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original article

Surgical treatment of the adenocarcinoma of the cardia

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SUMMARY: **Surgical treatment of the adenocarcinoma of the cardia.**

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Adenocarcinomas of the esophagogastric junction should be classified into adenocarcinoma of the distal esophagus (Type I), true carcinoma of the cardia (Type II), and subcardial carcinoma (Type III) in a pathogenic and therapeutic point of view. During a 15-year period (1995 - 2009), 117 surgical laparotomies for adenocarcinoma of the cardia were performed in elective surgery in the First Clinic of General Surgery UHC "Mother Theresa" in Tirana. The classification was performed by summarizing the information obtained from oral contrast radiography, endoscopy, and intra-operative findings. There were 54 (46%) patients of Type I, 40 (34%) of Type II and 23 (20%) of Type III .

Surgical procedures included "subtotal esophagectomy and proximal gastrectomy", "distal esophagectomy and proximal gastrectomy", "total gastrectomy and distal esophagectomy". All anastomoses performed in the above mentioned procedures were hand sewn.

Thirty-seven patients (32%) resulted inoperable at the time of laparotomy and 80 (68%) patients were treated with curative intent, those resulting in an operability index of 68%. The overall morbidity and mortality rates of 29% and 4,3% respectively.

RIASSUNTO: **Terapia chirurgica dell'adenocarcinoma del cardias.**

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Gli adenocarcinomi della giunzione esofago-gastrica possono, da un punto di vista patogenico e terapeutico, essere classificati in adenocarcinomi dell'esofago distale (Tipo I), veri carcinomi del cardias (Tipo II) e carcinomi subcardiali (Tipo III).

In un periodo di 15 anni (1995-2009), nella Prima Clinica Chirurgica del Centro Ospedaliero Universitario "Madre Teresa" di Tirana sono state effettuate 117 laparotomie per adenocarcinoma del cardias. La classificazione è stata fatta considerando l'insieme dei dati raccolti dalla radiologia con mezzo di contrasto orale, dall'endoscopia e dai reperti intraoperatori. Si classificavano 54 pazienti (46%) con tumore di Tipo I, 40 (34%) con tumore di Tipo II e 23 (20%) con tumore di Tipo III.

Le procedure chirurgiche effettuate sono state "esofagectomia subtotale con gastrectomia prossimale", "esofagectomia distale con gastrectomia prossimale" e "gastrectomia totale con esofagectomia distale". In tutti i casi le anastomnosi venivano confezionate a mano.

Trentasette pazienti (32%) risultavano inoperabili alla laparotomia ed 80 (68%) pazienti venivano trattati con intento curativo, risultando così un indice di operabilità del 68%. Gli indici di morbidità e di mortalità risultavano rispettivamente del 29% e del 4,3%.

KEY WORDS: Cardia - Adenocarcinoma - Surgery.
Cardias - Adenocarcinoma - Chirurgia.

Introduction

The incidence of adenocarcinoma of the cardia is rising in the Western countries (1, 2) and in Albania. The first anatomic classification of the adenocarcinoma of the esophagogastric junction was published by Siewert and Stein (3) in 1996 and was latter accepted internationally. The surgical treatment of the adenocarcinoma of the cardia is strictly connected with the type of the Siewert classification (4). Our present study aims to give a complete overwiew of the surgical treatment of the patients with adenocarcinoma of the cardia, classified according to Siewert, in the First Clinic of General Surgery UHC "Mother Theresa", Tirana, Albania in the past fifteen years.

Patients and methods

The medical, patologic and operative records of 117 patients who undervent elective surgery in the First Clinic of General Surgery UHC "Mother Theresa" in Tirana for the diagnosis of the adenocarcinoma of the cardia from January 1, 1995 till December 31, 2009 were

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TABLE 1 - SIEWERT CLASSIFICATION OF THE ADENOCARCINOMA OF THE CARDIA.

	Description
Type I	Adenocarcinoma of the distal esophagus with the center located within 1 cm above and 5 cm above the anatomic esophagogastric junction.
Type II	Adenocarcinoma of the cardia with the tumor center within 1 cm above and 2 cm below the anatomic esophagogastric junction.
Type III	Subcardial adenocarcinoma with the tumor center between 2 and 5 cm below the anatomic esophagogastric junction.

TABLE 2 - DEMOGRAPHIC DATA OF ALL PATIENTS (n. 117).

Data	
Sex	
Males	87 (74,4%)
Females	30 (25,6%)
M : F ratio	2,9 : 1
Age, yrs (range)	
Males	58 ± 11 (23 – 79)
Females	60 ± 12,1 (37 – 78)
All patients	59 ± 10,3 (23 – 79)
79 (67,5%) patients were of the age group 51-70 years.	

reviewed and analysed in detail.

The anatomic localisation of the tumor of the esophagogastric junction was classified using Siewert classification (3, 5) (Table 1).

The perioperative staging of the adenocarcinoma of the cardia was made according to the UICC/AJCC classification for esophageal and gastric cancer (6-8).

Surgical procedures included subtotal esophagectomy and proximal gastrectomy, distal esophagectomy and proximal gastrectomy and total gastrectomy and distal esophagectomy. All anastomoses performed in the above mentioned procedures were hand sewn.

Postoperative complications were defined as those occurring during hospitalization or within 30 days of surgery. Mortality was defined as deaths occurring in hospital (9).

