

# CARCINOMA OF THE STOMACH A CLINICAL STUDY

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## SYNOPSIS

**A retrospective study of 169 cases of gastric carcinoma over a 5-year period was made to determine the disease pattern in our local situation. The lateness in presentation among our patients is emphasised. Approximately half of all patients have resectable tumours. The TNM staging has been found to be useful as it correlated well with the resectability of the tumour and prognosis. More vigorous efforts at earlier diagnosis is stressed.**

## INTRODUCTION

Carcinoma of the stomach has long been recognised as a disease with poor prognosis. Despite improved methods of diagnosis and treatment, it has remained a major surgical problem. The overall five year survival rate is still in the region of 5%. If untreated, it can lead to ulceration, bleeding, obstruction, aspiration pneumonia or even perforation, all ominous complications. As adeno-carcinoma is relatively resistant to both radiation and cytotoxic therapy, attempts at treatment by these methods have so far met with unfavourable results. To date, surgery has remained as the primary modality of treatment. Even then, cases that can be treated radically by resection are few in number as most patients present too late to the clinician. Of those patients that survive a gastric resection, the proportion that goes on to survive 5 years is at best in the region of 20–25%.

The incidence of gastric cancer varies geographically. It occurs frequently in Russia, Finland, Central Europe, Japan, Iceland and most South American countries, with the highest incidence in Japan and Chile. Over the years, there has been a noticeable decline in its incidence in USA but in most parts of Europe especially Poland, the incidence is sustained. In Singapore, the trend has hardly changed much with a crude incidence rate of 15.65 (per 100,000 per year) during the 5-year period 1968-72 compared to 16.57 during 1973-77 (1).

This study was undertaken to find out the clinical pattern of presentation, operability and pathological staging of the cases in our local situation.

**MATERIALS AND METHODS**

During the 5-year period 1973-1977, 169 newly diagnosed cases of carcinoma of the stomach admitted to the Dept of Surgery, Toa Payoh Hospital were available for analysis. Of these 169 cases, 163 of them were subjected to laparotomy. The findings at operation and histology were evaluated and staging was carried out based on the TNM Stage grouping (AJC Classification).

FIG 1: AGE DISTRIBUTION

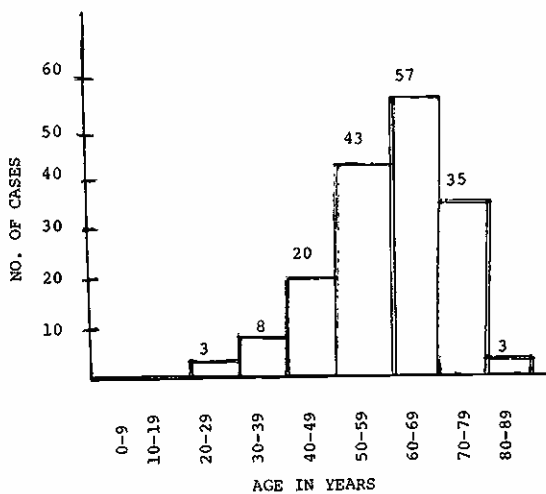
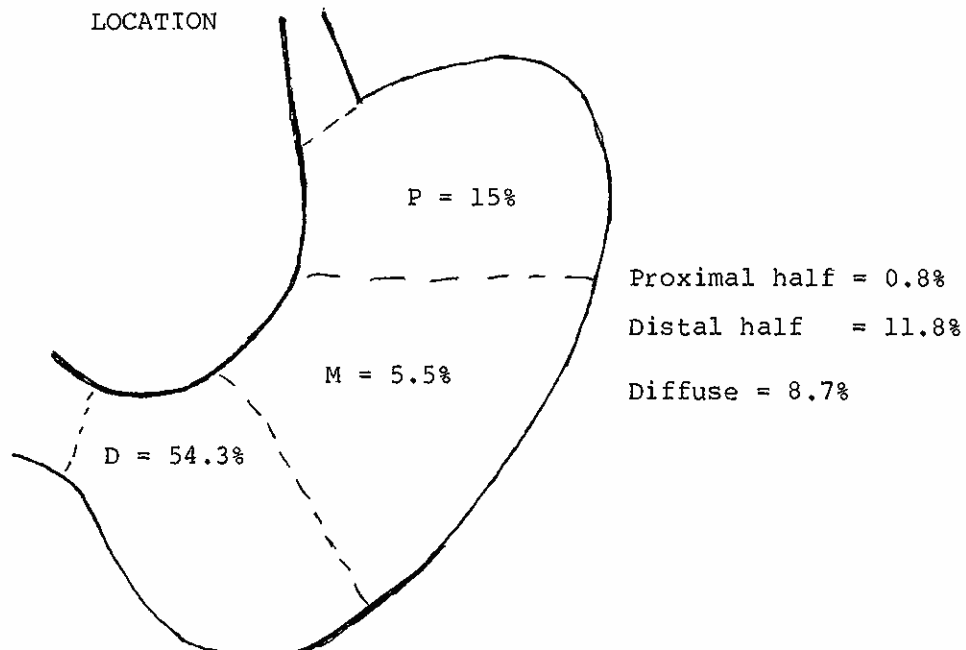


