

THE CLINICAL PRESENTATION OF GASTRIC CANCER: A REVIEW OF 110 CASES (1963-1970)

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SYNOPSIS

A retrospective study was done in 110 cases of gastric cancer, treated over an 8-year period (1963-1970) in the Department of Medicine (Medical Unit II). The mean age was 58.5 years and ranged from 17 to 84 years. Males were predominant over females in a ratio of about 2.3:1. Of the 110 cases, 103 were Chinese and 7 were Indians. No Malay case of gastric cancer was found. The commonest presenting features were weight loss (76.4%), anaemia (72.7%), epigastric pain (61.8%), anorexia (50.9%), and haematemesis or melaena (50.0%). A mass was palpable in the epigastrium in 42.7% of cases. Anaemia was generally severe, since the mean hemoglobin was 8.4 gm.%, and about 70% had a hemoglobin level below 10.0 gm.%. The sedimentation rate was frequently raised, and occult blood was commonly detected in the stools. The blood group pattern of the gastric cancer cases showed no statistical difference from the pattern of healthy blood donors. Statistical comparison with an American series showed that weight loss, anaemia, anorexia, haematemesis or melaena, vomiting and metastatic superficial lymph nodes were more frequent in the present series. This probably reflects the more advanced stage of the cancer, in the present cases.

INTRODUCTION

Gastric carcinoma has been one of the commonest cancers in Singapore. In fact, according to the Singapore Cancer Registry (Shanmugaratnam, 1971), gastric cancer is the commonest cancer in Singapore (males and females combined) during the 2 year period from 1968 to 1969. It is the second commonest cancer in both Singapore males and females, but the commonest when both sexes are considered together. The crude incidence is 22.5 per 100,000 per year for males and 10.5 per 100,000 per year for females, while the age standardised figures (to world population) are 39.6 and 16.7 per 100,000 per year, for males and females respectively (Shanmugaratnam, 1971).

The clinical presentation of gastric cancer has not been adequately established in Singapore, although it is so common here. It is unfortunate that most of the cases of gastric carcinoma seen in Singapore, present at a fairly late stage, when curative surgery would not be possible. In an endeavour

to detect cases early, the commonest presenting symptoms would have to be utilised in any screening programme. The present paper is an attempt to establish the clinical presentation of gastric cancer as seen in the Department of Medicine (Medical Unit II).

MATERIALS AND METHOD

A retrospective study was made of the case notes of all patients, who were diagnosed as gastric carcinoma in the Department of Medicine (Medical Unit II), from 1963 to 1970. Only cases with definite evidence of gastric malignancy were included. Confirmation of diagnosis was by one or a combination of the following:

1. Barium meal
2. Gastroscopy
3. Surgery
4. Histology

Cases with only a clinical suspicion of gastric malignancy were excluded from the study. The results were statistically analysed and compared to a Western series.

RESULTS

The age, sex, and racial distribution of 110 cases of gastric carcinoma are shown in Table I. These 110 cases were seen in the Department of Medicine (Medical Unit II) during an 8-year period, from 1963 to 1970. The presenting symptoms and signs of these 110 cases of gastric cancer are shown in Table II. The commonest presentation was a combination of weight loss, anaemia and epigastric pain. Details of the confirmation of gastric cancer

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are shown in Table III. The hemoglobin level, sedimentation rate, and test for occult blood in the stools (Benzidine) are shown in Table IV. The blood group was determined in 52 cases. The blood group distribution in these 52 cases of gastric cancer and comparison with that of healthy blood donors are shown in Table V. Comparison of the presenting clinical features of the present series with that of an American series (Goldsmith and Ghosh, 1970) is shown in Table VI.

DISCUSSION

In spite of the high frequency of gastric cancer in Singapore, the mode of clinical presentation has not been adequately established. The present retrospective study although by no means comprehensive, would give an idea of the clinical presentation of gastric carcinoma in Singapore. The period of this study (1963-1970) represents an 8-year period during which no major programme was available for gastric cancer screening, as is done in Japan. In Japan, the most common site of cancer is the stomach, in both males and females (Hirayama, 1968). Among various ethnic groups in Japan, the age-standardised death rate for stomach cancer was much higher in Japanese and Koreans (57.3 and 73.9 for males, 34.6 and 32.5 for females respectively) than Caucasians and Chinese (17.2 and 27.5 for males, 26.6 and 29.1 for females, respectively) (Hirayama, 1968). In Singapore, where about 76% of the 2 million population are Chinese, the age standardised (to world population) incidence of gastric cancer is 39.6 and 16.7 per 100,000 per year, for males and females respectively (Shanmugaratnam, 1971). In 1960, a cancer morbidity survey in Japan showed a gastric cancer incidence of 86.6 and 47.7 per 100,000 population for males and females respectively. Unfortunately, these Japanese figures were not standardised to world population and hence not strictly comparable to the Singapore incidence.

