


Research Article

Best Palliation for Malignant Bowel Obstruction- A Retrospective study

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Abstract

Objective: To determine the best palliative procedures undergone surgery and non-surgical procedures such as Chemotherapy/Stenting.

Background: Malignancy of Gastrointestinal tract starting from Oesophagus to Anus may cause acute or sub-acute obstruction which requires emergency relief from the symptoms. Surgery with diversion, colostomy or ileostomy, Nutritional Management with feeding gastrostomy/ jejunostomy and further chemoradiotherapy were required according to the different pathological variants at different site of G.I. tract to reduce the mortality rate and prolonging the survival time. Previous studies have been compared for the outcome of success rate, hospital stay, mean long term survival for different palliative interventions. None of them had proved to be most efficient for prolonged survival as most of cases were in the advanced stage of cancer.

Method: A retrospective study of Seventy patients of malignant bowel obstruction was done with statistical analysis.

Observation: Among the Seventy patients 49 were male and 21 were female and mean age of the patient was 49.57. The overall symptoms improve rate was 75.71%. Among them symptom improve rate 96% in surgical group, 42.80% in stenting group and 15.38% are in chemotherapy group. Median survival time was 270 days in surgery group.

Conclusion: Malignant obstruction is an emergency condition in most of times needs urgent symptom relief by any mean of palliation. Complete and unresectable malignant obstruction needs diversion colostomy or any by-pass surgeries. Among all type of surgeries resection and anastomosis with or without diversion of loop is best palliation.

Keywords: MBO: Malignant Bowel Obstruction; GJ: Gastrojejunostomy; TPN: Total Parental Nutrition; Chemo-radio (Chemoradiotherapy).

Introduction

Malignant bowel obstruction is acute or sub-acute presentation of intestinal obstruction in the emergency OPD with features of distention, vomiting, pain abdomen and nutritional disorders due to malignant involvement of bowel. The various methods including their efficacy and safety, indication and appropriate timing of intervention are required for relieve of symptoms to improve the quality of life [1]. Neoadjuvant chemotherapy, immediate surgery can improve the symptoms but don't have overall survival among patients with epidermoid cancer or adenocarcinoma of oesophagus [2]. Metastasis to distant organs including carcinomatosis peritonei may be presented with intestinal obstruction. The treatment is considered purely

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palliative. However, for sub-group of patients multimodal treatment can be provided with curative intent. Cytoprotective surgery systemic chemotherapy can improve the symptoms and survival time [3]. The decision on a surgical versus on endoscopic stenting procedure for palliation depends on the tumour stage and degree of obstruction [4]. The goal of different methods of interventions concern life expectancy, nutritional status and intestinal function. Enteral feeding with feeding gastrostomy or jejunostomy should be considered as fast choice, if definite surgery or endoscopic stenting are not feasible [5]. Colonic stening was first performed in the countees of Chester Hospital 2001. Combined endoscopy and radiological approach of stenting for large bowel malignant obstruction help for, palliation and as a 'Bridge to Surgery'. Thus reduces morbidity and mortality, avoidance of stomach and shorter hospital stay [6].

Periampullary cancer often present with duodenal obstruction, obstructive jaundice. Both surgical and non-surgical palliative procedure relief obstruction. Stenting and by-pass surgical treatment are required for longer life expectancy [7]. Surgery is associated with a better overall survival compared to other basic supportive care treatment for patient of malignant bowel obstruction with peritoneal metastasis [8]. One stage primary resection and anastomosis is the preferred choice for low risk patients. Colostomy has a role for colonic obstruction of patients with very ill patients. Colonic stenting is the best option either for palliation or as a bridge to surgery as it reduces morbidity and mortality rate and also reduces colostomy formation [9]. Self Expandable Metal Stents (SEMS) may be used for both palliative measure and as a pre-operative bridge to facilitate a one stage surgical resection of primary colonic tumours. SEMS can be placed endoscopically or radiologically. The indications, methods of insertion and outcomes following the procedure are most important for comparative study [10]. Geriatric patients, patients with anaemia, hypoproteinemia, ascites, jaundice, any cardio respiratory morbidity and distant metastasis, influence the outcomes in three areas like oncological prognosis, morbidity and mortality risk and long term function loss. Occurrence of complication is the strongest predictor of multiorgan failure and death. Post operative care plays a major role to optimize outcomes. The third of colorectal cancers are diagnosed in an emergency setting, mostly among geriatric patients [11].

