Laparoscopic Sleeve Gastrectomy and its Effect on Gastro Oesophageal Reflux Disease

Thesis

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Andrew Morcos Azmy Kirolos

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INTRODUCTION

Obesity continues to be a leading public health concern associated with many comorbidities that significantly decrease life expectancy and Surgery remains the only effective treatment modality for morbid obesity, resulting in long-term weight loss and sustained improvement in weight-related comorbidities ***(Jackson et al., 2012).***

In Egypt 30.3% of the adult population are considered obese according to the latest figures. The highest percentage of any country in the Mediterranean region and the 4th in the middle east only preceded by Saudi Arabia, Kuwait and the United Arab Emirates. The sex distribution of obesity in Egypt seems to be far from balanced with females (39.5 %) being twice as much affected compared to the male population (18.2%). There is also quite a discrepancy between the urban and rural populations with the former being more affected by obesity than the latter possibly as a result of a more sedentary lifestyle and other environmental factors ***(Global database on body mass index, 2009).***

Bariatric surgery procedures are indicated for patients with clinically severe obesity. Currently, these procedures are the most successful and durable treatment for obesity ***(Mechanick et al., 2013).***

Lapasroscopic Sleeve Gastrectomy remains one of the safest and most effective modern surgical options for the treatment of morbid obesity ***(Jackson et al., 2012).***

Gastroesophageal reflux disease (GERD) is one of the most prevalent chronic gastrointestinal diseases, with an estimated 20–30% of the US adult population experiencing heartburn or acid regurgitation or both at least once a week Obesity is considered a major risk factor in the pathogenesis of GERD, and approximately 50% of morbidly obese patients have signs or symptoms of GERD ***(Tutuian, 2014).***

Epigastric pain syndrome and post-prandial distress dyspepsia are present in 28 and 11 % of the obese patients considered for bariatric surgery ***(Carabotti et al., 2013).***

Data from large databases suggest that all of the common bariatric procedures usually improve GERD symptoms, with Roux-en-Y gastric bypass being superior to laparoscopic adjustable gastric banding and laparoscopic sleeve gastrectomy in this regard. Yet, smaller prospective studies indicate that LSG can induce de-novo GERD in some patients ***(Carabotti et al., 2013).***

The removal of the gastric fundus, a large part of the body and a portion of the antrum, leads to important anatomical and functional alterations that affect both gastric acid secretion and motility, in particular accommodation, which may give rise to gastrointestinal (GI) symptoms ***(Carabotti et al., 2013).***

The onset of gastric motility disorders is related to the extension of the antrum resection (pacemaker).The consequent alterations in gastric emptying or compliance are caused by a greater intraluminal pressure and a reduced volume of the less distendable “pouch”. These modifications might contribute to the generation of dyspepsia-like symptoms ***(Carabotti et al., 2013).***

Published studies, however, have focused mainly on gastroesophageal reflux disease (GERD). This study aims to evaluate LSG's impact on the prevalence of upper GI symptoms and to assess the effects of time from surgery, weight loss, and proton pump inhibitor (PPI) therapy.

