SURGICAL ASPECTS OF CARCINOMA OF THE STOMACH*

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THIRTY-FIVE cases of carcinoma of the stomach on General Surgical Service "B" from 1929 to 1934 and 114 cases of carcinoma of the stomach on General Surgical Service "A" from 1934 to 1944 are included in this survey. These cases constitute the total number of patients with gastric carcinoma seen by these services during the stated years at the Hospital of the University of Pennsylvania, Philadelphia. There were

TABLE I
SEX INCIDENCE

Sex	No.	Per Cent
Male	95	64
Female	54	36

ninety-five cases or 64 per cent in males showing the greater incidence in this sex with almost a 2 to 1 ratio. The age incidence showed 81 per cent of the cases between the ages of forty and seventy with the greatest number (34 per cent) between fifty and sixty years of age.

TABLE II
AGE INCIDENCE

Years	No.	Per Cent
20–30	1	0.5
30–40	9	6
40–50	33	22
50–60	51	34
60–70	37	25
70–80	17	12
No age	1	0.5

It was interesting to note the lag between the time the patient first saw a physician and the time the patient reached the surgeon. Unfortunately, the records did not always contain the data as to when the patient reached the local physician but as a rule this was within a month after the onset of symptoms. Seventy-five per cent of the cases reached the surgeon three months or longer after the onset of symptoms with 42 per cent reaching the

TABLE III
DURATION OF SYMPTOMS BEFORE CONSULTING M.D.

Time	No.
No record	101
1 week	14
1 month	21
2 months	4
3 months	5
6 months	2
1 year	2
Over 1 year	0

surgeon one year or more after the onset of symptoms. This certainly leaves much to be desired. One hundred thirty-five cases or 91 per cent were able to be explored while 9 per cent were considered inoperable without exploration. Of the group

TABLE IV
DURATION OF SYMPTOMS BEFORE REACHING SURGEON

Time	No.	Per Cent
No record	4	3
1 week	1	0.5
1 month	5	3
2 months	29	19.5
3 months	22	15
6 months	25	17
1 year	33	22
Over 1 year	30	20

explored only fifty-two patients or 35 per cent were operable. This implies that the surgeon felt he could remove all the lesion and the gastrocolic or gastrohepatic nodes which appeared involved. Of the number resected in this series, fifty-one patients or 34 per cent had a subtotal gastric

* This series is taken from the services of Dr. G. P. Muller and Dr. E. L. Eliason.

resection with gastrojejunostomy. Only one case had a total gastric resection.

In the inoperable cases which were explored, simple gastrojejunostomy was done in twenty-six cases as a palliative procedure and gastrostomy was done in

TABLE V

Cases able to be explored

135 = 91% { Operable —52 = 35%
Inoperable—83 = 56%

Cases not able to be explored

14 = 9%

56 + 9 = 65% inoperable

two cases. Fifty-five of the cases explored were so far advanced that no procedure was attempted.

In the overall group, 43 per cent experienced relief of symptoms while 55 per cent

TABLE VI

Procedure Done in Operable Cases:

Subtotal resection—51	= 98%	= 34%
Total resection — 1	= 2%	= 1%
		35%

did not. The total five-year cures were three or 2 per cent of the total 149 cases in this series. There was no follow-up record in forty-one cases while twenty-six died while still in the hospital following operation. Of these postoperative deaths, twelve of the twenty-six had gastric resection while fourteen had simple ex-

TABLE VII

Procedure Done in Inoperable Cases Which Were Explored:

Gastroenterostomy—26	= 17%	
Nothing —55	= 37%	
Gastrostomy — 2	= 2%	
	56%	

ploration or gastro-enterostomy. Thirty-nine of the patients lived six months, twenty-six lived one year, thirteen lived two years, and one lived four years. Of the three five-year cures, one is still living after eight years, one is living after fourteen years and one died after eight years due to the carcinoma. The three five-year cures all had a subtotal gastric resection. The one patient in which total gastric resection was done died postoperatively of pulmonary embolus.

These results are not encouraging. One thing is made clear, however; the patient reached the surgeon entirely too late. Until we know the etiology of carcinoma of the stomach, the only way we can

TABLE VIII

Per Cent Relief of Symptoms: Yes—64—43%
No —85—57%

improve our results is to see that the patients get to the surgeon earlier or that our present form of therapeutic attack is improved. The latter point will be discussed shortly. As can be seen from this series, only 35 per cent of the cases were operable and many of these already had visible spread to the adjacent gastrocolic and gastrohepatic nodes. The cases in which the pathological condition

TABLE IX
SURVIVAL PERIOD

Time	No.	Per Cent
No record	41	27
P. O. Death	26	17
6 months	39	26
1 year	26	17
2 years	13	9
3 years	0	0
4 years	1	1
5 years	3	2

P. O. Death 12 subtotal resections
14 expl. or enter.

was actually limited to the local lesion as such were nil. Thus before we consider the form of operation offered these patients we realize the surgeon is at a handicap before he starts.

