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Original Article

Comparison of Palliative Gastrectomy and Non-Gastrectomy in Advanced and Metastatic Gastric Cancer

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Abstract

Objective: A study was conducted to evaluate the efficacy of palliative gastrectomy (PG) compared to non-palliative gastrectomy (non-PG) in patients diagnosed with advanced or metastatic gastric adenocarcinoma, with an emphasis on survival outcomes and surgical complications.

Materials and Methods: A retrospective cohort study was conducted involving patients diagnosed with advanced or metastatic gastric adenocarcinoma between January 2015 and August 2024 at Buri Ram Hospital, Buri Ram, Thailand. The patients were categorized into two groups: the PG group and the non-PG group (palliative surgical bypass or feeding enterostomy). Data analysis was performed, and a p-value of less than 0.05 was considered statistically significant.

Results: A total of 136 patients were diagnosed with advanced or metastatic gastric cancer. The patients were divided into two groups: 61 patients in the PG group and 75 patients in the non-PG group. Chemotherapy was administered to 75 patients (55.2%). Among those who received chemotherapy, a higher proportion were from the PG group compared to the non-PG group, and this difference was statistically significant. ($p < 0.001$) Surgical complication was found in 24%. There was no significant difference in surgical complications between the two groups. ($p = 0.757$) The median survival time was 13 months for the PG group and 4 months for the non-PG group (HR: 0.28; 95% CI: 0.13-0.57; $p = 0.001$).

Conclusion: Survival outcomes are markedly improved in patients who undergo PG without complications and receive subsequent chemotherapy.

Keywords: Gastric cancer, Gastrectomy, Advance, Metastasis, Palliative

Introduction

Gastric cancer is the fifth most common cancer and a significant cause of death worldwide as of 2022.[1,2] The incidence is particularly high in Eastern Asia, especially Japan and Korea. Although the overall incidence and mortality rates of gastric cancer have been declining for several decades, it remains a leading cause of mortality and death, especially in advanced and metastatic stages.[2,3] Patients who present with advanced or metastatic gastric cancer are recommended to receive systemic therapy as the first line of care, according to the National Comprehensive Cancer Network (NCCN) guidelines and the Japanese Gastric Cancer Treatment Guidelines 2021.[4,5] Unfortunately, the outcome in these patients was a very poor prognosis. The 5-year survival rate for advance and metastasis stage of gastric cancer is typically less than 10%.[6,7] Although palliative systemic therapy remains the standard of care, growing evidence suggests that palliative surgery can offer both prognostic and symptomatic benefits.

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The Japanese Gastric Cancer Guidelines 2021 recommend that palliative gastrectomy (PG) may be performed in cases of advanced gastric cancer where complications such as bleeding or gastric obstruction are present. The previous studies have shown that PG was performed in patients with advanced gastric cancer, with the aim of increasing survival rates.[3,8-10] However, the impact on survival remains unclear. Li Q et al.[8] found that PG was associated with improved overall survival in patients with metastases to a single site who also received chemotherapy. However, PG did not improve survival rates for patients with metastases to multiple sites. An H et al.[3] observed that patients who underwent PG had a better median survival rate than those who did not receive the surgery. Kamarajah SK et al.[10] compared outcomes in patients with advanced gastric cancer who underwent PG with those who did not. They found that PG was associated with better survival rates, even when patients received other adjuvant treatments, such as chemotherapy, regardless of whether they had the surgery. Luo XF et al.[9] recommended PG for patients experiencing complications from cancer, such as obstruction or bleeding. However, it is important to note that this procedure can be associated with a range of surgical complications. Based on the previous, there remains some uncertainty and no definitive conclusions regarding the treatment of patients with advanced and metastatic gastric cancer. However, it appears that surgery, particularly PG, tends to improve the quality of life in advanced patients. It can help alleviate complications such as bleeding or obstruction, thereby providing symptomatic relief. On the other hand, surgery can be associated with various complications, such as blood loss, anastomotic leakage, abdominal collections, and infections.[11]

However, achieving a longer survival rate in cancer treatment is crucial. Therefore, this study aims to evaluate the survival benefit of palliative gastrectomy (PG) compared with non-PG in patients with metastatic gastric cancer, focusing on survival outcomes and surgical complications.

