

Large bowel malignancy presenting as acute obstruction in a tertiary care teaching hospital

¹Dr. Ankit Bhardwaj, ²Dr. Swati N Tyagi, ³Dr. Manisha Bhatt Dwivedi,
⁴Dr. Sankalp Dwivedi, ⁵Dr. Shivam Bhardwaj

¹Assistant Professor, Department of General Surgery, Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences (PGIMS), Rohtak, Haryana, India

²Consultant & Laparoscopic Surgeon, Department of Obstetrics and Gynaecology, Bhardwaj Multispecialty Hospital, Rohtak Gate, Bhiwani, Haryana, India

³Professor and Head, Department of Anaesthesiology, MMCMSR Ambala, Haryana, India

⁴Professor, Department of Surgery & Principal, MMCMSR Ambala, Haryana, India

⁵Consultant Physician & Cardiologist, Bhardwaj Multispecialty Hospital, Rohtak Gate, Bhiwani, Haryana, India

Corresponding Author:

Dr. Ankit Bhardwaj (ab21surgery@gmail.com)

Abstract

Background: Large bowel obstruction (LBO) is a serious and potentially life-threatening surgical emergency which is associated with high morbidity and mortality rate, ranging from 23 to 77.6% and 11.9 to 27%, respectively. There are various etiologies of LBOs. The most common is colorectal cancer which accounts for over 60% of all LBOs.

Aims and Objectives: To Analyze the large bowel malignancy presenting as acute obstruction in a tertiary care teaching hospital.

Materials and Methods: This prospective study, was conducted in the Department of surgery of Pandit Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences (PGIMS), Rohtak, Haryana, India between October 2021 and September 2022. Total of 22 cases of Malignant Large Bowel Obstruction, 13 patients were male and 9 were female.

Results and Observations: There were 13 male and 9 females in our study. The average age of patients was 72.5 years (from 52-82 years). For hemicolectomies, 4 patients for Hartman's procedure were performed. Average hospital stay was 14 days and there were 13 patients with complications, respectively 4 with anastomotic leakage and 9 with wound infection.

Conclusion: Treatment of bowel obstruction because of colorectal carcinoma is challenging even for experienced surgeons. Several parameters such as staging of the tumor, presence of complications, lymph node metastasis, general condition of the patient and experience of the surgeon should be taken into consideration while making the decision of primary bowel procedure and anastomosis, or procedures without anastomosis (colostomy) would be the best solution for the patient. According to our experience we suggest that primary bowel procedure and anastomosis should be the preferred method, except in cases of bowel perforation.

Keywords: Large bowel obstruction (LBO), malignant bowel obstruction, colon cancer, palliative treatment, anastomosis, colorectal cancer

Introduction

Large bowel obstruction (LBO) is a serious and potentially life-threatening surgical emergency which is associated with high morbidity and mortality rate, ranging from 23 to 77.6% and 11.9 to 27%, respectively^[1,2,3]. There are various etiologies of LBOs. The most common is colorectal cancer which accounts for over 60% of all LBOs. Other common etiologies include volvulus of the cecum or sigmoid and diverticular disease which account for 10 to 15% and 5 to 10% of all LBOs, respectively. This study will focus on LBOs caused by malignancy. Regardless of the etiology of the obstruction, proper assessment, thoughtful decision-making, and prompt treatment is necessary to decrease the high morbidity and mortality which is associated with this entity. Each decision is critical, as each decision made will influence the patient's ultimate outcome. It is necessary to think of not only the current situation, but how the decisions made at this time, may affect future treatment options. The surgeon caring for these patients has two challenges to resolve. First and foremost is to relieve the obstruction and then second, if possible, to treat the etiology of the obstruction. To do this, it is necessary to have a comprehensive knowledge of the various treatment options available and when each is best utilized in caring for these patients.

Materials and Methods: This prospective study, was conducted in the Department of surgery of Pandit Bhagwat Dayal Sharma Post Graduate Institute. Of Medical Sciences (PGIMS), Rohtak, Haryana, India between October 2021 and September 2022. Total of 22 cases of Malignant Large Bowel Obstruction, 13 patients were male and 9 were female.

