CARCINOMA OF THE STOMACH

A REVIEW OF 314 CASES SEEN AND TREATED IN THE SURGICAL PROFESSORIAL UNIT, GENERAL HOSPITAL, SINGAPORE, FOR THE YEARS 1947 TO 1959.

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This article is a review of 314 patients seen and treated in the Surgical Professorial Unit for a period of thirteen years. It deals only with in-patient management as the follow-up of these patients was too incomplete to make valid a prognostication of the survival rate. This incomplete follow-up is quite common in this State with its multiracial population as a fair number of whom are constantly on the move from address to address or from Singapore to other countries. However, the prognosis of our patients on the whole must be bad because of the late stages most of them had when they were admitted into the hospital.

It would appear from the figures of new admissions into the General Hospital, Singapore, and the Surgical Professorial Unit that there is an increase of gastric cancer in the State. Graphs I and II are based on the hospital and unit admissions respectively for the years 1947 to 1959, and support the suspicion of an increase.

Carcinoma of the gastro-intestinal tract was responsible for 1,767 deaths in the State for the years 1947 to 1959 and gastric cancer accounted for 1,457 of them (82.5%).

The population of Singapore State is predominantly Chinese (76.8%) and Table I shows the distribution of the races as shown in the census of 1947 and 1957.

TABLE I

Distribution of the races in the State:

Year	Chinese	Malaysians	Indians and Pakistanis	Europeans	Eurasians	Others	Total
1947	729,473	113,803	68,967	9,279	9,110	7,512	938,144
1957	1,090,595	197,060	124,084	10,826	11,382	11,982	1,445,927

Table II shows the racial distribution of the disease among the 314 patients admitted into the Surgical Professorial Unit.

TABLE II

Distribution of the disease among the races 314 patients:

Chinese	Malays	Indians and Pakistanis	Eurasians	Total
296	4	12	2	314

Chinese patients form 94.4% of the patients. This proportion is higher than one would expect. This may be accounted for by the fact that the Europeans and Others normally return to their homes of origin for major surgical procedures, and by the reluctance and hesitancy of Malay, Indian and Pakistani patients of being hospitalized when the prospects of major surgery are present.

AGE

Carcinoma of the stomach in this series does not seem to be confined to any age group although the largest numbers are between 40 and 65 years of age. The youngest was 19 and the oldest 86 years of age. Graph III shows the distribution of the disease among the age groups.

It can be seen from this that gastric cancer age groups in this series are comparable to those in the Western countries.

