Case study

COMPLICATION OF A CONCOMITENT CURE OF A HIATAL HERNIA AT THE TIME OF SLEEVE GASTRECTOMY: A CASE REPORT

ABSTRACT

Bariatric surgery is the most optimal treatment for morbid obesity, diabetes and other metabolic disorders, as well as many other diseases. There is currently a consensus in bariatric surgery to systematically assess for hiatal hernia at the time of sleeve surgery and to repair it if present. The treatment is frequently SG have a concomitant hiatal hernia repair (SG+HHR). There are frequent complications from this surgery, in particular post-operative vomiting. We report the case of a 24-year-old patient who underwent sleeve gastrectomy with concomitant hiatal hernia repair as part of the surgical treatment of obesity at Sens Hospital. The surgical consequences were marked by the occurrence of food vomiting, which required surgical revision with removal of 2 stitches from the hiatal orifice after radiologic exploration.

KEYWORDS: sleeve gastrectomy, hiatal hernia, vomiting, postoperative, complication

1. INTRODUCTION

Bariatric surgery is the most optimal treatment for morbid obesity, diabetes and other metabolic disorders, as well as many other diseases [1].

The most common bariatric surgery in the United States is sleeve gastrectomy (SG). Texas accounts for 10% of bariatric surgery in the United States.

Currently, sleeve gastrectomy accounts for more than 65% of bariatric surgery in the United States [3];

Morbidly obese patients have a higher prevalence of hiatal hernia and gastroesophageal reflux disease (GERD) than the general population [4-5].

Postoperative GERD symptoms may be severe enough to warrant conversion to another procedure, such as laparoscopic Roux-en-Y gastric bypass (LRYGB), or even biliopancreatic diversion or duodenal switch. [6]

The sleeve has fewer post-operative complications and a lower risk of re-operation, although it is sometimes associated with the appearance of GERD early post-operatively [7].

There is currently a consensus in bariatric surgery to systematically assess for hiatal hernia at the time of sleeve surgery and to repair it if present. [8-9].

We report the case of an obese patient who underwent gastric sleeve surgery with concomitant hiatal hernia repair, in which the evolution was characterised by the occurrence of early postoperative vomiting related to an over-tightened hiatal orifice requiring hiatal release surgery.

2. CASE PRESENTATION

This is a 24-year-old patient, followed since childhood for partial epilepsy, who was treated with Depakine from June 2002 to June 2005, then Trileptal.

At the age of 10, he began to put on weight, which led to an endocrinology consultation with follow-up and then a referral to the bariatric surgery consultation at the Sens hospital for surgical treatment, where a gastric sleeve was indicated.

The clinical examination revealed a very obese patient with a weight of 170 kg, height = 1.80 m, BMI = 52. Normally colored skin and conjunctiva with an enlarged abdomen (abdominal circumference = 120 cm).

Oesophagogastroduodenoscopy (OGD) reveals a hiatal hernia complicated by grade I oesophagitis on gastric biopsy.

