EVALUATION OF PALLIATIVE RESECTION IN GASTRIC CANCER PATIENTS

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ABSTRACT

Background: There is still controversy on the issue of palliative gastrectomy for patients with advanced carcinoma of stomach in terms of safety and its benefits. More and more patients need to be studied to settle down this controversy.

Methods: We analyzed data of advanced gastric cancer patients admitted at National Cancer Institute (NCI) and Zagazig university hospitals from June 2010 to June 2012 who underwent palliative gastric resection; regarding post-operative morbidity, mortality, number of hospital admission days, patient satisfaction and effect of all these factors on quality of life.

Results: Sixty patients were identified. Mean age was (53±11.5) years. Thirty-four patients were men (57%). 25% of patients have associated co-morbidity. Post-operative complications occurred in (23.3%) of patients, but most were minor. Mortality rate from operation was (6.7%). Mean number of hospital admission days were (8±3.3) days, none of our patients readmitted to hospital with mean survival 16±6.2 months. All patients tolerate semisolids pos-operatively and 11% only can't tolerate ordinary food.

Conclusion: Palliative resection has a reasonable morbidity and mortality rates, doesn't lead to elongation of hospital admission period, eliminates the tumour related complications minimizing the need of hospital readmission and thus improves the hospital free survival and quality of life. However, patients should be properly selected and those with preoperative medical diseases should be thoroughly prepared and managed.

Key words: Palliative gastrectomy; Metastatic; Palliation; Surgery

INTRODUCTION

Despite its recent decline, gastric cancer is the fourth most common cancer and the second leading cause of cancer-related death worldwide Because a screening program is not cost effective, most patients with gastric cancer present at an advanced stage [2]. Surgery, either palliative or curative resection, is the only option for advanced gastric carcinoma [3].

Palliative strategies are an essential component of gastric cancer management [4]. Surgical palliation of advanced gastric cancer may include resection or bypass, alone or in combination with endoscopic or percutaneous interventions. Studies evaluating palliative operations using operative bypass alone in the treatment of advanced gastric cancer have shown no or little benefit [5]. Several studies have suggested that resection may provide some survival benefit. However, the extended survival after palliative gastrectomy in other studies was associated with significant postoperative morbidity, prolonged hospital stay, and poor quality of life [2]. The aim of the present study was to evaluate patient outcome after palliative gastric resection for advanced gastric cancer.

Methods

This study involved sixty patients with advanced gastric cancer in the period from June 2010 to June 2012. Forty patients were operated upon at National Cancer institute (NCI) and the others at Zagazig University Hospitals. Each patient was assessed clinically in the form of: history taking, clinical examination, radiological, endoscopic, and laboratory investigations. Diagnosis was done by obtaining endoscopic biopsy from gastric lesion, and patients were assessed by preoperative CT abdomen and pelvis with contrast.

Pre-operative inclusion criteria for our study include presence of intra-abdominal metastases either peritoneal or hepatic; excluding those with two organ metastases, or those having extensive metastases at one site (such as extensive metastases at both liver lobes or extensive nodal metastases involving para-aortic nodes), or patients with un-resectable tumor. Patients may be selected intra-operatively if peritoneal or hepatic seedlings were missed by pre-operative image but found on exploration, or the tumor was found un-resectable but debulking operation was done (R2 resection). Our study also included patients who underwent curative resection but found to have microscopic metastases at resection margins (R1 resection).

Patient clinicopathological features, extent of disease, survival, operative mortality and morbidity, length of hospitalization, and readmissions were recorded. Hospital mortality was defined as death within 30 days or during the hospital stay. A simple questionnaire was carried post-operatively to evaluate patient satisfaction. This questionnaire composed of three questions about ability of patients to do normal activities and their tolerance to semisolids and ordinary food.

All patients received combined chemo-radiation therapy post-operatively except those with metastatic disease who received chemotherapy only. Follow up is done every 6

months by CT chest, abdomen and pelvis with contrast to detect response for treatment and local recurrence (in case of R1). The end point of follow up was patient death or termination of the study. Statistical analysis was done using the SPSS package for windows (version 19). Chi square test was used to compare difference between variables, while Fisher exact test was used to identify the association between variables

Results

The majority of patients were male (34 patients), with mean of age (53 ± 11.5). Demographic characteristics of study group are shown in (table 1). Figure (1) shows the distribution of patients according to time of selection. The operative morbidity, mortality rates are shown in table (2).

