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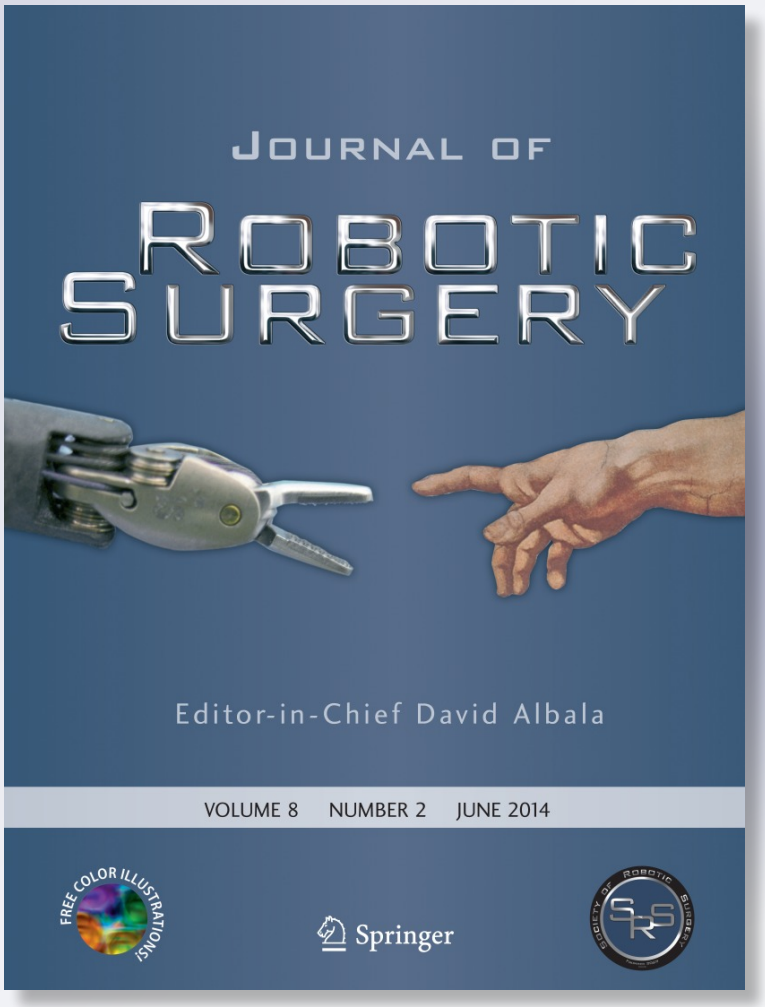

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CASE REPORT

Robotic-assisted Roux-en-Y gastric bypass in a patient with situs inversus

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Abstract We report the case of a morbidly obese patient with situs inversus who presented for robotic-assisted Roux-en-Y gastric bypass. To do the procedure, the ports were reversed and the first assistant stood on the opposite side of the table. With these minor modifications to technique, the surgery was successfully performed without confusion over the patient's anatomy. There were no intraoperative complications. The patient's postoperative course was uneventful and he was discharged on postoperative day 3. We believe this is the first reported robotic-assisted Roux-en-Y gastric bypass in a patient with situs inversus.

Keywords Robotic surgery · Situs inversus · Morbid obesity · Gastric bypass

Introduction

Situs inversus is a rare genetic condition, characterized by transposition of the abdominal and/or thoracic organs. Successful laparoscopic Roux-en-Y gastric bypass in a morbidly obese patient with situs inversus was first reported in 1998 [1]. The surgeon in this case had to be positioned on the right of the patient rather than the left and reported being disoriented by the anatomy for the first 10 min of the case. In another case report from 2006 in which a Roux-en-Y gastric bypass was performed on a patient with situs inversus, the operating surgeon reported difficulty with having to stand on the opposite side of the patient, hold the instruments in opposite hands, and use the foot controls with opposite feet. We report a case of robotic-assisted Roux-en-Y gastric bypass for morbid obesity in a patient with situs inversus, in which the difficulties reported with laparoscopic Roux-en-Y gastric bypass were not encountered.

Case report

A 58-year-old male with a body mass index of 43.4 kg/m^2 who had failed dietary attempts at weight loss and desired surgical intervention presented for evaluation for Roux-en-Y gastric bypass. His past medical history was significant for obstructive sleep apnea, multiple arrhythmias requiring implantable cardioverter defibrillatorplacement, dextrocardia with physiologically corrected L-transposition of the great vessels, tricuspid valve regurgitation s/p tricuspid valve replacement, asthma, allergic rhinitis, arthritis, hypertension, and hyperlipidemia. His current medications were warfarin, aspirin, quinidine, simvastatin, lisinopril, spironolactone, furosemide, advair, singulair, albuterol, flonase, mucinex, allegria, ferrex, famotidine, sertraline, and fenofibrate. Preoperative computed tomography (CT) scan revealed that the patient had situs inversus (see Fig. 2a).

