Cairo University
Faculty of Medicine

LAPAROSCOPIC VERTICAL BANDED GASTROPLASTY
(Modified Technique)

Thesis

Submitted in partial fulfillment of the

M.D. Degree in General Surgery

Investigator

Hesham Ahmed Abdel-Wahab Nafady

M.B.B.Ch., M.Sc.

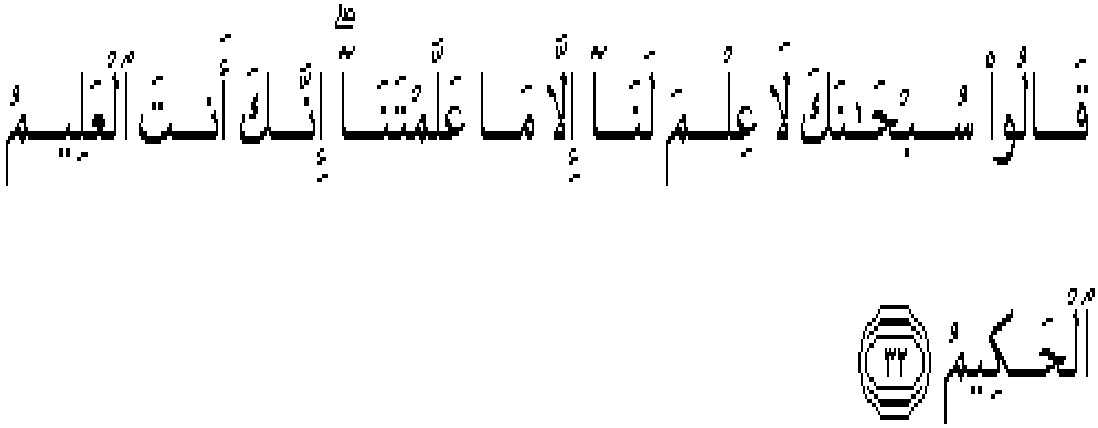
Supervisors

Prof. Dr. Fahim Aly El-Bassiony
Professor of General Surgery
Cairo University

Prof. Dr. Mostafa Abdel-Rahman El-Shazly
Professor of General Surgery
Cairo University

Prof. Dr. Alaa Abd El-Halim Mohamed Marzouk
Professor of General Surgery
Beni-Suef University

2009



صدق الله العظيم

سورة البقرة- الآيـة 32

Dedication

- *To the soul of My Father,*
- *To My Mother,*
- *To my Wife*
- *And my Daughters.*

Whose sufferings and faithful prayers
were behind the
Achievement of this work.

ABSTRACT

Surgical procedures for obesity are not just operations that any general surgeon can add to his operation list. The surgeon must be familiar with the advantages of each of the operations available.

Laparoscopic VBG is a simple, low risk operation that leaves the digestive tract in a normal anatomic relationship so that there is minimal risk of late complications and no predisposition to malabsorption.

We use a modified technique to avoid using the circular stapler in 50 patients replacing the conventional laparoscopic technique aiming at decreasing cost and time of operation with less operative and post operative morbidity in our country.

Key words:

- Laparoscopic - Vertical banded gastroplasty - Modified technique

ACKNOWLEDGMENT

Before all thanks GOD.

It is a great honor for me to work under the supervision of magnificent surgeon honest teacher and the very kind father; our great **Prof. Dr. Fahim Aly El-Bassiony** Professor of General Surgery, Cairo University. He lent me as he always does with his junior staff his whole hearted support, I have learnt from him not only Surgery but also wisdom and ethics. To him I offer my heart felt thanks and my most sincere gratitude which he will find over lasting.

I am fortunate to come under The Supervision of **Prof. Dr. Mostafa Abdel Rahman Elsahazly,** Professor of General Surgery, Cairo University, for the effort he offered to this study. To him I owe endless and over lashing appreciation for his patience sincere deviation in accomplishment of this thesis.

I am also deeply indebted to **Prof. Dr. Alla Abdel Halim,** Professor of General Surgery Beni Suef University. The achievement of this thesis would have been impossible without his stimulating suggestions and valuable instructions. He has given me so much of his time and experience and taught me how to perform useful, honest and meticulous scientific research. His great help, extreme patience and untiring effort are more than I can tell, he lightened to me many scientific subjects and made this work not only possible but also enjoyable.

I am also indebted to all staff, colleagues and members of department (29) General Surgery for their help and support through this work.