Patients with duodenal obstruction due to tumour growth duodenal stenting is best palliation considered for better survival time [12]. In patients with locally advanced gastric cancer with symptomatic can be managed with radiotherapy extends survival time [13]. Gynecological malignancies like Ovary / uterus also invade adjacent intestine causing malignant bowel obstruction. Inappropriate management may result in uncontrolled (Faeculant) vomiting, pain at distress management of the symptoms can include palliative

surgery, nasogastric suction therapy together with IV fluids and pharmacological means such as Corticosteroids [14]. Management of these patients is difficult due to patients deteriorating mobility and performance status. The lack of further chemotherapeutic options and higher mortality and morbidity associated with palliative surgery. In order to compare the outcomes of time to recurrence, time of hospital stay, time of survival and time of reintervention, study of complication of surgery, chemoradiotherapy and stenting there needs to be greater degree standardized management [15]. Stent placement for palliation are beneficial as a bridge to surgery, but the selection of patients are most essential for colorectal malignancy [16]. Several options are available to palliate malignant bowel obstruction but none of them have established consensus among surgery [17]. Self expanding metal stents are for palliation of malignant biliary and duodenal obstruction may provide a safe and less invasive attentive to surgical palliation with acceptable clinical outcomes [18]. Malignant bowel obstruction is complication of different gynecological malignancy particularly ovarian cancer. Only small subset of patients with MBO appears to benefit from surgical intervention with controversy to use of chemotherapy and TPN [19].

Aim

To determine the best palliative procedure undergone surgery and non-surgical procedure such as Chemotherapy / stenting from 2017 to 2022 at M.K.C.G. MCH, Brahmapur.

Methods

A retrospective study of patients admitted to the M.K.C.G. Hospital for intestinal obstruction and diagnosed as a cause of malignancy preoperatively and postoperatively. It may be partial or complete obstruction of any part of G.I. track. The patients conditions clinical characteristics and their follow ups with diagnostic evaluation and interventions were recorded from the registry of the Department and O.T. records from the period May 2017 to May 2022. No ethical committee clearance was required as it was a retrospective study. Patient were selected from the age group 16 to 85 admitted for intestinal obstruction who were required immediate surgery or other interventional modalities. Intestinal obstruction due to any other benign conditions like Foreign Body, adhesions, bands and herniations were excluded from this study. Any growth causing obstruction and proved to be malignancy perioperative or postoperative with histopathological evidence were included in this study (Figure 1,2,3). The clinical and different diagnosis were made by diagnostic procedures such as X-ray, Ultrasonography, CECT and MRI were done for diagnosis of intestinal obstruction as needed. Accordingly the palliative interventions surgically such as diversion of bowel, feeding gastrostomy / jejunostomy, Gastrojejunostomy, Diversion colostomy or Ileostomy were done for the relief

of symptoms or signs in case of acute intestinal obstruction. Those were relieved conservatively and diagnosed to be in sub-acute condition were thoroughly investigated by different investigating procedure such as CECT, MRI and Serum markers for malignancy such as CEA, CA-19.9 and CA-125. Those patients required chemotherapy or elective surgery after staging of the malignancy. The patients were categorized in to 3 groups : (1) Surgical Palliation (2) Stenting (3) Chemotherapy First. The significance of different factors and outcomes of long survival were compared to conclude the one of the procedures undergone for malignant intestinal obstruction and that procedure was considered the best palliation.

Statistical analysis

The different groups of interventions for the patients were compared with their clinical characteristics by one way Anova and posthoc analysis for the significant groups and outcomes. The associated factors influence the outcome of survival were detected by multivariable analysis. Time and events were noted from hospital admission of the patients, hospital stay, recurrence, interventions and death were recorded for the survival analysis. Cox regression analysis and hazard ratios along with Kaplan Meir survival analysis were done by the help of SPSS - 22.

Result

A total of 70 patients proved with G.I. malignancy causing intestinal obstruction were enrolled in this study. Among the 70 patients 49 were male and 21 were female. Patient's age ranged from 16 years to 85 years with mean age of 49.57 and median age of 53 years. Median survival time was 270 days in surgery group. The clinical and pathological data of all patients in this study were as follows in the table 1.

The means of the following pairs are significantly different: (x1) Surgery Vs. Stenting(x2), Surgery(x1) Vs. Chemotherapy(x3) age analyzed by ANOVA and posthoc analysis as on table 2.

