

Gastric Carcinoma of Patients Who Underwent Curative Surgery; Clinicopathologic Study of 45 Cases

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Abstract: Gastric cancer is one of the major causes of cancer related-death in the world. Surgical removal of gastric tumors is the main therapy. Various studies reported different clinicopathologic features for gastric cancer. So in this study we evaluated the clinicopathologic characteristics and extent of gastric cancer surgeries. The study population included 45 patients who underwent surgery for gastric carcinoma (histopathologically proven gastric cancer) from 15 March 2009 to 1 June 2012, retrospectively. The study involved 25 male and 20 female patients with gastric cancer with mean age of 67 yr. In 64.6% of patients the tumor was located in the gastric antrum, 22.2 percent presented with cardia tumor. Based on Lauren's classification intestinal type was the most significant type of gastric cancer in the present research and diffuse type was noted in 10 participants (22.2%). A total gastrectomy was performed in 22 patients (48.8%) and 20 patients (44.4%) received subtotal gastrectomy. Bypass surgeries included gastrojejunostomy (32.7%), esophagojejunostomy (36%) and jejunojunctionostomy (31.1%). Moderate differentiated adenocarcinoma was the most common histologic type in our study (44.4%). Poor and well differentiated types were observed in 26.6%, 17.7% respectively. Antrum tumors were particular interest in majority of our study population which revealed localization of gastric cancer in north of Iran has distinct features. This study indicated that patients with gastric carcinoma presented with advanced stage. The outcomes would be better if patients with dyspepsia were examined with oesophagogastroduodenoscopy routinely and closely followed up.

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Introduction

Gastric cancer is the second reason of cancer associated-death, imposing one million new cases annually (Kamangar et al, 2004). The highest incidence is in Japan, South America and Eastern Europe (Charles et al, 1995). In Iran, mostly northern and north western areas have higher risk of stomach cancer while the central and western regions are at medium risk and the southern areas show a low risk (Sadjadi et al, 2003).

SM Mousavi et al (2009) reported the incidence rates of stomach malignancy (in IRAN) 15.21 and 8.89 in male and female, respectively. Environmental factors such as smoking, high salt intake and a diet with a low intake of antioxidants are predisposal factors in the pathogenesis of gastric cancer (Sadjadi et al, 2003).

Surgical resection of the gastric tumors is the main way of therapy in treatment of this cancer. Different rates of morbidity and mortality were reported for gastric cancer operation (Marrelli et al, 2007; Cuschieri et al, 1999; Brennan, 2005). Since more than half of the gastric cancer patients in the

Western countries present with stage III or IV the prognosis is poor (Hundahl et al, 2000). Sant et al indicated that 5-year survival of the gastric cancer patients in Europe is only 24.1% (Sant et al, 2009). In this relation, in USA in the period between 1999 to 2005, survival was 26.5%. In metastatic patients at initial presentation 5-year survival was lower than 5% (Horner et al, 2009).

This study was conducted to evaluate the clinicopathologic characteristics and extent of gastric carcinoma surgery in north of Iran and compare the results with other part of the world.

Materials and methods

The study population included 45 patients who underwent surgery for gastric carcinoma (histopathologically proven gastric cancer) at the department of surgery, Mazandaran University of medical sciences, Sari, Iran from 15 March 2009 to 1 June 2012, retrospectively. Diagnosis of gastric carcinoma was according to barium meal, esophagogastroduodenoscopy and biopsy. The ethics committee of the Mazandaran University of medical

sciences approved this study.

Extent of gastric cancer surgery

Tumors of the distal or middle third of the stomach were resected by 80% subtotal gastrectomy with a palpable 5cm margin. We used partial (50%) gastrectomy for high risk individuals and patients with advanced disease not appropriate for radical operation.

Reconstruction was applied after operation was antecolic gastrojejunostomy. patients with diffused cancer underwent total gastrectomy with Roux-en-Y reconstruction was applied. For unresectable tumors we just used palliative therapy including gastrojejunostomy, jejunostomy and laparotomy and biopsy only

Statistical analysis

For statistical analysis, data were entered to MS-excel spread sheets. The procedures included were transcription, preliminary data inspection, content analysis and finally interpretation. Investigators used frequencies, means and standard deviations and percentages to clarify epidemiological variables. For statistical analysis, SPSS software (Version 16, Chicago, IL, USA) was used.

Results

This series involved 25 male and 20 female patients with gastric cancer with mean age of 67 years (table1). Total gastrectomy was sufficient for 22 patients (48.8%) and 20 patients (44.4%) underwent subtotal gastrectomy. For bypass surgery gastrojejunostomy (32.7%), esophagojejunostomy (36%) and jejunojejunostomy (31.1%) were performed (table2). In 64.6% of patients the tumor was located in the gastric antrum, 22.2 percent had cardia tumor (table2).

