

Diabetes & its Complications

Laparoscopic Butterfly Gastroplasty Versus Sleeve Gastrectomy In Morbidly Obese Patients – Five Years Results

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ABSTRACT

Background: Sleeve Gastrectomy (resection of 80% of the stomach) and Butterfly gastroplasty (funnel-shaped micropouch constructed below the esophagus limited to the stomach cardia with banded outlet 1.2cm without resection of any gastric part) are purely restrictive gastric procedures to control morbid obesity. This study presents five-years results.

Methods: From March 2014 through March 2019, each procedure was attempted in 500 patients, five years results were collected and compared including early and late complications as well as weight loss maintenance.

Results: Average excess weight loss at one year was 70%, 81% at second year, 85% at third year, 90% at the fourth and fifth years, while in sleeve was 68% in first year, 75% in the second year, then 20% of patients start to gain weight in the third year, then 60% of patients start to gain weight in fourth year and 80% start to gain weight in the fifth year. Reflux was 3% in butterfly and 60% in sleeve. Barrett's esophagus was 3% in sleeve and 0% in butterfly. Intolerance to solid food was 15% in butterfly and 5% in sleeve. Both techniques has nearly same percentage of hypertension and diabetes resolution.

Conclusion: Butterfly gastroplasty, (micropouch funnel shaped pouch) using the gastric cardia only is an effective way to prevent pouch dilatation and therefore prevent the weight regain occurred in a high percentage of sleeve gastrectomy. Sleeve gastrectomy has a very higher incidence of leakage, stapel – line bleeding, kinking and migration of pouch early weight regain due to rapid dilatation of the pouch beside a very serious pre-malignant Barrett's esophagus. As well as it is an aggressive and irreversible procedure. We recommend butterfly gastroplasty being safer, easy, low costs, reversible and long term maintained weight loss with no serious complications.

Keywords

Laparoscopic Butterfly gastroplasty, obesity, sleeve gastrectomy.

Introduction

Sleeve Gastrectomy (resection of 80% of the stomach) and Butterfly gastroplasty (funnel-shaped micropouch constructed below the esophagus limited to the stomach cardia with banded outlet 1.2cm without resection of any gastric part) are purely restrictive gastric procedures to control morbid obesity. This study presents five-years results. The aim of the study is to evaluate both techniques

(Laparoscopic Butterfly Gastroplasty and sleeve gastrectomy) and compare five years results of early and late complications and percentage of excess weight loss.

Materials and Methods

From March 2014 through March 2019, each procedure was attempted in 500 patients. The median age was 35 (20 – 50) in butterfly gastroplasty and 33 (20 – 45) in sleeve gastrectomy. In both groups the female patients were 400 and male patients was 100. BMI was 47 (40 – 60) on butterfly and 45 (42 – 60) in sleeve.

Table 1 show the details of demographic data in both groups. The position of the patient and trocars are similar to and hiatal procedure. In Butterfly gastropasty the anterior and posterior layers of the gastrosplenic ligament are divided from the level of splenic vessels up to angle of his. The first articulating endocutter (blue 60) in applied from the angle of his downward with complete exclusion of the gastric fundus. At the level of the first branch of the left gastric artery, the retro gastric space is completely dissected and the second endocutter cartridge (blue 60) Is applied to perform the butterfly pouch (25 cm funnel-shaped) With accurate adjustment of the pouch outlet (1.2 cm) which is banded With a mesh (5.5cm x 1cm).

Demographics	Butterfly	Sleeve
Number	500	500
Age	35 (20 - 50)	33 (20 - 45)
Sex (F/M)	400/ 100	400 / 100
BMI (Kg/m ²)	47 (40 - 60)	45 (42 - 60)
Weight (Kg)	107 - 205	110 - 185

Laparoscopic sleeve gastrectomy

Surgical Technique LSG was performed according to the technique described by Gagner. The vascular supply, starting at 5 cm from the pylorus and proceeding upwards until the angle was carried out with Harmonic Scalpe. Using a linear stapler endo GIA, with two sequential 60-mm green load firings for the antrum, followed by two or three sequential 60-mm blue loads for the remaining gastric corpus and fundus. The stapler was applied alongside a 36 Fr calibrating bougie strictly positioned against the lesser curve, to obtain a 120-150 ml gastric pouch. The Resected stomach is extracted by enlargement of the 15-mm port-site up to 25 mm opening. Naso-gastric tube and abdominal drainage were left in place. Tests for leak was done.

Results

The mean operating time was nearly the same, 35 minutes in butterfly and 40 minutes in sleeve. One case was converted to open surgery in both groups due to misfiring in butterfly and due to splenic injury in sleeve. There was no leakage in butterfly (0%) while it was higher in sleeve (10%) managed by conserving methods and or stenting. Intolerance to solid food was higher in butterfly (15%) managed by endoscopic dilatation and only 5% in sleeve.

Reflux (GERD) was very high in sleeve (60%) and (3%) only in butterfly. Pouch migration into chest was 2% in sleeve and 0% in butterfly. Pouch kinking was 2% in sleeve (managed by seromyotomy and or stenting) and 0% in butterfly. Mesh erosion was 1% in butterfly and 0% in sleeve. Resolution of hypertension was nearly the same (80% in butterfly and 82% in sleeve) as well as Diabetes type II (72% in butterfly and 75% in sleeve). A very serious complication (Barrett's esophagus) discovered in 3% of sleeve cases from the third to the fifth year and one case showed adenocarcinoma changes. This complications were 0% in butterfly. There was no mortality in both groups (Tables 2 & 3).

