TRUNCAL VAGOTOMY WITH A DRAINAGE VERSUS SUPERSELECTIVE VAGOTOMY IN THE SURGICAL MANAGEMENT OF CHRONIC DUODENAL ULCER

ESSAY

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GENERAL SURGERY

BY

ASHRAF EL ZOGHBY EL SAID

M.B., B.Ch.

UNDER SUPERVISION OF

PROF. DR. SHAMEL ABDALLA

PROF. OF GENERAL SURGERY

FACULTY OF MEDICINE - AIN SHAMS UNIVERSITY

DR. ALLA OSMAN

LECTURER OF GENERAL SURGERY

FACULTY OF MEDICINE - AIN SHAMS UNIVERSITY

DR. MOHAMED NAGEEB

LECTURER OF GENERAL SURGERY

FACULTY OF MEDICINE - AIN SHAMS UNIVERSITY

FACULTY OF MEDICINE

AIN SHAMS UNIVERSITY

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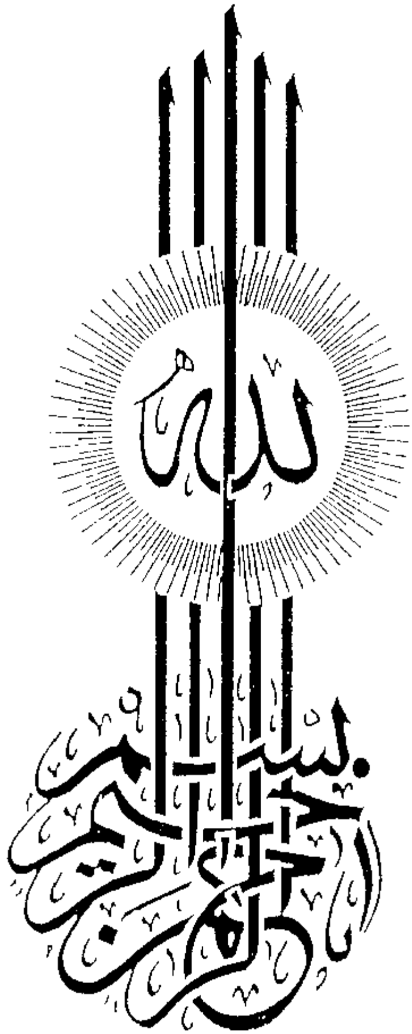
TO MY PARENTS


بسم الله الرحمن الرحيم

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INTRODUCTION

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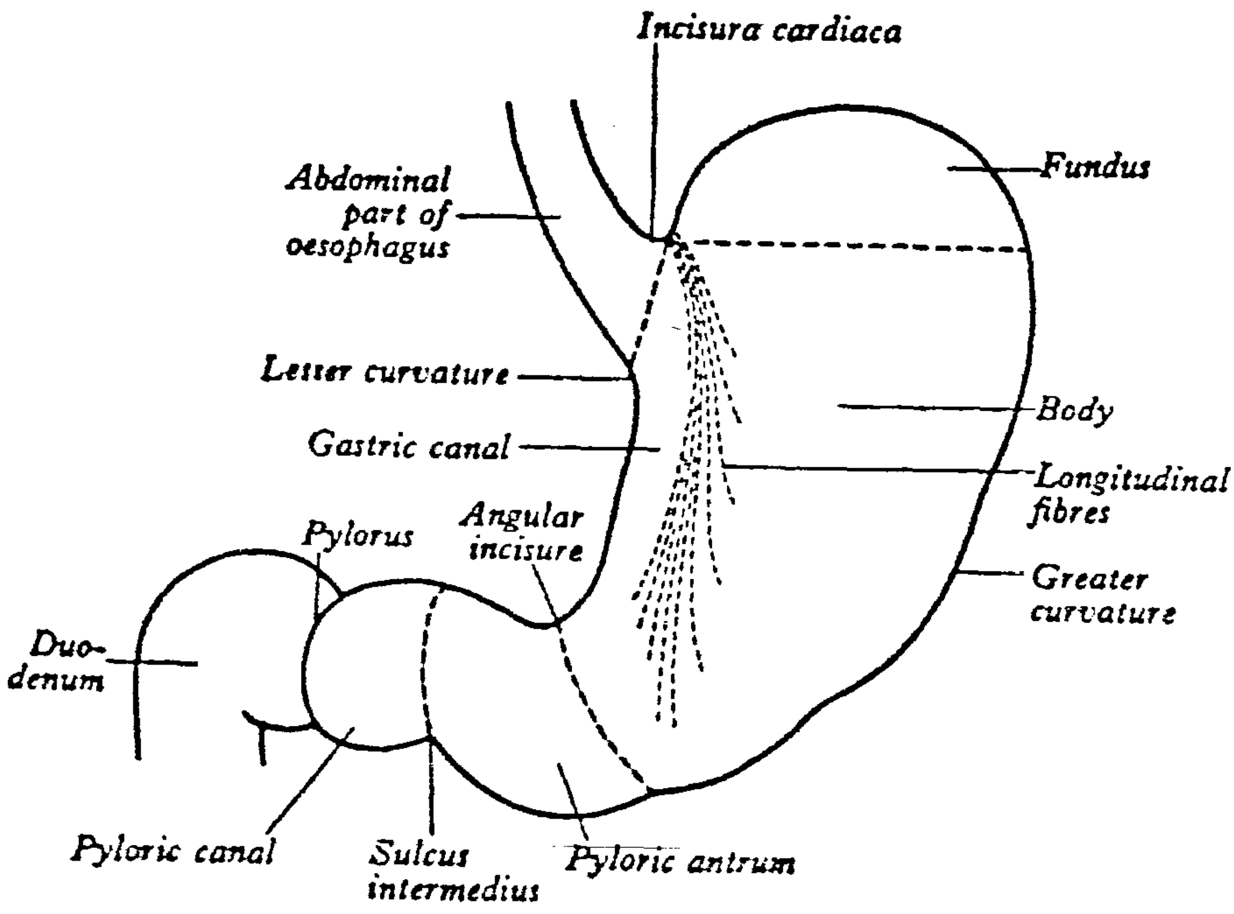
Chronic duodenal ulceration is one of the commonest problems met with either by physians or surgeons, and unless there are complications, medical treatment should be tried first, but if there is intractability, surgery is indicated.