Materials and methods

A retrospective cohort study was performed involving all patients diagnosed with advanced or metastatic gastric adenocarcinoma between January 2015 and August 2024 at Buri Ram Hospital, Buri Ram, Thailand.

Study Population

All patients were 18 years or older at the time of diagnosis. Gastric adenocarcinoma was confirmed pathologically following esophagogastroduodenoscopy (EGD) and gastric mucosal biopsy. Advanced or metastatic gastric cancer was defined based on findings from computed tomography (CT) scans or magnetic resonance imaging (MRI). Patients with advanced or metastatic cancer were characterized by primary tumor progression, invasion into adjacent organs, matted of intra-abdominal lymph nodes (LNs), or distant tumor metastases or stage IV patients, including those to the liver, lungs, bones, para-aortic LNs, peritoneum, or ovaries. However, patients who underwent PG were staged based on pathological status, while those who underwent non-PG were staged using imaging techniques such as CT scans or MRI. For LNs staging via imaging, N1 was defined as the identification of 1 to 2 enlarged perigastric LNs, N2 as the identification of 3 to 6 enlarged LNs along major vessels, and N3 as the identification of 7 or more enlarged or bulky LNs metastasized along major vessels.[12,13] Patients who received systemic chemotherapy prior to surgery were included in this study. The patients were divided into two groups: those who underwent PG and those who did not undergo PG or non-PG. Patients with a second primary cancer or those who experienced recurrence or metastasis from gastric cancer after surgery and treatment were excluded. The functional status of patients was evaluated using the associated disease and the Eastern Cooperative Oncology Group (ECOG) score.

Surgery

PG was performed in patients with tumor-related symptoms, such as bleeding or obstruction, as well as in asymptomatic patients. The procedure involved removing only the tumor while leaving lymph nodes and metastatic sites intact. All PG procedures were performed via open surgery. The type of operation depended on the tumor's location. Distal or subtotal gastrectomy was performed if the tumor was located in the middle or lower part of the stomach. In contrast, total gastrectomy was performed if the tumor was located in the upper part of the stomach.

The non-PG group included procedures such as gastrojejunostomy bypass, gastrostomy, or jejunostomy and also comprised asymptomatic patients. The choice of surgical procedure was based on the surgeon's decision prior to surgery, intraoperative tumors assessment, and the patient's condition. Postoperative complications were assessed using the Clavien-Dindo classification system.

Systemic treatment and follow-up

All patients were staged according to the AJCC 8th edition.[14] For patients who underwent PG, staging was based on pathological results. In contrast, staging for the non-PG group was determined through clinical examination, imaging, or intraoperative evaluation in patients who underwent gastrojejunostomy bypass, gastrostomy, or jejunostomy. Systemic treatment after surgery is determined based on the patient's performance status according to the Eastern Cooperative Oncology Group (ECOG) scale. The chemotherapy (CMT) regimens included those based on 5-Fluorouracil (5-FU), oxaliplatin, irinotecan, paclitaxel, and cisplatin. Patients were followed up until death or their last visit. Overall survival was observed and analyzed.

Ethics consideration

This study was reviewed and approved by the Buri Ram Hospital Ethics Committee under reference number BR0033.102.1/74.

Statistical analysis

The baseline characteristics of patients, tumors, complications from surgery, and chemotherapy treatments were compared using the Chi-square or Fisher's exact test for categorical variables and the *t*-test for continuous variables. The Cox regression proportional hazard model was used to analyze the relationship between PG, non-PG, systemic chemotherapy treatment, and complications after surgery. The Kaplan-Meier method was used to analyze survival curves. The comparison between survival curves was performed by the Log-rank test to analyze the overall survival between groups. A *p*-value of less than 0.05 was considered statistically significant.

