A Retrospective Cohort Study Examining Reflux after Bariatric Surgery within a Large Regional Health System

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Introduction
While sleeve gastrectomy (SG) for weight loss has been associated with worsening of gastroesophageal reflux disease (GERD), the true incidence of Barrett’s esophagus (BE) after this operation is unknown. SG may also increase the rate of erosive esophagitis, while Roux-en-Y gastric bypass (RNYGB) decreases the rate of erosive esophagitis and GERD. In an international survey, the rate of erosive esophagitis, while

Objectives
1. To characterize the rate of GERD and BE after bariatric surgery by ICD Codes
2. To characterize the rate of esophagitis and BE by manual review of endoscopy and pathology reports

Methods
Data source: Northwestern’s enterprise data warehouse (EDW)

Inclusion Criteria
• Patients undergoing RNYGB or SG
• Validated by CPT and ICD-9/10 codes
• For manual review, patients with pre- and postoperative endoscopy
• Only postoperative EGD reports ≥1 year after surgery were reviewed
• Jan 2003 – July 2023

Data Collection
• Patient demographics
• Medical and medication history
• Clinical outcomes
• CPT and ICD-9/10 codes
• Endoscopy and Pathology reports

Exclusion Criteria
• Lap band or other bariatric procedure
• Patients with SG then converted to RNYGB
• Patients < 18 years old

Analysis
• Standard descriptive statistics
• Fisher exact test to compare rates of outcomes

Table 1: Sample Characteristics by ICD Codes

<table>
<thead>
<tr>
<th># of Patients</th>
<th>Gastric Bypass</th>
<th>Sleeve Gastrectomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
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<tr>
<td>Comorbidities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endoscopy</td>
<td></td>
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<tr>
<td>PPI prior to surgery</td>
<td>719 (50.00%)</td>
<td>935 (31.00%)</td>
</tr>
<tr>
<td>GERD After Surgery</td>
<td>243 (27.1%)</td>
<td>770 (25.6%)</td>
</tr>
<tr>
<td>Barrett After Surgery</td>
<td>31 (2.1%)</td>
<td>16 (0.5%)</td>
</tr>
</tbody>
</table>

Table 2: Incidence of Esophagitis and Barrett’s by Manual Review

<table>
<thead>
<tr>
<th></th>
<th>Preoperative EGD and Pathology</th>
<th>Postoperative EGD and Pathology</th>
<th>Newly Developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG</td>
<td>27 (47.32%)</td>
<td>5 (27.78%)</td>
<td>1 (2.27%)</td>
</tr>
<tr>
<td>RNYGB</td>
<td>31 (36.58%)</td>
<td>15 (33.33%)</td>
<td>0 (0.00%)</td>
</tr>
</tbody>
</table>

Conclusions
1. Few bariatric patients had postoperative GERD.
2. There was a statistically significant greater rate of development of GERD after SG compared to RNYGB.
3. There were 19 new cases of BE after SG. 16 cases were identified by ICD code, and 3 cases were identified by manual review.
4. SG patients have an increased risk of developing GERD and BE ≥ 1 year postoperatively. We recommend performing surveillance EGD ≥3 years after SG, consistent with ASMBS recommendations.

Further investigation, particularly prospective studies, is needed to establish precise practice guidelines.