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Weight Loss and Quality of Life After Sleeve Gastrectomy or One-Anastomosis Gastric Bypass: Results of a Prospective Study of 120 Women with Morbid Obesity

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Abstract

Our aim was to compare quality of life (QoL) after laparoscopic sleeve gastrectomy (SG) and laparoscopic one-anastomosis gastric bypass (OAGB) on obese female adult patients in the first 2 years following surgery. One hundred twenty patients with BMI over 40 kg/m² and who underwent either SG or OAGB agreed to take part in this study. Weight loss and QoL were assessed via an online platform (e-baros®) before surgery and every 6 months after it. Two years after the operation, results showed a clinically meaningful reduction in BMI of 40.4% and a significantly meaningful improvement of QoL. No significant difference was found between the two surgical techniques for each data collection. In conclusion, both SG and OAGB techniques are effective in reducing BMI and improving QoL.

Keywords Sleeve gastrectomy · One-anastomosis gastric bypass · Weight loss · Quality of life

Introduction

The rapid rise in the prevalence of obesity in industrialized countries has brought this pathology to the forefront of public health concerns, with over 2 billion overweight or obese people around the world today [1]. Even though weight loss of even a few kilograms can often greatly reduce comorbidities, most medical treatments that focus on diet, physical exercise, changes in eating attitude, or medication are often insufficient in morbidly obese people (body mass index (BMI) > 40 kg/m²). Bariatric surgery is one of the solutions to this situation and the number of interventions has increased considerably in recent years. In France, there are more than 60,000 bariatric operations each year, with over 80% of them being performed

on female patients [2]. In view of this, our study focused exclusively on this population.

Laparoscopic sleeve gastrectomy (SG) is the most frequent bariatric technique used with Roux-en-Y gastric bypass (RYGB). However, one-anastomosis gastric bypass (OAGB) has increased in popularity and is considered to be an alternative safe and effective bariatric procedure [3]. In France, and particularly in the hospital under study, surgeons use both SG and OAGB. While systematic reviews and meta-analysis published these, last years showed that OAGB in particular increases weight loss and reduces comorbidities [4, 5]; some publications found no significant difference between SG and OAGB [6]. All the authors concluded that further investigations are necessary to assess the clinical outcomes of these two bariatric procedures.

It is also important to consider the psychological aspects of bariatric surgery in the management of obesity and postoperative monitoring. To our knowledge, no study has to date investigated this, in order to compare the outcomes of SG and OAGB in the years following surgery. Yet, obesity is associated with reduced quality of life (QoL) [7] and, most often, patients' request for medical or surgical management of excess weight stems from a feeling of decreased QoL and only, more rarely, for purely medical reasons. Moreover, and even if bariatric surgery allows significant weight loss in a short period of time, psychological consequences cannot be neglected. For example, although many studies have shown the positive impact of

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surgical weight loss on QoL [8], rapid weight loss can also result in excess skin often hindering patients in their everyday life by limiting physical and sexual activity and causing hygiene problems, which directly affects perception of QoL.

We conducted this study as part of patients' regular monitoring to investigate the respective contribution of two types of bariatric surgery (SG vs OAGB) to quality of life. In this brief communication, we have aimed to determine whether OAGB is more, similarly, or less effective than SG in terms of QoL during a 2-year postoperative period.

Patients and Methods

Study Population and Data Collection

Between January 2014 and December 2015, 120 patients¹ underwent surgery for morbid obesity at a private hospital in the west of France, and voluntarily accepted to participate in this study. All patients were women with mean age 41.9 ± 12.2 years (range 18–70). The preoperative mean body weight was 119.9 ± 14.3 kg (range 92–175), and the mean body mass index was 45.6 ± 4.4 kg/m² (range 40.1–62.9). Of these 120 patients, 58% ($n = 70$) underwent SG ($M_{\text{age}} = 41.0$ years; $M_{\text{preop weight}} = 120.6$ kg; $M_{\text{preop BMI}} = 45.8$ kg/m²), and 42% ($n = 50$) underwent OAGB ($M_{\text{age}} = 43.1$ years; $M_{\text{preop weight}} = 118.9$ kg; $M_{\text{preop BMI}} = 45.3$ kg/m²).

For the purposes of this study, all patients were asked to provide information before and after their bariatric surgery (demographic and anthropometric data, medical antecedents and comorbidities, self-perceived QoL) via an online platform (e-baros®) developed by the obesity surgeon and hospital involved in this research. Patients therefore completed online questionnaires prior to surgery and received a specific quality of life questionnaire for their postoperative follow-up at 6, 12, 18, and 24 months via the e-baros® platform.

