

# Intestinal intussusception as a postoperative complication of gastric bypass

## *Intususcepción intestinal como complicación posoperatoria de bypass gástrico*

Perla X. López-Almanza<sup>1\*</sup>, Daniel González-Hermosillo-Cornejo<sup>2</sup>, Gerardo A. Montalvo-Domínguez<sup>3</sup>, Enrique Reyes-Rodríguez<sup>3</sup>, and Pablo Andrade-Martínez-Garza<sup>2</sup>

<sup>1</sup>Escuela de Medicina, Universidad Panamericana; <sup>2</sup>Departamento de Cirugía General, Fundación Clínica Médica Sur; <sup>3</sup>Posgrado de Cirugía General, Fundación Clínica Médica Sur y Facultad Mexicana de Medicina de la Universidad La Salle. Mexico City, Mexico

### Abstract

The gold standard for bariatric surgery is the laparoscopic gastric bypass, which consists in forming a small gastric pouch and a Roux-en-Y anastomosis. We present the case of a 41-year-old female who underwent a laparoscopic gastric bypass 8 years prior to her admission to the emergency room, where she arrived complaining of severe and colicky epigastric abdominal pain. The abdominal computed tomography showed a jejuno-jejunal intussusception, for which the patient underwent urgent exploratory laparotomy with intussusception reduction. Intestinal intussusception is a possible postoperative complication of a Roux-en-Y gastric bypass.

**Keywords:** Intussusception. Gastric bypass. Bariatric surgery.

### Resumen

El método de referencia en la cirugía bariátrica es el bypass gástrico laparoscópico, que consiste en la creación de una bolsa gástrica pequeña, anastomosada al tracto digestivo mediante una Y de Roux. Presentamos el caso de una mujer de 41 años con el antecedente de un bypass gástrico laparoscópico realizado 8 años antes, quien ingresó al servicio de urgencias refiriendo dolor abdominal grave. La tomografía computarizada abdominal evidenció una intususcepción a nivel de la anastomosis yeyuno-yeyuno, por lo que se realizó una laparotomía exploradora con reducción de la intususcepción. Se debe considerar la intususcepción intestinal como complicación posoperatoria de bypass gástrico.

**Palabras clave:** Intususcepción. Bypass gástrico. Cirugía bariátrica.

### Introduction

Bariatric and metabolic surgery is increasingly being performed in response to the rising incidence of obesity and overweight in Mexico and worldwide, and to the growing demand from patients for such procedures. The main indications for bariatric surgery are a

body mass index (BMI)  $\geq 40$  kg/m<sup>2</sup>, or between 35 40 kg/m<sup>2</sup> and 40 kg/m<sup>2</sup> associated with a major comorbidity (type 2 diabetes mellitus, systemic arterial hypertension, obstructive sleep apnea syndrome, or dyslipidemia)<sup>1</sup>.

The reference method for bariatric surgery currently is laparoscopic gastric bypass, which involves creating

#### \*Correspondence:

Perla X. López-Almanza

E-mail: ximena.lopezalmanza@gmail.com

2444-0507/© 2021 Academia Mexicana de Cirugía. Published by Permanyer. This is an open access article under the terms of the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Date of reception: 28-10-2021

