Efficacy of Laparoscopic Gastric Plication in Morbid Obese Patients

A Thesis

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Presented by:

Ahmed Fouad Emam Amer

M.B.B.Ch. – M.Sc in surgery

Ain Shams University

Supervised By:

Professor Dr./ **Momen Shafik Abo-Shlouaa**

Professor of General Surgery

Faculty of Medicine – Ain Shams University

Professor Dr./ **Magdy Abd-Elghany Basyony**

Professor of General Surgery

Faculty of Medicine – Ain Shams University

Dr./ **Ahmed Elnabil Mortada**

Lecturer of General Surgery

Faculty of Medicine – Ain Shams University

Dr./ **Haitham Mostafa Elmaleh**

Lecturer of General Surgery

Faculty of Medicine – Ain Shams University

Ain Shams University

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مقدمة من:

الطبيب/ أحمد فؤاد إمام عامر

بكالوريوس الطب والجراحة – ماجستير الجراحة
كلية الطب – جامعة عين شمس

تحت إشراف

الأستاذ الدكتور/ مؤمن شفيق أبوشلوع

أستاذ الجراحة العامة والمناظير
كلية الطب – جامعة عين شمس

الأستاذ الدكتور/ مجدي عبد الغنى بسيوني

أستاذ الجراحة العامة والمناظير
كلية الطب – جامعة عين شمس

الدكتور / أحمد النبيل مرتضى

مدرس الجراحة العامة والمناظير
كلية الطب – جامعة عين شمس

الدكتور / هيثم مصطفى المالح

مدرس الجراحه العامة والمناظير
كلية الطب – جامعة عين شمس

جامعة عين شمس
كلية الطب
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Dedication

To My Father, Mother and my Wife for their great help in completing this work.

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LIST OF ABBREVIATIONS

(AGB) : Adjustable Gastric Banding
(AgRP) : Agouti-Related Peptide
(AP) : Anterior Plication
(ARC) : Arcuate Nucleus
(ASMBS) : American Society for Metabolic and Bariatric Surgery
(BMI) : Body Mass Index
(BPD) : Biliopancreatic Diversion
(CART) : Cocaine and Amphetamine-Regulated
(CCK) : Cholecystokinin
(DS) : Duodenal Switch
(EWL) : Excess Weight Loss
(GCP) : Greater Curvature Plication
(GERD) : Gastroesophageal Reflux Disease
(GHD) : Growth Hormone Deficiency
(GLP) : Glucagon-Like Peptide
(GRP) : Gastrin-Releasing Peptide
(HDL) : High Density Lipoproteins
(IAP) : Increased Intra-Abdominal Pressure
(IL-6) : Interleukin-6
(IRS) : Insulin Receptor Substrate Protein,
(LAGB) : Laparoscopic Adjustable Gastric Banding
(LDL) : Low-Density Lipoproteins
(LGP) : Laparoscopic Gastric Plication
(LH) : Lateral Hypothalamus
(LSG) : Laparoscopic Sleeve Gastrectomy
(MO) : Morbid Obese

(MS) : Metabolic Syndrome

(NASH) : Non-Alcoholic Steatohepatitis

(NPY) : Neuropeptide Y

(OHS) : Obesity Hypoventilation Syndrome

(OSA) : Obstructive Sleep Apnea Syndrome

(PAI-1) : Plasminogen Activator Inhibitor-1

(POMC) : Pro-Opiomelanocortin

(PYY) : Peptide YY

(RYGBP) : Roux en Y Gastric Bypass

(SG) : Sleeve Gastrectomy

(THC) : Tetrahydrocannabinol

(TNF-α) : Tumor Necrosis Factor-α

(VBG) : Vertical Banded Gastroplasty

(VMH) : Ventromedial Hypothalamus

INTRODUCTION

Morbid obesity is a growing health problem worldwide. Clinical treatment with diet, exercise, and/or medication has not demonstrated sustainable clinically significant results **(Sjostromet al, 2007).**

Historically, many types of restrictive procedures have been performed to achieve weight loss. Currently, gastric restrictive procedures include laparoscopic adjustable gastric banding and sleeve gastrectomy. The placement of an implantable device or the irreversible resection of gastrictissue, however, has limited the acceptance of these procedures by some patients, referring physicians, and surgeons.**(Neumayer et al, 2005)**

Vertical banded gastroplasty, in particular, has resulted in poor long-term outcomes, and a high percentage of vertical banded gastroplasty patients have required revision to Roux-en-Y gastric bypass to alleviate intolerable reflux symptoms and dysphagia or to achieve weight loss again **(Johnson et al, 2009)**.