Results

A total of 136 patients were diagnosed with advanced or metastatic adenocarcinoma of the stomach. The patients were divided into two groups: 61 patients in the PG group and 75 patients in the non-PG group. In the non-PG group, 43 patients underwent surgical procedures, including feeding enterostomy (gastrostomy or jejunostomy) in 22 patients (29.3%) and gastrojejunostomy in 21 patients (28.0%). Baseline characteristics, tumor location, cancer staging, and histologic types are presented in Tables 1 and 2.

Table 1 Baseline characteristics of patients

Factors	Total n = 136 (%)	PG n = 61 (%)	non-PG n = 75 (%)	*p*-value
Age (years), mean (± SD)	63.5 (± 8.7)	65.3 (6.2)	62.0 (10.1)	0.985
Sex Male	93 (68.4)	41 (67.2)	52 (69.3)	0.791
Female	43 (31.6)	20 (32.8)	230 (30.7)	
BMI (kg/m^2), mean (± SD)	20.7 (± 0.1)	20.7 (± 0.3)	20.8 (± 0.2)	0.589
Underlying diseases		55	63	
Diabetes mellitus	21 (17.8)	11 (20.0)	10 (15.9)	0.558
Hypertension	32 (27.1)	17 (30.9)	15 (23.8)	0.386
Dyslipidemia	38 (32.2)	18 (32.7)	20 (31.7)	0.909
Coronary artery diseases	12 (10.2)	3 (5.5)	9 (14.3)	0.113
Cerebrovascular diseases	4 (3.4)	2 (3.6)	2 (3.2)	0.890
Chronic kidney diseases	8 (6.8)	3 (5.5)	5 (7.9)	0.592
Liver cirrhosis	3 (2.5)	1 (1.8)	2 (3.2)	0.640
ASA classification				
ASA I	92 (67.7)	45 (73.7)	47 (62.7)	0.168
ASA II	41 (30.1)	15 (24.6)	26 (34.7)	0.202
ASA III	3 (2.2)	1 (1.7)	2 (2.6)	0.684
ECOG Status				
ECOG 0	93 (68.4)	49 (80.3)	44 (58.7)	0.006
ECOG 1	32 (23.5)	7 (11.5)	25 (33.3)	0.002
ECOG 2	7 (5.2)	4 (6.6)	3 (4.0)	0.502
ECOG 3	4 (2.9)	1 (1.6)	3 (4.0)	0.417

SD: standard deviation, BMI: Body mass index, ASA: American Society of Anesthesiologists, ECOG: Eastern Cooperative Oncology Group

Table 2 Tumors location, cancer staging, and histology type of tumors

Factors	Total n = 136 (%)	PG n = 61 (%)	non-PG n = 75 (%)	*p*-value
Tumor location				
Upper	28 (20.6)	9 (14.8)	19 (25.3)	0.129
Middle	47 (34.6)	20 (32.8)	27 (36.0)	0.695
Lower	61 (44.8)	32 (52.4)	29 (38.7)	0.107
TNM staging				
T2	2 (1.5)	1 (1.6)	2 (2.7)	0.684
T3	78 (57.3)	19 (31.2)	59 (78.7)	< 0.001
T4	56 (41.2)	41 (67.2)	14 (18.6)	< 0.001
N0	5 (3.7)	3 (4.9)	2 (2.7)	0.487
N1	37 (27.2)	10 (16.4)	27 (36.0)	0.010
N2	73 (53.7)	27 (44.3)	44 (58.6)	0.094
N3	21 (15.4)	21 (34.4)	2 (2.7)	< 0.001
M0	11 (8.1)	9 (14.8)	2 (2.7)	0.010
M1	125 (91.9)	52 (85.2)	73 (97.3)	
Number of organ metastasis				
Single	49 (38.9)	22 (42.3)	27 (36.5)	0.509
Multiple	77 (61.1)	30 (57.7)	47 (63.5)	
Metastatic site				
Liver	37 (27.2)	11 (18.0)	26 (34.7)	0.030
Lung	27 (19.8)	13 (21.3)	14 (18.7)	0.701
Peritoneum	68 (50.0)	21 (34.4)	47 (62.7)	0.001
Omentum	27 (19.8)	15 (24.6)	12 (16.0)	0.212
Distant LNs	67 (49.2)	30 (49.2)	37 (49.3)	0.986
Bone	11 (8.1)	6 (9.8)	5 (6.7)	0.500
Ovary	3 (2.2)	0 (0)	3 (4.0)	0.114
Histology type				
Well-differentiated	7 (5.2)	1 (1.7)	6 (8.0)	0.094
Moderated differentiated	28 (20.7)	16 (26.7)	12 (16.0)	0.142
Poor differentiated	38 (28.2)	17 (28.3)	21 (28.0)	0.986
Signet ring cell	62 (45.9)	26 (43.3)	36 (48.0)	0.531

