Vertical Endoscopic Gastroplasty in a Patient With Situs Inversus Totalis

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ABSTRACT

Bariatric surgery in patients with any deviation from normal anatomy is a challenge and requires considerable experience on the part of the surgeon. Situs inversus totalis (SIT) is a rare congenital abnormality (1:5,000–1:20,000 live births), and any surgical procedure on these patients can be somewhat challenging. A 44-year-old woman with morbid obesity, systemic arterial hypertension, and SIT underwent vertical endoscopic gastroplasty. The procedure was performed in 56 minutes with no complications. Vertical endoscopic gastroplasty proved to be safe on this patient with SIT, with reproducible technical viability, a short procedure time, and no early onset complications. Prospective studies are needed to establish the actual safety and viability of the method in this group of patients.

INTRODUCTION

Bariatric surgery in patients with any deviation from normal anatomy is a challenge and requires considerable experience on the part of the surgeon. Situs inversus totalis (SIT) is a typical example. This rare congenital abnormality (1:5,000–1:20,000 live births) is the transposition or mirroring of the thoracic and abdominal organs.1 SIT constitutes a challenge to surgeons. Minimally invasive laparoscopic or robotic surgery is the gold standard in such cases, offering safety and efficacy.2 Laparoscopic bariatric surgery can be performed under such conditions without the need for substantial adjustments in the surgeon’s position or placement of the trochar and instruments. However, the surgery itself is challenging even in skilled hands and may need to be interrupted because of a technical difficulty.2 In such cases of unsuccessful surgery or refusal on the part of the patient, endoscopy could be a viable alternative because the internal view through the endoscope enables better anatomic recognition. The authors report a patient with both obesity and SIT who underwent a successful vertical endoscopic gastroplasty (VEG) and offer an analysis of the reproducibility of the technique.

CASE REPORT

A 44-year-old woman with morbid obesity, systemic arterial hypertension, and SIT was admitted to the bariatric endoscopy clinic to undergo VEG (Video 1; Watch the video at http://links.lww.com/ACGCR/A17). The patient presented with joint pain and difficulty in losing weight, having attempted unsuccessfully numerous clinical, behavioral, and medicinal treatments. She reported having sought other services for bariatric surgery, but this was deemed unfeasible because of the technical difficulties of the SIT and the risk of damaging vital structures during surgery. Aware of the risks and limitations of VEG with this degree of obesity, the patient signed a statement of informed consent, and the procedure was scheduled.

Her body mass index (BMI) was 42.2 kg/m² (weight: 110.7 kg; height: 1.62 m), and the patient was an ex-smoker. Concerning her surgical history, the patient reported having undergone total fundoplication 12 years earlier due to gastroesophageal reflux refractory to clinical treatment. SIT was diagnosed at the time and was confirmed by a chest x-ray and computed tomography of the abdomen.
for bridging or a primary morbid obesity therapy.\textsuperscript{6} The expansion of Grade I obesity (BMI between 30 and 35 kg/m\textsuperscript{2}).\textsuperscript{5} This is increasingly used as a treatment option of obesity.\textsuperscript{4}

Diagnostic endoscopy was performed at the onset of the procedure to exclude possible lesions. For this, an Olympus CV 160 dual-channel endoscope (Olympus Medical Systems Corp, Tokyo, Japan) was used, with CO\textsubscript{2} inflation. During the examination, the previous fundoplication was visualized, with no other abnormal findings. An esophageal overtube (Apollo Endosurgery, Austin, TX) was used to facilitate the atraumatic passage of the suturing device and minimize the loss of gas. The Apollo OverStitch system (Apollo Endosurgery) was used with a 2-0 polypropylene thread.

A U-shaped rectangular suture pattern was used in the following sequence: anterior wall, 4-6 sutures along the greater curve toward the posterior wall; and posterior wall, 4-6 sutures along the greater curve toward the anterior wall. Four plications were performed along the distal gastric body to the fundus, terminating approximately 3 cm below the gastroesophageal junction, creating a gastric tubulization. The procedure was completed in 56 minutes with no complications, after which the patient remained fasting for 6 hours and was discharged from hospital 8 hours after the procedure. After 6 months of follow-up, the patient had a total body weight loss of 17.2%.

DISCUSSION

The prevalence of obesity continues to increase throughout the world, along with the associated comorbidities.\textsuperscript{3} Dietetic measures and lifestyle changes are ineffective in the advanced phase of the disease when bariatric surgery is the recommended treatment.\textsuperscript{7} The induction of anesthesia.

The anatomic differences in cases of SIT imply greater technical difficulty regarding surgical or endoscopic procedures, with a consequent increase in operating time and greater risk. In the present case, however, no changes in the technique were employed in comparison to conventional cases, and no substantial difficulties arose regarding the identification of the anatomic parameters needed to perform the method safely.\textsuperscript{7,8} The duration of the procedure was 56 minutes, which is compatible with descriptions in the literature (50–120 minutes).\textsuperscript{5} No early onset complications arose, and the patient is currently in outpatient follow-up with the multidisciplinary team. VEG proved to be safe in this patient with SIT, with reproducible technical viability, a short procedure time, and no early onset complications. However, more case reports and prospective studies are needed to establish the actual safety and viability of the method in this group of patients.

DISCLOSURES

Author contributions: MPG Neto approved the final version. M. Silva and S. Gomes collected the data and wrote the manuscript. E. Grecco wrote and revised the manuscript. T. Ferreira de Souza wrote the manuscript. L. Gustavo de Quadros revised and approved the final version. M. Silva is the article guarantor.

Figure 1. Chest x-ray imaging showing dextrocardia with situs inversus.

Video 1. Vertical endoscopic gastroplasty procedure. Watch the video at http://links.lww.com/ACGCR/A17.

Contact with patients with the most diverse clinical conditions and anatomic variations, promoting the early treatment of the disease in patients between overweight and advanced obesity, thereby enabling the control of the disease in the early stages.\textsuperscript{5} Situs inversus is classified into 2 types: situs inversus partialis and SIT. With situs inversus partialis, one or more organs of the thoracic or abdominal cavity are transposed. SIT is a rare clinical condition in which all organs and tissues are transposed to the opposite side of the body. Described for the first time in 1778 by students at the Hunterian School of Medicine, the incidence ranges from 1/5,000 to 10,000 hospital admissions, and the condition is found in approximately 0.01%–0.09% of the population.\textsuperscript{7}
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Informed consent was obtained for this case report.

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