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NAVIGATING CHALLENGES IN BARIATRIC SURGERY: A CASE OF GASTRIC BAND EROSION AND RARE INFECTIOUS COMPLICATION

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ABSTRACT

Background: Gastric complications following bariatric surgeries present intricate challenges, demanding a nuanced understanding of potential complications and tailored management. We explore a rare case of a 63-year-old male experiencing persistent postprandial vomiting, epigastric pain, and difficulty swallowing after laparoscopic sleeve gastrectomy and gastric bypass, complicated by gastric band erosion and Actinomyces. **Case Presentation:** The patient's symptoms prompted a comprehensive diagnostic journey, involving upper gastrointestinal endoscopy and abdominal CT, revealing a tumorous mass, possible gastric band erosion, and prior surgical alterations. Subsequent surgical exploration confirmed eroded gastric band and prior Billroth II anatomy. Postoperatively, the patient faced high-grade jejunal obstruction, necessitating emergent re-fashioning of the jejunojejunal anastomosis. **Conclusion:** This case underscores the

complexity of gastric complications post-bariatric surgery, particularly with the rare confluence of gastric band erosion and Actinomycosis. Comparison with existing literature highlights the need for a multidisciplinary approach, thorough diagnostic investigations, and timely surgical interventions to address these intricate challenges effectively.

Keywords: Bariatric surgery, Gastric complications, Gastric band erosion, Actinomycosis,

Postprandial vomiting, Laparoscopic sleeve gastrectomy, Gastric bypass, Jejunal obstruction

INTRODUCTION:

The surge in bariatric surgeries over recent decades has revolutionized the management of obesity and its associated comorbidities, offering a transformative approach to weight loss and metabolic control [1, 2]. Even though these treatments have shown to be successful in many situations, there can be difficulties with them, and problems can take many different forms [3]. Gastric problems are one of the many difficult complications that can occur after bariatric surgery and need to be carefully considered and managed by a multidisciplinary team [4, 5].

Following bariatric surgery, patients may develop a variety of stomach problems and exhibit a wide spectrum of clinical manifestations [6]. A complex case in point is when there is ongoing vomiting after eating, mild epigastric pain, and trouble swallowing. If these symptoms are not treated, they may have a serious negative effect on the patient's quality of life and result in serious problems. Following bariatric surgery, numerous variables can be responsible for stomach

problems. Anatomical changes brought about by operations like gastric bypass and laparoscopic sleeve gastrectomy produce a new stomach environment that is vulnerable to certain problems [7, 8]. The mechanical consequences of these surgeries might occasionally lead to issues like anastomotic strictures or the presence of gastric bands [5, 9]. Further complicating the clinical picture are pre-existing diseases such as diabetes mellitus, dyslipidemia, and hypertension.

Imaging investigations and endoscopic procedures are frequently used in conjunction to diagnose stomach problems following bariatric surgery [10]. The use of upper gastrointestinal endoscopy is essential for observing the structure of the stomach and locating anomalies such as tumours, strictures, or ulcers [11]. Complementary imaging techniques, such as computed tomography (CT), offer comprehensive anatomical data that facilitate the evaluation of surgical anatomy and associated risks [12].

Treatment plans for stomach problems following bariatric surgery are complex and vary depending on the type of problem. For instance, specific antibiotic therapy may be necessary for infections, and surgery may be necessary for mechanical problems such as gastric band erosion [13]. Due to the intricacy of these cases, surgeons, gastroenterologists, infectious disease specialists, and other medical professionals frequently need to work together.

To illustrate the multifaceted nature of these challenges, we present a compelling case involving a 63-year-old male who underwent both laparoscopic sleeve gastrectomy and gastric bypass. His persistent symptoms prompted a thorough diagnostic journey, uncovering a combination of gastric band erosion and Actinomyces. The subsequent surgical interventions and postoperative complications provide a real-world example of the intricate decision-making processes and challenges encountered in managing gastric complications post-bariatric surgery.

