Short communication

Incidence of nodal metastasis around the superior border of the pancreas based on number of metastatic perigastric nodes

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Abstract:

Lymph nodes along the superior border of the pancreas are not usually dissected in Western countries. The purpose of this study was to determine whether the number of metastatic perigastric nodes is predictive of supra-pancreatic nodal disease. Supra-pancreatic nodes are the nodes along the left gastric, common hepatic, celiac, or splenic arteries, including the splenic hilum. In 1230 gastric carcinoma patients treated from 1985 through 1991 at the National Cancer Center Hospital, Tokyo, by D2 or more extensive dissection, 475 had nodal metastasis. Nodal involvement was limited to the perigastric nodes alone in 240 patients, while supra-pancreatic node metastasis was observed in 235 patients. We examined the nodal status of supra-pancreatic nodes in relation to the number of metastatic perigastric nodes. When the number of metastatic perigastric nodes was 3–6, 7–9, and 10 and more, the incidence of metastasis in nodes along the superior border of pancreas exceeded 30%, 50%, and 80%, respectively. When lymph nodes outside the perigastric area are not dissected, the likelihood of residual nodal disease can be predicted based on the number of involved perigastric lymph nodes. The 5-year survival rate in patients with supra-pancreatic node metastasis was high, at 39.2 % after systematic node dissection. If the number of perigastric metastatic nodes exceeds three, supra-pancreatic nodal dissection should be considered.

Key words: gastric cancer, surgery, lymphatic metastasis, node dissection

Introduction

Surgery is the only effective therapy for gastric carcinoma. However, there is still controversy about the extent of nodal dissection. In Japan, the standard nodal

dissection with curative intent is D2 dissection, which involves clearance of the perigastric nodes and regional nodes, consisting mainly of nodes around the superior border of the pancreas (supra-pancreatic nodes). The standard therapy in Western countries is D1 dissection, with clearance of only the perigastric lymph nodes. The rationale for the “Western” approach is that D2 dissection entails a higher mortality and morbidity [1,2] and there is no proof of its benefit from randomized control trials. Recently, a new TNM classification introduced an N classification based on the number of metastatic nodes [3]. It is now required to examine 15 or more lymph nodes as part of N staging. Surgeons thus have to be much more concerned about the number of dissected nodes than previously. As the intraoperative diagnosis of nodal metastasis is unreliable [4,5] and nodal dissection outside the perigastric area is not routine in the West, we believe that it is important to report the likely incidence of nodal metastases in the undissected areas based on the number of metastatic perigastric nodes.

Patients and methods

From 1985 to 1991, 1230 patients with primary gastric carcinoma underwent D2 or more extensive resection with curative intent at the National Cancer Center Hospital Tokyo. All patients had adequate pathological material available for review. The resected nodes were classified into stations according to the rules of the Japanese Research Society for Gastric Cancer [6].

Cumulative 5-year survival rates, including operative mortality, were calculated by the Kaplan-Meier method with 95% confidence intervals.

Results

The patients consisted of 855 men and 375 women, with a mean age of 58.8 years. There were 212 tumors in the

Offprint requests to: H. Katai

Received for publication on Jul. 17, 1998; accepted on Oct. 14, 1998

upper third of the stomach (17.2%), 550 in the middle third (44.7%), and 468 in the lower third (38.1%).

Distal, gastrectomies were performed in 885 patients (71.9%), total gastrectomies in 334 patients (27.2%), and proximal gastrectomies in 11 (0.9%) patients. All patients underwent systematic nodal dissection (D2 or more extensive). The Operative mortality rate was 0.3%.

Nodal involvement was observed in 475 patients (perigastric alone 240, supra-pancreatic 235). Serosal invasion was present in 319 patients. The stage distribution according to the pTNM of 1987 [7] was: stage I, 751 (61.0%), stage II, 156 (12.7%), stage III, 237 (19.3%), and stage IV, 86 (7.0%).

The metastatic nodal status in the supra-pancreatic area was examined in relation to the number of metastatic perigastric nodes (Table 1). The mean number of dissected nodes was 46.2. The mean number of dissected perigastric nodes was 26.2, and the mean number of dissected supra-pancreatic nodes was 13.2. When no metastasis was detected in perigastric nodes, 2.6% of supra-pancreatic nodes were found to have metastasis. When the perigastric nodes were positive, the incidence of metastasis in nodes along the superior border of the pancreas was 47.3%. When the number of perigastric metastatic nodes was 3–6, 7–9, or more than 10, the incidence of supra-pancreatic metastasis exceeded 30%, 50%, or 80%, respectively.

The overall 5-year survival rate was 78.3% (range, 75.6%–81.0%). The 5-year survival rate in node-negative patients was 92.2% (range, 89.9%–94.4%) and that in node-positive patients was 56.2% (range, 50.8%–

61.7%). In patients with perigastric node metastasis alone, the 5-year survival rate was 74.2% (range, 67.7%–80.8%) and it was 39.2% (range, 31.5%–46.9%) in those with supra-pancreatic node metastasis.

Discussion

Most Western patients with potentially curable gastric cancer are treated with a D1 dissection. Since macroscopic assessment of metastatic nodal disease is unreliable [4,5], it is difficult to exclude the presence of metastatic nodal disease outside the perigastric area. We believe that it is very important to recognize the association between the number of perigastric nodal metastases and the presence of supra-pancreatic nodal disease.

Our data showed the occasional presence of “skip” metastases to supra-pancreatic nodes, and a close correlation between the number of perigastric metastatic nodes and the incidence of supra-pancreatic disease. Thus, even after an apparently curative operation in which the supra-pancreatic nodal tissue has not been dissected, if the number of perigastric metastatic nodes exceeds three, there is a high chance that the operation is non-curative, because there may be residual nodal disease. Moreover, the risk of supra-pancreatic node metastasis in Western countries is likely to even higher than that in Japan for a given number of perigastric metastases, as the number of nodes retrieved after a similar dissection is higher in Japan than in Western countries.

Many Japanese investigators have suggested that D2 dissection is effective [8–9], and our data also showed a high survival rate in patients with supra-pancreatic node metastasis after D2 dissection. Under these circumstances, in institutions with a low operative mortality, additional nodal dissection could be considered in Western countries also. Alternatively, other treatment modalities such as intense chemotherapy could be considered.

Adjuvant chemotherapy trial designs should take into account the number of perigastric nodal metastases, as treatment failure could occur because of excessive residual tumor [10].

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Table 1. Incidence of node metastasis around the superior border of the pancreas based on the number of metastatic perigastric nodes in 1230 gastric carcinom patients*

Number of metastatic Perigastric nodes	Incidence of metastases around superior border of pancreas	%	(95% CI)
0	20/775	2.6	(1.5–3.7)
1	16/114	14.0	(7.6–20.4)
2	21/72	29.2	(18.7–39.7)
3	22/49	44.9	(31.0–58.8)
4	16/32	50.0	(32.7–67.3)
5	22/36	61.0	(45.1–76.9)
6	12/22	54.5	(33.7–75.3)
7	14/18	77.8	(58.6–97.0)
8	17/23	73.9	(51.2–96.6)
9	13/17	76.5	(56.3–96.7)
≥10	62/72	86.1	(78.1–94.1)
≥1	215/455	47.3	(42.7–51.8)

CI, Confidence interval

*Patients treated with D2 or more extensive resection at the National Cancer Center Hospital, Tokyo, 1985–1991

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