

AB028. PP-7 Is there a correlation between residual gastric volume and weight loss?— 1 year results

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Background: Laparoscopic sleeve gastrectomy (LSG) has become a popular procedure for the treatment of obesity. Although the causes of failure after bariatric surgery are unknown, it is thought that there may be a high residual gastric volume. Objective is to evaluate the effects of resected gastric volume and residual gastric volumes after LSG on weight loss.

Methods: A single-center retrospective study including 12 months follow-up. Sixty-seven patients with LSG were enrolled. Technically, after the closure of the pylori with a laparoscopic clamp, an orogastric tube was injected with methylene-blue saline intraluminal pine-tip syringe and the residual stomach was given in full view. The amount of fluid given was noted when the remaining gastric tissue stopped expansion. Simultaneously, leakage testing is also routinely performed. 20 mmHg CO₂ gas was delivered to the resected stomach tissue until the air leaked from the stomach and noted. In addition, the resected gastric tissue was filled with saline until the fluid leaked from the stapler line. The patients were divided into three groups according to the remaining gastric tissue volume: (I) group below <60 cc, (II) group 60≤90 cc, (III) group <90 cc and above. BMI, total weight loss, weight loss percentage (EWL%) variables were calculated at 6 and 12 months after LSG.

Results: All patients were included in the database after 1 year of follow-up. Sixty-seven patients (57 F/10 M) with a mean age of 36 years (17–56 years) were included in the study. One patient was excluded because the gastric tissue was perforated while removing from the abdomen and 4 patients did not come to the control. The remaining 62 patients were evaluated. The average total stomach volume of patients was 1,280 cc (660–1,945 cc), residual gastric

tissue volume was 68 cc (35–120 cc), the volume of the removed stomach was 1,212 cc (600–1,900 cc) and CO₂ gas given to the extracted stomach tissue was 1 liter (20 mmHg) (0.5 to 1.4), respectively. Mean body mass index (BMI) was calculated as 47.30 kg/m² preoperatively, 30.10 kg/m² BMI at the end of the first year after LSG. In Group 1, % EWL was 69.22% in 6 months and % EWL% 79.77 in 1 year; In group 2, EWL% 62.62 in 6 months, EWL% 75.04 in 1 year; In group 3, EWL was 66.74% in 6 months and EWL 72.12% in 1 year. In general, satisfactory weight loss was seen in groups 1 and 2 within 1 year (EWL% 70). In group 3, it was close to these values but not statistically significant. As shown in this graph, although it is not statistically significant, weight loss increases as RGV decreases.

Conclusions: The main findings of this study indicate that RGV significantly increases weight loss following surgery. However, although the volume increase in RGV reduced weight loss numerically, this was not statistically significant. The most important mechanism of LSG is to limit food intake by reducing stomach volume. Therefore, postoperative gastric volume is necessary to obtain optimum postoperative results in terms of weight loss. The volume and pressure measurements of the entire stomach, the remaining portion, and the resected portion showed that the removed part was in fact the widest part of the stomach. The remaining stomach volume is less than 10% of the total stomach volume and shows that the portion extracted from the stomach is larger in this operation. In our study, the remaining stomach volume was found below 10% in all three groups. There is another study emphasizing that volume and pressure can be an important factor in the weight loss mechanism in LSG. In this study, we consider the low number of cases and the short-term results to be a negative, undesirable factor in statistical evaluations. Our study describes the direct relationship between gastric volume and low weight loss after LSG surgery. We describe an easily measurable volumetric model to estimate gastric volume after LSG. We also found a direct correlation between increased gastric volume and postoperative low weight loss. However, this was not statistically significant. In order to confirm these findings in the medium and long term, more patients should be investigated with an advanced randomized, prospective study and multivariate analysis.

Keywords: Laparoscopic sleeve gastrectomy (LSG); residual gastric volume; weight loss

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