SEX INCIDENCE

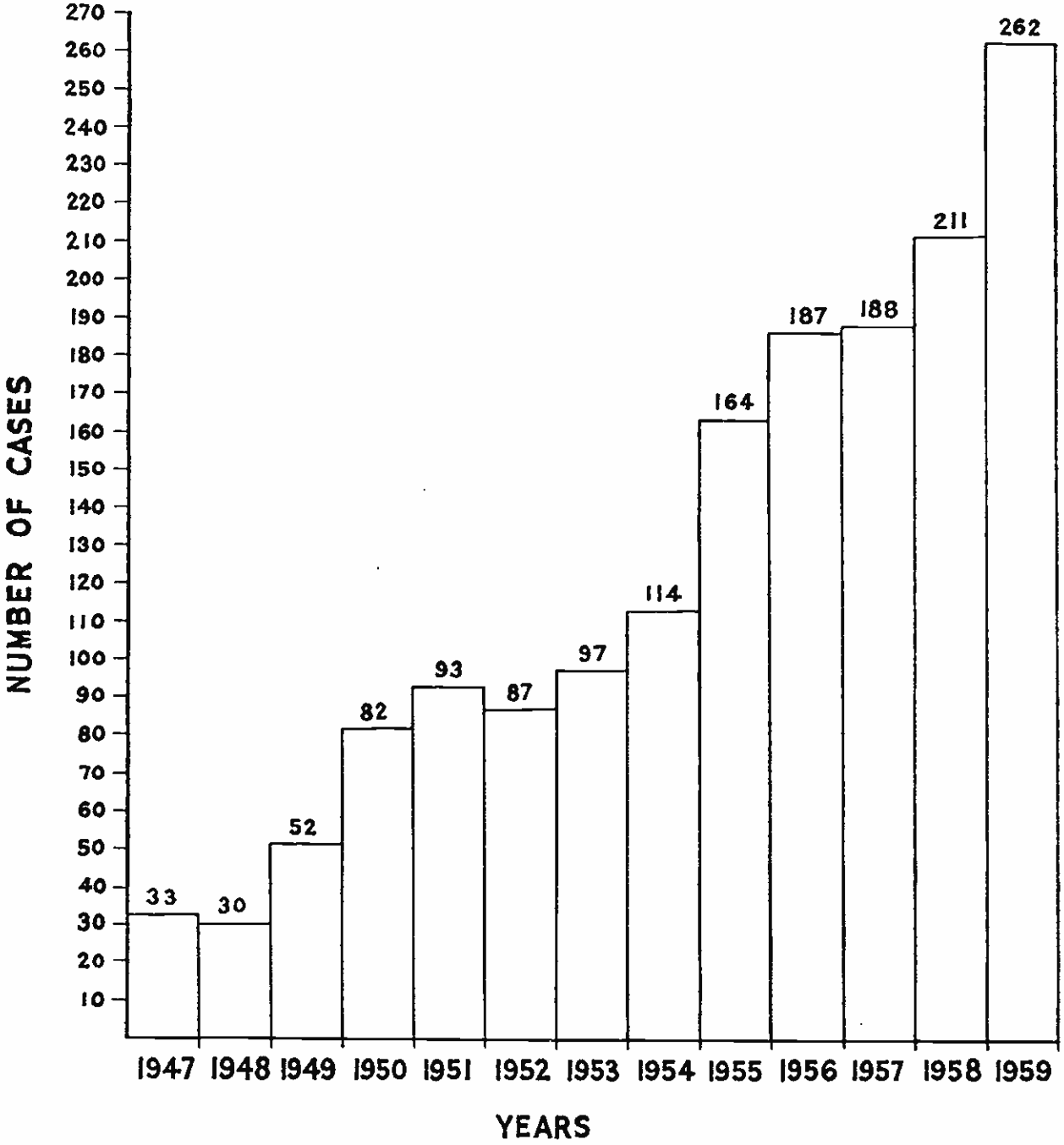
Males are affected in the ratio of 3.6 to 1 female (245 males to 69 females).

SYMPTOMATOLOGY

The most striking and insistent symptom in this series is epigastric pain. This is especially important from the patient's point of view. He

