

Early Postoperative Outcomes of Modified D2 Gastrectomy for Gastric Cancer in a Tertiary Hospital

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ABSTRACT

Background: Stomach cancer, a major global health concern, ranks fourth among cancer types. Radical gastrectomy is the primary treatment, offering hope for long-term survival. Globally, about 989,600 new cases and 738,000 deaths occur annually. Surgical techniques like D1+, D2, and modified D2 lymphadenectomy vary worldwide, impacting survival rates. The importance of lymph node metastasis in prognosis is emphasized. Notably, Japanese gastrectomy outcomes surpass global averages due to early diagnosis and extensive lymphadenectomy. **Aim of the study:** The study focuses on modified D2 gastrectomy, aiming to evaluate its early postoperative outcomes, considering its potential in optimal staging with lower morbidity and mortality compared to other procedures. **Methods:** This observational study, conducted at NICRH's Department of Surgical Oncology from July 2019 to March 2021, focused on adenocarcinoma of the stomach. Biopsy-proven operable cases were included, while those with metastasis, needing emergency surgery, or unfit for general anesthesia were excluded. Patients underwent preoperative evaluation and modified D2 gastrectomy, with variations based on tumor location. Postoperative complications were assessed within 30 days, and data was collected through interviews and examinations. Statistical analysis using SPSS revealed outcomes. The study aimed to understand early outcomes in gastric cancer patients undergoing modified D2 gastrectomy, providing insights into surgery's impact on recovery. **Result:** A total of 53 patients with stomach cancer, 49% of the study population was from the 45-54 age group, with a mean age of 48.9. Males constituted 77.35%, and the majority had normal BMI (62.26%) and were smokers (67.92%). Most patients were from the middle class (47.16%) and unemployed (30.18%). 32.07% of patients had diabetes only, 24.52% had hypertension only, and 20.75% had both. The majority of 92.45% experience anorexia from postoperative complications, with 35.84% having infections. The survival rate is 94.33%. According to the tumor characteristics, 81.13% in the distal stomach and histopathology revealed 86.79% as intestinal adenocarcinomas. **Conclusion:** Surgery for stomach cancer, specifically D2 gastrectomy, is deemed the optimal choice for improved prognosis and long-term survival. Patient fitness is a primary concern, and appropriate selection, along with modified surgical procedures, significantly reduces morbidity and mortality. The procedure's safety and efficacy make it recommendable for excellent postoperative outcomes, meeting NCCN guidelines. Further trials are needed to assess its long-term survival advantages over D2 gastrectomy.

Key words: Postoperative outcomes, modified D2 gastrectomy, gastric cancer and tertiary hospital.

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INTRODUCTION

Stomach cancer is the leading cause of cancer-related death worldwide, hence known as Captain of Men's Death. As per the updated epidemiology of stomach cancer, it ranks fourth after lung, breast, and colorectal cancer. The overall prognosis is not very encouraging. However, surgery in the form of radical gastrectomy is the main treatment modality, which offers a chance of long-term survival as well as hope for a cure. So, as obvious, world literature is replete with discussions regarding the optimum extent of surgery [1]. According to a global estimation, approximately 9 89,600 new cases of gastric cancer are diagnosed each year, and 7 38,000 patients die from this disease (10% of all cancer deaths) worldwide [2]. As per Globocan data 2018, stomach cancer ranks seventh in Bangladesh. Surgery in the form of gastric resection was first carried out by Theodor Billroth in Vienna in 1881 [3]. Till now, gastric resections remain the standard treatment for carcinoma stomach in the world. The overall survival rate of stomach cancer patients using gastrectomy in Japan (50-60%) was higher compared with the rest of the world (10-30%) [4]. This was mainly due to two factors: one is active screening leading to early diagnosis, and the other one is extensive lymphadenectomy along with gastric resection [5]. It is known that the number of metastatic lymph nodes (LNs) is one of the most important prognostic factors for patients with gastric cancer [6]. Both the Union for International Cancer Control (UICC)/American Joint Committee on Cancer (AJCC) and the Japanese Gastric Cancer Association (JGCA) recommend a goal of ≥ 15 LNs examined for optimal staging. The efficacy of various types of LN dissection remains controversial. In the West, D1 or a modified D2 lymphadenectomy (i.e., D1+) for gastrectomy has been identified as the gold standard treatment for localized resectable gastric cancer. In eastern Asia, especially in Japan and China, D2 lymphadenectomy has been the standard surgical therapy for curable gastric cancer [7]. D1+/modified lymphadenectomy helps to retrieve more LNs for optimal staging than D1 lymphadenectomy, and with lower postoperative mortality and morbidity than D2 lymphadenectomy. So, the most important prognostic factor for gastric cancer is lymph node metastasis. In gastric cancer treatment, splenectomy was considered a part of D2 lymphadenectomy, and the addition of splenectomy is often seen as a slightly increased risk factor for surgical complications that can be related to the resection of the pancreatic tail [8]. This statement was supported by another recent study [9]. Besides, another recent study clarified that more than one additional organ resection might increase postoperative complications at a significant level [10]. Especially for tumors situated in the proximal stomach, total gastrectomy (TG) and splenectomy was considered to be a standard procedure because of the high frequency of Lymph Node (LN) metastasis to hilar nodes for proximal gastric

