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Evaluation of presenting features of right-sided colonic carcinoma in a tertiary level hospital

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Abstract
Introduction: Right-sided colonic carcinoma (RCC) is a distinct clinical entity within colorectal cancer, often presenting with subtle and non-specific symptoms, leading to delayed diagnosis and poorer outcomes. Unlike left-sided colorectal cancer, which frequently manifests with overt rectal bleeding and altered bowel habits, RCC is more commonly associated with anemia, weight loss, and vague abdominal discomfort. The study aimed to evaluate the presenting features of right-sided colonic carcinoma in a tertiary-level hospital.
Methods: This cross-sectional type of observational study was conducted at the Department of Surgery, Mymensingh Medical College Hospital, Mymensingh, Bangladesh. The study was conducted from July 2012 to January 2013. 100 patients who have undergone operative treatment for carcinoma of the right colon in different surgical units of Mymensingh Medical College Hospital fulfilling inclusion and exclusion criteria were the participants of this study. Data were collected and analyzed by SPSS-16.
Result: The study revealed that right-sided colonic carcinoma was most common in males (74%) and predominantly affected individuals in their 6th decade of life (44%). The most frequently involved site was the cecum (56%), followed by the ascending colon (30%) and hepatic flexure (14%). The most common presenting symptoms were weight loss, anorexia, and weakness (82%), abdominal pain (64%), nausea and dyspepsia (60%), and an abdominal lump (56%). Notably, anemia was present in 86% of patients, with 58% having hemoglobin levels between 50-75%.
Conclusion: This study concludes that RCC often presents at an advanced stage with non-specific symptoms such as weight loss, anemia, abdominal pain, and an abdominal lump, rather than overt rectal bleeding. The predominance of cases in older males, the association with smoking, and the high prevalence of anemia emphasize the need for early recognition and screening, particularly in high-risk populations.

Keywords: Right colon carcinoma, ascending colon, abdominal pain, anemia

1. Introduction
Colorectal cancer (CRC) is a major global health burden, ranking as the third most common malignancy and the second leading cause of cancer-related mortality worldwide [1]. The incidence of RCC has been increasing over the years, particularly in older adults and individuals with predisposing genetic conditions such as Lynch syndrome and familial adenomatous polyposis [2]. Lifestyle factors, including a high-fat and low-fiber diet, smoking, obesity, and chronic inflammatory conditions like inflammatory bowel disease, also contribute to the development of RCC [3]. Moreover, right-sided tumors are more common in females and the elderly population compared to left-sided tumors [4]. It is a heterogeneous disease with distinct clinical presentations, molecular characteristics, and treatment responses based on tumor location within the colon. Right-sided colonic carcinoma (RCC), which arises in the cecum, ascending colon, and proximal transverse colon, differs significantly from left-sided colonic carcinoma (LCC) in terms of epidemiology, clinical manifestations, tumor biology, and prognosis [4]. The insidious nature of RCC often leads to delayed diagnosis, as early symptoms are subtle and easily overlooked. Evaluating the presenting features of RCC is crucial for early detection, timely intervention, and improved clinical outcomes. The clinical manifestations of RCC differ significantly from those of LCC due to anatomical and physiological variations in the colon. The right colon has a larger lumen and liquid fecal content, allowing tumors to grow to significant sizes before causing obstructive symptoms [5]. Consequently, patients with RCC tend to present later with systemic or non-specific symptoms rather than overt bowel-related

complaints. One of the most common presenting features of RCC is iron deficiency anemia (IDA), which results from chronic occult gastrointestinal bleeding. The proximal colon has a rich vascular supply, and tumor ulceration leads to persistent but slow blood loss, often unnoticed by patients [6]. Studies have shown that IDA is present in up to 60% of RCC cases at the time of diagnosis [7]. Unintentional weight loss is another significant early indicator of RCC, often resulting from increased metabolic demand, tumor-induced systemic inflammation, and reduced appetite [8]. In many cases, patients also experience vague abdominal discomfort, intermittent colicky pain, or a palpable right lower quadrant mass due to the tumor's slow but progressive growth [9]. Chronic blood loss and associated anemia may lead to increased intestinal motility, causing diarrhea in some cases, while luminal narrowing due to tumor growth can result in constipation [10]. However, complete bowel obstruction is relatively rare in RCC due to the larger luminal diameter of the right colon, and when it occurs, it typically signifies advanced disease [11]. In some cases, RCC may present with complications such as perforation, peritonitis, or liver metastasis at the initial diagnosis. Given its subtle early symptoms, RCC is often detected at advanced stages when metastatic spread to the liver, peritoneum, or lungs has already occurred [12]. Liver metastases, in particular, may present with hepatomegaly, jaundice, or right upper quadrant pain [13]. Due to the often vague and non-specific nature of RCC symptoms, many cases are diagnosed incidentally during routine evaluations for anemia, unexplained weight loss, or non-specific gastrointestinal complaints [14]. As a result, early detection strategies, including fecal occult blood testing, colonoscopy, and imaging studies, play a crucial role in improving survival outcomes. This study aims to evaluate the presenting features of RCC among patients in a tertiary-level hospital setting. By understanding the clinical patterns associated with RCC, clinicians can enhance diagnostic accuracy, facilitate early intervention, and improve patient prognosis.