FIG 2: DISTRIBUTION OF TUMOUR LOCATION



**CLINICAL FEATURES AND TREATMENT**

The age distribution is as shown in Fig 1. The age at diagnosis ranged from 20 to 89 with the highest incidence in the 60-69 decade. The male: female ratio was 1.96:1. Majority of patients (82.8%) presented with the classical symptoms of abdominal pain, dyspepsia, fullness, loss of weight or loss of appetite (Table I). A palpable mass in the epigastrium was a fairly common physical finding occurring in 38% of the cases. Bleeding from carcinoma as a presenting symptom occurred in 23.1% of the patients. Perforation of the gastric carcinoma, an indicator of poor prognosis, occurred in 2 patients in this series (1.2%). A notable proportion of the patients (19.4%) had evidence of metastatic spread at initial presentation, either in the form of palpable supra-clavicular nodes, per rectal secondaries or clinical ascites.

Barium meal examination was the most commonly used investigation for the confirmation of diagnosis prior to operation (Table II). In 34.3% it was used as the sole investigation and in 17.8% it was combined with gastroscopy to provide confirmatory evidence. Gastroscopy has not been very popular, and was used in only 16% of the cases.

In 16 patients, the diagnosis was confirmed by either lymph node biopsy, gastroscopy or peritoneoscopy. Being too far advanced they were not subjected to a laparotomy. Of the operated cases, only 47.9% were resectable. The operative findings were evaluated and patients were staged according to the TNM Classification as shown in Table III. Very few patients (7.7%) presented early with Stage I disease. About half of all patients had already Stage IV (43.2%) carcinoma (Table IV). There appears to be a good correlation between staging and resectability, with 100% in Stage I, decreasing to 19.2% in Stage IV (Table V).

Of the 81 resectable cases, 58 (71.6%) had lymph node involvement and 14 (17.3%) showed peritoneal or hepatic metastases.

With regards to tumour location, the distal third was the most common site in 54.3%; 5.5% of tumours occurred in the middle third while 15% were in the proximal third. A further 8.7% had diffuse involvement of the whole stomach (Fig 2).

TABLE I: CLINICAL PRESENTATION

Classical symptoms	140 (82.8%)
Palpable mass	65 (38.5%)
GI Bleeding	39 (23.1%)
Perforation	2 ( 1.2%)
Metastases — Nodes	13 ( 7.7%)
PR Secondaries	9 ( 5.3%)
Ascites	11 ( 6.4%)
	<u>169</u>

