ORIGINAL ARTICLE

Surgical result of revision of Laparoscopic Sleeve Gasterctomy to Roux En Y Gastric Bypass (study carried out in Body and Metabolic International Medical Centre, China Medical University Hospital, Taichung)

Mirza Arshad Beg, CK Huang

Abstract:

Introduction: Laparoscopic sleeve gastrectomy has made its mark as a stand alone procedure. Ever since its inception in the late 80s as a first stage procedure for more complicated procedures, laparoscopic sleeve gasterctomy (LSG) has now been established as a stand alone only procedure for a majority of morbidly obese individuals. In the last few years it has managed to surpass the various other procedures and due to its less learning curve and easier performance with good results is being utilized and has gained popularity around the globe. The complication rates after LSG vary among studies from 0% to 18%, with a 30-day post-operative mortality ranging from 0%-0.4%. In these scenarios it is sometimes prudent to change or "revise " to another feasible procedure. Roux En Y as a stand-alone procedure has stood the test of time and is the most often used procedure for a revision of sleeve gastrectomy. There is a dearth of studies on the subject and this institutional data attempts at providing an overview of the practice with reference to our institution.

Objectives: Review of revision of laparoscopic sleeve gastrectomy to roux en y gastric bypass in a high volume center

Study design: Retrospective Cohort of prospectively analyzed data

Setting: Body and metabolic International Medical Centre, China Medical University Hospital, Taichung.

Subjects: Patients undergoing revision to LRYGB after sleeve gastrectomy

Methods: Duration of study: 2007-2018(11 years)

Results: From the time period 2007-2018 (11 years) a total of 1566 patients underwent laparoscopic sleeve gastrectomy. 24-patients underwent revision to Roux En Y procedure, making 1.53% of total laparoscopic sleeve gastrectomies done. Gender distribution among the patients was of 29.2% males and 70.8 % females. Time interval to revision was longest as 6 years and shortest was 1 week, the average being 3.7 years. Among the factors responsible for revision included GERD in 37.5% (n=9) weight regain in 25% (n=6),inadequate weight loss in 20.8% (n=5), and in 16.7% (n=4) it was due to miscellaneous issues like gastric tube twist, stricture, and leak.

Conclusions: This study is a small attempt in sharing our experience and perhaps a sub group analysis and similar studies from other high volume centers may be helpful for further study

Keywords: Sleeve gastrectomy, conversion, laparoscipic Roux En Y Gastric bypass,

Received
Date:7th September 2019
Accepted
Date: 13th September 2020

Liaquat National Hospital and Medical College, Karachi
MA Beg

China Medical University, Taiwan
CK Huang

Correspondence:
Dr Mirza Arshad Beg
Assisstant Professor,
Liaquat National Hospital and Medical College, Karachi
Cell No: +92-308-2672893
email: doc_mab@hotmail.com

Introduction:

Among the various bariatric procedures being offered, Laparoscopic sleeve gastrectomy has made its mark as a stand-aloneprocedure. Ever since its inception in the late 80s as a first stage procedure for more complicated procedures, LSG has now been established as a stand-alone only procedure for a majority of morbidly obese individuals.[1] In the last few years it has managed to surpass the various other procedures and due

to its less learning curve and easier performance with good results is being utilized and has gained popularity around the globe. Due to the epidemic of Global obesity, Obesity has rightfully been regarded as a world epidemic by WHO. With an established EWL at 60% and diabetes remission rates of 86%, LSG has rightfully taken its place in the arsenal of modern day bariatric surgeon.[2]

The complication rates after LSG vary among studies from 0% to 18%, with a 30-day post-operative mortality ranging from 0%-0.4%.[3-4] The post-operative complications can be distinguished in early and late. Early complications generally involve bleeding, gastric leak, obstruction, abscess formation, wound infection as well as all the other possible post-operative complications of major laparoscopic surgical procedures. Late complications specific to LSG are the development of a fistula, gastro esophagial reflux disese (GERD), stenosis, neofundus, spiral sleeve and intrathoracic sleeve migration, weight loss failure and nutritional deficits.[5] LSG is not only a safe, but also an effective bariatric procedure with long-lasting results. However considering the wide acceptability of the procedure various long term complications have been observed viz GERD, failure to loseweight, gastric stenosis. In these scenarios it is sometimes prudent to change or "revise" to another feasible procedure.[6] Roux En Y as a stand-alone procedure has stood the test of time and is the most often used procedure for a revision of sleeve gastrectomy. Though the standing of Roux En Y is still debatable, but it has effectively been used as a revisional procedure. There is a dearth of studies on the subject and this institutional data attempts at providing an overview of the practice with reference to our institution.

Objectives: To determine the frequency of revision of laparoscopic sleeve gastrectomy to roux en y gastric bypass in a high volume center.