Results and Observations: There were 13 male and 9 females in our study as in Table 1 and Figure 1. The average age of patients was 72.5 years (from 52-82 years). For hemicolectomies, 4 patients for Hartman's procedures, were performed. Average hospital stay was 14 days, and there were 13 patients with complications, respectively 4 with anastomotic leakage and 9 with wound infection, All the patients are presented in our department with signs of a mechanical ileus. The main complaints of patients during admission have been diffuse abdominal pain, constipation, abdominal distension, vomiting, blood in the stool, decrease in stool caliber (thickness), loss of appetite, loss of weight, weakness and anemia. After admission all of them were initially treated conservatively by nasogastric aspiration, IV fluids, antispasmodics, anti-vomiting and keeping nil per oral. After that laboratory and clinical examinations, such as abdominal CT and ultrasound was performed in all patients. As in table 2 and figure 2, 5 of them cause of obstruction was a presence of tumor in the left colon, in 4 patients other in the rectum whereas the right sided tumor was diagnosed in 12 patients. In 4 patients bowel perforation on tumor site was detected by abdominal CT, X ray, whereas in another 4 liver metastases were present. Urgent surgical intervention was performed in all patients. As in table 3 and figure 3 In 9 of them a right hemicolectomy were done, in 4 procedures of sigmoid colon, in other 4 the left hemicolectomy, whereas in 4 patients because of perforation of large bowel the Hartmann procedure was done. There were 9 patients with post wound infections. The median length of hospital stay was twelve days. In 13 patients adenocarcinoma, moderately differentiated, whereas in 9 of them poorly differentiated. According to the As in table 4 and figure 4, TNM Classification of Malignant Tumors, 9 patients were on stage IIIA, 9 on IIIB, and 4 on IIIC. In all patients, approx 20-25 lymph nodes were removed. In lymph nodes were negative in 4 patients.

Table1: Sex Distribution

| Sex | No of patients | % |
|--------|----------------|-----|
| Male | 13 | 60 |
| Female | 9 | 40 |
| Total | 22 | 100 |

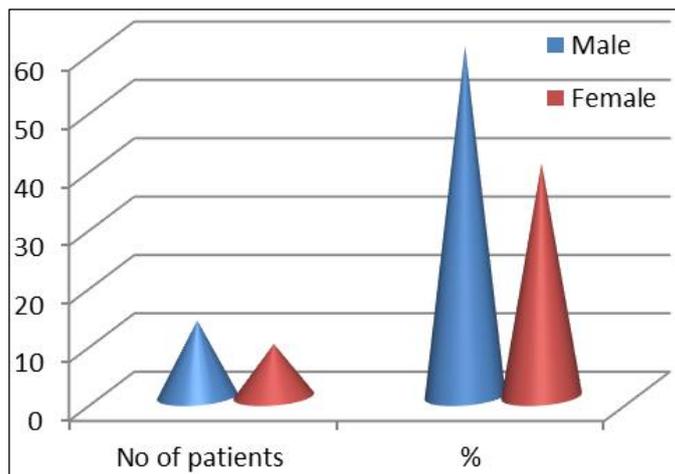


Fig 1: Sex Distribution

Table 2: Location of Malignancy

| Tumor location | No of patients | % |
|-------------------|----------------|----|
| Left colon | 5 | 23 |
| Rectum | 4 | 18 |
| Right sided tumor | 13 | 59 |

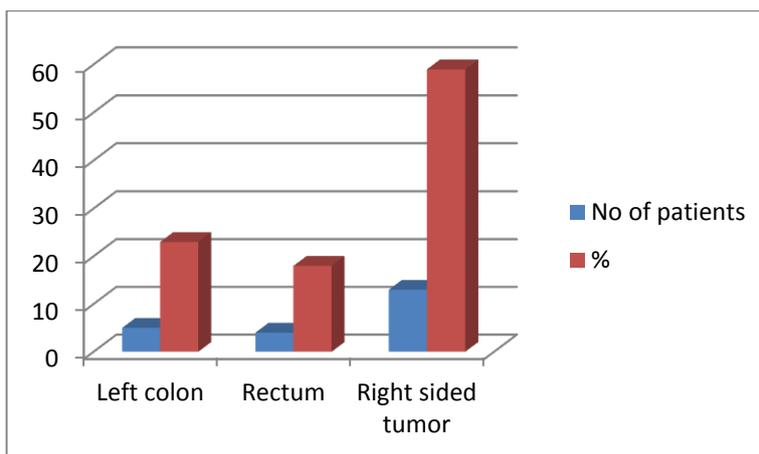


Fig 2: Tumor Location

In 4 patients bowel perforation on tumor site was detected by abdominal CT, whereas in another 4 liver metastases were present.

