ESOPHAGOGASTRIC JUNCTION VERSUS GASTRIC CARCINOMA – IMPLICATIONS FOR SURGICAL TACTICS ON THE BASIS OF OWN EXPERIENCE

MARIUSZ FRĄCZEK1, PIOTR HEVELKE1, KRZYSZTOF KOMORZYCKI1, MARCIN KOTULSKI1, PIOTR KALINOWSKI1, BARBARA GÓRNIK1, MAREK KRAWCZYK1

Chair and Department of General, Transplant and Liver Surgery, Medical University in Warsaw1
Kierownik: prof. dr hab. M. Krawczyk

Department of Pathology, Medical University in Warsaw2
Kierownik: prof. dr hab. A. Wasiutyński

The exact prevalence and results of treatment of the carcinoma of esophagogastric junction (gastric cardia) are difficult to assess, and the data concerning thereof, presented in different series of patients, are frequently inconsistent. This phenomenon may result from terminological mess, resulting in different comprehension of the sole term “esophagogastric junction”. That can be why the results of treatment of patients with this type of cancer are dispersed in the literature and may be as well found under “esophageal”, as well as “gastric cancer” headings.

The aim of the study was to present the current view of the pathogenesis, pathology and terminological issues concerning this tumor, interesting at least for its localization at the border of two viscera and two body cavities. On the basis of our own material, we also tried to delineate the implications of such a localization to surgical tactics.

Material and methods. The patients with esophagogastric junction and more peripherally located gastric cancer were analysed in two groups, according to the date of resectional surgery performed: From 1989 to 1998 (group I), and from 1999 to 2005 (group II). In each group the patients with esophagogastric junction and peripheral gastric cancer were investigated separately. The influence of more aggressive approach to cardial cancer (additional thoracotomy approach) in group II patients on the cancer free tissue margin, number of metastatic lymph nodes excised, as well as on survival rate during a 5-years follow-up was assessed.

Results. The results show, that the additional thoracotomy, despite the increase in postoperative complications rate (mainly affecting the respiratory system- 19 vs 4.3% at laparotomy alone), did not influence the perioperative mortality in our patients (approximately 5% in all subgroups). Despite the additional thoracotomy approach, facilitating the safe lower esophageal resection, the cancer free margins of the excised specimens remained unsatisfactory (the target safe margin value of 7 cm), although some improvement can be noted as compared with group I patients. The interesting finding was, that the survival rates following gastrectomy for ‘peripheral’ gastric carcinoma has been remaining practically unchanged during the 20 years of this study. Survival rates following gastric cardia resection improved in group II patients, but the differences did not reach the statistically significant level. The difference in survival rate was increasing with time in favor of group II patients, its value being triple at 5 years from surgery (18 vs 6%) as compared with group I.

Conclusions. We see the need for the development of a method allowing to select the patients with good prognosis, in whom further radicalization of resectional procedures (and subsequent treatment) would be justified by long-term disease-free survival.

Key words: esophagogastric junction carcinoma, gastric cardia carcinoma

The exact prevalence and treatment results of esophagogastric junction (gastric cardia) carcinoma are difficult to assess. The data, which has been examined in several series of patients, are frequently inconsistent. This phenomenon is a result of differing meanings of
Esophagogastric junction versus gastric carcinoma. Implications for surgical tactics

Additionally, the results of patient treatment with this type of cancer are dispersed in the literature and can be found under the terms “esophageal” and “gastric cancer.” Here, we present the current view of pathogenesis, pathology and terminological issues relating to this tumor and its localization at the border of two viscera and two body cavities. We will also try to delineate the implications of localization on surgical tactics.

