

SURGICAL APPROACHES OF LEFT SIDED LARGE GUT OBSTRUCTION DUE TO MALIGNANT LESION OF IT

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ABSTRACT

Background: The rising incidence of colorectal cancer is a well-known phenomena. Two third of the cancer is located in the left side of the colon and the remaining one third is located in the right. Large gut obstruction is a common complication that the patients with left sided colorectal cancer presented with. The surgical treatment of acutely obstructed left colon cancer is still a debatable issue for the surgeons because of its high associated morbidity and mortality and availability of different surgical options. Therefore, the data generated from the present study might be helpful to identify the appropriate surgical option for the patients with left sided large gut obstruction due to its malignancy, thus reducing the postoperative mortality and morbidity of the patients with dilemma of surgeons about surgical approaches as well. **Objective:** To propose a preliminary guideline for selection of surgical option for patients with left sided large gut obstruction due to its malignant lesion. **Methods:** It was a prospective observational study. The study was carried out in the department of Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka Medical College Hospital and Shaheed Suhrawardi Medical College Hospital, Dhaka; during the period of september 2013 to march 2014. Demographic data of the patients as well as clinical presentations of them, diagnostic procedures, parameters relating to surgical approaches, early post-operative complications were retrieved. **Results:** A total of 50 patients of left sided obstructing colorectal cancer were studied. The mean age of the patients was 49.78 years with a male female ratio of 1.3:1. All patients presented with abdominal pain, constipation, abdominal distension and absence of bowel sound. Sigmoid colon was the commonest site of lesion (42%) followed by recto sigmoid junction (22%), rectum (16%), splenic flexure (12%) and descending colon (8%). Three patients of in this series presented in Dukes' stage A (6%) while 22 patients presented in stage B (44%). Stage C and stage D constituted 36% and 14% respectively. Primary resection and anastomosis with covering ileostomy was done in 12% patents, who belonged Dukes' stage A&B and ASA score <3. 52% were underwent primary resection and end colostomy (Hartmann's procedure) and belonged mostly Dukes' stage C&D and ASA ≥3, and the rest 36% were undergone loop colostomy and belonged Duke stage C&D and ASA ≥3. **Conclusion:** Primary resection and end colostomy (Hartmann's procedure) is the appropriate surgical option for high risk patients for malignant left sided large gut obstruction and it is opted for most of the patients. Again, loop colostomy is recommended for patients who are in extremely high risk and not fit for prolong surgery. Whereas, primary resection and anastomosis with covering ileostomy is recommended for low-risk patients.

KEYWORD:- Colorectal cancer, Morbidity, Mortality, Loop colostomy.

INTRODUCTION

Colorectal cancer represents the third most common cause of malignancy in man and fourth most common cause of malignancy in women.^[1] The usual occurrence of carcinoma colon in a patient is above 50 years of age. However, it is not rare earlier in adult life.^[2] Two third of the cancer is located in the left side of the colon and the remaining one third is located in the right.

Cancer represents the most frequent cause of large bowel obstruction, comprising 60% of the occlusions in elderly patient.^[3] Between 15-20% of patients with colonic cancer present with symptoms of acute obstruction and are more common in cancers of the left sided colon.^[4]

The treatment of choice of acutely obstructed left colon carcinoma is emergency surgery and still remains

controversial because of its high associated morbidity and mortality and the number of different surgical options availability.^[5]

In a multi-centre German observational study, 743 patients with obstructed left colon cancer underwent emergency surgery, performed as a radical resection. In 57.9% primary resection and anastomosis, in 11.7% a primary anastomosis with protective stoma and in 30.4% Hartmann's procedure were performed. The morbidity and hospital mortality rates did not differ significantly between the groups. With comparable mortality Hartmann's procedure was recommended for the high-risk patient in emergency situation.^[6] However one of the main disadvantages of Hartmann's procedure is the need of second major operation to reverse the colostomy which will be also associated with a risk of anastomotic dehiscence similar to primary resection and anastomosis.^[7]

