

Drain vs No Drain after Performing Totally Laparoscopic Gastrectomy in Gastric Cancer Surgery

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ABSTRACT

Background: Routine performance of a prophylactic postoperative drainage after abdominal surgeries was done to prevent and manage postoperative intra-abdominal complications.

Sure evidence to avoid routine performance of prophylactic drainage after surgery in gastric cancer (GC) patients and its role in reducing postoperative morbidity was not reached yet.

Aim: The aim of the present study was to compare between patients who underwent prophylactic drainage and patients who did not undergo prophylactic drainage following total laparoscopic gastrectomy in patients diagnosed with distal GC.

Patients and methods: We included 150 patients who underwent totally laparoscopic distal gastrectomy for surgical management of histopathologically confirmed GCs.

We divided patients into two groups, the first group included 100 patients and underwent totally laparoscopic gastrectomy with prophylactic drainage, and the other group included 50 patients underwent totally laparoscopic gastrectomy without performing drainage.

We compare between both included groups regarding short-term and long-term outcomes.

Results: Operative times in the group of patients who have drain group were longer than that in those with no drain. We showed that in the group of patients with drain, the number of days from time of surgery to time of soft diet initiation and time to first flatus was more than that in the no drain group.

Conclusion: Avoiding prophylactic drain insertion in some patients after performing totally laparoscopic gastrectomy for management of gastric cancer could be feasible. It increases patients comfort without increasing the risk of postoperative complications.

Keywords: Gastric cancer, Laparoscopic gastrectomy, Prophylactic drain.

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BACKGROUND

Gastric cancer (GC) is still one of the commonest cancer and commonest cause of cancer-related death worldwide.¹ Although there is advancement in chemoradiation, immunotherapy and targeted therapy but surgical management remains the main therapeutic management of such cancer. Gastrectomy for management of GC has many postoperative complications such as postoperative bleeding, leakage, and infection.²

Routine performance of a prophylactic postoperative drainage after abdominal surgeries was done to prevent and manage postoperative intra-abdominal complications.³ But, recent research demonstrated that routine performance of a prophylactic postoperative drainage might be not be as valuable as previously thought.⁴ It was previously shown that prophylactic postoperative drainage did not reduce incidence of postoperative morbidities after colorectal surgeries, hepatectomy, appendectomy, and cholecystectomy.⁵ Moreover, avoidance of drainage after surgical management of GC was encouraged by many studies as it decreases postoperative morbidity and length of hospital stay.^{6,7}

Sure evidence to avoid routine performance of prophylactic drainage after surgery in GC patients and its role in reducing postoperative morbidity was not reached yet.

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Aim of the present study was to compare between patients who underwent prophylactic drainage and patients who did not undergo prophylactic drainage following total laparoscopic gastrectomy in patients diagnosed with distal GC.

PATIENTS AND METHODS

We included all patients who underwent totally laparoscopic distal gastrectomy for surgical management of histopathologically confirmed GCs in the period from May 2019 to May 2023.

Exclusion Criteria

We excluded patients who underwent open gastrectomy, patients with proximal gastrectomy for management of proximal GC, patients with lower esophagectomy for esophagogastric junction cancer and patients with bleeding and perforation.

After application of our strict inclusion and exclusion criteria we included a total of 150 distal GC patients.

We divided patients into 2 groups the first group included 100 patients and underwent totally laparoscopic gastrectomy with prophylactic drainage, and the other group included 50 patients underwent totally laparoscopic gastrectomy without performing drainage.

We compare between both included groups regarding short-term and long-term outcomes.

OPERATIVE PROCEDURES

We determined the extent of gastrectomy and dissection of lymph nodes according to guidelines of Japanese GC treatment.⁸

We performed reconstruction intracorporeally by using delta-shaped anastomosis after performing distal gastrectomy⁹ and Roux-en-Y method after performing total gastrectomies.¹⁰

Postoperative Management

We initiated oral water intake after one day from performing surgery, then we initiated a soft diet, the patient tolerated liquid meals, and after confirmation of the absence of any leakage at the site of the anastomosis by postoperative upper gastrointestinal contrast.

