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LETTER TO THE EDITOR

A Conservative Management of Gastric Bezoar in a Novel Bariatric Procedure: Nissen-Sleeve Gastrectomy

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We read with great interest the manuscript entitled "Conservative Managing of Bezoar in Giant Hiatus Hernia Causing Gastric Outlet Obstruction During the COVID-19 Pandemic" in which a bezoar has been found in a giant Hiatal Hernia (HH) and conservatively treated during the COVID-19 pandemic [1].

This stimulating case offers us the opportunity to present our experience of a phytobezoar formation in a patient affected by gastroesophageal reflux disease (GERD) with HH undergone the novel bariatric surgical procedure, the Nissen-sleeve gastrectomy.

Obesity represents one of the most serious public health challenges of the twenty-first century, and bariatric surgery is the most effective treatment for severe obesity and its metabolic complications. Laparoscopic sleeve gastrectomy (LSG) is the most performed bariatric procedure worldwide [2]. However, recent studies on long-term follow-up of patients undergoing LSG have found an increased incidence of GERD [3] and Barrett's esophagus (BE) [4]. In patients with severe GERD or HH, Roux-en-Y gastric bypass (RYGB) is considered the surgical gold standard [5]. An alternative to RYGB is considered sleeve gastrectomy with associated HH repair, although it has been argued that this procedure might be associated with HH recurrence and recrudescence of reflux symptoms [6, 7]. Few case reports have found the occurrence of bezoars after bariatric surgery and in particular after RYGB [8].

Recently, a new technique the Nissen-sleeve gastrectomy has been proposed [9]. However, few studies have been published, and data on the long-term outcomes are scanty [10, 11]. To our knowledge, among the postoperative complications, no studies reported gastric bezoar.

In our experience, a 54-year-old male patient with grade II obesity and GERD symptoms presented to our attention to performing bariatric surgery. The preoperative upper gastrointestinal endoscopy (UGIE) showed esophagitis and a three centimeters grade 4 HH according to Hill Classification (Fig. 1). HH was confirmed on double-contrast (DC) barium swallow. He did not report dysphagia or other relevant symptoms preoperatively.

The patient underwent Nissen-sleeve gastrectomy on January 25, 2021 (Fig. 2).

After 2 months during the routine follow-up visit, the patient reported abdominal pain and vomiting. He refused DC barium swallow and then underwent UGIE.

During endoscopy, a giant phytobezoar in the tubularized stomach was found (Fig. 3). This mass occupied the residual stomach from the Nissen valve to the incisura angularis. The valve wrap appeared enlarged with a floppy and wide gastric fundus, while the sleeve below was regularly tubularized, and slightly twisted at the level of the gastric angulus although explorable with a standard gastroscope (GIF-180 Olympus, Tokyo, Japan, external diameter 9.3 mm).

As reported by Khalil et al., we performed a conservative endoscopic treatment without the need for further surgical procedures. In fact, after abundant washings, we created a hole in the phytobezoar with standard biopsy forceps, and we crushed its surface. Then, we largely removed the phytobezoar with a standard foreign body removal endoscopic basket. The procedure was performed in deep sedation with anesthesiological monitoring. The patient was discharged the same day with prokinetics and Coke for 3 days. He was

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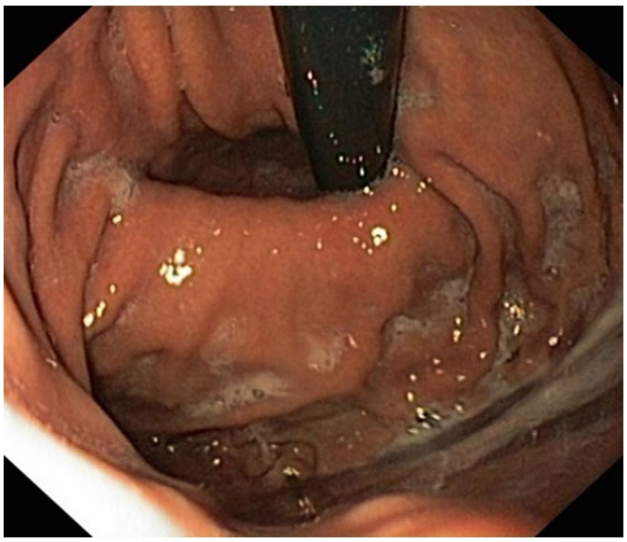

Fig. 1 Endoscopic finding of a hiatal hernia (grade IV according to Hill's classification)

advised to start gradually a semiliquid diet according to the nutritionist's indications.

The patient refused to repeat UGIE; however, he did not complain of any symptoms at the 6-month clinical follow-up.

