FACTORS INFLUENCING THE PROGNOSIS OF CANCER STOMACH

An Essay Submitted for Partial Fulfilment of

Master Degree of General Surgery

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Under Supervision of

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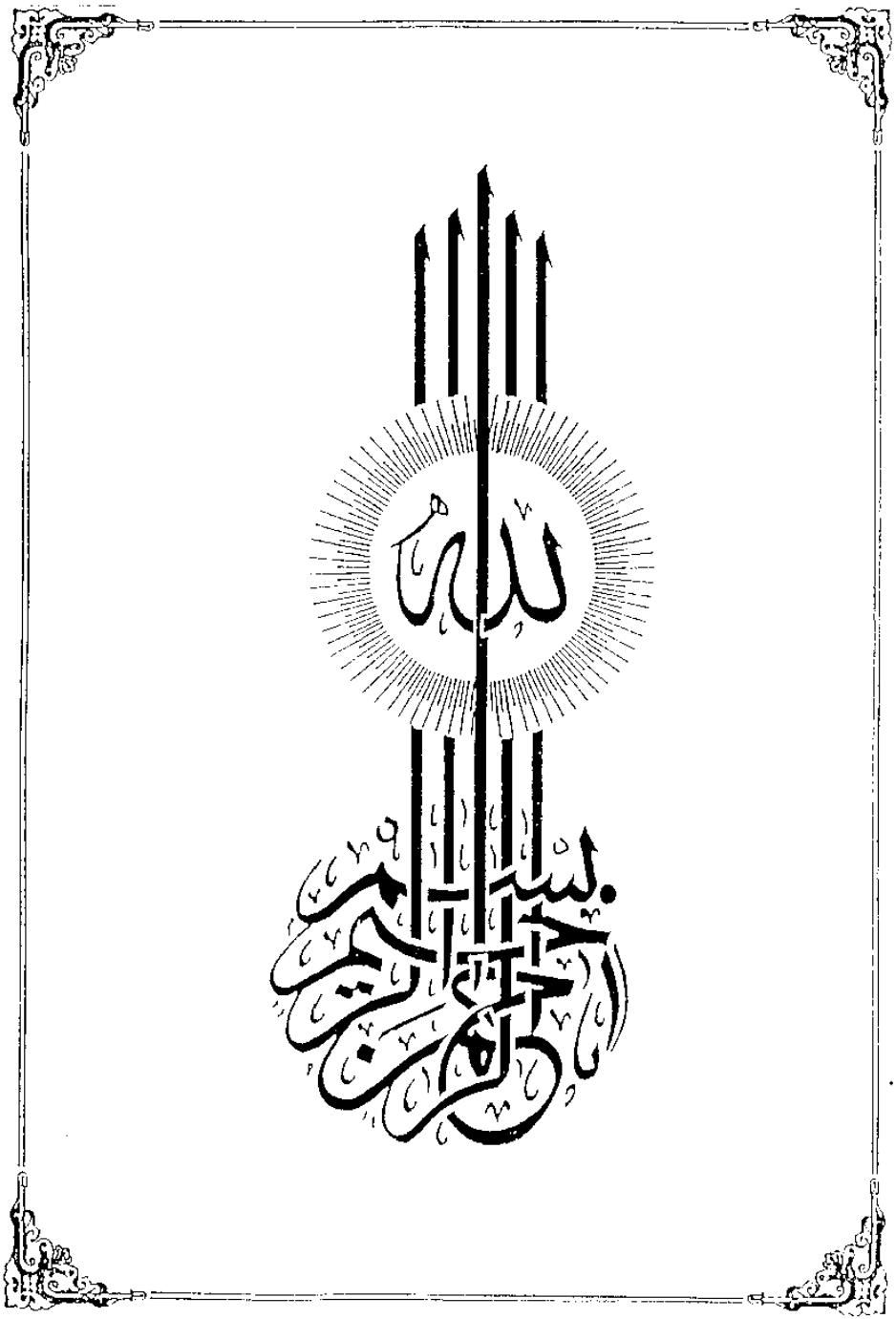