Post-operative admission day's ranges from 5-11 days with mean of (8± 3.3) days. None of our patients readmitted to hospital. The mean survival was 16 ± 6.2) months. Results of patient satisfaction questionnaire are shown in table 3. Effect of age, co-morbidities, extent of resection, and technique of anastomosis are shown in tables 4.5.6.7respectively.

Table1. The demographic characteristics of study participants

CHARACTER	*NUMBER*	*PERCENT*
Gender		
Male	**34**	**56.6**
Female	**26**	**43.4**
Mean of age was 53 years		
<53 years	**25**	**41.7**
≥53 years	**35**	**58.3**
Co-morbid diseases		
Yes:		
Diabetic	**5**	
Hypertensive	**5**	
History of MI	**3**	
Combined diabetic hypertensive	**2**	
Total	**15**	**25.0**
No	**45**	**75.0**

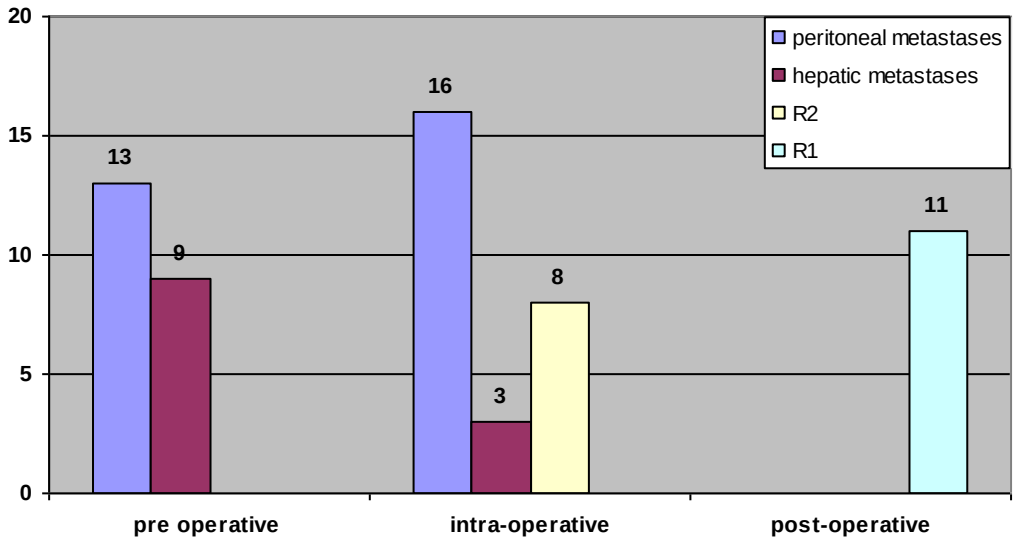

Figure 1. Distribution of patients according to time of selection and site of metastases

Table2. Post operative morbidity and mortality of the study group

	NUMBER	PERCENT
Post operative morbidity:		
No morbidity	**46**	**76.7**
Chest infection	**6**	**10**
Wound infection	**4**	**6.7**
Anastomtic break down	**4**	**6.7**
Total	**14**	**23.3**
Post operative mortality (within 30 days from operation)		
Yes	**4**	**6.7**
No	**56**	**93.3**

Table3. The results of post operative questionnaire

	Yes No (%)	No No (%)
Ability to do normal activity	**45 (80.4)**	**11 (19.6)**
Tolerance to semisolids	**56 (100)**	**0 (0)**
Tolerance to ordinary food	**47 (84)**	**9 (16)**

Table4. Relation between age and postoperative outcome

	Post operative morbidity		Chi-square	P value
	no No (%)	yes No (%)		
Age			**1.29**	**0.25**
<53	**21(45.6)**	**4(28.6)**		
≥53	**25(54.4)**	**10(71.4)**		
	Post operative mortality			
	no No (%)	**yes No (%)**		
Age				
<53	**24(42.8)**	**1(25.0)**	**Fisher exact test**	
≥53	**32(57.2)**	**3(75.0)**	**0.6**	

Table shows that age not significantly affects (p value > 0.05) post operative outcome.

