ORIGINAL ARTICLE

OPERABILITY AND CURATIVE RESECTION RATE IN GASRTIC CARCINOMA: AN EXPERIENCE AT PESHAWAR, PAKISTAN

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ABSRACT

Background: Gastric carcinoma is the second leading cause of cancer related deaths in the world and the fourth most commonly diagnosed cancer worldwide. Curative therapy for gastric cancer involves surgical resection i.e. total or subtotal gastrectomy with an accompanying lymphadenectomy. The objective of this study was to determine the operability and curative resection rate of gastric carcinoma in our set up.

Material & Methods: This descriptive study was conducted at Surgical Unit, Kuwait Teaching Hospital Peshawar from May 2006 to July 2013. A total of 100 patients presenting to our unit with gastric carcinoma having age more than 18 years were included in this study.

Results: Out of total 100 patients, 71 underwent resection for gastric carcinoma (71% operability rate). Among these 71 cases, 52(73.23%) had subtotal gastrectomy and 19(26.76%) had total gastrectomy An R0 resection was performed in 40(56.33%) cases, and 20(28.16%) cases had microscopic positive margins.

Conclusion: Our results demonstrate that the operability rate for gastric carcinoma is 71% and curative resection rate of 56.33% in our set up.

KEY WORDS: Gastric carcinoma; Operability rate; Curative resection rate.

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INTRODUCTION

Gastric cancer is the second leading cause of cancer related deaths and the fourth most commonly diagnosed cancer worldwide.[1,2] There has been decrease in the incidence of gastric cancer but it is responsible for 989,600 new cases and 738,000 deaths have occurred in 2008 globally. The majority of these new cases and deaths occur in the developing countries.[3] The incidence of gastric cancer is low in South and Central Asia. The incidence of gastric carcinoma in Chennai, India is about 9.1 per 100,000while in Karachi it is 4.5 per 100,000.[2,4]

Theodor Billroth performed the first successful operation for gastric cancer, in Vienna, Austria on January 29, 1881.[5]Etiololgy of gastric cancer involves interaction between host factors, environmental factors and H. pylori infection.[6] The primary mode of treatment is surgical resection with R0 status (no residual tumour) and it is the only treatment considered curative for gastric cancer.[7]Curative therapy for gastric cancer consists of surgical resection, total or subtotal gastrectomy with an accompanying lymphadenectomy.[7, 8]Survival of gastric cancer patients is improved by adjuvant chemo-radiotherapy. It is now considered as a standard of care in the USA and should be considered in patients at high risk of recurrence who have not received neo-adjuvant therapy .[9]Nearly 40% of patients with locally advanced cancer experience recurrence after surgery.[10] According to a recent large meta-analysis, adjuvant chemotherapy reduces the recurrence rate.[11] When metastasis is confined to only one site, patients under 70 years of age get benefit from a palliative resection.[12]In patients with gastric carcinoma, resection whether curative or palliative improves survival.[13]

Curative resection of gastric cancer is performed with curative intent and involves gastrectomy with D2 lymphadenectomy and resection of adjacent involved organs.[14] On the average in Western countries, operability rate is 73.3% and curative resection

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rate is 30%. Locally, the operability rate is reported to be 66.7% and curative resection rate 33.3%.[8]

The aim of this study was to determine the operability and curative resection rate in our set up.

MATERIAL AND METHODS

This descriptive study was conducted in General Surgery Unit, Kuwait Teaching Hospital Peshawar from May 2006 to July 2013. A total of 100 patients presenting with gastric carcinoma having age more than 18 years were included in this study. Patients with non-adenocarcinoma of the stomach and those who refused surgical treatment were excluded. A written informed consent was obtained from all patients and approval for conduction of this study was taken from the hospital ethical committee.

Patients were staged preoperatively with an endoscopy and computed tomography of the abdomen and pelvis. Demographic and pathologic variables were recorded in a predesigned proforma.

All these patients were operated with a curative or palliative intent. All surgical procedures were performed by the same consultant surgeon. The type of resection was based on the tumour location. Subtotal gastrectomy was performed for the distal or antral cancers where 5 cm proximal margin could be easily attained. Total gastrectomy was performed for proximal cancers, linitis plastic and cancers involving the body of stomach where 5 cm proximal margin was not possible with a subtotal resection. Continuity was restored with Billroth-II gastrojujenostomy in cases of subtotal gastrectomy and end to side oesophagojujnostomy in cases of total gastrectomy. The extent of lymphadenectomy was tailored to the individual patient and was defined using the Japanese gastric cancer treatment guidelines classification. A D1 gastrectomy was defined as the removal of the primary plus the first level of draining nodes and a D2 resection the removal of all the first and second level of draining lymph nodes appropriate for a tumour at a particular primary site in the stomach. Level of lymph node dissection was based on per operative decision and according to the age of the patient. Patients less than 60 years of age were considered for D2 resection and those aged $\geq$60 for either a D1+ or D1 resection. Distal pancreatectomy and splenectomy were only performed in cases where there was suspicion of direct invasion or obvious involvement of the station 10 nodes and transverse colectomy was performed in patients with direct invasion of the transverse colon. Palliative resection (subtotal or total) was performed in patients with hepatic metastasis while palliative gastrojejunostomy was performed in patients with inoperable distal gastric tumours. In patients with inoperable tumours not suitable for gastric resection and bypass, only biopsy was obtained.

