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Incidence of Colorectal Malignancy of a Young Patient in Sylhet M A G Osmani Medical College, Sylhet, Bangladesh

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Abstract **Original Research Article**

***Background*:** Colorectal cancer is the third most common cancer in both men and women, and the second leading cause of cancer-related deaths. Colorectal cancer (CRC) is already the third leading cause of cancer death in the world, and its incidence is steadily rising in developing nations. ***Methods*:** A retrospective analytical study was conducted for newly diagnosed CRC patients treated in the Department of Surgery, Sylhet MAG Osmani Medical College, Sylhet, Bangladesh from January to June 2023. Convenient sampling method was followed to include 150 newly diagnosed young CRC patients registered. The study aimed to determine the burden of CRC among younger adults, and to evaluate its clinicopathological characteristics. Chi-square method was used to analyze the clinic pathological characteristics. P≤0.05 was considered statistically significant. ***Results*:** Out of total 150 newly diagnosed CRC patients. The median age at diagnosis was 54 years and 40 years for overall patients and younger adults respectively. Predominantly male patients were observed in the study population with male to female ratio (M: F) of 1.6:1. Most patients (approximately two third) presented with eastern co- operative oncology group (ECOG) performance status I. Family history of colorectal cancer or polyps was present in two patients, both of which belonged to the younger adults group. Greater than 90% of patients were diagnosed with advanced T stage (T3/T4) and over 80% patients had lymph nodal metastasis at diagnosis findings were age groups. Peritoneal metastasis was significantly higher among younger adults. Distant metastasis was observed in approximately one fourth of total patients, out of which majority (96%) were detected at multiple sites and numbers. Relatively higher number of distant metastasis was observed among younger patients. Common sites of distant metastasis were in the following order; liver> peritoneum> lung> bone> brain> others. Peritoneal metastasis was found to be significantly more common among younger age patients, whereas no such difference was observed between the two arms for other site metastasis. ***Conclusions*:** Younger adults newly diagnosed CRC patients. It is associated with predominantly male patients, positive family history; majority left sided primary tumor, more frequently high grade histology and advanced stage at diagnosis. In view of high burden of CRC among young adults and its advanced stage at diagnosis, inclusion of these patients in routine screening practice is required for early diagnosis and treatment to improve outcome.

Keywords: Colorectal Cancer, Metastasis, Younger Adults.

INTRODUCTION

Colorectal cancer is the third most common cancer in both men and women, and the second leading cause of cancer-related deaths [1]. Colorectal cancer (CRC) is already the third leading cause of cancer death in the world, and its incidence is steadily rising in developing nations. Also known as colorectal adenocarcinoma, CRC usually emerges from the glandular, epithelial cells of the large intestine. The annual incidence increases from ten cases per million at age 20 years to 100 cases per one million at the age of 45 years. However, after reaching the age fifty, it is estimated that about one in 2,000 people will develop colorectal cancer per year. Incidence and mortality rates

have decreased in adults older than age 50 years over the last three decades [2], likely due to increased uptake of screening and shifts in the distribution of risk factors (e.g., decreased cigarette use, increased aspirin use) [3]. By contrast, incidence rates have risen rapidly in younger adults (age <50 years), from 8.6 per 100,000 in 1992 to 12.9 per 100,000 in 2018 [4], and as a result, 10–12% of all CRCs now occur in younger adults. Even more rapid significant increases have been monitored in many regions that were historically at low risk, including Spain, Italy, Greece, and various countries within eastern Asia and eastern Europe [5, 6]. Still, in all cases, CRC remains the third most incident and fatal cancer globally, which indicates that it is still a major public health problem [7]. According to the World Health Organization GLOBOCAN database, CRC is the third most commonly diagnosed cancer in males and the second in females [7]. Focusing on this impressive decreasing pattern that has been monitored in many countries, this seems to be observed mainly in the older populations, whereas recent reports indicate a rising CRC incidence in younger adults (i.e., individuals younger than 50 years old) [5, 6]. Furthermore, CRC is often diagnosed at a later stage in younger adults, when the disease is more challenging to treat, therefore these patients tend to have lower survival [6]. Overall, the latest literature insights are indicating an increase in the age-specific incidence rates, the age-weighted incidence rates, and the annual percentage change of the incidence in younger adults, stressing the emerging trends in this population group [6-10]. In the fight against CRC, screening is on the frontline since it is a strongly curable cancer when diagnosed early [10]. Strong and well-coordinated screening programs in countries with robust healthcare systems have already proved to be effective towards this direction, by stabilizing or decreasing CRC incidence and mortality rates [11].

