Post-Operative Outcomes After Laparoscopic Duodenoenterostomy For Bariatric Surgery Utilizing an End-To-End Circular Stapler and Transoral Anvil Deployment Device

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Introduction

- The laparoscopic biliopancreatic diversion with duodenal switch (BPD-DS) has been shown to carry high success rates in the treatment of morbid obesity [1].
- Laparoscopic creation of the duodenoenterostomy is one of the more technically difficult steps of the operation.
- Historically this anastomosis has been created via a linear stapling or hand sewn approach [2, 3, 4].
- The aim of this study is to look at the 30-day post-surgery outcomes in patients who underwent creation of this anastomosis utilizing a 21 mm end-to-end anastomosis (EEA) circular stapler and transoral anvil deployment device.

Methods & Procedures

- A retrospective review at a single institution was performed on patients who underwent laparoscopic bariatric surgery requiring duodenoenterostomy between January 2018 and September 2020.
- The duodenoenterostomy was created with the assistance of a 21mm EEA circular stapler and transoral anvil deployment device after the completion of the sleeve gastrectomy.
- Post-operative 30-day major and minor complications were documented.

Results

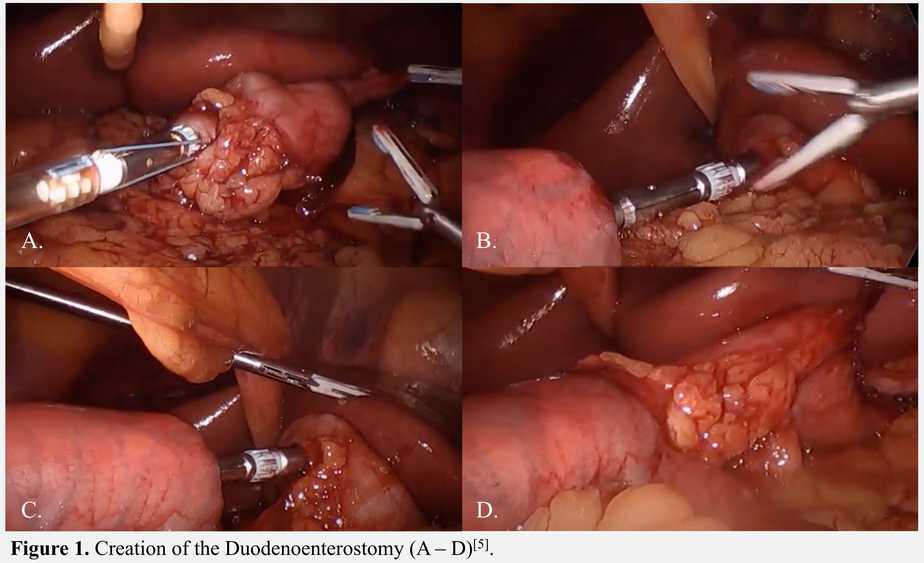


Figure 1. Creation of the Duodenoenterostomy (A – D)[5].
A. Transoral Anvil deployment. B. Stapler engagement. C. Stapler/Anvil approximation. D. Firing the stapler.

Minor Complications (N = 7 Patients)	Major Complications (N = 1 Patient)
Abdominal Pain	Blood Transfusion
Ileus	
Urinary Tract Infection	
Splenic Infarct	
Rectal Bleeding	
Hypoglycemia	

Table 1.
Major and Minor Complications at 30 days post-surgery.

Results (Cont'd)

A total of 61 patients underwent laparoscopic bariatric surgery requiring duodenoenterostomy during the study period. The mean age of patients was 46 (SD = 10) years, 85% were female, and the mean BMI was 48.7 kg/m^2 (SD = 4.1). At 30-days post-surgery, there were 7 (11.48%) patients that had minor complications, and 1 (1.64%) patient had a major complication of bleeding requiring blood transfusion. There were no anastomotic related complications including strictures, ulcers, or leaks. There were 4 (6.56%) patients re-admitted but none required re-operation.

Conclusions

This study shows that the use of a 21mm EEA circular stapler and transoral anvil deployment device to perform a laparoscopic duodenoenterostomy during bariatric surgery is safe with an acceptable 30-day major complication rate. Long-term follow-up data is required to determine the long-term safety of this technique.

References

1. Buchwald H, Avidor Y, Braunwald E, Jensen MD, Pories W, Fahrbach K, Schoelles K. Bariatric surgery: a systematic review and meta-analysis. JAMA. 2004 Oct 13;292(14):1724-37. doi: 10.1001/jama.292.14.1724. Erratum in: JAMA. 2005 Apr 13;293(14):1728. PMID: 15479938.

2. Weiner RA, Blanco-Engert R, Weiner S, Pomhoff I, Schramm M. Laparoscopic biliopancreatic diversion with duodenal switch: three different duodeno-ileal anastomotic techniques and initial experience. Obes Surg. 2004 Mar;14(3):334-40. doi: 10.1381/096089204322917855. PMID: 15072654.

3. Biertho L, Lebel S, Marceau S, Hould FS, Lescelleur O, Moustarah F, Simard S, Biron S, Marceau P. Perioperative complications in a consecutive series of 1000 duodenal switches. Surg Obes Relat Dis. 2013 Jan-Feb;9(1):63-8. doi: 10.1016/j.soard.2011.10.021. Epub 2011 Nov 15. PMID: 22189411.

4. Biertho L, Simon-Hould F, Marceau S, Lebel S, Lescelleur O, Biron S. Current Outcomes of Laparoscopic Duodenal Switch. Ann Surg Innov Res. 2016 Jan 21;10:1. doi: 10.1186/s13022-016-0024-7. PMID: 26807142; PMCID: PMC4722734.

5. Ansley, M. Photos of duodenoenterostomy creation. SIU Photography. September 2021.