

Barrett esophagus and reflux-esophagitis five years after laparoscopic sleeve gastrectomy and Roux-Y-gastric-bypass

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Objective

De novo reflux symptoms and reflux esophagitis are more frequent after sleeve gastrectomy (LSG) than laparoscopic Roux-Y-gastric bypass (LRYGB). Recent observational studies have reported a high incidence (up to 18.8%) of Barrett esophagus (BE) 5 years after LSG. Patients after LRYGB have not been systematically examined so far and data are lacking. The primary aim of this prospective study is to examine the cumulative incidence of *de novo* BE in patients undergoing LSG or LRYGB five years or more post-surgery.

Methods

This observational study was performed in two bariatric reference centres in Switzerland. We recruited LSG and LRYGB patients at least five years post-surgery. Pre-operative gastroscopy is standard practice in Switzerland. At follow-up, patients underwent a gastroscopy with quadrantic biopsies from the squamo-columnar junction and metaplastic segment (if present). BE was diagnosed using the Prague classification. Reflux esophagitis was graded using the Los Angeles classification. Validated questionnaires were used to assess gastro-esophageal reflux and dysphagia symptoms.

Results

The cohort consisted of 169 patients, 83 LSG and 86 LRYGB, mean age 52.2 (25-79) years, 69.2% females. Follow-up after mean 7.0±1.5 years post-surgery.

Before surgery, BE was documented in one patient of the LRYGB-group and none of the LSG-group. At follow-up ≥ 5 years, in the LSG-group, 3/83 (3.6%) patients had endoscopically and histologically confirmed *de novo* Barrett esophagus; in the LRYGB-group, there were 2/86 (2.3%) patients with BE, but only 1/86 (1.6%) *de novo* (LSG vs. LRYGB; $P=.362$). The one pre-existing case in the LRYGB-group was unchanged.

Clinical diagnosis of gastro-esophageal reflux disease (GERD) was present before surgery in 12/83 (14.5%) of LSG and 27/86 (31.4%) of LRYGB-patients ($P=.011$). At follow-up, diagnosis of GERD was more common in the LSG-group than in the LRYGB-group: LSG 44/83 (53.0%) vs. LRYGB 23/86 (26.7%; $P=.001$). LSG-Patients with GERD already present before surgery experienced remission in 4/12 (33.3%), and LRYGB-patients in 15/27 (55.6%; $P=.301$). *De novo* development of GERD was more common in LSG-patients 36/71 (50.7%) than in LRYGB-patients 11/59 (18.6%; $P<.001$). Endoscopic signs of reflux esophagitis were seen in 14/83 (16.9%) LSG and in 21/86 (24.4%; $P=.258$) LRYGB-patients before surgery. At follow-up, presence of reflux esophagitis was more common in the LSG-group than in the LRYGB-group: LSG 48/83 (57.8%) vs. LRYGB 23/86 (26.7%; $P<.001$).

Gastro-esophageal Reflux Disease Questionnaire (GERD-Q): In the LSG-group a mean±SD total score of 8.6±2.7 and in the LRYGB 6.0±1.2 ($P<.001$) was reached (cut-off 8 points); Leuven Postprandial Distress Scale (LPDS): In the LSG-group a mean±SD total score of 6.8±6.7 and in the LRYGB 3.1±4.5 ($P<.001$) was reached (cut-off 3 points); Preoperatively, 7/83 (8.4%) of LSG and 11/86 (12.8%) of LRYGB-patients used proton-pump inhibitors (PPIs), ($P=.457$). At follow-up, use of PPI was more common in the LSG-group than in the LRYGB-group: LSG 41/83 (49.4%) vs. LRYGB 17/86 (19.8%; $P<.001$). LSG-patients who had not taken PPI's before surgery, were much more likely to use PPI's after surgery than LRYGB-patients: LSG 38/76 (50.0%) vs. LRYGB (13/75; 17.3%; $P<.001$).

Conclusion

Endoscopy performed at least 5-years after bariatric surgery confirms a significantly higher incidence of reflux oesophagitis in LSG than LRYGB patients. Reflux symptoms are much more frequent in LSG and PPI use is higher. By contrast, the incidence of Barrett esophagus after LSG was low, and lower than that reported in previous studies. Systematic endoscopic surveillance after LSG should be considered.