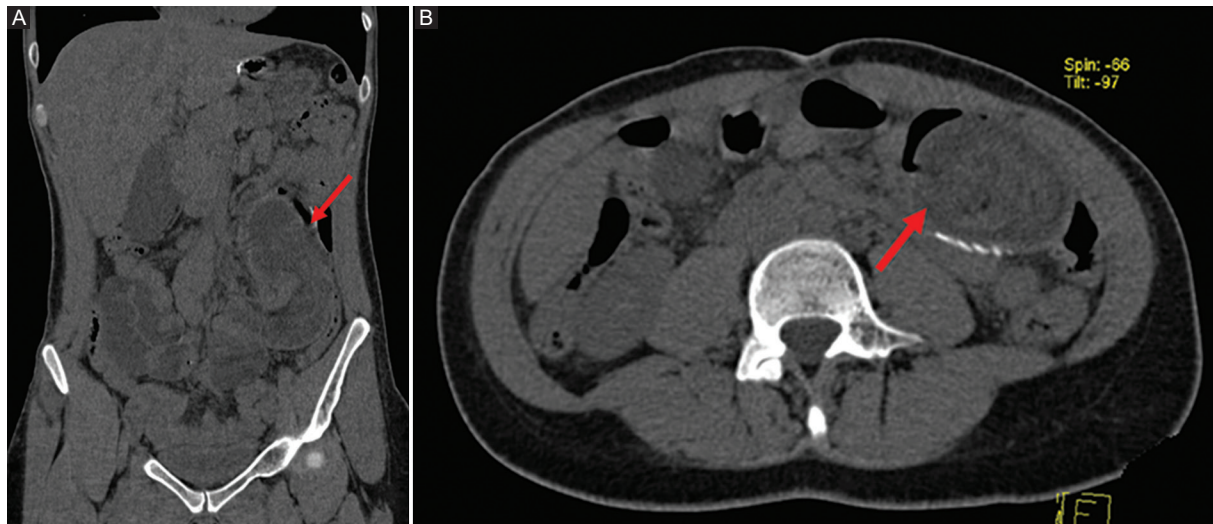
Date of acceptance: 23-11-2021

DOI: 10.24875/CIRUE.M21000600

Cir Cir (Eng). 2024;92(1):117-120

Contents available at PubMed

[www.cirugiaycirujanos.com](http://www.cirugiaycirujanos.com)



**Figure 1.** Simple abdominal computed tomography. Evidence of intussusception at the level of the jejunum-jejunal anastomosis (arrow). **A:** coronal view. **B:** cross-sectional view.

a gastric reservoir of about 30 mL in capacity, anastomosing it to the intestinal tract through a Roux-en-Y configuration. Surgeons should not forget that postoperative complications of bariatric surgery and laparoscopic gastric bypass are not trivial.

Next, we present the case of a patient who presented to the ER with an intestinal obstruction following gastric bypass surgery, as well as a review of the scientific medical literature currently available.

## Case report

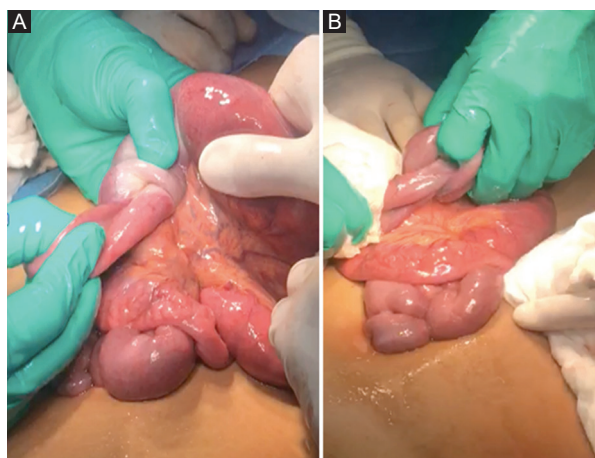
A 41-year-old woman with a history of laparoscopic gastric bypass surgery performed 8 years earlier presented to the ER complaining of epigastric localized abdominal pain, colicky in nature, radiating to the back, rated 7/10 on the numerical analog scale (NAS) for pain, which became exacerbated after food intake, and was alleviated after vomiting twice. This clinical presentation progressed symptomatically into NAS 10/10, which made her seek emergency care. Physical examination revealed the presence of a soft and depressible abdomen, painful to superficial and deep palpation, with increased intensity and frequency of peristalsis. As part of the diagnostic approach, laboratory tests were conducted, all of which reported normal ranges. Additionally, and a simple abdominal computed tomography (CT) (Fig. 1) revealed a jejunum-jejunal intussusception at the level of anastomosis. Consequently, emergency surgical management was decided, with exploratory laparotomy performed to

reduce the intestinal intussusception by taxis and adhesion lysis (Figs. 2 and 3). Findings revealed the presence of a 20 cm intussusception of the small intestine at the jejunum-jejunal anastomosis, after which the patient had to be hospitalized for 5 days with good progress being uneventfully discharged on day 6.