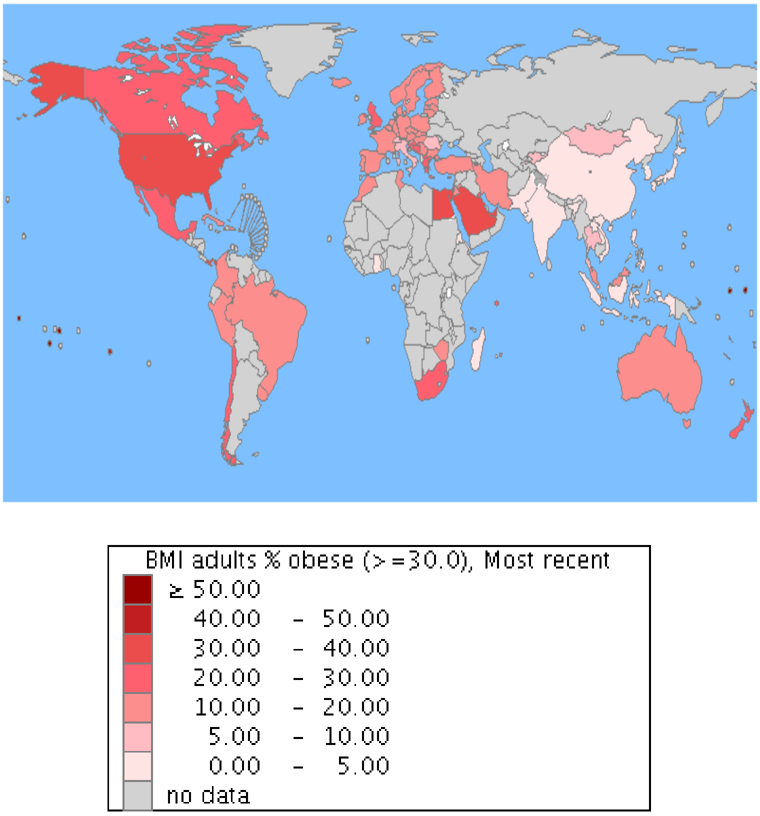

Figure (1): The World Health Organization worldwide distribution of obesity ***(Global database on body mass index, 2009).***

Aim of the Work

- This study aims at identifying the effect of LSG on GERD symptoms after a mean of 6 months of follow up.
- Another target is to identify any significant relation between UGI symptoms and UGI endoscopy findings post-operatively in patients with severe symptoms.

Chapter 1

ANATOMY

Anatomy of the stomach:

The stomach is readily recognizable as the asymmetrical, pear-shaped, most proximal abdominal organ of the digestive tract ***(Mercer et al., 2002).*** The part of the stomach attached to the esophagus is called the cardia. Just proximal to the cardia at the gastro-esophageal (GE) junction is the anatomically indistinct but physiologically demonstrable lower esophageal sphincter. At the distal end, the pyloric sphincter connects the stomach to the proximal duodenum. The stomach is relatively fixed at these points, but the large mid-portion is quite mobile ***(Ashley et al., 1999).***

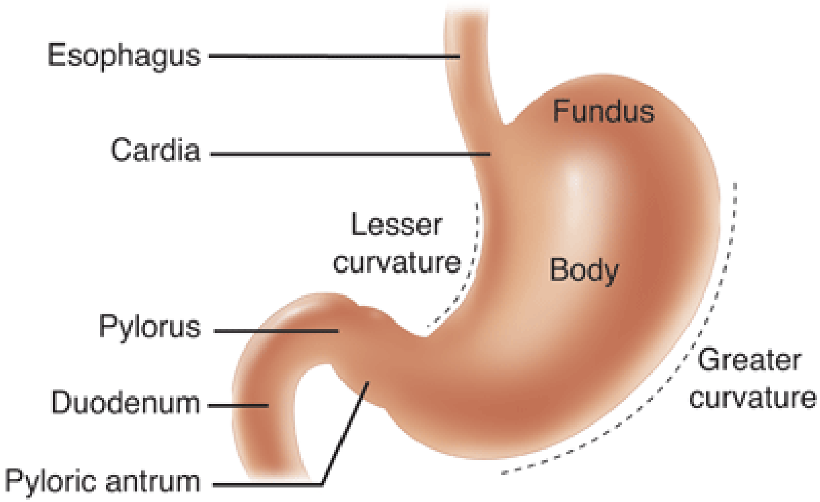

Figure (2): Anatomy of the stomach ***(Ashley et al., 1999).***

The superior-most part of the stomach is the distensible floppy fundus, bounded superiorly by the diaphragm and laterally by the spleen. The angle of His is where the fundus meets the left side of the GE junction. Generally, the inferior extent of the fundus is considered to be the horizontal plane of the GE junction, where the body (corpus) of the stomach begins. The body of the stomach contains most of the parietal (oxyntic) cells, some of which are also present in the cardia and fundus. The body is bounded on the right by the relatively straight lesser curvature and on the left by the more curved greater curvature. At the angularis incisura, the lesser curvature turns rather abruptly to the right, marking the anatomic beginning of the antrum, which comprises the distal 25 to 30% of the stomach ***(Ashley et al., 1999).***

Blood Supply

Arteries

The arteries are derived from the branches of the celiac artery (Fig. 3).