The patients with esophagogastric junction and more peripherally located gastric cancer were analyzed in two groups, according to their date of resectional surgery. From 1989 to 1998 (group I) and from 1999 to 2005 (group II), patients with esophagogastric junction and peripheral gastric cancer were investigated separately. The influence of a more aggressive approach to cardiac cancer (additional thoracotomy approach) in group II patients on the cancer free tissue margin, number of excised metastatic lymph nodes, as well as the 50-year survival rate. The results show that the additional thoracotomy, despite the increase in postoperative complication rate (mainly affecting the respiratory system- 19 vs 4.3% at laparotomy alone), did not influence the perioperative mortality in our patients (approximately 5% in all subgroups). Despite the additional thoracotomy approach, which facilitated a safe lower esophageal resection, the cancer free margins of the excised specimens remained unsatisfactory (the target safe margin value of 7 cm), although some improvement can be noted as compared to the group I patients. The interesting finding was that the survival rates following gastrectomy for ‘peripheral’ gastric carcinoma has remained practically unchanged in the 20 years of this study. Survival rates following gastric cardia resection improved in group II patients, but the differences did not reach statistically significant levels. The difference in survival rates increased with time in favor of group II patients and its value tripled five years after surgery (18 vs 6%) as compared to group I. We see the need for the development of a method to select patients with good prognosis, in whom further radicalization of resectional procedures (and subsequent treatment) would be justified by long-term disease-free survival.

Epidemiological reports concerning the incidence of upper gastrointestinal tract cancer, especially from Europe and North America, indicate the growing proportion of patients with adenocarcinoma of the esophagogastric junction (1, 2).

Because the tumor is located on the boundary of two organs and two body cavities, the relative ease of metastatic spread, both in the cranial (esophagus) and caudal (stomach) direction to mediastinal and epigastric lymph nodes. Therefore, surgical treatment of esophagogastric junction cancer requires extensive technical skills and experience in both thoracic and abdominal surgery.

The definition and classification of esophagogastric junction (gastric cardia) cancer are not consistent, which hampers assessment of the disease and the evaluation of treatment results. The data on treatment methods and results can be found in publications under the headings of esophageal and gastric cancer.

Definition, classification, etiopathogenesis: According to the World Health Organization (2), esophagogastric junction carcinoma is defined as an epithelial malignant tumor of glandular origin irrespective of the primary tumor location. Planoepithelial esophageal carcinoma infiltrating the cardia and adenocarcinoma of the lower portion of the esophagus that does not infiltrate the esophagogastric junction should be called esophageal carcinoma. The clear-cut, precise definition of esophagogastric junction- is still lacking. Prevailing opinion suggests this area is delimited by the “Z”-line (the boundary between the stratified squamous esophageal epithelium and glandular epithelium of the stomach) cranially, and the limit of the beginning of gastric plicae caudally.

The term “carcinoma of the gastric cardia” (esophagogastric junction) is not new. Stein, Feith and Siewert (3, 4, 5) defined gastric cardia tumors as tumors developing 5 centimeters proximally and distally from the “Z”-line”. According to anatomical criteria, three types of the tumor, depending on its primary location, were described:

I – adenocarcinoma of the lower esophagus, infiltrating gastric cardia,

II – adenocarcinoma of the esophagogastric junction («true» carcinoma of the cardia),

III – adenocarcinoma of the proximal portion of stomach infiltrating cardia.

The abovementioned classification of cardia carcinomas of is interesting with respect to etiopathogenesis and surgical treatment options. In esophageal adenocarcinoma (ty-
pe I, so called „Barrett’s carcinoma”), the pre-requisite for tumor development is the existence of a precancerous condition – epithelial intestinal metaplasia, which is stimulated by inflammatory factors resulting from gastroesophageal reflux. The next step is the development of a precancerous lesion (clearly distinguished from precancerous condition, mentioned above) – cellular dysplasia, characterized by abnormalities of epithelial cell cytoarchitecture of different intensity. Differentiating between marked dysplasia and carcinoma can be difficult. Both these conditions are characterized by the presence of atypic cells and a specific „histological frontier” runs along the basal membranes of the glands. If atypic cells cross this line, then a carcinoma is diagnosed; if not, dysplasia is present (2). When considering the randomness of biopsy tissue samples acquired during endoscopy, it is clear that the diagnosis of high-grade dysplasia in Barrett’s esophagus.

