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Perforating Gastric/Duodenal Ulcer Development following Roux-en-Y Gastric Bypass Surgery: A Case Series

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Perforating Gastric/Duodenal Ulcer Development following Roux-En Y Gastric Bypass Surgery: A Case Series

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Abstract

Roux-en Y gastric bypass is a well studied procedure resulting in long term weight loss. Due to countless years of study, the morbidity and mortality associated with a Roux-en Y gastric bypass has been greatly decreased; however, there are still several rare, yet serious complications that may arise in the post-operative period. Anastomotic leaks and ulcers are just two of those complications. We describe a case of a 41-year-old female developing postoperative perforated duodenal ulcer. A laparoscopic repair was performed using a Graham patch technique. This review aims to identify factors contributing to the ulcer development as well as report 4 other similar cases.

Introduction

Roux-en Y gastric bypass surgery is a common procedure that is used to treat morbid obesity, by decreasing the size of the stomach and bypassing the duodenum. Perforated duodenal and gastric ulcer is a rare but serious complication that develops after a patient has undergone Roux-en-Y Gastric Bypass (RYGB) procedure. Of over one hundred thousand patients who receive RYGB annually, only twenty-one cases of perforated duodenal ulcer have been reported [1]. Furthermore, the number of reported cases has been declining in recent years due to increased use of proton pump inhibitors (PPIs) as well as decreasing *Helicobacter Pylori* infections [2]. However, due to the seriousness of the complication, early recognition and diagnosis of perforated duodenal ulcer remains crucial for optimal outcome in the post-operative period.

Sudden onset of persistent abdominal pain, nausea, and vomiting in the immediate postoperative period raises high suspicion for a perforated ulcer. Perforated peptic ulcers have been reported as early as 4 weeks to several years postoperatively with median time being 157 days [3]. Identifying the factors that increase the risk for duodenal ulcer development will provide novel information to providers to modify post-operative treatment plans.

Recognizing perforated duodenal ulcers in Roux-en-Y gastric bypass (RYGB) poses a diagnostic challenge. There is high mortality associated with undiagnosed perforated ulcers. Christensen observed that the overall mortality rate of 5-25% in perforated ulcer disease, rising to as high as 50% with increasing age [4]. Thus, in the case of fulminant and persistent complaints of right upper quadrant pain, nausea, and vomiting immediately following RYGB, there is a high index of suspicion for perforated duodenal ulcer especially in lieu of negative imaging and lab results.

Literature reviews have suggested multiple possible pathogenic mechanisms of perforated ulcer, including *Helicobacter Pylori* (*H. pylori*), smoking, nonsteroidal anti-inflammatory drugs (NSAID) use, and existing comorbidities. Other possible risk factors of perforated peptic ulcer include alcohol consumption, corticosteroid use, radiation therapy, and previous history of PUD [5]. Toradol (Ketorolac), which was included as part of the patient's postoperative treatment plan, selectively inhibits COX-1.

Using the medical charts of our patients, we hope to help the healthcare team in developing a more efficient and patient-centered post-operative care.

Results

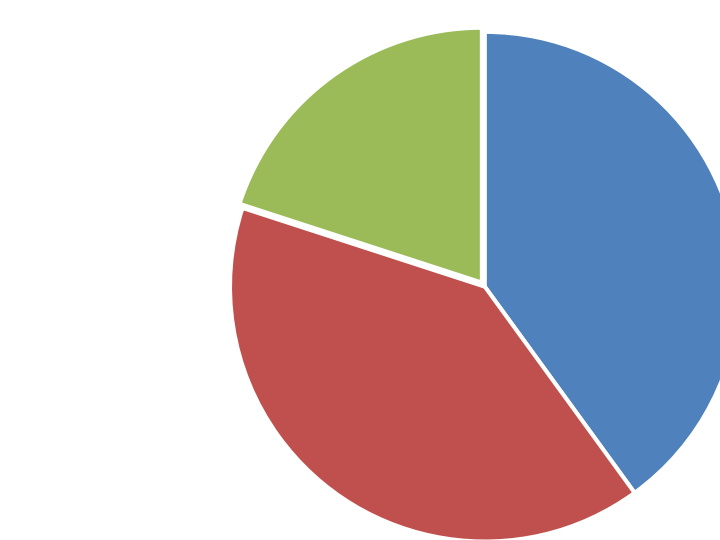
Table 1. Surgery and Demographic Information

Case	Date of Original Surgery	Date of Ulcer	Age	Gender
1	11.4.19	12.3.19	58	F
2	4.22.19	5.10.19	41	F
3	3.29.2019	6.1.21	56	F
4	1995	3.1.22	74	F
5	9.22.21	10.31.21	59	M

