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Jejuno-gastric intussusception: A case report of unusual cause of food intolerance after roux-En-Y gastric bypass

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ABSTRACT

INTRODUCTION: Morbid obesity is increasing worldwide as a result, weight loss procedures such as Roux-En-Y gastric bypass (RYGB) are increasing as well. RYGB has multiple complications including intussusception, most of the cases are jejuno-jejunal. Only one case reported to be Jejuno-gastric intussusception (JGI) but through the remnant and not the gastro-jejunostomy anastomosis (GJ).

CASE REPORT: A 50-year-old female presented to the emergency department complaining of diffuse abdominal pain, nausea, and vomiting. Her surgical history is significant for an RYGB 17 years ago. Nausea and food intolerance were the most prominent symptoms. CT scan of the abdomen and upper GI series were normal. Only Esophagogastroduodenoscopy (EGD) showed JGI through GJ, with friable mucosa and a small gastro-gastric fistula. Patient underwent successful reconstruction of GJ and had no symptoms afterwards.

CONCLUSION: JGI is a rare of cause of abdominal pain, nausea and vomiting after RYGB. Early diagnosis is crucial, a thorough work up is needed to make diagnosis of JGI including EGD. Revision of GJ anastomosis is necessary to address this phenomenon.

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1. Introduction

Although sleeve gastrectomy is becoming the most popular weight loss procedure in the United States, Roux-en-Y gastric bypass (RYGB) is still the gold standard in treating morbid obesity [1]. However, one of the complications related to RYGB is small bowel obstruction (SBO) (5%), which can be due to multiple causes, including but not limited to, internal hernia, adhesions, and other rare causes like, phytobezoar, intraluminal blood clot and intussusception [2–4].

The incidence of intussusception after RYGB is increasing and reported to be around (0.1–0.3%), however, most of the cases are jejuno-jejunal (J-J) intussusception [5]. While searching all the reports that were written in English language, we only found one case, describing jejuno-gastric intussusception (JGI) after RYGB for treatment of morbid obesity but the intussusception was through the duodenum into the gastric remnant [6]. Some other reports of JGI (around 200 cases), were found after different type of gastrointestinal surgery other than bariatric surgery [7,8].

Here we are reporting the first case of JGI through the GJ anastomosis into the gastric pouch, presented 17 years after RYGB for

treatment of morbid obesity. Our center is an academic institution. This work was done in line with SCARE criteria [9].

2. Case report

A 50-year-old female presented to the emergency department complaining of diffuse abdominal pain, nausea, and vomiting. Her surgical history is significant for an RYGB 17 years ago. She had a 2-month history of progressive left upper and epigastric abdominal pain occurring a few hours after each meal. The pain was sharp in quality and had recently become more frequent. She had also been experiencing intractable nausea as well as violent vomiting after any liquid or solid intake. She reported a recent unintentional weight loss of 15 or more pounds and intermittent diarrhea and constipation.

On arrival, her vitals were normal. Physical exam showed diffuse and epigastric tenderness to palpation. There was no rebound tenderness or guarding; bowel sounds were normal. The results for complete blood count, liver function tests, serum chemistry, blood gases and urine analysis were within normal limits.

A CT scan of the abdomen and pelvis with IV contrast showed no evidence of bowel obstruction (Fig. 1).

An upper GI series (UGI) with small bowel follow-through was insignificant (Fig. 2). With an esophagogastroduodenoscopy (EGD), the gastro-jejunal (GJ) anastomosis was found to have friable mucosa, small foci of gastro-gastric fistula moderate stenosis, at

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Fig. 1. CT scan: Normal bowel, no signs of obstruction.



Fig. 2. UGI normal passage of contrast.

gastro-jejunostomy anastomosis with intussusception of jejunum into the gastric pouch without ulcerations (Fig. 3). Dilation of the anastomotic stenosis was performed, and a biopsy was taken via cold forceps from the gastro-jejunal junction.

The patient was able to tolerate some oral intake, however her symptoms returned soon after. She was subsequently scheduled electively for laparoscopic/open Gastro-jejunostomy revision, takedown of gastro-gastric fistula.

