

Clinicopathological characteristics and prognosis of gastric adenocarcinoma patients

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Abstract

Aim: It was aimed to examine the clinicopathological characteristics of gastric adenocarcinoma patients detected in our center, to determine their prognosis and to present our experience.

Material and Methods: Eighty patients with primary gastric adenocarcinoma who had undergone gastrectomy operation between the years 2011 and 2015 were included in the study. The clinicopathological characteristics of the patients were evaluated. The parameters examined in the patients were age, gender, localization of tumor, histological type, the degree of differentiation, lymphatic invasion, perineural invasion, lymph node metastasis, depth of tumor invasion, tumor stage, and postoperative prognosis indexes.

Results: The average age of 80 patients with primary gastric adenocarcinoma was 70, and the age range was 33-86. Our patients consisted of 48 males and 32 females. Of the patients, 72.5% were the intestinal type, 17.5% were the diffuse type, and 10% were the mixed type. While 11.3% of the tumors were well differentiated, 46.3% were moderately differentiated, and 42.5% were poorly differentiated. 82.5% of the patients had a lymphatic invasion, 70% had a perineural invasion, and 82.5% had lymph node metastasis. While 65.0% of the patients had localization in the distal of the stomach, 35.0% of them had proximal localization. While serosa invasion was observed in 85.0% of the patients, mucosal invasion and muscularis propria invasion were observed in 5.0% and 10.0% of the patients, respectively. Of all the patients, six were stage I, 15 were stage II, and 59 were stage III. It was determined that overall survival (OS) was 15 months and recurrence-free survival (RFS) was 14 months.

Conclusion: Distal localization was more common in gastric adenocarcinomas. When gastric cancers were detected, they were usually advanced stage, and the prognosis was poor. Therefore, early diagnosis is important.

Keywords: Clinicopathological characteristics; gastric cancer; prognosis.

INTRODUCTION

Gastric cancer is the fifth most common cancer in the world. It is the fifth cancer after lung, prostate, colorectal and bladder cancers in men and after breast, colorectal, lung and endometrial cancers in women. Gastric cancer is rare before the age of 40 years. However, it increases rapidly after the age of 40 years and peaks in the seventh decade (1). The male/female ratio has been reported as 1.6:1 (2).

Gastric cancer is the second and third most common cancer-related cause of death in men and women, respectively, in our country (3). Approximately one million (952.000) new cases of gastric cancer emerged in the world in 2012 (4).

Helicobacter pylori infection, smoking, obesity, excessive

salt and alcohol use, smoked foods, pernicious anemia, previous gastric surgery, chronic atrophic gastritis, and hereditary syndromes (hereditary nonpolyposis colon syndrome, Peutz-Jeghers syndrome, hereditary diffuse gastric cancer) can be listed among the causes of gastric carcinoma (5,6).

Adenocarcinoma is the most common histological type of gastric cancer and constitutes more than 95% of gastric tumors. The remaining 5% are lymphomas, leiomyosarcomas, carcinoid tumors, carcinosarcomas, and squamous cell carcinoma (7).

The prognosis of gastric carcinomas is usually poor. The reason for this is the delay in diagnosis. The majority of cases are in the advanced stage when they are diagnosed (8).

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MATERIAL and METHODS

Eighty patients with primary gastric adenocarcinoma who had undergone gastrectomy operation between the years 2011 and 2015 and were diagnosed in the Pathology department of our center were included in the study. The patients were retrospectively included in the study. Patients' information was obtained from computer records and medical records.

Pathology reports of the patients were evaluated. The patients were evaluated in terms of age, gender, histological type, depth of invasion, lymph node metastasis, localization of tumor, lymphatic invasion, perineural invasion, the degree of differentiation, tumor stage, overall survival (OS), and recurrence-free survival (RFS).

Recurrence-free survival time was calculated as the period from the date of diagnosis until the date of recurrence or the last date of control. OS was calculated as the period from the date of diagnosis until the date of death or the last date of control.