Several surgical procedures can be used in the management of chronic duodenal ulcer. However in this essay we will try to discuss and compare the results of two commonly used operative techniques, which are truncal vagotomy and drainage versus highly selective vagotomy, taking in consideration the operative mortality, the postoperative morbidity and the recurrence rate after each surgical procedure.

A review of the most recent litrature dealing with the different aspects of this work will be included.

Finally a hint about the possible complications of vagotomy will be discussed.



The subsidiary parts of the stomach.

ANATOMY OF THE STOMACH

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The stomach [Ventriculus or gaster] is the most dilated part of the digestive tube and is situated between the end of the oesophagus and the begining of the small intestine. It lies in the epigastrium, umblical and left hypochondriac regions. [Warwick and Williams, 1975]. It can be divided into fundus, body and pyloric parts. It has two borders, two surfaces and two openings.

The fundus is the expanded upper extremity of the stomach lying to the left of the cardia. It is dome shaped and extends for 3 to 5 cm above the cardiac orifice. In the erect position it is filled with bubbles of swallowed air [Johnson, 1981].

The body extends from the fundus down to the level of the incisura angularis, which is a notch on the lesser curvature of the stomach. A plane passing through the angular incisure and the left limit of the opposit bulge on the greater curvature divides the stomach into a large left portion, the body, and a small right portion or the pyloric portion. Opposite the angular incisure, the greater curvature presents a bulge which is the left extremity of the pyloric part, this bulge is limited on the right by a slight groove which indicates the subdivision, of the pyloric portion into a pyloric antrum [to the left], and a pyloric canal to the right, the later is only 2-3 cm in length and terminates at the pyloric constriction [Warwick and Williams, 1980].

Several anatomical landmarks may be used to determine the junction of the antrum and the body of the stomach, namely the "crow's foot" of the gastric divisions of the vagus nerve and the incisura angularis. The boundary of the antrum starts on the lesser curvature 6 to 10 cm proximal to the pyloric valve, 3 to 4 cm proximal to the "Crow's foot", or the boundary of the antrum starts at the incisura angularis [which may be absent]. However there are no landmarks on the greater curvature [Skandalakis Stephen, 1983].

In [1964] Bergströn and broome using blue Litmus as a colour indicator determine the boundry to Lay at a distance of 7.5 cm from the pylorus on the Lesser curve and 6.5 cm on the greater curve, but variations ranged up to 16 cm from the pylorus.