Although commonly thought to occur later in life, gastric cancer may affect younger people. This is shown in the present series, for although the mean age was 58.5 years, gastric cancer was present in 4 patients between 30 and 40 years, and 2 patients below 30 years (youngest 17 years). The clinical features and confirmation of the diagnosis in these 6 cases are shown in Table VII. The occurrence of gastric cancer in patients below the age of 40 years has also been reported in American subjects (Goldsmith and Ghosh, 1970; Sinha *et al*, 1970). The youngest patient was 13 years old, in the series of Sinha *et al*, 1970. It has been shown that the best prognosis (based on cumulative survival rates) is in the 50-59 years age group, while the younger patients with gastric cancer appear to have the

poorest prognosis (MacDonald and Wolf, 1968). This apparent difference in prognosis was, however, not statistically significant.

The male:female ratio in the present series is about 2.3:1 indicating a male predominance (Table I). This male predominance is similar to that reported by American series (2.1 by Goldsmith and Ghosh, 1970; 2.1 by Sinha *et al*, 1970; 2.6 by Lumpkin *et al*, 1964). It would thus appear that males are more affected by gastric cancer than females.

In the racial distribution, Chinese (103 cases) were predominantly affected, followed by Indians (7 cases). In Singapore, the population of over 2 million consists of about 76% of Chinese, 15% Malay, and 7% Indians. It is noteworthy that none of the 110 cases of gastric cancer, in this series, was Malay. This striking absence of Malay in the present series, suggests that gastric cancer must be very rare in Malays. However, this is by no means conclusive, for there may be other reasons to explain the absence of Malay cases in the present series. The predominance of Chinese over Indians in this series may be because of the ratio of Chinese to Indians in the Singapore population (Chinese: Indians \approx 76:7). There is an obvious need for a prospective study of gastric cancer in Singapore, especially in relation to the incidence of gastric cancer in the various ethnic groups.

The commonest presenting symptoms and signs of gastric cancer were weight loss, anaemia and epigastric pain, all of which were present in more than 60% of the cases (Table II). Anorexia, haematemesis or melaena, and vomiting were also common symptoms. A mass was palpated in the epigastrium in about 43% of cases. As an epigastric mass is usually due to a fairly large growth, the high frequency of a palpable epigastric mass in the present series indicates that cases were presenting at a late stage, in general. Comparison of the clinical features in the present series with an American one, showed many differences (Table VI). Weight loss, anaemia, anorexia, haematemesis or melaena, vomiting and metastatic superficial lymph nodes were more frequent in the present series than the American series of Goldsmith and Ghosh. The difference was highly significant ($p < 0.001$). Epigastric pain was also significantly more frequent in the present series than the American one. The high frequency of these symptoms in comparison with American patients probably reflects the advanced stage of the cancer in the present series.

The results of investigations (Table IV) confirm the high frequency of anaemia in the present series, since almost 70% of the cases had a hemoglobin of less than 10.0 gm.%. The degree of anaemia was severe, as reflected in the mean hemoglobin level of

TABLE I

Period:	1963-1970		
No. Cases:	110		
Age (Years):	Mean	=	58.5
	Range	=	17-84
Sex:	Male: Female	=	77:33
Race:	Chinese	=	103 cases
	Indian	=	7 cases
	Malay	=	0 cases

TABLE II

CLINICAL PRESENTATION OF 110 CASES OF GASTRIC CANCER

	No. Cases	Percentage
Weight Loss	84	76.4
Anaemia	80	72.7
Epigastric Pain	68	61.8
Anorexia	56	50.9
Haematemesis and Melaena	55	50.0
Vomiting	47	42.7
Epigastric Mass	47	42.7
Hepatomegaly	30	27.3
Ankle Oedema	25	22.7
Peptic Ulcer History	24	21.8
Supraclavicular Lymph Nodes	18	16.4
Pyloric Stenosis	13	11.8
Dysphagia	13	11.8
Finger Clubbing	3	2.7

TABLE III

CONFIRMATION OF CLINICAL DIAGNOSIS

	Cases
Barium Meal Alone - - - -	30
Gastroscopy Alone - - - -	3
Barium Meal + Gastroscopy - -	10
Surgery + Histology - - - -	40
Peritoneoscopy - - - -	6
Autopsy - - - -	13
Supraclavicular Lymph Node Biopsy -	6
Biopsy of Periumbilical Skin Nodule	1
Liver Biopsy - - - -	1
TOTAL	110

TABLE IV

INVESTIGATIONS IN GASTRIC CANCER

Hemoglobin:

Mean = 8.4 gm. %
 Range = 3.0-15.0 gm. %
 <10.0 gm. % in 65/95 (68.4%)

Sedimentation Rate:

Mean = 45.1 mm./hour
 Range = 3-130 mm./hour
 >30 mm./hour in 37/54 (68.5%)

Stools for Occult Blood:

Positive in 35/47 cases (74.4%)

TABLE V

BLOOD GROUP IN GASTRIC CANCER

Blood Group	Gastric Cancer (52 Cases) %	Singapore* Blood Bank (15,262 Donors) %	χ^2	p
O	44.2	43.53	0.000	N.S.
B	30.8	24.99	0.649	N.S.
A	19.2	25.99	0.915	N.S.
AB	5.8	5.48	0.000	N.S.