RESULTS

Eighty patients with primary gastric adenocarcinoma consisting of 32 females and 48 males were analyzed in this study. The average age of the patients was 70, and the age range was 33-86. Of the patients, 58 (72.5%) were the intestinal type, 14 (17.5%) were the diffuse type, and 8 (10%) were the mixed type (intestinal diffuse type). While nine (11.3%) of them were well-differentiated, 37 (46.3%) were moderately differentiated, and 34 (42.5%) were poorly differentiated. 66 (82.5%) of the patients had a lymphatic invasion, 56 (70%) had a perineural invasion, and 66 (82.5%) had lymph node metastasis. While 52 (65.0%) of the patients had localization in the distal of the stomach, 28 (35.0%) of them had proximal localization. While serosa invasion was observed in 68 (85.0%) of the patients, mucosal invasion and muscularis propria invasion were observed in four (5.0%) and 8 (10.0%) of the patients, respectively. Of all the patients, 6 were stage I, 15 were stage II, and 59 were stage III (Table 1).

It was determined that overall survival was 15 months and RFS was 14 months.

Table 1. Clinicopathological characteristics of gastric adenocarcinoma cases

Characteristics	Total number	%
Sex		
*male	48	60%
*female	32	40%
Histology		
*intestinal	58	72.5%
*diffuse	14	17.5%
*mixed	8	10%
Differentiation		
*well	9	11.25%
*moderate	37	46.25%
*poorly	34	42.5%
Lymphatic invasion	66	82.5%
Perineural invasion	56	70%
Lymph node metastasis	66	82.5%
Tumor location		
*proximal	28	35.0%
*distally	52	65.0%
Depth of invasion		
*mucosa	4	5%
*muscularis propria	8	10%
*serosa	68	85%
TNM Stage		
*I	6	7.5%
*II	15	18.75%
*III	59	73.75%

DISCUSSION

Gastric cancer is one of the most common causes of death in the world; it is more common in men and peaks in the 7th decade (9,10). In our study, when the average age and gender distribution of the patients were taken

into consideration, we determined a dominance of male patient and an increase in the incidence of gastric cancer at the age of 70, similarly to the literature.

One of the risk factors for gastric adenocarcinoma is the ethnic origin. Its incidence is high in Japan, East Asia,

South America, and Eastern Europe and lower in Canada, Northern Europe, and Africa (11). Diet and environmental factors are also risk factors. In the study by Ramon et al., it was reported that the foods with high salt content, nitrate, nitrite and secondary amines were associated with gastric cancer (12). It is believed that overconsumption of salted or pickled foods causes atrophic gastritis (1). Calcium, vitamin A and vitamin C protect the gastric mucosa and decrease the formation of N-nitroso which is a carcinogenic component (1). Most gastric carcinomas are sporadic, and 8% -10% of them show family inheritance (13). H.Pylori is also an important risk factor. Some studies have shown that patients have H. pylori infection 10 years or more before the diagnosis of gastric cancer (14,15). Other risk factors are chronic atrophic gastritis, hypertrophic gastropathy, gastric polyps, low socio-economic status, and obesity (1,11).

In many studies carried out in recent years, it has been reported that there is an increase in the incidence of proximal gastric cancer (16,17). Cardia and lower esophageal cancers have recently increased in Europe and North America (18). Gastric carcinomas with distal localization are still more frequent in our country (65%). It is considered that the most probable cause of the decrease in the incidence of tumors in the distal part of the stomach is H. Pylori eradication. It is thought that the increase in tumors localized in the upper 1/3 of the stomach is caused by the increase in the incidence of reflux esophagitis (19). In our country, it is thought that the reason for frequent gastric carcinomas with distal localization may be the inability to perform H. Pylori eradication completely. It has been reported that tumors with distal localization and tumors with proximal localization are more common in older people and younger people, respectively (20). In our study, the average age was 66 in the patients with proximally located gastric carcinoma and 69 in the patients with distal localization.