Another study shows, primary resection and anastomosis appears to be associated with best outcome in case of low-risk patients. It offers the advantage of a definite procedure without need for further surgery. The main disadvantage is potentially higher risk of anastomotic leakage that occurs in emergency settings.^[8]

Some authors recommended that temporary colostomy or ileostomy with staged operation is preferable in case of unresectable disease or the patient is unfit for prolong surgery.^[7]

A survey among the surgeons of society for surgery of the alimentary tract shows, with left sided colonic emergencies in high-risk patient most surgeons opted for a Hartmann's procedure (88%) or a diverting colostomy (7%). But in good risk patients 53% of the responders selected one stage resection and anastomosis.^[9]

Some author suggested that the decision, which procedure should be chosen mainly depends on the clinical assessment of the patient's condition. The Association of Coloproctology of Great Britain and Ireland (ACPGBI) study of large bowel obstruction causes by colorectal cancer identified four important predictors of outcome- age, ASA scoring, duke's staging and operative urgency.^[10]

So far surgeons have selected surgical options in left sided large gut obstruction due to its malignancy, on the basis of intuitive judgment. Intuitive judgment has got its own fallacies and there is risk of selection of less appropriate options.^[11] Developments of guidelines, protocols and set rules save surgeons from such errors. This simple study has been undertaken for development of a proposal building for selection of surgical option in such scenarios.

OBJECTIVE

General

To propose a preliminary guideline for selection of surgical option for patients with left sided large gut obstruction due to its malignant lesion.

Specific

- To identify the surgical approach according to the per-operative tumour staging (Dukes staging).
- To identify the surgical option in relation to the co-morbid conditions of the patient.

METHODOLOGY

Study design

It was a prospective observational study.

Study place

Department of Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka Medical College Hospital and Shaheed Suhrawardi Medical College Hospital, Dhaka.

Study period

The study was carried on from 23rd September 2013 to 22nd march 2014.

Study population

Patients of both sex aged 21-80 years were selected who got admitted in the surgery department with clinical diagnosis of large gut obstruction due to left sided colonic malignancy were enrolled.

Sample size

In this study 50 cases were taken due to time and money constrain.

Sampling technique

Patients admitted to the above mentioned hospital and after meeting the inclusion and exclusion criteria a convenience sampling technique was applied for selecting the sample.

Inclusion criteria

Patients present with large gut obstruction due to left sided colonic malignancy.

Exclusion criteria

- Large gut obstruction due to other malignancy e.g. Gynaecological origin.
- Non malignant cause of large gut obstruction.
- Patient's response to conservative treatment.
- Patients refuse for surgery.

Procedure of collecting data

For all cases, detailed history of patients on admission were taken by using a pre designed data collection sheet, duly filled in. All the cases examined thoroughly. Physical findings regarding anaemia, jaundice, oedema, lymphadenopathy, nutrition, pulse, blood pressure; abdominal findings-like; distension, ascities, mass,

rigidity, hepatosplenomegaly, bowel sound were recorded. Digital rectal examination and proctoscopic examination were done in every cases. All per-operative findings were recorded. Post-operative period during their hospital stay were followed to detect any events.

Data analysis

Data were processed manually and analyzed with the help of SPSS (Statistical package for social sciences)

Version 19.0. Quantitative data were expressed as mean and standard deviation. Qualitative were expressed as frequency and percentage. Other statistical test was done whenever it was necessary. A probability value (p) of less than 0.05 was considered to indicate statistical significance.

RESULTS

Table 1: Age incidence (n=50).

Age in years	Number of cases	Percentage (%)	Mean±SD
21-30	2	4	49.78±12.44
31-40	11	22	
41-50	12	24	
51-60	15	30	
61-70	8	16	
71-80	2	4	
Total	50	100	

Table shows maximum (30%) incidence in the present study group was 51-60. The average age was 49.78 years.

