Management Of Post Operative Complications After Peptic Ulcer Operations

AN ESSAY

Submitted For Partial Fulfilment

For The Master Degree Of

SURGERY

BY

SAAD ABD EL FATTAH MOHAMED

M.B,B.Ch.

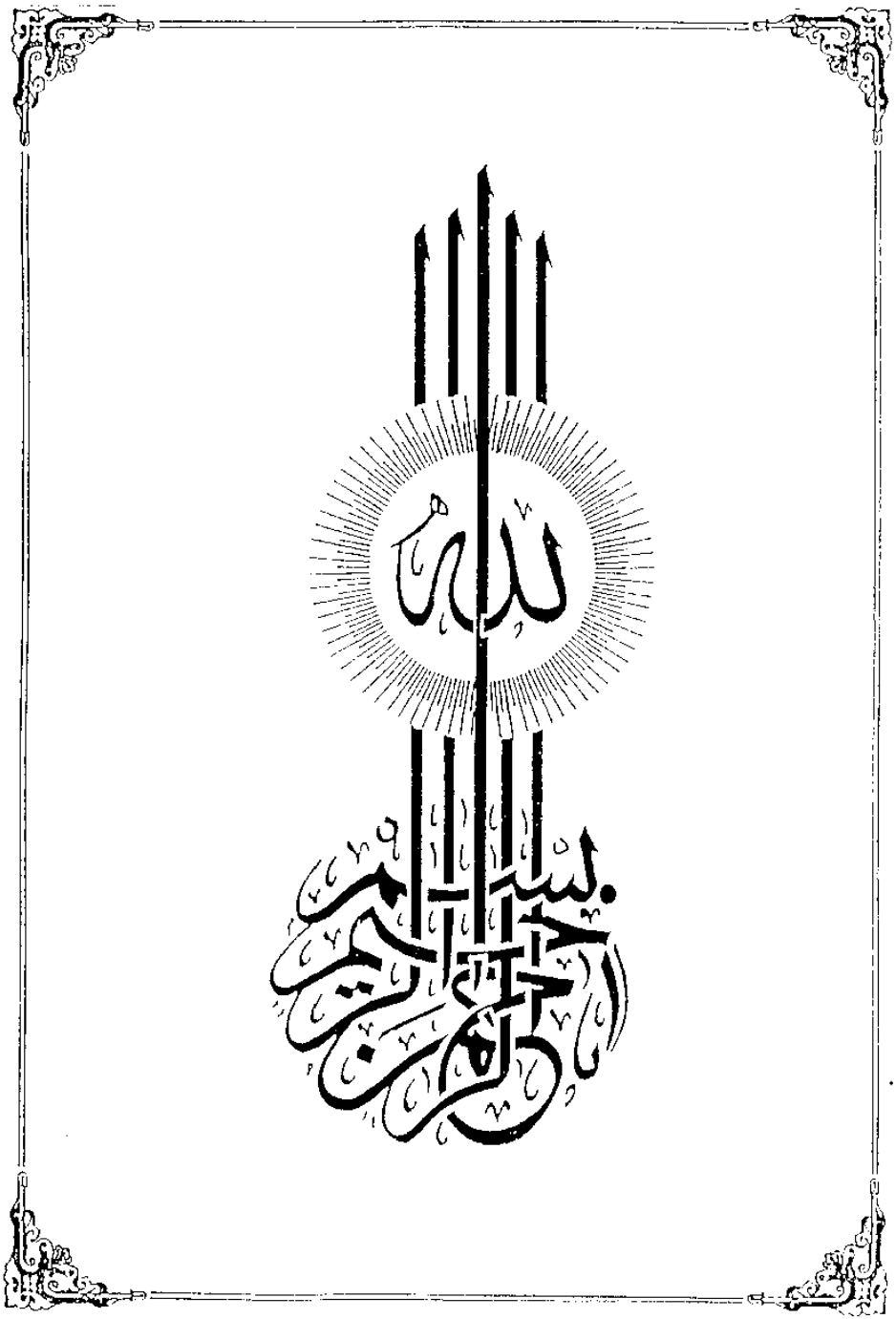
SUPERVISORS

Prof.Dr. HAMDY ABDALLA
Prof. OF General Surgery
Faculty of Medicine
Ain Shams University

Prof.Dr.Al ZARIF ABD ELNABI
Assistant Prof. of General
Surgery, Fac. Of Medicine.
Ain Shams University

AIN SHAMS UNIVERSITY

1989



ACKNOWLEDGEMENT

I would like to express my everlasting gratitude to professer Dr. Hamdy Abd-Alla for his fatherly guidance, kind willing help and valuable suggestions, He devoted much of his time to led me through the right way and encouraged me continuosly during the preparation of this study.

