



Laparoscopic One-Anastomosis Gastric Bypass in a Patient with Morbid Obesity and Situs Inversus Totalis: a Case Report

Masood Amini¹ · Reza Dehghani² · Afshin Zare¹ 

Published online: 4 December 2018
© Springer Science+Business Media, LLC, part of Springer Nature 2018

Abstract

Background Laparoscopic one-anastomosis gastric bypass is a new bariatric surgery technique for weight loss in morbid obesity. This technique has come to be associated with suitable weight loss results, low technical complications, short surgery time, low cost, short post-operational period, and low chances of injury comparisons with other bariatric surgical approaches to weight loss in morbid obesity such as sleeve and Roux-en-Y gastric bypass. To the best of our knowledge, there has been no report of such surgery in the case of situs inversus totalis concurrent with morbid obesity.

Case Presentation The patient was a 36-year-old male suffering from morbid obesity (BMI, 56.8) along with situs inversus totalis. In spite of operational complexities due to the reversed location of abdominal and thoracic organs, the operation was performed similarly to routine subjects considering the diverse site of organs.

Conclusion Given the considerable superiorities of one anastomosis gastric bypass over other bariatric surgical techniques, particularly concerning the simpler procedure, low surgical complication and short surgery time, this approach may guarantee positive outcomes in subjects with concurrent situs inversus totalis and morbid obesity.

Keywords One anastomosis gastric bypass · Situs inversus totalis · Morbid obesity

Background Morbid obesity is a life-threatening illness associated with super obesity and medical, psychological, and physical problems. Those suffering from such illness run a higher risk of diabetes, blood pressure, sleep disorders, reflux, cancer, and so forth [1]. The only long-term treatment for such a condition is surgery [2]. There exist certain surgical techniques such as laparoscopic adjustable gastric banding, biliopancreatic diversion, biliopancreatic diversion with duodenal switch, Roux-en-Y gastric bypass, sleeve, and one-anastomosis gastric bypass [2].

One of the safest and most efficient approaches to treating this illness is laparoscopic one-anastomosis gastric bypass due to its short operation time, low surgical complications, low post-operational issues, low mortality rate, and low cost [2]. Situs inversus totalis, a condition in which the thoracic and visceral organs are mirrorly inverted [3], is an infrequent autosomal recessive congenital abnormality with a frequency of 1 per 10,000 [4]. As far as the authors of the present study are concerned, no research has been conducted on the laparoscopic one-anastomosis gastric bypass in patients with situs inversus totalis concurrent with morbid obesity. However, there is only one previous report of laparoscopic one-anastomosis gastric bypass in in patients with situs inversus totalis [5]. Furthermore, there are several reports of other such techniques as Roux-en-Y gastric bypass and sleeve in the field of bariatric surgery on patients with situs inversus totalis [6, 7]. Herein, we report a successful laparoscopic one-anastomosis gastric bypass surgery on a patient with morbid obesity coupled with situs inversus totalis.

Case Presentation The patient was a 36-year-old morbidly obese male admitted in the laparoscopic ward of Ghadir

