Effect of Omental Reattachment on Food Tolerance and Gastric Emptying in Laparoscopic Sleeve Gastrectomy

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Abstract

Obesity is now recognized as a chronic illness and a leading cause of death worldwide. Conventional weight loss methods in many cases have proved to be of modest success. Now bariatric surgery offers the best chance for patients who were not able to lose weight by other non-operative methods, namely dieting, exercise and pharmaceutical drugs. Traditionally, the primary mechanisms through which bariatric surgery achieves its outcomes are believed to be the mechanical restriction of food intake, reduction in the absorption of ingested foods, or a combination of both.

Laparoscopic sleeve gastrectomy LSG, a relatively novel procedure, has rapidly gained popularity and recently replaces Roux-En-Y Gastric Bypass as the bariatric and metabolic procedure most commonly used worldwide.

While LSG is classified as a restrictive operation, leading to decreased food intake, it could also be classified as restrictive-anorectic. Hormonal mechanisms play a crucial role in weight loss after LSG, represented by the decrease of circulating ghrelin levels due to resection of the gastric fundus the primary source of this orexigenic hormone.

Despite the satisfactory results, particularly in terms of weight loss, sleeve gastrectomy results in major anatomical and physiological pathway of food and alteration of gastric emptying. Patients may experience significant amount of postoperative gastrointestinal symptoms such as development of gastroesophageal reflux or worsening of existing gastroesophageal reflux and intolerance to food. This necessitates a search for novel techniques attempting to reduce such symptoms.

A number of studies used radioisotope scans to assess gastric emptying in sleeve gastrectomy and revealed an accelerated emptying to both fluids and solids. Some would suggest that accelerated gastric emptying after sleeve gastrectomy may also enhance satiety signals thus reducing intake contributing to weight loss after sleeve gastrectomy.

LSG has been shown to markedly affect gastric emptying. This is achieved through different possible mechanisms like alteration of compliance and contractility of a remaining gastric sleeve, possible removal of the gastric pacemaker, removal of the fundus and loss of receptive and propulsive functions and compromise of the action of the antral pump if this part of the antrum is resected.

A Justification of performing omental reattachment to the gastric sleeve or omentopexy is allowing the stomach to assume its normal anatomical position where normally the stomach is anchored in place by the gastrohepatic, gastrocolic and gastrosplenic ligaments.

To the date of this study and to the best of our knowledge, no study has attempted to assess the effect of reattachment of the greater omentum (a step which can be referred to as “omentopexy”) to the gastric sleeve on gastric emptying. And only very limited work has studied the effect of omental reattachment on food tolerance and reducing postoperative gastrointestinal symptoms.

Purpose: The study aims to evaluate the potential benefit of omental reattachment in laparoscopic sleeve gastrectomy (LSG) and its effect on food tolerance and gastric emptying (GE). We only looked at its effect on the other potential early complications of LSG, namely hemorrhage and leak.

Patients and Methods: This prospective study included 40 morbidly obese adults with a Body Mass Index BMI more than 40 in absence of a co-morbidity or more than 35 with an associated co-morbidity scheduled for LSG from January 2017 to January 2018 in Cairo University Teaching Hospital. For all candidates, appropriate non-surgical measures have been tried but have failed to achieve or maintain adequate, clinically beneficial weight. They were randomly assigned into one of two groups: reattachment group ($n = 20$) had omental reattachment at the end of LSG and non-reattachment group ($n = 20$) had LSG without omental reattachment. Food tolerance was assessed using the Suter's questionnaire, and GE was studied using radio-isotope scintigraphy 1 month after the operation to liquids, and then to semi-solids at 2-3 months.

Results: GE of liquids and solids was significantly faster in the non-reattachment group. Liquid emptying T½ in the reattachment group was 25.0 ± 6.2 min compared to 11.8 ± 3.0 min in the non-reattachment group ($p < 0.001$). Solid emptying T½ in the reattachment group was 49.0 ± 13.8 min compared to 28.4 ± 8.3 min in the non-reattachment group ($p < 0.001$). A secondary outcome was that there was no significant difference between the two groups in percentage of excess weight loss ($p = 0.581$) and the total score of food tolerance using Sutor’s questionnaire ($p = 0.529$).

Conclusion: While adding the complimentary step of omental reattachment to the procedure posed no harm and did not increase surgical morbidity, our study showed that omental reattachment to the gastric sleeve has reduced gastric emptying to both solids and fluids when compared to cases were reattachment was not done. It also

revealed that omental reattachment had no added value as regards food tolerance, excess weight loss or prevention of early complications like hemorrhage or leak.

Bibliography:

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