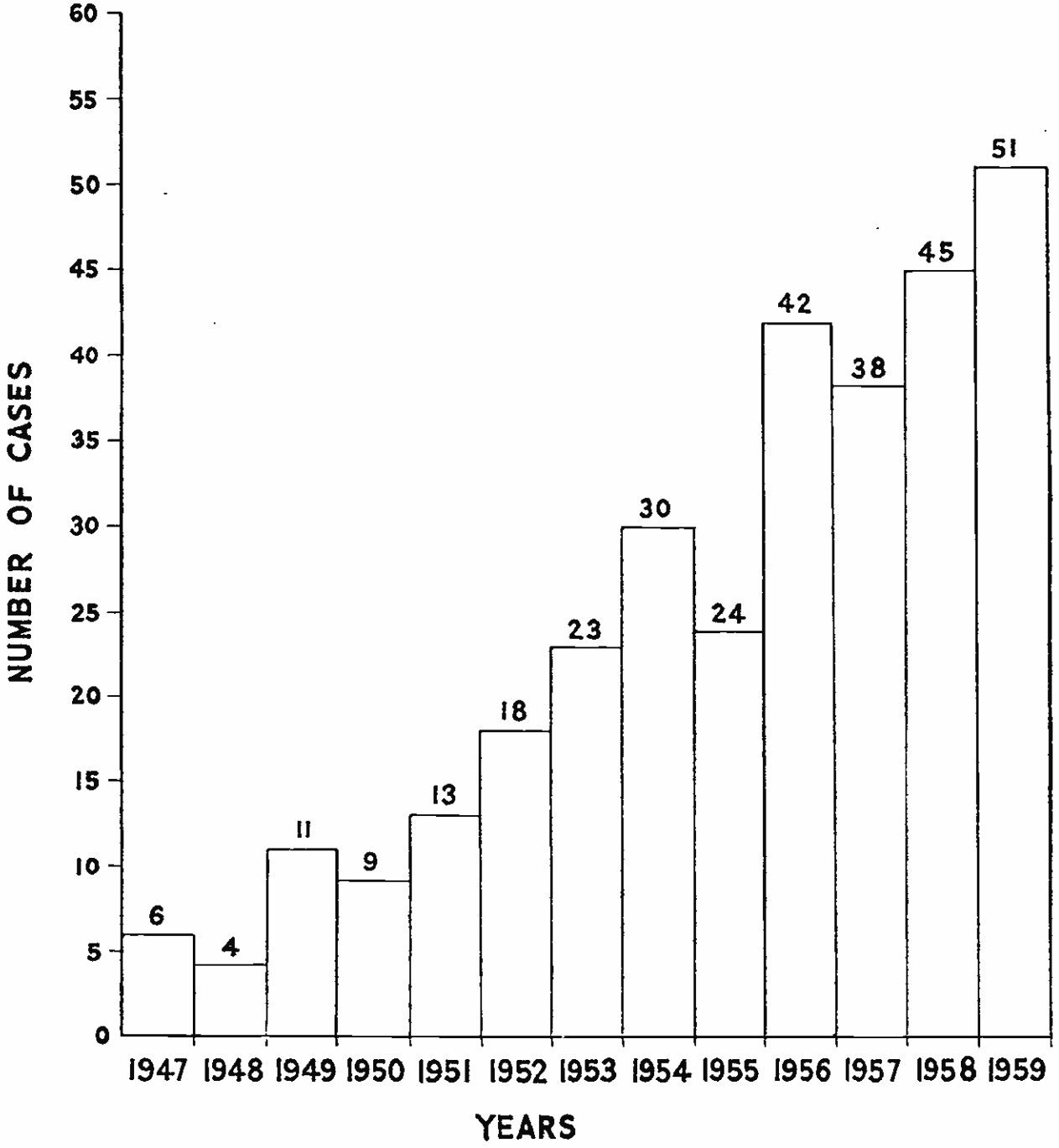
GRAPH I

CARCINOMA OF THE STOMACH
ADMISSIONS INTO THE GENERAL HOSPITAL, SINGAPORE FOR THE YEARS 1947 TO 1959

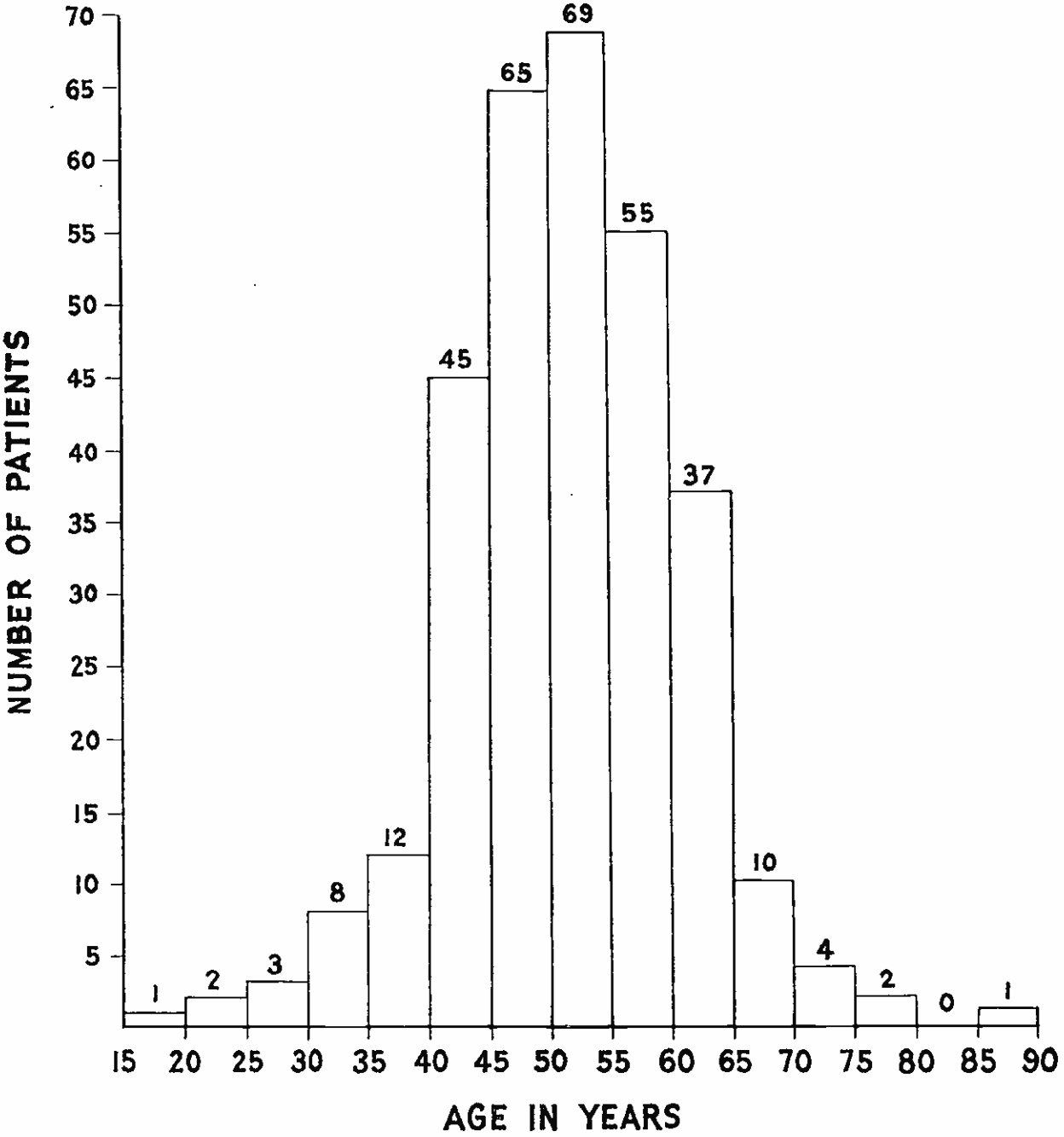


GRAPH II

CARCINOMA OF THE STOMACH
ADMISSIONS INTO SURGICAL PROFESSORIAL UNIT, GENERAL HOSPITAL FOR THE YEARS 1947-1959



GRAPH III
CARCINOMA OF THE STOMACH
AGE INCIDENCE
314 CASES



is not happy with its presence and, unfortunately, he unsuccessfully seeks all means to get relief until the presence of a gastric cancer is detected by clinical or radiological investigations, by which time it is too late for surgical intervention to be profitable. The epigastric pain in our series seems to be present on the average fifty-six weeks before admission. It begins as a nagging pain in the epigastrium and is intermittent in character. It is not relieved by the in-take of alkalis or food. It bears no relationship to meals and is not described as severe or unbearable but is annoying enough to be a nuisance in the working day of the patient. Vomiting does not alleviate the pain.

The next important symptom as far as our patients are concerned is vomiting. This is usually a late complaint and was the only presenting symptom in forty-six of our patients.

Indigestion is stressed fairly constantly in most of the surgical text-books and yet in this series of 314 patients it played a relatively small part in the symptomatology as only twenty-four of them complained of this, either alone or in association with other symptoms. Table III shows the distribution of the symptomatology among the patients.

