Acta Scientific Gastrointestinal Disorders (ISSN: 2582-1091)

Volume 5 Issue 4 April 2022

Case Report

Acute Pancreatitis After Bariatric Surgery: Case Report and Rare Presentation

Younus Al-Midfai[1]*, Darby Oakes[2], Simrun Uppal[2] and Lopez Carlos A[3]

[1]HCA Healthcare, Westside Regional Medical Center and Northwest Medical Center, Plantation, USA

[2]Nova Southeastern University, College of Osteopathic Medicine, Fort Lauderdale, USA

[3]HCA Healthcare's Westside Regional Medical Center, Plantation, USA

***Corresponding Author:** Younus Al-Midfai, HCA Healthcare, Westside Regional Medical Center and Northwest Medical Center, Plantation, USA.

Received: March 01, 2022

Published: March 14, 2022

Abstract

Background: Acute pancreatitis (AP) is an inflammatory response to the premature activation of pancreatic enzymes causing destruction of pancreatic tissue. The most common risk factors include alcohol use, triglycerides, and gallstones. There have been few documented cases describing an association between bariatric procedures and acute pancreatitis. Herein we present a novel case of AP following a robotic sleeve gastrectomy bariatric procedure.

Case Description: The patient, a 28-year-old African American female was seen in the emergency department for abdominal pain. Patient met the diagnostic requirements of acute pancreatitis, however, she had no relevant history of alcohol abuse, normal triglycerides levels, and no gallstones on imaging. The only significant history was a recent uncomplicated robotic sleeve gastrectomy bariatric surgery. The patient was admitted and treated for acute pancreatitis accordingly with fluids and pain management. She was discharged to home once stabilized.

Conclusion: This case report serves as one of the first reported incidences of acute pancreatitis following a bariatric procedure in the absence of additional risk factors. Further research is needed to investigate the risk of developing acute pancreatitis after bariatric surgery and to outline prevention strategies.

Keywords: Acute Pancreatitis; Bariatric Surgery; Risk Factors; DAMPs

Introduction

The first known documentation of acute pancreatitis (AP) was by anatomist, Nicholas Tulp, in 1652. Many others have contributed to our understanding of AP throughout the years, but there is still more to be explored and understood about the course of the disease and what can cause it [1].

Pancreatitis is characterized by localized auto-digestion of the pancreas due to the conversion of trypsinogen to trypsin within acinar cells. Trypsin begins the chain activation of multiple enzymes such as elastase and phospholipases [2,3]. Early activation of these enzymes causes localized tissue damage and release of Damage Associated Molecular Patterns (DAMPs). The release of DAMPs propels the body's inflammatory cascade and further leads to systemic inflammation [3]. The most common cause of AP is gallstones, followed by alcohol use, and the third most common cause is elevated triglycerides. Although these are the three most common, there are many other known and unknown triggers that can cause AP. Signs and symptoms may vary depending on the precipitating event of AP. Acute pancreatitis commonly presents with severe acute abdominal pain, associated symptoms may also include nausea and vomiting (Figure 1) [3].

Diagnosis of pancreatitis is determined by the Revised Atlanta Criteria. Two of the three following criteria are needed to diagnose acute pancreatitis: severe acute onset abdominal pain, elevated lipase and/or amylase, and confirming characteristics on imaging (CT, MRI, ultrasound) [3]. Pancreatitis is a common diagnosis with

studies reporting 2,814,972.3 cases worldwide in 2019 [4]. There have been few documented cases associating AP with recent bariatric procedures.

Bariatric surgical procedures have shown to be beneficial in treating obesity [5]. Robotic sleeve gastrectomy has been found to be an effective bariatric procedure and is reported to be safe treatment for obesity [6]. With the rise in obesity there is more demand for these bariatric procedures. Herein we explore a unique case of acute pancreatitis following bariatric surgery.

Case Presentation

A 28-year-old African American female with past medical history significant for obesity, hypertension, obstructive sleep apnea, and recent bariatric surgery presented to the emergency department (ED) with epigastric pain, vomiting, nausea starting approximately one week prior. She also reported intermittent chills since her robotic sleeve gastrectomy bariatric procedure one month prior. The patient denied blood in the vomit. She had not had a bowel movement since the onset of pain. She was calm and pleasant during the interview and expressed no signs of altered mentation. She attributed lack of pain on abdominal exam to pain medications given in the ED.

Her surgical history included a robotic sleeve gastrectomy done exactly one month prior and an ovarian torsion repair years ago. The robotic sleeve gastrectomy was uncomplicated. The patient reported no history of alcohol abuse, recreational drug use or tobacco use.

Vitals in the ED were within normal range. Labs were notable for an elevated lipase level of 1032 (normal range: 0-160 U/L) and slightly elevated liver enzymes. Triglyceride levels were within normal range. Computed tomography (CT) of the abdomen was performed in the ED which showed no acute abnormalities, no signs of bowel obstruction and no appendicitis. An ultrasound of the abdomen illustrated sludge in the gallbladder but no signs of stones or distension. The diagnosis of acute pancreatitis was made based on the combination of clinical presentation and evidence of elevated lipase.