QoL was measured by the Moorehead-Ardelt quality of life questionnaire II (M-A QoLQII) [9]. This 6-item questionnaire assesses 6 domains of quality of life (self-esteem, approach to physical activity, social relationships, work, sexual desire, and interest in food), using a 10-point Likert scale. Each item is coded from -0.5 to $+0.5$. In the analysis, items were added together to enable the measurement of a global QoL score with a range of -3 to $+3$ (the greater the positive value of the score, the higher QoL was perceived to be). All items were equally weighted. Data was analyzed using the STATISTICA statistical software and values with $p < 0.05$ were considered statistically significant.

¹ These patients (women with BMI > 40 kg/m²) were part of a larger sample of patients ($n = 206$) used in a previous study (<https://doi.org/10.1016/j.soard.2019.10.010>) investigating the evolution of quality of life after bariatric surgery. However, the previous study did not focus on a comparison between the 2 bariatric procedures.

Surgical Technique

For SG, mobilization of the gastric greater curvature began 2 to 4 cm proximal to the pylorus and continued to the His angle with importance accorded to the total exposure of the left crural pillar. Gastric resection involved using a 38 French bougie.

For OAGB, the gastric tube was created from the angle of the lesser curvature to the left crural pillar using a 38 French bougie and generally four to five vertical 60-mm staple cartridges. Two hundred centimeters downstream from the angle of Treitz, a single termino-lateral gastrojejunal anastomosis was performed using two layers of slowly absorbable running sutures.

Results

Before surgery, Student *t* tests showed no difference between the two groups (SG vs OAGB) for age ($p = 0.37$), BMI ($p = 0.47$), and QoL global score ($p = 0.26$).

Postoperative changes were analyzed using repeated measures ANOVA in the 4 postoperative data collections for BMI evolution and the 1 preoperative and 4 postoperative data collections for QoL level.

Effect of SG Vs OAGB on Weight Loss

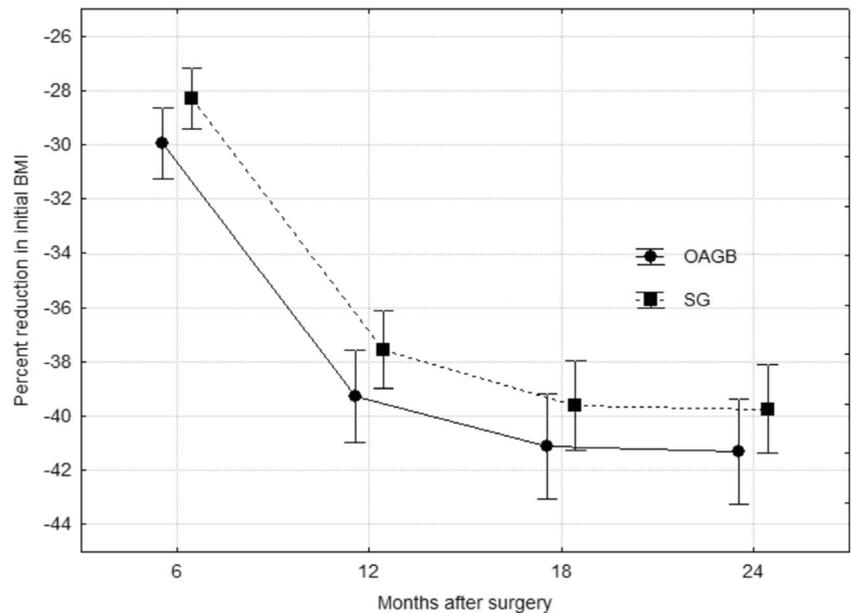
Results showed a clinically meaningful impact of time on BMI evolution during the postoperative period ($F(3.354) = 369.85$, $p < 0.0001$), but a non-significant impact of surgical techniques on changes in BMI ($F(3.354) = 0.03$, $p = 0.99$). More precisely, there was an average reduction in BMI of 28.9% (28.3% for SG vs 29.9% for OAGB) in the first 6 months, 38.3% (37.6% for SG vs 39.2% for OAGB) at 12 months, 40.2% (39.6% for SG vs 41.1% for OAGB) at 18 months, and 40.4% (39.7% for SG vs 41.3% for OAGB) 24 months after surgery (cf. Fig. 1).