Assessment of Surgical Outcome

We evaluated the incidence of occurrence of operative mortality (30 days after surgery), postoperative complications, and postoperative number of days after the surgery until soft diet initiation, and the postoperative hospital stay days. We assessed any adverse events using the Clavien–Dindo classification within 30 days postoperatively.

Outcome Assessment

We compared between both included groups of patients as regard; clinical, operative, perioperative and pathological variables.

Statistical Analysis

We expressed values as the mean \pm SD. We used χ^2 -test and Student's *t*-test for comparing between categorical and continuous variables, respectively. We performed Chi-squared test or Fisher's exact test for categorical data. We considered *p*-value of < 0.05 significant.

We performed all statistical analyses using Statistical Package for Social Science 20.

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RESULTS

Demographic and Basic Data

We found no significant differences between both groups concerning patient sex, age, American Society of Anesthesiologists classification, BMI, previous history of abdominal surgery, smoking, co-morbid conditions, tumor stage, or regional lymph node metastases.

Operative Findings

We showed that operative time in the group of patients who have drain group were longer than that in those with no drain. We found no significant differences between both groups regarding estimated intraoperative blood loss or blood transfusion, the number of dissected lymph nodes or in tumor size.

Recovery

We showed that in the group of patients with drain, the number of days from the time of surgery to time of soft diet initiation and time to first flatus was more than that in the no drain group.

Short-time Outcomes

We recorded no operative mortality in either group.

No anastomotic bleeding, leakage, lymph leakage, ileus, pancreatic fistula occurred in either groups.

We found no significant differences between both groups regarding the need for percutaneous catheter drainage (PCD).

Patients with a large BMI have a higher liability of occurrence of postoperative complications.

So, a prophylactic drain might be useful in patients with a higher BMI.

DISCUSSION

Since 2015, there was a wide use of totally laparoscopic surgery and there are conflicting data regarding the need of a drain or no after total laparoscopic surgery.^{9,11} Most studies demonstrated the beneficial use of prophylactic drains in open gastrectomy.^{12,13}

In the present study, we demonstrated that the use of a prophylactic drain was not routinely needed in laparoscopic gastrectomy. Our results were in line with the results of Liu *et al.*¹⁴ Shimoike *et al.*⁹

Prophylactic drains are needed for early detection and prevention of postoperative complications. We demonstrated no significant differences in incidence and severity of postoperative complications between the group of patients who have drain and those without between the incidence and the severity of postoperative complications.

The complications were more liable to occur in the patients who have drain.

Additionally, we showed that in the group of patients who have drain, the postoperative days number until soft diet initiation

and the duration of postoperative hospital stay were longer than those in the group of patients who have no drain, pointing to that drains have no beneficial effect and even it might have many drawbacks and could worsen the management of postoperative complications. These results were similar to the findings of Liu et al.,¹⁴ Shimoike et al.⁹

Liu et al.¹⁴ found that routine use of prophylactic drains was not a must in all patients, but they demonstrated that prophylactic drain might be beneficial in some high-risk patients to facilitate early detection and adequate management of postoperative complications, decrease postoperative morbidity, fluid collection, mortality and hospital stay which is in line with our findings and findings of other reports.^{15,16}

CONCLUSION

We concluded that avoiding prophylactic drain insertion in some patients after performing totally laparoscopic gastrectomy for the management of GC could be feasible. It increases patients' comfort without increasing the risk of postoperative complications.

So we demonstrated that routine postoperative use of prophylactic drainage after performing laparoscopic gastrectomy for GC is not always necessary in all cases, but it will be beneficial only in high-risk patients as patients with high BMI or with co-morbid conditions.

