

Clinico-pathological Characteristics of Obstructing Colorectal Cancer and its Management Outcomes at a Tertiary Referral Center of Eastern Nepal

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Abstract

PURPOSE

The aim of this study is to explore the treatment strategies being followed for patients with obstructing colorectal cancer (OCRC) at our institute and to know the management outcomes.

METHODS

This study included 28 patients who were diagnosed with obstructing colorectal cancer (OCRC) either preoperatively or intraoperatively over a period of 5 years.

RESULTS

Most were in the younger age group with mean age of 49.78 \pm 15.96 years with 1/4th of the patients being younger than 40. There was no difference in incidence of OCRC among genders. It was found to be common in rural areas of the eastern Nepal, 16(57%) patients from such areas. 21.4% patients had complete bowel obstruction at presentation. The investigating modalities used were abdominal x-ray, ultrasonography of abdomen/pelvis, abdominal CT-scan, colonoscopy, serum CEA, punch biopsy and Faecal occult blood test. The anatomical shift to the right was observed with 54% lesions in the proximal colon. Majority were in advanced stage (stage3:53.6%, stage4:32.1%) with histologically adenocarcinoma (100%) and a higher incidence of synchronous lesion (28.6%). Patients averaged 13.82 days in the hospital with post-operative mortality rate of 3.6%. The 1-year and 2-years disease free survivals were 89.3% and 82.1% while overall survivals were 92.8% and 82.1% respectively.

CONCLUSION

In developing countries like ours, many patients with colorectal cancer continue to present to health center in advanced stage with bowel obstruction in relatively younger age with anatomical shift to the right. The treatments provided at our center and their outcomes are not inferior to that of the developed world.

Introduction

An increasing trend in the incidence of colorectal cancer (CRC) has been observed in Asia [1]. A word of caution must be spent with regards to the increasing incidence of CRC in the population younger than 50 years of age: this could potentially encourage an update in screening program [2]. Partial or complete colonic obstruction occurs in 7–29% of patients with colorectal cancer [3].

Obstruction due to colorectal cancer represents challenging matters in terms of diagnosis, life-saving strategies, obstruction resolution and oncologic challenges. It could be fatal too because of perforation peritonitis or sepsis. Hence, the strategies for management of obstructive colorectal cancer must be based on patient characteristics, current cancer treatment and care goals.

We opted to perform this study with aim to explore the treatment strategies being followed for patients with obstructing colorectal cancer (OCRC at our institute and to know the management outcomes. The result of this study may be helpful to guide National Cancer Registry Program (NCRP).

Materials And Methods

Ours is a retrospective observational study, which included all patients diagnosed with obstructive (partial or complete) colorectal cancer either pre-or intra-operatively over the 5-year period (January 2014 to December 2019) at our academic institute. The patients' medical records were reviewed to collect the following data: demographic and clinical information, blood investigations and radiological investigations performed, co-morbidity, pre-operative working diagnosis, operation performed and intra-operative finding. The outcomes including post-operative complications, length of hospital stay and mortality were reviewed. Pathological reports of resected specimen were reviewed. Any adjuvant therapy if given were noted. 2-years DFS and OS were calculated. Data were entered in an excel sheet and converted into Statistical Package for Social Sciences software (SPSS version 17.0) for descriptive statistical analysis by calculating the mean, median (range) and percentage where appropriate.

Sample size calculation

Total number of colorectal cancer cases managed at our institute over last 5 years period (2015–2020 AD) as per medical record section was around 100. Partial or complete colonic obstruction occurs in 7–29% of patients with colorectal cancer [3]. Hence, a sample size of around 25–30 will be adequate for the study.

Ethical clearance

The study was performed in accordance with the principle of the declaration of Helsinki and was approved by the Institutional Review Board on 21 January 2022.

Result

A total of 28 patients who were diagnosed with OCRC were included in the study. The demographic profile has been summarized in Table 1.

Table 1. Demographic profile of patients with OCRC

<i>Characteristics</i>	<i>Frequency, n (%)</i>
Age	
Mean age	49.79+/-15.96 years
Age less than 40 years	6(21.4%)
Age more than and equal to 40 years	22(78.6%)
Gender distributions	
Male	14(50%)
Female	14(50%)
Location from where they belong to	
Urban area of eastern Nepal	12(42.9%)
Rural area of eastern Nepal	16(57.1%)

The clinicopathological profile of patients with OCRC has been summarized in Table 2.

Table 2
Clinicopathological profile of patients with OCRC

Parameters	Frequency, n (%)
Presenting features	14(50%)
Abdominal pain	13(46.4%)
Altered bowel habit	11(39.3%)
Blood in stool	7(25%)
Abdominal distension	6(21.4%)
Anorexia	5(17.9%)
Abdominal mass	5(17.9%)
Weight loss	5(17.9%)
Anemia	4(14.3%)
Tenesmus	4(14.3%)
Vomiting	4(14.3%)
Bleeding per rectum	
Obstruction	22(78.6%)
Partial	6(21.4%)
Complete	
Commonly used relevant investigations	28(100%)
Abdominal x-ray	1(3.6%)
Fecal Occult Blood Test	26(92.8%)
Ultrasound abdomen	24(85.7%)
CT-scan abdomen	22(78.6%)
Colonoscopy	21(75%)
CEA (carcinoembryonic antigen)	8(28.6%)
Pre-operative biopsy	28(100%)
Post-operative biopsy	

Parameters	Frequency, n (%)
Primary Location of tumor	10(35.2%)
Rectosigmoid	2(7.2%)
Descending colon	1(3.6%)
Splenic flexure	6(21.6%)
Hepatic flexure	5(18%)
Ascending colon	4(14.4%)
Caecum	
Synchronous lesion	8(28.6%)
Yes	20(71.4%)
No	
Histological types	28(100%)
Adenocarcinoma	
Pathological staging	3(10.7%)
Stage 1	1(3.6%)
Stage 2	15(53.6%)
Stage 3	9(32.1%)
Stage 4	

The treatments provided at our center and their outcomes have been summarized in Table 3.

