

Video Case Report

# Laparoscopic stomach intestinal pylorus sparing surgery in a patient with morbid obesity and situs inversus: first video case report

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Stomach intestinal pylorus sparing surgery (SIPS) is one of the most effective weight loss procedures with mean excess weight loss at 2 years of 85% [1–3]. Since 2013, we have successfully performed SIPS in >300 patients. However, performance of any weight loss operation can be complicated by any patient with mirror image transposition of the abdominal and thoracic organs known as situs inversus (SI).

Situs inversus is a rare autosomal recessive condition with an incidence varying from 1 in 4000 to 1 in 20,000 live births [4,5]. SI is divided into 2 types: SI partialis, which involves transposition (left or right side) through the sagittal plane of either thoracic organs (dextrocardia) or abdominal viscera, and SI totalis (SIT), which involves both the thoracic organs and abdominal viscera, while the organ function is normal [6]. Our patient had SIT.

Few articles have discussed the incidence of SI and the issue of performing weight loss surgery on these patients [7–9]. None have reported laparoscopic SIPS in patients with morbid obesity and SI. We herein report a video case involving our laparoscopic SIPS technique in a patient with morbid obesity and SIT (Video). This is the first report in the literature to describe laparoscopic SIPS in a patient with SI.

## Case presentation

This is a 31-year-old female with a body mass index of 52.5 kg/m<sup>2</sup> and asthma controlled with ongoing daily medication. She had no other co-morbid conditions. The presence of SI was initially discovered during her first weight loss operation. We discussed with the patient the

risks and benefits of the procedure in a patient with SI and she agreed to proceed with a SIPS.

## Management

As the diagnosis of SI was known preoperatively, the surgical team made preoperative preparations that included changing the setup of the operating room. In this case the operating surgeon was on the patient's left side instead of the right (Fig. 1a). Additionally, trocars sizes and locations were inverted (Fig. 1b).

Laparoscopic exploration found complete transposition of abdominal viscera: The terminal ileum was located on the left side of the abdomen and 300 cm of small bowel was measured and tacked to the gastrocolic omentum. The SIPS creates a sleeve gastrectomy as the first step. Our sleeve uses a 40 French Bougie. There was no oversewing or buttressing in the SIPS procedure. Once the sleeve was completed, the gastroepiploic vessels were taken down from the end of the sleeve staple line past the pylorus to where the perforating vessels from the pancreas enter the duodenum. This was almost always 2 to 3 cm beyond the pylorus. A blunt instrument was passed behind the duodenum to create a passageway for the division of the duodenum.

We then dissected the duodenal bulb 3 cm from the pylorus circumferentially. The duodenum was divided with an Endo GIA stapler (Covidien, New Haven, CT). The antimesenteric border of the bowel at this point was attached to the end of the proximal duodenum staple line using an absorbable suture. The loop was set up so the efferent limb is descending on the patient's left, and the afferent limb is ascending coming up from the right. A

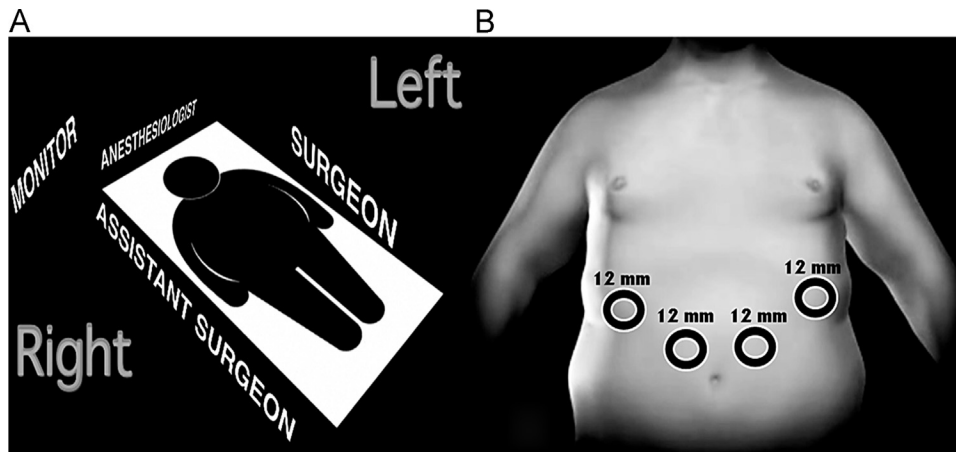


Fig. 1. (A) Demonstrates the operating room setup. (B) Trocar locations.

