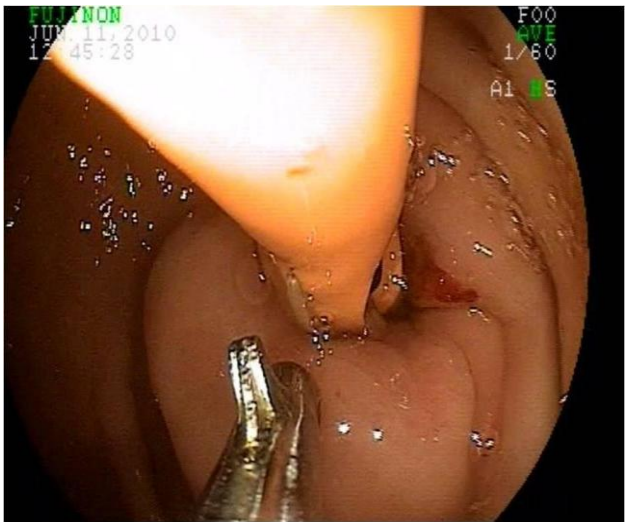

Fig. 1 Endoscopic view of an inadvertently sutured nasogastric tube at the level of duodenojejunal anastomosis using a regular front-view gastroscope.

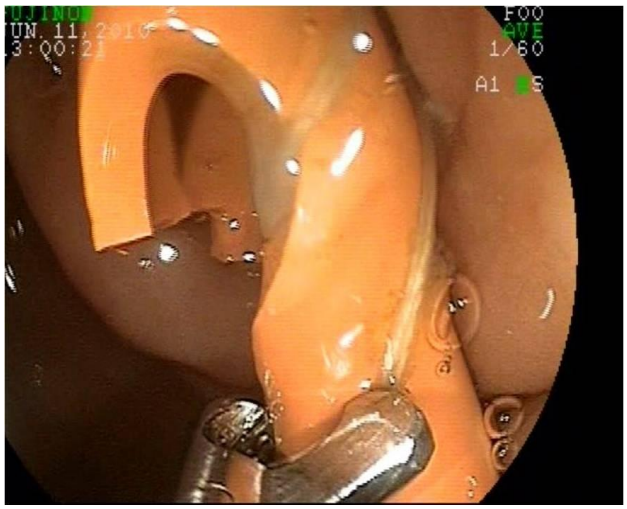

Fig. 2 Progressive effort to cut and release the retained nasogastric tube using an endoscopic cutter guided by a side-view ERCP scope.

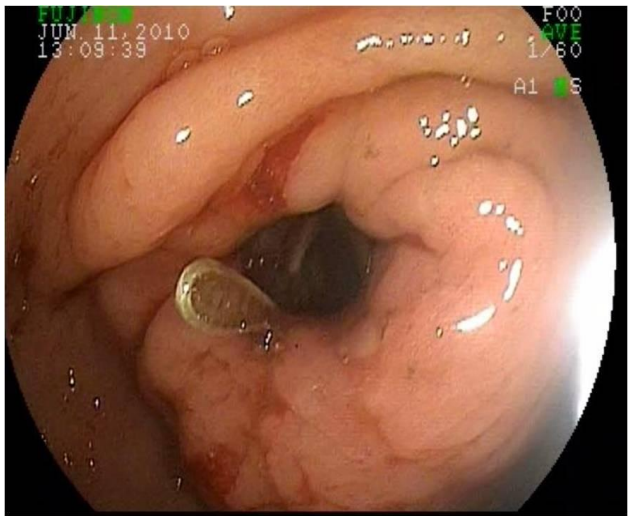

Fig. 3 Endoscopic view of the intact duodenojejunal anastomosis after removal of the retained nasogastric tube.

A radiologic evaluation of the anastomosis was obtained with gastrografin upper GI series on POD #3, which ruled out anastomotic leak or obstruction. A clear liquid diet was subsequently introduced without problems. The patient continued to make an unremarkable recovery, and she was discharged on POD #5. At 1 month postoperatively, an upper GI endoscopy was performed where an intact and patent anastomosis was seen. At 6-month follow-up, the patient has achieved excellent weight loss with complete resolution of her obesity-related comorbidities. Regular office visits are scheduled as per bariatric protocol at 9, 12, 18 months postoperatively, and yearly thereafter. A Gastrografin upper GI series is reserved for clinical signs and symptoms of upper GI obstruction in the future, followed by an upper GI endoscopy with possible balloon dilatation if clinically indicated.

Discussion

In bariatric surgery, a recognized complication of gastric banding is erosion and subsequent intragastric migration of the band causing potentially serious problems such as obstruction, gastric perforation, and intra-abdominal sepsis. Endoscopic removal of intragastric foreign body, mainly eroded gastric band or silastic ring from the historically popular vertical band gatroplasty (VBG) in the early 1980's has been described [1,2]. VBG involves partitioning the stomach with a vertical staple line and restricting the pouch outlet using a Gortex™ band which can erode through the vertical staple line or through the lesser curvature into the gastric pouch. It occurs in 1% to 3% of patients and presents with symptoms of obstruction, weight gain, nausea, pain, and bleeding. Utilizing this minimally invasive endoscopic technique, a surgical removal of the bands can be avoided in majority of patients.

In a series of 78 patients, Neto at al reported a 95% success rate of endoscopic removal of eroded gastric bands due to erosion. Symptoms occurred at an average of 16.3 months (range 6-36) postoperatively and included pain (31%), port infection (27%), and weight regain (25%) of the patients [3]. A comparable technical success was reported in 7 patients by Regusci et al [4].

In the case described in this report, a flexible endoscopic cutter was used for removal of a retained nasogastric tube that had been inadvertently sutured during creation of a robotically assisted duodenojejunal anastomosis. The patient was taken for an endoscopic exploration in the operating room with plan to proceed with laparoscopic/open exploration ± redo anastomosis should the endoscopic approach fail or the anastomosis become disrupted.

Initially, a regular (front-view) gastroscope was used, but visualization was poor because of the parallel direction of the nasogastric tube and the gastroscope. An adequate triangulation was later obtained using a side-view endoscopic retrograde cholangiopancreatography (ERCP) scope in collaboration with a gastrointestinal endoscopist. Total duration of the procedure was 30 minutes. After the

release, the anastomosis was found to be intact endoscopically, and this was subsequently confirmed radiologically. The remainder of her recovery was uneventful. Laparoscopic exploration with possible creation of a new anastomosis was able to be avoided.

In the report of endoscopic removal of eroded adjustable gastric band by Neto at all, five cases of pneumoperitoneum occurred after the procedure. Of these, three were treated conservatively, one was treated by laparoscopy, and one was treated by abdominal puncture using the Veress needle [3]. In the current case, pneumoperitoneum was not detected after the endoscopic release.

Conclusion

Flexible endoscopy is safe, feasible, and effective in retrieving a retained foreign body after upper intestinal surgery. A laparoscopic approach with possible repair/re-creation of the anastomosis should be reserved as the next option only when the endoscopic approach fails.

Acknowledgement

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