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Original article

Laparoscopic adjustable gastric banding versus laparoscopic adjustable gastric banding with gastric plication: midterm outcomes in terms of weight loss and short term complications

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Abstract

Background: Laparoscopic adjustable gastric banding (LAGB) is a safe procedure with variable outcomes and large standard deviations. LAGB with gastric plication (LAGBP) is a new restrictive procedure that combines the lap band with gastric plication. This procedure, with its mechanism being below the band anatomically, should augment the weaknesses of the lap band: slips and inadequate weight loss.

Objective: Compare the weight loss results and complication rates between the LAGB and LAGBP.

Setting: Private practice.

Methods: Data was analyzed data from 120 patients retrospectively from 2 surgeons at a single private institution. Seventy-six patients underwent LAGB, and 44 other patients underwent LAGBP between February 2011 and July 2013. All 120 patients are beyond the 1-year postoperative mark and 110 patients are beyond the 2-year postoperative mark. A subset analysis was performed comparing data from both procedures to evaluate weight loss and complications.

Results: There were no significant differences between preoperative age, weight, and body mass index between the patients who underwent either procedure. We had 47.4% and 52.3% follow-up at 1 year for LAGB and LAGBP, respectively, with 91.5% and 92.3% follow-up at 2 year for LAGB and LAGBP, respectively. Complications were low with LAGBP; however, it was not statistically significant ($P = .54$). The LAGBP had a greater percent excess weight loss, percent total weight loss, and percent excess body mass index lost compared with the LAGB at 3, 6, 9, 12, and 24 months, and these differences were statistically significant. Mean percent excess weight loss for LAGB and LAGBP was 28.3% and 34.5% ($P < .05$) at 1 year and 32.1% and 39.2% ($P < .05$) at 2 years, respectively.

Conclusion: LAGBP is a safe, feasible, and reproducible bariatric procedure. The LAGBP performs significantly better than the LAGB for weight loss. The complication and revision rates were slightly higher with LAGB than LAGBP. However, it was not statistically significant. (Surg Obes Relat Dis 2016;■:00–00.) © 2016 American Society for Metabolic and Bariatric Surgery. All rights reserved.

Keywords:

LAGB; LAGBP; Gastric plication; Gastric Band; Weight loss; Band slippage

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Laparoscopic adjustable gastric banding (LAGB) is a reversible and adjustable operation with a mean excess weight loss (EWL) of 40% [1]. At the same time, complications such as band slippage, erosion, obstruction

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of the stomach, and esophageal dilation are an all-too-common part of postoperative care [2–5].

Laparoscopic gastric plication (LGP) is a newer minimally invasive weight loss surgery technique that reduces the size of the stomach with simple sutures and does not require resecting the stomach [6]. It is a feasible, safe, and effective surgical method for weight loss and patients lose a mean EWL of 40% to 70% after surgery [7–9]. Talebpour and Amoli introduced plication of greater curvature as an alternative to cutting it and recently published their 12-year results with good outcomes [6]. LGP with LAGB has been reported to decrease band-related complications [10].

Keeping all the advantages and disadvantages in mind, one surgeon in our practice (S2) began combining LAGB with LGP to reduce band-related complications like slippage and poor weight loss that are sometimes seen with LAGB [11–13]. Another surgeon in our practice (S1) performed only LAGB. This retrospective study investigated the weight loss and complication between LAGB with gastric plication (LAGBP) and LAGB.

Methods

This study has been approved by Quorum Review-Independent review board (QR# 31353), before data collection. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

One hundred twenty patients were selected from those who received either the LAGB or the LAGBP between February 2011 and July 2013. Seventy-six patients received the LAGB, and 44 received the LAGBP. All surgeries were performed by one of the 2 surgeons at the same institution. Patients were selected for each surgery based on when they came in and the surgeon they chose. One surgeon in our practice still actively performs LAGB the same way our group has for over 8 years. All patients of this surgeon had

LAGB. The other surgeon in our practice stopped performing LAGB in 2012 and began informing patients of the LAGBP option. Patients chose LAGBP based on an extensive preoperative educational experience and signed a specific informed consent detailing the LAGBP procedure that included a diagram of the proposed operation.

All patients in our practice signed consent for retrospective blinded data analysis. Patients also underwent a preoperative evaluation including history, physical examination, nutritional, and psychiatric evaluation. Dietary restrictions related to gastric banding were discussed in detail with the patients. Laboratory evaluation included complete blood count and comprehensive metabolic panel, including blood glucose, cholesterol, vitamin B1, B12, D, serum ferritin, and thyroid function tests. The data collected included age, weight, body mass index (BMI), operative time, excess weight loss, and decrease in BMI. Patients have been followed up by their respective surgeon and dietician at frequent postoperative intervals to assess weight loss, percentage of excess weight loss (%EWL), and band tolerance at: 1 week, 1 month, 3 months, 6 months, 9 months, 1 year, and so on. All band adjustments were performed under fluoroscopic guidance to guide fill accuracy.

Descriptive statistics were used to calculate the mean and the standard deviation of the preoperative characteristics such as age, weight, and BMI. Descriptive statistics are presented as means and standard deviations. Comparisons were made between 2 groups using nonlinear regressions. All the data collected was analyzed using Sigma plot statistical software. T tests and chi-squared tests were used for statistical comparison of quantitative data. A P value $< .05$ was considered statistically significant.

Surgical technique

LAGB technique. Our method of band placement has also been described previously in detail (Fig. 1a) [14]. Briefly, after placement of 4 trocars and a liver retractor, a calibration tube was introduced into the stomach to check

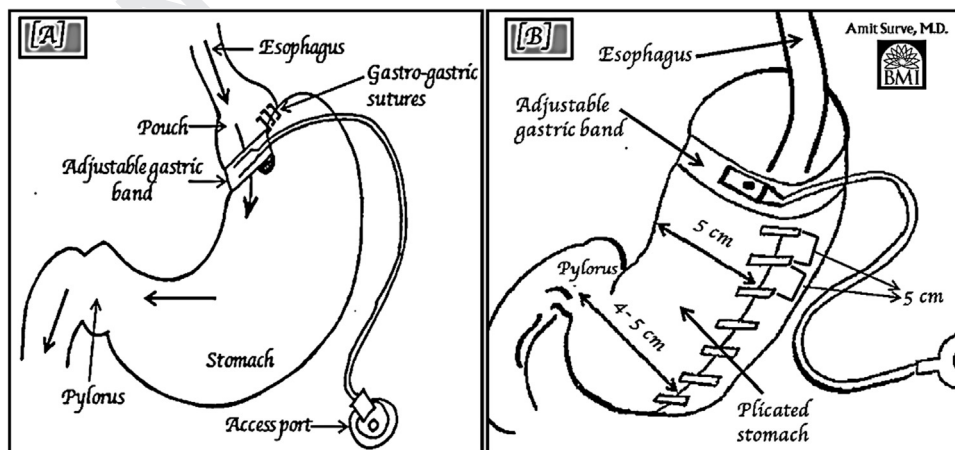


Fig. 1. Hand-drawn sketch of (A) laparoscopic adjustable gastric banding and (B) laparoscopic adjustable gastric banding with gastric plication.

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