Patients with T3 or N1 staging were more prevalent in the non-PG group, whereas T4 or N3 staging was more common in the PG group, with these differences being statistically significant. Metastatic tumors, particularly liver and peritoneal metastases, were more common in the non-PG group, with these differences being statistically significant. There was no significant difference in histologic types between the two groups.

Chemotherapy was administered to 75 patients (55.2%). Among those who received chemotherapy, a higher proportion were from the PG group compared to the non-PG group, and this difference was statistically significant. There was no significant difference in the use of radiotherapy between the two groups. This data are presented in Table 3.

A total of 104 patients underwent surgery, including 61 patients (58.7%) in the PG group and 43 patients (41.3%) in the non-PG group. Among the non-PG group, 22 patients (21.1%) received feeding enterostomy, and 21 patients (20.2%) underwent gastrojejunostomy. There was no significant difference in surgical complications between the two groups. These data are presented in Table 4. Surgical complications were assessed using the Clavien-Dindo classification system and were primarily classified as Grade I and Grade II. Only 3 patients who experienced anastomosis leakage required re-operation.

Table 3 Systemic treatment and radiotherapy

Factors	Total n = 136 (%)	PG n = 61 (%)	non-PG n = 75 (%)	*p*-value
Chemotherapy	75 (55.2)	47 (77.1)	28 (37.3)	< 0.001
Regimens				
FOLFOX	19 (13.9)	7 (11.5)	12 (16.0)	0.449
Capecitabine-Oxaliplatin	7 (5.2)	7 (11.5)	0 (0)	0.003
FOLFIRI	2 (1.5)	0 (0)	2 (2.7)	0.199
5FU - leucovorin	17 (12.5)	14 (22.9)	3 (4.0)	0.001
Cisplatin/5FU	28 (20.6)	19 (31.2)	9 (12.0)	0.006
Carboplatin/Paclitaxel	7 (5.2)	3 (4.9)	4 (5.3)	0.913
Carboplatin/5FU	6 (4.4)	2 (3.2)	4 (5.3)	0.562
Radiotherapy				
Yes	6 (4.4)	5 (8.2)	1 (1.3)	0.053
No	130 (95.6)	56 (91.8)	74 (98.7)	

FOLFOX: Folinic acid (leucovorin), Fluorouracil (5-FU), Oxaliplatin; FOLFIRI: Folinic acid (leucovorin), Fluorouracil (5-FU), Irinotecan

Table 4 Surgical complications

Factors	Total n = 104 (%)	PG n = 61 (%)	non-PG n = 43 (%)	*p*-value
Surgical complications				
Yes	25 (24.0)	14 (22.9)	11 (25.6)	0.757
No	79 (76.0)	47 (77.1)	32 (74.4)	
Type of complication				
Intra-abdominal collection	6 (5.8)	5 (8.2)	1 (2.3)	0.206
Surgical site infection	7 (6.7)	3 (4.9)	4 (9.3)	0.380
Anastomosis leakage	3 (2.9)	3 (4.9)	0 (0)	0.140
Intra operative bleeding	1 (0.9)	0 (0)	1 (2.3)	0.231
Post-operative ileus	5 (4.8)	2 (3.3)	3 (6.9)	0.385
Pneumonia	16 (15.4)	11 (18.0)	5 (11.6)	0.373
Sepsis	12 (11.5)	8 (13.1)	4 (9.3)	0.549
Clavien-Dindo Classification				
Grade I	5 (20)	3 (21.4)	2 (18.2)	0.840
Grade II	17 (68)	8 (57.2)	9 (81.8)	0.189
Grade III	3 (12)	3 (21.4)	0 (0)	0.356