Contents

INTRODUCTION

INTRODUCTION

Morbid obesity is a pathologic condition of complex etiology that is not completely understood and dramatically affects life span because of its related complications that made it one of the most important social and medical issues in western countries ***(Sagar, 1995).***

Medical therapy(diet drugs orbehavioral treatment methods) for morbid obesity has been proven to be largely unsuccessful in controlling the fate of such disease***(Sagar, 1995 ,National institute of Health., 1985).***

Therefore morbidly obese patients that fail to respond to medical measures are candidates for bariatric surgery which is the only option that provides sustained and significant weight loss. There are multiple surgical procedures adopted for weight loss with their advantages and disadvantages.Among the most widely adopted bariatric procedures was vertical banded gastroplast which was introduced by ***Mason in 1980,*** and is one of the most favored because it is associated with extremely low (<1%) mortality rates***(Dietel , 1998).*** The advent of laparoscopic surgery and the results achieved in terms of post operative recovery, and socioeconomic benefits made several authors to extend this approach to different bariatric surgeries .

The advantages of laparoscopic vertical banded gastroplasty that it is less painful with rapid recovery of bowel movements and generally faster recovery than that obtained using the open technique .The patient can usually walk on the same day that the procedure is performed ,another

advantage of laparoscopic surgery is that it leaves a scar that is cosmetically more acceptable than does open surgery ***(Azagra et al ., 1999).***

The disadvantage of laparoscopic vertical banded gastroplasty includethe need of high technical skills and long operative time , the main postoperative morbidity is due to leakagefrom staple line but with increasing experience, advances in instrumentation and improving the technique to decrease the difficulty of operation and the postoperative leakage will add to the success of laparoscopic vertical banded gastroplasty ***(Lee et al ., 1999, Morino et al., 2002).***

AIM OF THE WORK

An attempt to evalute a modified technique for laparoscopic vertical banded gastroplasty replacing the conventional laparoscopic technique aiming at decreasing time and cost of operation with less operative and postoperative morbidity in our country.

ANATOMY OF THE STOMACH

Embriololgy of the stomach :

The primordia of the esophagus, stomach, and proximal duodenum are formed by the elongation of the embryonic foregut. During the 4th or 5th week of embryonic life, dilatation starts at the area of the future stomach at the level of C3-C5. At the end of the 7th week, the stomach may be found at T5-T10, not by descent, but by the cephalad growth of other embryonic entities. Growth of the trunk causes the stomach to locate between T10 and L3, its normal final position (Fig. 1).

Perhaps 90 degrees clockwise rotation takes place around the longitudinal axis, pulling the dorsal mesogatrium to the left. The formation of the omental bursa may be appreciated at this point. Because of this rotation the topographic antatomy of the vagal trunks changes: the left trunk innervates the anterior gastric wall and the right innervates the posterior gastric wall. This may be remembered by the mnemonic *LARP*: *L*eft trunk, *A*nterior gastric wall; *R*ight trunk, *P*osterior gastric wall.

The anteroposterior axis rotation changes the position of the gastric cardia and fundus, as well as the position of the pylorus and gastroduodenal junction. Therefore, the dorsal midline becomes the greater curvature and the ventral midline becomes the lesser curvature. At the 4th fetal month the concavity of the lesser curvature is obvious and, at the 8th month, the fundic outgrowth is seen. This is because the ventral border (lesser curvature) of the future stomach grows more slowly than its dorsal border (greater curvature). **(Skandalakis JE *et al*., 1983).**