Indeed, I am greatly indebted and sincerely grateful to Prof. Dr. Al Zarif Abd El-Nabi for his kind supervision, unlimited support, meticulous guidance, great and willing helpful suggestion to accomplish this work.

May I exert my thanks to all the staff members of surgery for their generous help they offered to me.

INTRODUCTION

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All operative procedures designed to ameliorate the peptic ulcer diathesis have a common and retional basis : reduction in the capacity of the stomach to secrete acid. This goal is accomplished by interrupting the coeliac phase of secretion, by ablating the cephalic and gastric phases of secretion simultaneously, or by eliminating a significant portion of the parietal cell mass. unfortunately, each of these approaches may be attended by untoward sequelae.

The purpose of this essay is to present a concise but in-depth discussion of various complications that may follow operation for peptic ulcer including methods of diagnosis and treatment. Suffice it to say careful preoperative preparation, emphasis on rigid intraoperative techniques, and through postoperative support will lessen the incidence of complications following peptic ulcer operations. Consideration is given only to those complications directly related to the stomach and duodenum; the usual complications such as pulmonary embolism, wound infection, and so forth that may follow any major operative procedure are not discussed. Since vagotomy is an important part of many operations performed on the stomach and duodenum, the early and late complication of vagal denervation are included.

Briefly; the aim of this work is to review the literature written about post-operative complications of peptic ulcer operations regarding the different lines of diagnosis

and treatment. The essay also includes a note on the historical review of gastric and duodenal surgery of the peptic ulcer. It also includes a note on the antomical basis of gastric secretion, physiology of the stomach and duodenum, pathophysiology of peptic ulcer, medical and surgical treatment of peptic ulcers.

HISTORICAL REVIEW

Historical Review

The initial development of surgical procedures for peptic ulcer was emprical. The subsequent evelution has been guided by demonstration of physiological mechanisms controlling gastric secretion (Thompson, et al, 1961).

The first operation for peptic ulcer that gained wide spread acceptance and one of the most simple operation ever devised for the lesion is gastroenterostomy, an anastomosis between the stomach and jejunum. The prpcedure was first described in 1881 by Wolfer who used it to bypass a carcinomatous obstruction of the pylorus. Because of the simplicity of the procedure and its relative safety, it was quickly adopted by surgeons in Europe and America (Lewisohn, 1925).

The first successful gastric resection was performed by Theador Billroth in Vienna in 1881 when he excised an obstructing carcinona of the pylorus and performed a gastroduodenostomy (Sabiston 1977). In 1882, Rydygier performed the first gastric resection for ulcer disease (Rydygier, 1882). Because of technical ease and low mortality of gastrojejunostomy, it was widely used for treatment of duodenal ulcer, pyloric and gastric ulcers in late 19th, 20th centuries. The first partial gastroectomy were hardly more than pylorectomy, but as operative techniques improved, surgeons became more radical and by 1940 the term subtotal gastric resection was inter interpreted as

denoting removal of the distal 66 to 75% of the stomach. After resection, the continuity of the gut can be restored by anastomosis of the remaining portion of the fundus to the duodenum (gastroduodenostomy) or (Billroth I anastomosis) or alternatively by closure of the duodenal stump and by anastomosis of the fundic remanant to the first part of the jejunum (gastrojejunostomy or Billroth II anastomosis) subtotal gastrectomy, especially with billroth II anastomosis, became very popular and standard operation for peptic ulcer disease by the 1930s, was for two decades the standard treatment for peptic ulcer disease, and is still in wide use. The objections to the procedure are the relatively high mortality rate, especially in patients with severe scarring of the duodenum, and the high incidence of postoperative complications.(Sabiston, 1983).

Laster dragstedt, knew that peptic ulcers were caused by excess acid in the stomach (Dragstedt, 1943). Because of the known action of the vagus nerves on gastric secretion, in 1943 Dragstedt carried out gastric analyses using a nasogastric tube in two patients with known peptic ulcers disease during the 12 hour period from 9 p.m. to 9 A.M. He carried out transthoracic vagotomy in both patients and noted; a marked reduction in the volume of gastric output as well as an increase in the PH of gastric juice postoperatively. These two patients had marked relief of symptoms on short-term follow up (Dragstedt, 1943. Dragstedt, 1949).