tumors [11]. On the contrary, some researchers suggested that splenectomy could be a cause of additional morbidity and mortality, and recent reports showed that splenectomy had no effect on survival for proximal gastric tumors [12]. Currently, preservation of the spleen is the accepted approach during total gastrectomy, and routine splenectomy is not recommended. Moreover, D2 gastrectomy is considered to be the choice of the procedure so far as the pathological staging of the disease is concerned. This staging data is very important for planning adjuvant treatment as cancer management has become multimodal nowadays. The average node retrieval is 15 in D1 gastrectomy, 27 in D2 gastrectomy and 43 in D3 gastrectomy from autopsy findings. So, NCCN 2010 has laid down the principle of examining at least 16 lymph nodes for proper pathological staging of stomach cancer, which has prognostic implications in stomach cancer. A modified D2 gastrectomy retrieves an adequate no. of lymph nodes for proper staging with less extensive lymph node dissection while preserving the spleen and pancreatic tail. Hence, this procedure carries much lower postoperative morbidity and mortality. The main aim of the study is to determine the early postoperative outcomes of modified D2 gastrectomy.

METHODOLOGY & MATERIALS

This is an observational study. This observational study was conducted in the Department of Surgical Oncology of NICRH following approval by the Ethical Review Committee (ERC) of NICRH. The study was conducted from July 2019 to March 2021. Initially, patients with a diagnosis of adenocarcinoma of the stomach admitted to the Department of Surgical Oncology for treatment were enrolled in the study. After that, they were scrutinized according to the eligibility criteria. After admission, each patient was evaluated with history, physical examination and investigation. Preoperative evaluation included basic laboratory tests such as CBC, RBS, S. creatinine, S. electrolyte, S. albumin, liver function test, ECG, chest x-ray, USG of the whole abdomen, and contrast CT scan of the abdomen. After proper staging investigation, patients were selected for operation; preoperative preparation includes correction of anemia and hyperproteinemia and bowel preparation will be given.

Inclusion criteria

All biopsy-proven and operable cases of adenocarcinoma of the stomach.

Exclusion criteria

Patients with metastatic adenocarcinoma.

Patient requiring emergency surgery for gastric outlet obstruction/bleeding.

The patient is not fit for general anesthesia.

All the patients were informed vividly regarding the study procedure, and informed written consent was obtained. Only operable and fit patients were planned for surgery. The surgery was carried out as per standard guidelines. The modifications were done as follows: 1. Modification of extent of lymph node dissection as per the procedure for distal gastrectomy-1, 3, 4sb, 4d, 5, 6, 7, 8a, 9, 12a irrespective of T stage and for total gastrectomy- 1-7, 8a, 9, 11p, 12a (avoiding 11d & 10 groups of a lymph node as recommended by Japanese cancer association 2. Resection of the pancreatic tail and spleen was avoided unless tumors were directly involved in them. The outcome of surgery was measured by assessing postoperative complications. During the postoperative period, all patients were provided with antibiotic prophylaxis, analgesics, early ambulation, nasogastric suction when needed, removal of drain when 24 hours collection below 100ml, and Suture was removed on the 10th to 12th postoperative postoperative day. Postoperative outcome was observed for 30 days.