Table5. Relation between co-morbidity and post operative outcome

	Post operative morbidity		P value
	no No (%)	yes No (%)	
Co- morbidity			**Fisher exact test**
No	**43(93.5)**	**2(14.3)**	**.000***
Yes	**3(6.5)**	**12(85.7)**	
	Post operative mortality		
	no No (%)	**yes No (%)**	
Co- morbidity			**Fisher exact test**
No	**45(81.4)**	**0(0)**	**0.002***
Yes	**11(19.6)**	**4(100)**	

(*)Statistically Significant

Table6. The relation between extended (multi-organ) resection and morbidity-mortality rates

	Post operative morbidity		P value
	no No (%)	yes No (%)	
Multi organ resection			
No	**40(87.0)**	**9(64.3)**	**Fisher exact test**
Yes	**6(13.0)**	**5(37.7)**	**0.1**
	Post operative mortality		
	no No (%)	**yes No (%)**	
Multi organ resection			
No	**45(80.4)**	**4(100.0)**	**Fisher exact test**
Yes	**11(19.6)**	**0(0.0)**	**1**

Table shows that multi organ resection not significantly affects (p value > 0.05) post operative outcome.

Table7. The relation between technique of anastomosis and morbidity-mortality rates

	Post operative morbidity		P value
	no No (%)	yes No (%)	
Type of anastmosis			**Fisher exact test 1**
Stapler	**7(15.2)**	**2(14.3)**	
Hand sewn	**39(84.8)**	**12(85.7)**	
	Post operative mortality		
	no No (%)	**yes No (%)**	
Type of anastmosis			**Fisher exact test**
Stapler	**9(16)**	**0(0)**	**1**
Hand sewn	**47(84)**	**4(100)**	

Table shows that type of anastomosis not significantly affects (p value > 0.05) post operative outcome.

DISCUSSION

The value of non curative resection was always a matter of debate. Some surgeons argue that there is no reason for risky operations in patients who have little chance to survive long specially that most of them have poor general condition [6]. Other claimed that the risk is reasonable and postoperative results are comparable to bypass or other palliative procedures. Also leaving the tumor inside the patient increases the risk of tumor related complications thus decreases the quality of life in these patients and increasing the dose of systemic therapy needed [7].

This work was designed to study the outcome of resection as a palliative procedure in advanced gastric cancer patients. Sixty patients were studied regarding post-operative outcome "morbidity-mortality" and factors affecting this outcome, number of admission days after operation, rate of readmission and effect of all these factors on quality of life.

Our study involves either patients with respectable tumor but have intra-abdominal metastatic disease, or the resection margins were not free either grossly (R2) or microscopically (R1). According to **Li et al** [8] there is no survival benefit from resection in patients with multiple metastatis, so, we pre-operatively excluded patients with multiple metastatic sites and also patients with extensive metastases.

Generally, we have 29 patients that were included into our study because of peritoneal metastases (either discovered pre or intra-

operative), 12 patients were included due to liver metastases, 8 patients have grossly invaded resection margins (R2), and 11 patients with microscopic invasion.

Postoperative morbidity rates recorded in the literature varies from 6% (in **Huang et al** [9] study) to 65% (in **Mizutani et al** [10] study). In our study postoperative morbidity results was 23%. Most of these complications are classified as general complications that are common to any other major operation; the only specific complication to resection is the anastomotic leakage which occurred only in four patients.

Postoperative mortality is defined by death related to the surgical technique within the first 30 days following surgery. In review of previous studies **(Nazli et al** [11] **& Kunisaki et al** [12]**)**; palliative resection mortality rates ranges approximately from 4% to 27%. Our study stated a 6.7% (four patients) mortality rate which is in line with results of these studies.

Most patients in our study were older than 50 years. The Dutch Trial **(Hartgrink et al 2002** [13]**)** discussed the effect of age on postoperative outcome and found that those above 70 years have a significantly higher morbidity rates, however, they found no difference in mortality rates between two groups. But we didn't found any effect of age on postoperative outcome (table 4), it is the when the general condition of the patient permits surgical intervention; age can't be an obstacle.

Fifteen of our patients have had co-morbidity (25%). We found that co-morbid conditions significantly affect post-operative results (table 5). This result supports the recommendation of **Huang et al** [14] to pay more attention to preoperative preparation of patients with medical diseases. Heart diseases, diabetes and other medical conditions should raise attention to more thorough investigation and postoperative care.

We tested the effect of extent of resection on postoperative morbidity and mortality rates and we found that it doesn't significantly affect the outcome of surgery (table 6). However, all cases that underwent extended multi-organ resection were originally classified as "curable by surgery", but postoperative pathology said that the margins were not free (R1); so they were included into our study. This means that multi-organ resection was tried when there were no signs for distant metastases, and thus patients were generally more fit than others; which may explain why there was no significant effect of this major procedure on outcome. This supports the finding of **Jeong et al** [15] who recommended multi-organ removal when R0 resection is most likely and no incurable factors are present.

