

COLORECTAL CANCER IN YOUNG AGE GROUP: WHERE DO WE STAND?

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ABSTRACT

Colorectal cancers in young are in increasing trend. Young patients tend to ignore symptoms and present at advanced stage due to aggressive tumour biology, and also due to traditional dictum of routine screening after >50 years these groups of patients are given less priority. The objective of our study was to estimate the burden of problem among young population and increase awareness among medical personnel and general population of early detection for disease. We conducted retrospective cross sectional study using whole sampling method among patients operated by single gastrointestinal surgery unit. Demographic details, malignancy information, surgical procedure and histopathological examination were studied. All cases admitted as colorectal cancer from 2013 to 2017 at gastrointestinal surgery unit of Shree Birendra Hospital were included. The collected data were entered in SPSS version 16 and analyzed. Likelihood of occurrence of adenocarcinoma was studied using logistic regression model. Among total 104 cases operated, only 99 cases were having complete data with median age: 55 years. Thirty seven percent of the individuals having colorectal malignancies were younger than 50 years. Rectum was the commonest site (52, 52.5%) for occurrence of colorectal malignancy. Males were 1.493 (0.402-5.545) times more likely to have colorectal adenocarcinoma than females. Young age (<50 years) was associated with an increased likelihood of colorectal adenocarcinoma {OR=1.771(0.443-7.233)} than older people. Colorectal cancer in young age is in increasing trends. Increasing awareness among medical personnel and general population is must for early detection.

KEYWORDS

Carcinoma, colorectal, young age

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INTRODUCTION

The incidence of young onsets colorectal cancer (CRC) is in increasing trends in contrast to decreasing trends among older population, which is attributed to early screening among age > 50 years. Young patients that has worst outcome tend to ignore symptoms and seldom seek medical attention at earlier stage.^{1,2}

Numerous studies from India, Pakistan, China and Egypt have shown the increasing trends in CRC among younger population and highlighted the need of earlier screening protocol, genetic counselling, and awareness among physicians, medical students, paramedics, and general population.³⁻⁷ Few studies in Nepal have also showed the increasing overall trends in CRC in young population.⁸⁻¹¹

The main objective of our study was to estimate the burden of CRC among young. The secondary objective was to highlight the need of awareness among medical personnel and general population regarding need of earlier screening strategies to prevent over all deaths from CRC in our country.

MATERIALS AND METHODS

We conducted descriptive study (case series) of patients operated by single gastrointestinal surgery (GI surgery) unit at Shree Birendra Hospital. Using wholesome sampling method and based on data retrieval sheet information about the cases operated for colorectal malignancies were identified from 2013 to 2017 and the demographic details, malignancy information, surgical procedure and histopathological examination were retrieved. After ethical approval from local institutional review committee Nepalese Army Institute of Health Sciences (NAIHS), study was initiated. The study was conducted from patients operated for colorectal malignancies at Shree Birendra Hospital. This study was conducted enrolling data of patients operated on last four years (2013-2017 AD). Study was conducted over six month from August 2017 - January 2018. Total 104 patients were operated for CRC during study period, out which 5 cases were excluded from analysis due to incomplete record. Tumour characteristic and operative staging data were present only in 95 and 88 patients respectively which has no association with outcome of our study. Patients were stratified into younger age group of less than 50 years and older age group of more than 50 years.

The collected data were entered in SPSS version 17 and analyzed. Chi-square test was applied to see association between important factors of CRC with the help of p-value based on 95% confidence interval and 5% standard error. Likelihood of occurrence of colorectal adenocarcinoma was studied using logistic regression model.

RESULTS

Ninety nine patients were enrolled in the study after exclusion. The median age was 55 years (IQR=43-63). The youngest patient with colon cancer was a case of 14 years old with diagnosis of MALT Lymphoma and the oldest being 86 years of age. Thirty seven percent (N=37) of the individuals having colorectal malignancies were younger than 50 years. The male to female ratio was 1.8:1 among the younger age group compared to 1.06:1 among older age group. Younger age group with colorectal cancer had odds ratio of 1.731 (0.748-4.004). Lower gastrointestinal bleeding (N=49), pain abdomen (N=28) and abdominal lump (N=10) were the most common clinical presentation. These symptoms were less prevalent among younger age group as compared with older age group patients (67% vs. 83%). Older age group patients had more frequent presentation in emergency (N=3) and with features of intestinal obstruction (N=4). However, all these variable were not significant statistically (Table 1).