METHODS

A retrospective analytical study was conducted for newly diagnosed CRC patients treated in the Department of Surgery, Sylhet MAG Osmani Medical College, Sylhet, Bangladesh from January to June 2023. Convenient sampling method was followed to include 150 newly diagnosed young CRC patients registered. The study aimed to determine the burden of CRC among younger adults, and to evaluate its clinicopathological characteristics. Chi-square method was used to analyze the clinic pathological characteristics. P≤0.05 was considered statistically significant.

Data was retrieved from the cancer registry in a predesigned proforma after obtaining permission from institutional ethical committee. Data was collected for clinicopathological variables like age, sex, smoking, alcohol history, co-morbidity, performance status, family history, presenting symptoms, duration of symptoms, histopathology, grade, site, types of lesion, bowel obstruction, emergency surgery, tumor stage, nodal stage, metastasis, site and number of distant metastasis. SPSS statistical software version 23.0 was used for data analysis. Chi square analysis was used to compare different clinic pathological parameters between the two arms. A two tailed p value ≤0.05 was considered statistically significant.

Inclusion Criteria

Patients with newly diagnosed biopsy proven colorectal cancer registered in the hospital were included in the study.

Exclusion Criteria

Patients with colorectal lesion without biopsy proof or those with recurrent colorectal cancer were excluded from the study.

Symptomatic Presentation

Because young adults do not undergo routine screening, they often present symptomatically. Common symptoms include hematochezia (even after adjusting for tumor sidedness) [12], anemia, and abdominal pain. For example, in an online survey conducted by the Colorectal Cancer Alliance, 81% of respondents reported at least three different symptoms prior to their diagnosis of EOCRC, and they often had symptoms for months or even years before undergoing an initial evaluation; 19% reported delays in diagnosis of >12 months from initial symptoms [13]. Interestingly, younger adults diagnosed with advanced stage disease seem to have a shorter duration of symptoms [14] compared to those diagnosed with early stage disease, suggesting differences in biology of more aggressive EOCRCs.

Risk Factors

Some non-modifiable risk factors, including older age, male sex, and non-White race, are associated with EOCRC [15-18]. Because 80% of patients diagnosed with EOCRC have MSS tumors, implicating the adenoma-carcinoma sequence as in later-onset CRC, earlier exposures likely lead to an earlier sequence of carcinogenesis [19, 20]. As detailed below, several modifiable lifestyle factors increase risk of EOCRC, including dietary patterns, obesity and metabolic syndrome, sedentary behavior, and alcohol and tobacco use. Exogenous exposures, such as factors related to intestinal dysbiosis, may also contribute to risk, and identifying these exposures may identify previously unknown carcinogens, relevant to both early- and later-onset CRC [21].

RESULTS

Out of total 150 newly diagnosed CRC patients. The median age at diagnosis was 54 years and 40 years for overall patients and younger adults respectively. Predominantly male patients were observed in the study population with male to female ratio (M: F) of 1.6:1. Most patients (approximately two third) presented with eastern co- operative oncology

group (ECOG) performance status I (Table-1). Family history of colorectal cancer or polyps was present in two patients, both of which belonged to the younger adults group. The most common presenting symptoms were in the following order; bleeding per- rectum> pain abdomen> altered bowel habit> vomiting (Table 1). Most of the primary tumor were left sided, with left to right sided tumor ratio of 4:1, 4.6:1. Adenocarcinoma and intermediate grade histology was most commonly seen; whereas significantly higher frequency of higher grade histology was found in younger age group. Greater than 90% of patients were diagnosed with advanced T stage (T3/T4) and over 80% patients had lymph nodal metastasis at diagnosis findings were age groups. Distant metastasis was observed in approximately one fourth of total patients, out of which majority (96%) were detected at multiple sites and numbers. Relatively higher number of distant metastasis was observed among younger patients (Table 1). Common sites of distant metastasis were in the following order; liver> peritoneum> lung> bone> brain> others (Table 1). Peritoneal metastasis was found to be significantly more common among younger age patients, whereas no such difference was observed between the two arms for other site metastasis (Table-1).

