

Factors affecting the microscopic tumor positivity in the surgical margins following gastrectomy for gastric malignancy

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In 80 patients who had a gastrectomy with the diagnosis of gastric adeno carcinoma, 22 (27%) were found to have microscopic tumor positivity in the surgical margins. While the tumor positivity rate was 18.5% in patients with gastrectomies of curative intend, it was 46.1 % in those who had a paliative gastrectomy ($p<0.05$). Patient with tumors located in the corpus of the stomach had significantly lower microscopic tumor positivity than the others ($p<0.0001$). [Turk J Med Res 1994; 12(3): 136-138]

Key Words: Gastric malignancy, Surgery

Worldwide distribution of gastric carcinoma differs according to geographic areas while the disease is still a common problem for most of the surgeons dealing with it. Although the overall prognosis is dismal in the western world, a significant improvement has been achieved in Japan where the problem is more common, mostly due to earlier diagnosis of the disease and to more radical surgical approaches. Surgery still stays as the main way of the treatment and cure can only be excepted if no residual microscopic tumor remains after operation. To succeed this, surgical margins must be clear microscopically as well as the necessity of clearence of all tumor bearing areas like regional lymph nodes and omentum.

During the operations which are performed with curative intentions, especially, care must be taken for safe surgical margins both in oral and anal sides of the lesion. Although, careful preoperative imaging, better intraoperative judgment, more frequent total gastrectomies and routine use of frozen section examinations may reduce the rate of residual tumor, this problem still exits in 5 to 13 percent of the cases who were treated with curative aims (1,2,3). In this retrospective analysis, factors which may play a role in the microscopic positivity following the gastrectomies for gastric cancer were tried to be elucidated and relative

impact of this problem onto the outcome of the disease were also evaluated.

MATERIALS AND METHODS

One hundred and three patients have been operated and in 80 of them gastrectomy was performed during the period from 1990 to 1992 at a single surgical oncology unit. Preoperative routine diagnostic evaluations were performed in all patients and gastrectomy was performed with curative or paliative intentions according to the internationally adopted rules for the treatment of gastric cancer. Curative operations have been done in 54 cases in whom no residual macroscopic tumor remained at the end of operations. Thirty nine cases of 54 curative resections had R2 and the others had R3 lymph node dissections. 26 cases with paliative resection had no planed lymphatic dissection. Two centimeters of normal macroscopic margins have been accepted as safe in proximal and distal sides of the tumor and frozen section examinations were not used routinely. Chi-square test and Student's t test were used for statistical evaluations.

RESULTS

Among the 80 patients in whom gastrectomies were performed, 22 (27%) cases were found as tumor positive in the surgical margins following serial histopathologic examinations. Proximal margin was positive in 9 (11%) cases and distal margin was positive in 8 (10%). Among these 22 patients there were 5 (6%) cases in whom both proximal and distal margins were positive microscopically.

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Table 1. Tumor positivity according to the clinical stage

Stag ^o	No of tumor (-) cases	%
I	0/8	0.0
II	3/14	21.0
III	14/42	32.0
IV	5/16	31.0

$\chi^2=34.00$ $p<0.0001$

The rate of tumor positive cases according to the clinical stage of the disease is shown in table 1. The extent of the resection (partial vs total gastrectomies) was also evaluated and there were 11 (22.4%) tumor positive cases among the patients who were treated with subtotal gastrectomy while 10 (34.4%) patients were found positive among patients who were treated by total gastrectomy. There were only 2 patients who were treated with proximal gastrectomy and one of them was found to be positive in distal surgical margin.

Gastrectomy was performed with curative intention in 54 of the cases and among these patients there were 10 with tumor positive surgical margins (18.5%), while in 26 patients who were resected with palliative aims there were 12 cases (46.1%) with positive surgical margins ($t=2.406$ $p<0.02$).

Lymph nodes were involved in 49 cases while 31 patients were lymph node negative histopathologically. Surgical margins were also judged according to the lymph node status and 6 cases were found tumor positive in surgical margins in the lymph node negative group (19.3%) and 16 of the lymph node positive group showed microscopic tumor in the resection margins (32.6%) ($t=1.269$ $p>0.05$).

Tumor location and rate of tumor positivity in the surgical margins are shown in table 2.

Distally and proximally located tumors as well as the Borrmann IV type diffuse tumors have shown more surgical margin positivity while the tumors located in corpus have shown favorable results in terms of surgical margin positivity. As contrary to the general opinion distally located tumors have shown relatively higher rate of tumor positivity in duodenal side, probably as a result of underestimation of duodenal involvement of gastric cancer.

Table 2. Relation of tumor location to microscopic positivity in the resection margins

Tumor location	No of cases	No of tumor (+)cases	%
Antrum	40	11	27.5
Corpus	20	W	15.0
Fundus and Corpus	5	2	40.0
Antrum+Corpus+Fundus	15	6	40.0

$\chi^2=32.5$ $p<0.0001$

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When the histopathologic features of the cases were concerned, 15 cases (44%), had microscopic positivity in the group of poorly differentiated carcinoma (n:35) and 7 cases (15.5%) were found to be positive microscopically in the group consisting of well differentiated cancer (n:45) while one of the two cases with malignant lymphoma has shown microscopic positivity ($t=2.73$ $p<0.01$).