Table 2. Surgical History and Postoperative Medication

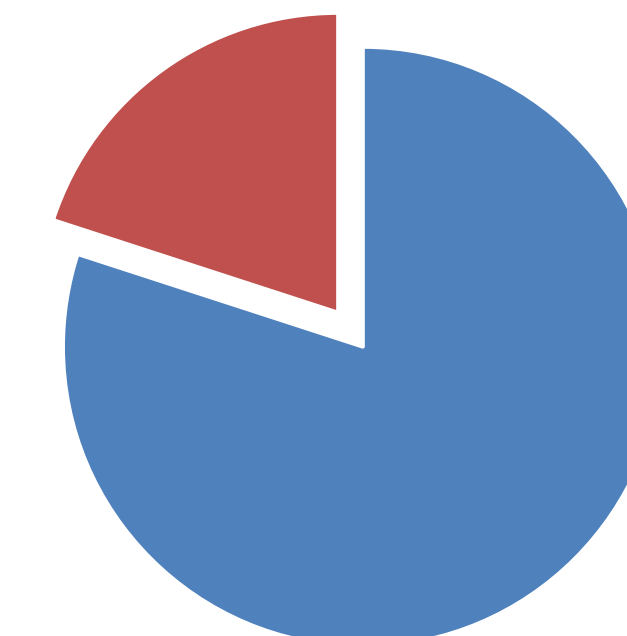
Case	Past Surgical History	Post-Operative Medication
1	Cholecystectomy, Appendectomy, Splenectomy, Pancreatectomy, Lumpectomy	Toradol, Protonix, Oxycodone, Dilaudid, Lovenox
2	None	Toradol, Dilaudid, Lovenox, Pepcid
3	Appendectomy, Cholecystectomy, Hysterectomy, Lithotripsy	Toradol, Dilaudid, Lovenox, Pepcid
4	Cholecystectomy	
5	Appendectomy	Toradol, Lovenox, Keppra, Percocet

Surgery Type



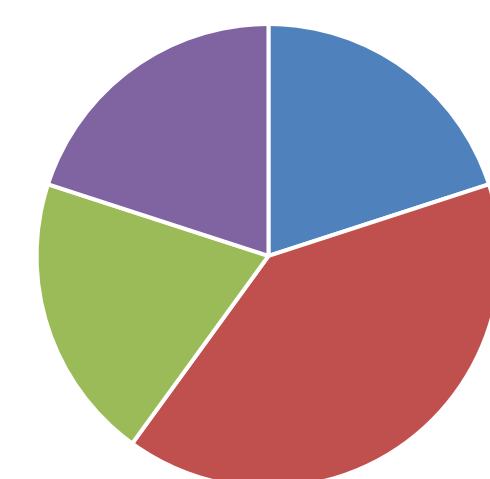
■ RNYGB
■ Conversion RNYGB
■ Open RNYGB

Ulcer Type



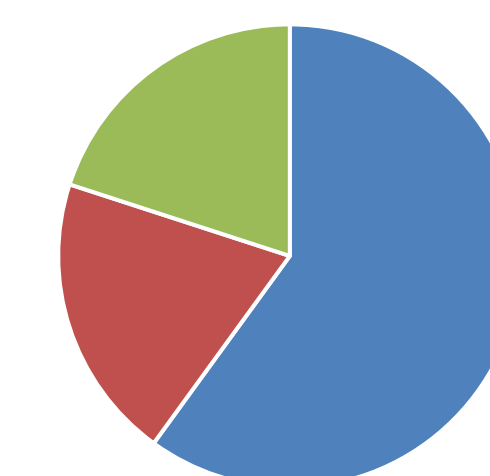
■ GJ Anastomotic
■ Duodenal Perforation

Repair Method



■ Conversion to RNYGB
■ Modified Gramh
■ Endoclip
■ EGD Caутery

Diagnosis Modality



■ EGD
■ Dx Laparoscopy
■ CT Imaging

Method

- 5 medical charts collected
- ICD coding for Gastric, Anastomotic Ulcer
- Patients from the Jefferson Hospital System
- Inclusion Criteria: Data was collected irrespective of age, gender, or ethnicity that had postop ulcer.

Case Report

41-year-old female with a past medical history significant for morbid obesity, *H. pylori* negative, with no NSAID, tobacco, EtOH, or steroid use and no past surgical history underwent an uneventful Laparoscopic Roux-en-Y gastric bypass. She had an expectant postoperative course. Postoperative medications included Dilaudid, Zofran, Lovenox, Toradol and Pepcid. After being discharged per standard protocol of tolerating a B1, she returned on postop day #3 with abdominal pain, nausea, and vomiting. CT scan with oral and IV contrast and lab work were unremarkable. Following discharge, she returned postoperative #7 with right upper quadrant pain and tenderness on physical exam. She underwent a RUQ U/S which revealed gallstones, but negative thickening and pericholecystic fluid to suggest acute cholecystitis. Due to continued concern for possible cholecystitis with RUQ tenderness on physical exam she underwent a HIDA scan which was negative. She was discharged on postoperative day #10. She returned to hospital on postoperative day #11 with continued RUQ pain, nausea, and vomiting. A repeat CT Scan with oral contrast was negative and she underwent an upper GI study which was negative. The patient was discharged home after symptomatic control and extensive negative workup. She represented with similar symptoms on postoperative day #15. The gastroenterology team was consulted; however, they refused to perform an endoscopy on the patient. As such it was decided to take the patient to the operating room on postoperative day #18 where a diagnostic laparoscopy was performed. Abdominal exploration revealed a perforated duodenal ulcer in the 2nd portion of the duodenum that was walled off against the gallbladder. A modified laparoscopic Graham patch was performed by which the 1.5cm perforation was closed primarily and then omentum was laid overtop the closure and secured into place using absorbable suture. The patient's postoperative course was uneventful. She denied any further pain, nausea, or vomiting. She was tolerating a B1 diet, and she was discharged home.

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