Case presentation:

A 63-year-old Saudi male with a history of laparoscopic sleeve gastrectomy in Jordan six years ago and laparoscopic gastric bypass in Egypt six months ago presented to our emergency room with persistent postprandial vomiting (4-5 times daily), moderate, sharp,

non-radiating epigastric pain, and difficulty swallowing of both liquid and solids. He had on/off mild similar symptoms for the last 6 months. His medical history included hypertension, diabetes mellitus, and dyslipidemia. Previous imaging and endoscopy investigations at a secondary hospital revealed a gastric mass, prompting him to seek a second opinion at our facility.

Clinical examination showed a conscious, alert, oriented patient, not dehydrated, hemodynamically stable and afebrile with a mildly distended abdomen, laparoscopic surgical scars from previous surgeries, and epigastric tenderness with no peritoneal signs nor palpable masses, and all hernial orifices were intact. Laboratory results indicated mild abnormalities as reported in **Table 1**. Upper GI endoscopy revealed normal esophagus and GE junction however, in the stomach there was a tumour like structure multiple fragments of food and fluid seen, this mass was ulcerated bulging, causing luminal narrowing, with difficulty to pass to the small bowel. However, the scope passed, the rest of stomach and small bowel appeared normal, there was 2 lumens openings due to known bypass surgery, multiple biopsies were taken from the described mass, then the patient discharged on symptomatic managements and imaging as an outpatient.

Table 1: Laboratory investigations were done for patient		
Test	Results	Reference range
White Blood Cell	6.78 x 10 ⁹ /L	4.00 – 11.00 x 10 ⁹ /L
Haemoglobin	124.0 g/L	125.0 – 180.0 g/L
Platelets	252 x 10 ⁹ /L	150 – 450 x 10 ⁹ /L
INR	1.2	0.9 -1.3
Creatinine	97 mcmol/L	59 – 104 mcmol/L
BUN	3.6 mmol/L	2.8 – 8.1 mmol/L
Sodium	133 mmol/L	136 – 145 mmol/L
Potassium	4.0 mmol/L	3.5 – 5.1 mmol/L
ALT	13 unit/L	0 – 41 unit/L
ALP	70 unit/L	40 – 129 unit/L
Total bilirubin	12.8 mcmol/L	2 – 21 mcmol/L
CEA	1.2 micg/L	0.0 – 3.4 mcmol/L
CA 19-9	14 mcmol/L	0 – 34 mcmol/L
AFP	1.0 kU/L	0.0 – 5.8 mcmol/L

Abdominal CT was done (**Figure 1**) and confirmed prior sleeve gastrectomy and gastric bypass with evidence of gastrojejunostomy and possible slipped or eroded gastric band. In addition to apparent short segment of concentric stricture thickening/polypoid like lesion at the gastrojejunostomy and presuming slipped/eroded gastric band with no evidence

of extra gastric extension, gastric outlet or bowel obstruction. The result of the histopathology showed chronic active gastritis with ulceration and granulation tissue formation with focal cytological atypia most probably regenerative is noted, without evidence of intestinal metaplasia, nor high grade dysplasia or malignancy is identified.



Figure 1: Abdominal CT confirmed prior sleeve gastrectomy and gastric bypass with evidence of gastrojejunostomy and possible slipped or eroded gastric band

After that the patient underwent another upper GI scope (**Figure 2**) as an outpatient, which showed normal esophagus, and a gastric band vs mass like lesion at the anastomotic site in the stomach multiple biopsies were taken from the edge and center, Proximal jejunum was normal. Follow up histopathology,