The follow-up time for this study was 10.2 months. The overall survival for all patients was 6 months. The median survival time was 13 months for the PG group and 4 months for the non-PG group (HR: 0.28; 95% CI: 0.13-0.57; p = 0.001). Survival analysis between the two groups is shown in Figure 1. The median survival for patients with single and multiple metastasis sites was 7 months and 5 months, respectively, and no difference in survival was observed between the two groups (HR: 1.07; 95% CI: 0.59–1.96; p = 0.804). Subgroup analysis by metastasis location is shown in Table 5. PG in patients with bone metastasis was associated with better median survival (16 months) compared to non-PG (9 months), with statistical significance (p = 0.021).

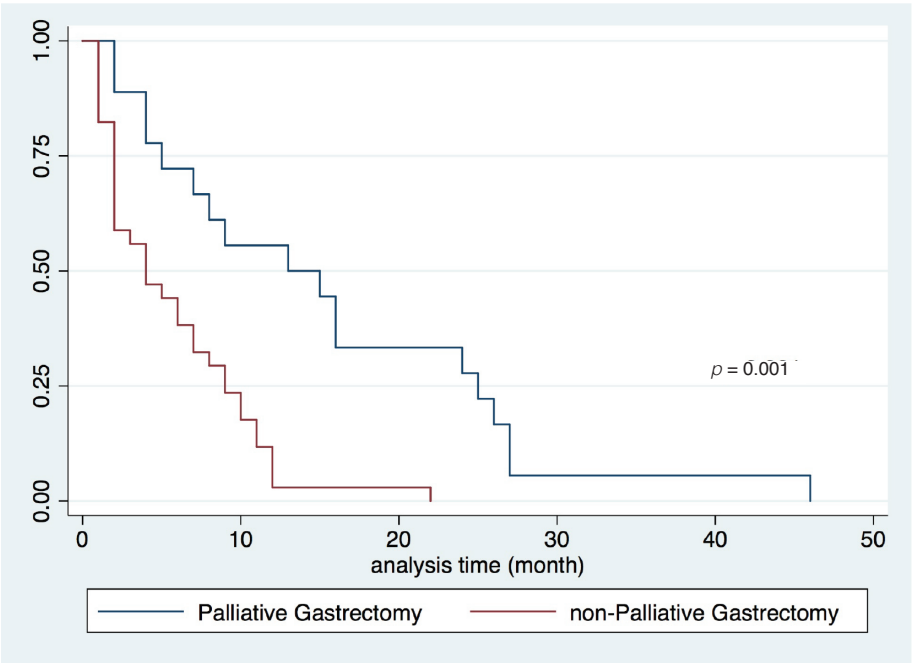

Figure 1 Kaplan-Meier graph shows survival analysis between Palliative gastrectomy (PG) and non-palliative gastrectomy (non-PG)

Table 5 Subgroup analysis by metastasis locations

Location of metastasis	Median survival time (month)		HR	95% CI	*p*-value
	PG	Non-PG			
Liver	6	4	1.07	0.42-2.69	0.885
Lung	8	7	0.61	0.27-1.36	0.229
Peritoneum	8	2	1.47	0.72-3.01	0.285
Distant LN	13	4	1.70	0.83-3.45	0.142
Omentum	8	1	2.48	0.94-6.56	0.066
Bone	16	9	0.25	0.07-0.81	0.021
Ovary	13	10	0.38	0.09-1.52	0.175

HR: Hazard ratio, CI: confidence interval

Survival outcomes were analyzed for patients who received chemotherapy (CMT) and those who underwent surgery. The median survival times were 16 months for the PG + CMT group, 4 months for the PG + no CMT group, 9 months for the non-PG + CMT group, and 2 months for the non-PG + no CMT group. Patients who underwent PG and received CMT had better survival than the other groups (HR: 0.33; 95% CI: 0.16-0.70; $p = 0.004$) (Figure 2). Survival subgroup analysis showed better outcomes in PG + CMT compared to PG + no CMT, non-PG + CMT, and non-PG + no CMT, with $p < 0.001$, 0.002, and < 0.001, respectively. PG + no CMT was compared to non-PG + CMT and non-PG + no CMT, with $p = 0.762$ and < 0.001, respectively. Patients with non-PG + CMT had better survival outcomes compared to non-PG + no CMT ($p < 0.001$).