Table-1: Demographic characteristics of Colorectal Malignancy Patient (N=150)

Parameters	Number (%)	Percentage
Age (in years)		
Median	35.5	
Range	20-45	
Sex		
Male	93	(62)
Female	57	(38)
Smoking		
Yes	28	(18.6)
No	122	(81.4)
Alcohol		
Yes	29	(19.3)
No	121	(80.7)
ECOG		
I	103	(68.6)
II	43	(28.6)
III	4	(2.8)
IV	-	-

Table-2: Co morbidities of the study Patients (N=150)

Co morbidities		
Diabetes	15	(10.0)
Hypertension	16 (10.6)	(10.6)
Coronary artery disease	12	(14)
HIV	1	(0.6)
Hypothyroid	1	(0.6)
Positive family history	2	(1.3)

Table-3: Symptoms of the study Patients (N=150)

Symptoms		
Pain abdomen	60	(40)
Bleeding per rectum	88	(58.6)
Altered bowel habit	51	(34.0)
Vomiting	18	(12.0)
Duration of symptoms (in months) Median- Range		2:1-60

Table-4: Type of lesion, Intestinal obstruction and Emergency surgery of the patients (N=150)

Type of lesion	N (%)	Intestinal obstruction	N (%)	Emergency surgery	N (%)
Ulceroproliferative	97 (64.6)	Yes	98 (65.3)	Yes	42 (28.0)
Ulceroinfiltrative	53 (35.4)	No	52 (34.7)	No	108 (72.0)

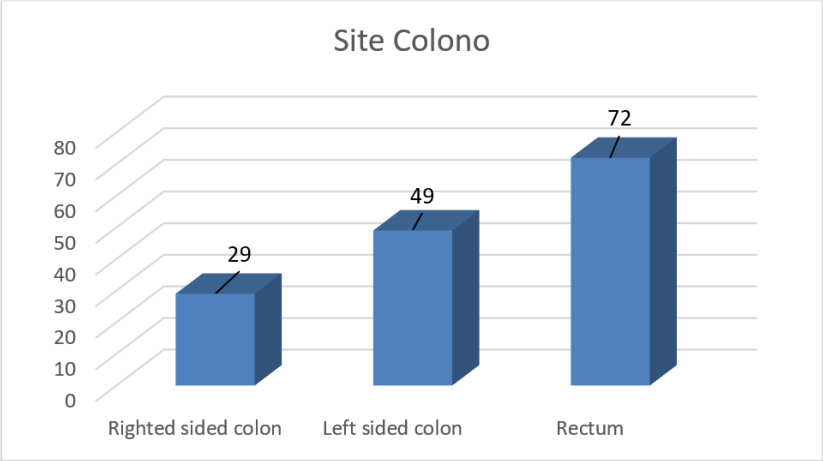

Fig-1: Site colon of the study Patients (N=150)

Table-5: Histopathology of the study Patients (N=150)

Histopathology		
Adenocarcinoma	143	(95.3)
Neuroendocrine	2	(1.3)
Lymphoma	1	(0.7)
Melanoma	2	(1.3)
GIST	1	(0.7)
Adeno squamous	1	(0.7)

Table-6: Tumor stage, Grade and nodal stage of the study patients (N=150)

Tumor stage	**N (%)**	**Grade**	**N (%)**	**Nodal stage**	**N (%)**
T1	2 (1.3)	Low	51 (34.0)	Negative	29 (19.3)
T2	11 (7.3)	Intermediate	74 (49.3)	Positive	121 (80.7)
T3	103 (68.6)	High	25 (16.7)	-	-
T4	34 (22.8)	-	-	-	-

Table-7: Distant metastasis of the study patients(N=150)

Distant metastasis		
Oligometastasis	2	(1.3)
Multiple metastasis	39	(26.0)
No metastasis	109	(72.7)