TABLE III

Epigastric pain (189 cases)	
Not associated with any other symptom	88
Associated with vomiting	80
Associated with bleeding	9
Associated with indigestion	9
Associated with dysphagia	3
Epigastric discomfort (41 cases)	
Not associated with any other symptom	14
Associated with vomiting	19
Associated with indigestion	6
Associated with dysphagia	2
Vomiting (145 cases)	
Not associated with any other symptom	46
Associated with other symptoms	99
Bleeding (16 cases)	
Not associated with any other symptom	7
Associated with other symptoms	9
Indigestion (24 cases)	
Not associated with any other symptom	9
Associated with other symptoms	15
Dysphagia (20 cases)	
Not associated with any other symptom	15
Associated with other symptoms	5
Perforation (7 cases)	
Presented as perforation	7

PHYSICAL FINDINGS

All our patients with the exception of sixty-four were found to be suffering from a poor state of nutrition and varying degrees of dehydration. Loss of weight was the rule. Forty-two of them came into the wards in their terminal stages and died within a week of admission. Fractional test meal was carried out on 268 patients and the only point of interest was the presence of normochlorhydria in twenty-four cases and hyperchlorhydria in twelve.

The finding of an epigastric mass is a frequent one and it occurred in 169 of our patients. The presence of a mass in the epigastrium in gastric cancer is usually considered a sign of inoperability and Table IV shows that this belief is a reasonable one.