Table 3
Treatments provided to patients with OCRC and their
outcomes at our center

Characteristics	Frequency, n 1(%)
Operation performed	9(31.6%)
Right hemicolectomy	6(21.6%)
Extended right hemicolectomy	2(7.2%)
Left hemicolectomy	1(3.6%)
Extended left hemicolectomy	3(10.8%)
Anterior resection	5(18%)
Abdominoperineal resection	2(7.2%)
Hartmann's procedure	
Post-operative complications	7(25.2%)
Surgical site infection	4(14.4%)
Hospital acquired pneumonia	2(7.2%)
Anastomotic leak	2(7.2%)
Paralytic ileus	1(3.6%)
Diarrhea	
Post-operative mortality	27(96.4%)
No	1(3.6%)
Yes	
Hospital stay (mean+/-SD)	13.82+/-6.87 days
Adjuvant chemotherapy (FOLFOX)	18(64.3%)
Yes	10(35.7%)
No	
Disease free survival	25(89.3%)
1 year	23(82.1%)
2 years	
Overall survival	26(92.8%)
1 year	23(82.1%)
2 years	

Discussion

Though the incidence of obstructive colorectal cancer (OBCR) previously reported to peak in the seventh and eight decades of life [4], it is nowadays increasing in the younger age group especially in Asian countries, with mean age of 49.78+/- 15.96 years in our study with 1/4th of the patients being younger than 40 years of age. However, there continues to have no difference in the incidence of OCRC among genders that is, 14(50%) males and 14(50%) females in our study.

Generally, colorectal cancer (CRC) incidence has been higher in the urban areas of economically advantaged countries [5]. This is thought to be related to consumption of a high fat / high red meat diet and lack of physical activities with resulting obesity. However, OCRC is found to be common in rural areas of the eastern Nepal that is 16(57%) patients from such areas in our study. There can be two separate reasons for this occurrence: one, relative lack of awareness of CRC and its screening program implementation; two, delayed presentation of patients to health care system in the rural areas.

Most common presenting feature in our patients was abdominal pain in 14(50%) patients followed by altered bowel habit, blood in stool, abdominal distention, anorexia, abdominal mass, weight loss, anemia, tenesmus, vomiting and bleeding per rectum respectively, similar to other studies in literature [6]. Overall, of 28 patients with OCRC, 21.4% patients had complete bowel obstruction while remaining had partial bowel obstruction. Various diagnosing modalities used in our study included abdominal x-ray (in 100% cases), ultrasonography of abdomen and pelvis (in 92.8% cases), abdominal CT-scan (in 85.7% cases), colonoscopy (in 78% cases), serum CEA level (in 75%cases), pre-operative punch biopsy (in 28.6% cases) and Faecal occult blood test (in 3.6% cases).

Classically, the distal colon was believed to be the most common site for OCRC. However, the incidence of proximal OCRC has been increasing nowadays as seen in our study that in 54% cases the lesion was in the proximal colon. Similar trends have been observed in other Asian countries too [7]. This anatomical shift will necessarily impact on screening policy [8]. This shift may be because of genetic factors, which can preferentially involve defects in mismatch repair genes with resulting microsatellite instability in proximal colon cancers and chromosomal instability pathway predominantly in left sided colorectal cancers.

The overall incidence of synchronous lesion in CRC has been reported to be between 2.3–12.4% in literature [9], however, it has been found to be a high up to 28.6% in patients with CRC presenting with either partial or complete obstruction in our study. The likely explanation can be that once patients with CRC develop obstruction, often they have advanced stage disease. It has been claimed that apart from obstructive symptoms, other symptoms do not necessarily correlate with stage of disease [10]. In our study, the most common histological type was adenocarcinoma 28 (100%). Bowel obstruction in patients with CRC occurs when a cancerous growth or adhesion block intestinal flow. Most of patients in our study had advanced stage disease: stage 3 in 53.6% cases followed by stage 4 in 32.1% cases. Interestingly, 10% patients with OCRC were found to have stage 1 disease. The possible explanation of bowel

obstruction in stage 1 disease, can be a physiological inability to move the food particles in addition to general concept of cancerous growth obstructing the lumen of bowel.

The various treatment options for OCRC opted at our centre were right hemicolectomy, extended right hemicolectomy, left hemicolectomy, extended left hemicolectomy, anterior resection, abdominoperineal resection and Hartmann's procedure. The common post-operative complications encountered at our study were surgical site infection, hospital acquired pneumonia, anastomotic leak, prolong paralytic ileus and diarrhea. We lost one patient in post-operative period and it accounts to post-operative mortality rate of 3.6% in our study which very less in comparison to the study by Kaya S, et al [11]. Patients averaged 13.82 days in the hospital (SD 6.87days) which is also almost half of what had been found in study by Kaya S, et al [11]. Not all but 64.3% patients with OCRC received adjuvant chemotherapy at our center. The 1-year and 2-years disease free survivals were 89.3% and 82.1% while overall survivals were 92.8% and 82.1% respectively.

Conclusion

In developing countries like ours, many patients with colorectal cancer continue to present to health center in advanced stage with bowel obstruction in relatively younger age group of 40–50 years with anatomical shift to the right sided lesions. The treatments provided at our center and their outcomes are not inferior to that of the developed world.

Recommendation

A word of caution must be paid with regards to implementation of National Colorectal Cancer Screening program strongly and at relatively early age of life.

Declarations

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