Gastroenterologia Japonica
Vol. 24, No. 6

Printed in Japan

— Paper from abroad —

Diagnosis and tactical approach to surgery for early gastric carcinoma: A retrospective analysis of the past 16 years in an Austrian General Hospital

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Summary: In principle, many authors advocate a radical surgical approach for early gastric cancer (gastrectomy on principle). Our own experience with subtotal gastrectomy (including N1+N2 lymphadenectomy; limited resection even without groups 11, 12) shows that this method yields comparable results. With an operative mortality of 2%, the survival rate was 84.3% after 5 years and 70.5% after 10 years, instead of the predicted values of 82.8% and 63.4% respectively. Applied to the same age group without gastric carcinoma, this yields a 5-year survival rate of 101.8% and thus almost reaches Japanese standards. *Gastroenterol Jpn 1989;24:732–736*

Key words: *early gastric carcinoma; long term survival rates; subtotal gastrectomy*

Introduction

In 1962, the Japanese Society for Endoscopy introduced the term "early gastric cancer". Generally, the 5-year survival rate of this malignancy is a mere 10-15%. Surgical treatment of pathological changes limited to the mucosa and submucosa in the early stage raises the 5-year survival rate to more than 90%. Special emphasis has been placed on the diagnosis of early gastric carcinoma in the relevant literature, despite the regressive incidence of gastric carcinoma in recent years[1]. A detection rate of 25% of early carcinoma, as reported in the Japanese literature, however, is not possible as serial investigations such as performed in Japan are hampered by economic obstacles[2,3].

Since the gastric mucosa is insensitive to pain, vague upper abdominal complaints are the principal sign of early gastric carcinoma. This is why several authors have suggested mandatory endoscopy in all patients beyond the age of 40 who present with these symptoms[2-4]. (confirmed occult blood in the stool may substantiate this suspicion). Most major medical centers, however, are unable to deal with the resulting large patient population owing to the shortage of experienced endoscopists. The patient population should therefore be reduced to 5 risk groups, which must be paid special attention[4-6].

a) Resected stomach with a history of more than 15 years, especially after Billroth II resections;
b) Gastric ulcer. Etiology may reveal malignant cancerous degeneration in the chronic course, or a malignant tumor of primarily mucous origin of the Japanese type IIc or III. Therefore, an endoscopic diagnosis of gastric ulcer without obtaining at least 4-6 biopsies from the border and bottom of the ulcer is a severe professional error. Even in the presence of negative histologic results or complete healing and scar formation, repeated check-ups including new biopsies are mandatory.

Received August 25, 1988. Accepted February 17, 1989.
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c) Chronic-atrophic gastritis, if combined with pernicious anemia or severe intestinal metaplasias or dysplasias. General investigation of all patients with chronic-atrophic gastritis, however, would be beyond the scope of logistic and economic possibilities.
d) Morbus Menetrier, which may be associated with a 10-fold increase in the incidence of gastric carcinoma.
e) Gastric polyps. Although the most frequent type of gastric polyps - the so-called hyperplastic polyps - show no degenerative tendency, and although genuine gastric adenomas are a rare finding, several authors have described a disposition of the gastric mucosa towards malignant degeneration, so that tighter monitoring of this patient collective is imperative[5].

In most instances, neither the macroscopic evidence provided by endoscopy nor the histologic result of the biopsies permit exact diagnosis of the extent of tumor invasion or a Lauren classification. A sufficiently large surgical specimen is required to answer these questions, as in 20.3% of all cases with submucous tumor invasion there may be lymph node metastases[7], and as the Lauren classification carries a certain prognostic potential[8].

In recent years, the tactical approach to surgery has raised considerable controversy between those who advocate gastrectomy on principle[9] and those who support subtotal gastrectomy with lymphadenectomy[10]. No uniform therapeutic regimen has been agreed upon to date.

All this has prompted us to retrospectively analyse the "early gastric cancers" treated at our clinic in the past 16 years.

Surgical Approach

In principle, oncologic radicality is indicated for early gastric cancer[9,11]. The reason is clear: multicentricity, a frequently unclear preoperative localization as well as an exact postsurgical diagnosis[12]. To analyze our therapeutic approach, we have examined our results, and have noted a changing trend in our therapy.