Table 3: Suggested Urgent Surgical Procedures to the patients

| Surgical Procedures | No of patients | % |
|---|----------------|----|
| Right Hemicolectomy | 9 | 40 |
| Procedures of sigmoid colon | 5 | 20 |
| Left hemicolectomy | 4 | 20 |
| Perforation of large bowel the Hartmann procedure | 4 | 20 |

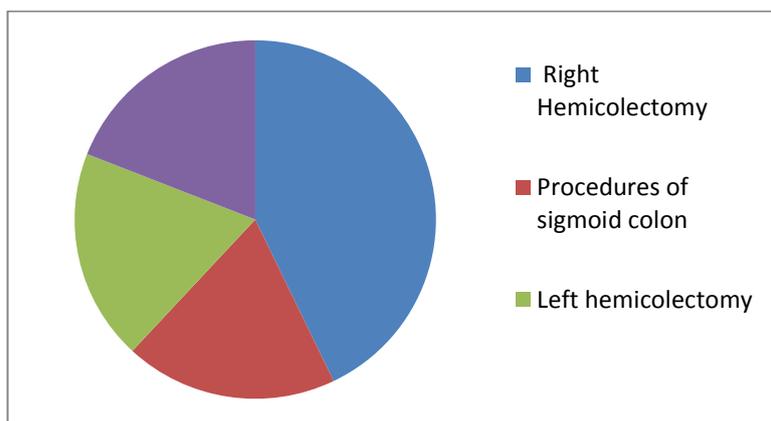


Fig 3: Suggested Urgent Surgical Procedures to the patients

Table 4: TNM Classification of Malignant Tumors

| Stages | No of patients | % |
|------------|----------------|-----|
| Stage IIIA | 9 | 40 |
| Stage IIIB | 9 | 40 |
| Stage IIIC | 4 | 20 |
| Total | 22 | 100 |

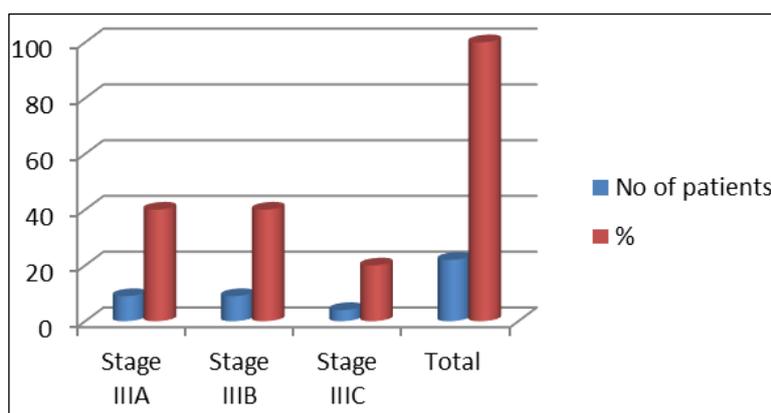


Fig 4: TNM Classification

Discussion

Colorectal cancer is a common cause of morbidity and mortality all over the world with the high incidence in developed country [2,3]. Early diagnosis of colorectal cancer is the main factor that determines the five year survival rate. This is the reason why the use of screening programs for early detection of CRC are widely implemented all over the world [12]. The incidence of Colorectal cancer is increasing after age 40, whereas the peaks of this disease is between the ages of 60-75 years [15]. According to data of our study result that males and females have the equal risk for the development of colorectal cancer. In many other studies male gender was reported to be a poor prognostic factor [9]. A significant percentage of patients with colorectal cancer present in emergency department with acute bowel obstruction [11,13,14]. It is estimated that about 15-25% of the patients with CRC develop this complication. All the patients with bowel obstruction due to CRC should be treated with urgent surgical interventions. There are several options for surgical treatment of acute bowel obstruction due to colorectal cancer. This options depend on many factors such as location of obstruction, TNM staging, presence of complications such as perforation and peritonitis, presence of chronic disease, patients general condition etc. [16]. During surgery procedure of the involved segment of the colon followed by the end to end anastomosis is the preferred procedure. In cases of inoperable tumor mass or poor general condition of the patient, Hartman procedure must be a technique of choice for treatment of these patients [7]. The most important

prognostic factor in colon carcinoma is tumor staging after surgery. Another important prognostic factor for survival of patients treated because of colorectal cancer is the degree of tumor differentiation and presence of lymph node metastasis^[8,10,17]. Today is widely accepted that if the tumor has spread to the lymph nodes the five-year survival rate decreases significantly. Greater number of affected lymph glands, is a poor prognostic factor for survival of this patients^[18,19].