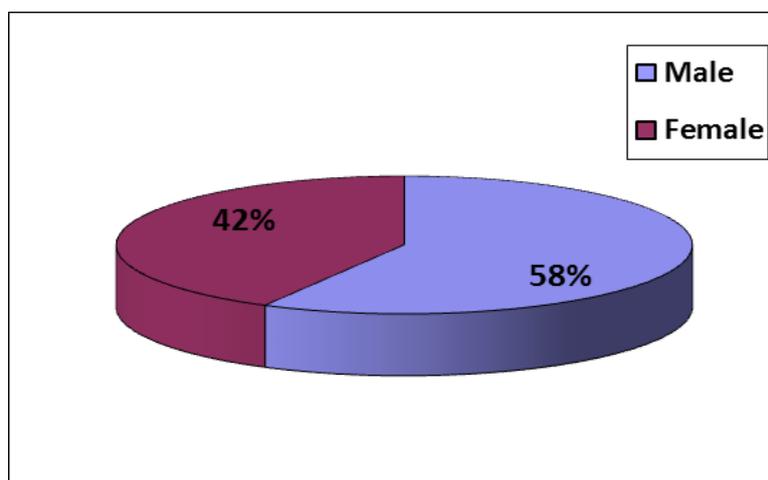


Fig. 1: Sex incidence (n=50).

Male patients were more commonly affected when compare to female in the ratio of 1.38:1 in the above figure

Table 2: Socioeconomic status (n=50).

Socioeconomic status	Number of cases	Percentage (%)
Low	38	76
Middle	11	22
High	1	2

Table shows 76% belong poor class, 24% were middle class and 2% were high class.

Table 3: Diagnostic procedures done in 50 cases.

Investigation	No. of patients	Positive results	
		No	%
Digital rectal examination	50	8	16
Proctoscopy	50	8	16
Plain X-ray (Abdomen)	50	50	100
USG of whole abdomen	50	50	100
CT scan of whole abdomen	10	10	100

Digital rectal examination and proctoscopy was done in all patients with positive results in 16% of cases. Plain x-ray of the abdomen revealed multiple air-fluid levels in

all the cases. USG of whole abdomen shows gas distended bowel loop in 100% cases with soft tissue

mass in 14% cases. CT scan done in 10 cases and all 10 cases show positive findings.

Table 4: Distribution of cases according to site of lesion.

Site of carcinoma	No. of patients	Percentage
Splenic flexure	6	12
Descending colon	4	8
Sigmoid colon	21	42
Recto sigmoid junction	11	22
Rectum	8	16

The sigmoid colon was the commonest site of lesion (42%) followed by recto sigmoid junction (22%), rectum (8%), splenic flexure (12%) and descending colon (16%).

Table 5: Operative procedures done in 50 cases.

Operative procedure	No. of patients	Percentage
Primary resection and anastomosis with covering ileostomy	6	12
Primary resection and end colostomy (Hartmann's procedure)	26	52
Loop colostomy	18	36

Table shows, 12% were undergone primary resection and anastomosis with covering ileostomy, 52% were primary resection and end colostomy (Hartmann's procedure), 36% were loop colostomy.

Table 6: Comparison of mortality in respect of different variables.

Variable	No. of patients	Mortality %	P value
Age			
≤40	13	0(0)	0.122
>40	37	6 (16.21%)	
ASA			
≤3	39	1(2.56%)	0.001
>3	11	5(45.45%)	
Procedure			
Primary resection and anastomosis with covering ileostomy	6	1(16.67%)	0.621
Primary resection and end colostomy (Hartmann's procedure)	26	2(7.69%)	
Loop colostomy	18	3(16.67%)	
Dukes' staging			
A+B	25	2(8%)	0.001
C+D	25	4(16%)	

It was documented that mortality rate was more in >40 years of age. In ASA score mortality was more in whose ASA score >3, the difference was statistically significant (P<0.05). No significant difference (P>0.05) in mortality

in different procedure. Moreover mortality were more in C+D dukes' stage which was statistically significant (P<0.05).