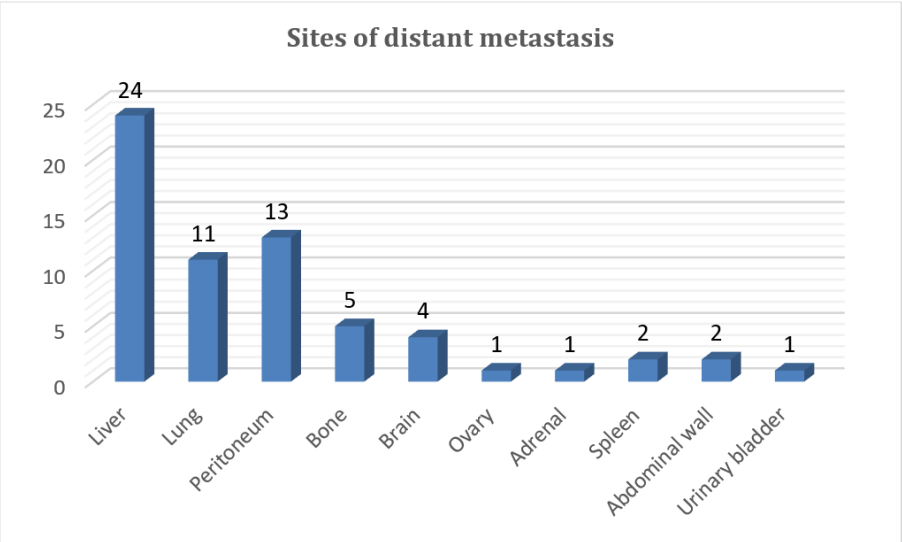

Fig-2: Sites of distant metastasis of the study patients(N=150)

DISCUSSION

The present study was conducted to estimate the burden of CRC among younger adults, and to analyze its epidemiology, clinical presentation and stages at the time of diagnosis, the pattern of metastasis [22]. Out of total 150 newly diagnosed CRC patients. The median age at diagnosis was 54 years and 40 years for overall patients and younger adults respectively with the study finding of Ghodssi-Ghassemabad et al., and Sudharsan et al., [23, 24]. The median age of diagnosis of CRC in the study was 54 years, which was lower than the global data of median age at diagnosis of 66 years. Men were more affected than women (62% versus 38% respectively) in the study, which was in concordance with previous Indian study report by Patil et al., [25]. The smoking and diabetes are the important risk factors of colorectal cancers; but in this study small no patients were smokers and diabetes mellitus, which could be probably due to prior undetected diabetes and or information bias [26, 27]. About 70% of patients had ECOG performance status of 1. Adenocarcinoma and intermediate grade histology was most commonly seen; whereas significantly higher frequency of higher grade histology was found in younger age group. Greater than 90% of patients were diagnosed with advanced T stage (T3/T4) and over 80% patients had lymph nodal metastasis at diagnosis findings were age groups. Distant metastasis was observed in approximately one fourth of total patients, out of which majority (96%) were detected at multiple sites and numbers. The most common presenting symptom was lower GI bleeding, followed by abdominal pain which was young age groups. Among younger adults, 34.3% had undergone emergency surgery for the significantly. Previous study have reported that usually 5 to 10% of colorectal cancer patients have familial history, but in the present study, positive family history was found in 1.8% patients; which was similar with study finding of Patil et al., who have reported familial CRC in 1.9% patients [24, 27, 28]. The most common site of the lesion was in rectum followed by left colon and right colon in both the age groups, which was similar to that of previous study report [24]. Most common pathologic variant was adenocarcinoma, which was same as that of previous studies. Significantly higher frequency of high grade tumor was found among younger adults compared to the older patients, which was in concordance with previous studies [29, 30]. Nearly one third of patients among younger adults and one fourth patients in the older age group had de-novo metastasis. Liver metastasis was the commonest site of distant metastasis in overall population and also in both the age groups; whereas there was significantly increased rate of peritoneal metastasis among younger adults, these results were similar with other previous studies [31]. Majority of patients had multiple metastasis at diagnosis, whereas all metastatic patients among younger adults had multiple metastasis.

CONCLUSION

Younger adults newly diagnosed CRC patients. It is associated with predominantly male patients, positive family history; majority left sided primary tumor, more frequently high grade histology and advanced stage at diagnosis. Peritoneal metastasis was more common among young adults. Greater proportion of patients among younger adults initially presented with bowel obstruction, for which upfront emergency surgical procedures was performed in significantly higher proportion. In view of high burden of CRC among young adults and its advanced stage at diagnosis, inclusion of these patients in routine screening practice is required for early diagnosis and treatment to improve outcome.

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Conflict of Interest: None declared.

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