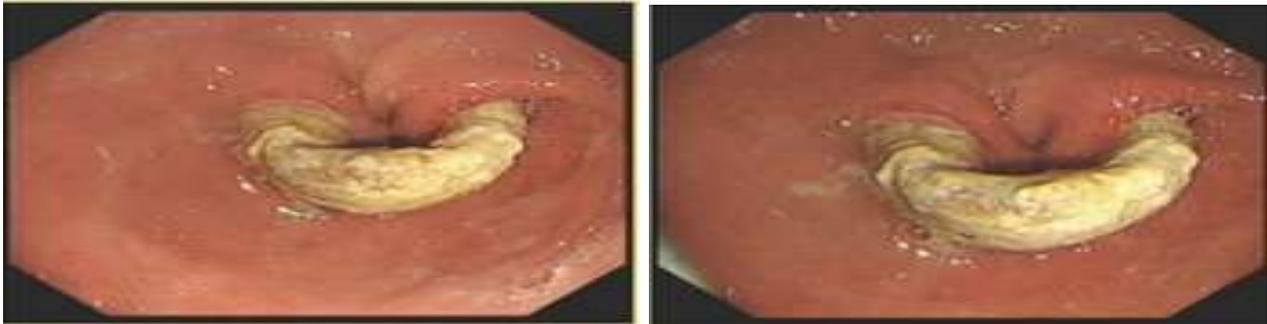


Figure 2: Upper GI scope showing gastric band vs mass like lesion at the anastomotic site in the stomach

After 2 months from starting actinomycosis treatment, the patient was admitted as a case of gastric band erosion. Upon admission laboratory investigations were done for him as reported in **Table 2**. A diagnostic laparoscopy revealed eroded gastric band and prior Billroth II anatomy was Identified including omega limb. Decision was made to remove the gastric band dissection made around the

showed granulation tissue with colonies of filamentous and rod-like bacteria consistent with Actinomycosis, with no evidence of H. pylori, intestinal metaplasia or malignancy, patient was referred to infectious diseases clinic and started on actinomycosis treatment.

gastric band then it was removed (picture provided), sever and thick adhesions were found attaching the stomach to the liver and were released, then Roux-en-Y gastric bypass was done, proximal stomach and the gastric band was sent to histopathology (**Figure 3**). Post OP laboratory investigations were repeated for him and showed in **Table 3**.

Table 2: Laboratory investigations were done for patient

Laboratory investigations	Result	Reference range
White Blood Cell	5.77 x 10 ⁹ /L	4.00 – 11.00 x 10 ⁹ /L
Haemoglobin	135.0 g/L	125.0 – 180.0 g/L
Platelets	247 x 10 ⁹ /L	150 – 450 x 10 ⁹ /L
INR	1.3	0.9 -1.3
Creatinine	96 mcmol/L	59 – 104 mcmol/L
BUN	3.1 mmol/L	2.8 – 8.1 mmol/L
Sodium	140 mmol/L	136 – 145 mmol/L
Potassium	4.8 mmol/L	3.5 – 5.1 mmol/L
ALT	27 unit/L	0 – 41 unit/L
ALP	75 unit/L	40 – 129 unit/L
Total bilirubin	13.3 mcmol/L	2 – 21 mcmol/L
C-Reactive Protein	0.58 mg/L	0.00 – 6.00
Erythrocyte sedimentation rate	2 mm/h	0 – 15 mm/h
Procalcitonin	>0.02 micg/L	

Laboratory investigations	Result	Reference range
White Blood Cell	11.8 x 10 ⁹ /L	4.00 – 11.00 x 10 ⁹ /L
Haemoglobin	117.0 g/L	125.0 – 180.0 g/L
Platelets	191 x 10 ⁹ /L	150 – 450 x 10 ⁹ /L
INR	1.2	0.9 -1.3
Creatinine	83 mcmol/L	59 – 104 mcmol/L
BUN	3.6 mmol/L	2.8 – 8.1 mmol/L
Sodium	139 mmol/L	136 – 145 mmol/L
Potassium	4.4 mmol/L	3.5 – 5.1 mmol/L
ALT	20 unit/L	0 – 41 unit/L
ALP	52 unit/L	40 – 129 unit/L
Total bilirubin	7 mcmol/L	2 – 21 mcmol/L