Given the patient history and findings, the cause of her acute pancreatitis was presumed to be associated with her robotic sleeve gastrectomy. The patient was treated in a traditional manner for acute pancreatitis as per protocol and admitted for observation. After two days the patient showed improvement in pain and nausea. The patient was discharged to home once in stable condition with no remaining symptoms of acute pancreatitis.

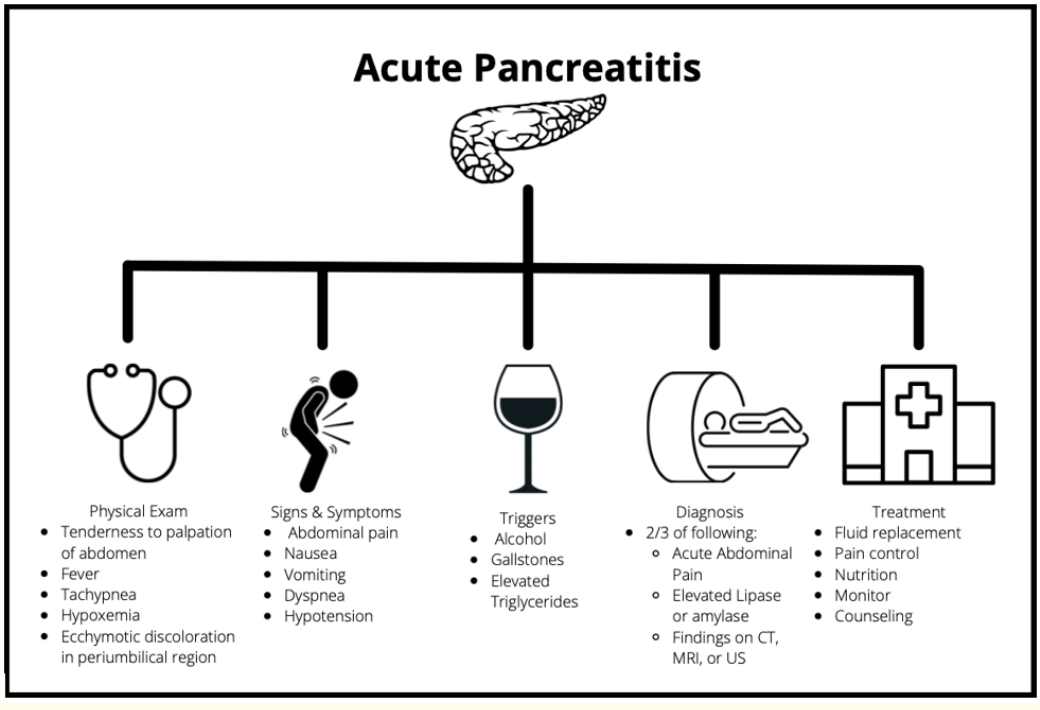

Figure 1: Overview of Acute Pancreatitis.

Discussion

With the growing obesity rates in the United States, bariatric surgery is becoming increasingly common due to its effects on weight loss and improving obesity-related metabolic comorbidities [7]. There is substantial evidence to support that bariatric surgery, regardless of the procedure type, results in greater improvements in weight loss and type 2 diabetes outcomes as compared to non-surgical interventions [8]. Bariatric surgery is generally considered safe, with perioperative mortality rates ranging from 0.03% to 0.2% [8]. The most common complication within the first 10 days postoperatively is peritonitis due to anastomotic fistula formation, with an incidence of 1-6% after gastric bypass and 3-7% after sleeve gastrectomy [9]. Other well-documented long term complications include micronutrient deficiencies (most commonly vitamin D, iron, and vitamin B_{12}), bone loss, nephrolithiasis, hypoglycemia, and rarely, alcohol use disorder [7]. Thus, most patients are advised to supplement with multivitamin regimens to prevent nutritional deficiencies [7].

Currently, the two most common bariatric procedures include the sleeve gastrectomy (SG) and the Roux-en-Y gastric bypass (RYGB). Since 2013, SG has been the most common bariatric surgery, proven to improve the metabolic profile, comorbidities, and inflammatory state seen in obese individuals [10]. SG is considered minimally invasive and has been found to have a higher survival rate among patients as compared to other bariatric procedures [11]. This procedure involves surgically resecting approximately 80% of the gastric fundus, which accounts for the regulation of appetite [11]. SG does not require gastrointestinal anastomosis, intestinal bypass, or artificial device implantation and is normally performed robotically or laparoscopically [11]. The most common complications of SG include nutrient deficiencies, bleeding, and leakage [11]. A prospective study examining the five-year outcomes of laparoscopic sleeve gastrectomies in 156 patients found that with regards to late complications, one patient (0.6%) developed a gastric stricture, 24 patients (15.3%) developed new-onset gastroesophageal reflux disease, three patients (1.9%) developed a trocar-site hernia, and seven patients (4.4%) required a cholecystectomy due to the development of symptomatic gallstones – two of those patients presented with acute pancreatitis [12].

