

Case Report

Late gastric twist after laparoscopic sleeve gastrectomy

Elsa Paulina Alonso López¹, César Manuel Vargas Sahagún^{2*}, César Antonio Martínez Ortiz¹

¹Department of Bariatric Surgery, UMAE Hospital de Especialidades CMN Siglo XXI, Mexican Institute of Social Security, Mexico

²The Obesity Clinic at Hospital General Tláhuac, Secretaria de Salud, Mexico

Received: 06 February 2022

Accepted: 29 June 2022

*Correspondence:

César Manuel Vargas Sahagún,

E-mail: drcesarvargas90@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Gastric sleeve twist is a rare complication, with an incidence of 1.2%. Its symptomatology is not very specific, making its diagnosis difficult to establish. Its timely treatment by endoscopy and/or surgery has shown excellent short- and long-term results. We present an infrequent and rare case of late gastric torsion 10 years after a laparoscopic gastric sleeve, which was resolved with surgical treatment with conversion to Laparoscopic Roux-en-Y Gastric Bypass with excellent results.

Keywords: Gastric sleeve twist, Gastric volvulus, Gastric bypass, Obesity

INTRODUCTION

Laparoscopic sleeve gastrectomy is today the most performed procedure worldwide in patients with obesity. It has been shown to be a safe procedure, with good results for remission of obesity and its comorbidities, with few complications. An infrequent and rare complication is gastric torsion after gastric sleeve, with an incidence of 1.2%.^{1,2}

CASE REPORT

A 35-year-old female patient, with a history of laparoscopic sleeve gastrectomy surgery 10 years ago, perianal abscess drainage 11 years ago, open cholecystectomy 4 months ago without complications. With a history of obesity since childhood with a maximum weight of 145 kg, height, 171 cm, current weight 105 kg, initial BMI 49.6, current BMI 35.9, lost weight 40 kg, %EPP 55.4. His current illness began 2 years ago with intermittent abdominal pain predominantly in the epigastrium accompanied by nausea, partially improving with medication, exacerbating symptoms 7 months ago with gastroesophageal reflux, nausea and vomiting,

panendoscopy was performed in another unit with a report of grade B esophagitis from Los Angeles, incisura angularis not assessable and erosive mucosa of the stomach. Gastric antrum biopsy: chronic superficial gastritis, no *H. pylori*, metaplasia or dysplasia identified, receiving medical treatment with proton pump inhibitor and prokinetic without symptom improvement, adding oral intolerance to solids, liquids and oral medications. Due to lack of improvement, she was sent to our Bariatric Surgery department for evaluation.

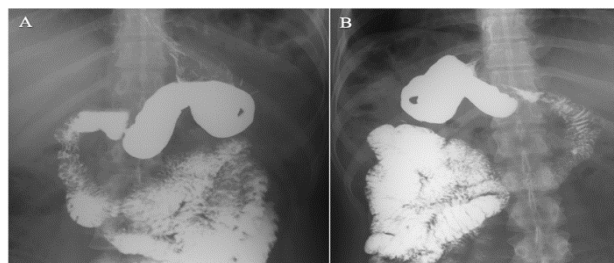


Figure 1: SEG D (A) anteroposterior view without contrast leak, gastric sleeve changes and gastric sleeve torsion with area of stenosis; and (B) posteroanterior projection of the gastric sleeve twisted in its posterior enteroaxial axis with an area of stenosis.

As part of the study protocol, an esophagogastroduodenal series was performed, reporting the absence of contrast medium leakage, gastric sleeve changes, and gastric sleeve torsion with an area of stenosis (Figure 1). Due to these findings, laparoscopic revision surgery was performed, finding multiple adhesions from the stomach to the omentum, gastric torsion at 180° in its enteroaxial axis due to firm adhesions on the posterior face of the gastric antrum towards the lesser curvature (Figure 2), lax lesser omentum and area of stenosis at the level of the incisura angularis of the stomach, posterior adhesions are released (Figure 3) and gastric sleeve conversion is performed to simplified Roux-en-Y gastric bypass (Figure 4) with 150 cm of biliary loop and 100 cm of alimentary loop, partial gastrectomy of excluded involving area of stenosis, closure of mesenteric gaps and negative methylene blue test, without intraoperative complications. A water-soluble contrast swallow was performed 18 hours postoperatively with a report of anatomical changes due to gastric bypass with no leak data (Figure 5). The patient had an adequate postoperative course, tolerating fluids, and was sent home on the third day to continue external management.