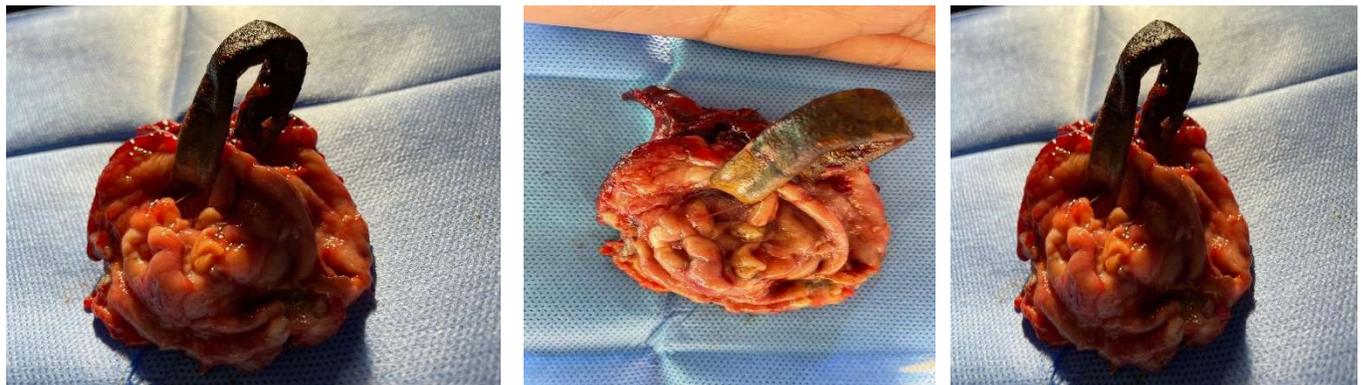


Figure 3: Proximal stomach and the gastric band

On the third day post OP the patient was still NPO, and was complaining of persistent abdominal pain, with nausea and vomiting, and didn't pass bowel motion or flatus since the operation, on examination he was vitally stable, Afebrile, his abdomen is mildly distended with mild tenderness on the surgical sites. CT abdomen showed high-grade jejunal obstruction due to narrowing at the jejunojejunal anastomosis. The patient was

taken to OR as an emergency, diagnostic laparoscopy showed dilated ambulatory limb with collapsed common limb, and jejunojejunal anastomosis narrowing, and re-fashioning of jejunojejunal anastomosis was done. After the re-fashioning surgery, the patient had an uneventful post operative course and was discharged in good condition and laboratory tests were repeated as shown in

Table 4.

Laboratory investigations	Result	Reference range
White Blood Cell	7.0 x 10 ⁹ /L	4.00 – 11.00 x 10 ⁹ /L
Haemoglobin	99.0 g/L	125.0 – 180.0 g/L
Platelets	228 x 10 ⁹ /L	150 – 450 x 10 ⁹ /L
INR	1.1	0.9 -1.3
Creatinine	64 mcmol/L	59 – 104 mcmol/L
BUN	2.4 mmol/L	2.8 – 8.1 mmol/L
Sodium	140 mmol/L	136 – 145 mmol/L
Potassium	3.5 mmol/L	3.5 – 5.1 mmol/L

ALT	14 unit/L	0 – 41 unit/L
ALP	34 unit/L	40 – 129 unit/L
Total bilirubin	7.0 mcmol/L	2 – 21 mcmol/L
C-Reactive Protein	223.65 mg/L	0.00 – 6.00
Erythrocyte sedimentation rate	23 mm/h	0 – 15 mm/h
Procalcitonin	16.20 micg/L	

He had clinic follow up after 2 weeks and was doing fine with no complaints. His final histopathology report showed proximal stomach tissue gastric wall with chronic active inflammation, ulceration, foreign body giant cells and granulation tissue formation. There is also H. pylori organisms were seen. No fungal organisms were seen, no evidence of intestinal metaplasia, high grade dysplasia or malignancy.