✉ Afshin Zare
zareafshin86@gmail.com

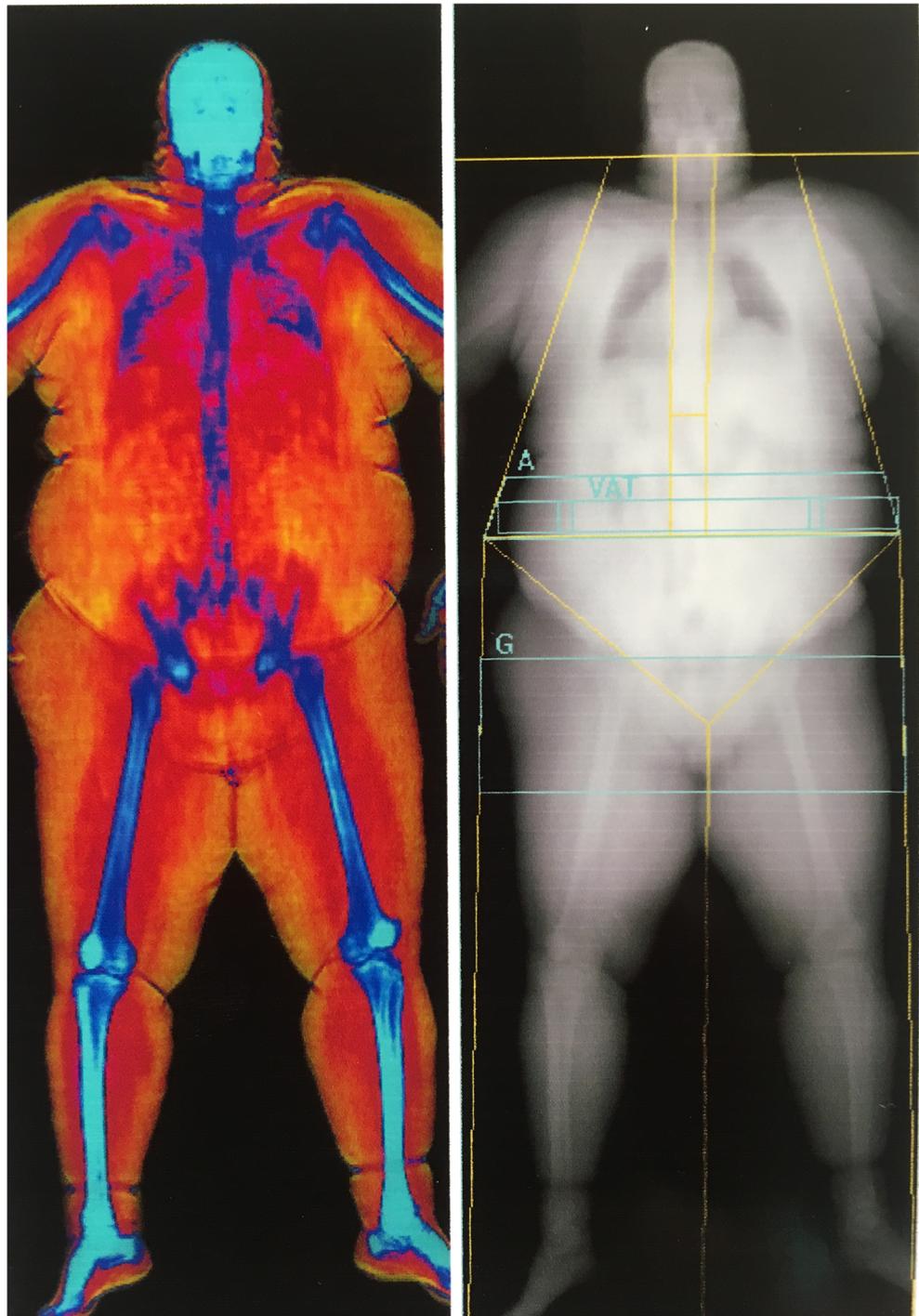
Masood Amini
masamini61@yahoo.com

Reza Dehghani
dr.rezadehghani7@yahoo.com

¹ Laparoscopy Research Center, Department of Surgery, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

² Department of Pharmacology, School of medicine, Shiraz University of Medical Sciences, Shiraz, Iran

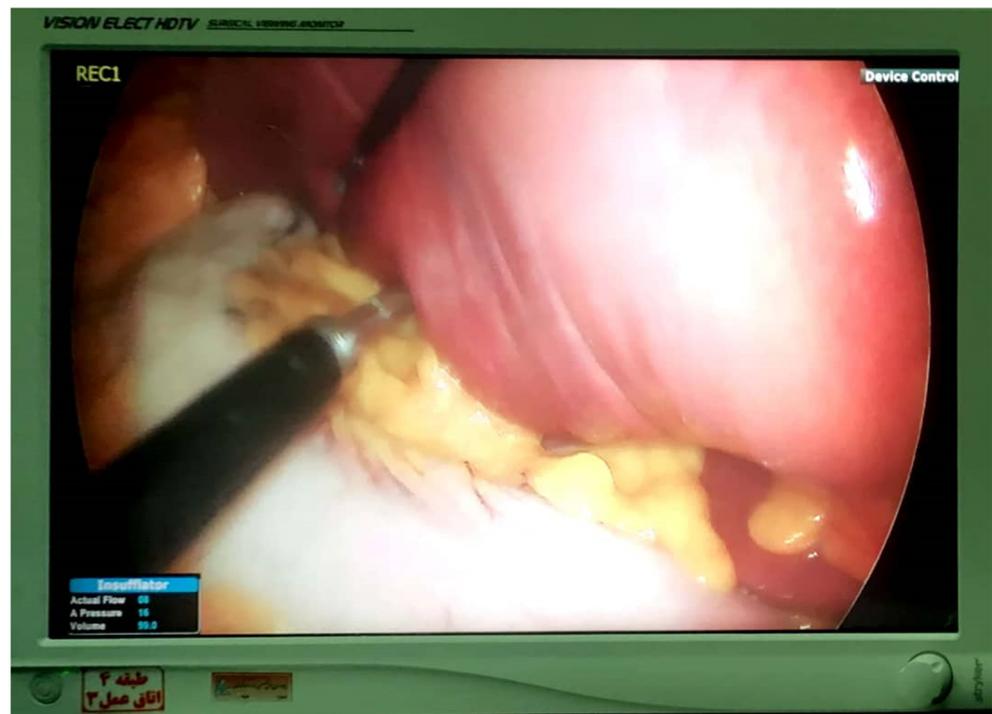
Fig. 1 Dual-energy X-ray absorptiometry imaging of a 36-year-old morbidly obese male