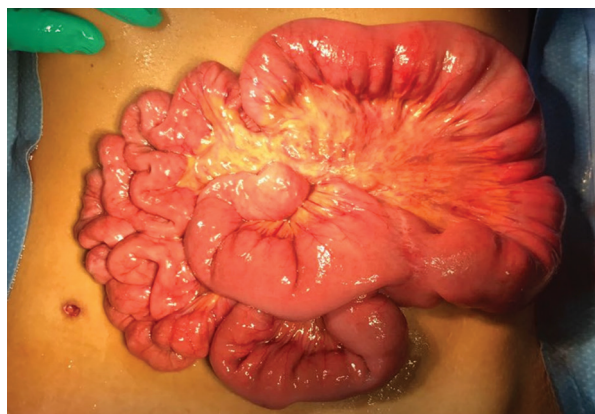
## Discussion

The Roux-en-Y gastric bypass is a restrictive and malabsorptive bariatric procedure developed in 1966 by Mason. Currently, laparoscopic gastric bypass is the bariatric procedure of choice<sup>2,3</sup>. The Roux-en-Y gastric bypass consists of the creation of a small gastric reservoir anastomosed to the intestinal tract through a Roux-en-Y configuration. The jejunum is, then, sectioned 60 cm to 80 cm away from the Treitz angle to form the biliopancreatic limb, followed by an antecolic gastrojejunostomy. Finally, the remaining intestinal transit is reconstructed with a jejunum-jejunal anastomosis 100 cm away from the Treitz angle, forming the alimentary limb<sup>1</sup>.

Complications that may occur after gastric bypass include ulceration, stenosis or anastomotic leak, gastro-gastric fistula, and intestinal obstruction due to adhesions or internal hernia<sup>4</sup>. Due to the prevalence of bariatric surgery, the number of postoperative complications has increased exponentially; however, fewer than 200 cases of postoperative intestinal intussusception have been reported in the medical literature<sup>5</sup>.



**Figure 2.** Surgical procedure (exploratory laparotomy). **A:** intestinal intussusception at the jejuno-jejunal anastomosis. **B:** reduction of intussusception by taxis.



**Figure 3.** Surgical procedure: complete intestinal reduction with adequate intestinal viability.

Although intestinal intussusception is an extremely rare complication of gastric bypass surgery, it can be a catastrophic one<sup>6</sup>. When it occurs, it often appears at the site of the jejuno-jejunal anastomosis, with a reported incidence of 0.1% to 1% in patients undergoing gastric bypass<sup>7</sup>. It has been reported that lengths of the jejuno-jejunal anastomosis of more than 60 mm may be associated with a higher incidence of intussusception and other complications<sup>8,9</sup>. Clinical presentation will mainly include abdominal distension and inability to evacuate, along with severe acute abdominal pain occurring, approximately, 25 to 52 months after gastric bypass surgery<sup>8-10</sup>. The imaging modality of choice for diagnosis is a simple abdominal CT scan, which will reveal thickening and edema of the intestinal wall, proximal intestinal loop dilatation, and the target sign of a sagittal section<sup>4,11-13</sup>.

Once high intestinal obstruction is suspected in bariatric patients, early surgical intervention is advised to prevent the vascular compromise that would cause intestinal ischemia and necrosis<sup>7,11</sup>. Surgical management is prioritized since endoscopy does not have direct access to the intussusception site<sup>4</sup>. Intraoperatively, in the presence of ischemic or irreducible intestine, resection of the jejuno-jejunal anastomosis must be performed<sup>6,8,9</sup>. The treatment of choice is laparotomy with reduction of the intussusception within 48 hours to ensure intestinal viability. As a good practice, experts recommend securing the reduced jejunum to adjacent tissues, such as the mesocolon, colon, or stomach, to prevent recurrence. Time and speed in diagnosis and treatment are important because when surgery is performed within the first 48 hours, mortality rate is 10%, but if performed > 48 hours, mortality rate can be up to 50%<sup>5,11</sup>.

