

Gastric Carcinoma and Role of Proximal Gastrectomy

SHAHID HUSSAIN MIRANI¹, MUNAWER LATIF MEMON², MUHAMMAD AFZAL³

¹Associate Professor, Department of Surgery Unit-2, Ghulam Muhammad Mahar Medical College, Teaching Hospital, Sukkur

²Assistant Professor, Department of Surgery, Wah Medical College POF Hospital, Wah Cantt

³Assistant Professor, Department of Surgery, CMH Kharian Medical College, Kharian

Correspondence to: Shahid Hussain Mirani, Email: srgmirani@hotmail.com, Cell: 0300-8317731

ABSTRACT

Objective: Comparative analysis of different surgical methods for the treatment of gastric carcinoma with proximal gastrectomy.

Study Design: Retrospective study

Place and Duration of Study: Department of Surgery Unit-2, Ghulam Muhammad Mahar Medical College, Teaching Hospital, Sukkur, Department of Surgery, Wah Medical College POF Hospital, Wah Cantt and from Department of Surgery, CMH Kharian Medical College, Kharian from 1st January 2015 to 30th June 2021.

Methodology: One hundred patients were retrospectively evaluated for the proximal gastrectomy with the previously conducted procedures of open gastrectomy as well as laparoscopic gastrectomy. The patients were compared for the various types of gastrectomy used with the new established proximal gastrectomy method. The patient distribution was based on available resources and patients' consent. Patients were identified as into two groups where group 1 patients were placed for open total gastrectomy whereas group 2 patients were defined as laparoscopic proximal gastrectomy. All the patients were compared in terms of operation time, recurrence rate and associated complications.

Results: Mean age of the study participants were 54.5±3.3 years. Higher frequency of males participants were observed as compared to the females. Estimated blood loss was considerably different in both study groups. Excess blood loss was seen in total gastrectomy in contrast to laparoscopic procedure. Less complication was observed in open gastrectomy than to laparoscopic proximal gastrectomy.

Conclusion: Minimally invasive surgical method could be the standard surgical procedure for gastric oncology treatment in which function of the stomach can be preserved along with safety profiles. Therefore, LPG can be a preferable treatment option for other available treatment options.

Keywords: Invasive, Oncology, Laparoscopic, Complications, Gastric

INTRODUCTION

Gastric cancer epidemiology has been tremendously increased from last decade in all over the globe. Its incidence rate is greatly increased even in Korea from 24% to 48%. Frequency of proximal gastric cancer is also gradually increasing from 15% to 14% according to recent analysis.¹ Minimally-invasive surgical interventions for treating different diseases are gaining rapid momentum in medical sciences. Laparoscopic procedures are significantly raised during last 5 years. Within recent time, minimally invasive surgical method for oncology treatment is also tried to establish to promote pain free and reliable surgical method.²⁻⁴

When minimally-invasive surgical option is considered, surgeons are only left with the proximal gastrectomy (PG) and overshadow open gastrectomy approach. However, use of this surgical approach is still limited in various parts of the world. Open gastrectomy approach has associated disadvantages as well including limited functional benefits, oncological safety and post-operative complications (anastomotic stricture and reflux symptoms). On the other hand, proximal gastrectomy is considered as function preserving, minimally invasive, reliable method for the treatment of upper gastric cancer.⁵⁻⁸

It has also reported positive results using this approach in cancer treatment. Furthermore, PG has also recently employed in treatment of upper third of the stomach and also to esophagogastric junction cancer. Many retrospective studies have been conducted for to the comparative analysis of different surgical methods' result with laparoscopic proximal gastrectomy.⁹⁻¹¹ Present study was designed for the comparison of different surgical methods for the treatment of gastric carcinoma.

MATERIALS AND METHODS

This retrospective study conducted at Department of Surgery Unit-2, Ghulam Muhammad Mahar Medical College, Teaching Hospital, Sukkur, Department of Surgery, Wah Medical College POF Hospital, Wah Cantt and from Department of Surgery, CMH Kharian Medical College, Kharian from 1st January 2015 to 30th June 2021. A total of 100 patients were evaluated for the proximal gastrectomy with the previously conducted procedures of open gastrectomy as well as laparoscopic gastrectomy. The sample size