Data were shown as means ± SD (ranges). The statistical analysis was made using Medical Sciences Statistical package. Significance was defined as P< 0,05.

Results

From 1995 to 2009 (15 years), 117 patients underwent surgery in the First Clinic of General Surgery UHC "Mother Theresa", in Tirana, for the diagnosis of adenocarcinoma of the cardia. Demographic data of all patients are given in Table 2.

There were 54 (46%) patients of Type I, 40 (34%) of Type II and 23 (20%) of Type III according to the Siewert classification. The percentage of male patients was higher than that of the female patients, but there were no evident gender differences between the three types. The mean age of the patients was similar in each of types.

The patologic characteristics of tumor are given in Table 3. The Barrett esophagus was mainly found in Type I patients, but poorly differentiated and undifferentiated cancer was mainly found in Type II and III patients.

The perioperative TNM staging of all patients is given in Table 4.

From 117 patients, 37 (32%) resulted inoperable at the time of laparotomy. Overall operability index was 68%; 80 (68%) patients were treated with curative intent, as shown in Table 5.

TABLE 3 - PATHOLOGIC FINDINGS.

Classification	All pts (n 117)	Type I (54 pts)	Type II (40 pts)	Type III (23 pts)
Intestinal metaplasia in distal esophagus ("Barrett esophagus"), n	34 (29%)	24 (44%)*	7 (17,5%)	3 (13%)*
Poorly differentiated and undifferentiated cancer, n	61 (52%)	21 (39%)*	23 (57,5%)	17 (74%)*

**P< 0,01.*

TABLE 4 - PATHOLOGIC FINDINGS.

TNM stage	All pts (n 117)	Type I (54 pts)	Type II (40 pts)	Type III (23 pts)
1, n	6 (5%)	3(5,5%)	2 (5%)	1 (4,3%)
2, n	36 (31%)	23 (42,7%)*	9 (22,5%)	4 (17,4%)*
3, n	40 (34%)	18 (33,3%)	14 (35%)	8 (34,8%)
4, n	35 (30%)	10 (18,5%)*	15 (37,5%)	10 (43,5%)*

** P< 0,01*

TABLE 5 - SURGICAL PROCEDURES IN ALL PATIENTS (n 117).

Classification	All pts	Type I (54 pts)	Type II (40 pts)	Type III (23 pts)
Subtotal esophagectomy and proximal gastrectomy, n	39 (33%)	35 (65%)	4 (10%)	0
Distal esophagectomy and proximal gastrectomy, n	24 (20,5%)	8 (14,6%)	13 (32,5%)	3 (13%)
Total gastrectomy and distal esophagectomy, n	17 (14,5%)	0	5 (12,5%)	12 (52%)

TABLE 6 - OVERALL MORBIDITY AND MORTALITY (n 117).

Classification	All pts (n117)	Type I (54 pts)	Type II (40 pts)	Type III (23 pts)
Morbidity, n	34 (29%)	12 (22%)	13 (32,5%)	9 (39%)
Mortality, n	5 (4,3%)	2 (3,7%)	2 (5%)	1 (4,3%)

Of the 80 curative resection patients, 43 (79,6%) were Type I, 22 (55%) were Type II and 15 (65%) were Type III. These percentages represent also the operability index for each type.

The histopatological examination of all resected specimens resulted; poorly differentiated and undifferentiated adenocarcinoma in 52% of cases.

Overall postoperative morbidity and mortality were respectively 29% and 4,3% (Table 6).

The most common postoperative complications were anastomotic leak in 9 (7,7%) patients and cardiopulmonary complications in 8 (6,8%) patients (Table 7).

TABLE 7 - POSTOPERATIVE COMPLICATIONS IN ALL PATIENTS (n 117).

Complication	Pts, n	%
Anastomotic leak	9	7,7
Cardiopulmonary complications	8	6,8
Wound infection	7	6
Urinary tract complications	5	4,3
Postoperative haemorrhage	4	3,4
Intraabdominal collections	3	2,8

Discussion

In Albania, because of the lack of clear definition and classification, the cancer of cardia has sometimes been considered and treated as distal esophageal cancer, sometimes as proximal gastric cancer. Using Siewert's classification, the cancer of cardia can be treated as a separate entity (3, 4, 5, 9). In the present study

was found that 46% of all patients were Type I, or distal esophagus adenocarcinoma. This finding perhaps relates with the fact that intestinal metaplasia (Barrett esophagus) was present in 29% of our patients. 64% of all patients were stage 3/4 according to TNM classification, resulting in a relatively low operability index (68%). The advanced stage of tumor was perhaps a consequence of the delayed diagnosis.

In the present study different surgical techniques were used in relation with the type of the adenocarcinoma of the cardia. For Type I tumor, a subtotal esophagectomy with proximal gastrectomy was the operation of choice in 65% of cases. For Type II tumor, the majority of patients were treated with distal esophagectomy and proximal gastrectomy (32,5% of patients), while a minor number of patients was treated with subtotal esophagectomy and total gastrectomy. Type III tumors were mostly treated through total gastrectomy with distal esophagectomy (52% of cases). The overall morbidity and mortality rates were of 29% and 4,3%, respectively, comparable to those reported by other authors (4, 5, 10, 11).

Conclusion

In conclusion, the surgical treatment of adenocarcinoma of the cardia is improved by the use of different techniques related to the type of tumor according to the Siewert classification (4, 5, 9, 10, 12).

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