DISCUSSION:

The presented case of a 63-year-old male experiencing persistent postprandial vomiting, epigastric pain, and difficulty swallowing after undergoing laparoscopic sleeve gastrectomy and gastric bypass highlights the complexity of gastric complications following bariatric surgeries. The diagnostic journey and subsequent management shed light on the challenges encountered in such cases and provide an opportunity for comparison with existing literature.

The symptoms reported by the patient, including postprandial vomiting and difficulty swallowing, are indicative of a potential obstruction or mechanical issue within the

gastrointestinal tract. The initial upper gastrointestinal endoscopy revealed a tumorous mass in the stomach causing luminal narrowing, prompting further investigation. The subsequent abdominal CT provided valuable insights into the patient's surgical history, indicating prior sleeve gastrectomy and gastric bypass with gastrojejunostomy. Importantly, the presence of a possible slipped or eroded gastric band raised concerns about mechanical complications.

Comparing this case with existing literature, gastric band erosion has been recognized as a rare but serious complication of bariatric surgery [14, 15]. The erosion can lead to a variety of symptoms, including abdominal pain, vomiting, and dysphagia, aligning with the patient's presentation in this case [16, 17]. Furthermore, the development of Actinomyces, a rare bacterial infection, in the setting of gastric band erosion adds an additional layer of complexity to the case.

Actinomyces is a chronic suppurative infection caused by the Actinomyces species, typically Actinomyces israelii [18]. This bacterium is known for its filamentous and

branching appearance, creating a granulomatous reaction [19]. In the presented case, the diagnosis of Actinomycosis was confirmed through histopathology, revealing granulation tissue with colonies of filamentous and rod-like bacteria. This finding is consistent with Actinomycosis [18, 20] and emphasizes the importance of considering infectious etiologies in cases of persistent symptoms post-bariatric surgery.

Literature reports have highlighted the rarity of Actinomycosis following bariatric surgery. A study by Kim *et al.* presented a case of Actinomycosis following laparoscopic Roux-en-Y gastric bypass, emphasizing the need for a high index of suspicion when encountering persistent abdominal symptoms post-bariatric surgery [21]. The rarity of Actinomycosis in these settings underscores the significance of thorough diagnostic investigations to uncover fewer common complications [22].

The decision to perform a diagnostic laparoscopy in this case was pivotal in identifying the eroded gastric band and the prior Billroth II anatomy, confirming the mechanical issues contributing to the patient's symptoms. The subsequent removal of the gastric band and the decision to perform a Roux-en-Y gastric bypass reflected the need for surgical intervention to address the complications and revise the anatomy. This

aligns with existing literature suggesting that surgical exploration is often necessary in cases of gastric band erosion to both diagnose and treat the condition effectively [23, 24].

Postoperatively, the patient experienced a high-grade jejunal obstruction, highlighting the potential complications associated with anatomical rearrangements and the need for careful consideration during surgical interventions [25]. The emergent re-fashioning of the jejunojejunal anastomosis successfully resolved the obstruction, emphasizing the dynamic and evolving nature of these cases [25].

Comparing this case with previous literature, complications such as jejunal obstruction have been reported in the context of gastric bypass surgeries. Studies have discussed the importance of recognizing and promptly managing such complications to prevent severe consequences, including bowel ischemia [26]. The necessity of emergent re-intervention aligns with existing literature, which emphasizes the critical role of timely surgical exploration in addressing post-bariatric surgery complications [27].

In conclusion, the presented case provides a comprehensive overview of the diagnostic and therapeutic challenges associated with gastric complications following bariatric surgeries. The comparison with existing

literature underscores the rarity and complexity of Actinomycosis in the setting of gastric band erosion, as well as the importance of a multidisciplinary approach to diagnosis and management. The case also highlights the significance of surgical interventions in resolving mechanical issues and emphasizes the need for vigilance in recognizing and addressing post-bariatric surgery complications promptly.

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