A few days later, prior to her scheduled appointment, she was presented with similar complaints of nausea and vomiting and cycles of diarrhea alternating with constipation. She was then admitted for pain control and improvement of nutritional status and to operate once general status improves. Weight and BMI at the time of surgery were 71.2 kg and 27.8 kg/m², respectively, and she was ready to undergo the procedure after one week of parenteral nutrition.

2.1. Operation and technique

The operation was performed by a board certified, fellowship-trained bariatric and endoscopic surgeon. Under general anesthesia, trocars were placed similar to gastric bypass procedure (Fig. 4). The revision of the gastric bypass was started with a lysis of adhesions surrounding the gastric pouch and the remnant stomach. The patient was found to have a non-partitioned gastric bypass in which the gastric pouch was contiguous with remnant stomach. The proximal portion of the Roux limb distal to the GJ anastomosis was transected using purple load 60 mm Endo GIA. Then, the previously non-partitioned stomach was stapled using multiple purple loads 60 mm Endo GIA. The gastric pouch was then stapled above the previous GJ anastomosis. This created a gastric remnant that was continuous with the duodenum. This also removed the gastro-gastric fistula and the GJ anastomosis that had intussuscepted. Retro-colic roux limb was dissected out. Next, a new anti-colic GJ anastomosis was created using 25 mm EEA stapler. A leak test was performed once the anastomosis was completed, and no leak was found. An intraoperative EGD confirmed a patent existing gastric pouch and ensured the fistula had been removed. A JP

drain was left in place. The patient tolerated the procedure well and was discharged on post-operative day 3. Prior to discharge, a UGI was performed and did not demonstrate a leak or extravasation of contrast into the remnant stomach.

The patient has had follow up at 6 months and she remained symptoms free and tolerating oral intake well.

3. Discussion

In general, the incidence of intussusception is rare in adults, (5% of all forms). There is usually a lead point in 70–90%, and usually implies a hidden pathology such as a tumor (malignant in 50% of cases), while the incidence is more common pediatric population [10–12]. However as number of RYGB procedures performed is increasing, we started to encounter cases of intussusception in adults more frequently [13]. While most of the reports of intussusception after bariatric surgery are of (J-J) type, only 1 cases of JGI were reported after RGYB by Goverman et al. in a case series of 2 cases, the rest of the JGI cases were after non bariatric procedures [5–7]. The JGI patient, Goverman described was a 33 year-old woman, the onset of symptoms was abrupt severe epigastric pain, and nausea and she lost a considerable amount of weight in a short time, and had a change of BMI from 66 to 22 kg/m² in 2 years [6].

There are two major differences between our case and the only JGI case reported by Goverman, First our patient had a pain with gradual onset and no symptoms of SBO but alteration of diarrhea and constipation and that was confirmed on both UGI and CT scan with contrast, whereas in Goverman's case the CT scan confirmed SBO with JGI [6]. However, in our case only EGD could identify the JGI. Another major difference, was that the JGI case described by Goverman, was found to be a J-J intussusception that extended back into the gastric remnant through the duodenum. It was manually reduced to a point 15 cm beyond the common channel, where they had to resect the non-viable bowel and reconstructed the J-J again [6]. On the other hand, in our case the JGI intussusception was through the GJ anastomosis into the gastric pouch and we only resected the GJ anastomosis and recreated a new one.

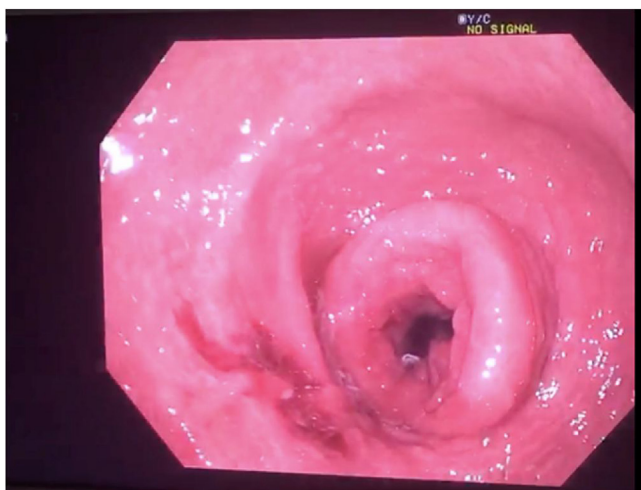


Fig. 3. EGD showing GJ intussusception into the gastric pouch.