OPERATIONAL DEFINITIONS

Early outcome

Any unwanted event developing within 30 days of surgery that changed the usual course of recovery.

Gastric cancer

The adenocarcinoma of the stomach arises from any part of it.

Modified D2 gastrectomy

- For distal gastrectomy-1, 3, 4sb, 4d, 5, 6, 7, 8a, 9, 12a irrespective of T stage
- For total gastrectomy-1-7, 8a, 9, 11p, 12a (avoiding 11d & 10 group of lymph node)
- No pancreatic tail or spleen resection until directly involved.

A questionnaire/data collection sheet was used along with face-to-face interviews and daily examination findings covering the outcome data in the study. Data was processed manually, and Statistical analysis was performed by using SPSS (Statistical Package for Social Sciences) version 27.

Data was compiled, edited, managed, and plotted in tabular and figure form. Descriptive statistics were performed, and all data was expressed as mean \pm SD and percentage ratio.

RESULT

Table 1 shows that out of 53 patients, the highest 26 (49%) belonged to 45-54 years. The mean age of the patient was 48.9 ± 9.36 (age range: 25-79) years. The male and female patients were 41(77.35%) and 12(22.64%) respectively. The male-to-female ratio was 3.42:1. Besides, most of the patients had normal BMI; 33(62.26%) and smokers; 36(67.92%). The majority of patients belonged to the middle class (10000-15000), 25(47.16%), and unemployed 16(30.18%). Figure 1 illustrates that out of 53 patients, the highest, 17(32.07%), were suffering from DM only, whereas 13(24.52%) patients were suffering from hypertension only. Only 11(20.75%) were suffering from both hypertension and DM. Table 2 shows that out of 53 patients, the highest, 49(92.45%), were experiencing anorexia, and subsequently, 43(81.13%) had nausea/vomiting. Approximately 38(71.69%) patients had dyspepsia. Additionally, 19(35.84%), 12(22.64%), 11(20.75%), 8(15.09%), and 5(9.43%) patients had epigastria pain/discomfort, weight loss, abdominal lump, dysphasia, and melaena respectively. Only 3(5.67%) experienced hematemesis. Table 3 shows that out of 53 patients, the highest number of patients, 19(35.84%), suffer from postoperative infection/sepsis. Subsequently, 15(28.30%) patients had paralytic ileus for >5 days. Besides, 4(7.54%) patients suffered from postoperative pulmonary infection. Two (3.78%) of each patient had the experience of duodenal blowout and wound dehiscence. Figure-2 shows that out of 53 patients, 50(94.33%) and 3(5.66%) respectively were alive and died. Table 4 shows that out of 53 patients, 43(81.13%) tumors were located in the distal stomach, and 10(18.86%) were located in the proximal stomach. Regarding the histopathological profile, it was evident that 46(86.79%) and 7(13.20%) were intestinal and diffuse types of adenocarcinomas, respectively. Among them, 18(35.84%), 13(24.52%), 12(22.64%), and 10(18.86%) had pathological staging IIB, IIIA, IIIB, and IIA, respectively. Regarding LVI/PNI status it was revealed that 30(56.6%) tumors had LVI+ whereas 11(20.75%) and 3(5.6%) had both PNI+ & LVI+ and PNI+ respectively. Only 9(16.98%) cases had these features absent.

Table1. Different demographic parameters of the patient (N=53).

