Analysis for the Success Rate of Patients after Laparoscopic Sleeve Gastrectomy

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Abstract

Background: Success rate of laparoscopic sleeve gastrectomy (SG) depends on disease and patient characteristics that are yet to be fully established.

Objectives: To evaluate which patient characteristics influence the success of SG.

Setting: National bariatric reference centre at a Public Hospital.

Methods: A retrospective study was performed based on prospectively collected data of patients who had bariatric surgery at our institution, during a 5 year period. Patients with 12 or more months of follow-up were included. We analyzed data from 133 SG. Seventy-nine percent of the patients were female with a median age of 46 years, a median baseline Body Mass Index (BMI) of 41 kg/m^2 and a mean of 2.5 out of 7 comorbidities.

Results: After the first year, the mean percentage Excess Weight Loss (%EWL) was 69.3%, the mean change in BMI was -11.8 kg/m^2 and the mean % total body weight loss was 27.4%. Surgical success (%EWL ≥ 50%) was achieved in 82% of the patients, with significant improvement or resolution of comorbidities (follow-up rate 76%-88%). We found statistical significant differences with baseline BMI (p<0.0001), with OSA (p<0.0001), with age (p=0.04) and with the number of comorbidities (p=0.05). Higher baseline characteristics implicated less %EWL. The presence of HTN or arthropathy and being a volume eater or a sweet eater did not influence surgical success ($\chi^2 \le$ 0.01).

Conclusions: SG is an effective surgical treatment for obesity. After one year the majority of patients had surgical success and major comorbidities were mitigated or resolved. Success was influenced by specific patient and disease characteristics.

Keywords: Obesity; Morbidity; Bariatric surgery; Gastrectomy; Laparoscopy; Treatment outcome

Introduction

Obesity keeps on growing as a global epidemic. In 2014, the World Health Organization (WHO) reported over 600 million obese adults, this number has more than doubled since 1980. This means that 13% of the world's population has a Body Index Mass (BMI) C 30 kg/m^2 [1]. In 2008, in Portugal about 24% of the population had obesity and 59% was overweight [2]. Bariatric surgery is an effective treatment for severe obesity that leads to the improvement and remission of many obesity-related comorbidities, sustained weight loss over time, improvement in quality of life and prolonged survival [3,4].

Sleeve Gastrectomy (SG) was first described as the initial step in a proposed two-stage approach to Duodenal Switch (DS), in an effort to reduce the morbidity and mortality of performing DS in high-risk patients with extreme obesity (specifically, patients with BMI >60 kg/m^2) [5]. However, data began to show that SG is an effective primary bariatric operation without the need for a second-stage ion to DS [6]. By late 2000s, the SG had established itself as ary bariatric operation. ĿXenG2

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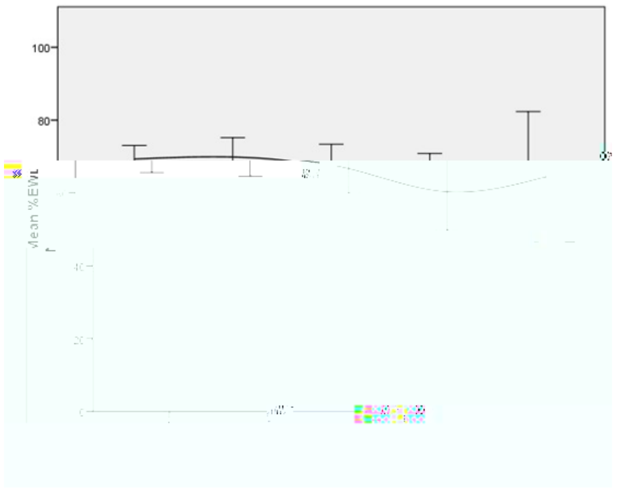

Figure 1: Evolution of mean % Excess Weight Loss (%EWL) after surgery (years); [EWL: Excess Weight Loss, CI: Confidence Interval].

Only three patients had late complications: two (1.5%) developed gastro-esophageal reflux, refractory to medical treatment, and one had primary surgical failure (insufficient weight loss). All three were re-operated and a Roux-en-Y gastric bypass was performed.

Predictors of success

One year after surgery, we found that surgical success (%EWL ≥ 50%) presented statistically significant differences depending on baseline BMI (p<0.0001), age (p<0.05) and the number of comorbidities (p<0.05), especially in the presence of OSA (p=0.01), Table 4 and 5.

Looking into the relationship between baseline BMI and %EWL, we observed a moderate negative correlation (r=-0.445), and also a weak negative correlation between age and number of comorbidities and %EWL (r=-0.201 and -0.251 respectively). We observed further, that patients with OSA had a smaller %EWL (64% *vs.* 77%, p<0.0001).

	Surgical Success (%EWL ≥ 50%)			
Statistics	**With**	**Without**	**Δ**	**t-student**
BMI (kg/m^2)	43.5	49.1	-5.6	p<0.0001
Age (years)	43.8	48.7	-4.9	p=0.040
Number comorbidities	2.4 (of 7)	3.1 (of 7)	-0.7	p=0.045

vs.

incidence of fistulas of 1.9% (n=4) after 215 SGs performed, below the typical values of this complication (2.2%) [18]. The incidence of complications was 13.5%, but only 5.2% (n=7) were severe complications (grade III and IV) and we registered no mortality [9]. The main limitations of this study are its retrospective nature, based on prospectively collected data, and to only include 133 SGs with a large dropout rate after de first year.

Conclusion

Our data on SG shows that it can significantly promote weight loss and resolve or mitigate important comorbidities, contributing to the improvement of the patient's quality of life.