



Long-term outcomes of laparoscopic adjustable gastric banding

Jad Khoraki ^{a, b}, Marilia G. Moraes ^a, Adriana P.F. Neto ^a, Luke M. Funk ^{a, c}, Jacob A. Greenberg ^a, Guilherme M. Campos ^{a, b}

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Abstract

Background Laparoscopic adjustable gastric banding (LAGB) is an option for the treatment of severe obesity. Few US studies have reported long-term outcomes. We aimed to present long-term outcomes with LAGB.

Methods Retrospective study of patients who underwent LAGB at an academic medical center in the US from 1/2005 to 2/2012. Outcomes included weight loss, complications, re-operations, and LAGB failure.

Results 208 patients underwent LAGB. Mean BMI was 45.4 ± 6.4 kg/m². Mean follow-up was 5.6 (0.5–10.7) years. Complete follow-up was available for 90% at one year (186/207), 80% at five years (136/171), and 71% at ten years (10/14). Percentage of excess weight loss at one, five, and ten years was 29.9, 30, and 16.9, respectively. Forty-eight patients (23.1%) required a reoperation. LAGB failure occurred in 118 (57%) and higher baseline BMI was the only independently associated factor (OR 1.1; 95%CI 1.0–1.1; p = 0.016).

Conclusion LAGB was associated with poor short and long-term weight loss outcomes and a high failure rate. With the increased safety profile and greater efficacy of other surgical techniques, LAGB utilization should be discouraged.

Introduction

Laparoscopic adjustable gastric banding (LAGB) gained initial popularity in Europe, Australia and other parts of the world since it was first introduced in Belgium in 1993 by Belachew et al.¹ By 2008, it was estimated to be the second most commonly performed bariatric procedure worldwide after gastric bypass.² Successful long-term weight loss results with LAGB have been reported from centers in Australia and Europe with a percentage of excess weight loss (%EWL) between 41% and 59% and maintained for ten years or longer.^{3, 4, 5, 6, 7} However, and despite these publications, LAGB utilization in Europe significantly decreased; from 43% of all bariatric procedures performed between 2008 to 15% in 2013² and a decreasing trend continues to be observed in other recent publications from individual European countries.^{8, 9}

After the FDA approval of LAGB for commercial use in the United States in 2001,¹⁰ there was a significant increase in LAGB utilization in the US, with a 329% increase in academic medical centers between 2004 and 2007.¹¹ However, and despite the FDA expanding the indications for LAGB implantation in 2011,¹² this was followed by a large decline in utilization, with LAGB being offered as only 1% of the procedures in academic medical centers in 2014.^{13, 14}

This decline in utilization of LAGB is thought to be a consequence of the increased safety profile of other more efficacious bariatric surgical techniques [Laparoscopic Roux-en-Y gastric bypass (LRYGB) and laparoscopic sleeve gastrectomy (LSG)]^{15, 16, 17, 18, 19, 20} and a widespread, often unpublished, perception of high failure rates with LAGB.^{6, 7, 21, 22}

Notwithstanding, LAGB is still one of the surgical treatment options for severe obesity and in 2015 the American Society for Metabolic and Bariatric Surgery (ASMBS) reported that 11,172 LAGB were implanted in the US.²³

We are unaware of any publication from a US center with long-term outcomes and high completeness of follow-up. Most studies have reported short-term and medium-term outcomes^{17, 18, 19, 20, 24, 25, 26, 27} with two single institution one-cohort studies reporting longer-term outcomes (>6 years). However, those had low rates of follow-up (<50%)²¹ or a small number of patients at eight years (n = 2)²². We believe that higher quality data documenting the longer outcomes of LAGB is needed in the US to help inform patients and providers in the decision-making process when choosing a bariatric surgical technique.

The aims of our study were to evaluate the long-term outcomes of LAGB at a US academic medical center, determine success/failure rates, study factors associated with LAGB success/failure, and assess the outcomes of conversion procedures of failed LAGBs.

Section snippets

Study design and participants

We performed a retrospective one-cohort study of all the patients who underwent LAGB at the University of Wisconsin-Madison Bariatric Surgery Program between January 2005 and February 2012. The procedures were performed by four surgeons during the 7-years LAGB was implanted. Patients who had their primary LAGB operation at another center were excluded from this study. Patients were considered possible candidates for LAGB if they had a body mass index (BMI) ≥ 40 kg/m² or BMI ≥ 35 kg/m² with

Baseline demographics

Between January 2005 and February 2012, a total of 208 patients received a LAGB. Patients' demographics and baseline clinical characteristics are summarized in Table 1.

Perioperative outcomes

The mean length of hospital stay was 0.6 ± 0.7 day. There were no peri-operative deaths. Eleven patients (5.3%) had a perioperative complication during the first 30 days after surgery. Complications were: port-site wound infections (5 patients, 2.4%), small bowel obstruction requiring re-hospitalization and conservative

Discussion

Our study shows that LAGB failed to provide successful and sustained weight loss for a significant portion of our patient population, with high LAGB reoperation and failure rates. These results confirm previous publications from some US centers which also found high rates of failure with LAGB.^{21, 22} In a retrospective analysis of 148 patients treated with LAGB, and using the same definition we used for LAGB failure, Spivak et al. reported failure rates between 48% and 51% at 7–10 years.²¹

Conclusion

LAGB is associated with a poor short and long-term weight loss outcomes, high reoperation rate, and high failure rates. With the increased safety profile and greater efficacy of other surgical techniques, LAGB utilization for patients with a BMI ≥35 kg/m² should be discouraged. We propose that LAGB may be an option only for patients that do not fit current criteria for other bariatric surgery techniques (BMI between 30 and 35 kg/m²), are properly counseled about LAGB side effects and that are

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