Mother and Child Hospital, Shiraz, Iran. The patient's BMI was 56.8 and the chest X-ray and abdominal pelvic sonography indicated situs inversus totalis. Pre-operational work-ups including hematology, hemostasis, biochemistry, HIV and hepatitis, urinalysis, bacteriology, hormone analysis, serology, ECG, bone densitometry (dual-energy X-ray absorptiometry imaging) (Fig. 1), and clinical examinations were conducted with no major variations from normal levels. Laparoscopic

surgery was commenced with placing the ports at a mirror position while one anastomosis gastric bypass surgery was performed similarly to routine surgeries. In order to make the gastric pouch, 6 cm above the pylorus (incisura angularis), the lesser curvature was dissected and entered into the lesser sac. Thereafter, the stapler (45 mm, purple in color) was used for a transverse cut of the stomach. After that, the stomach was cut vertical to his ankle using four staplers (60 mm). Later,

Fig. 2 Drain insertion



from the Treitz ligament of the small intestine, 200 cm was counted to reach a place in jejunum to be anastomosed to the pouch (using stapler 45 mm). Then, the anterior part of gastrojejunostomy was closed via hand sew (with 2/0 PDS). Next, with two sutures, the anti-reflux procedure was done for the patient and the leak test was performed. The operation was terminated with drain insertion (Fig. 2). Total surgery time was 90 min with no post-operational complications. The patient was discharged 2 days after the surgery. After 2 weeks, the patient, who lost 9 kg, was examined and no complaints were reported. Patients with morbid obesity and situs inversus totalis are very rare, and performing routine surgeries like sleeve and gastric bypass may have much more complexities compared to one anastomosis gastric bypass.

It is worth noting that a laparoscopic procedure in situs inversus totalis subjects requires eye, hand, and brain coordination so as to understand 2D and 3D spatial images. In situs inversus totalis patients, because the images are mirrored, the chances of inaccuracy, fault, and injury are higher. Accordingly, the fact that the image is mirrored must be remembered by the surgeon throughout the entire operation.

Conclusion

One-anastomosis gastric bypass is superior to other bariatric surgical techniques given its simpler procedure, low surgical complications during operation, short surgery time, and suitable weight loss. As a result, it may guarantee successful outcomes in patients with concurrent situs inversus totalis and

morbid obesity [8]. Since in situs inversus totalis patient's organs are displaced, the surgery requires high levels of precision and hand-eye coordination. It seems that the application of one anastomosis gastric bypass technique in such cases might lead to surgical feasibility, reduction in operation time, and lower intra and post-operation complication rate in comparison with other existing bariatric surgical methods.

Acknowledgments The authors appreciate the helpful assistance of nurses of the laparoscopy ward of Ghadir Mother and Child Hospital, Shiraz, Iran.

Compliance with Ethical Standards

Competing Interests The authors declare that they have no conflict of interest.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

References

1. Kyrou I, Randevo HS, Weickert MO. Clinical problems caused by obesity 2014.
2. Bennett JMH, Mehta S, Rhodes M. Surgery for morbid obesity. *Postgrad Med J* 2007 Jan;83(975):8–15.
3. Shogan PJ, Folio L. Situs inversus totalis. *Mil Med* 2011 Jul;176(7):840–843. Epub 2011/12/02. eng.
4. Versluis J, Suliman HM. Appendicitis in a patient with situs inversus totalis. *J Belgian Soc Radiol.* 2014;97(3)

5. Kassir R, Mourthadhoi F, Tiffet O, Lointier P. How do I do a laparoscopic one-anastomosis gastric bypass in a patient with situs inversus totalis. *Obes Surg* 2017 ;27(8):2218–2219. Epub 2017/06/01. eng.
6. Ahmed AR. Laparoscopic Roux-en-Y gastric bypass in a patient with situs inversus. *Obes Surg*. 2006;16(10):1392–4.
7. Yazar FM, Emre A, Akbulut S, et al. Laparoscopic sleeve gastrectomy in situs inversus totalis: a case report and comprehensive literature review. *Indian J Surg*. 2016;78(2):130–5.
8. Wang FG, Yu ZP, Yan WM, Yan M, Song MM. Comparison of safety and effectiveness between laparoscopic mini-gastric bypass and laparoscopic sleeve gastrectomy: a meta-analysis and systematic review. *Medicine* 2017; 96(50):e8924. Pubmed Central PMCID: 5815693. Epub 2018/02/03. eng.