REFERENCES

- Sung H, Ferlay J, Siegel RL, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 2021;71(3):209–249. DOI: 10.3322/caac.21660.
- Pang HY, Zhao LY, Wang H, et al. Impact of type of postoperative complications on long-term survival of gastric cancer patients: Results from a high-volume institution in China. *Front Oncol* 2021;11:587309. DOI: 10.3389/fonc.2021.587309.
- Mengardo V, Weindelmayer J, Veltri A, et al. Current practice on the use of prophylactic drain after gastrectomy in Italy: The abdominal drain in gastrectomy (ADiGe) survey. *Updates Surg* 2022;74: 1839–1849. DOI: 10.1007/s13304-022-01397-0.
- He S, Xia J, Zhang W, et al. Prophylactic abdominal drainage for pancreatic surgery. *Cochrane Database Syst Rev* 2021;12:CD010583. DOI: 10.1002/14651858.CD010583.pub5.
- Dezfouli SA, Ünal UK, Ghamarnejad O, et al. Systematic review and meta-analysis of the efficacy of prophylactic abdominal drainage in major liver resections. *Sci Rep* 2021;11:3095. DOI: 10.1038/s41598-021-82333-x.
- Pang HY, Chen LH, Chen XF, et al. Prophylactic drainage versus non-drainage following gastric cancer surgery: A meta-analysis of randomized controlled trials and observational studies. *World J Surg Oncol* 2023;21:166. DOI: 10.1186/s12957-023-03054-1.
- Weindelmayer J, Mengardo V, Veltri A, et al. Should we still use prophylactic drain in gastrectomy for cancer? A systematic review and meta-analysis. *Eur J Surg Oncol* 2020;46:1396–1403. DOI: 10.1016/j.ejso.2020.05.009.
- Japanese Gastric Cancer Association. Japanese gastric cancer treatment guidelines 2014 (ver. 4). *Gastric Cancer* 2017;20:1–19. DOI: 10.1007/s10120-016-0622-4.
- Shimoike N, Akagawa S, Yagi D, et al. Laparoscopic gastrectomy with and without prophylactic drains in gastric cancer: A propensity score-matched analysis. *World J Surg Oncol* 2019;17:144. DOI: 10.1186/s12957-019-1690-9.
- Miura S, Kanaya S, Hosogi H, et al. Esophagojejunostomy with linear staplers in laparoscopic total gastrectomy: Experience with 168 cases in 5 consecutive years. *Surg Laparosc Endosc Percutan Tech* 2017;27:e101–e107. DOI: 10.1186/s12957-019-1690-9.
- Hirahara N, Matsubara T, Hayashi H, et al. Significance of prophylactic intraabdominal drain placement after laparoscopic distal gastrectomy for gastric cancer. *World J Surg Oncol* 2015;13: 181. DOI: 10.1186/s12957-015-0591-9.
- Alvarez Uslar R, Molina H, Torres O, et al. Total gastrectomy with or without abdominal drains. A prospective randomized trial. *Rev Esp Enferm Dig* 2005;97:562–569. DOI: 10.4321/s1130-01082005000800004.
- Kumar M, Yang SB, Jaiswal VK, et al. Is prophylactic placement of drains necessary after subtotal gastrectomy? *World J Gastroenterol* 2007;13:3738–3741. DOI: 10.3748/wjg.v13.i27.3738.
- Liu H, Jin P, Quan X, et al. Feasibility of totally laparoscopic gastrectomy without prophylactic drains in gastric cancer patients. *World J Gastroenterol* 2021;27(26):4236–4245. DOI: 10.3748/wjg.v27.i26.4236.
- Message M, Sabbagh C, Denost Q, et al. Is there still a need for prophylactic intra-abdominal drainage in elective major gastrointestinal surgery? *J Visc Surg* 2015;152:305–313. DOI: 10.1016/j.jviscsurg.2015.09.008.
- Lee J, Choi YY, An JY, et al. Do all patients require prophylactic drainage after gastrectomy for gastric cancer? *Ann Surg Oncol* 2015;22:3929–3937. DOI: 10.1245/s10434-015-4521-4.