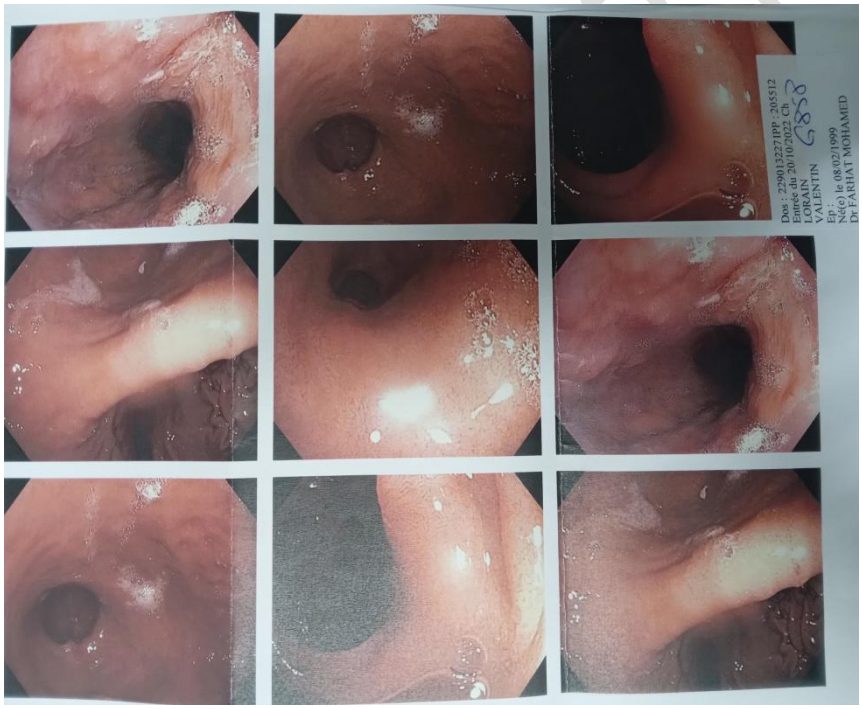

Fig 1: OGD showing hiatal hernia.

Biological test results: WBC = 6200, Hb = 15, TP = 341000, TP = 90, INR = 1, Na + = 140, K + = 3.7, total proteins = 71, urea = 7.1, creatinine = 92µmol/L,

The patient was admitted for surgical management of obesity and the pre-anesthetic visit was carried out.

The patient underwent laparoscopic sleeve gastrectomy with exploration revealing a large associated hiatal hernia of 5 cm neck with omental and gastric contents.

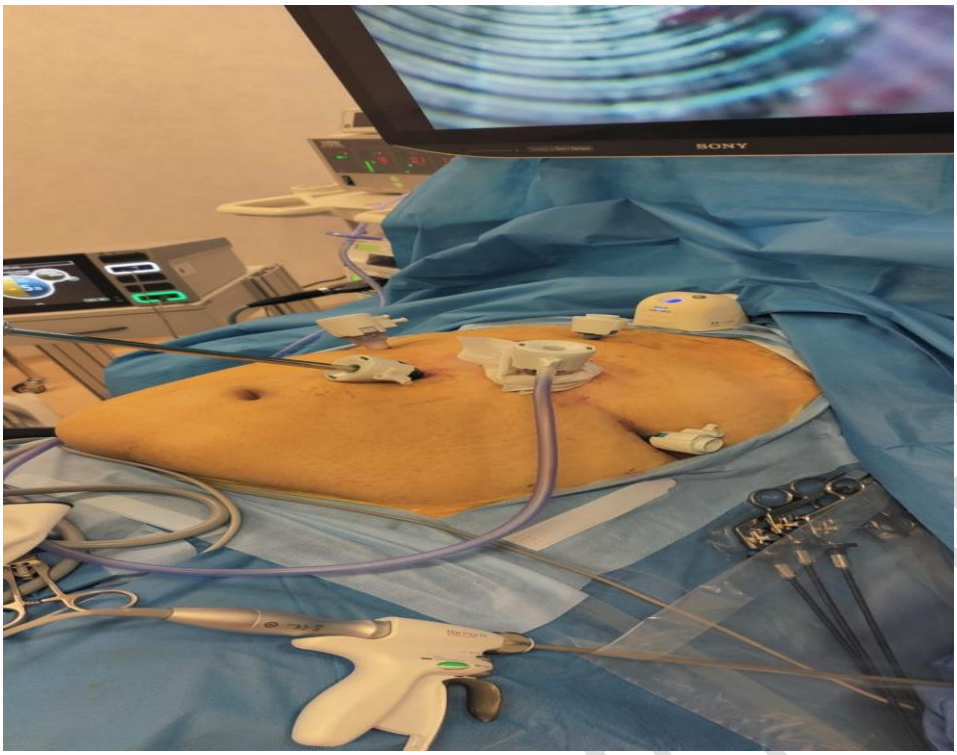

Fig 2. Position of the trocars: creation of a pneumoperitoneum through the orifice at the left hypochondrium.

