Evaluation Of Proximal Gastric Vagotomy As The Most Recent Procedure ForThe Surgical Treatment Of Chronic Duodenal Ulcer

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BY

ATEF ABBAS NADA

M.B.B. Ch. (Cairo)

SUPERVISED BY

PROF . DR . MAGD ZAID

Prof . Of General Sergery

Faculty Of Medicine Ain Shams University

Dr. M. EMAD SALEH

Lecturer Of General Surgery

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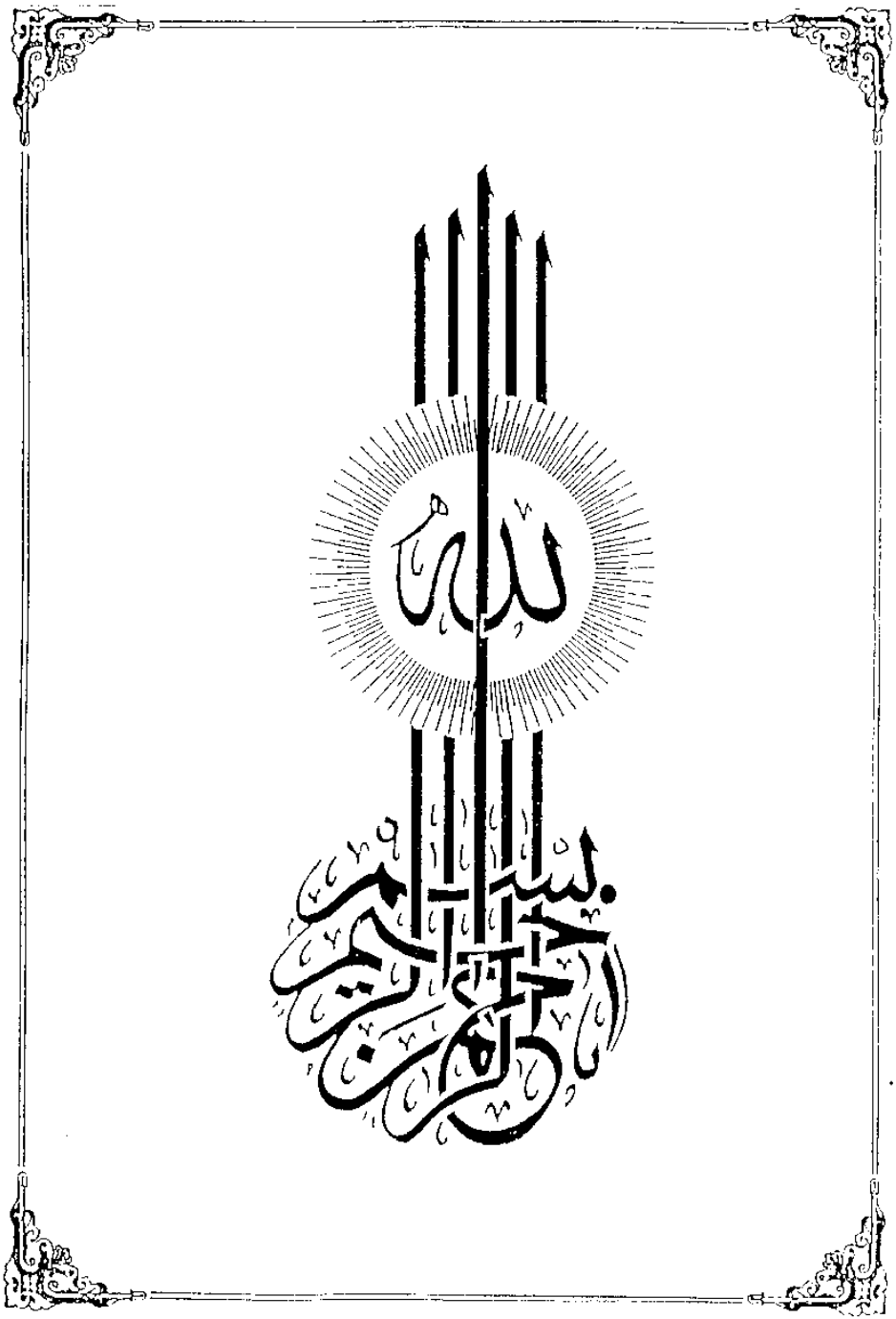

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INTRODUCTION

The stomach is a muscular bag, equipped with a sphincter at either end. The cardiac sphincter prevent reflux of gastric content into the oesophagus. The Pyloric sphincter prevents reflux of duodenal content into the stomach, and also assists in regulation of gastric emptying.