Secondary end points includes, mean Interval of surgery, reason of revision, Effect on Anthropometric measurements after revision surgery, Complications and Length of follow up.

Material and Methods:

Setting: Body and metabolic International Medical Centre, China Medical University Hospital, Taichung (BMIMC), China Medical University, Taichung, Bariatric Department of EDa Hospital, Kaohsiung

Duration of study: 2007-2018 (11 years)
Sample size: 24 patients
Sampling Technique: Purposive Sampling
Sample Selection:

Our inclusion criteria all adult patients ASA I, II, III, patients undergoing revision from Lap Sleeve gastrectomy to Laparoscopic roux en y Bypass procedure, primary surgery done at the same center

Our exclusion criteria, ASA III and IV, incomplete data,

Study Design: Retrospective cohort

Surgical technique: Both procedures i.e Primary and revision were done by the same group of surgeons having more than 5 years of experience of doing the procedures .

Sleeve Gastrectomy: Standard technique was followed across all procedures. Dissection of greater curvature is done up to angle of His by help of Ligasure device. Left crus of diaphragm is exposed and fundus is mobilized. Area is checked for any hiatal hernia. In case of any hernia defect it is repaired by non-absorbable suture and if the defect is large repair is done by ligament of teres in a standard manner. The fat pad is removed taking care not to overdo the dissection. A bougie calibration tube of size 38 Fr is used and starting approximately 4 cm from the pylorus the stapler is fired using Endo Gia stapler. First fire is of black and other is of purple tri stapler. Similarly a stomach tube is created and stomach remnant is removed through the umbilical port. In our institute no leak test is done post-operatively and patients are allowed water on first day upon passage of flatus.

Roux En Y Gastric Bypass: Standard manner of Roux en Y was followed in all patients. After dis-

section of sleeve from adhesions, the esophageal hernia is inspected carefully and hiatal hernia if present is identified. Repair is done in the same manner as described and absorbable Vicryl mesh is applied as required. The gastric pouch is transected at the level of second and third branch of left gastric artery. According to the cause of revision the Bilio-pancreatic limb and alimentary limb is created. A 20-40 cm BP limb and 70cm Alimentary limb is used in case of GERD while a 100 cm BP limb and 100 cm alimentary limb is used for weight regain or loss to failure to lose weight. An Oral Gastric tube with 25 cm water is used for calibration. The alimentary limb is anastomosed using a linear stapler size 40 blue cartridge and opening is closed by suturing with monocryl 2/0. The jejunojejunostomy is made using a linear stapler and defect is closed by suturing. No leak test is done. Drain is usually placed in revision cases and removed subsequently after a few days if daily output is less than 20 cc.

Data collection procedure: All prospectively entered data of the patients as per inclusion criteria was retrieved from the system. Study was approved from institutional review board and no funding was sought.

Data was analyzed using SPSS version 20. All prospectively entered data was studied with relation to demographics, anthropometrics, pre-op workup, total weight loss and clinical progression. Calculated Data was entered into SPSS 20 for data compilation and statistical analysis. Analysis included for the quantitative variables i.e. age and anthropometric measures. Frequency and percentages were calculated for qualitative variables i.e. gender and t-test applied to compare the mean pre procedure and post procedure BMI after 3 months and 6 months and 1 year .

Stratification was performed on gender, age and post procedure BMI at 3 months, 6 months and 1year to see effect of these modifiers on outcome using independent sample t test. P-value ≤ 0.05 was considered as significant

Results:

From the time period 2007-2018 (11 years) a total of 1,566 patients underwent laparoscopic sleeve gastrectomy. 24-patients underwent revision to Roux En Y procedure, making 1.53%. of total laparoscopic sleeve gastrectomies done. Gender distribution among the patients was of 29.2% males and 70.8% females. Time interval to revision was longest at 6 years and shortest was 1 week, the average being 3.7 years. The average weight loss before conversion was xxx. After the conversion to Roux En Y bypass the weight loss at 3months , 6months and 1year was xx, xy and yy, respectively. Among the factors responsible for revision included GERD in 37.5% (n=9) weight regain in 25% (n=6), inadequate weight loss in 20.8% (n=5)(defined as an EWL less than 50% both by the Dutch and American society for Metabolic and Bariatric surgery.), and in 16.7% (n=4) it was due to miscellaneous issues like gastric tube twist, stricture, and leak. The mean pre procedure BMI was xxx and the post-op BMI observed at 3months, 6 months and 1 year was yyyy. Upon comparing the BMI pre LRYGB through independent T test, the value came out to be 0.024 which was found to be statistically significant. There was a dramatic decrease in the BMI post-procedure and no complication was observed in all of the patients. There was an70% follow up of all the patients.