The development of type III carcinoma is favored by Helicobacter pylori infection and dietetic factors. Not infrequently, dysplasia develops without previous metaplastic changes. The incidence of type III carcinoma decreases.

The «true» carcinoma of gastric cardia (type II) demonstrates intermediate features of types I and III. Similar to type III, the stadium of metaplasia is often absent. The tumor usually develops on the basis of gastroesophageal reflux. Similar to type I, the incidence of type II carcinoma increases (2, 6).

The aim of the study was to present the existing opinions concerning esophagogastric junction carcinoma on the basis of own experience in the treatment of this type of cancer. We attempted to demonstrate differences between tumors of this location and tumors of more distal portions of the stomach with respect to optimal surgical tactics.

MATERIAL AND METHODS

During 1987-2005, in the Department of General, Transplant and Liver Surgery, Medical University in Warsaw, 320 patients were surgically treated for adenocarcinoma of the stomach and esophagogastric junction type II and III, according to Siewert’s classification.

Preoperative assessment was based on the results of upper GI endoscopy, X-ray barium contrast upper GI series, abdominal and endoscopic esophageal sonography. Results of the latter study were of utmost importance in our patients with carcinoma of gastric cardia, which serves as the basis for assessing the extent of neoplastic infiltration of the esophageal wall (including intramural cancer spread). An additional assessment for patients in whom the lower esophagus was involved was performed. These included respiratory and circulatory function tests. Insufficient functional reserve demonstrated during these examinations was the indication for non-resectional treatment (stenting, chemotherapy). These patients were excluded from the present analysis.

The patients (exclusively resectional cases) were analyzed in two main groups. The first consisted of 187 patients, treated from 1987 to 1998. These were 62 patients with esophagogastric junction cancer and 125 with carcinoma of the body and peripheral portion of the stomach. The accepted method of treatment was total gastric resection, in patients with cardia cancer enlarged by lower esophageal resection and D2 lymphadenectomy. The procedures were performed via laparotomy. In the vast majority of patients with esophagogastric junction carcinoma, the diaphragm was incised from the esophageal hiatus towards the xyphoid to improve the access to the lower esophagus (tab. 1).

The observations made in this group of patients indicated the oncological inadequacy of “classical” gastrectomy in esophagogastric junction carcinoma has led the authors to change tactics in these cases.

The second group consisted of 94 patients were operated on during 1999-2005. These were 39 patients with esophagogastric junction carcinoma and 55 with carcinoma of the body and peripheral part of the stomach. It was assumed that gastrectomy in cardia cancer patients should be enlarged by lower esophageal resection in the range of a safe, at least 6-7 cm margin of healthy tissues. The infiltration of more than 4-5 cm of the esophagus demanded the resection of at least 10-cm portion of the esophagus, which in our opinion was not feasible without performing the thoracotomy. Additionally, the opening of the thoracic cavity enabled lymph node excision localized to the lower and medial mediastinum (tab. 2).

The excised specimen of the stomach and lower esophagus was examined histologically and the Lauren classification type of the tu-
mor was determined in each case. The depth of infiltration, lymph node involvement and margin of healthy tissues proximal and distal to the tumor were also assessed.

Following surgery, the patients were followed on an outpatient basis. Control visits were scheduled every six months (more frequently if necessary). They included a thorough clinical evaluation, biochemical laboratory tests and diagnostic imaging exams to monitor the possible cancer. The patients received supplemental medicine (iron, vitamin B12, trace elements) when necessary. The endpoint for treatment effectiveness was five-year survival.

RESULTS

The excised specimen was assessed for the type of adenocarcinoma according to Lauren’s classification (tab. 3).

The diffuse type may suggest potential tumor multifocality. Histological diagnosis is extremely important in planning the extent of gastric resection. We adopted (exclusive exceptional cases) the intestinal type tumor located in the peripheral part of the stomach and subtotal resection is justified. The analysis of prevalence of different histological types slightly increases the frequency of diffuse-type adenocarcinoma (as compared with intestinal type) in tumors of the esophagogastric junction.