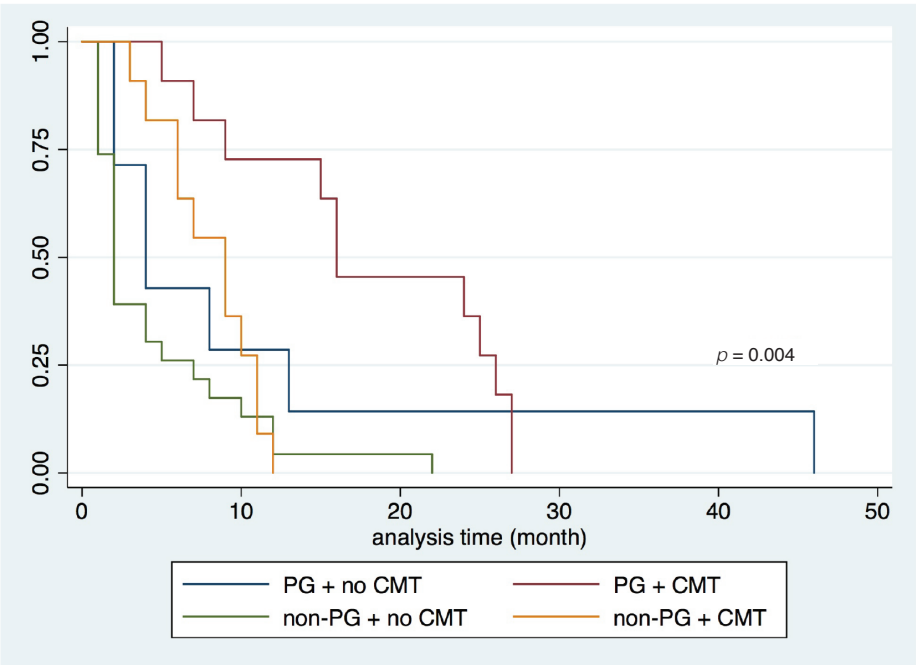

Figure 2 The Kaplan-Meier graph shows the survival analysis for patients in the following groups: PG + no CMT, PG + CMT, non-PG + no CMT, and non-PG + CMT. (PG: palliative gastrectomy, non-PG: non-palliative gastrectomy, CMT: chemotherapy)

The correlation between surgery and complications was evaluated, and survival was found better in the PG group without complications (HR: 0.25; 95% CI: 0.10-0.59; $p = 0.002$). Specifically, survival times were 16 months for PG without complications, 4 months for PG with complications as well as for non-PG without complications, and 2 months for non-PG with complications (Figure 3). Survival subgroup analysis showed better outcomes in PG without complication than PG with complication, non-PG without complication, and non-PG with complication, with $p < 0.001$, < 0.001, and < 0.001, respectively. PG with complication was compared to non-PG with complication and without complication, with $p = 0.005$ and 0.102, respectively. Patients with non-PG without complications had better survival outcomes compared to non-PG with complications ($p < 0.001$).