*K. T. Chan (1962) — number represents Chinese donors only.

N.S. = No significant difference.

only 8.4 gm. %. The anaemia in these cases was secondary to bleeding from the gastric cancer. The sedimentation rate was usually abnormal in the present series, and averaged around 45 mm./hour. The abnormal elevation of the sedimentation rate was probably due partly to the anaemia present. Occult blood was detected by the benzidine test in about 75% of the cases. Presence of occult blood in the stools, especially in association with weight loss and epigastric pain, should make one suspect gastric malignancy.

In 1953, the first study of ABO blood groups in gastric cancer was reported by Aird *et al*, who found that gastric cancer cases had an excess of blood Group A and a deficiency of Group O in comparison with controls. In 1960, however, Doll *et al*, found no correlation between blood Groups O or A in gastric cancer cases. Following the initial report by Aird *et al*, many studies have been done all over the world. About 71 controlled series have been reported, and of these, 55 found an excess of Group

TABLE VI
COMPARISON OF PRESENTING SYMPTOMS AND SIGNS
WITH A WESTERN SERIES

	Singapore* (110 Cases) %	U.S.A.† (270 Cases) %	χ^2	P
Weight Loss	76.4	58.1	10.505	<0.001
Anaemia (Hb. < 10.0 gm. %)	72.7	26.6	67.333	<0.001
Epigastric Pain	61.8	48.1	5.342	<0.050
Anorexia	50.9	21.1	31.814	<0.001
Haematemesis/Melaena	50.0	12.5	59.323	<0.001
Vomiting	42.7	20.7	18.064	<0.001
Palpable Epigastric Mass	42.7	33.3	2.603	NS
Metastatic Superficial Lymph Nodes	16.4	1.4	29.779	<0.001
Dysphagia	11.8	16.6	1.049	NS

*Present study.

†Goldsmith and Ghosh (1970).

TABLE VII
GASTRIC CANCER IN 5 PATIENTS BELOW 40 YEARS OLD

Case No.	Age (Years)	Sex	Race	Clinical Presentation	Confirmation of Diagnosis		
					Barium Meal	Surgery	Histology
1	38	M	Ind.	Epig. pain and mass, Anorexia, bleeding	Antral ulceration	Chronic G.U.	Spheroidal-cell carcinoma with ulceration
2	38	M	Ch.	Epig. pain, weight loss, pyloric stenosis	Antral narrowing	Gastric cancer with G.U.	Gastric cancer with ulcer
3	35	F	Ch.	Epig. pain and mass, weight loss	Extensive infiltrative carcinoma	Gastric carcinoma	—
4	30	M	Ch.	Epig. pain, weight loss, bleeding	Nil	Inoperable gastric carcinoma	Adeno-carcinoma
5	24	F	Ch.	Weight loss, anaemia	Nil	Inoperable gastric carcinoma	—
6	17	M	Ch.	Weight loss, bleeding, anaemia, perforation	Nil	Nil	P.M.: Perforated gastric carcinoma with secondaries

Ind. = Indian

Ch. = Chinese

M = Male

F = Female

A, 14 had a slight predominance of Group A, and 2 had a deficiency of Group A (McConnell, 1966; Glober *et al*, 1971). Recently, Glober *et al* (1971) found that the risk of developing gastric cancer was 16% higher for Group A subjects than Group O subjects. No correlation was found between either ABO or Rhesus blood groups and the site of origin of the tumour within the stomach or the sex or age of the case (Glover *et al*, 1971). The results of the present study (Table V) show that gastric cancer subjects had an excess of blood Group O and a deficiency of blood Group A in comparison with healthy blood-donor controls. Statistical analysis, however, showed no significant difference between the blood Groups of gastric cancer cases and blood-donor controls. These results fail to support the findings of previous workers who found an excess of blood Group A in gastric cancer cases. However, because of the small size of the series, the blood group result of the present series can only be preliminary. A prospective and larger study should be done, to arrive at a firmer conclusion.

The symptoms and signs of gastric cancer usually appear late in the disease, when the growth is often inoperable. As gastric cancer is now (1968-1969) the commonest cancer in Singapore, a properly-established gastric cancer screening programme is urgently needed. Only in this way, may early stages of the growth be detected and cured by surgery. In this respect, a proper gastric cancer

detection unit consisting of facilities for mass barium meal studies, endoscopy and gastric biopsy, should be set up.

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