The essential criterion of cancer advancement assessment was the depth of infiltration. The results of the analysis of tumor advancement are presented in tab. 4.

Table 5 presents the most commonly affected lymph node groups in function of tumor location.

In the assessment of radical excision, the normal stomach and esophageal margins were

| Table 1. Type of surgery in relation to the location of gastric tumor (1987-1998) |
|---------------------------------|---------------------------------|--------|
| Esophagogastric junction cancer (type II and III) | Body or peripheral stomach cancer | Total |
| Gastrectomy | 6 | 89 | 95 |
| Gastrectomy enlarged by lower esophageal resection (via laparotomy) | 54 | 0 | 54 |
| Subtotal resection | 2 (proximal) | 36 (distal) | 38 |

| Table 2. Type of surgery in relation to the location of gastric tumor (1999-2005) |
|---------------------------------|---------------------------------|--------|
| Esophagogastric junction cancer (type II and III) | Body or peripheral stomach cancer | Total |
| Gastrectomy | 52 | 52 | 104 |
| Gastrectomy enlarged by lower esophageal resection (via laparotomy) | 16 | 0 | 16 |
| Gastrectomy enlarged by lower esophageal resection (via thoracotomy) | 21 | 0 | 21 |
| Subtotal resection | 3 | 3 | 6 |
| Subtotal resection + lower esophageal resection (via laparotomy) | 2 | 2 | 4 |

| Table 3. Type of adenocarcinoma according to Lauren’s classification |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| Esophagogastric junction cancer (type II and III) n=62 | Stomach cancer n=125 | Esophagogastric junction cancer (type II and III) n=39 | Stomach cancer n=94 |
| Intestinal | 32 (51.6%) | 56 (44.8%) | 18 (46.1%) | 52 (55.3%) |
| Diffuse | 19 (30.6%) | 51 (40.8%) | 19 (49%) | 39 (41.5%) |
| Mixed | 10 (16.2%) | 14 (11.2%) | 1 (2.6%) | 1 (1%) |
| Difficult to determine | 1 (1.6%) | 4 (3.2%) | 1 (2.6%) | 3 (3.2%) |
considered. Details of the cranial (esophageal) margins are presented in tab. 6.

The immediate results of surgery, including postoperative complications and mortality are presented in tab. 7 and 8.

Treatment results of gastric and esophagogastrectomy junction carcinoma during both analyzed periods (1987 – 1998 and 1999 – 2005) are presented in fig. 1 and 2 and the overall results in fig. 3.

Growing interest in esophagogastrectomy junction carcinoma reflects the rapidly growing tumor incidence. This is an essential factor for developing appropriate tactics in the diagnosis and treatment of this cancer type. At the same time, it is well known that treatment results of esophagogastrectomy junction cancer are far from satisfactory. In the great majority of centers, approximately 20% of patients that qualified for resectional surgery survive 5 years (1, 7, 8, 9). Despite solid theoretical ground, chemotheraphy combined with surgery (both in adjuvant, and neo-adjuvant models) did not result in the expected improvement of treatment results (1,
Therefore, we anticipate that this improvement should follow the more radical surgical treatment in a selected group of patients with esophagogastric junction carcinoma.

Histological diagnosis of the tumor in our patient group was always accompanied by histological type identification, according to Lauren’s classification. The diagnosis of diffuse type may indicate the potential possibility of multifocal location. This information is important when planning the extent of gastric resection. We believe (exceptional cases excluded) that subtotal resection is justified only in intestinal type carcinoma. Analysis of histological tumor types in our material indicates a slight increase in the proportion of different neoplasms in favor of intestinal types located at the esophagogastric junction.