In december 1945 another report by Dragstedt. He treated 39 patients with truncal bagotomy and had remarkable results, with a follow-up period of several months to 2.5 years. (Dragsted et al 1949).

of 30 patients with duodenal ulcers, 29 had marked relief of symptons postoperatively, 8 had gastrojejunostomy at the time of vagotomy of pyloric obstruction, and 5 had trans abdominal vagotomy. of two patients with gastric ulcers, one had relief of symptoms and reduction of size of the ulcer, and one had relief of symptoms, and complete healing of the ulcer. Of seven patients with gastrojejunal ulcers, five had relief of symptoms, one had relief of symptoms with adminstration of antiacids postoperatively and one underwent to total gastrectomy. one patient died postoperatively from aspiration pneumonia. This operation reduced the overnight 12 hour gastric secretion by 50 to 60 % in all of the patients. It was discovered that truncal vagotomy although it reduce gastric secretion, also caused gastric hypotonicity in more than half of the patients. For this reason, Dragstedt added to vagotomy as a drainage procedure. After sometimes a 10 to 13 % rate of recurrent ulcers was found, because antral stasis and thus stimulation of gastrin relaase. Weinberg 1963 proposed a revision of the Heinecke - Mikulicz pyloroplasty using a transverse single layer of a longitudinal gastrotomy. This procedure has several advantages . First, there is less infolding of tissue into

the lumen and decrease antral stasis. Second, the normal pathway for food is maintained through a gastrojejunostomy (Weinberg 1963).

The operative mortality in Weinberg original series of 1.22 patients was less than one percent. The rate of recurrent ulcer after vagotomy and pyloroplasty was about 5 %. So it is accepted for treatment of peptic ulcer disease especially in older and poor risk patients with massively bleeding ulcers. Complication of vagotomy as diarrhea reported in 5 to 20 % patients due to denervation of the small intestine (Weinberg 1963).

In an effort to prevent this, Frankson and Jackson reintroduced selective vagotomy originally proposed by Latarjet of France in 1922. In this operation, the stomach is denervated but the branches from the posterior vagus to the celiac ganglion and anterior vagus to the liver are left intact (Latarjet A. 1922).

In 1906 Edins reported that intravenous extracts of antral mucosa caused gastric secretion but extracts from other parts of the stomach has no effect. The gastric antrum secrete Gastrin, which function as an endocrine hormone and mediates the gastric phase of gastric secretion. Food and mechanical distention of the antrum form gastrin and gastric secretion. After Dragstedt's introduction of vagotomy, it was simply a matter of time before it is combined with gastric resection.

In 1946 Framer and Smith Wick performed truncal vagotomy and hemigastrectomy. In 1947 Edwards and Herrington of Vander Bilt university started their series of vagotomy in which 50 to 60 % of the proximal stomach is conserved.

In 1976 Herrington published the result of 5.771 of vagotomies and anterectomies. their indication for operation were as follows, interactable ulcer pain 51 % of cases, heamorrhage in 32 %, pyloric obstruction in 14% and acute perforation in 3% of cases the results were as follow; 48% of patients had minimal of any nutritional problems after anterectomy. One fourth of the patients had mild symptoms of dumping, which was severe in only 1%. Overall operative mortality decreased from 3.1% in 1958 to 1.44 % in more recent years. The recurrent rate among 3.697 patients followed up for long periods was only 0.5%. This is one of the most widely used operation for peptic ulcer diseases in America to day (Herringaton J.L Sawyers 1980).

The idea of denervation of pareital cell mass of the stomach without injuring the nerves to the antrum and pylorus. Holle and Hart performed the first partial cell vagotomy in man in 1967. The results were as follow the operative mortlity in 4.557 patientsreported by Johnstons was 0.26%. The incidence of dumping and diarrhia was about 5% but milder than after truncal vagotomy. The recurrent

ulcer rate varies from 2.41. This operation has been done for elective treatment of intractable ulcer, and its use for perforated or obstructing ulcers are not known at present because not enough cases have been done (Johnostons , 1975).

ANATOMICAL BASES OF CASTRIC SECRETION