The majority of JGI cases in literature were reported after gastrectomy, and reconstruction with either Roux-En-Y, Billiroth I or II [14]. The very first case of JGI was described by Bozzi in 1914 [15], the exact etiology is unknown and it could be due to combination of multiple factors, mechanical and functional, such as adhesions, and long mesentery [16,17]. We don't know whether thinning of mesentery that happens after bariatric surgery can be an added factor or not. Shackman was the first to classify JGI in 1940 into 3 main anatomical types: Type I, afferent or antegrade, type II, efferent or retrograde and type III which is a combination of both antegrade and retrograde. However type II is the most common (80%) [8]. In our study JGI was type II.

The occurrence of JGI after surgery can happen any time between a few days to 18 years, after the index procedure [17]. The presentation can vary as well, some patients may present acutely, with strangulation and dead bowel loops, as in the cases reported by Goverman [6]. Other cases can present with intermittent or chronic forms, hence a wide spectrum of symptoms, from a simple abdominal discomfort after meals to severe intractable pain with nausea and vomiting. Hematemesis can be a sign of ulceration due to ischemia as well [8,18]. The clinical diagnosis of JGI is challenging, and early diagnosis is crucial to prevent undesirable outcome. EGD is the most valuable tool, as it can give real time anatomy, and can detect any intraluminal abnormalities or lesions [19]. However, CT scan with oral contrast is helpful but not always definitive [20]. In our case the JGI couldn't be identified on CT or UGI, only EGD could detect it.

Although in a few cases, spontaneous reduction occurred, surgical management remains the mainstay in treatment of JGI. The treatment can vary from surgical reduction, to resection of dead bowel and anastomosis, to revision and reconstruction of GJ or JJ anastomosis [8]. A few reports had successful endoscopic reduction of JGI as well although it is not a routine practice in this case [21].

This report has limitations as we cannot generalize our in dealing with such a unique case. The purpose of this report, is to put JGI as a possibility when encountering vague presentations after RYGB

4. Conclusion

JGI is a rare cause of abdominal pain, nausea and vomiting after RYGB. Early diagnosis is crucial, a thorough work up is needed to make diagnosis of JGI including EGD. Revision of GJ anastomosis is necessary to address this phenomenon.

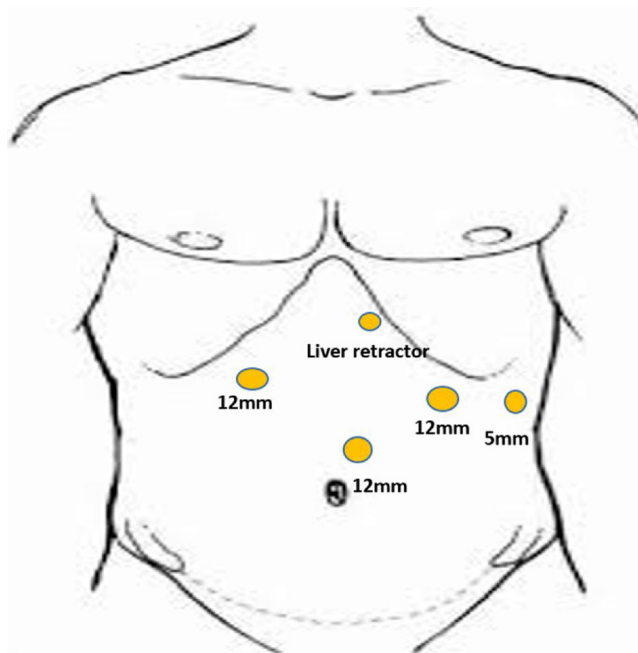


Fig. 4. showing ports placement.

Conflict of interest

The Authors have nothing to disclose and have no conflicts of interests.

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Ethical approval

No ethical approval is required for this case in our institution, as personal information were de-identified.

Consent

A written informed consent was obtained from the patient with permission for publication. The manuscript does not include any patient's personal information. A copy of the written consent is available and ready to present upon the Editor-in Chief request.

Authors contribution

- Adel Alhaj Saleh: Writing manuscript.
- Rachel Slate: Writing manuscript.
- Zaina Habrawi: Writing manuscript.
- Amir Aryaie: Critical revision and final approval.

Guarantor

Amir Aryaie.

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