Parameters	Frequency (n)	Percentage (%)
Age (in years)		
25-34	3	5.67
35-44	10	18.86
45-54	26	49
>55	14	26.41
Mean age \pm SD (in years)	48.9 \pm 9.36	
Sex		
Male	41	77.35

Female	12	22.64
BMI (kg/m ²)		
18.5-24.9 (normal)	33	62.26
25.0-29.9 (overweight)	9	16.98
≥30.0 (Obese)	11	20.75
Smoking history		
Smoker	36	67.92
Non-smoker	17	32.07
Household income (monthly in BDT)		
<5000 (Poor)	6	11.32
5000-10000 (Lower middle class)	13	24.52
10000-15000 (Middle class)	25	47.16
15000-20000 (Upper middle class)	8	15.09
>20000 (Affluent)	1	1.88
Occupation		
Unemployed	16	30.18
Service holder	11	20.75
Business	7	13.2
Farmer	14	26.41
Others	5	9.43

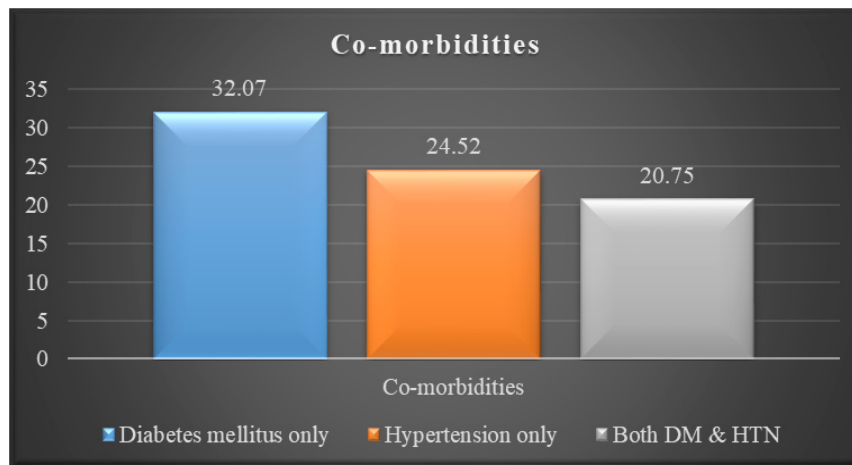


Figure 1. Distribution of patients according to co-morbidities (N=53).

Table 2. Distribution of patients according to clinical presentation (N=53).

Clinical presentation	Frequency (n)	Percentage (%)
Anorexia	49	92.45
Dyspepsia	38	71.69
Dysphasia	8	15.09
Vomiting/nausea	43	81.13
Epigastria pain/discomfort	19	35.84
Abdominal lamp	11	20.75
Hematemesis	3	5.67
Melaena	5	9.43
Weight loss	12	22.64

Table 3. Distribution of patients according to postoperative findings (N=53).

Postoperative findings	Frequency (n)	Percentage (%)
Postoperative infection/sepsis		
Present	19	35.84
Absent	34	64.15
Wound dehiscence		
Present	2	3.78
Absent	51	96.23
Bile leakage		
Present	6	11.32
Absent	47	88.68
Postoperative ileus (in days)		
>5	15	28.3
≤5	38	41.69
Duodenal blow out		
Present	2	3.78
Absent	51	96.23
Pulmonary infection		
Present	4	7.54
Absent	49	92.45

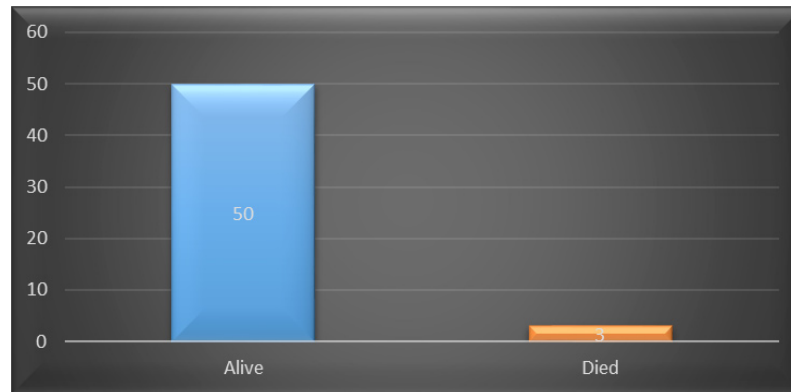


Figure 2. Distribution of patients according to mortality (N=53).

Table 4. Distribution of patients according to tumor profile (N=53).