Although the reduction in BMI was higher using the OAGB surgical technique (than the SG procedure) during the 2 years following bariatric surgery, results of univariate analyses showed no statistical differences between the two procedures at each data collection ($0.07 < p < 0.25$).

Effect of SG Vs OAGB on Quality of Life Evolution

Results showed a significantly meaningful impact of time on QoL evolution ($F(4.472) = 139.96$, $p < 0.0001$), but a non-significant impact of surgical techniques on changes in QoL ($F(4.472) = 0.44$, $p = 0.77$). More precisely, the global QoL score improved from -0.07 (-0.004 for SG vs -0.17 for OAGB) before surgery to 1.06 (1.07 for SG vs 1.06 for OAGB) 6 months after the intervention, then to 1.25 (1.29 for SG vs 1.21 for OAGB) after 12 months, 1.29 (1.35 for SG vs 1.20 for OAGB) after 18 months, and finally, 1.19 (1.21 for SG vs 1.14 for OAGB) 24 months after surgery (cf. Fig. 2).

Fig. 1 Effect of surgical technique (SG vs OAGB) on weight loss



Even if the global QoL score was higher using the SG surgical technique (than the OAGB procedure) during the 2 years following bariatric surgery, results of univariate analyses showed no statistical differences between SG and OAGB procedures at each data collection ($0.23 < p < 0.96$).

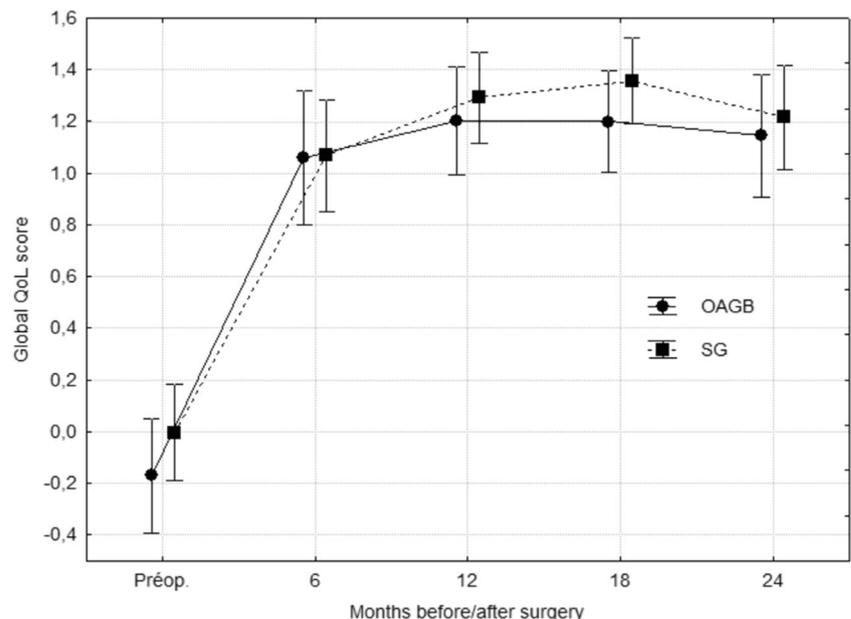
For weight loss, our results showed a diminution in BMI of nearly 40% after 2 years for both surgical procedures. Evolution of weight loss during the period and for all data collections was similar for SG and OAGB, and no statistical differences were revealed. These results confirm those found in the literature [4, 6] and show that OAGB is an effective alternative to SG for long-term weight loss after bariatric surgery.

Discussion

The aim of this study was to investigate the effects of 2 surgical techniques (SG vs OAGB) on weight loss and QoL evolution in the 2 years after surgery.

For perceived QoL, we found no study in the literature which focused on this psychological aspect of bariatric surgery during a 2-year follow-up period, with detailed data collection. However, in a long-term follow-up study of 1200 patients undergoing OAGB, Carbajo and his colleagues showed an improvement in global QoL 3 months after

Fig. 2 Effect of surgical technique (SG vs OAGB) on quality of life evolution



bariatric surgery, but presented no detailed results over the long-term [10]. In our study, results showed improved QoL over time and no statistical differences between SG and OAGB during the 2-year follow-up period.

In conclusion, both OAGB and SG are effective procedures regarding weight loss and improved quality of life during the first 2 years after surgery. Prospective studies with a longer follow-up period are needed to confirm these results. In the future, the outcomes of bariatric procedures in relation to quality of life should be considered as a main point of investigation.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Informed Consent Informed consent was obtained from all individual participants included in this study.

Ethical Approval For this type of study, formal consent is not required.

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