Differences in the pathological distribution have been reported, including Lauren's classification and differentiation (Katai et al,1996; Wang et al 1996).

According to Lauren's classification intestinal type (30 patients, 66.6%) was the most significant type of gastric cancer in the current study went after by diffuse type 10 patients (22.2%) (table1). Moderate differentiated adenocarcinoma was the most common in our study (44.4%). Also poor and well differentiated types were reported in 26.6%, 17.7% respectively. Signet Ring Cell and mucinous type were observed in 6.6 % and 4.4% (table1).

Table1. Clinicopathological findings of the study populations

	Number Of Patients	(%)
Age (Mean ±SD)	67 ±24	
Sex		
Male	25	55.5
Female	20	44.4
Lauren's Type		
Intestinal	30	66.6
Diffuse	10	22.2
Mixed	5	11.1
Differentiation		
Well	8	17.7
Moderate	20	44.4
Poor	12	26.6
Signet Ring Cell	3	6.6
Mucinous	2	4.4

Discussion

This study aimed to evaluate the clinicopathological characteristics of patients who underwent curative gastric cancer surgery in sari, northern Iran population and compare them with those in different part of Iran and world. This study indicated in 64.6% of studied subjects the tumor was located in the gastric antrum, 22.2 percent showed to have cardia tumor, 6.6% and 4.4% had diffuse and body carcinoma respectively. Based on Lauren's classification intestinal type was the most type of gastric cancer in the current research.

The ratio of non-cardia to cardia cancer in low risk regions of Iran such as Khuzestan, south west Iran is high nearly 85%. An investigation by Abdi-Rad et al. (2006) has revealed that the proportion of patients with proximal stomach malignancy as compared to malignancies located in the mid and distal third of the stomach in the capital of Iran, Tehran, is increasing. But in this study, the most part of caners were localized in antrum (64.6%) and cardia tumors (22.2%) were in second degree. In this relation, Chris Deans et al (2011) studied the gastric cancer characteristics in Singapore and showed that tumors were located at the gastric cardia in 20% of the subjects, gastric antrum/distal stomach in 53% of the study population, and the other 27% were located in the gastric fundus, body, or diffusely including the stomach. They reported the incidence of proximal gastric malignancy was increasing in Singapore. Cardia tumors were correlated with poorer outcomes, providing evidences that cardia cancer is a definite disorder from true gastric cancer needing various treatment procedures to improve the outcome for such individuals. But in our study, tumor was located in the gastric antrum (64.6%), cardia (22.2%), diffuse (6.6%) and body (4.4%).

Total gastrectomy is a procedure which is performing for tumors located in the proximal or middle third of the stomach (Maruyama et al, 1996). When compared with a total gastrectomy, a proximal gastrectomy for proximal gastric tumor is correlated with a markedly more rate of complications (An et al, 2008). A distal gastrectomy is applied for distal gastric cancer with removing adequate margin. Two randomized trials evaluated the effect of total versus distal gastrectomy for distal gastric cancer, and revealed no variations in postoperative morbidity, mortality, or overall survival with more extensive resection (Bozzett et al, 1999; Gouzi et al, 1989).

Ahmed A et al (2011) showed that most part of (64.8 %) of their study population had antrum tumor. they revealed subtotal gastrectomy was performed in 32.3% of the patients while 9 % had partial gastrectomy. Total gastrectomy was performed just in 2.6%. Gastrojejunostomy was the commonest bypass surgery which was performed in their study. likewise, in our research 64.6% of the patients indicated localization of tumor in the gastric antrum and 22.2 percent had cardia tumor.). In consistent with their study, in our research, total gastrectomy was applied for 22 patients (48.8%) and 20 patients (44.4%) underwent subtotal gastrectomy. In this study for bypass surgery gastrojejunostomy (32.7%), esophagojejunostomy (36%) and jejunojunostomy (31.1%) were performed (table2).

Table 2. Type of surgical procedure and tumor localization in 45 patients

Tumor Location	Number Of Patients	(%)
Antrum	30	66.6
Body	2	4.4
Cardia	10	22.2
Diffuse	3	6.6
Gastric Resection		
Subtotal Gastrectomy	20	44.4
Total Gastrectomy	22	48.8
Partial Gastrectomy	3	6.6
Bypass Surgery		
Gastrojejunostomy	20	32.7
Jejunojunostomy	19	31.1
Esophagojejunostomy	22	36

Conclusion

This study provided evidences that antrum tumors are common type of cancer in northern Iran race which showed different characteristics of localization in comparison to other part of Iran. Most of the patients underwent total and subtotal gastrectomy with simultaneous bypass surgery. In this regard, further investigations are needed to confirm these outcomes.

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