After a careful interview with the patient, we ruled out nutritional causes in the phytobezoar formation. The patient confirmed that he had strictly followed a standard post Nissen-sleeve gastrectomy diet. Then, we speculated on several mechanisms underlying bezoar formation that could also coexist. A defect in the technical construction of the Nissen Sleeve might be considered:

- A valve that is too narrow or too wide in relation to the residual gastric body could result in stasis of food material and loss of normal food progression.
- A substenosis of the angulus may be among the predisposing causes of gastric bezoar formation as confirmed at follow-up UGIE.

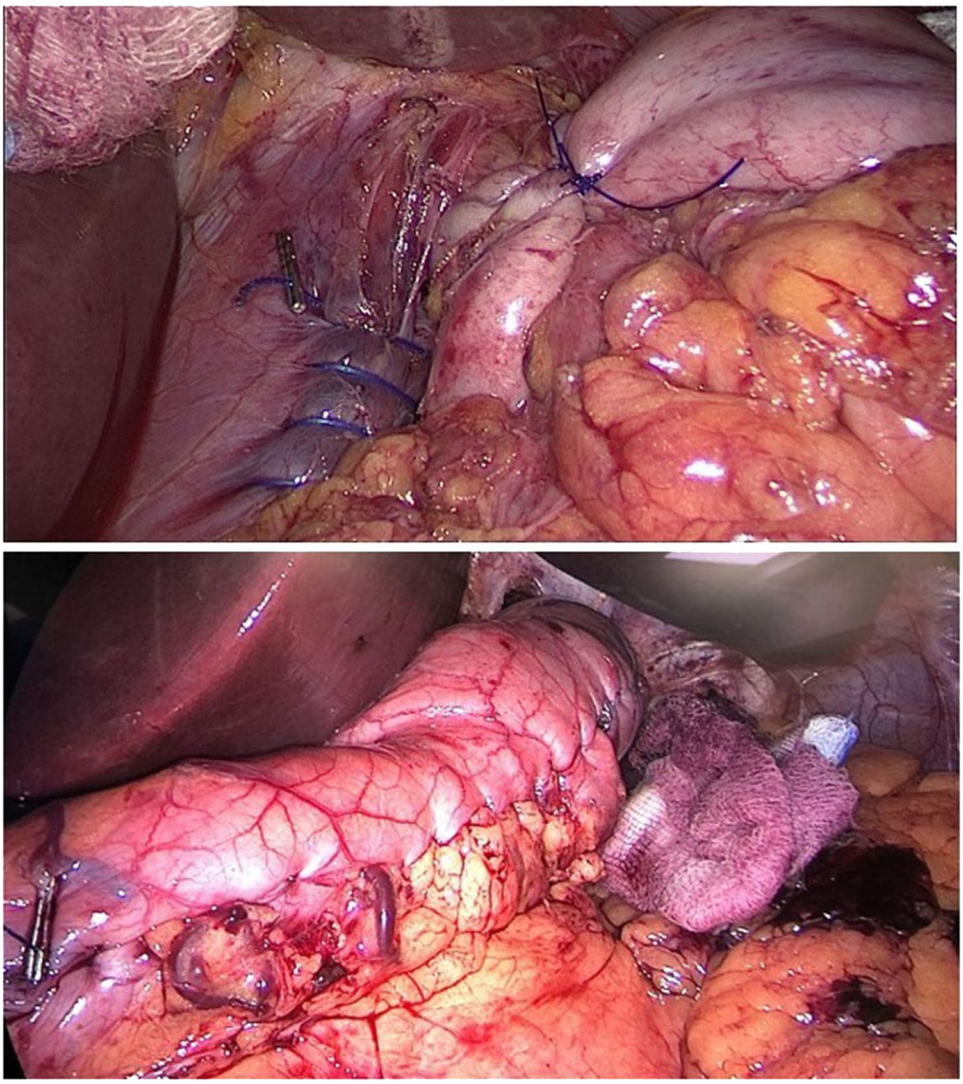

Fig. 2 Laparoscopic sleeve gastrectomy with Nissen fundoplication and posterior cruroplasty