After exploration, the contents of the hernia were returned to the abdominal cavity, the greater curvature of the stomach and the right oesophageal pillar were exposed and released, and the entire greater curvature of the stomach was dissected mechanically with forceps.

A 36 fr gastric tube was used for gastric calibration.

The hiatal hernia was cured in 4 stitches separated by posterior sutures using non-absorbable thread (Prolene 3/0), including 2 stitches at the level of the right oesophageal hiatus and 2 stitches at the level of the left oesophageal hiatus.

The procedure took 2 hours 30 minutes with an estimated blood loss of 20ml.

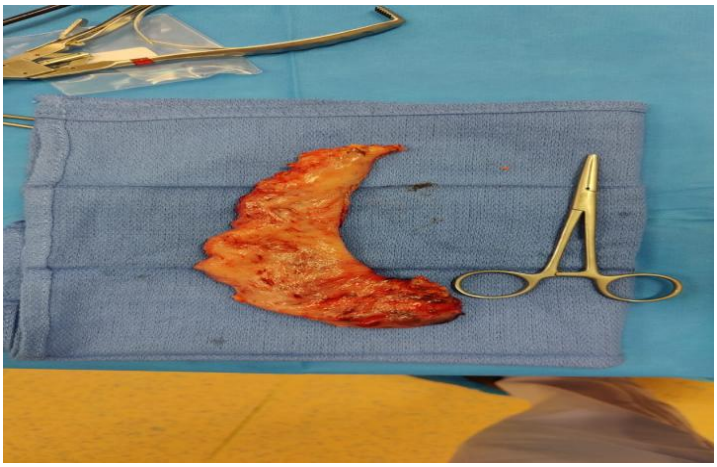

Fig 3: Operating specimen

The immediate postoperative course was uneventful and the patient was discharged on postoperative day D+2.

However, the patient was readmitted to the emergency department after 30 days due to early food nausea and vomiting.

A biologic evaluation was performed to assess the impact of vomiting and oesogastroduodenal transit.
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Fig 4: Oesogastroduodenal transit presenting tight esophageal hiatus.

The resumption of the operation in our patient confirmed a very narrow hiatal orifice requiring the removal of 2 stitches at the level of the hiatal orifice.

The simple post-operative course was marked by the disappearance of vomiting and he was discharged on post-operative day 3 of the second operation.

3. DISCUSSION:

The prevalence of gastro-esophageal reflux disease (GERD) in obese patients is significantly higher than in the general population [1]. Several studies have demonstrated that obesity is an independent risk factor for GERD due to alteration of the normal anatomical barriers to reflux [16].

Daes et al reported a reduction in the incidence of GERD from 49 to 1.5% at 6 to 12 months with concomitant repair of a hiatal hernia [17].

Several studies have reported the association of hiatal hernia with sleeve gastrectomy. Dakour Aridi HN et al in a study from 2010 to 2014 found 14% of patients benefited from sleeve gastrectomy + hiatal hernia repair [10].

Clap B et al also found 24.3% of patients undergoing sleeve gastrectomy + hiatal hernia repair in a study from 2013 to 2017 [11].

This has also been reported in some previous studies, with proportions ranging from 14 to 24% (2- 14-15). Using MBSAQIP data, Docimo et al. found a repair rate of 21% for both gastric sleeve and hiatal hernia (12).

In our observation, hiatal hernia repair was performed at 4 separate points with a fine absorbable suture (Vicryl 4/0) with simple immediate follow-up. However, complications related to hiatal hernia repair have been reported in several studies.

A meta-analysis aimed at comparing the efficacy of sleeve gastrectomy + hiatal hernia repair versus sleeve gastrectomy + fundoplication in obese patients with hiatal hernia revealed that both techniques are effective in terms of reflux resolution and weight results, with superiority of sleeve gastectomy + fundoplication in terms of GERD control, despite a higher overall complication rate (18).

In our case, the hiatal hernia was cured by sleeve gastrectomy with repair of the hernia without fundoplication. It was performed by 4 separate stitches using a fine non-absorbable suture (Prolene 3/0), with a simple immediate operative follow-up.

