

Laparoscopic Sleeve Gastrectomy in Situs Inversus Totalis

Ali B^{2*}, Omran S¹, Alyounis A¹, Aljabali²

¹Department of Surgery, King Fahad hospital, Albaha, Saudi Arabia

²Department of Surgery, Prince Sultan Military Medical City, Riyadh, Saudi Arabia

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2. Keywords

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1. Abstract

Laparoscopic surgery in a patient with Situs Inversus totalis may pose interesting challenges to the surgeon. Here we report a case of a morbidly obese young female with situs inversus totalis who underwent Laparoscopic Vertical Sleeve Gastrectomy (LSG). The peri-operative challenges were very many and these have been enumerated. The mirror image approach is recommended in such cases for a successful surgery which was not employed in this case. Postoperative gastrografin swallow was normal and the patient has been on regular follow up.

3. Introduction

Prevalence of massive obesity continues to increase and only bariatric surgery has succeeded in providing sustained weight loss [1]. Laparoscopic Sleeve Gastrectomy (LSG) accounts for approximately 30% of bariatric procedures performed worldwide, and its coexistence with situs inversus is one in a million. Most of the global documented procedures in situs inversus involve gastric bands, gastric bypass, and cholecystectomies [2]. Situs Inversus is a congenital developmental anomaly wherein the abdominal organs are reversed or mirrored to the opposite side of the body through the sagittal plane. In contrast, situs inversus totalis is a similar condition in which both the thoracic and abdominal contents are reversed [2]. Transmitted through an autosomal recessive inheritance, these anomalies have been in vogue since the 17th century.

4. Case Report

A 48 years old morbidly obese female weighing 105 Kg and a BMI of 41 kg/m² was electively admitted to the hospital. She had tried several diets and exercise programmed but failed to sustain reduced weight loss. She was a known case of situs inversus totalis as diagnosed earlier. She underwent standard pre-operative workup including physician, psychological and anesthetic assessment satisfying our selection criteria for surgery. This is class 3 of obesity. She had no history of diabetes or Ischemic heart disease although

blood pressure within normal limits.

Her general examination and preoperative investigations were within normal limits. Heart sounds were normal and on the left side in the chest. Preoperative CT chest and abdomen with oral contrast showed situs inversus totalis. Upper endoscopy was also done, the stomach was on the right side, normal in shape, normal mucosal pattern, no ulcer. Duodenal C Loop was the opposite. Small bowel on the right side and normal, no narrowing. Ileocecal junction, caecum, and appendix were in the left iliac fossa. Descending and sigmoid colon located on the right side close to ascending colon. The patient was admitted one day prior to surgery and LSG was performed last March 3rd, 2019. Following general anesthesia, the patient was placed in a reverse Trendelenburg position. The primary operating surgeon stood on the right side of the patient. Trocar positions were also mirrored. The operative feel was uncomfortable; as in a right-handed person writing by a left hand. Entire upper quadrant was occupied by the liver. The enlarged spleen was on the right side. Orogastric tube negotiation was difficult because of the position of the stomach. The primary surgeon had to come to the right side to reach the right crus. Most of the time single hand technique had to be used instead of both hands. Surgical time was 75 minutes (**Figure 1, 2, 3**).

*Corresponding Author (s): Bandar Idrees A Ali, Department of Surgery, Prince Sultan Military Medical City, Riyadh, Saudi Arabia, E-mail: bial1003@yahoo.com

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Postoperative upper GI contrast study was performed and showed no evidence of a leak and a well-designed vertical sleeve of the stomach. The post-operative period was uneventful, and the patient was discharged after 2 days. She was given standard advice to remain on a liquid diet for 2 weeks, followed by 2 weeks of soft diet, before reintroducing solids (**Figure 4**).

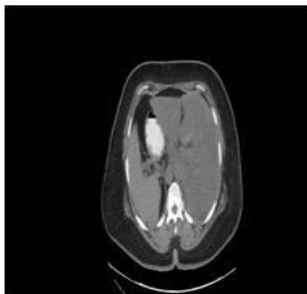


Figure 1: CT abdomen with oral contrast in axial and coronal view respectively showing SIT



Figure 2: CT abdomen with oral contrast in axial and coronal view respectively showing SIT



Figure 3: Plain CXR showing dextrocardia

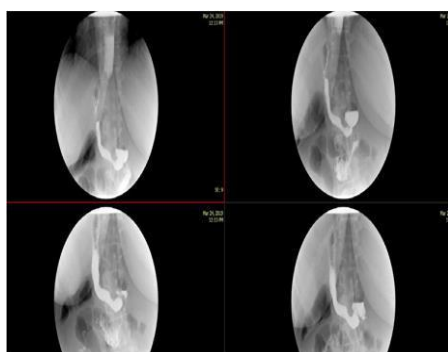


Figure 4: Gastrografin follow through post-operative with no evidence of leak and nice flow of contrast through the sleeved stomach

5. Discussion

Situs Inversus is a rare congenital developmental anomaly with autosomal recessive inheritance wherein the position of organs in the chest and abdomen are reversed along the sagittal plane. The incidence of situs inversus totalis is less than 1 in 22000. If associated with primary ciliary dyskinesia, sinusitis and bronchiectasis and infertility in males, it is called Kartagener Syndrome found in 25% of patients [3]. Incomplete or partial situs inversus is invariably associated with cardiac abnormalities like septal defects, pulmonary arterial stenosis, tetralogy of Fallot, transposition of great vessels, and alimentary tract problems like atresia and stenosis of the duodenum [4]. Most of the individuals are unaware of their usual anatomy until they seek medical attention for an unrelated condition when it is discovered incidentally. In our patient, though there were cough, dyspnea and chest pain, routine Chest X-ray was normal as the defect involved only abdominal organs. Fortunately, the patient was aware of her condition. Our current practice involves routine chest X-ray and Sonography of abdomen. aparoscopic bariatric surgery in situs inversus has been reported in very few cases, wherein one patient underwent laparoscopic gastric banding [6], laparoscopic gastric bypass [5] and LSG each [3]. Certain aspects of this type of surgery are challenging and it is recommended that an experienced laparoscopic surgeon carry out the procedure. Using a mirror image approach to all parts of the operation enabled us to successfully complete the procedure. Using this technique, our operating time was only slightly longer than normal (120 mins v/s 60 mins). LSG is thus a safe and feasible surgical procedure in situs inversus patients with very good results.

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