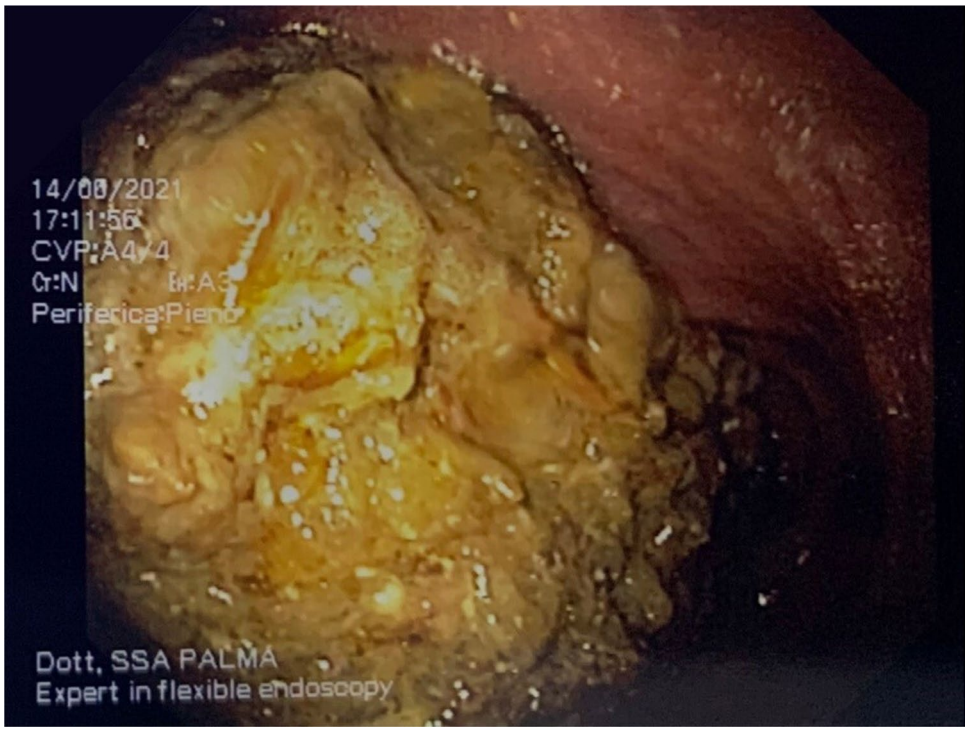

Fig. 3 Endoscopic feature of a giant phytobezoar in the tubularized stomach

Moreover, we cannot exclude an anterior vagus nerve injury during surgery that might impair gastric motor activity as well as might reduce chlorhydropeptic secretion.

The close relationship between our clinical case and that of Khalil et al. raises some issues we would like to underline:

- Did the patient report other similar episodes in her medical history?
- Did the authors record any changes in the patient's diet or lifestyle?
- Did the patient undergo surgical intervention for her giant HH at a later time?
- Did the patient perform any new clinical or endoscopic examinations in the interim?

In conclusion, we thank Khalil et al. for this interesting case that offers the opportunity to reflect on this unusual finding and its conservative treatment. We added our experience of conservative management of gastric bezoar after Nissen-sleeve gastrectomy, a promising novel bariatric procedure that needs further standardization.

Declarations

Ethics Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Consent to Participate Informed consent was obtained from all individual participants included in the study.

Conflict of Interest The authors declare no competing interests.

References

1. Khalil H, Parmar C, Sufi P. Conservative managing of bezoar in giant hiatus hernia causing gastric outlet obstruction during the COVID-19 pandemic. Obes Surg. 2021;31(6):2780–2.
2. Angrisani L, Santonicola A, Iovino P, et al. Bariatric surgery survey 2018: similarities and disparities among the 5 IFSO chapters. Obes Surg. 2021;31(5):1937–48.
3. Himpens J, Dobbeleir J, Peeters G. Long-term results of laparoscopic sleeve gastrectomy for obesity. Ann Surg. 2010;252(2):319–24.
4. Genco A, Soricelli E, Casella G, et al. Gastroesophageal reflux disease and Barrett's esophagus after laparoscopic sleeve gastrectomy: a possible, underestimated long-term complication. Surg Obes Relat Dis. 2017;13(4):568–74.
5. Di Lorenzo N, Antoniou SA, Batterham RL, et al. Clinical practice guidelines of the European Association for Endoscopic Surgery (EAES) on bariatric surgery: update 2020 endorsed by IFSO-EC, EASO and ESPCOP. Surg Endosc. 2020;34(6):2332–58.
6. Santonicola A, Angrisani L, Cutolo P, et al. The effect of laparoscopic sleeve gastrectomy with or without hiatal hernia repair on gastroesophageal reflux disease in obese patients. Surg Obes Relat Dis. 2014;10(2):250–5.
7. Angrisani L, Santonicola A, Borrelli V, et al. Sleeve gastrectomy with concomitant hiatal hernia repair in obese patients: long-term

results on gastroesophageal reflux disease. Surg Obes Relat Dis. 2020;16(9):1171–7.
8. Ben-Porat T, Sherf Dagan S, Goldenshluger A, et al. Gastrointestinal phytobezoar following bariatric surgery: systematic review. Surg Obes Relat Dis. 2016;12(9):1747–54.
9. Nocca D, Nedelcu M, Loureiro M, et al. The Nissen sleeve gastrectomy: technical considerations. J Laparoendosc Adv Surg Tech A. 2020;30(11):1231–6.
10 Amor IB, Casanova V, Vanbiervliet G, et al. The Nissen-sleeve (N-sleeve): results of a cohort study. Obes Surg. 2020;30(9):3267–72.
11. Nocca D, Skalli EM, Boulay E, et al. Nissen sleeve (N-sleeve) operation: preliminary results of a pilot study. Surg Obes Relat Dis. 2016;12(10):1832–7.