Out of 88 patients with complete operative staging, 60 patients were found to be of Dukes B and Dukes C stage. Among the cases having colorectal malignancies operated, rectum was the commonest site (N=52, 52.5%) of its occurrence following right colon (N=25, 25.3%) (Table 2). Anterior resection (N=26) and abdominoperineal resection (APR, N=26) were the commonly performed operation in this series. Other procedure included right hemicolectomy, left hemicolectomy, total colectomy with stoma or simply debulking surgery (Table 3).

Tumor characteristics of patient were recorded only in 95 patients in both age groups. Of them 35 patients under 50 years with complete data, poor differentiation predominance was seen viz. poorly differentiated (15/35, 42.8%), moderately differentiated (12/35, 34.2%) and well differentiated (8/35, 22.8%). Our study showed 18/35 (62.8%) of young patients in stage I and Stage II. Most common colorectal cancer encounter in the series was adenocarcinoma (N=88). Other pathologies encountered were gastrointestinal stromal tumor (GIST), Non-Hodgkin's lymphoma, squamous cell carcinoma, malignant melanoma and adenoma (Table 4).

The logistic regression module was run to evaluate the effects of age and gender on the likelihood of having colorectal adenocarcinoma. The logistic regression model was statistically not significant, $\chi^2 = 0.929$, $p = 0.629$. The model explained 19.0% (Nagelkerke r^2) of the variance in adenocarcinoma and correctly classified 88.9% of cases. Males were 1.493 (0.402-5.545) times more likely to have adenocarcinoma than females. Young age (<50 years) was associated with an increased likelihood of colorectal adenocarcinoma {OR=1.771 (0.443-7.233)} than older people.

Table 1: Observed variables among cases of colorectal malignancies.

Variables	Age Group (years)		Total	
	< 50	> 50		
Gender	Male	24	32	56
	Female	13	30	43
Clinical presentation	Pain	11	17	28
	GI bleeding	19	30	49
	Altered bowel habits	1	3	4
	Obstruction	1	4	5
	Lump	5	5	10
	Emergency	0	3	3
Synchronous lesion	None	34	61	95
	Synchronous polyp	3	1	4
Resection of involved adjacent organs	None	37	55	92
	Stomach	0	6	6
	Peritoneum	0	1	1
Operative staging	Duke A	11	10	21
	Duke B	11	21	32
	Duke C	10	18	28
	Duke D	2	5	7
Post-operative complications	None	31	47	78
	Chest complications	1	3	4
	Wound complications	1	6	7
	Anastamotic complications	2	2	4
	Ascites	0	1	1
	Others	2	3	5
Adjuvant therapy	None	7	9	16
	Chemo	29	48	77
	Chemotherapy and radiotherapy	1	3	4
Histopathology	Adenocarcinoma	34	54	88
	Others	3	8	11
Histo-pathology margins	Free	36	54	90
	Involved	1	8	9
T stage	T1	2	1	3
	T2	14	26	40
	T3	14	19	33
	T4	5	14	19
N Stage	N0	21	33	54
	N1	9	16	25
	N2	5	11	16
M Stage	M0	32	57	89
	M1	3	3	6
Stage	1	14	20	34
	2	8	17	25
	3	11	19	30
	4	2	4	6
Serosal margin	Negative	29	48	77
	Positive	6	12	18
Grading	Well differentiated	8	21	29
	Moderately differentiated	12	28	40
	Poorly differentiated	15	11	26
Recurrence	None	33	53	86
	Local	2	7	9

Table 2: Location of colorectal malignancies.

Tumor Location	n	%
Rectum	52	52.5
Right Colon	25	25.3
Sigmoid	12	12.1
Transverse Colon	4	4.0
Left Colon	3	3.0
Hepatic Flexure	2	2.0
Splenic Flexure	1	1.0
Total	99	100.0

Table 3: Surgeries performed during study period.

Operative Procedure	n	%
Anterior resection	26	26.3
Adbomionperineal resection	26	26.3
Right hemicolectomy	16	16.2
Extendedright hemicolectomy	11	11.1
Stoma formation	6	6.1
Left hemicolectomy	3	3.0
Local resection	3	3.0
Sigmoidectomy	2	2.0
Total colectomy	1	1.0
Extralevator Abdominoperineal excision (ELAPE)	2	2.0
Polypectomy	1	1.0
Laparotomy	1	1.0
Total colectomy+ileal pouch anal anastomosis (IPAA)	1	1.0
Total	99	100.0

Table 4: Histopathological findings.