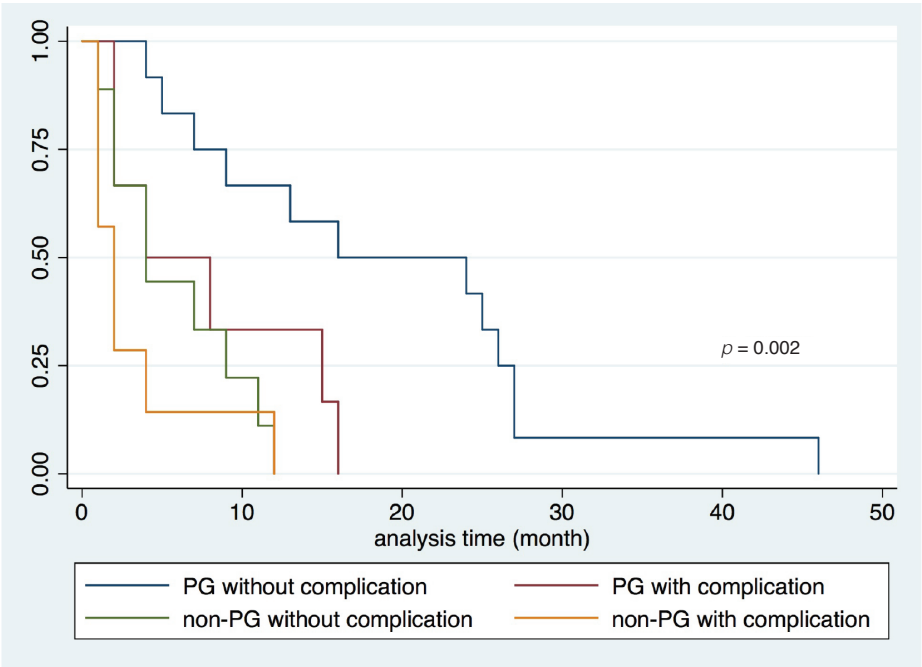

Figure 3 The Kaplan-Meier graph shows the survival analysis for patients in the following groups: PG without complication, PG with complication, non-PG without complication, and non-PG with complication.

Discussion

According to several guidelines, systemic therapy has traditionally been the standard treatment for advanced or metastatic adenocarcinoma of the stomach.[4,5] However, there has been a growing use of PG in these cases. Despite this trend, the effectiveness of this surgery remains inconclusive. This study included patients diagnosed with advanced or metastatic gastric cancer who underwent PG. Notably, none of these patients received systemic treatment prior to the surgery.

For staging in this study, patients who underwent PG were staged based on pathological results. In contrast, patients in the non-PG were staged clinically, using CT scans, MRI, or intra-operative examinations during palliative bypass procedures or feeding enterostomies. This study found that the PG group had more advanced tumor and lymph node stages. In contrast, patients in the non-PG group may have underestimated their staging, as indicated by the higher prevalence of T4 or N3 staging in the PG group compared to T3 or N1 staging in the non-PG group. Several studies have shown that tumor and lymph node metastasis can be aggressive, but most of these studies have relied solely on pathological staging.[3,6,8] This study found that performing PG was insignificant for patients with liver or peritoneal metastases. These metastases were often advanced, unresectable, and associated with a poor prognosis. Consequently, these patients typically underwent only palliative gastrojejunostomy or feeding enterostomy. The GYMSSA trial[15] compared patients who underwent gastrectomy with metastasectomy plus systemic chemotherapy to those who received systemic chemotherapy alone. The results indicated that adding gastrectomy and metastasectomy did not significantly impact overall survival. Granieri S et al.[16] reported that gastrectomy with metastasectomy benefits only patients with liver metastases who do not have extrahepatic disease; surgical removal with curative intent may improve survival in these cases. This study emphasizes the importance of clinical staging in decision-making for operative procedures, providing a broader context for evaluating the extent of the disease.