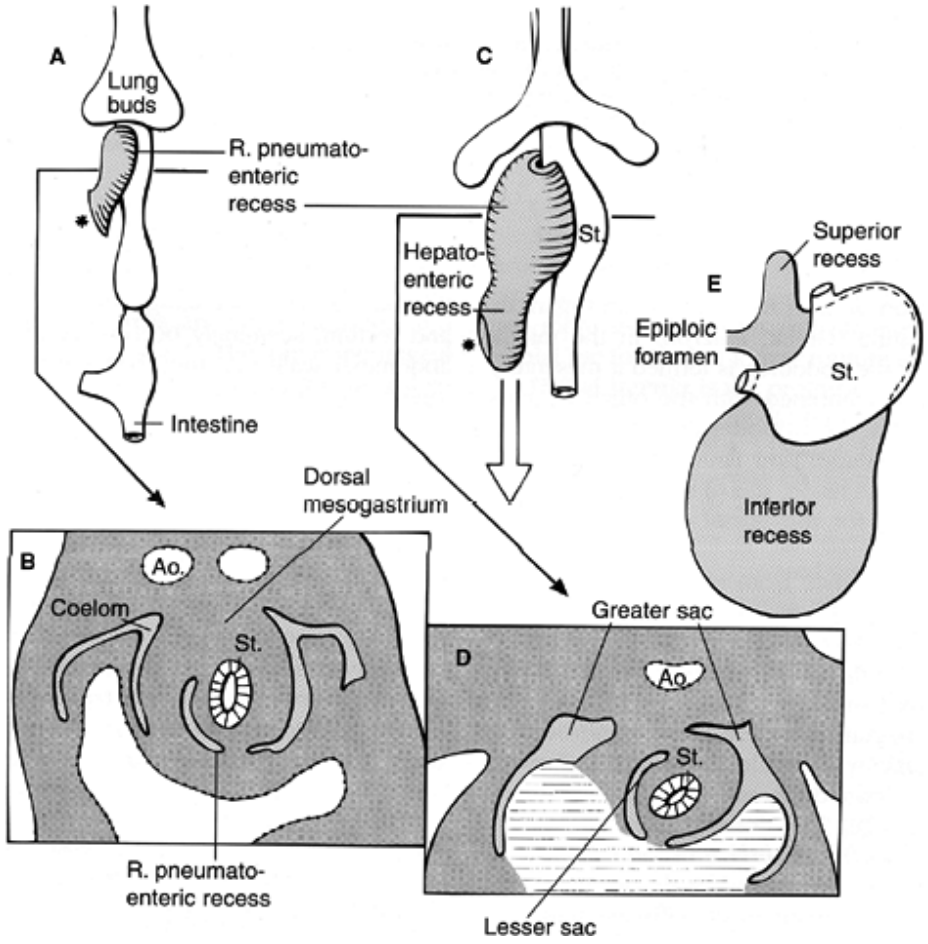


Fig. 1. Development of the lesser sac of the peritoneal cavity. **A:** Ventral view of the gut at 4½ weeks showing appearance of the right pneumatoenteric recess. The recess communicates with the coelom, and the opening (*asterisk*) may represent the future epiploic foramen. **B:** Horizontal section through the stomach (St). **C:** A day or so later, the recess is becoming wrapped around the right aspect of the stomach (St). **D:** Horizontal section showing how the recess extends behind the stomach. This is the lesser sac (omental bursa). **E:** Scheme of the form of the lesser sac in the adult as seen from in front. Superior and inferior recesses are evident, and the lesser and greater sacs communicate by the epiploic foramen. Ao, aorta. (From O'Rahilly R, MŸller **F.** Human embryology and teratology, 3rd ed. New York: Wiley-Liss, 2001, with permission.)

Gross anatomy :

The stomach occupies the epigastrium and left hypochondrium regions. It is roughly J-shaped with the longer limb of the J lying to the left of the median plane. Its long axis passes downwards, forwards and to the right and finally backwards and slightly up wards.

Both shape and size of the stomach vary greatly as follows :

- It tends to be high and transverse in the "short" obese persons, and "elongated" in thin persons, even in the same person, the shape depends on three factors; fullness, body position and phase of respiration.

The stomach has two orifices, cardiac and pyloric, two borders , lesser and greater curvatures and two surfaces; anterior and posterior. The cardiac orifice is rather fixed and lies in the upper part of the epigastrium in contact with the left lobe of the liver **(McMinn, 1994)**.

Lesser curvature :

The lesser curvature forms the right border of the stomach; it has a J-shaped curve, which extends from the right side of the cardiac orifice to the upper border of the pylorus. The lowest part of the lesser curvature is represented by a notch called incisura angularis, which indicates the subdivision of the stomach into a body which lies to the left and a pyloric partition which lies to the right.

The lesser curvature gives attachment to the lesser omentum which stretches between the stomach and Porta hepatitis of the liver. The right and left gastric vessels run along the lesser curvature **(McMinn, 1994)**.

Greater curvature :

It forms the convex left and lower border of the stomach. The greater curvature passes from the cardiac end with an upward convexity to the left to reach the level of the left 5th rib in the midclavicular line, and then runs downwards and to the right to reach the pylorus.

At the left and upper part of the greater curvature the fundus of the stomach is connected to the spleen by the gastrosplenic ligament, while from the rest of the greater curvature the greater omentum descends to reach the transverse colon **(Mc Miun, 1994)**.

Divisions of the stomach :

The stomach is divided into four parts: cardiac opening, fundus, and body & pyloric part. Pyloric part itself is divided in turn into antrm, canal and sphincter. The cardiac end is the part, which joins the esophagus, while fundus is the domeshaped part of the stomach which projects to the left and above a horizontal line from the cardiac orifice to the greater curvature. Body of the stomach is a region between the horizontal line that demarcates the fundus and a vertical line passing from the notch called the incisura angularis on the lower part of lesser curvature to the greater curvature. This vertical line divides the stomach into body, which lies to the left, and a pyloric part, which lies to the right **(Mc Minn, 1994)** as in figs. (2 & 3).