The left gastric artery arises from the celiac artery. It passes upward and to the left to reach the esophagus and then descends along the lesser curvature of the stomach. It supplies the lower third of the esophagus and the upper right part of the stomach.

The right gastric artery arises from the hepatic artery at the upper border of the pylorus and runs to the left along the lesser curvature. It supplies the lower right part of the stomach ***(Richard, 2008).***

The short gastric arteries arise from the splenic artery at the hilum of the spleen and pass forward in the gastrosplenic omentum (ligament) to supply the fundus ***(Richard, 2008).***

The left gastroepiploic artery arises from the splenic artery at the hilum of the spleen and passes forward in the gastrosplenic omentum (ligament) to supply the stomach along the upper part of the greater curvature ***(Richard, 2008).***

The right gastroepiploic artery arises from the gastroduodenal branch of the hepatic artery. It passes to the left and supplies the stomach along the lower part of the greater curvature ***(Richard, 2008).***

Veins

The veins drain into the portal circulation (Fig. 3). The left and right gastric veins drain directly into the portal vein. The short gastric veins and the left gastroepiploic veins join the splenic vein. The right gastroepiploic vein joins the superior mesenteric vein ***(Richard, 2008).***

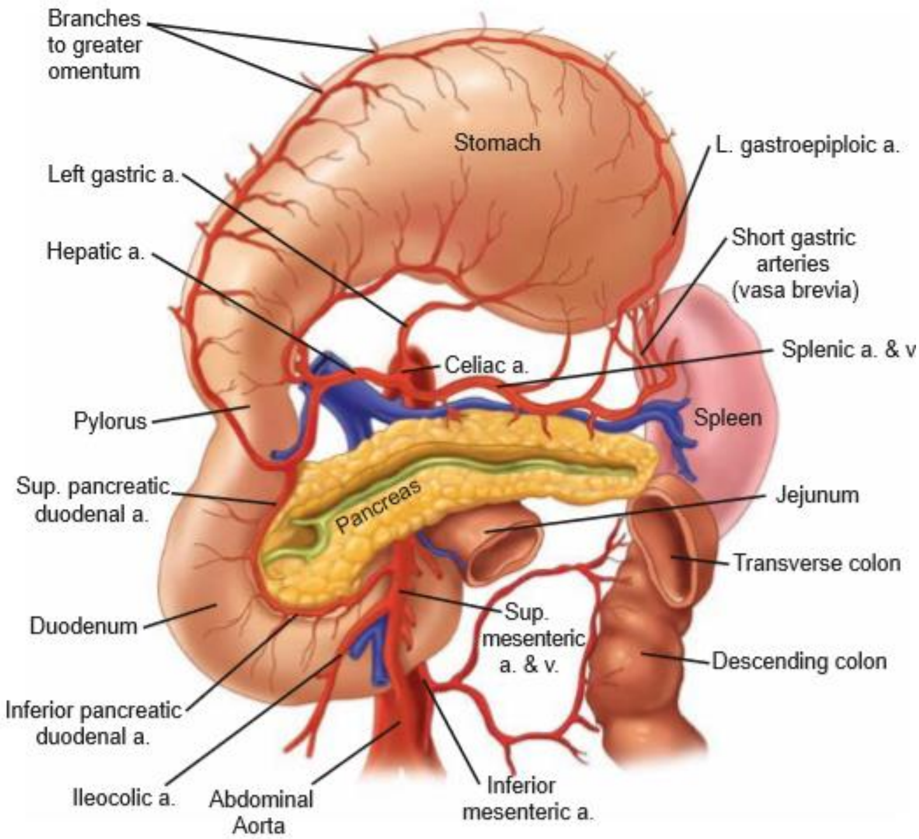

Figure (3): Arterial blood supply to the stomach. a. = artery; v. = vein ***(Mercer et al., 2002).***

Lymph Drainage

The lymph vessels (Fig. 4) follow the arteries into the left and right gastric nodes, the left and right gastroepiploic nodes, and the short gastric nodes. All lymph from the stomach eventually passes to the celiac nodes located around the root of the celiac artery on the posterior abdominal wall ***(Richard, 2008).***