Nine anastomotic lines were stapled and the others were hand sewn. **Seo et al** [16] compared stapling Vs hand sewn technique in gastric anastomosis; they proved benefit regarding the operation time but failed to prove evidence regarding anastomotic complication. We also didn't found any significant difference between stapled and hand sewn anastomosis regarding the postoperative complications (table 7).

Chang et al [17] found survival benefit from palliative resection when compared to non resection group. However, due to the short duration of our study this benefit can't be proved properly, but none of our participants has been died during the period of follow up, apart from those who died postoperatively, with mean survival of about 16 $\pm$ 6.2 months.

It may be argued that palliative resection is associated with elongation of postoperative hospital admission period which means more exhaustion of the medical resources and more exposure to hospital acquired infection. Our study found a mean of about 8 days regarding the postoperative hospital admission which is a reasonable period comparable to other palliative interventions. In addition, none of our patients needs readmission to hospital which means a good hospital free survival (HFS). **Ouchi et al** [18] consider HFS as an indicator for quality of life in advanced gastric cancer patients.

The results of the postoperative questionnaire stated that 80% of our patients can do their normal activities after operation and only 16% of them can't tolerate normal feeding. Although questionnaires are subjective and may be biased by the individual variation, however, it gives an idea about the value of the operation of patients and its drawbacks. **Samarasam et al** [19] used a similar questionnaire to evaluate patient satisfaction and quality of life in resection and non resection groups, and based on the results of his survey he concluded that quality of life was better in the resection group.

According to our results, palliative resection: has reasonable post-operative morbidity and mortality rates (23% and 6.7% respectively), reasonable postoperative hospital admission days (8 days), eliminates tumor related complications and subsequently doesn't lead to readmissions, doesn't lead to incapability (80% can do their normal activities), and most patients tolerate diet in semisolid or solid form.

CONCLUSION

Gastric resection deserves more attention as a palliative procedure in management of advanced gastric cancer patients. Regardless of the extent of resection and technique of reconstruction;

palliative resection has a reasonable morbidity and mortality rates, doesn't lead to elongation of hospital admission period, eliminates the tumour related complications minimizing the need of hospital readmission and thus improves the hospital free survival and quality of life. However, patients should be properly selected and those with preoperative medical diseases should be thoroughly prepared and managed.

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تقييم الاستئصال التلطيفي في مرضى سرطان المعدة

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لا يزال الجدل قائماً بشأن الاستئصال التلطيفي في مرضى سرطان المعدة من حيث الأمان الجراحي والفعالية. نحتاج لدراسة المزيد والمزيد من المرضى لكي نحسم هذا الجدال.

تقوم هذه الدراسة بتحليل نتائج جراحة الاستئصال التلطيفي لدى مرضى سرطان المعدة المترددين على المعهد القومي للأورام ومستشفيات جامعة الزقازيق في الفترة ما بين يونيو 2010 إلى يونيو 2012. تمت ملاحظة معدلات المضاعفات التي تحدث بعد الجراحة ومعدل الوفيات من جراء الجراحة، عدد الأيام التي يقيمها المرضى بالمستشفى، مدى رضى المريض عن الجراحة وتأثير كل هذه العوامل على جودة حياة المريض.

تم تحديد ستين مريضاً خلال هذه الفترة بمتوسط أعمار 53 عاماً. 75% من المرضى كانوا ذكوراً و25% منهم كانوا يعانون من أمراض مصاحبة. بلغ معدل المضاعفات بعد الجراحة (23%) لكن معظمها كانت مضاعفات صغرى. معدل الوفيات كان 6.7% . متوسط عدد أيام الإقامة بالمستشفى بلغ 8 أيام ومتوسط فترة الحياة بعد الجراحة بلغ 16 شهراً. لم يضطر أي من المرضى الدخول للمستشفى مرة أخرى. جميع المرضى كانوا قادرين على تناول الأطعمة الشبه صلبة و 11% منهم لم يكن قادراً على تناول الأطعمة العادية.

التوصيات: الاستئصال التلطيفي له معدل مضاعفات ووفيات معقول ولا يؤدي إلى إطالة فترة إقامة المريض بالمستشفى، كما أنه يزيل المضاعفات المصاحبة للورم مما يؤدي إلى عدم الحاجة لدخول المستشفى مرة أخرى وبالتالي يحسن من جودة الحياة. إلا أنه يجب انتقاء المرضى بعناية وتحضير المرضى الذين يعانون من أمراض مصاحبة تحضيراً جيداً