duodenotomy and enterotomy were made that were approximately 2 cm. The enterotomy was closed with a running posterior layer and a running anterior layer. Another 2 interrupted sutures were placed one from the afferent limb to the antrum and the other from the afferent limb to the omentum to prevent chronic nausea and volvulus [10].

Operative time for this case was 90 minutes. Blood loss was 50 mL, the postoperative course was uneventful, and the patient was discharged on the second postoperative day.

The postoperative upper gastrointestinal series can be seen in Fig. 2. The patient is 5 months out of surgery with no complaints and has lost 72 pounds.

Schematic representation of SIPS in SI can be seen in Fig. 3.

## Discussion

SIPS is an emerging procedure and unusual complications with this procedure have been reported in the literature [10,11]. Similarly, performing SIPS in patients with unusual anatomy should also be reported, so that it becomes easy for other surgeons to perform.

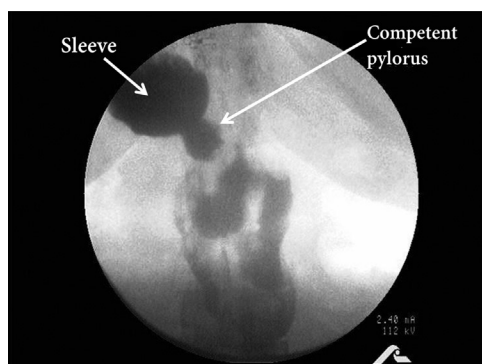


Fig. 2. Postoperative upper gastrointestinal series done at 1 month that reports the flow of contrast.

Many people with SI are unaware of their unusual anatomy until they seek medical attention for an unrelated condition. Most of the time, such conditions are diagnosed preoperatively and this gives an opportunity to the surgeon to plan their surgery to avoid intraoperative difficulties.

In the early phase of the operation, it took us time to establish proper hand-eye coordination but we adapted to the mirror image of the standard procedure during the operation. Duodenal dissection and transection is one of the most important and difficult steps, while performing a SIPS procedure [12]. In patients with SI, such steps can be carried out using the mirror image approach to all parts of the operation for a successful surgery.

In this case the operating time was little longer than the time taken to perform SIPS in normal people with obesity (90 min versus 70 min).

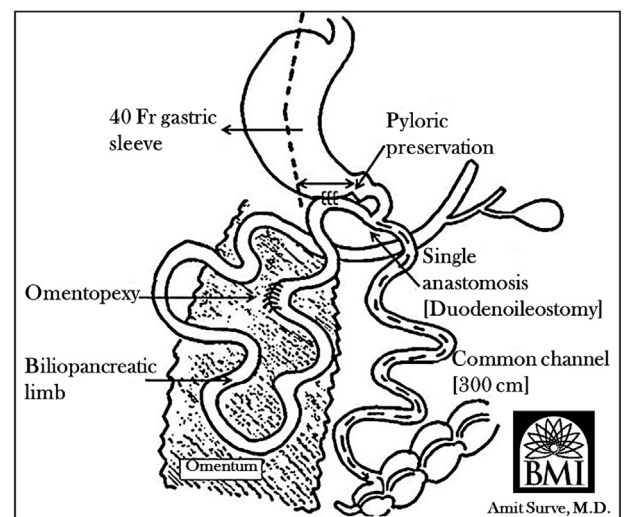


Fig. 3. Hand-drawn sketch of stomach intestinal pylorus sparing surgery in a patient with situs inversus totalis.

## Conclusion

Laparoscopic SIPS in patients with SI can be performed safely.

## Appendix

### *Supplementary data*

Supplementary data associated with this article can be found in the online version at <http://dx.doi.org/10.1016/j.soard.2016.08.503>.

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