During the past decade, the use of sleeve gastrectomy has gained popularity, and it has become widely accepted as a primary bariatric operation, as well as a first-stage operation for high-risk patients. Five-year data are now emerging that support the durability of sleeve gastrectomy **(Bohdjalian et al, 2010).**

The creation of a long staple line during sleeve gastrectomy can lead to complications, such as leaks and bleeding, and the irreversibility of this operation has been a detraction for some surgeons and patients **(Bohdjalian et al, 2010).**

Recently laparoscopic gastric plication technique has been introduced by **Talebpour and Amoli**, they reported the outcomes of laparoscopic gastric plication (LGP) performed in 100patients in private hospitals in Iran. They reported a percentage of excess weight loss of 61% at 1 year and 57% at 3 years, similar to the rates after other restrictive methods, with minimal need for reoperation **(Talebpour and Amoli, 2007)**.

LGP is a promising bariatric procedure has been found to be feasible, safe, cheap and effective in the short term when applied to morbidly obese patients **(Talebpour and Amoli, 2007).**

ANATOMY AND PHYSIOLOGY OF THE STOMACH

The stomach is a remarkable organ with important digestive, nutritional, and endocrine functions. The stomach stores and facilitates the digestion and absorption of ingested food, and it helps regulate appetite. To provide intelligent diagnosis and treatment, the physician and surgeon must understand gastric anatomy, physiology, and pathophysiology. This includes a sound understanding of the mechanical, secretory and endocrine processes through which the stomach accomplishes its important functions. It also includes a familiarity with the common benign and malignant gastric disorders of clinical significance ***(Flora et al., 2008).***

The stomach is readily recognizable as the asymmetrical, pear-shaped, most proximal abdominal organ of the digestive tract. The part of the stomach attached to the esophagus is called the cardia. Just proximal to the cardia at the gastroesophageal (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 midportion is quite mobile ***(Mercer et al., 2002).***

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) cell. 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).***

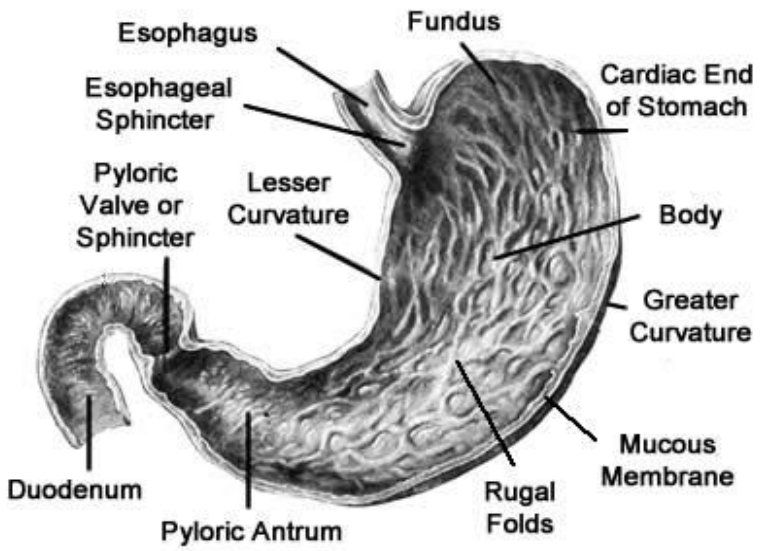

Fig (1): Parts of the stomach (Mercer et al., 2002).