The data was analyzed by using Statistical Package for Social Sciences (SPSS) version 16.0. Age of the patients was calculated in median. Frequency and percentages were calculated for qualitative variables like gender and number of operable and curative resections.

RESULTS

Out of 100 patients, 77 (77%) were males and 23 (23%) females, with a male to female ratio of 3.4:1. The median age was 59 (Range 35-71) years in males and 63 (Range 38-65) years in females.

The locations of tumours are given in Table 1.

Among these patients 71 underwent gastric resection (71% operability rate). Among; 52 (73.23%) had subtotal and 19 (26.76%) had total gastrectomy. Gastrojejunostomy was performed in 15 (15%) patients and only biopsy was performed in 14 (14%) patients. (Table 2)

Table 3 shows the resection status of the gastric tumour. Sixty (84.50%) patients underwent resection with curative intent. Among these R0 resection was performed in 40 (56.33%) cases and 20 (28.16%) cases had microscopic positive margins which rendered the surgery palliative. Also palliative surgical resection was carried out in 11 (15.49%) patients with hepatic metastasis (7 subtotal and 4 total gastrectomy).

Table 1: Tumour location in gastric carcinoma patients (n=100).

Tumour site	Number	Percentage
Proximal	27	27%
Distal	67	67%
Body	3	3%
Linitis plastica	3	3%

Table 2: Procedure performed in cases of gastric carcinoma (n=71).

Procedure	Number	Percentage
Curative resection	**40**	**56.33%**
Subtotal Gastrectomy	28	70%
Total Gastrectomy	12	30%
Palliative resection	**31**	**43.66%**
Subtotal Gastrectomy	24	77.41%
Total Gastrectomy	7	22.58%

Table 3: Resection status of the gastric carcinoma.

Resection status	Number	Percentage
R 0	40	56.33%
R 1	20	28.20%

Table 4: Frequency of en bloc resection of adjacent organs in gastric carcinoma cases.

En bloc resection	Number	Percentage
Splenectomy alone	9	12.67%
Splenectomy with distal pancreatectomy	6	8.45%
Transverse colectomy	4	5.63%

Regarding nodal resection; 45 (63.38%) patients had D1 and 26 (36.61%) had D2 nodal resection. En bloc resection of adjacent organs was carried out in 19 (26.75%) cases. Spleen alone in 9 (12.67%), spleen with distal pancreas in 6 (8.45%) and transverse colon in 4 (5.63%) cases. (Table 4)

DISCUSSION

Gastric cancer is a major health problem around the world and a leading cause of cancer related death.[16,17] In Eastern Asia, including Korea and Japan, the incidence of gastric cancer is on high rise in spite of recent advances in the treatment and subsequent improvement in prognosis. On the contrary, South and Central Asia are low to moderate risk regions for gastric cancer, where the incidence has continuously decreased but the overall survival is worse compared to Eastern Asia.[4,18,19] Overall mortality in Pakistan is 13.3% despite of low incidence. This figure is high and it might be due to late presentation of the gastric carcinoma patient to the hospital.[8]

According to recent trials, multi modal therapy improves the outcome of gastric cancer patients. It is now a current recommended practice in Europe and USA to give multi-modal therapy to gastric cancer patient involving either surgery with perioperative chemotherapy or surgery along with postoperative chemo radiotherapy.[20-22] Similarly S-1 after D2 surgery is the standard treatment for patients with gastric cancer in Japan.[23] Despite recent advances in multimodality treatment and targeted therapy, radical (total or subtotal) gastrectomy is the gold standard of management of gastric cancer worldwide which confers the only chance of curing the disease.[16,24]

According to our results, gastric cancer was more prevalent in males (77%) as compared to females (23%). This result confirmed an observation made for gastric cancers in other international studies.[20,24, 25]

Based on our study results, gastric tumour was more common in distal stomach (67%). A study conducted at Karachi[5] and china[24] also observed the distal location more common as compared to the proximal. The incidence of proximal tumours is on increase while distal gastric cancers are on decline in the developed countries as well.[20,26]

In our study, 100 gastric cancer patients underwent surgery with operability rate of 71% and curative resection rate of 56.33%. These results are comparable with local study conducted in Karachi and also with western studies[7,8] but in contrast, 70-90% curative resection rate was observed in Japanese and Australian studies.[15,20]

Lymph nodes metastasis is the main prognostic factor for gastric cancer patients undergoing radical resection.[24] The standard of care varies worldwide. In a recently conducted study, D2 lymphadenectomy was associated with lower loco-regional recurrence and gastric cancer related death rates than D1 surgery after a median follow-up of 15 years.[27]

In our study en bloc resection of adjacent organs was also carried out (spleen alone 12.67%, spleen with distal pancreas 8.45%). Spleen-preserving D2 resection is recommended as a standard care of resectable gastric cancer in specialized centers.[27] A randomized controlled trial by the Italian Gastric Cancer Study Group showed no significant difference in postoperative mortality and overall morbidity between D1 and pancreas-preserving D2 gastrectomy. This study suggested that D2 resection is a safe option of radical gastrectomy.[28] Splenectomy and distal pancreatectomy, for removal of parasplenic and parapancreatic lymph nodes, are not recommended in D2 resections.[16]

Limitations of our study were lack of availability of endoscopic ultrasound facility to detect T stage of the disease and lack of utilization of neoadjuvant chemotherapy which could result in better operability and curative resection rate.

CONCLUSION

Our results demonstrate that the operability rate for gastric carcinoma is 71% and curative resection rate of 56.33% in our set up.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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