Przemysław Znamirowski (MD)

The Impact of Laparoscopic Sleeve Gastrectomy on the Course of Gastroesophageal Reflux Disease in Obese Patients

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Supervisor: Prof. Stanisław Głuszek, MD, PhD

Assistant Supervisor: Łukasz Nawacki, MD, PhD

Department of General, Oncological and Endocrine Surgery

Provincial Combined Hospital in Kielce

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Abstract

BACKGROUND: Obesity increases the risk of gastroesophageal reflux disease (GERD) and its complications. Although laparoscopic sleeve gastrectomy (LSG) effectively induces weight loss, it may alter the esophagogastric junction in a way that promotes reflux. This dissertation integrates three complementary studies: (1) a single-center post-LSG endoscopy-biopsy study, (2) a systematic review and meta-analysis on GERD after LSG, and (3) a retrospective ambulatory EGD cohort assessing the relationship between BMI and upper gastrointestinal (GI) pathologies.

METHODS: In the single-center study, 35 LSG patients underwent standardized endoscopy with biopsies. The meta-analysis (PRISMA-P) included 9 eligible studies (random-effects). The ambulatory cohort comprised 368 consecutive patients referred for EGD, with endoscopic and histopathologic assessment and statistical analyses in relation to BMI and modifying factors.

RESULTS: After LSG, 12/35 patients reported GERD symptoms, 11/35 had endoscopic lesions, and 3/35 had intestinal metaplasia. In the meta-analysis, erosive esophagitis (EE) was present in ~45% (predominantly LA A/B), and Barrett's esophagus (BE) in 7.3%, with a substantial rate of de novo GERD. In the ambulatory cohort, EE was diagnosed in 20.9%; BE in 5.45% of those biopsied. Sliding hiatal hernia was found in 19.8%, cardia incompetence in 28.5%, bile lake in 15.8%, and a positive urease test in 31.2%. Large hiatal hernia correlated positively with BMI, whereas bile lake correlated inversely. Cholecystectomy and thyroid disease increased the risk of bile lake (OR 3.99 and 3.83).

CONCLUSIONS: LSG can induce or aggravate GERD independently of weight loss, supporting scheduled endoscopic-histologic surveillance including asymptomatic patients. Elevated BMI predisposes to anatomic reflux drivers, whereas bile reflux profile and endocrine comorbidities modulate the risk of metaplasia. The proposed algorithm for pre-operative selection and post-operative follow-up incorporates LA grade, BE, hiatal hernia size and modifiers (e.g., bile reflux, thyroid disease), and suggests considering conversion to RYGB in refractory or progressive cases. The results argue for long-term prospective follow-up with pH-metry and high-resolution manometry.