The stomach has two principal functions, firstly it acts as a reservoir which receives and holds the meal by means of receptive relaxation of the body and fundus of the stomach, secondly, it mills and grind solid food into smooth chyme, which is suitable for digestion and absorption in the small intestine. The antrum permits the stomach to discriminate between solids and liquids, liquid chyme passing onwards, while solid particles are actively retropelled into the body of te stomach to undergo further triturition.

The surgical treatment of duodenal ulceration has become safer in the 1980s, its traditional side effects and long term metabolic disorders seem likely to be reduced in frequency. These advances seem from the findings that the antrum - the mill of the stomach - does not have to be deprived of its motor nerve supply and that this vagally-innervated antrum is able to empty the stomach efficiently

through an intact Pylorus, without the need for a Pyloroplasty or gastroenterostomy. Truncal vagotomy does not reduce circulating levels of gastrin, it increases them significantly. Moreover, vagal denervation of the gastric antrum as in truncal or bilateral selective vagotomy produce gastric stasis, so that a drainage procedure has to be added. Complete gastric vagotomy with a drainage procedure renders the stomach "incontinent" of liguids, with the result that side effects such as dumping rapid intestinal transit and diarrhoea apear in some patients.

Today, truncal vagotomy with a drainage procedure (usually pyloroplasty) is still the most popular for chronic duodenal ulcer, but in many centres with a special interest in gastric surgery, highly selective vagotomy without a drainage procedure is now regarded the operation of choice. Selective vagotomy with drainage is now little used, most of its former proponents having abandoned it in favour of HSV.

So, chr. duodenal ulcer can now be treated with less risk to life, fewer side effects and fewer long-term metabolic seguelae than ever was possible in the past. Such is the potential of proximal gastric vagotomy without drainage which was introduced into clinical practice by

Johnston and Wilkinson and Amdrump and Jenson Independently, but at the same time in 1970.

Proximal gastric vagotomy will be compared with truncal vagotomy and drainage at the physiological and clinical level in this review.

SURGICAL ANATOMY OF THE STOMACH

The stomach separated from the oesophagus by a multi-component sphincter mechanism and from the duodenum by the anatomically well-defined pyloric sphincter.

The two curvatures of the stomach are important surgically because of their relation to the major vascular and lymphatic arcades of the stomach.

The lesser curvature extending between the cardiac and pyloric orifices forms the right border of the stomach, at the most dependant part of the curve there is a notach named the angular incisura.

The greater curvature is four to five times as long as the lesser curvature, directly opposite the angular incisura the greater curvature presents a bulge, which with the angular incisura indicate the upper limit of the pyloric part of the stomach. There is slight groove on the right side which subdivide the pyloric part into the pyloric antrum and pyloric canal, the body of the stomach lies between the fundus and pyloric part. The pyloric orifice is the opening into the duodenum which is usually indicated by the pyloric constriction of the pyloric sphincter and can be indentified at the operation by the prepyloric vein, the orifice lies at the level of the

lower border of the first lumbar vertebra about 1.2 cm to the right of median plane.

The anterosuperior surface of the stomach is completely covered by peritoneum of the greater sac and the left part of this big surface is posterior to the left costal margin, it is rfelated to the left and quadrate lobes of the liver and also the diaphragm which separates it from the left pleura, the base of the left lung, the pericardium and the 6 th and 9 th ribs and intercostal spaces of the left side. The upper and left part of this surface becomes posterolateral and is in contact with the gastric surface of the spleen.

The posteroinferior surface is related to the diaphragm, the left suprarenal gland, the upper part of the front of the left kidney, the splenic artery, the anterior surface of the pancreas, the left colic flexure and the upper layer of the transverse mesocolon. These structures form the shallow stomach bed, but the stomach is separted from them and can slide over them due to the intervening omental bursa (Lessar Sac).

Blood supply of the stomach and duodenum :-

The stomach is supplied by branches of the coeliac artery being a part of the foregut.