was calculated by using WHO sample size calculator where 95% of confidence interval, 80% power of test and 0.05% margin of error. The patients were compared for the various types of gastrectomy used with the new established proximal gastrectomy method. The patient distribution was based on available resources and patients' consent, as all the patients prior to the enrolment into the study were asked for the written informed consent. All the clinical details of each patient including the type of gastrectomy conducted were entered in a well-structures questionnaire. The clinical history of all the patients and any related comorbidities were also entered in questionnaire. Those patients who were having simple gastritis, cholecystitis or any other cholecystectomy related disease were excluded from the study and inclusion criteria was based on only the cases were gastric carcinoma was represented. The procedure of open total gastrectomy was done in which large cut is made on stomach/chest and whole stomach is removed whereas laparoscopic procedure was conducted through the application of telescope and three ports inducted into the patients. The laparoscopic proximal gastrectomy was conducted in which proximal half of the stomach is removed and distal half of the stomach with the pyloric sphincter is preserved. Patients were identified as into two groups where group 1 patients were placed for open gastrectomy whereas group 2 were defined as laparoscopic proximal gastrectomy. All the patients were compared in terms of operation time, recurrence rate and associated complications. Data was analyzed using statistical package SPSS version 26.0 where frequencies and percentages were used. Chi-square was used for generating P-values.

RESULTS

Mean age of the study participants were 54.5±3.3. Higher frequency of males participants were observed as compared to the females. Seventy percent of the participants were males and only 30% were females (Table 1). Estimated blood loss was considerably different in both study groups. Excess blood loss was seen in total gastrectomy in contrast to laparoscopic procedure. Similarly, less complication was observed in OTG than to LPG (Table 2). Survival rate in both of the study groups were not significantly different. Almost similar results have been observed in both groups (Fig. 1).

Table 1: Age and gender of patients (n=100)

Variable	No.	%
Mean age (years)	54.5±3.3	
Gender		
Male	70	70.0
Female	30	30.0

Table 2: Types of esophagogastrectomy in study participants (n=100)

Types of gastrectomy	Operation time	EBL (ml)	Complications	Reflux	Recurrence
Open total gastrectomy					
Gastric tube	179	250	46%	33.5%	NA
EG	150	185	12.2%	18.4%	4.08%
Laparoscopic proximal gastrectomy					
Gastric Tube	285	294	16%	4.4%	NA
EG	202	115.8	35%	32%	-
LES preserving	380	NA	22.2%	-	NA

EBL: Estimated blood loss, NA: Not applicable, EG: Esophagogastrectomy, LES: Low esophageal sphincter

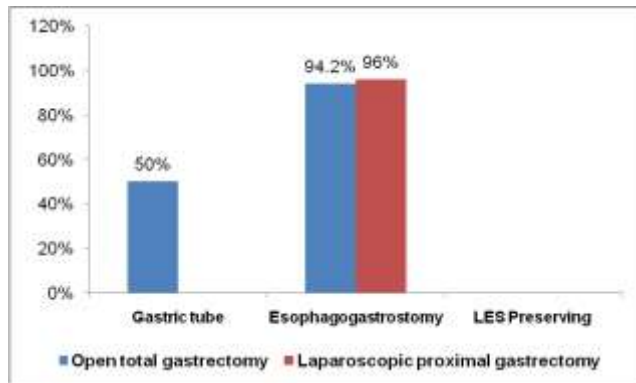


Fig. 1: Over-all survival rate of the participants

DISCUSSION

Gastric carcinoma is increasingly spread throughout the world. Different regions reported varied frequency of gastric cancer ranging from 3-14%. Different treatment options are available for gastric cancer ranging from complete removal of stomach to removal of diseased portion. Minimally invasive surgical procedure is always considered better option in which survival chances, safety, related complications and infections' chances are all very low. Laparoscopic proximal gastrectomy is a recently employed surgical intervention in which only proximal part of the stomach is removed and function of stomach is still maintained and pyloric sphincter is preserved.¹²⁻¹⁵ Present study was designed to compare different surgical approaches in the treatment of gastric cancer.

In present study, males were more in number as compared to the females. No significant difference in overall survival rate and oncological safety was observed in both of the study groups. Similar results have already been published in various regions of the world.^{16,17} Moreover, if proximal removal of stomach is giving same level result than it could be a promising approach over total gastrectomy. Likewise, functional outcome of both study groups are also not significantly different. In LPG, reflux symptoms were considerably low as compared to OTG. This could be another positive aspect of this method.^{18,19}

Long term survival rate of open gastrectomy was also very much similar to laparoscopic procedure. Recurrence rate after LPG was higher in few studies, though in present study, no such difference was observed in any of the patient. Follow-up of these participants will prove beneficial result to better evaluate the surgical outcomes of different approaches.²⁰⁻²²

CONCLUSION

Minimally invasive surgical method could be the standard surgical procedure for gastric oncology treatment in which function of the stomach can be preserved along with safety profiles. Therefore, laparoscopic proximal gastrectomy can be a preferable treatment option for other available treatment options.

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