However, complications associated with sleeve gastectomy concomitant with a hiatal hernia cure have been reported in several studies. The post-operative complications of sleeve gastrectomy are: The risk of hemorrhage, the risk of fistulae, gastric stenosis, dilatation of the gastric sleeve, weight regain or weight loss, gastroesophageal reflux and, in the long term, recurrent hiatal hernia with migration of the sleeve towards the chest.

Mithani RH et al reported early and late postoperative complications including gastroesophageal reflux, intra-abdominal hemorrhage, abscess formation, internal hernia, gastroenteric leak, gastric obstruction, fistula, dehydration, wall infection, gastric ulcer formation stenosis (13).

In our study, our patient presented with early food vomiting on postoperative day 30, which required re-operation to investigate and treat the cause.

A multicenter study found that female gender, smoking, the presence of preoperative GERD, gastropexy and pain severity were independent risk variables for the development of postoperative nausea and vomiting, while antral preservation, opioid-free analgesia and intraoperative combined analgesia were independent protective factors against the occurrence of postoperative nausea and vomiting (19).

A filliform aspect of the esophagus in our patient at 30 days post-operatively explained the patient's vomiting; a re-operation was performed during which we removed two sutures, with a simple continuation. This stenosis has been found in numerous studies to be an indication for re-intervention, with patients undergoing a simple postoperative course.

In this study (20) describing the indications and results of reoperations after sleeve gastrectomy, reflux was the most common main indication for reintervention, followed by incisional strictures, inadequate weight loss and leaks/fistulae. Reoperations were more successful when performed for reflux and oral intolerance to strictures (92%), while only 71.4% of leaks/fistulas were resolved.

4. CONCLUSION:

Obesity associated with hiatal hernia is most often treated by sleeve gastrectomy combined with repair of the hiatal hernia. Post-operative complications are dominated by GERD and stenosis, of which vomiting is the main symptom. A rapid clinical, biological and radiological investigation can identify the etiology of the vomiting, which is corrected by a second operation, the after-effects of which are generally straightforward.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

CONSENT

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

REFEERENCES

[1]. Clapp B, Wicker E, Jones R, et al. Where sleeves are performed an analysis of inpatient versus outpatient databases in a large state. Surg Obes Relat Dis. 2019;15(7):1066–1074.

[2] Boules M, Corcelles R, Guerron AD, et al. The incidence of hiatal hernia and technical feasibility of repair during bariatric surgery. Surgery. 2015; 158(4):911–916.

[3]. Chaar ME, Lundberg P, Stoltzfus J. Thirty-day outcomes of sleeve gastrectomy versus Roux-en-Y gastric bypass: first report based on Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program database. Surg Obes Relat Dis. 2018;14(5):545–551

[4] Sharaf RN, Weinshel EH, Bini EJ, et al. Radiologic assessment of the upper gastrointestinal tract: does it play an important preoperative role in bariatric surgery? Obes Surg 2004; 14(3):313–7.

[5] Che F, Nguyen B, Cohen A, Nguyen NT. Prevalence of hiatal hernia in the morbidly obese.Surg Obes Relat Dis. 2013; 9(6):920-4

[6] Landreneau JP, Strong AT, Rodriguez JH, et al. Conversion of sleeve gastrectomy to Roux-en-Y gastric bypass. Obes Surg. 2018;28 (12):3843–3850

[7]. Chaar ME, Ezeji G, Claros L, Miletics M, Stoltzfus J. Shortterm results of laparoscopic sleeve gastrectomy in combination with hiatal hernia repair: experience in a single accredited center. Obes Surg

[8]. Kichler K, Rosenthal RJ, Demaria E, Higa K. Reoperative surgery for nonresponders and complicated sleeve gastrectomy operations in patients with severe obesity. An international expert panel consensus statement to define best practice guidelines. Surg Obes Relat Dis. 2019;15(2):173–186.

[9]. Mahawar KK, Carr WR, Jennings N, Balupuri S, Small PK. Simultaneous sleeve gastrectomy and hiatus hernia repair: a systematic review. Obes Surg. 2015;25(1):159–166.