Tumor profile	Frequency (n)	Percentage (%)
Anatomical site		
Proximal stomach	10	18.86
Distal stomach	43	81.13
Type of adenocarcinoma		
Diffuse	7	13.2
Intestinal	46	86.79
Grade of tumor		
High	11	20.75
Intermediate	27	50.94
Low	15	28.3
Pathological stage		
IA	0	0
IB	0	0
IIA	10	18.86

IIB	18	33.98
IIIA	13	24.52
IIIB	12	22.64
IIIC	0	0
Status of LVI/PNI		
PNI+	3	5.6
LVI+	30	56.6
Both PVI+ & LVI+	11	20.75
Negative	9	16.98

DISCUSSION

Stomach cancer is still the leading cause of cancer mortality worldwide, though the incidence is decreasing day by day. It is an aggressive disease, while the locoregional disease has a better prognosis. The overall five-year survival for respectable gastric cancer is usually 20-30% [13]. Still, then, radical surgery is the cornerstone of treatment and offers only a chance of cure. However, there are differences of opinion regarding the optimum resection for patients with gastric cancer. The impressive outcomes after D2 gastrectomy, as per Japanese literature, have not been reproduced in RCTs in Europe. However, the results of the 15-year follow-up of the Dutch trial showed that D2 gastrectomy has survival advantages. Some authors have proposed that D2 gastrectomy improves survival even in node-negative early gastric cancer, probably due to the resection of micrometastatic nodes [14]. Despite these favorable statements, D2 gastrectomy is criticized for its significant postoperative morbidity and mortality. The legendary surgical pundit Cuschieri opined that the majority of complications arise due to resections of the pancreas and spleen [15]. Hence, it was thought that modified D2 gastrectomy sparing the spleen and pancreas would be a better option to avoid excessive postoperative morbidity and mortality. The first outcomes after modified D2 gastrectomy for gastric cancer were originally published in Britain in 1995 [16]. It improves postoperative complications compared to gastrectomy, where they are resected. The 5-year and 10-year survival rates are significantly higher than classic D2 gastrectomy. Later, the technique of pancreas preserving total gastrectomy was explained [17]. According to the explanation, the 5 years overall survival rate for those with stage II was 70.5%, and for stage III, it was 54.1%, which was significantly higher than the pancreas resection group [18]. In 2015, the standard D2 gastrectomy was compared with modified D2 gastrectomy. The modified D2 has less postop death and morbidity than other procedures [19]. The 5 years of disease-free survival or the site of tumor relapse was not different. The incidence of involvement of nodal stations 10,11d and 12 a was 5%, and the 5 years of disease-free survival was zero when they were involved. So, the benefit of removing them when they are involved is almost nil except in surgical staging. Hence, he proposed a form of modified D2 gastrectomy, which explains surgery without dis-

section of 11d and 10 nodal stations. This procedure was tried to be followed here in this study except where they are grossly involved, or there is the direct spread of the tumor to the spleen or pancreatic tail. From the perspective of this study, most of them are in the advanced stage, so D1 gastrectomy is not an option for them. Hence, modified D2 gastrectomy was the right choice. A total no. of 53 patients randomly met the inclusion and exclusion criteria and were operable candidates. The mean age group was 48.9 ± 9.36 (age range: 25-79 years). The most common age group affected was 45-54 (49%). This was in contrast to two previous studies, which had the majority of patients in the age group of more than 60 years [20]. The proportion of females is considerably low in comparison to males. The male-to-female ratio was 3.42:1, which is supported by the previous studies [21]. So far, BMI is concerned, hardly any patient is underweight. The majority have a BMI within the normal range (62.26%). However, almost the majority of them did not give a history of significant weight loss. It reveals that weight loss in stomach cancer is an accompaniment of advanced or inoperable disease rather than socioeconomic status, as the majority of the patients are of low socioeconomic status. Among the symptoms, the most common in order of frequency, are anorexia, dyspepsia, GOO, melena or bleeding, and pain in the abdomen. These symptoms are supported by a previous study [22]. However, because of its vague presentation, early diagnosis is of concern. Secondly, epigastric pain or discomfort pain indicates an advanced stage of disease, probably due to the involvement of nerve fibers around the celiac plexus involved by malignant lymph nodes or due to GOO. The majority of the patients were smokers (67.92%). So substance use also has some contribution to gastric cancer. So far, co-morbidities are concerned. The majority, 70.5%, do not have any co-morbidities. The most common co-morbidity in the scenario is DM (32.07%), which is in contrast to a previous Indian study [23]. The next order of co-morbidity is hypertension. So, the patient population is medically healthy. None of the patients have any surgical procedure or any major hospitalization. In fact the patients having previous abdominal surgery were excluded from the study so that the outcome is not to be affected by other factors. The tumor profile of the study population revealed that the most common site of the tumor was distal, about 81.13% of the cases. This was almost like that of a previous study where they claimed it as 80%