Table 7. Postoperative mortality in patients with esophagogastric junction carcinoma

<table>
<thead>
<tr>
<th>Procedure</th>
<th>1987-1998</th>
<th>1999-2005</th>
<th>Razem / Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastrectomy</td>
<td>4/95 (4.2%)</td>
<td>2/52 (3.8%)</td>
<td>6/147 (4%)</td>
</tr>
<tr>
<td>Gastrectomy + lower esophageal resection (via laparotomy)</td>
<td>3/54 (5.5%)</td>
<td>1/16 (6.2%)</td>
<td>4/70 (5.7%)</td>
</tr>
<tr>
<td>Gastrectomy + lower esophageal resection (via thoracotomy)</td>
<td>1/21 (4.7%)</td>
<td>1/21 (4.7%)</td>
<td></td>
</tr>
</tbody>
</table>

Table 8. Postoperative complications in patients undergoing laparotomy with diaphragm incision vs laparotomy + thoracotomy

<table>
<thead>
<tr>
<th>Complication</th>
<th>Laparotomy + thoracotomy (n=21)</th>
<th>Laparotomy (n=70)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wound infection</td>
<td>5 (23%)</td>
<td>9 (12.8%)</td>
</tr>
<tr>
<td>Bleeding requiring reintervention</td>
<td>0</td>
<td>1 (1.4%)</td>
</tr>
<tr>
<td>Anastomotic leak</td>
<td>1 (4.7%)</td>
<td>2 (2.8%)</td>
</tr>
<tr>
<td>Respiratory and circulatory</td>
<td>4 (19%)</td>
<td>3 (4.3%)</td>
</tr>
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Fig. 1. Survival rate of patients with gastric cancer

Fig. 2. Survival rate of patients with esophagogastric junction cancer

Fig. 3. Survival rates in relation to tumor location 1987-1998 (marker -u-) and 1999-2005 (marker ---)
filtrating muscular or subserous layer (T2) was present in 21% of patients treated before 1999 and in 30% – thereafter. The T3 patients (infiltration of serous layer) constituted 34% and 46%, respectively. Tumor invasion of adjacent tissues (T4 – infiltration of adjacent tissues) was present, respectively, in 34% and 23% of patients. No differences were found between patients with gastric and esophagogastric junction cancer with respect to the depth of tumor infiltration.

A higher incidence of respiratory complications following thoracotomy (19% as compared with 4.3% in patients after laparotomy alone) is highly associated with this approach. The crucial issue is to be aware of the possibility of such complications, which allows their prevention, early diagnosis and appropriate treatment. Careful preoperative assessment is still the most effective method of prevention.

In the first of the analyzed periods, the treatment results of both esophagogastric junction and more peripheral gastric cancers were unsatisfactory. Very low 5-year survival rates (6% and 24%, respectively) could result from the advancement of cancer at the moment of diagnosis and attempt to treat. Such a discrepancy cannot be explained by differences in tumor biology, but rather can be ascribed to the imperfection of therapeutic methods themselves. The tumor located in the gastric cardia requires different tactic of surgical treatment than more peripheral cancer.

In esophagogastric junction cancer, the greatest proportion of metastatic lymph nodes was noted in the anatomically closest lymph nodes groups: pericardial, lesser curvature, left gastric artery, celiac axis and splenic artery nodes. The frequency of lymph node involvement in these groups is an absolute indication for wide lymphatic excision in patients with advanced gastric cancer.

A very important element of analysis was the assessment of surgical excision. Cancer location at the border of esophagus and stomach makes the margin of healthy tissues excision above the tumor (cranially) a crucial aspect of this assessment. In 34% of patients operated on before 1999, this margin averaged 3 cm and in slightly more than one third (35.7%) exceeded 4 cm. Only in single cases (3.2%), the cranial margin of healthy tissues excision was greater than 7 cm. These results persuaded the authors to change the tactic in 1999. The additional right thoracotomy approach is necessary to obtain the required, satisfactory cranial margin. Following adoption of this tactic, the results of surgery improved with respect to healthy tissue margins: the margin of less than 3 cm was obtained in only 18%, in 59% of patients it exceeded 4 cm and in 10.3% of cases – 7 cm.