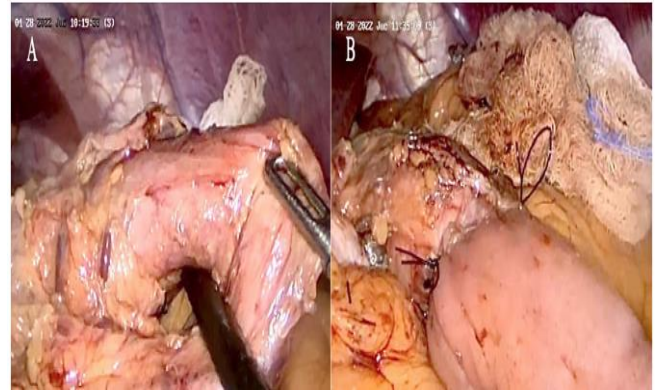


Figure 4: (A) Retrogastric window for gastric pouch with area of stenosis at the level of the incisura angularis; and (B) creation of gastrojejunal anastomosis.

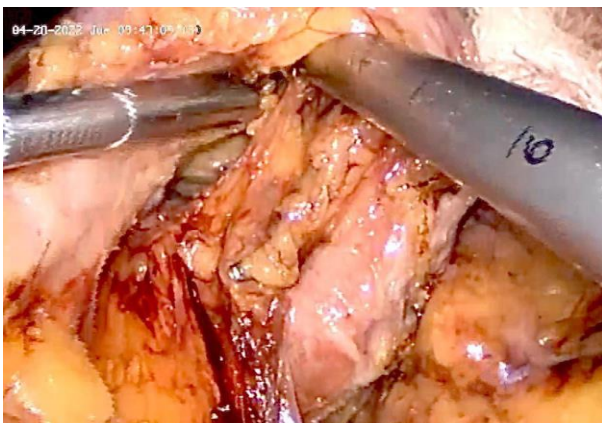


Figure 2: Firm adhesions of the posterior face of the gastric antrum towards the lesser curvature that condition torsion of the gastric sleeve in its enteroaxial axis.



Figure 3: Release of adhesions from the posterior face of the stomach up to the angle of His.

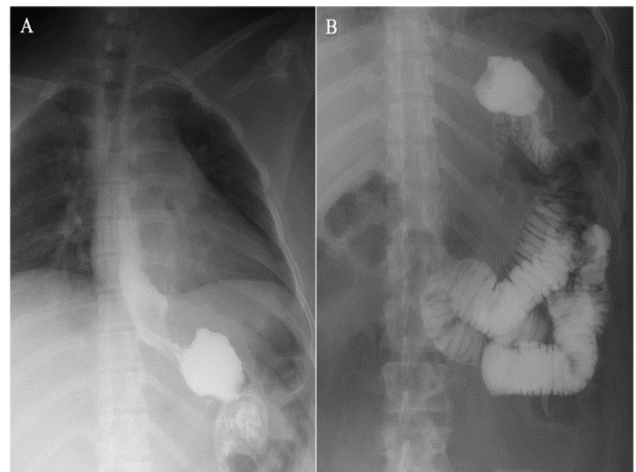


Figure 5: Water-soluble contrast swallow (A) anatomical changes due to gastric bypass, no data of gastrojejunal anastomosis leak; and (B) no data of jejunojejunal anastomosis leak.

DISCUSSION

The pathogenesis of gastric twist after laparoscopic sleeve gastrectomy is unknown, however, there are some theories such as the section of the stomach fixation ligaments (gastrophrenic, gastrosplenic, gastrocolic and gastrohepatic) in the intraoperative period. Unbalanced traction on the anterior and posterior wall of the stomach during stapling. Pronounced angulation, adhesions, edema, and staple-line bruising are possible related causes.³

It is classified by its time of presentation as intraoperative, early postoperative (<30 days), and late postoperative (>30 days). In the early postoperative period, its usual symptoms are nausea and gastric or saliva vomiting. In the late postoperative period they present dysphagia, gastroesophageal reflux, gastric vomiting and in some cases dumping syndrome.⁴

As a preventive measure against axial rotation of the gastric sleeve, some authors recommend fixation of the gastric sleeve by suturing the staple line to the greater omentum in order to recover the usual gastric shape, others recommend these fixation points to the gastrocolic ligament or double fixation to the gastrocolic ligament and to the edge of the greater omentum of the gastroepiploic vessels.⁵

Likewise, they recommend an adequate posterior dissection of the stomach during gastrectomy to perform a symmetrical stapling of the anterior and posterior face to avoid twisting.⁶ Comparative studies of fixation vs. non-fixation of the gastric sleeve have shown important statistically significant results of fixation with respect to a decrease in bleeding from the staple line ($p=0.02$), axial rotation ($p=0.006$) and hospital readmission ($p=0.005$) this by means of a technique with 3 suture points to the greater omentum, anterior fascia of the body of the pancreas and the transverse mesocolon, as well as a continuous double suture of the sleeve distal to the transverse mesocolon.⁷

The diagnosis is complex and sometimes late due to the lack of improvement of symptoms despite medical treatment. The initial approach is through an esophagogastroduodenal series, the main radiological sign is axial torsion of the stomach and contrast retention in the upper part of the stomach. Contrast-enhanced tomography with three-dimensional reconstruction is considered a complementary study when the esophagogastroduodenal series is inconclusive.