What is the answer to this problem? Is it routine upper gastrointestinal roentgenology just the same as we advise yearly routine chest films? St. John, Swenson and Harvey,[8] of Columbia University, tried an experiment in the early diagnosis of gastric carcinoma consisting of mass roentgen studies of persons over fifty who had no digestive symptoms of perceptible

significance. Of 2,413 studied, three had unsuspected malignant gastric tumors, an incidence of 1.24 per 1,000. These three underwent subtotal gastric resection. Obviously this study is only in the experimental stage and should be continued for many years to prove its value. It may be one of the answers to the problem.

A more direct answer at present seems to be found in the patients who have gastric symptoms. In the present day of specialization the surgeon can do little actual ground work to aid the cause. The real boost has to come from the general practitioner and gastrointestinal specialists who see these patients first. The time lag between when the patient first sees the doctor and reaches the surgeon is considerable.

Thorstad[4] reports that over a fifteen-year period from 1928 to 1942 there has been no marked annual increase in the admissions for cancer of the stomach at two of Detroit's large hospitals. He also stated that no evidence has been found to indicate a marked improvement in either the diagnosis or treatment of early carcinoma of the stomach during this fifteen-year period. Earlier diagnosis on the part of the general practitioner and the gastrointestinal specialist and prompt surgery is essential if we are to improve our results in the treatment of carcinoma of the stomach.

Some authors have reported better results in the overall five-year cures in their clinics. Custer[7] reports 18.75 per cent alive and well for over eight years. If one breaks this figure down, however, it is seen that the series which he reports contained 463 patients. Of these only 141 were operable and of the 141 operated upon only ninety-six were completely followed. It is this total ninety-six that he considers eighteen cases or 18.75 per cent alive and well for over eight years. In terms of the total number of cases in his series, only 3 per cent are alive and well for over eight years. This is only a slightly better percentage than our overall five-year cure rate of 2 per cent.

As for the second line of attack in improving our results, the question of total gastric resection in borderline operable cases is raised. It is known that man can get along almost as well without any stomach as with one-third or one-fourth of it left as shown by the studies of Ingelfinger.[5] Hence the physiologic aspect of either procedure is justified.

It is just within recent years that the pendulum has swung to the possibility of more widespread use of total gastric resection in borderline operable cases of carcinoma of the stomach.

Lahey and Marshall[1] and Jones and Kehm[2] have reported two series of total gastrectomy and their results are noted here: Lahey and Marshall[1] report seventy-three cases seen since 1938 with twenty-four postoperative deaths but in the last two years only five deaths occurred in twenty-eight cases. As stated, the procedure was only used in borderline operable cases or in which the lesion was high in the cardia of the stomach. In the majority of cases, total gastrectomy with anastomosis of the jejunum to the esophagus through the abdomen was done provided enough normal esophagus remained. They reported one five-year cure out of the seventy-three cases. The procedure carried a very high mortality with only forty-eight of the patients surviving operation; fifteen lived a year or longer before recurrence caused death; twelve survived one year, seven survived two years and one survived four and one-half years.

The report of Jones and Kehm is a later one and harder to evaluate. However, indications for total gastrectomy by these men were the same as by Lahey and Marshall. Of their eight consecutive cases, however, the patients are all living at present, the postoperative period varying from six to eighteen months.

Naturally, the procedure can be used only in selected cases. Its widespread use would only result in an increased operative mortality in patients with lesions too widespread for surgery, but with its greater

use in selected cases, perhaps we can increase our therapeutic results. Certainly it deserves a trial when our overall five-year cure rate with present means of attack is only 2 per cent.

CONCLUSION

The conclusion to be drawn from the statistics here reported is that cases of carcinoma of the stomach reach the surgeon many months after the onset of symptoms when the lesion is far advanced and inoperable, with the result being that the only thing we have to offer these patients at the present time, namely, gastric resection, was applicable in only 35 per cent of the cases. The inadequacy of partial gastric resection is also shown when the end result of 2 per cent five-year cures is considered. The possibility of obtaining better therapeutic results with the more widespread use of total gastric resection in borderline operable cases is discussed.

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