Analysis of the mortality rate graphs in patients with esophagogastric junction cancer yields interesting results. The trend lines diverge with time of observation reaching greater than a 10 per cent difference in favor of the group operated on during 1999-2005. This difference, however clearly visible on the graph, does not reach statistical significance, although the survival rate of the later-treated group is threefold higher (18 and 6%, respectively). Such an important difference reveals itself after five years of surgery. An interesting fact is that the survival rate following gastric resection for cancer remains practically unchanged during the 20 years observation period – both survival curves are practically parallel and the differences at checkpoints do not exceed a few percentage points.

Postoperative mortality in patients undergoing gastric resection was similar in both periods analyzed and equaled 4%. Mortality following gastric, combined with lower esophageal resection (via thoracotomy), did not change either and averaged 5.7%. In our study, the mortality rate in patients following right-sided thoracotomy did not exceed 5 per cent. This proves that assuming the correct qualification for surgery he surgical approach by laparotomy enlarged by thoracotomy can be safely applied.

**DISCUSSION**

The essential question in the treatment of esophagogastric junction cancer establishes individual surgical tactics based on both tumor advancement and general patient condition.

Despite the undeniable progress in diagnostic imaging techniques used in the preoperative stage, the final decision with respect to the feasibility and extent of resection is made during surgery. The correct assessment requires the appropriate surgical approach. In the authors’ department, a bilateral subcostal incision (supplemented by longitudinal incision towards the xyphoid, if needed) has been employed.
for several years. After placing mechanical retractors, this approach enables good insight into and inspection of the upper abdomen and facilitates the assessment of cancer advancement. In each patient with esophagogastric junction tumor, the extent of lower esophageal infiltration is assessed after its mobilization. If necessary, the diaphragm is sectioned for several centimeters from the esophageal hiatus towards the xiphoid process.

Setting apart the tumor types (I, II i III) created the opportunity to almost didactically systematize surgical tactics for each cancer type. The original sources forecasted the total thoracic esophagus and partial stomach resection in type I; esophageal and gastric resection in type II and gastric with lower esophageal resection in type III tumors (3).

From the practical point of view, it seems that type I tumors should be considered esophageal tumors and treated as such from the surgical tactics standpoint (8, 10).

Establishing differences between type II and III cancers seems justified only in less-advanced tumors, as in more advanced lesions total gastrectomy remains a rule. The essential question, in view of the radical procedure, is the extent of cancer infiltration of the lower esophagus. In our opinion, obtaining the desirable margin of healthy tissue in the cranial direction (measured from the upper tumor border) requires excision of 6-7 cm of macroscopically healthy esophagus. Tumors reaching 4 cm and more cranial to the esophagogastric junction can seldom (if ever) be radically and safely excised without performing a thoracotomy. Our results of tumor-free margin examination in the excised specimens (presented in Table 6) prove that changes in the approach policy resulted in increasing free margin values in patients treated during 1999-2005, as compared with 1987-1998. They remain, however, unsatisfactory compared to our expectations of reaching 6-7 cm margins in the majority of patients. The assumption of reaching these values was realized in only about 20% of cases. These findings clearly demonstrate the tendency of surgeons to underestimate the extent of tumor esophageal infiltration.

It seems that identifying better methods of preoperative assessment of tumor advancement, as only in patients with cancer limited to the cardia, is necessary. This may be confirmed by the fact that many patients die following radical resection from cancer, but seldom die from local tumor recurrence. Future research should aim to identify small cancer cell clusters outside of the primary focus. It is anticipated that this could prevent performing serious, expensive and crippling operations in patients, in whom the tumor has already crossed local and regional barriers. However, the limitations of current diagnostic methods prevent clinicians from early diagnosis. It is possible that patient comfort on palliative, symptomatic therapy could be far better than following aggressive surgical treatment, however this issue remains a purely theoretical consideration that requires further clinical study.