This case report highlights a rare and less understood complication of bariatric surgery. Currently, there is limited data examining the relationship between bariatric surgery and acute pancreatitis (AP). Reported annual incidence rates of AP post-bariatric surgery are inconsistent – ranging from 0.013% to 1.04% depending on the study [10]. Bariatric surgery induces changes in gastrointestinal and pancreatic peptides, as well as anatomical and hormonal changes, which may play a role in the development of AP after surgery [13]. Additionally, bariatric surgery is associated with an increased risk of gallstone disease, a risk factor for the development of AP [10].

A retrospective cohort study found that out of 920,615 patients with acute pancreatitis, 15,345 had previously undergone bariatric surgery (8,220 after propensity matching) [13]. An additional retrospective study investigated the postoperative risks of acute pancreatitis in the sleeve gastrectomy (SG) procedure versus the Roux-en-Y gastric bypass (RYGB) as compared to a control group of hernia repair (HR) patients [10]. The study included 652,042 morbidly obese patients who underwent one of the three procedures [10]. It was found that more patients developed AP within 6 months after SG compared to RYGB and controls, with the highest risk in younger patients (18-29 years old), females, and those with gallstones [10]. In this study, the rate of AP following SG was 21 per 1000 patients [10]. For both the SG and RYGB groups, most of the post-operative AP admissions occurred within 30 days after surgery [10].

The current studies have failed to identify the exact cause of acute pancreatitis post-bariatric surgery, the reasons for differential impact of bariatric surgery type on risk of AP, or strategies for prevention. However, the findings did suggest that biliary disease is the main factor involved in the increased risk of AP post-bariatric surgery, especially post-SG, and that prior cholecystectomy may reduce the risk for developing AP [10]. Although the patient in this case report did not have gallstones, this association necessitates further investigation into preventive strategies.

In conclusion, we present a unique case of acute pancreatitis following a robotic sleeve gastrectomy bariatric procedure in which the patient had no other known risk factors for acute pancreatitis. Similar cases have been documented, however, there is minimal data examining the relationship between bariatric surgery and acute pancreatitis. The exact mechanism for why these patients develop acute pancreatitis after such procedures is still unknown. Research is needed to identify additional risk factors for developing acute pancreatitis post-bariatric surgery and to explore

the reasons for differential impact of bariatric surgery type on risk of AP. This information would be beneficial in helping providers to select the type of bariatric procedure best suited for the patient. Furthermore, establishing guidelines for prevention strategies of acute pancreatitis in this patient population is recommended to improve morbidity, mortality, and quality of care following bariatric surgery.

Ethical Statement

Written consent from the patient was obtained prior to documenting this case report.

Bibliography

1. Pannala, Rahul., *et al*. "Acute pancreatitis: a historical perspective". *Pancreas* 38.4 (2009): 355-366.

2. Wang, Guo-Jun., *et al*. "Acute pancreatitis: etiology and common pathogenesis". *World Journal of Gastroenterology* 15.12 (2009): 1427-1430.

3. Gapp J and Chandra S. "Acute Pancreatitis". In: StatPearls. Treasure Island (FL): StatPearls Publishing (2022).

4. Li Cl., *et al*. "The global, regional, and national burden of acute pancreatitis in 204 countries and territories, 1990-2019". *BMC Gastroenterol* 21.332 (2021).

5. Kang Jenny H., *et al*. "Effectiveness of bariatric surgical procedures". Medicine 96.46 (2017): e8632.

6. Diamantis Theodoros., *et al*. "Initial experience with robotic sleeve gastrectomy for morbid obesity". *Obesity Surgery* 21.8 (2011): 1172-1179.

7. Collazo-Clavell Maria L and Meera Shah. "Common and Rare Complications of Bariatric Surgery". *Endocrinology and Metabolism Clinics of North America* 49.2 (2020): 329-346.

8. Arterburn David E., *et al*. "Benefits and Risks of Bariatric Surgery in Adults: A Review". *JAMA* 324,9 (2020): 879-887.

9. Kassir Radwan., *et al*. "Complications of bariatric surgery: Presentation and emergency management". *International Journal of Surgery (London, England)* 27 (2016): 77-81.

10. Hussan Hisham., *et al*. "The Type of Bariatric Surgery Impacts the Risk of Acute Pancreatitis: A Nationwide Study". *Clinical and Translational Gastroenterology* 9.9 (2018): 179.

11. Kheirvari Milad., *et al*. "The advantages and disadvantages of sleeve gastrectomy; clinical laboratory to bedside review". *Heliyon* 6.2 (2020): e03496.

12. Hoyuela Carlos. "Five-year outcomes of laparoscopic sleeve gastrectomy as a primary procedure for morbid obesity: A prospective study". *World Journal of Gastrointestinal Surgery* 9.4 (2017): 109-117.

13. Kröner Paul Thomas., *et al*. "Acute Pancreatitis in Patients with a History of Bariatric Surgery: Is It Less Severe?". *Obesity Surgery* 30.6 (2020): 2325-2330.