TABLE IV

CARCINOMA OF THE STOMACH
OPERABILITY RATE AMONG 169 PATIENTS
WITH A PALPABLE EPIGASTRIC MASS

Clinically inoperable	Laparotomy done on 104 cases				
	Operable	Inoperable			
		Resectable	Gastroenterostomy	Jejunostomy	Nothing done
65	8	33	39	3	21

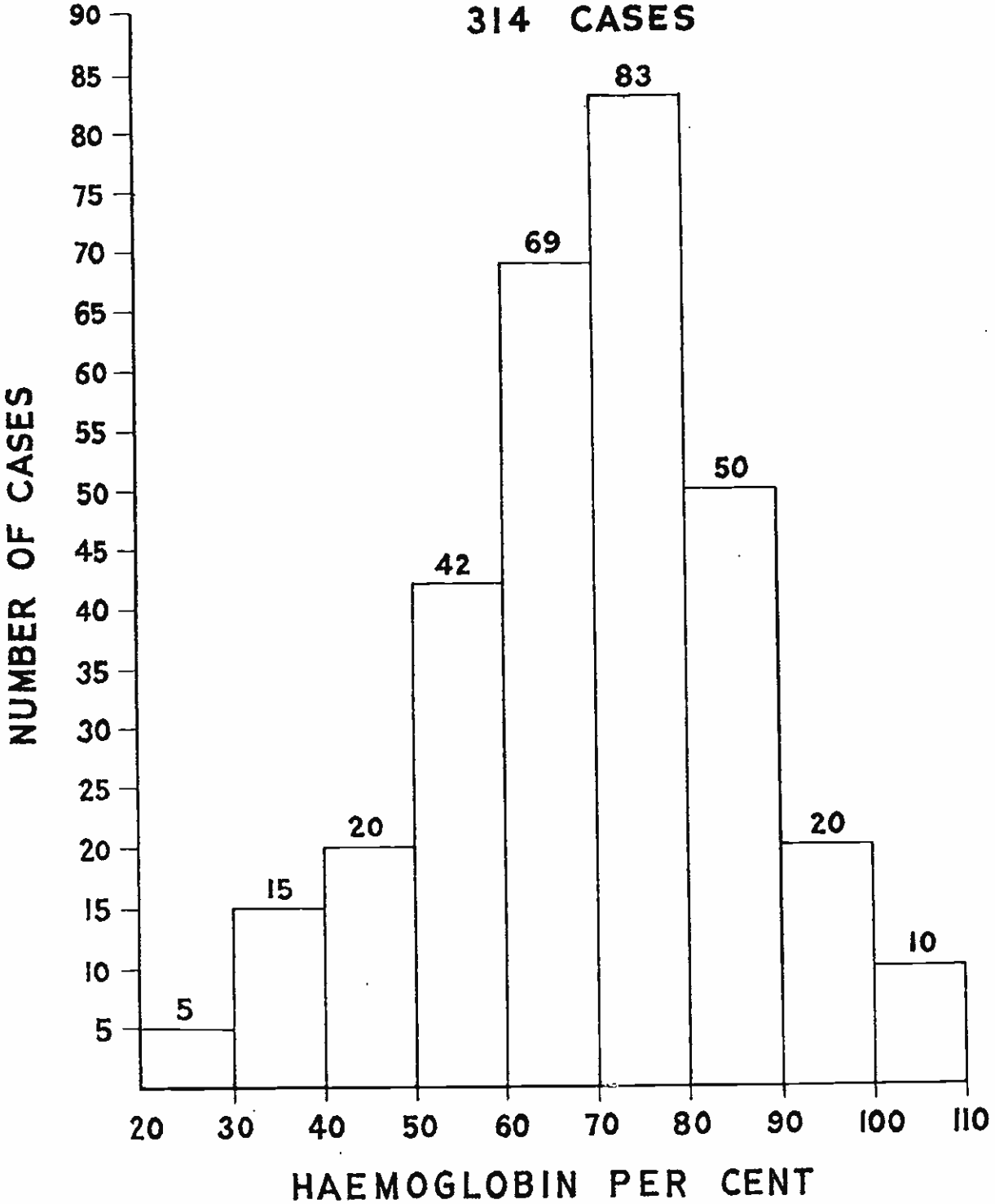
Thus, in only eight cases i.e. 4.7% was the growth judged to be operable.

GRAPH IV

CARCINOMA OF THE STOMACH

HAEMOGLOBIN PER CENT

314 CASES



The relationship of ABO blood groups to carcinoma of the stomach has stimulated a lot of interest and controversy[1,2,3,4,5,6,7,9] and it is not the intention of this article to review the literature on this subject. However, it may stimulate other local centres to survey the statistical significance of the ABO blood groups among patients with gastric cancer among our various ethnic groups. The number in our present series may not be enough to be of statistical significance but it is still sufficiently striking to merit two tables (Table V and VI) on the ABO blood groups of 1,000 normal Chinese and those of 200 Chinese patients suffering from carcinoma of the stomach.