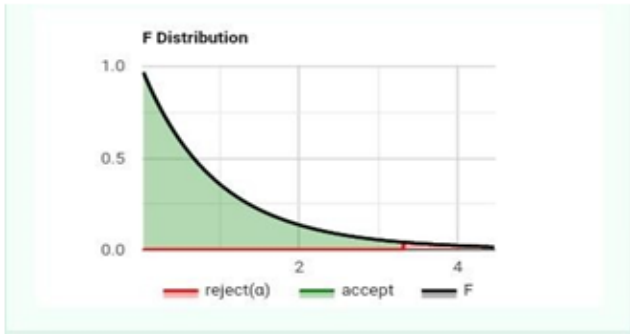
Evaluation of effectiveness of different palliative procedure for survival analysis were done. The overall symptom improvement rate was 75.71%. The overall symptom improvement rate in the surgical category was significantly higher than the stenting and chemotherapy category i.e., 96% Vs. 42.80 and 96% Vs. 15.38% respectively. The means of the surgical category compared the chemotherapy and stenting were significantly different 18.45 (8.8742 - 28.0349) and 16.2727 (6.6924 - 25.8331) with 95% confidence interval and p-value 0.0001367 and 0.0006488 respectively as on the Table 3. 50 patients of surgical category, 13 patients on chemoradiotherapy and 7 patients in the stenting group were

Table 1: Different clinicopathological characteristics and treatment modalities

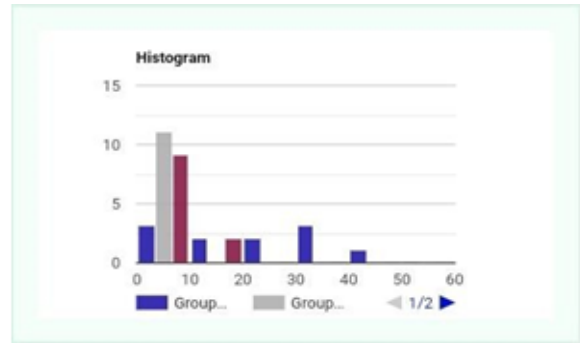
Clinical Characteristics	Surgery (x1) (no. 50) = 71.4%	Stenting (x2) (no.7) = 10%	Chemoradio (x3) therapy (no. 13)= 18.5%
< 75 years	48	4	13
> 75 years	2	3	0
Male	38	5	6
Female	12	2	7
BMI > 35	4	3	3
BMI < 35	46	4	10
Acute intestinal obstruction	30	0	0
Sub-acute intestinal obstruction	20	7	13
Blood transfusion	38	2	2
TPN	22	4	6
Patient with sepsis	2	1	1
History of previous surgery	4	2	11
H/o Previous Chemoradio therapy	6	0	5
Other comorbidity	16	5	1
Long Hospital Stay	13	4	11
G.I. Bleeding	4	1	0
Recurrence	17	6	6
Median survival time	270 days	180 days	190 day
Complications	14	2	5
Hospital Death	6	0	1

Table 2:

Pair	Difference	SE	Q	Lower CI	Upper CI	Critical Mean	p-value
x1-x2	18.4545	2.7479	6.7159	8.8742	28.0349	9.5803	0.0001367
x1-x3	16.2727	2.7479	5.9219	6.6924	25.8531	9.5803	0.0006488
x2-x3	2.1818	2.7479	0.794	-7.3985	11.7622	9.5803	0.8414



GRAPH-1



GRAPH-2



GRAPH-3



GRAPH-4

analyzed. Among them 46 patients were died in 5 years of intervention for malignant bowel obstruction. The overall median survival time was nine month and one year mortality rate was 77.14% overall. Patient within surgical group had longer median survival than stenting and chemotherapy group. Patients those had transfused blood and needed total parental nutrition at the time of intervention were significantly influenced the death rate among all the groups.

