

Short term Weight Loss after Laparoscopic Gastric Plication for Treatment of Morbid Obesity

Usama Shaker Mohamed, Mohamed Daa Sarhan, Amr Mohsen, Ahmed Farag,
Mohamed Youssef, Fahim Elbassiony

Department of General Surgery, Faculty of Medicine, Cairo University, Cairo, Egypt

ABSTRACT

Background: Laparoscopic gastric plication is a star rising in the field of bariatric surgery having the advantage of being the least invasive restrictive procedure with potentially less complications and less cost¹. Fears are highlighted about the durability of the plicated stomach. The first report on humans was made by Talebpour and Amoli in 2007². They operated on a 100 cases and showed weight loss that is comparable to other restrictive operations. This was followed by another report by Ramos et al in 2010³. They operated on 42 patients and concluded that laparoscopic gastric plication is feasible, safe, and effective for at least 18 months when performed on morbidly obese patients. The published material and number of cases are not enough to fully understand the operation outcomes. This study aimed at identifying the short term results of the gastric plication regarding weight loss and early postoperative complications to participate in the database and allowing better understanding of the procedure. **Methods:** Data on 20 morbidly obese patients who underwent gastric plication in the period between 2010 and 2012 were prospectively collected and analysed using SPSS 20. **Results:** In this case series study median operative time was 130(100) minutes. Median post-operative hospital stay was 3(20) days. Median Excess body weight loss (EBWL) was 24.8(28.6) after one month (EBWL 1), and was 47.7(49.8) after six months (EBWL 6). The only postoperative complication was prolonged vomiting (more than 7 days) in 2 cases. **Conclusions:** Excess body weight loss after gastric plication is acceptable on the short term in comparison with other restrictive procedures, although we put in mind that it takes longer time to perform which can be a drawback on the surgeon himself but, being a less invasive and potentially reversible procedure gives us the motivation to continue studies about longer term results.

Keywords: Hospital, Gastric, Plication, Weight loss.

INTRODUCTION

Laparoscopic gastric plication (LGP) is a relatively new bariatric restrictive procedure that reduces the stomach volume by placing two or three rows of non-absorbable sutures on the gastric wall⁴. Initial data show that LGP is effective for short- and medium-term weight loss. Current studies show an Excess weight loss (%EBWL) at the range of 50% on 6 months and 60% on 12 months. Studies with longer follow-up periods indicate a durable result for up to 36 months⁵.

Aim:

This study aimed at identifying the short term results of the gastric plication regarding weight loss and early postoperative complications to participate in the database and allowing better understanding of the procedure.

PATIENTS AND METHODS

This is a prospective study included twenty morbidly obese patients fulfilling the standard criteria from Cairo University Hospital (CUH) in the period (Aug. 2010 and Oct. 2012). Cases were operated by three senior surgeons.

Operative technique

After disconnecting the greater curvature Gastric plication was done by invagination of the greater curvature into the lumen using two rows of sero-muscular non-absorbable 2-0 Ethibond™ poly-filament sutures judged by the apparent external size of the stomach. Plication started 2 cm from the angle of His to 4 cm from the pylorus. Distance of bites from the greater curvature was about 4 cm near the fundus and was gradually diminishing till the pylorus was reached. Distance between bites was 2 cm in the first row and 1 cm in the second rows. The stomach was thus converted into a tubular

structure that is based on the lesser curvature. The amount of invagination was guided by a 36-Fr orogastric tube.

Follow up

Weight recorded at one and six months after the operation.