Histopathology	n	%
Adenocarcinoma	88	88.9
Gastrointestinal stromal tumor	4	4.0
Non- Hodgkin's lymphoma	3	3.0
Malignant Melanoma	1	1.0
Adenoma	1	1.0
Squamous cell Carcinoma	2	2.0
Total	99	100.0

Studied variables in the present series is shown in (Table 1). Here none of the variables were statistically associated with age group categories ($p \geq 0.05$).

DISCUSSION

Our finding suggests that younger age (<50 years) and male were associated with increased likelihood of colorectal adenocarcinoma, however no statistical significance was seen with respect to occurrence of cancer and staging.

Thirty seven percent of our patients belong to age less than 50 years. CRC is considered to be disease of elderly mostly diagnosed after age of 55 years.¹² The incidence of CRC among young populations ranges from 1.6-23%.¹³ Gupta *et al* from India found 39% of CRC among patients under 40 years in their retrospective analysis which was comparable to our study.¹⁴ Kansakar *et al*⁸ in 2012 in their study found the increasing trends in colorectal cancer as compared to study by Singh *et al*⁹ in 2002 at same centre, but the proportion of young colorectal cancer was the same (28%) in a decade interval study. Our study showed higher incidence probably our cut off age for younger age group was 50 years as compared to Kansakar *et al*⁸ and Singh *et al*.⁹

The male to female ratio among CRC is equal worldwide.¹⁵ In this study also, CRC was prevalent among male population with overall male to female ratio of 1.3:1. The male to female ratio in younger age group was 1.8:1 in this study compared to 1.03 in older group which shows rise in CRC among young male. Kansakar *et al*⁸ from Nepal found an increasing trend in this ratio (2:3 to 4:3) over a decade. Similar findings were reported by Pirzada *et al*³ from Pakistan (2.3:1) and Patil *et al*⁴ from India (1.82:1). The male predominance in this age group in our part of world is probably due to life style alterations, increased in smoking, high consumption of red meat, sedentary life style, increasing incidence of obesity and sedentary lifestyle among these population.^{14,16}

Lower GI bleeding, abdominal pain and abdominal lump are the most common presentation in our study and these symptoms were less prevalent among the younger age group. However, in a large study conducted by Dozois *et al*,¹⁷ rectal bleeding, abdominal pain and alteration in bowel habit were predominant symptoms in 86% of patients. The disparity is probably due to lack of awareness among patients and families regarding the symptoms. Also in our part of the world most of such symptoms are attributed to hemorrhoidal disease and patients seek alternative medicine like *Ayurvedha* and Chinese medical therapy. Also the allopathic practitioner are not aware of the increasing trends in CRC in young population so focused per rectal examination and routine sigmoidoscopic evaluation are deferred at first visit.¹⁸

Our study showed dominant of left sided CRC (64/99), followed by right colon (25/99) cancer as compared to other studies.^{6,8,9,15,19} Since rectum still being

commonest site for CRC, digital rectal examination followed by sigmoidoscopic evaluation should now be considered primary tool for investigation. The fair number of right sided lesion must be taken into account and full colonoscopic evaluation and follow is must for high index suspicious patients.

Sixty eight percent of our cases were found to be in Duke B and C stage and were comparable in both group, which was probably due to earlier detection of disease by sigmoidoscopy as in other studies.⁸ In contradiction to other studies,^{4,9,14,17} where stage III and IV predominate in younger age group, our study showed 62.8% of young patients in stage I and stage II, but of no statistical significance. This could be due to a small sample size and single centre study and also the cut off age of 50 years in our study. However, as with other studies,^{7,20} poorly differentiated tumor predominate in younger age group (42.8%) in present study, which highlights the aggressiveness tumor biology in young age.

Our study is single centre and single unit retrospective analysis. Since, the study centre is

tertiary care centre most of cases were referred cases. Selection bias could not be minimized.

Our study showed that CRC in young patients is in increasing trend. Since the patients in this group are of better physical condition and no awareness of colorectal cancer in these age groups, they tend to ignore symptoms. The aggressive tumor biology, unaware patients, unaware physician, delay in specialist visit, and dictum of routine sigmoidoscopy and faecal blood screening tool after age of 50 years, less aggressive screening among these age group has caused most of these patient landing hospital in advanced stages.

CRC among young patient with no family history needs high index suspicion. These increasing trends must be aware among physicians, medical students, health workers and publics. The traditional dictum of routine colonoscopic examination after age of 50 years must be re-evaluated and sigmoidoscopy must be a minimum tool to evaluate symptomatic young patients.

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