Routine Bariatric Surgery with Unfamiliar Anatomy: Gastric Bypass in the Setting of Situs Inversus

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Background

- Situs Inversus Totalis (SIT) was first recognized in a living person in 1824 and has an incidence between 0.005 – 0.02% of the population[1-3]
- The intra-abdominal organs are in a reversed configuration in combination with the heart situated in the right thorax although this reversed alignment does not change in function[1]
- Severe obesity (class III) involves a BMI >40 and is a disease process that continues to rise in prevalence[4]
- Among US adults, the prevalence of severe obesity almost doubled from 2000 (4.7%) to 2018 (9.2%)[4]
- Weight loss surgery has shown to be an effective means of weight loss and roux-en-y gastric bypass (RYGB) is a durable procedure with clear benefit over medical management[5]
- The essential steps include creation of a small gastric pouch (20-30 cc), gastrojejunostomy, and jejunojejunostomy between the roux and biliopancreatic limbs[6,7]

Case Report

- 40-year-old female with history of hypertension, kartageners, and morbid obesity
- Her preoperative weight was 232 pounds (BMI 40.5 kg/m2)
- She failed medical weight loss attempts and elected to proceed through our bariatric program
- She chose to undergo gastric bypass as opposed to sleeve gastrectomy

Operative Case

- Trocar Placement: Four 12 mm and one 5 mm trocars
  - 12 mm trocar to the right of the umbilicus
  - Two 12 mm left sided paramedian in the epigastrium
  - 12 mm and 5 mm right subcostal trocars.
- The small intestine was measured 50 cm downstream from the ligament of treitz and divided
- Stapled jejunojejunostomy is created between the biliopancreatic and common outflow channels in a side-to-side functional end-to-end anastomosis
- 100 cm roux limb brought cephalad in antecolic configuration
- The lesser curve vasculature is divided between the second and third lesser pedicles
- 30 mL gastric pouch created
- Stapled side-to-side gastrojejunostomy

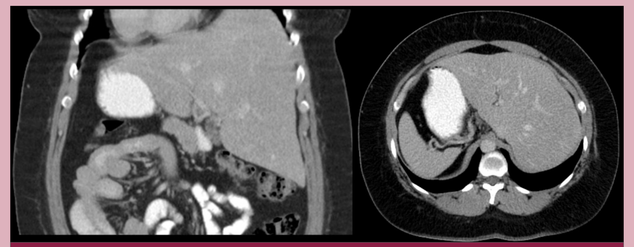


Figure 1. Preop CT of Situs Inversus Anatomy

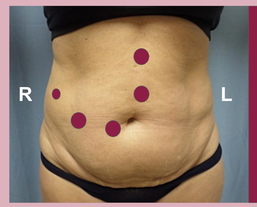


Figure 2. Trochar placement

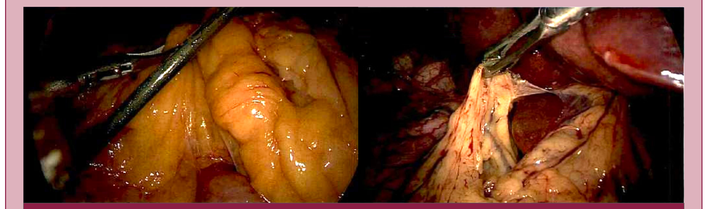


Figure 3. Intraoperative images of ligament of Treitz with the transverse colon retracted cephalad (L) and pars flaccida (R)

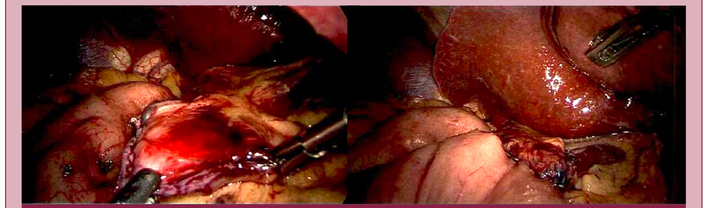


Figure 4. Intraoperative images of gastric pouch (L) and gastrojejunostomy (R)

Case Discussion

- The anatomic variation of situs inversus totalis creates intraoperative challenges and careful planning
- Current case reports in the literature involving RYBG in patients with situs inversus totalis discuss the challenges in trochar placement
- In this case, the standardized port placement for this specific surgeon were flipped with regards to right and left orientation
- The procedure was performed with the surgeon standing on the patient's left side, in non-standard fashion
- Opposite hands were used for each instrument and to complete each step of the procedure
- Due to the altered anatomy, the procedure took an extra 60 minutes in part to confirm the proper orientation of all the anastomoses (150 minutes vs 90 minutes)
- There were no postoperative complications and the patient was discharged the day following surgery
- At an 11 month postoperative visit, she had lost 79 pounds (BMI 26.7 kg/m2)

Conclusion

- Here we present a gastric bypass procedure performed on a patient with Situs Inversus Totalis (SIT)
- SIT is a rare condition but presents operative challenges for the bariatric patient considering gastric bypass surgery
- With careful operative planning we demonstrate that RYGB is able to be safely performed in a minimally invasive fashion

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