## Conclusions

Morbid obesity surgery is currently the most effective treatment due to its short- and long-term benefits. Among the options for bariatric procedures, laparoscopic gastric bypass is the method of choice. However, it is crucial to be aware of associated complications, as well as their early diagnosis and treatment, to reduce the morbidity and mortality associated with these patients.

We reported the case of a patient with intestinal intussusception following gastric bypass, a rare but potentially fatal complication in this type of bariatric surgery. Intestinal intussusception should be considered in the differential diagnosis in the presence of a patient with signs of intestinal obstruction and a past medical history of gastric bypass.

## Funding

None declared.

## Conflicts of interest

None declared.

## Ethical disclosures

**Protection of human and animal subjects.** The authors declare that no experiments were performed on humans or animals for this study.

**Confidentiality of data.** The authors declare that they have followed the protocols of their work center on the publication of patient data.

**Right to privacy and informed consent.** The authors have obtained the written informed consent of the patients or subjects mentioned in the article. The corresponding author is in possession of this document.

**Use of artificial intelligence for generating text.** The authors declare that they have not used any type of generative artificial intelligence for the writing of this manuscript, nor for the creation of images, graphics, tables, or their corresponding captions.

## References

1. González D, Arreola DA, Díaz A, Álvarez DA, López C. Cirugía bariátrica y metabólica, una perspectiva histórica desde sus inicios. *El Residente*. 2016;11:88-95.
2. Mitchell BG, Gupta N. Roux-en-Y gastric bypass. Treasure Island (FL): StatPearls Publishing; 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK553157/>.
3. Seeras K, Philip K, Baldwin D, Prakash S. Laparoscopic gastric bypass. Treasure Island (FL): StatPearls Publishing; 2023. Available in: <https://www.ncbi.nlm.nih.gov/books/NBK518968/>.
4. Schulman AR, Thompson C. Complications of bariatric surgery: what you can expect to see in your GI practice. *Am J Gastroenterol*. 2017;112:1640-55.
5. Loi CM, Huang SY, Chen YD, Chen SD, Wu JM, Chen KH. Retrograde jejuno gastric intussusception: a case report and review of the literature. *Asian J Surg*. 2017;40:309-12.
6. Varban O, Ardestani A, Azagury D, Lautz D, Vernon AH, Robinson MK, et al. Resection or reduction? The dilemma of managing retrograde intussusception after Roux-en-Y gastric bypass. *Surg Obes Relat Dis*. 2013;9:725-30.
7. Shimizu H, Maia M, Kroh M, Schauer PR, Brethauer SA. Surgical management of early small bowel obstruction after laparoscopic Roux-en-Y gastric bypass. *Surg Obes Relat Dis*. 2013;9:718-24.
8. Orthopoulos G, Grant HM, Sharma P, Thompson E, Romanelli JR. S054: Incidence and management of jejunojejunal intussusception after Roux-en-Y gastric bypass: a large case series. *Surg Endosc*. 2020;34:2204-10.
9. Stephenson D, Moon RC, Teixeira AF, Jawad MA. Intussusception after Roux-en-Y gastric bypass. *Surg Obes Relat Dis*. 2014;10:666.
10. Woodfield CA, Levine MS. The postoperative stomach. *Eur J Radiol*. 2005;53:341.
11. de Bakker JK, van Namen YW, Bruin SC, de Brauw LM. Gastric bypass and abdominal pain: think of Petersen hernia. *JSLs*. 2012;16:311-3.
12. Mullan CP, Siewert B, Eisenberg RL. Small bowel obstruction. *AJR Am J Roentgenol*. 2012;198:W105-17.
13. Radiología abdominal urgente. Qué, cuándo y cómo. *Revista Oficial de la SEDIA*. 14 Congreso de la Sociedad Española de Diagnóstico por Imagen del Abdomen. 2014;14. Available in: <https://www.sedia.es/revista-radiologica-abdominal/>.