Endoscopic Sleeve Gastrectomy Conversion to Roux-en-Y Gastric Bypass

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Abstract— Endoscopic Sleeve Gastroplasty (ESG) is a restrictive endoscopic bariatric procedure that provides a reduction of the gastric volume and an alteration of the gastric motility. The volume of the stomach is reduced by approximately 70% through plication of the greater curvature of the stomach using an endoscopic suturing device. In case of failure, the surgical conversion is possible. We present a case of a patient with previous ESG with insufficient weight loss and gastro-oesophageal reflux. We performed a conversion to Roux-en-Y Gastric Bypass with satisfactory results.

Index Terms— Endoscopic Sleeve Gastroplasty(ESG), Laparoscopic conversion, Roux-en Y Gastric Bypass(RYGB).

I. INTRODUCTION

Endoscopic Sleeve Gastroplasty (ESG) is a minimally invasive technique that utilizes an endoscopic suturing device (OverStitch, Apollo Endosurgery, Austin, TX) 55 to apply full-thickness sutures in the stomach, to reduce gastric capacity by approximately 70%, and to alter gastric motility. [1] It gained popularity as a viable option for the patients who have been unable to lose weight with diet, exercises and pharmacologic agents and desire an alternative to surgery. [2]

We present a case report of a patient with severe obesity and insufficient weight loss 1 year after ESG. We performed a conversion to Laparoscopic Roux-en-Y Gastric Bypass (LRYGB). The postoperative follow-up the patient at 6 months revealed a weight loss of 18 kg.

II. CLINICAL IMAGE

A patient with severe obesity presented in consultation for insufficient weight loss after an endoscopic sleeve gastroplasty (ESG) performed in 2018 in another institution. The patient presents also a loss of early satiety and a progressive accentuation of heartburns since 6 months. Before the ESG the patient presented 95kg or Body Mass Index (BMI) of 39.5 kg/m². Preoperatively the patient presented 89.9 kg and a height of 155 cm, or a BMI of 37.42 kg/m². The medical history revealed an Obstructive Sleep Apnoea (OSA). There was no addiction to drugs and alcohol and the psychological profile did not contraindicate the intervention. The followed up was assured by a multidisciplinary team of gastroenterologist, nutritionist, psychologist and a general practitioner more than a year. Despite the poor results, the patient refused the ESG revision and preferred a surgical solution.

We performed a set of preoperative exams. The oeso-gastro-duodenal transit revealed a gastropasty status with partial opening of sutures and opacification of the gastric

part excluded and significant gastroesophageal reflux in the right lateral decubitus position. (Fig 1) The abdominal echography was normal. The gastroscopy revealed a normal appearance of the mucosa in the various segments of the upper digestive tract, excepting the low oesophagus where found an grade A oesophagitis; the endoscopic sleeve was partially open.(Fig 2) The gastric biopsy did not reveal an infection with *Helicobacter Pylori* or any abnormalities.

The surgery was performed 18 month after the ESG. We performed a conversion of the ESG to LRYGB. The postoperative course was uneventful and the patient was discharged at 2-nd postoperative day. The follow up revealed a weight loss of 18kg at six months with resolution of the gastro-oesophageal reflux and regain of the sensation of early satiety. We mention that we present the results at 6 months postoperatively, but the follow up will continue according to the follow up protocol.

Fig 1: Oeso-gastro-duodenal transit reveals a opacification of the excluded gastric part.

Fig 2: The gastroscopy reveals an partial opening of the ESG suture.

III. DISCUSSION

Bariatric endoscopy is a minimally invasive option for the patients who are willing to lose weight but are not in the criteria or are do not want a surgery. ESG is a restrictive endoscopic bariatric procedure that provides a reduction of the gastric volume and an alteration of the gastric motility. (3) The volume of the stomach is reduced by approximately 70% through plication of the greater curvature of the stomach using an endoscopic suturing device (Overstitch, Apollo Endosurgery, Austin, TX). (4) The exact mechanisms of weight loss following ESG are not clear. (5) This is achieved via a reduction in both gastric width and length. (6) Different numbers of sutures, orientation of sutures, spacing and frequency of bites, and tightness of cinching have been reported. A variety of suture patterns are used, including “M”, “Z”, and “U” patterns. (7)

Compared to other weight loss strategies, ESG seems to offer satisfactory efficacy in weight loss. It is inferior to laparoscopic sleeve gastrectomy (LSG), but it has lower risks of adverse events than surgery. ESG may be a solution weight control strategy for patients who have poor adherence to nutritional et lifestyle changesets. (8) ESG represents a compelling alternative to traditional bariatric surgery and a welcome treatment for obesity, for which additional therapies in developing. (9) Mohit Bhandari et al. in a study on 53 patient concluded that young age and female gender are related to better outcomes. As a non-surgical option, ESG appears to be superior to intragastric balloon in sustaining weight loss at 5 years. (10)

ESG technique try to reduce the stomach's ability to store food, thus inducing early satiety, and delay gastric emptying by applying folds in the stomach wall. (11) Failure of this technique is related to placing sutures under tension and gastric peristalsis who may break the sutures. (12) Lax sutures on the other hand may not help maintain the sleeve configuration.

Conversion of ESG to LSG can be performed through a combined safely by combined endoscopic-laparoscopic approach. (13) The procedure can be dangerous by the interposition of unidentified ESG hardware into the stapling line that can increase the risk of postoperative leak. (14)

The patient refused an EGS revision. The presence of gastro-oesophageal reflux, the cicatricial stomach and in order to avoid the problems related to the ESG hardware in place and a higher possibility of stapling line leak lead us to perform a conversion of EGS to Roux-en-Y gastric bypass (RYGB). LSG requires a significantly more important gastric stapling on the greater curvature of the stomach. RYGB is a restrictive-malabsorptive intervention with proved results in term of weight loss as a bariatric surgery but also in reduction of gastro-oesophageal reflux. It presents also a relatively short length of stapling, favourable in this context of cicatricial stomach. The postoperative result was satisfying in term of weight loss heartburn cessation, but this is well known for the RYGB.

The particularity and the difficulty of the case was the presence of the hardware inside the gastric lumen and the cicatricial thickness of the gastric wall that we noticed

during the stapling for creating the gastric pouch. We do not contest the efficiency and the good results of EGS. We present the conversion in bypass in case of EGS failure. Because is a relatively new technique we don't have a big experience with this type of conversion.

IV. CONCLUSION

ESG represents an minimal-invasive alternative of the surgery for the patients who failed the dietary measures and are not fitted for the surgery. In case of failure, conversion to RYGB can be an feasible option. Studies are necessities to precise is LSG or RYGB are the best option for conversion.

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