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The study include the following:

Supervisor

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CHAPTER I

INTRODUCTION

Introduction

Although carcinoma of the stomach is not a very common lesion in this country, it is definitely a significant health problem. Carcinoma of the stomach is more prevalent in countries like Japan, Chile, Costa-Rica Scandinavia and South Africa. Its detection in the early stages is computed to be 0.3% to 10% in most reports. However, Japan incidence stands up to 30% of "early instances" with an excellent five years survival rate. When this survival rate is only 5-10% anywhere else.

This means that gastric carcinoma continues to carry dismal prognosis due to the fact that diagnosis is often delayed until late in the course of the disease.

In the past the diagnosis was made mainly on the history and on radiographic findings. Currently, the majority of patients undergo endoscopy with biopsy study to show the histopathology preoperatively. Still advanced stages of the disease are often encountered and hence the poor five years survival rate.

A diagnosis of cancer of the stomach is a sentence of early death in the mind of the lay person as well as most doctors. It is also believed that only in exceptionaly, it is amenable to surgical treatment. This attitude of hopelessness is a great deterrent to progress. It has been shown that

cancer stomach is a curable disease.

This great change which has been made during the last decade is due to improvement in both the methods of diagnosis and surgical techniques. This rapid advances in the science and art of management of this dreaded disease should provide hope and encouragement regarding future prospects.

In this study we will try to review the literature and analyse it to identify the different factors which influence the prognosis of gastric cancer.

Historical Background

Avicenna (980-1037) gave the first account of cancer stomach. Known to us Avenzoar (1091?-1162) described the necropsy appearance of a case of carcinoma of the stomach In the western literature, the first detailed memoir on malignant lesions of the stomach was written by **Morgagni in (1761).**

In 1810 Merrem (Cited by **Rydgier in 1881)** successfully performed excesion of the pylorus in dogs and suggested the possible application of pylorectomy followed by end to end gastrodudenostomy in humans suffering from cancer of the distal end of the stomach.

An outstanding early describtion of the clinical picture of cancer stomach was that of G.L. Baylay, whose book "Tumours of the Stomach" was published in 1839 and contains references to the researches of Aussant, Chardel and Laennec. Brinton, of University College Hospital London, discussed the difficulty in differentiating benign and malegnant ulcers in his book "Lecture on The Diseases of The Stomach" 1858. In one of his articles, he gave an accurate account of "linitis plastica".

Pean (1879) performed the first gastric resection for cancer. The patient died 4 days later. **Billroth (1881)** carried out the first successful pyloric resection in human for

carcinoma of the pylorus 71 years after Merrem's work. The patient died 4 months later.

Conner (1884) attempted the first total gastrectomy for cancer of the stomach. The patient died on the operating table.

Roentgen (1893) discovered X-rays, **Schlatter (1897)** performed the first successful total gastrectomy and the patient lived 14 months.

Rieder (1905) and **Holzknecht (1906)** published articles on the value of gastrointestinal studies employing bismuth subnitrate meals for x-ray examinations. During 1911-1912, Holzknecht and Hendrick (Vienna) Forsell (Stockholm) Cole (New York) Barclay (England) and Carman (Mayo Clinic), demonstrated the potential of fluoroscopy and barium meal x-ray examination for diagnosis of cancer stomach.

The Wolf-Schindler flexible gastroscope was introduced in 1932. **Papanicolaou (1946)** introduced the method of diagnosis of malegnant growths from exfoliated cells from cancerous lesions.

During the early years of gastric surgery, numerous procedures were developed that continue to be well known to us to day. Among these was that of Schoemaker, who closed the lesser curvature portion of the stomach, so that the remaining

circumference could be approximated to the cut end of the duedenum, as in performing the Billroth I procedure. This was accomplished by the use of a special clamp devised by Schoemaker.

