

Original article

## Self-report of gastrointestinal side effects after bariatric surgery

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### Abstract

**Background:** Data on gastrointestinal (GI) side effects of bariatric surgery are limited because of incomplete reporting, cross-sectional samples, and nonstandardized assessments.

**Objective:** To report on GI side effects over the first 6 months after Roux-en-Y gastric bypass (RYGB) and laparoscopic adjustable gastric banding (LAGB).

**Setting:** Academic medical center, United States.

**Methods:** One hundred forty-four patients completed a standardized clinical interview 6 months after operation, including questions on the occurrence and frequency of episodes of dumping syndrome, vomiting, and plugging for each of the past 6 months; monthly rates were stable, so results were averaged over the entire period. Although data were collected as part of a randomized controlled trial, randomization group and the interaction of group by surgical procedure were not related to GI side effects. Thus, results are reported by procedure only (RYGB,  $n = 87$ ; LAGB,  $n = 56$ ).

**Results:** RYGB patients had a higher preoperative body mass index (BMI) than LAGB patients ( $46.8 \pm 6.8$  versus  $43.5 \pm 4.8$  kg/m<sup>2</sup>, respectively;  $P = .001$ ), were more likely to report dumping (45.7% versus 4.7%,  $P < .0001$ ), and were less likely to report plugging (45.7% versus 79.1%,  $P = .0005$ ). Vomiting did not differ significantly by procedure (68.6% versus 65.1%,  $P = .7$ ). Most patients experienced each GI side effect less than once per week.

**Conclusion:** Although self-reported GI side effects were common over the first 6 months after operation, the frequency of episodes was relatively low. Longer-term follow-up is needed to determine whether symptoms worsen or improve over time. (Surg Obes Relat Dis 2014;10:1202–1207.) © 2014 American Society for Metabolic and Bariatric Surgery. All rights reserved.

### Keywords:

Bariatric surgery; Gastric bypass; Laparoscopic adjustable gastric banding; Gastrointestinal complications

Although bariatric surgery is recommended for treatment of severe obesity, the potential benefits of surgically induced weight loss must be weighed against the risks. Most postoperative complications are related to the type of

procedure performed and length of follow-up [1]. However, systematic data are limited even for some of the most common postoperative gastrointestinal (GI) side effects.

In a review of 62 studies involving 3626 combination (e.g., Roux-en-Y gastric bypass [RYGB]) and 5568 restrictive procedures (e.g., laparoscopic adjustable gastric banding [LAGB]), Monteforte and Turkelson [2] summarized complications by type of surgical procedure. Dumping syndrome, a group of symptoms associated with food emptying too quickly into the small intestine, was the most

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common complication for combination procedures (14.64%) but was uncommon after restrictive procedures (0.28%). Vomiting was the most common symptom associated with restrictive procedures (8.49%) and was also reported after combination procedures (2.56%). However, these rates do not take into account the duration of follow-up and may be underestimated because of a lack of standardized assessment and reporting procedures.

Studies that have used standardized assessments suggest higher rates of GI side effects. For example, Sigstad's clinical index [3] has been used to document symptoms associated with dumping syndrome in several studies of RYGB. It was administered to 50 patients 1 month after RYGB, and 42% met criteria for dumping syndrome (Sigstad's index score > 7) [4]. In a different sample of patients followed up 18–24 months after operation [5], 76.9% were classified as dumpers [5]. Additionally, in a detailed interview assessment of eating behavior 18–35 months after RYGP, 50.5% of patients reported dumping, 62.7% of patients reported vomiting associated with epigastric discomfort, 11.9% reported self-induced vomiting to influence weight, and 76.3% reported plugging, defined as the feeling that food has become stuck in the upper digestive track or pouch [4].

In summary, results of previous studies on GI side effects after bariatric surgery are highly variable and limited by incomplete reporting of symptoms, cross-sectional samples, and use of nonstandardized instruments. This makes it difficult for providers to inform patients about the potential for common GI symptoms by procedure at different time points after operation. In this report, we document the prevalence of dumping syndrome, vomiting, and plugging over the first 6 months after RYGB and LAGB using a semistructured clinical interview that incorporated Sigstad's clinical index.

## Materials and methods

### *Study design and participants*

The present investigation includes participants enrolled in a randomized controlled trial of a 6-month preoperative behavioral lifestyle intervention relative to usual care before bariatric surgery [6]. All patients were at least 18 years of age at enrollment. Exclusion criteria included (1) intellectual disability or psychosis; (2) previously diagnosed genetic obesity syndrome; (3) participation in a weight management program in the 6 months before study enrollment; (4) uncontrolled psychiatric symptomatology sufficiently severe to require immediate treatment; (5) pregnancy or lactation in the previous 6 months; (6) taking a medication known to affect weight in the previous 6 months; (7) any previous weight loss surgery; (8) medical condition requiring a specialized preoperative regimen; and (9) participation in a conflicting research protocol. The

study was approved by the local Institutional Review Board and registered at ClinicalTrials.gov (identifier NCT00623792).

A total of 144 patients who were enrolled in the parent study and randomly assigned to preoperative lifestyle intervention ( $n = 72$ ) or usual care ( $n = 72$ ) underwent bariatric surgery. All patients received a single session of preoperative nutrition consultation and psychological evaluation as part of the routine preoperative approval process. Of these, 87 had RYGB, 56 had LAGB; 1 patient had sleeve gastrectomy and was excluded. The present analysis includes 113 patients who completed a standardized clinical interview 6 months after operation, including questions on the occurrence and frequency of episodes of dumping, vomiting, and plugging for each of the past 6 months.

### *Measures*

An investigator-designed questionnaire was used to collect demographic data, including sex, age, race/ethnicity, education, employment status, income, and marital status at study entry. Height was measured at study entry using a mounted stadiometer, and weight was measured using a digital scale. Participants were weighed and height measured in street clothes, without shoes. Body mass index (BMI) was calculated as weight in kilograms divided by the square of height in meters.

Patients completed questionnaires and semistructured clinical interviews at each assessment. The Eating Disorder Examination (EDE) [7] was adapted to document dumping syndrome, vomiting, and plugging and administered 6 months after surgery [4]. The adaptation included collection of data using Sigstad's clinical diagnostic index [3]. A score of > 7 on Sigstad's index indicates dumping, and scores of 5–7 are suggestive of dumping. Vomiting included episodes that were spontaneous or self-induced and was also rated as to whether or not the episode was associated with concerns about weight or shape. Plugging was operationalized as “problems with the small opening in your stomach becoming plugged, or food becoming stuck in the small opening of your stomach,” and participants were asked to identify which foods were associated with plugging. All GI side effects (dumping, vomiting, and plugging) were rated retrospectively for their presence and monthly frequency for each of the 6 months preceding the interview.

### *Analytic plan*

Descriptive statistics were used to summarize demographic characteristics and GI side effects of interest (dumping, vomiting, and plugging) among study participants. Two-sample  $t$  tests (or Wilcoxon tests) and chi-square analyses (or Fisher's exact tests) were performed for continuous and categorical variables, respectively, to test for differences between surgical procedures. We also

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