Upper gastrointestinal endoscopy is also considered a diagnostic-therapeutic study, finding proximal gastric dilatation followed by a short tortuous and narrow segment in the middle part of the body of the stomach.⁸ Endoscopic treatment is performed through balloon dilatation and/or placement of stent which has given good results of the symptoms, however in cases of failure to conservative treatment, revision surgery is indicated or if the patient requests it in the first instance.⁹

Surgical findings are the presence of organoaxial torsion secondary to the development of adhesions between the staple line and adjacent structures. Laparoscopic conversion to Roux-en-Y gastric bypass with gastric resection of the stenosed segment is currently the most successful treatment with improvement of symptoms from the immediate postoperative period and avoids recurrence, unlike only the reduction of torsion by release of adhesions and gastropexy.^{10,11}

CONCLUSION

This is the only reported case of late gastric torsion 10 years after performing a gastric sleeve, it meets the usual characteristics described for its presentation, symptoms and topographic findings. It is a rare and difficult complication to diagnose for those who are not related to

gastric sleeve complications, since due to its non-specific symptoms, it requires a high degree of suspicion to guide specific studies for its diagnosis. Fixation of the stapling line, release of posterior gastric adhesions and an adequate technique of symmetric stapling alignment of the anterior and posterior sides of the stomach are the only methods to prevent torsion of the gastric sleeve. Surgical treatment with conversion to Roux-en-Y Gastric Bypass is the only effective treatment that improves symptoms from the immediate postoperative period and is the only method that prevents recurrence.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge the Department of Bariatric Surgery, UMAE Hospital de Especialidades CMN Siglo XXI, Instituto Mexicano del Seguro Social.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. Elgazar A, Elbadawy A, Awad K. Gastric Volvulus after laparoscopic sleeve gastrectomy managed by conversion to Roux-en-Y gastric bypass. A case report and literature review. *Int Jour Surg Case Reports.* 2021;89:106609.
2. Sabry K, Gamry Y, Abd-El Aziz B. Gastropexy as primary approach in the management of post-sleeve gastric twist. *Egyptian J Surg.* 2022;40:1006-12.
3. Gupta P, Khan S, Thusso T. Should Gastric Sleeve be Fixed? Torsion of Gastric Sleeve after Laparoscopic Sleeve Gastrectomy: A Case Report. *Open Access J Surg.* 2017;2(3):555588.
4. Saikaly E, Fadel F, Asmar A. Gastric Twist after Laparoscopic Sleeve Gastrectomy, Diagnosis and Management: A Case Series and Discussion. *Diabetes Obes Int J.* 2017;2(3):000159.
5. Nehma W, Gharios J, Alameh A. A Single Suturing Cancels the Twist. *J Obes Weight Loss Ther.* 2018;8:5
6. Subhas G, Gupta A, Sabir M. Gastric remnant twist in the immediate post-operative period following laparoscopic sleeve gastrectomy. *World J Gastrointest Surg.* 2015;7(11):345-8.
7. Abdallah E, Hany S, Elfeki H. Laparoscopic Sleeve Gastrectomy with or without staple line inversion and distal fixation to the transverse mesocolon: Impact on early postoperative outcomes. *Obes Surg.* 2017;27(2): 323-9.
8. Mohamed E, Abbas A, El Nakeeb A. Management options for twisted gastric tube after laparoscopic sleeve gastrectomy. *Obes Surg.* 2017;27:2404-9.
9. Sarno G, Calabrese P, Tramontano S. Twisted gastric tube after laparoscopic sleeve gastrectomy- An unusual but effective surgical approach to achieve full recovery. *J Clin Med.* 2022;11:2304.

10. Hernandez C, Garcia P, Rabaza J. Laparoscopic management of gastric torsion after sleeve gastrectomy. *CRSLS.* 2014;00143.
11. Giménez C, González F, Albarracín A. Torsión de la gastrectomía vertical: dos formas de presentación clínica. *Rev Esp Enferm Dig.* 2019;111(12): 976.

Cite this article as: López EPA, Sahagún CMV, Ortiz CAM. Late gastric twist after laparoscopic sleeve gastrectomy. *Int J Res Med Sci* 2022;10:xxx-xx.