Table 7: Duration of hospital stay.

Procedure	Duration	Mean±SD
Primary resection & anastomosis with covering ileostomy	15-25 days	20.16±3.92
Primary resection and end colostomy (Hartmann's procedure)	15-20 days	17.34±1.76
Loop colostomy	12-20 days	16.00±2.65

Table shows duration of hospital stay, patients underwent primary resection & anastomosis with covering ileostomy, average hospital stay was 20.16

days, primary resection and end colostomy (Hartmann's procedure) was 17.34 days and Loop colostomy was 16 days.

DISCUSSION

This multiple institution prospective study included 50 patients who were hospitalized with clinical diagnosis of acute intestinal obstruction due to malignant lesion of left sided large gut and underwent surgical procedure. As the sampling method was convenient the gender difference was negligible. Still then current reported incidence of obstructed left sided colorectal cancer hardly makes any difference in the male female ratio.^[11] This current study shows the mean age is 49.78 years, This finding contradicts with the reported estimates in the literatures^[12,13] while the mean age reported by Olejnik J et al and Yuan T L et al^[14] was 66 years. The probable explanation should be the early incidence of colorectal cancer in our country in comparison to incidence in western countries. Some studies in our country shows, the highest incidence of colorectal cancer is 3rd and 4th decade of life.^[15,16]

Present study shows patients are mostly (76%) from low socio-economic condition, which is the representation of our large low socio-economic social status.

In this series, all patients presented with abdominal pain, constipation, abdominal distension and absence of bowel sound. In 76% of patients presented with nausea/vomiting. Our findings are similar with studies conducted by Buchter^[17] and Kingston.^[18] Moreover, plain X-ray abdomen in erect posture, USG of whole abdomen and CT scan of whole abdomen show positive result in all cases.

In this study, the maximum of patients had a growth in the sigmoid colon followed by recto-sigmoid junction. Regland et al^[19] reported the maximum of growths in the rectum followed by sigmoid colon. Higher involvement of sigmoid colon could be due to the length of the sigmoid colon in relation to the rest of the colon, presence of more formed stools and therefore more chances of obstruction.

Primary resection and anastomosis with covering ileostomy is opted for low risk patients; and loop colostomy is only for the patients who are very ill and not fit for prolong surgery.^[4,6,7,9] All the patients in this study underwent surgical procedure. Primary resection and end colostomy (Hartmann's procedure) was done in most of the cases, in 26 patients (52%); most of the patients, who underwent this procedure, belonged to dukes' stage A&B and ASA score ≥ 3 . On the other hand, loop colostomy was done in 18 cases (36%); and all the patients belong to Dukes' stage C&D and ASA score ≥ 3 . Only 6 patients (12%) underwent primary resection and anastomosis with covering ileostomy and they all are in Dukes' stage A&B and ASA score < 3 . Thus the result of this current study correlates with that of the authors.

The overall mortality rate mainly depends on the increasing age, tumour staging (Dukes' stage) and ASA score of the patients. In our study, mortality rate was

significantly more in patients who is above 40 years of age, ASA score ≥ 3 and Dukes' staging is C & D. This is in agreement with the results of other studies.^[10,18]

In this series, hospital staying time is more in primary resection than that of loop colostomy with planning of subsequent operation. This result contradicts some other studies,^[4,7] which showed the hospital staying time is about half in primary resection than that of loop colostomy with subsequent operation. This is because in our hospital settings patients who will undergo subsequent operation after loop colostomy will get discharge and advised to get re-admission after few weeks for next operation.

CONCLUSION

On the basis of the results of the present study, integrated with the understanding from the available literature, it may be recommended that primary resection and end colostomy (Hartmann's procedure) is the appropriate surgical option for high risk patients for malignant left sided large gut obstruction and it is opted for most of the patients. Again, loop colostomy is recommended for patients who are in extremely high risk and not fit for prolong surgery. Whereas, primary resection and anastomosis with covering ileostomy is recommended for low risk patients.

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