TABLE II: CONFIRMATION OF DIAGNOSIS

Barium meal studies	58 (34.3%)
Gastroscopy	27 (16.0%)
BMX and Gastroscopy	30 (17.8%)
Laparotomy	47 (27.8%)
BMX and Peritoneoscopy	1 ( 0.6%)
Peritoneoscopy	1 ( 0.6%)
BMX and laparotomy	3 ( 1.8%)
Lymph Node biopsy	1 ( 0.6%)
BMX, Gastroscopy & LN Biopsy	1 ( 0.6%)
	<u>169</u>

TABLE III: TNM STAGE GROUPING OF CA STOMACH

T1	Tumour confined to mucosa
T2	Tumour extends to/into serosa, but does not penetrate it
T3	Tumour penetrates through serosa with/without invasion of contiguous structures
T4	Tumour diffusely involves the entire thickness of the stomach wall without obvious boundaries
N0	No metastasis to nodes
N1	Metastases to the perigastric lymph nodes in the immediate vicinity of the primary tumour
N2	Metastases to the perigastric lymph nodes at a distance from the primary tumour or on both curvature of stomach
M0	No distant metastasis
M1	Distant metastases including nodes beyond regional nodes
Stage 1 — T1NOMO; T2NOMO; T3NOMO	
Stage 2 — T4NOMO; Any T N1MO	
Stage 3 — Any T N2MO	
Stage 4 — Any T Any N with M1	

TABLE IV: CLINICOPATHOLOGICAL STAGING

	No. of Cases	Resectability (%)
Stage I	13 ( 7.7%)	100%
Stage II	50 (29.6%)	72%
Stage III	33 (19.5%)	54.5%
Stage IV	73 (43.2%)	19.2%

TABLE V: TUMOUR STAGING AND RESECTABILITY

TNM Stage	Operated Cases			Non-Operated cases
	Resectable	Bypass	Laparotomy/ Bx	Endoscopic/LN Bx confirmation
Stage I	13	0	0	0
Stage II	36	9	5	0
Stage III	18	9	6	0
Stage IV	14	28	25	6
	81 (47.9%)	46 (27.2%)	36 (21.3%)	6 (3.6%)

TABLE VI: TYPES OF LESION

Morphological	No of Cases	Histological	No of Cases
Cauliflower projecting	14 (12.8%)	Adenocarcinoma	101 (85.6%)
Ulcerative type	59 (54.1%)	Undifferentiated	11 ( 9.3%)
Infiltrative type	36 (33.0%)	Signet Cell Ca	6 ( 5.1%)

TABLE VII: TYPES OF SURGICAL PROCEDURE

Resected	No of Cases
Polya Partial Gastrectomy	41
Bilroth I Gastrectomy	2
Subtotal Gastrectomy	15
Total Gastrectomy	11
Oesophago-gastrectomy	4
Proximal Gastrectomy	8
<b>Bypass Procedure</b>	
Gastrojejunostomy	43
Oesophago-jejunostomy	4

TABLE VIII: POSTOPERATIVE DEATHS

	Cause of Death			Total	Mortality
	Surgical Complication	Medical Complication	Terminal Cancer		
Resected	1	10	—	11	13.6%
Non-Resected	0	5	11	16	19.5%
				27	

TABLE IX:  
TREATMENT OF PROXIMAL THIRD CANCERS

	Curative	Palliative	Total
Total gastrectomy	3	2	5
Oesophago-gastrectomy	2	2	4
Proximal gastrectomy	5	3	8
			17

Data on the morphology of the tumour were available in 109 cases of which the ulcerative type formed the majority (54.1%) and were signet cell in type (Table VI). The Polya type of partial gastrectomy was the most common type of operation performed as expected, due to the frequency of the tumour in the distal third of the stomach (Table VII).

There were 27 cases of postoperative deaths in the series, of which only one case was directly attributable to surgery. This patient had postoperative leakage of the duodenal stump leading to subphrenic and pelvic abscesses and finally died from uncontrolled septicaemia. Fifteen patients died from medical complications unrelated to surgical technique, and of which pneumonia was the most common. The remaining 11 were advanced cancer cases and none of them were resectable. (Table VIII).