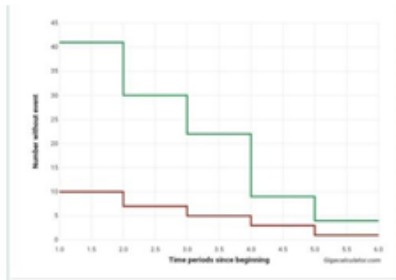
Non-surgical patients were associated increase risk of mortality 0.99 (0.835 – 1.190) 0.485. The risk ratio for death for surgery compared to chemotherapy and stenting were

0.6783 (0.4973–0.9250)0.0249 and 0.7826 (0.5599 – 1.0939) 0.1766 for those patients required blood transfusion. The risk ratio for death for surgery compared to chemotherapy and stenting were 0.8696 (0.5784 – 1.3072) 0.5130 and 0.7826 (0.5599 – 1.0939) 0.1766 which were non- significant for the patients required TPN. The associated factors which is highly responsible for the outcome of the survival were analyzed by Cox regression Analysis. The Five-year survival rate as reported and recorded were analyzed by Cox hazard ratio and Kaplan Meir Survival Analysis with the help of recorded data and events.

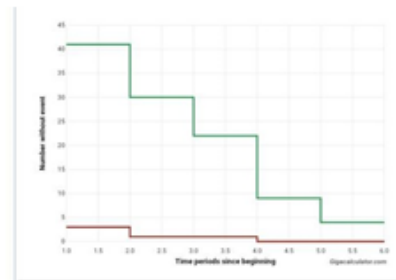
Surgery Vs. Chemotherapy		Surgery Vs. Stenting	
Hazard Ratio	0.850026	Hazard Ratio	0.552196
95% Confidence Interval	[0.352, 2.054]	95% Confidence Interval	[0.085, 3.598]
95% Left-Sided Interval	[0.405, +∞]	95% Left-Sided Interval	[0.115, +∞]
95% Right-Sided Interval	[-∞, 1.782]	95% Right-Sided Interval	[-∞, 2.662]
P-value	0.704924	P-value	0.412903
χ^2	0.1434	χ^2	0.670428

Calculation of hazard ratio

Chemotherapy Vs. Surgery Stenting Vs. Surgery



Graph – 6(a)



Graph – 6(b)

Time event graph analysis

The Hazard ratio, 95% confidence interval and p-value for the 5-year death rate for surgery compared to Chemotherapy and Stenting were 0.85 (0.352 – 2.054) 0.70 and 0.55 (0.085 – 3.598) 0.41 respectively. Mortality related to surgery and other interventions were compared and found to be non-significant. Thus, median survival time calculated among different interventional groups remain significant for survival analysis.

Discussion

Patients with malignant bowel obstruction represent a complex and heterogeneous population. Previous studies have reported on the effectiveness of palliative surgery for MBO. Most of which focused on gynecological and G.I. cancer population [20-22]. In our study we observed higher symptom relief rate and prolonged survival rate after any

palliative surgery compared with non-surgical procedures such as endoscopic stenting or chemotherapy. The priority of care for inoperable patients was to control their symptoms and improve their quality of life. Medical treatment combining total parenteral nutrition, opioids, antiemetics and somatostatin drugs are usually considered to be preferred treatment [23]. The primary goal in any palliative procedures are symptom relief and restoration of oral feeding. Single site obstruction can be resolved by endoscopic stenting and diversion ostomy with chemotherapy [24,25]. However, some patients with complete obstruction may have different sites and acute presentation requires immediate surgery for relief of symptoms. The overall symptoms relief rate of all the patients included in this study was 75.71%. The surgery group achieved a higher symptoms relief rate than the others 96% Vs. 42.80% Vs. 15.38% as discussed on table 4.

Conclusions

Malignant obstruction is an emergency condition in most of times needs urgent symptom relief by any mean of palliation. At this same time, it needs nutritional and psychological support in both pre and post – diagnostic procedures. Complete and unresectable malignant obstruction needs diversion colostomy or any by-pass surgeries. Among all type of surgeries resection and anastomosis with or without diversion of loop is best palliation in all settings of surgery. Pre-operative diagnosis of acute intestinal obstruction due to any malignancy is not completely conclusive hence laparotomy and post OP histopathological gradation is required for further treatment. In most of cases surgeries are practiced than the other modalities in acute or sub-acute conditions as patients' needs urgent symptomatic reliefs. Overall, 5-year survival rate are insignificantly different among all the treatment modalities as the patients present in advance stage of malignant disease. But symptoms relief rate is more in surgical group than other stenting or chemotherapy group of patients. Anemia, hypoproteinemia and ascites were significant factors effect on the prognosis and survival time. For improvement of quality-of-life surgery is the priority among all type of treatment modalities in acute and sub-acute conditions.

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