RESULTS

This case series study included twenty morbidly obese patients (18 females) from Cairo University Hospital (CUH) in the period (Aug.2010 and Oct. 2012) of age (mean [\pm SD] age, 35 ± 9.54 years) ranges between 18 and 52 years. Preoperative Body Mass Index (BMI 0) ranges between 35 and 62, (mean [\pm SD] BMI, 49.8 ± 7). Excess Body weight (EBW) ranges between 28.4 and 91 Kg, (mean [\pm SD] EBW, 46.4 ± 17.8 kg). Operative time ranges between 100 and 200 min, (mean [\pm SD] operative time, 148 ± 34.3 min). Post-operative hospital stay (POS) ranges between 1 and 21 days, (mean [\pm SD] POS, 3.5 ± 4.2 days). Mean BMI was 44 ± 6 (31-59) after one month (BMI 1), 38 ± 6 (28-52) after six months (BMI 6). Mean Excess body weight loss (EBWL) was $26\% \pm 8\%$ (8%-36%) after one month (EBWL 1), and was $47\% \pm 14\%$ (24%-73%) after six months (EBWL 6). None of the patients needed intra-operative blood

transfusion or post-operative ICU admission. Readmission rate was zero during the study period. The only postoperative complication was prolonged vomiting (more than 7 days) in 2 cases. Summary of the results was shown in table 1.

DISCUSSION

In the current study Excess weight loss was 24.8% after 1 month and 47.7% after 6 months, which is acceptable range of weight loss in comparison with sleeve gastrectomy and other gastric plication studies. A recent meta-analysis done in 2013 included 11 studies between 2000 and 2012 showed that the excess weight loss 6 months after sleeve gastrectomy was 50.6%⁶. In the 2011 Skrekas et al. Publication, 135 patients were studied. The percentage of excess weight loss (%EWL) was 51.7% at 6 months, 67.1% at 12 months, and 65.2% at 24 months. Inadequate weight loss (defined as less than 50% of the %EWL) was observed in 21.48%, with failure (%EWL of less than 30%) in 5.9% of the cases of inadequate weight loss⁷. Andraos et al. published a series of 120 cases. The percentage of excess weight loss (%EWL) was 30.2% at 1 month, 43.9% at 3 months, and 48.58% at 6 months⁸.

Table (1): Summary of Results

	Mean	Minimum	Maximum
BMI 0	49.8	34.3	62.0
BMI 1	44	31.0	59.0
BMI 6	38	28.1	52.7
Excess weight loss at 1 month (EBWL1)	26	8.0%	36.6%
Excess weight loss at 6 month (EBWL6)	47	23.5%	73.3%

CONCLUSION

Excess body weight loss after gastric plication is acceptable on the short term in comparison with other restrictive procedures.

REFERENCES

1. Pontiroli AE, Morabito A: Long-term prevention of mortality in morbid obesity through bariatric surgery. a systematic review

and meta-analysis of trials performed with gastric banding and gastric bypass. Ann Surg 2011, 253:484-487.

2. Talebpour M, Amoli BS. Laparoscopic total gastric vertical plication in morbid obesity. Journal of laparoendoscopic & advanced surgical techniques Part A. 2007;17(6):793-8. Epub 2007/12/2
3. Ramos A, Galvao Neto M, Galvao M, et al. Laparoscopic greater curvature plication: initial results of an alternative restrictive

- bariatric procedure. *Obes Surg* 2010;20: 913-918.
4. Puia C, Puia V. Laparoscopic greater curvature plication - a new and safe bariatric procedure. *Journal of gastrointestinal and liver diseases : JGLD*. 2011;20(1):97. Epub 2011/04/01.
 5. Kourkoulos M, Giorgakis E, Kokkinos C, Mavromatis T, Griniatsos J, Nikiteas N, et al. Laparoscopic gastric plication for the treatment of morbid obesity: a review. *Minimally invasive surgery*. 2012;2012:696348. Epub 2012/07/20.
 6. Wang S, Li P, Sun XF, Ye NY, Xu ZK, Wang D. Comparison between laparoscopic sleeve gastrectomy and laparoscopic adjustable gastric banding for morbid obesity: a meta-analysis. *Obesity surgery*. 2013;23(7):980-6. Epub 2013/04/23.
 7. Skrekas G, Antiochos K, Stafyla VK. Laparoscopic gastric greater curvature plication: results and complications in a series of 135 patients. *Obesity surgery*. 2011;21(11):1657-63. Epub 2011/09/08.
 8. Andraos Y, Ziade, D. Achcouty, and Awad M, "Early complications of 120 laparoscopic greater curvature plication procedures," *Bariatric Times*, vol. 8, pp. 10–15, 2011
-