CONCLUSIONS

1. Thoracotomy and laparotomy together do not increase perioperative mortality when used for esophagogastric junction cancer resection, as compared to laparotomy alone.
2. Despite extending the procedure by lower esophageal resection via thoracotomy, the tumor-free margins of esophageal excision remained unsatisfactory.
3. The results of gastrectomy for cancer, which are defined as post-resectional survival rates, remained practically unchanged in the authors’ material during the last 20 years.
4. The improvement of treatment results for esophagogastric junction cancer have to be sought in more precise preoperative diagnostic methods of general tumor advancement as well as in more aggressive, wider surgical approach to the esophagus to achieve a desirable 7-cm tumor-free margin.

REFERENCES

There are several reasons in which “The Polish Journal of Surgery” readers should be interested in the problem of esophagogastric junction carcinomas. The two most important include the increased incidence of above-mentioned neoplasms and poor treatment results, which have remained unchanged during the past years (1). Many controversies considering patient management with esophagogastric junction carcinomas might be associated with problems of defining the precise localization of the junction. Currently, the following esophagogastric junction criteria are defined: a) pathological criterion—transition from the tubular esophagus to the saccular stomach evaluated after surgical removal of the tumor; b) radiological criterion—His angle, and c) endoscopic criterion—proximal border of stomach folds evaluated before tumor resection, although precise evaluation is often difficult, due to neoplastic infiltration. Depending on the localization of the tumor center relative to the esophagogastric junction determined on the basis of the above-mentioned criteria the following classification of esophagogastric junction carcinomas was established and accepted by the International Society of Esophageal Diseases and Gastric Cancer in 1997 (2). Three types of esophagogastric junction carcinomas were distinguished: type I—center of the tumor localized 1-5 cm above the anatomical esophagogastric junction; type II—center of the tumor localized 1 cm above and 2 cm below the anatomical esophagogastric junction; type III—center of the tumor localized 2-5 cm below the anatomical esophagogastric junction.

It is commonly accepted that type I is considered an esophageal adenocarcinoma that developed on the basis of intestinal metaplasia, which infiltrates the esophagogastric junction and should be treated similarly to esophageal carcinoma. Type III carcinoma originates from the subcardia of the stomach infiltrating the esophago-gastric junction.

The most often recommended procedure is extensive total gastrectomy with transhiatal resection of the distal part of the esophagus (3). Most controversies are associated with the origin of type II carcinoma and the extent of resection. Esophagogastric junction carcinoma, similarly to other epithelial neoplasms spreads by infiltration, as well as the lymphatic and blood systems. The presence of metastasis renders impossible oncological radicality. In case of patients with locally advanced cancer oncological radicality seems essential, not only considering organ removal (proximal and distal margin, surroundings), but also the excision of the lymphatic system. In case of patients with esophagogastric junction carcinomas mediastinal lymph nodes infiltration is diagnosed in nearly 40% of cases (4). Thus, considering the clinical point of view oncological radicality is possible after assuring proper margin resections free of neoplastic cells, as well as a suitable approach for the excision of the mediastinal lymphatic system. Huschler i u. sp. (5) demonstrated that the resection of an esophageal adenocarcinoma by means of thoracotomy is beneficial considering patient survival, in comparison to the transhiatal approach. Other publications also demonstrated the decreased risk of mediastinal can-
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Erect recurrence in patients subjected to thoracotomy. Thus, the expansion of the surgical procedure in case of esophagogastric junction carcinomas might improve the unsatisfactory treatment results. Differentiation of esophagogastric carcinomas might be based on the molecular characteristics of adenocarcinomas. Apart from indicating the type of cancer, one might be able to determine the prognostic value of oncogene expression changes, apoptosis suppressor genes, as well as their protein products (6). It is important to determine the correlation between molecular analysis and clinico-pathological parameter results using standard statistical methods, and the neural network (7). The above-mentioned is important in the identification and qualification of patients towards optimal therapy, considering patients with esophagogastric junction carcinomas. The presented study is valuable, touching the discussed problem in literature data.

REFERENCES


Prof. dr hab. Grzegorz Wallner
Kierownik II Katedry i Kliniki Chirurgii Ogólnej,
Gastroenterologicznej i Nowotworów Układu
Pokarmowego AM w Lublinie