Demographics	Butterfly	Sleeve
Mean Operating Time in Non Complicated Cases	35 minutes	40 minutes
Mean Operating Time in Complicated Cases	60 minutes	90 minutes
Mean Operating Time	40 minutes	45 minutes
Internal Hemorrhage	3 Cases	3 Cases
Conversion to Open Surgery	1 Case	1 Case
Leak	None	10%
Intolerance to Solid Food	15%	5%
Weight Loss	See Next Table	See Next Table
Mortality	0%	0%

Demographics	Butterfly	Sleeve
Reflux (GERD)	3%	60%
Pouch Migration	0%	2%
Barrett's Esophagus	0%	3%
Mesh Erosion	1%	0%
Psychological Problems	3%	10%
Type II Diabetes	72%	75%
Hypertension	80%	82%

Average excess weight loss at one year was 70%, 81% at second year, 85% at third year. 90% at the fourth and fifth years, while in sleeve was 68% in first year, 75% in the second year, then 20% of patients start to gain weight in the third year, then 60% of patients start to gain weight in fourth year and 80% start to gain weight in the fifth year (Table 4).

Period	Butterfly	Sleeve
1 Year	70%	68%
2 Year	81%	75%
3 Year	85%	20 % Starts to gain weight (about 20% of the lost weight)
4 Year	88%	60 % Starts to gain weight (about 50% of the lost weight)
5 Year	90%	80 % Starts to gain weight (about 90% of the lost weight)



Conclusion

Butterfly gastroplasty, (micropouch funnel shaped pouch) using the gastric cardia only is an effective way to prevent pouch dilatation and therefore prevent the weight regain occurred in a high percentage of sleeve gastrectomy. Sleeve gastrectomy has a very higher incidence of leakage, staple – line bleeding, kinking and migration of pouch early weight regain due to rapid dilatation of the pouch beside a very serious pre-malignant Barrett's esophagus. As well as it is an aggressive and irreversible procedure. We recommend butterfly gastroplasty being safer, easy, low costs, reversible and long term maintained weight loss with no serious complications.

References

1. Gloria FA. Endoscopic dilatation with Savary Giliard bougies of stomal strictures after laparoscopic gastric bypass in morbidly obese patients. *Obes Surg.* 2008; 18: 155-161.
2. Mognol P, Chosidow D, Marmuse JP. Roux-en-y Gastric bypass after failed vertical banded gastroplasty. *Obes Surg.* 2007; 11: 1431-1434.
3. Balsiger BM, Poggi BM, Mai BM, et al. Ten years or more after vertical banded gastroplasty as primary operation for morbid obesity. *J Gastrointestinal Surg.* 2000; 4: 598-605.
4. Kalfarentzos F, Skroubis G, Kehagias I, et al. prospective comparison of vertical banded gastroplasty and Roux-En-Y gastric bypass in a non-super obese population. *Obes Surg.* 2006; 16: 151-158.
5. Cordera F, Mai JL, Thompson GB, et al. Unsatisfactory weight loss after vertical banded gastroplasty: is conversion to Roux-En-Y gastric bypass is successful? *Surgery.* 2004; 136: 731-737.
6. Suter M, Jayet C, Jayet A. Vertical banded gastroplasty: long term comparing three different techniques. *OBES Surg.* 2000; 10: 14-16.
7. Fotis K, Kehagias I, Soulikia K, et al. weight loss following vertical banded gastroplasty: intermediateresults of a prospective study. *Obes Surg.* 2001; 6: 265-271.
8. Toppino M. Outcome of vertical banded gastroplasty *Obes.* 1999; 9: 15-24.
9. Mason EE. Vert valgastroplasty: evaluation of vertical banded gastroplasty. *World J Surg.* 1998; 22: 919-924.
10. ChuaTY, Mendiola RM. Laparoscopic vertical banded gastroplasty: The Milwaukee experience. *Obes Surg.* 1995; 5: 77-80.
11. Essam abdelagalil. Laparoscopic Butterfly gastroplasty-2000 cases and 10-years' experience. *international journal of diabetes & its complications.* 2017; 1: 1-3.
12. Essam abdelagalil. Butterfly Gastric Bypass (BB) Single anastomosis on Butterfly Gastroplasty, New Laparoscopic Technique Evaluation for morbidly Obese Patients. *international journal of diabetes & its complications.* 2017; 1: 1-3.
13. Trelles N, Gagner M. Sleeve gastrectomy *Oper Tech Gen Surg.* 2007; 9: 123-131.
14. Abdel-Galil E, Abbas AS. Laparoscopic butterfly gastroplasty - a new modified gastroplasty technique. *Euro-Mediterranean & middle east laparoscopic meeting - Bordeaux (France).* 2008.
15. Baltasar A, Serra C, Perez N, et al. Laparoscopic sleeve gastrectomy: A multi-purpose bariatric operation. *Obes Surg.* 2005; 15: 1124-1128.
16. Masrur M, Elli E, Gonzalez-Ciccarelli LF, et al. De novo gastric adenocarcinoma 1 year after sleeve gastrectomy in a transplant patient. *Int J Surg Case Rep.* 2016; 20: 10-13.
17. Wei-jei Lee, Owaid Almalki. Gastro Esophagus Reflux Disease after Sleeve Gastrectomy: A Real Issue and Future Perspectives. *American Journal of General and GI Surgery.* 2018.
18. Fernando Gabriel Wright, Agustin Duro, Juan Rodolfo Medici, et al. Esophageal adenocarcinoma five years after laparoscopic sleeve gastrectomy. A case report. *Iin J Surg Case Rep.* 2017; 32: 47-50.