Discussion:

Being one of the biggest centers catering to the East Asia population, our study can be attributed to be one of the largest in our part of the world. The revision rate of 1.53% corroborates with data of other high volume centers (Robert et al, Abraham et al), however a higher number of revisions have been observed in other centers as well. The total time duration of the study is among the largest among other similar studies. A lot has been stipulated with regards to the optimal time for revision. In our study the mean time of revision came to be close to 3.5 years which is in fact slightly longer than similar studies. In our center there has been an increase in the female patients though in the literature else where there is almost equal proportions of male and female

patients. Upon stressing on the factors that lead to revision, the greatest percentage is of patients having GERD. This is in conjunction with similar studies.[7-9] Though patients were screened for GERD in the pre-op examination prior to sleeve and defects were repaired, nonetheless the development of GERD indicates that there may be later factors responsible for the same. The need to discuss or study those factors may be an impetus for further research. Next among the prospects is the weight regain. Studies by Iannelli[7] et al have described a similar rate of weight regain as being the causative factor for revision. Weight regain at a higher proportion may in fact be a questionable factor, since the success of a sleeve surgery depends upon the weight loss at almost 50-60% of the pre-op weight. Inability to lose weight is another of the factors which is also corroborated by a similar study by Ekua et al.[11] In one of the cases there was peritonitis due to leak and had to revert within a week of surgery to laparotomy. Rest of the revisions were done laparoscopically. In one case there was stricture, in another there was twist and gastric outlet obstruction in another one.

Conclusion:

With the rise in cases of Sleeve gastrectomy, the cases of revision might well have an increase in the years to come. In order for the upcoming surgeons to be aware of the options for revisions and associated problems it would be prudent to have a large data base of patients. This study is a small attempt in sharing our experience and perhaps a sub group analysis and similar studies from other high volume centers may be helpful for further study. Among the positive points of this study is that it is one of its kind in our part of the world, covering patients with a long span of time duration. The draw back of the study includes a small sample size, loss of followup of a few patients. More studies are required to further corroborate the evidence.

Conflict of interest: None

Funding source: None

Role and contribution of authors:

Dr Mirza Arshad Beg, collected the data, refereces and did the writeup.

Prof Dr C K Huang, Professor and Chief BMIMC, critically went through the article and make the final changes.

References:

1. I Kehagias et al , sleeve gastrectomy :have we finally found the holy graille of bariatric surgery ?A review of literature , ERMPS, 2016; 20: 4930-494
2. DiaManT Et al Review of long-term weight loss results after laparoscopic sleeve gastrectomy. SurgObesRelat Dis 2014; 10: 177-183.
3. lalOr PF, TucKer On, szOMsTein s, rOsenThalrJ. Complications after laparoscopic sleeve gastrectomy. SurgObesRelat Dis 2008; 4: 33-38.
4. TrasTulli s, desideriO J, guarinO s, cirOcchi r, scalerciO v, nOYa g, Parisi a. Laparoscopic sleeve gastrectomy compared with other bariatric surgical procedures: a systematic review of randomized trials. SurgObesRelat Dis 2013; 9: 816-829
5. Casillas R. Revision of primary sleeve gastrectomy to roux en y gastric bypass :indications and outcomes from a high volume centre. Surgery for Obesity and Related Diseases. 2016 ;(12(2016):1817-1825.
6. Brethauer SA, Kothari S, Sudan R, et al. Systematic review on reoperative bariatric surgery: American Society for Metabolic and Bariatric Surgery Revision Task Force. SurgObesRelat Dis. 2014;10:952–72
7. Iannelli A, Debs T, Martini F, Benichou B, Ben Amor I, Gugenheim J. Laparoscopic conversion of sleeve gastrectomy to Roux-en-Y gastric bypass: indications and preliminary results. Surgery for Obesity and Related Diseases. 2016;12(8):1533-1538.
8. Quezada N, Hernández J, Pérez G, Gabrielli M, Raddatz A, Crovari F. Laparoscopic sleeve gastrectomy conversion to Roux-en-Y gastric bypass: experience in 50 patients after 1 to 3 years of follow-up. Surgery for Obesity and Related Diseases. 2016;12(8):1611-1615.
9. Santos-Gonzalez E, Maldonado Pintado D, Marín-Dominguez R, Campos Pérez F, Farell-Rivas J, Rodarte-Shade M et al. Conversion of Laparoscopic Sleeve Gastrectomy to Roux-en-y Gastric Bypass, initial experience at a public obesity clinic in Mexico City. Surgery for Obesity and Related Diseases. 2015; 11(6):S179.
10. Abdemur A, Han S, Lo Menzo E, Szomstein S, Rosenthal R. Reasons and outcomes of conversion of laparoscopic sleeve gastrectomy to Roux-en-Y gastric bypass for nonresponders. Surgery for Obesity and Related Diseases. 2016;12(1):113-118.
11. E Y. Revision of sleeve gastrectomy to Roux-en-Y Gastric Bypass: A Canadian experience. AmJ surgery. 2017;May;213(5):970-974.