Gastric adenocarcinomas are divided into 2 major groups as the intestinal type and the diffuse type according to the Lauren classification (1,21). Diffuse-type non-cohesive cancer cells infiltrate the gastric stroma and do not cause gland formation (Figure 1). Diffuse-type adenocarcinoma frequently shows deep infiltration in the stomach (11). In the intestinal type, tumor cells form gland structures (Figure 2). Diffuse-type cancer is more common in young people and has a poor prognosis (11). It is reported that intestinal-type gastric cancer originates from the intestinal metaplastic gastric epithelium. Diffuse-type cancer is unrelated to intestinal metaplasia (13,22). It is reported that diffuse-type gastric cancer originates from gastric fundic glands (23,24). Diffuse-type carcinoma, which is more common in young people, is also unrelated to atrophy of the gastric mucosa. Diffuse-type cancer infiltrates the stomach vertically, and lymph node involvement is frequent. Therefore, the prognosis is worse.

There are studies reporting that gastric cancer has a worse prognosis in young people (25,26). On the other

hand, there are also studies indicating that prognosis is not worse in young patients (23,27). Therefore, poor prognosis in young patients is controversial.

The invasion depth of the tumor is known as a poor prognostic factor. RFS and OS significantly decrease in the advanced stage. Similarly, the survival rate decreases as the number of metastatic lymph nodes increases. Patients with one or more metastatic lymph nodes have a worse prognosis than patients with negative lymph nodes have (28).

The prognosis is poor due to tumor recurrence and metastasis despite the advanced treatments. 90% of patients are in the advanced stage at the time of diagnosis. 5-year survival in gastric cancers is less than 20% (29). Between the years 1990 and 1994, it was determined that survival was 42% for 1 year and 23% for 5 years for both sexes (2). In terms of overall survival rates, these rates are higher in China and Japan. While the five-year survival rate varies between 30-57.1% for China, it is between 63.8-77.2% in Japan (30). It is considered that high rates are due to screening programs and the high rate of early gastric cancer in these countries. Our patients were followed up for an average of 14 months (6-60 months). During the follow-up period, recurrence was observed in 28 (35%) of the patients, and 53 (66%) of them died.

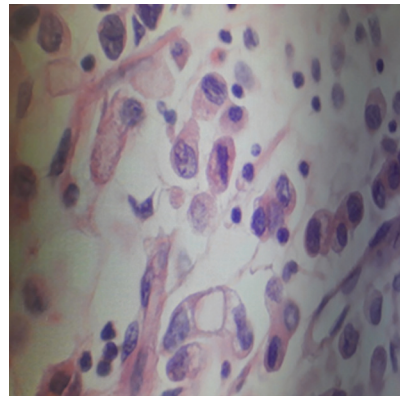


Figure 1. Diffuse-type gastric carcinoma: Noncohesive cancer cells infiltrate the gastric stroma and do not cause gland formation (HE, X600)

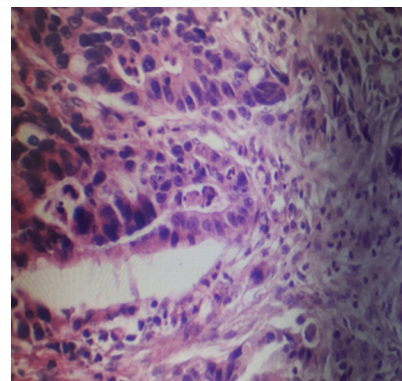


Figure 2. Intestinal type gastric carcinoma: Tumor cells form gland structures (HE, X400)

CONCLUSION

In conclusion, distal localization was more common in our gastric adenocarcinoma patients. When gastric cancers were detected, they were usually in the advanced stage, and the prognosis was poor. Therefore, early diagnosis is important.

Competing interests: The authors declare that they have no competing interest.

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Ethical approval: Our study was approved by the Regional Ethics Committee of Kayseri City Hospital and conducted in compliance with the medical protocols and ethics-related principles of the Helsinki Protocol.

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