Table 1 Histologic classification of 103 early gastric carcinoma
According to Lauren (8)
Acta pathol Microbiol Scand 1965

Type	1971-83	1983-87	Total
Intestine	40 (58%)	13 (38.2%)	53 (51%)
Diffuse	11 (16%)	19 (55.9%)	30 (29%)
Mixed	18 (26%)	2 (5.9%)	20 (19%)
Mucosa	41 (59.4%)	18	59 (57%)
Submucosa	28 (40.6%)	16	44 (42%)
Lymph node involvement			10.7%
mucosa type	1	0	1
submucosa	6	4	10

Between 1971 and 1987, 103 patients with early gastric cancer were operated. 101 were diagnosed by endoscopy, 2 by radiography. The incidence of early carcinoma was 11.4%. The ratio of male/female patients was 52:51, the average age was 66.5 years and was almost identical in both sexes. The youngest patient was 38 and the oldest 83. Almost 60% of all early carcinomas were located in the distal third, and almost 90% in the distal half - a decisive factor in our therapeutic approach.

The results are in agreement with those of other series. Macroscopically, more than 62% corresponded to the depressed types IIc and III according to the Japanese classification. This does not concur with the Japanese data, where up to 80% were of the depressed type[10,13,14].

The histologic classification was performed according to Lauren[8] (**Table 1**). In our patient population the prognostically more favorable intestinal type ws prevalent (52%). The incidence of the diffuse type markedly increased from 16% in the first observation period (1971-1983) to 55.9% in the past 5 years. 59% were the mucosa type and 41% the submucosa type. Lymph node involvement was 10%, and in 10 out of 11 cases involved the submucosa type.

What was done during surgery (**Table 2**)?

In the first observation period, distal resection together with omentectomy, i.e. dissection of the N1 lymph nodes, prevailed; thereafter,

Table 2 Surgical approach for 103 early gastric carcinoma

Operative modality	71-83	83-87	Total
Distal gastrectomy with omentectomy	35	5	40
Subtotal gastrectomy	20	22	42
Gastrectomy	5	6	11
Resection of fundus + cardia	2	1	3
Polypectomy			7
endoscopic	4	0	
surgical	3	0	

surgical lethality: 1 anastomotic leakage following total gastrectomy 1 pulmonary embolism
2:2 (= 2.0%)

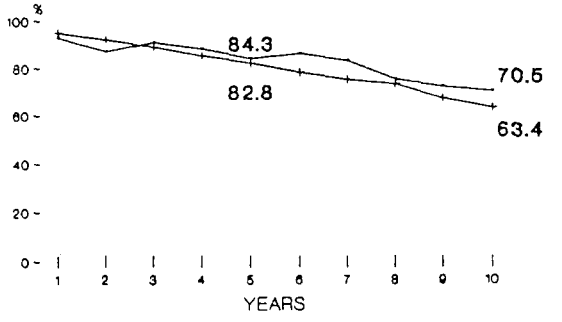

Fig. 1 Survival rates of early gastric carcinoma in Hanusch Medical Center 1971-1987

subtotal gastrectomy with dissection of N1 and N2 lymph nodes was preferred. This rather conservative approach, especially in the first phase, would suggest unfavorable results. Therefore in 1987 we carried out follow-up studies in all patients we had operated and evaluated the cause of death in deceased patients. Only two patients died of local recurrence, one 2 and the other 4 years after surgery. Retrospectively analyzed, the average safety margin from the tumor to the border of resection was 4.5 cm in the intestinal type and 5.8 cm in the diffuse type, as measured in the fixed specimen, a value that corresponds to present-day standards.

The survival rates were calculated according to the method of Cutler and Ederer[15], and revealed the following (**Fig. 1**):
Only 4 patients died of the primary disease, 2 of local recurrence, and 2 of diffuse metastases. All others died of disorders unrelated to the primary disease or therapy.

The —+— marked line represents the expected survival rates of a control population comparable as to age and gender, and were calculated according to the general Austrian death statistics.