Robotic-assisted Roux-en-Y gastric bypass was performed in November 2012. A 5-mm Optiview trocar was

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introduced into the right upper quadrant to establish pneumoperitoneum. Five additional trochars were placed, in the arrangement shown in Fig. 1b. A Nathanson retractor was placed just to the left of midline for liver retraction. The angle of His was dissected and the lesser sac was entered from the patient's left. A 20-cm pouch was created using a stapler (Fig. 2b). Next, the omentum was divided and the ligament of Treitz was identified, to the right of midline as would be expected with this patient's anatomy. The small bowel was divided 40 cm distal to the ligament of Treitz. A 150-cm Roux limb was created and a stapled enteroenterostomy was performed (Fig. 2c). The enterostomy was closed with two layers of Vicryl suture. The mesenteric defect was closed with Ethibond suture. The Roux limb was approximated to the gastric pouch in an antecolic fashion and a two-layer gastrojejunostomy was performed with Vicryl (Fig. 2d). An air leak test performed at the end of the case was negative. The final anatomy of the procedure is shown schematically in Fig. 1d.

The patient was transferred to the surgical intensive care unit postoperatively for close monitoring of his cardiac status given his significant cardiac history. He was extubated without event on postoperative day 1 and discharged to home on postoperative day 3.

Discussion

Laparoscopic Roux-en-Y gastric bypass has been described in patients with situs inversus, but no robotic-assisted cases have been reported. There are reports of advanced robotic-assisted surgery on patients with situs inversus, including distal gastrectomy, which provided guidance in preparing for this case [2].