## DISCUSSION

This study confirms many of the interesting clinical features that are characteristic of carcinoma of the stomach.

Delay in presentation is remarkably common in our local patients. A high percentage (38.5%) of patients had a palpable mass when first examined, a feature that has been consistently noted by others locally (2, 3). In contrast, the incidence of palpable mass is generally lower in western series, usually in the region of 25–30%. The advanced stage of the disease in our patients is further illustrated by the low resectability of only 50% and the presence of clinical evidence of metastases in about 20%.

Surgical resection must of necessity be dictated by the

**TABLE X: OVERALL RESULTS OF SURGICAL TREATMENT**

	Resectable	Bypass
No. Confirmed died:	26	16
Mean survival	5½ months Range: 1 day- 2 yrs 10 mths	1.8 months Range: 3 days- 7 mths
No. found to be terminal at the last follow-up	18	9
No. lost to follow up	36	22
Total	80	47

site and extent of the tumour. Distal gastric tumour either in the pylorus or antrum is best treated by a subtotal gastrectomy. We do not believe that routine total gastrectomy is necessary or desirable for such lesions even with an acceptable mortality. On the other hand, cancer of the middle third, by nature of their tendency to wide lymphatic spread, warrants a total gastrectomy. Few patients, however, are suitable candidates for such radical surgery (Table IX). Carcinoma of the cardia poses a special problem. The choice lies between a total gastrectomy, an oesophagogastrectomy or a proximal gastrectomy depending on the extent of tumour invasion. The decision will depend on fine clinical judgement at the time of operation. We have noted that in cases of carcinoma of the cardia, the proximal extent of spread can often be much higher and therefore, higher oesophageal resection and intra-thoracic anastomosis is required. The result of surgery for proximal third cancers are generally considered poor, though two patients in this series survived 5 years after resection. Gastric resection provides the only hope of cure for the patient with gastric carcinoma. Even if done for non-curative cases, it is a far better form of palliation than a gastric bypass. It relieves the patient of the risk of bleeding from the tumour as well as perforation. It has the added advantage of reducing tumour bulk and enhancing the effects of cytotoxic chemotherapy.

The most common cause of postoperative death was broncho-pneumonia. Only one death was directly attributable to a surgical complication. The patient had anastomotic leakage, later developed subphrenic and pelvic abscesses and finally succumbed to septicaemia. The TNM staging of gastric carcinoma is significant in that it correlates fairly well with the resectability rate (Table IV) and therefore indicates the prognosis.

There are very few long term survivors in our series. Patients with Stage I carcinoma generally did well with gastric resection as expected. We have, however, unexpected results with one advanced case. A 49 year old patient had a large growth in the posterior wall of the upper half of the stomach extending into the oesophagus,

infiltrating the pancreas and involving the coeliac nodes. He underwent a radical oesophagogastrectomy nearly 6 years ago. He is alive and well today without any evidence of disease. Only 3 others have survived 5 years. One is a 47 year old lady who had a tumour 5 cm at the pylorus with coeliac node involvement and treated by subtotal gastrectomy followed by 5FU. The second patient is a 74 year old male with an ulcerating growth in the cardio-oesophageal junction. The other patient is a 54 year old female with an early intramucosal gastric carcinoma. She lived more than 5 years after a partial gastrectomy. This patient is fortunate enough to present early with a gastric ulcer on the lesser curve and was diagnosed on gastroscopy.

The overall results of treatment in this study are on the whole discouraging Table X. Tumours are far too advanced for surgical cure and a considerable delay in diagnosis is often present. Investigations are more often done to confirm an obvious carcinoma and to assess the extent rather than to pick up an early lesion. The fiberoptic gastroscope has not been used often enough as a diagnostic tool — only 16% in this study. Elderly patients with early symptoms of epigastric fullness and dyspepsia may in fact be harbouring an underlying cancer. More emphasis should be placed on investigating such patients with fiberoptic endoscopy and biopsy to achieve earlier diagnosis.

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