The solid dots indicate the actually observed survival rates without operative mortality. 84.3% survived after 5 years, as compared to an expected 82.8%. After 10 years, 70.5% had survived, as compared to an expected 63.4%. The almost identical curves show that the patients with early gastric cancer have a normal life expectancy corresponding to that of the so-called normal population.

What can we conclude from this?

Distal resection with omentectomy and N1 dissection, generally performed in the first observation period, should be avoided, but is still employed in individual high-risk patients[16].

The surgical approach of choice is certainly subtotal resection with N1 and N2 lymphadenectomy; to be precise, dissection of groups 7, 8, and 9 of the N2 nodes is sufficient[17]. Dissection of groups 11 and 12 is necessary only when tumor is present in the proximal third or on the side of the greater curvature. This method precludes a higher rate of recurrence without simultaneously increasing the operative mortality.

Total gastrectomy is indicated in all cases located in the proximal third, diffuse type cases in the middle third, with the extensive type of early gastric carcinoma as well as with cases of suspected multicentricity. With this tactical approach, the results are in good agreement with those reported by Japanese investigators (**Table 3**).

Final Review

Oncologic surgery aims at good 5- to 10-year

Table 3 5-year suvival rates of early gastric carcinoma excluding operative mortality

	Actually	AGE corrected
CENTER FOR ADULT DISEASES OSAKA, 1970 (N - 326)	90.4%	99.5%
BRD-COLLECTIVE DATA ELSTER ET AL., 1978 (N - 223)	78.4%	93.3%
ERLANGEN, RÖSCH ET AL., 1982 (N - 111)	73.3%	87.9%
ULM, HERFARTH ET AL., 1978 (N - 31)	70.0%	?
GIESSEN, DOBROSCHKE ET AL., 1978 (N - 49)	86.1%	?
TOKIO, YOSHINO 1981 (N - 220)	94.0%	102.6%
HIROSHIMA, ABE ET AL., 1984 (N - 140)	87.5%	96.2%
OUR RESULTS 1987 (N - 103)	84.3%	101.8%

survival rates, low postoperative mortality as well as a satisfactory quality of life for the patient. The surgeon should therefore choose the method that permits maximum radicality together with minimum risk while offering the patient maximum quality of life. Numerous authors advocate gastrectomy also for early gastric cancer and demonstrate with their own results that the objection of increased mortality following gastrectomy is not justified[9,12].

In contrast to this, several authors show that subtotal resection yields equal oncologic results both concerning radicality in the involved organ itself as well as dissection of lymph nodes, with physiologic results being a lot more agreeable for the patient[7,10,11,14,18]. Dissection of group N1 and N2 lymph nodes is also possible without difficulty during distal gastrectomy. Even in early carcinoma, a limited dissection of the lymph node group N2[7-9] can be performed for the most part[10].

The N3 lymph node group is never involved in early gastric cancer[13,14]. For the extent of radicality and favorable long-term results, exact dissection and removal of the N2 lymph nodes (at least to a limited extent) is decisive[10,14,19].

Only in old or high-risk patients a limited operation (distal resection + N1 lymph nodes) can be performed. Here, the results are surprisingly favorable, as demonstrated by Mishima[16] and by the limited resections we performed in the first observation period.

Locally, a safety margin of 2 cm from the tumor is frequently reported as sufficient[20]. We do not agree with this opinion, because at least one of our local recurrences was due to an insufficient (2.5 cm) safety margin. In our series, we observed no prognostic differences between the intestinal and the diffuse type[11] or positive and negative lymph node involvement[14]. We feel that gastrectomy in principle, as advocated by Pichlmayr also for early gastric carcinoma, is not necessary in view of the good results obtained with subtotal gastrectomy and lymph node dissection N1 and N2.

As the therapy of choice we therefore recommend subtotal resection with N1 + N2 lymph node dissection. An additional splenectomy to enhance lymph node dissection or survival rates is inconsistent with the results of Yoshino[21], who showed that 5- or 10-year survival rates were better in stage I or II without splenectomy. In old or high-risk patients, even distal resection with omentectomy is sufficient.

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