In 1888 Von Eiselsberg first performed the first modification now widely known as the Hofmeister type of Billroth II operation. He described this modification 1889 and advised closure of the upper portion of the cut end of the stomach and use of only the lower portion to establish continuity with the jejunum after gastric resection.

Polya's report in **1911** on the modification now bearing his name, received wide recognition at the time.

However, it has been suggested that von Hacker first proposed the end to side gastrojejunostomy in 1885 and that Kronlein was the first to perform this type of unastomosis in 1887.

In **1926 Borrmann** proposed his classification of gastric cancer which is based on gradual gradiation between tumours that are fungating and growing mainly within the lumen and those that are deeply invasive and growing through the wall of the stomach.

Steiner ans associates (1948) reported on 30 patients who had survival for 5 years following gastric resection for

carcinoma. Six of these survivors were reported to have had nodal metastasis. These authers concluded that involvement of regional lymph nodes should not preclude attempts at surgical care. Also at 1948 Pack and Mc-Neer reported the results of a study in which 30.8% of the long term survivors had nodal metastasis.

A new histopathological classification was first proposed by **Jarvi and Lauren in 1951** and is often called after **Lauren (1965).** This classification is based mainly on the histogenesis of gastric cancer from the normal gastric epithelium. At identifies two subtypes the intestinal type and diffuse type. These two types accounts for vast majority of gastric cancer. However, some gastric cancer can not be placed in either of these two main categories and so they are labelled as "other". Hence another alternative name of this classification (DIO) (Diffuse, Intestinal, other).

In 1962, the term early gastric cancer was introduced by Japanese endoscopy society. Also the Japanese Research Society for gastric cancer first proposed a system of staging which was first published in 1962. This system comprises both clinical and pathological classification.

In 1977, the American Joint Committee for cancer staging published their system of staging. This system is based on the anatomical extent of the disease as demonstrated by

Laparotomy, study of the excised surgical specimen or on clinical findings including radiology and endoscopy in advanced disease.

The classification proposed by the Union International Centre Le Cancer was first published in 1966 and revised in 1975. This system incorporates the pretreatment (clinical) and post-surgical histopathological classification.

The consistently poor results of surgical treatment in the western hemisphere has led to the conduct of several adjuvant chemotherapy trials. The drugs which have been demonstrated to show some activity are 5-FU, BCNU, adriamycin, and mitomycin C. These agents used single or in combination have failed to import any real clinical benefit (Gastro-intestinal tumour study group 1982 and Carter and comes (1977).

The Japanese experience points to an alternative approach- more radical standardized surgery to minimise the incidence of residual local disease.

The Japanese would appear to have achieved this object with a remarkably low post-operative mortality after resection.

CHAPTER 2

ANATOMY OF THE STOMACH

Embryology of the Stomach

The embryonic foregut of the embryo in the first month of development is at first almost entirely pharyngeal. Subsequent elongation of the caudal portion will form the oesophagus and stomach. Dilatation in the region of the future stomach appears during the fifth week. When the embryo is 4-5 mm long. Cranial to this dilatation, the tracheal bud is forming from the future oesophagus. The gastric dilatation appears at the level of the 3rd to 5th cervical sigments, while the entire cranial region of the embryo is growing rapidly. Most of the elongation of the foregut will be in the future oesophagus. The cephalad growth of other structures results in the descent of the stomach, so that by the six week, it lies between the 10th and 12th thoracic sigments.

At the end of the seventh week, the stomach lies between 11th thoracic and 4th lumbar segments. Later growth of the trunk will bring the stomach to its final position between the 10th thoracic and 3rd lumbar segments.

By now, the stomach is a midline structure, spindle shaped and has two lateral surfaces, right and left and two borders, ventral and dorsal.

Growth occurs more rapidly in the dorsal border which produces wider greater curvature. The ventral border forms