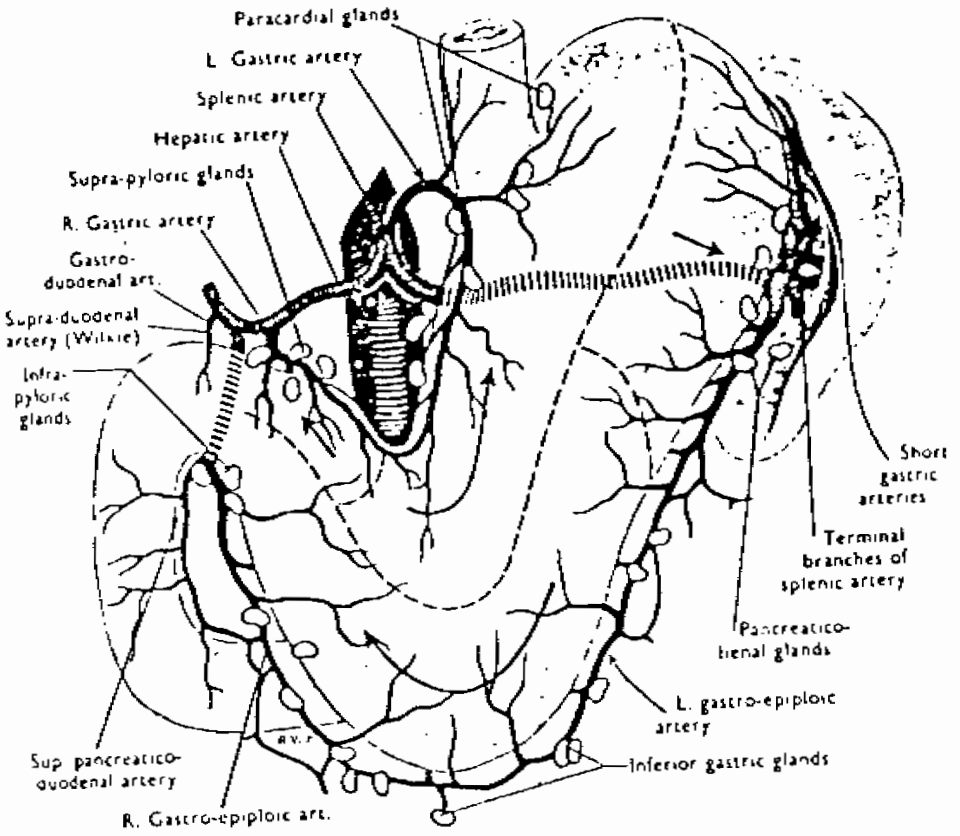

Figure 1: Blood Supply and lymph drainage of stomach

The arteries which supply the stomach are :

1) Left gastric A. (from coeliac trunk)
2) Right gastric A. (from hepatic A.)
3) Left gastroepiploic A. (from splenic A.)
4) Right gastroepiploic A. (from gastroduodenal A.)
5) Short gastric AS. (from splenic A.)

- (1) and (2) supply the area of lesser curvature.
- (3) and (4) supply the greater curvature.
- (5) or (vasa brevia) supply the fundus of the stomach and the gastroduodenal artery which sends bronches to the area of pylorus as well as to the duodenum.

The left gastric artery :-

It arises as a branch from the coeliac trunk and ascends upwards and forewards behind the lesser sac, then curves to the left to reach the cardiac end of the stomach.

Michels (1955) reported that in about 25% of cases a large left hepatic branch may arise just before the left gastric artery reaches the lesser curvature and that branch runs through the lesser omentum to the hilus of the liver at or near the cardiac end of the stomach, the left gastric artery gives ascending oesophageal branch or branches and it then turns forwards and downwards in the left gastro-pancreatic fold.

It gives branches to both surfaces of the stomach and anastomoses with the right gastric artery, These branches always accompany terminal vagal branches from the nerve of Latarjet.

The right gastric artery :-

arise from the hepatic artery, it runs towards the lesser curvature between the layers of the lesser omentum supplying the upper parts of the anterior and posterior surfaces of the stomach and ends by anastomosing with the left gastric artery.

The left gastro-epiploic artery :-

Is a branch from the splenic artery, arises near the hilus of the spleen, it runs through the gastro-splenic ligament to the greater curvature of the stomach, supplying the surfaces of the stomach and the greater omentum.

The right gastro-epiploic artery :-

Arises from the gastro-duodenal artery or sometimes from the superior mesenteric artery, it runs to the left along the greater curvature of the stomach between the layers of greater omentum.

It ends by anastomsing with the left gastro-epiploic artery.

The short gastric arteries :-

They are five to seven in number, arises from the splenic artery or its permenant Branches or occasionally they arise from the gastroepiploic artery. They pass through the layers of the gastrosplenic ligament and are distributed to the fundus of the stomach anastomosing with the branches of the left gastric and left gastro-epiploic arteries.

The gastro-duodenal artery :-

It usually arises from the main hepatic artery or from one of its two terminal branches and then descends behind the most proximal part of the duodenum to the left of the bile duct. At the lower border of the first part of the duodenum it divides into the right gastro-epiploic and superior pancreatico-duodenal arteries. The superior pancreatico-duodenal artery anastomoses with the inferior pancreatico-duodenal artery which is a branch of the superior mesenteric artery forming the anterior and posterior pancreatico duodenal arcades supplying, the duodenum and head of pancreas.

These arcades represent the most important route of collateral circulation between the coeliac and superior mesenteric arteries. It also explains the futility of ligating the gastroduodenal artery or superior pancreatic - duodenal artery to control bleeding from duodenal ulcer.