Chemotherapy plays a crucial role in the treatment of advanced or metastatic gastric cancer and significantly impacts survival outcomes. This study found that patients who underwent PG were more likely to receive systemic treatment than those who did not. This difference was statistically significant and was associated with better patient status in those who underwent PG, particularly in patients with ASA I and ECOG 0 status. Our findings support that the survival outcome of patients who underwent PG and received chemotherapy was 16 months compared with 2 months in patients who did not perform PG and did not receive chemotherapy. An H et al.[3] conducted a comparative study on PG in patients with metastases to other organs. They found that patients who underwent PG had a median survival rate of 13 months, compared to 6 months for those who did not receive the surgery. The study also highlighted the importance of administering appropriate chemotherapy in conjunction with the treatment. Kamarajah SK et al.[10] conducted a study comparing outcomes in patients with advanced gastric cancer who underwent PG with those who did not. They found that PG was associated with better survival rates, even when patients received chemotherapy, either with or without the surgery. Li Q et al.[8] compared patients with metastatic gastric cancer who underwent PG with those who did not. The study found that PG was associated with improved overall survival in patients with metastases to a single site and who received chemotherapy. However, PG did not result in an increased survival rate for patients with metastases to multiple sites. This study found that the benefit of PG was associated with better survival, particularly in patients with bone metastasis. The median survival for patients with bone metastasis who underwent PG was 16 months, compared to 9 months in those who did not undergo PG. Although previous studies[17] have reported poor prognosis in patients with gastric cancer and bone metastasis, with survival of 4-6 months. This study found better survival in patients with gastric cancer and bone metastasis who underwent PG and received chemotherapy. However, a meta-analysis demonstrated that the median survival for patients who underwent PG was 14 months, compared to 7 months for those who did not undergo resection.[18]

Previous data support that patients who undergo gastrectomy for gastric cancer experience improvements in quality of life, including reductions in fatigue, nausea/vomiting, and appetite loss.[19] By reducing tumor burden, PG is associated with enhanced quality of life, which is linked to the patient's status before surgery. This study showed a high prevalence of patients with ASA I and ECOG 0 status in the PG group, contributing to better chemotherapy tolerance post-surgery. Additionally, patients who receive and tolerate chemotherapy may experience improved responses to systemic treatment. On the other hand, some studies have reported that PG is associated with high morbidity and mortality rates.[20] This study found that the overall complication rate for surgery was 24.0%, with 22.9% in the PG group and 25.6% in the feeding enterostomy or gastrojejunostomy group. All complications were classified as minor, and no patients died as a result of the surgery. Previous data indicate that the prevalence of complications after PG ranges from 10% to 38%.[21] Despite the high prevalence of surgical complications, some patients with clinical obstruction or bleeding may require surgery. Luo XF et al.[9] found that PG is recommended for patients experiencing complications from cancer, such as obstruction or bleeding. However, it is essential to note that this procedure can be associated with various surgical complications. Reducing postoperative complications is crucial for decreasing morbidity and mortality and enhancing survival outcomes in patients undergoing PG.

Additionally, initiating chemotherapy as early as possible is essential. Our data support this finding, showing that patients who underwent PG without operative complications had a higher survival rate than those who underwent non-PG with surgical complications. Specifically, the median survival was 16 months for PG without operative complications, compared to 2 months for non-PG with surgical complications.

A Phase 3 randomized controlled trial (REGATTA) investigated patients with advanced or metastatic gastric cancer who received gastrectomy plus lymphadenectomy and chemotherapy compared to those who received chemotherapy alone. The study found no significant difference in survival between the two groups, with a median overall survival of 16.6 months for patients receiving chemotherapy alone and 14.3 months for those undergoing gastrectomy plus lymphadenectomy and chemotherapy. The conclusion suggested that chemotherapy alone might be preferable for advanced or metastatic gastric cancer.[22] Previous studies have reported that patients who underwent PG in conjunction with chemotherapy had better survival outcomes, with median survival

ranging from 8 to 14 months, compared to those who did not undergo surgery.[3,23,24] This study found that the median survival was consistent with previous research. The median survival was 13 months for the PG group and 4 months for the non-resectable group. However, factors influencing survival include the type of surgery, the absence of surgical complications, and the systemic treatment administered after surgery, which plays a crucial role in prolonging patient survival, as shown in this study. Decisions regarding surgery depend on the risk-benefit analysis of complications and the operative outcomes for each patient.

Conclusion

PG in advanced or metastatic gastric cancer can improve survival outcomes, particularly when there are no complications and when patients receive chemotherapy after surgery. Despite the high morbidity associated with the procedure, careful patient selection is crucial for optimizing outcomes.

Limitation of study

Because this study was retrospective, patient selection depended on the surgeon's preference and the aggressiveness of the primary tumor. To reduce selection bias and improve the results, future studies should be conducted through a multicenter approach and designed as prospective studies.

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