TABLE V

ABO BLOOD GROUPS PER CENT
1,000 normal Chinese

GROUP A	25.5%
GROUP B	26.5%
GROUP O	44.3%
GROUP AB	3.7%

TABLE VI

CARCINOMA OF THE STOMACH
ABO BLOOD GROUPS PER CENT
200 CHINESE PATIENTS

GROUP A	35%
GROUP B	27%
GROUP O	31.5%
GROUP AB	6.5%

TREATMENT

Ninety-four of the patients were found to be inoperable because of metastases, with or without ascites. Thirty-nine of them died within a week of admission. Seven cases were admitted for perforation and three of them died on the day of admission. Autopsy revealed the cause of death in these three to be generalised peritonitis arising from perforated gastric cancer. The remaining four cases had their stomach carcinoma revealed at laparotomy and their perforation was repaired. Three of them died within a week of repair. Two hundred and thirteen cases were submitted to laparotomy after suitable measures were taken to correct dehydration, anaemia and avitaminosis. Only thirty-five of these were found to be operable. Table VII analyses the treatment for the 314 cases.

TABLE VII

CARCINOMA OF THE STOMACH

ANALYSIS OF TREATMENT, SHOWING OPERABILITY

AND MORTALITY RATES

		Perforation				Laparotomy done on 213 cases											
Clinically inoperable		Repaired		Not repaired		Operable		Inoperable									
								Resection		Gastro-entero-stomy		Jejunos-tomy		Insertion of poly-thene tube		Nothing Done	
Total	Died	Total	Died	Total	Died	Total	Died	Total	Died	Total	Died	Total	Died	Total	Died	Total	Died
94	39	4	3	3	3	35	6	75	12	50	14	6	3	4	2	43	12

The average stay of the patients in hospital was twenty-one days. In six of the 110 resected gastric specimens there was histological evidence of malignant change occurring in a gastric ulcer (5.5%).

SITE OF THE TUMOUR

The localisation of the tumour is based on radiological findings and these are supplemented by operation or autopsy. Table VIII shows the sites of the gastric cancer in 314 patients.

TABLE VIII

CARCINOMA OF THE STOMACH LOCALISATION BASED ON RADIOLOGICAL, OPERATIVE AND AUTOPSY FINDINGS.

Site	Cases	Percent
Pylorus	203	64.6%
Body	64	20.4%
Fundus and Cardia	42	13.4%
Whole Stomach	5	1.6%

DISCUSSION

Carcinoma of the stomach is as great a problem in this State as elsewhere. The majority of our patients present themselves at such late stages that surgery is unable to affect the prognosis so that it is comparable to that in other centres. The difficulty of early diagnosis is obvious as the symptomatology in gastric cancer is often vague and indefinite. However, in the analysis of this series of 314 cases the very common occurrence of pain in the epigastrium may be a possible lead. In their series, Mitty, Rousselot and Grace[8] have also found epigastric pain to be the most common symptom. It is quite possible that too much emphasis is placed on the close relationship of indigestion with carcinoma of the stomach so that the more important symptom of epigastric pain is ignored by the anxiety to pin the patient down to a history of indigestion. The attempt to create the impression that indigestion is the key to the diagnosis of gastric cancer may have proved to be detrimental to our patients. This is clearly seen on scrutinizing Table III when only twenty-four of the 314 patients (7.6%) complained of indigestion compared to 189 cases (60.2%) of epigastric pain. In our series the duration of epigastric pain seems to have a bearing on the operability rate of the cases. One hundred and thirty-seven cases were judged to be completely inoperable on clinical or operative findings and the duration of epigastric pain averaged eighty-five weeks. In 213 cases which were submitted to a planned laparotomy, only thirty-five were shown to be operable and the duration of the epigastric pain in these cases only averaged sixteen weeks. It would seem, therefore, from this analysis that epigastric pain deserves far more attention than has been accorded it and any person of 40 years of age and above with a complaint of epigastric pain should be thoroughly investigated for carcinoma of the stomach so that an early diagnosis may be made and surgery given a better chance to effect a five year cure.

SUMMARY

1. 314 cases of carcinoma of the stomach are reviewed.

2. Epigastric pain is the most common symptom and may well be the most important symptom in early gastric cancer.

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