[10]. Dakour Aridi HN, Tamim H, Mailhac A, Safadi BY. Concomitant hiatal hernia repair with laparoscopic sleeve gastrectomy is safe: analysis of the ACS-NSQIP database. Surg Obes Relat Dis. 2017; 13(3): 379–384. [11]. Clapp B, Devemark CD, Jones R, Dodoo C, Mallawaarachchi I, Tyroch A. Comparison of perioperative bariatric complications using 2 large databases: does the data add up?. Surg Obes Relat Dis. 2019;15(7):1122–1131.

[12]. Docimo S, Rahmana U, Bates A, Talamini M, Pryor A, Spaniolas K. Concomitant hiatal hernia repair is more common in laparoscopic sleeve gastrectomy than during laparoscopic Roux-en-Y gastric bypass: an analysis of 130,772 cases. Obes Surg. 2019;29(2):744–746. Texas Hospital Outpatient Discharge Public Use Data File, 2013–2017. Texas Department of State HealtServices. https:// www.dshs.texas.gov/thcic/OutpatientFacilities/OutpatientPUDF.

[13]Castellana M , Procino , F Biacchi E et al. : Roux -en- Y gastrique bypass vs sleeve gastrectomy for remission of type 2 diabetes .j clin Endocrinol Metab.2021 106 :922-33. 10.1210/clinem/degga737.

[14]. Gagner M, Hutchinson C, Rosenthal R. Fifth International Consensus Conference: current status of sleeve gastrectomy. Surg Obes Relat Dis. 2016;12(4):750–756.

[15]. Crawford C, Gibbens K, Lomelin D, Krause C, Simorov A, Oleynikov D. Sleeve gastrectomy and anti-reflux procedures. Surg Endosc. 2017;31(3):1012–[S1-9]. Boules M, Corcelles R, Guerron AD, et al. The incidence of hiatal hernia and technical feasibility of repair during bariatric surgery. Surgery. 2015;158(4):911-916 []

[16]. De Vires DR, Van Herwaarden MA, Smout AJ, et al. Gastroesophageal pressure gradients in gastroesophageal reflux disease: relations with hiatal hernia, body mass index and esophageal acid exposure. Am J Gastroenterol. 2008;103:1349–54.

[17]Daes J, Jimenez ME, Said N, Daza JC, Dennis R. Laparoscopic sleeve gastrectomy: symptoms of gastroesophageal reflux can be reduced by changes in surgical technique. Obes Surg. 2012 Dec;22(12):1874-9. doi: 10.1007/s11695-012-0746-5. PMID: 22915063; PMCID: PMC3505545.

[18].Castagneto-Gissey L, Russo MF, D'Andrea V, Genco A, Casella G. Efficacy of Sleeve Gastrectomy with Concomitant Hiatal Hernia Repair versus Sleeve-Fundoplication on Gastroesophageal Reflux Disease Resolution: Systematic Review and Meta-Analysis. J Clin Med. 2023 May 6;12(9):3323. doi: 10.3390/jcm12093323. PMID: 37176762; PMCID: PMC10179224.

[19]. Rashad AE, El Hefnawy E, Elmorshedi M, Abuyousif YA, Salem A, Attia M, El Nakeeb A, Zaid A, Aldossary HM, Mohammed MN. Prevalence, Risk Factors, and Management of Postoperative Nausea and Vomiting After Laparoscopic Sleeve Gastrectomy (a Retrospective Multicentric Study). Obes Surg. 2023 Oct;33(10):3237-3245. doi: 10.1007/s11695-023-06803-z. Epub 2023 Aug 25. PMID: 37624489.

[20].Lyo V, Stroud A, Wood S, Macht R, Carter J, Rogers S, Husain F. Reoperations after sleeve gastrectomy: a dual academic institutional experience. Surg Obes Relat Dis. 2022 May;18(5):641-649. doi: 10.1016/j.soard.2022.01.015. Epub 2022 Jan 21. PMID: 35181221