[24]. The rest were in proximal stomach (18.86%). Distal gastrectomy was done for the distal tumor, and the rest of the others were approached by total gastrectomy. The patients having tumors involving GEJ or lower esophagus were excluded from the study. Hence, the controversy regarding the extent of resection, whether total gastrectomy or esophago-gastrostomy, is negated altogether. None of the patients has undergone proximal gastrectomy, considering the intractable complication they carry. There was not a single case of duodenal infiltration or disease involving the spleen or pancreatic tail. So, none of the cases needed pancreatic splenectomy. Cases of distal gastrectomy were reconstructed by Billroth-II gastrojejunostomy and side-to-side JJ for bile reflux, and those with total gastrectomy reconstruction were done by Roux-en Y esophagojejunostomy. Feeding jejunostomy was done in all cases for the sake of postoperative nutrition. The postop ileus lasts for a range of 3-8 days, considering the cases where there are some complications like bile leak. The mean was 5.1 days. The postop ileus is regarded as significant only if it is more than 5 days in duration. The standard is usually 3 days following abdominal surgery. However, considering our perspective and open surgery, it has been arbitrarily raised to 5 days, and it is judged by the day the patient appreciates passage of flatus and there is bowel sound altogether. So only in 28.30% of cases the ileus was longer than 5 days. In the majority of cases, the bowel activity returned well in time. Bile leak is the most major complication found in only 11.32% of cases. Usually, all bile leak cases were stage IIIb or IIIc cases. So, it is implied that the complication rate increases with an increase in the stage of the disease. The complication in the form of wound infection was present in 35.84% of cases. This is probably higher in comparison to any standard data. A previous study presented 13% of wound infections of D1 and 3.7% of wound infections in the D2 group [25]. The increased rate of wound infection is a sign of poor maintenance of infection control protocol perioperatively, as well as some inferior quality drugs being prescribed to patients. The average hospital stay was 11.45 days, which has been onside red the days after the date of surgery. So, more accurately, it could be mentioned as a postoperative stay. So, if a patient stays 2 to 4 days preoperatively, the real hospital stay would be 14 to 16 days. The majority of patients have low or intermediate-grade tumors, and the majority of intestinal varieties (86.79%). Tumors in this study were differentiated carcinomas. This finding was contradictory to another study [26]. The average lymph node retrieval was 19.52, and the average number of positive nodes was 4.32. According to some previous studies, the lymph node retrieval was 17, which is lower than our findings. Conversely, another previous study claimed 30 lymph nodes, which is far more than our findings.

Likewise, another study claimed their retrieved lymph node number as 37, which is also higher than our results in this regard [27]. The majority of patients are in stage IIIb, about