The cardiac orifice is the opening by which the oesophagus communicates with the stomach. It is situated 2.5 cm to the left of the median plane, it is about 40 cm from the incisor teeth [Warwick and Williams, 1980]. The orifice is protected by a functional, though not a very obvious anatomical sphincteric ring of muscles. The lower oesophagus often, though not always shows a thickening of its circular coat, closure of the lower end of the oesophagus by these circular fibres allows the thick mucosal ridges of the stomach lining to blug the orifice, and so discourage reflux. Also the looping fibres of the right diaphragmatic crus which surround the oesophageal opening in the diaphragm help to closé the lower oesophagus [Last, 1984].

The pyloric orifice is the opening of the stomach into the duodenum and is surrounded by a thick band of circular smooth muscle forming the pyloric sphincter. It lies about 1.5 cm to the right of the median plane near the level of the lower border of the 1st lumbar vertebra [Warwick and Williams, 1980]. It can be identified by a circular groove on the surface, palpating the pyloric sphincter as a thick ring of muscles, and by the presence of the prepylric vein of Mayo which runs vertically across its anterior surface between the right gastric and the right gastroepiploic vein.

The stomach has 2 curvatures, the lesser curve forms the concave right border of the stomach. It gives attachment to the lesser omentum, and its most dependent part may present a notch, named the angular incisure [Warwick and Williams, 1980]. The greater curvature is the convex left side of the stomach, which begins at the cardia in the depth of the angle of Hiss to end at the pylorus. Below the level of the fundus, it is related to the arterial arch formed by the right and left gastroepiploic arteries within the layers of the gastro colic omentum. On the left side of the fundus and adjoining part of the body, the greater curvature gives attachment to the gastrosplenic ligament [Mc Vay, 1984].

When the stomach is empty and its walls contracted, its surfaces are almost superior and inferior, but when it is distended they become anterior and posterior respectively. So, they are described as anterosuperior and postero-inferior. [Warwick and Williamiams, 1980].

The wall of the stomach is formed of four layers, serosa, musculosa, submucosa and mucosa. The serosa or the peritoneum gives the stomach a compelete serous coat, except along the curvatures and also over a small area which is in direct contact with the diaphragm to the left of the cardiac orifice. [Warwick and Williams, 1980]. The serosa is formed of loose connective tissue in which blood vessels, nerves and lymphatics are present and is covered by a single layer of mesothelial cells [Lesson and Lesson, 1981].

The musculosa consists of 3 layers of smooth muscle fibres. The outer longtudinal, and the inner circular muscle coats completely invest the stomach, they are reinforced by an innermost incompelet oblique muscle coat. Two longtudinal folds, one on the anterior surface and the other on the posterior surface, lie near and in the line of lesser curvature, and it may be that the oblique fibres of the muscular coat participate in the formation of these folds. The edges of these folds come together when the stomach is empty and they therefore form a canal which leads from the cardiac orifice to the pyloric antrum. This canal has been termed the "gastric street" or "Magenstrasse" and fluids and perhaps food, may be conveyed to the pyloric end of the stomach along it . [Last , 1984].

The submucosa and mucosa provide a continuous inner integument that is seperated by a thin sheet of smooth muscle, the muscularis mucosa. A prominant characteristic of the mucosa is a rich mucosal capillary network, that is derived from small arteries that originate in the submucosa. [Moody and Mc Greevy, 1983].

The gastric mucosa is relatively thick, reddish grey in colour. It is composed of tubular glands, each 3 to 4 glands open into an indentation within the mucosal surface called a pit or foveolus. [Johnson, 1981]. The gastric glands consists of six major cell types; surface, mucous neck, progenitor, cheif [peptic], parietal [oxyntic] and endocrine cells. The surface epithelial cells protect the epithelium from ingestants and injurious effect of gastric acid and are likely the source of sodium rich alkaline secretion. The mucous neck cells line the entrance of gastric glands, and serve the purpose of partially buffering nascent acid as it enters the gastric pits. Cells at the base of the gastric pits serve as stem or progenitor cells for the development of new surface cells and also cells of the gastric glands. Cheif cells are the source of pepsinogen [Moody and Mc Greevy, 1983].

The parietal cells are the acid secreting cells in the human stomach, they are mainly distributed to the body of the stomach. [Berger, 1934].

The endocrine glands include the antral gastrin producing G cells and somatostatin-producing D-cells. [Rarnold et al., 1982].

There are no parietal or chief cells in the antral mucosa, but gastrin producing G-cells are present [Moody and Mc Greevy, 1983].

The distribution of gastrin cells showed a decrease in density from pylorus to gastric body, and no gastrin cell was found in the gastric body. [Voillemot et al., 1978].