Conclusion

Treatment of bowel obstruction because of colorectal carcinoma is challenging even for experienced surgeons. Several parameters such as staging of the tumor, presence of complications, lymph node affection, general condition of the patient and experience of the surgeon should be taken into consideration while making the decision of primary bowel procedure and anastomosis, or procedures without anastomosis (colostomy) would be the best solution for the patient. According to our experience we suggest that primary bowel procedure and anastomosis should be the preferred method, except in cases of bowel perforation.

Source of funding: None.

Conflict of interest: None.

References

1. Tuca A, Guell E, Losada EM, Codorniu N. Malignant bowel obstruction in advanced cancer patients: Epidemiology, management and factors influencing spontaneous resolution. *Cancer Manag Res.* 2012;4:159-169.
2. Siegel R, Ward E, Brawley O, *et al.* Cancer statistics: the impact of eliminating socioeconomic and racial disparities on premature cancer deaths. *CA Cancer J Clin.* 2011;61:212-36.
3. Baines MJ. Management of intestinal obstruction in patients with advanced cancer. *Gynecol Oncol.* 2002;84:176-9.
4. Ferlay J, Bray F, Pisani P, Parkin DM. GLOBOCAN. Cancer incidence, mortality and prevalence worldwide. IARC CancerBase 2004, 5, version 2.0. IARC Press, Lyon, 2002.
5. Kingsley C Ekwueme, Malcolm A West, Paul S Rooney. Emergency first presentation of colorectal cancer following air travel: a case series *J R Soc Med Sh Rep.* 2011 May;2:36. Doi:10.1258/shorts.2011.011002.
6. Kronborg O, Backer O, Sprechler M. Acute obstruction in cancer of the colon and rectum. *Dis Colon Rectum.* 1975;18:22-27.
7. Ansaloni L, Andersson RE, Bazzoli F, Catena F, Cennamo V, Di Saverio S, *et al.* Guidelines in the management of obstructing cancer of the left colon: consensus conference of the world society of emergency surgery (WSES) and peritoneum and surgery (PnS) society. *World J Emerg. Surg.* 2010 Dec;5:29.
8. Johnson PM, Porter GA, Ricciardi R, Baxter NN. Increasing negative lymph node count is independently associated with improved long-term survival in stage III B and III C colon cancer. *J Clin Oncol.* 2006;24:3570-5.
9. Burton S, Norman AR, Brown G, Abulafi AM, Swift RI. Predictive poor prognostic factors in colonic carcinoma. *Surg Oncol.* 2006;5:71-78.
10. Swanson RS, Compton CC, Stewart AK, Bland KI. The prognosis of T3N0 colon cancer is dependent on the number of lymph nodes examined. *Ann Surg Oncol.* 2003;10:65-71.
11. Claudio Coco, Alessandro Verbo, Alberto Manno, Claudio Mattana, Marcello Covino, Giorgio Pedretti, *et al.* Impact of Emergency Surgery in the Outcome of Rectal and Left Colon Carcinoma. *World J Surg.* 2005;29:1458-1464.
12. Winawer S, Fletcher R, Rex D, Bond J, Burt R, Ferrucci J, *et al.* Gastrointestinal Consortium Panel. Colorectal cancer screening and surveillance: clinical guidelines and rationale: update based on new evidence. *Gastroenterology.* 2003;124:544-560.

13. Masaichi Ogawa, Michiaki Watanabe, Ken Eto, Takahiro Omachi, Makoto Kosuge, Ken Hanyu, *et al.* Clinicopathological features of perforated colorectal cancer. *Anticancer Research.* 2009;29(5):1681-1684.
14. Zielinski MD, Merchea A, Heller SF, You YN. Emergency Management of Perforated Colon Cancers: How Aggressive Should We Be? *Journal of Gastrointestinal Surgery,* 2011Sep.
15. Ripamonti CI, Easson AM, Gerdes H. Management of malignant bowel obstruction. *Eur J Cancer.*2008;44:1105-1115.
16. Compton CC. Pathology report in colon cancer: what is prognostically important? *Dig Dis.* 1999;17:67-79.
17. Hernanz F, García-Somacarrera E, Fernández F. The assessment of lymph nodes missed in mesenteric tissue after standard dissection of colorectal cancer specimens. *Colorectal Dis.* 2010;12:e57-e60.
18. Fan L, Levy M, Aguilar CE, *et al.* Lymph node retrieval from colorectal procedure specimens for adenocarcinoma: is it worth the extra effort to find at least 12 nodes? *Colorectal Dis.* 2011;13:1377-83.