35.84%. No cases were found as stage I, which indicates that most patients were in an advanced stage of disease. Almost similar findings were obtained by P. Edwards et al., 2004(stage I- 20%, stage II- 28%, stage IIIA- 23%, and stage IIIB- 29%). M. Degiuli et al., 2014 have shown that 41% of modified D2 had stage I disease [22]. While in our study, 0% of patients had stage I disease. As an early postoperative course, this study considered bile leak, prolonged ileus, and wound infection as more specific complications related to surgery itself. At the same time, other nonspecific complications, such as a chest infection, fever, and sepsis, were also observed. The above complications lead to an enhanced (slightly) hospital stay. The duodenal blowout, followed by septicemia, led to mortality. This is in sharp contrast to the earlier studies which have reported mortality in D2 gastrectomy. Mortality rates associated with radical resection of stomach cancer have improved greatly owing to more rigorous patient selection and development in surgical techniques and postoperative care [28]. For bile leak, the most lethal complication was managed by draining the collections image guided when required, escalating the antibiotic regimen, and, most importantly, maintaining a very good nutrition postoperatively through an FJ feeding tube. Nutrition is usually maintained by giving a polymeric diet such as milk and protein powder. However, in case of a leak, 25- 50% of that has been provided with a semi-elemental diet, keeping adequate calorie and protein intake. In case there is GI intolerance in the form of abdominal distension or diarrhea, we have supplemented with parental nutrition with regular insulin. However, in our study majority are managed by enteral nutrition itself. The criteria to start with enteral nutrition was not bowel sound or passing flatus. If there is no abdominal distension and no frank features of peritonitis or vomiting, pain associated with FJ feeding was the more specific criteria for commencing the enteral feeding. A systematic review and meta-analysis of randomized controlled trials that compared any type of enteral feeding started <24 hours after elective gastrointestinal surgery versus nil by mouth management concluded that early feeding reduced infective risks by approximately 30% and mean length of hospital stay by nearly one day [29]. The second most important aspect is that the age group of the study is significantly lower compared to another study. The BMI, as well as serum albumin level, was maintained in the patient population significantly. Last but not least, none of the patients has undergone pancreatic splenectomy as a part of the surgical procedure except one. Together with these proper patient selections, the use of modern gadgets and proper techniques have made it a relatively safe procedure with almost decreased mortality. Now, what happens to these patients in the long term, during adjuvant treatment, is a matter to be seen, which at present is beyond the scope of the disease; as Alfar Nafae et al. (2016) in their study did not find any death which is directly related to the procedure itself except one where hemorrhage is the

cause which could have managed by meticulous surgery [26]. So, zero mortality is possible in modified D2 gastrectomy, though mortality was 5.66% in this study. So, the major comorbidities are analyzed. Increased drainage that is more than 5 days is related to low albumin (<3.2) and increased stage of the disease. Similarly, ileus is correlated with preop Hb% level. It is an unknown factor for postop ileus. The statistical significance of it is unknown. Given the small sample size in this study, a larger study needs to be done regarding the impact of low hemoglobin and postop paralytic ileus. This correlation was beyond the objectives of this study

LIMITATIONS OF THE STUDY

The study has several limitations. Firstly, it is an observational study, which inherently lacks the rigor of a randomized controlled trial, making it susceptible to biases and confounding factors. Secondly, the study's focus on early postoperative outcomes may not fully capture the long-term effects and survival rates associated with modified D2 gastrectomy. Additionally, the study's sample size is relatively small, limiting the generalizability of its findings. The lack of a control group or comparison with other surgical approaches hinders a comprehensive assessment of the modified D2 gastrectomy's efficacy. Furthermore, the retrospective nature of data collection may introduce recall bias. Lastly, the study's timeframe may not be sufficient to assess the full spectrum of complications and outcomes associated with the surgical procedure.

CONCLUSION AND RECOMMENDATIONS

In conclusion, it can be said that surgery for stomach cancer is the best choice for better prognosis and long-term survival. However, as a massive procedure, the patient's fitness to accept this surgery is the prime concern regarding the effects. As surgery gives quick symptom relief by locoregional control, it is better to approach surgery by appropriate patient selection. The modification of surgical procedures contributes significantly to lessening postoperative morbidity and mortality. It has been proved that the oncological equivalency of D2 dissection avoids 11d and 10 groups of nodes, thereby avoiding pancreatic splenectomy altogether. This modification improves postoperative outcomes significantly. With proper patient selection, proper postop care, and improvement in surgical techniques, the mortality (procedure specific) can be significantly low in number. Modified D2 gastrectomy provides an adequate no. of lymph nodes to be examined, fulfilling the criteria led down by NCCN guidelines, too. Though it is a safe procedure, yielding adequate lymph nodes for proper staging, more trials are required to test its survival advantage vis-à-vis D2 gastrectomy on long-term follow. In a

sentence, D2 gastrectomy is a recommendable procedure for excellent postoperative outcomes.

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CONFLICT OF INTEREST

None declared

ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee.

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