DISCUSSION

At present gastrectomy is the only treatment available which may result in cure in the patients with gastric malignancy. The depth of tumor invasion, lymph node involvement, existence of serosal invasion, can be considered as the most important prognostic factors. However the extent of surgery must be beyond the clinical stage of the disease and the surgical margins must be clear off the residual tumor. Although the microscopic residual tumor in resection margins may not play a significant role in the outcome of patients with advanced cases in whom early recurrence of the disease in peritoneum, lymph nodes and liver will result in death in two years following the operation, the impact of microscopic tumor is more significant in stage I and II disease in which overall five year survival is around 60% (3.8).

To achieve microscopically tumor free surgical margins better preoperative evaluation including double contrast upper gastrointestinal series, endoscopy, CT and endoscopic ultrasonography may be useful. During the surgery at least 2 to 5 cm tumor free gastric wall should be resected especially in advanced cases in whom submucosal and subserosal tumor invasion may be far beyond the estimated macroscopic tumor margins. In spite of all the measures taken against this problem microscopic positivity in surgical margins still occurs in 5-13% of cases who were treated with curative aims (4,5,7). When we look at the recurrence patterns of the gastric cancer in long term survivors, the disease recurs in gastric wall in 10-15% of cases (6,7). However, most of these patients also have other recurrences at the same time with gastric wall recurrence. On the other hand, the effect of microscopic residual tumor on the survival of the patients can partly be judged with reoperations to treat the intramural recurrences. In different series reoperations for intramural recurrences have been reported as 2 to 5% which is far beyond both postoperative residual microscopic tumor rate and overall recurrence rate of the disease in the stomach wall. From this it can be postulated that most of the patients with far advanced disease die because of extragastric recurrences in 1 to 2 years following the first operation before the intramural residuals become clinically important. This problem may have more significant impacts on survival in the patients who were treated with hope of long time survival.

ifferent measures have been advocated to G more frequent free margins following gastrec- F^robably more distant the surgical margin to the . copic edge of the tumor, the higher clearance surgical margins. However, to reduce the num- total gastrectomies in which postoperative com- ns, mortality and sequela are more frequent, f the surgeons have been trying to do gastrec- with relatively lesser but safe surgical margins, is no clear evidence about the survival ad- of total gastrectomy upon the subtotal -ostomy in the same clinical subset of gastric can- traoperative frozen section examinations may be * • in the solution of the problem but false -ssities are not uncommon with this technique, -ally in poorly differentiated non-mucin producing (6.8).

ecently endoscopic ultrasonography and intra- • " ultrasonography have been advocated as a way of judgement of the extension as well as ctra gastric metastases. Intraoperative ultraso- :»riic evaluation of the tumor limits provided very " • ° tumor positivity at our institute (unpublished

rom this series it can be concluded that the «"». differentiation, macroscopic type, lymph node ^merit have significant roles in the microscopic " tumor following gastrectomy for malignant tumors. Proximally located tumors showed the "t rate of residual microscopic tumor while tumors ;lose to pylorus have resulted in microscopic • ty more frequently than expected, ©operation and resection are indicated y • • the disease recurs in the gastric wall in s with no evidence of extragastric disease. Ac- Q to our experience we never reoperated on - ^copically positive patients because of the 3 of these patients in one to two years following • oration due to disseminated disease. Shiu et al, Eyries of 210 patients also, reported that all of the sots with microscopic residual tumor died in two b e c a u s e of the disseminated disease (9). These s also concluded that surgical margin positivity * of the five prognostic factors as independent ••portant predictors of early recurrence and death, actors we found effective in the surgical margin ity are very similar with the authors which are . • e on the survival. From this it can also be con- that surgical margin positivity is not only a tech- •ault, but a reflection of the extensiveness and ressiveness of the disease.

Gastrik maligniteler için yapılan gastrektomilerden sonra cerrahi sınırlarda mikroskopik tümör pozitifliğini etkileyen faktörler

A. Ü. Tıp Fakültesi Cerrahi Onkoloji kliniğinde 1990-1992 yılları arasında gastrektomi uygulanan 80 mide adeno kanserli hastanın 22'sinde (%27) cerrahi sınırlarında mikroskopik tümör pozitifliği saptandı. Küratif amaçlı gastrektomi yapılanlarda cerrahi sınır tümör pozitifliği % 18.5 iken, bu oran palpatif amaçlı olanlarda %46.1 idi (p 0.02). Korpus tümörlü hastalarda cerrahi uç pozitifliği diğerlerine göre daha azdı (p<0.0001). [TurkJMed Res 1994; 12(3): 136-138]

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