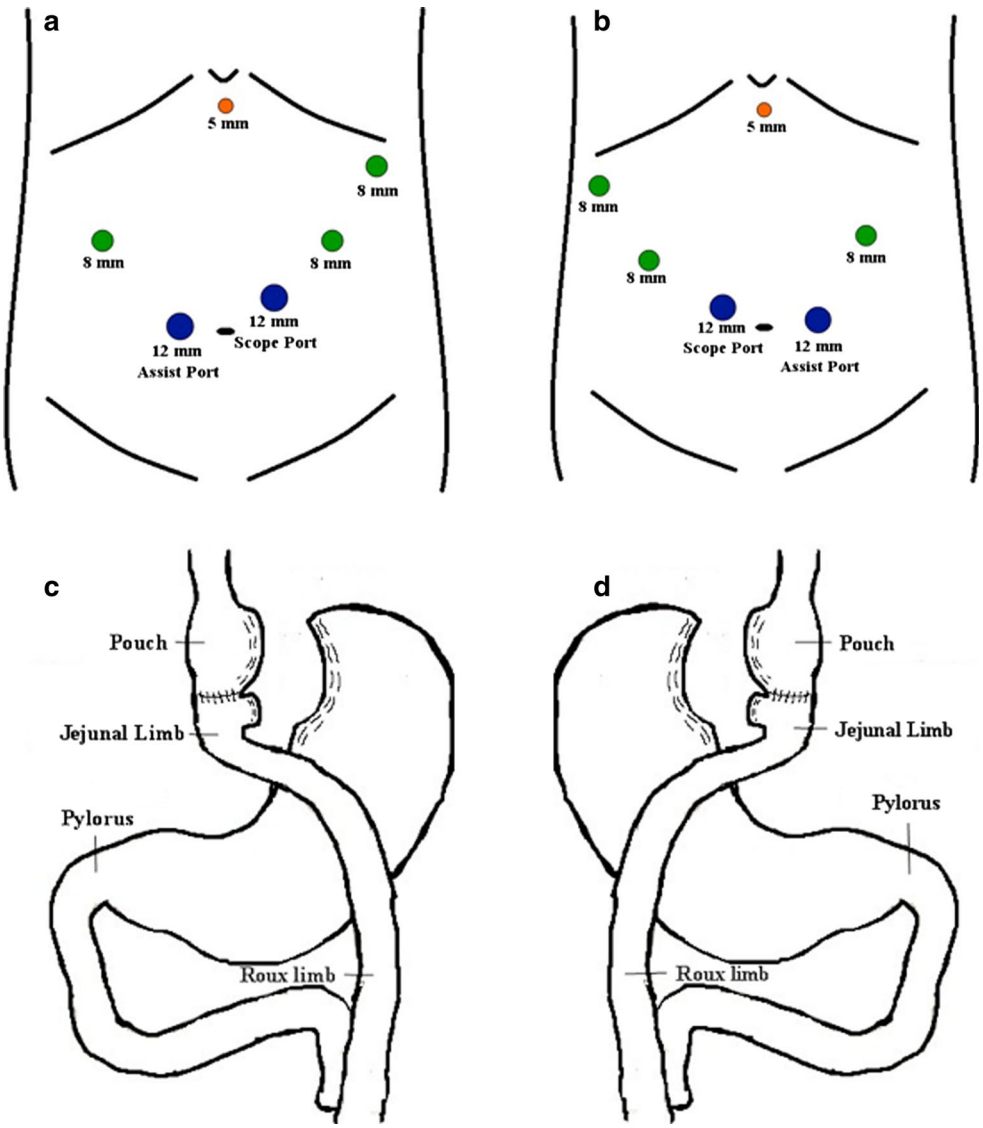

Fig. 1 Differences in trochar positioning and anatomy in patients with situs inversus. **a** Usual trochar placement. **b** Trochar placement in situs inversus. **c** Usual Roux-en-Y anatomy. **d** Anatomy of Roux-en-Y in situs inversus

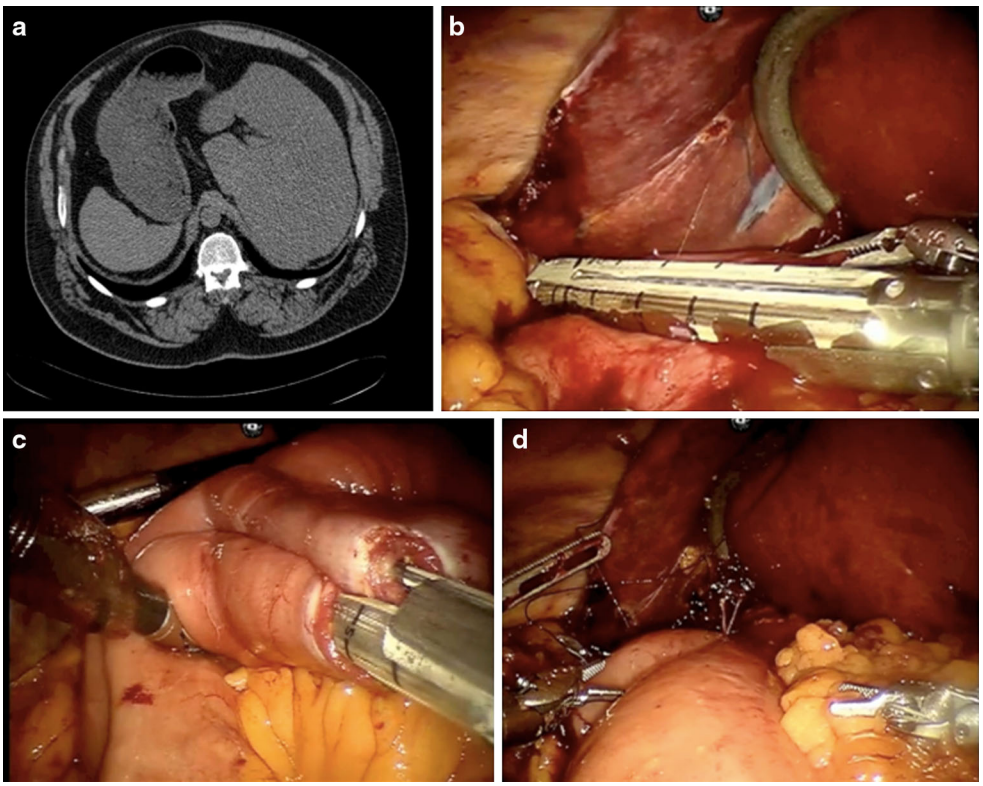

Fig. 2 Preoperative and intraoperative imaging. **a** Preoperative CT scan demonstrating situs inversus. **b** Gastric pouch creation. **c** Enteroenterostomy. **d** Gastrojejunosotomy

The advantages of robotic-assisted laparoscopic surgery in this case as compared to the case reports of traditional laparoscopic Roux-en-Y gastric bypass are that the surgeon does not need to change his or her position or the instrument orientation. Robotic surgery is becoming more common, and replacing traditional laparoscopic surgery in some areas. This report identifies yet another procedure that not only can be done with robotic assistance, but also has advantages over transitional laparoscopy. Robotic-assisted Roux-en-Y gastric bypass can be successfully performed in patients with situs inversus.

Conflict of interest Anji Wall, Zuiling Feng, and Willie Melvin declare they have no conflict of interest.

Consent section Written informed consent was obtained from the patient for publication of this Case Report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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