2. Methodology

This cross-sectional type of observational study was conducted at the Department of Surgery, Mymensingh Medical College Hospital, Bangladesh. The study took place from July 2012 to January 2013. The study was carried out with patients who have undergone operative treatment for carcinoma of the right colon in different surgical units of Mymensingh Medical College Hospital. Patients were studied irrespective of age and sex. 100 patients participated in the study. All the participants in the study were informed about the purpose of the study and written consent was taken before participation in this study. Non-randomized purposive samples are taken by choice/judgment. At the time of data collection, all patients admitted in surgery wards with colorectal cancer with histopathological diagnosis and who fulfill the inclusion criteria are taken as samples. A structured data collection form was developed containing all the variables of interest. Data were collected and analyzed by SPSS-16. The study was approved by the Institutional Ethics Committee.

2.1 Inclusion criteria

- Patients who were admitted to different surgery units of Mymensingh Medical College Hospital with the clinical diagnosis of carcinoma of the right colon.
- Those patients who had undergone operative treatment for carcinoma right colon.

2.2 Exclusion criteria

- Patients who refused operative treatment.
- Patients with recurrent cancer.

3. Results

Table 1: Distribution of patients by socio-demographic characteristics (N=100)

Category	Frequency (n)	Percentage (%)
Age Distribution		
10-20 years	0	0.0
21-30 years	8	8.0
31-40 years	8	8.0
41-50 years	22	22.0
51-60 years	44	44.0
61-70 years	8	8.0
71-80 years	10	10.0
81-100 years	0	0.0
Total	100	100.0
Gender Distribution		
Male	74	74.0
Female	26	26.0
Male: Female Ratio 2.8:1		
Socio-economic Class		
High	2	2.0
Middle	38	38.0
Poor	60	60.0
Total	100	100.0

Table 1 outlines the socio-demographic characteristics of 100 patients in the study. Regarding age distribution, the largest group was between 51-60 years (44%), followed by 41-50 years (22%). There were fewer patients in the younger and older age brackets, with no patients in the 10-20 and 81-100 age groups. In terms of gender, a significant majority of patients were male (74%), with a male-to-female ratio of 2.8:1. For socio-economic class, most patients were from lower socio-economic backgrounds, with 60% classified as poor, 38% as middle class, and only 2% as high socio-economic class.

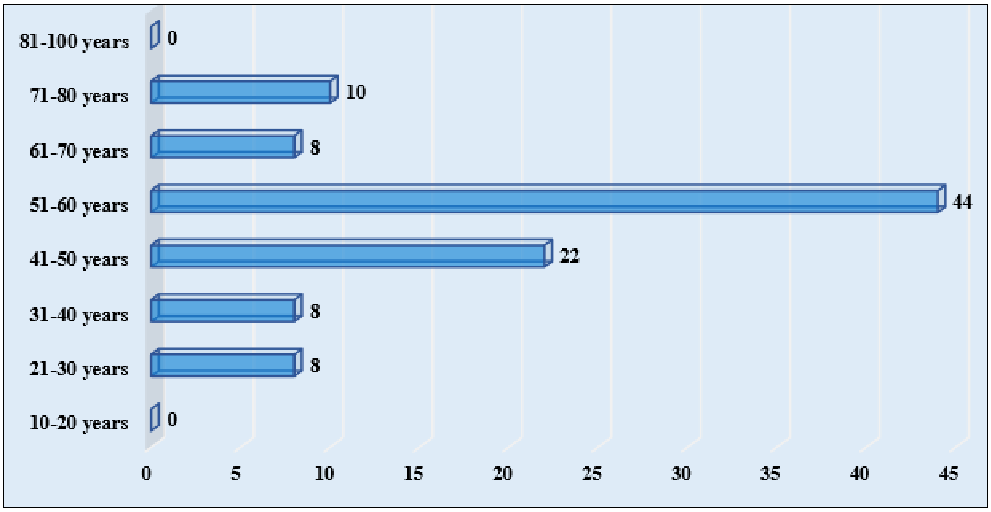

Fig 1: Bar chart showed age wise patient distribution (N=75)

Table 2: Distribution of Patients by Site of Right-Sided Colonic Carcinoma (N=100)

Site of Carcinoma	Frequency (n)	Percentage (%)
Caecum	56	56.0
Ascending Colon	30	30.0
Hepatic Flexure	14	14.0
Total	100	100.0

Table 2 presents the distribution of patients with right-sided colonic carcinoma based on the site of the tumor. The majority of cases were located in the caecum (56%), followed by the ascending colon (30%), and the hepatic flexure (14%). The total number of patients in the study was 100, with each site contributing to the overall frequency of occurrences.

Table 3: Distribution of Patients by Presence of Risk Factors (N=100)

Risk Factor	Frequency (n)	Percentage (%)
Family History of Colorectal Cancer	1	1.0
IBS	2	2.0
Smoker	38	38.0
Intake of Vegetables (Less)	15	15.0
Intake of Vegetables (Adequate)	85	85.0

Table 3 presents the distribution of patients based on the presence of risk factors for colorectal cancer. A small proportion of patients had a family history of colorectal cancer (1%), and very few reported a history of Irritable Bowel Syndrome (IBS) (2%). Smoking was the most common risk factor, with 38% of patients identified as smokers. Regarding vegetable intake, 85% of patients had an adequate intake of vegetables, while 15% consumed fewer vegetables.

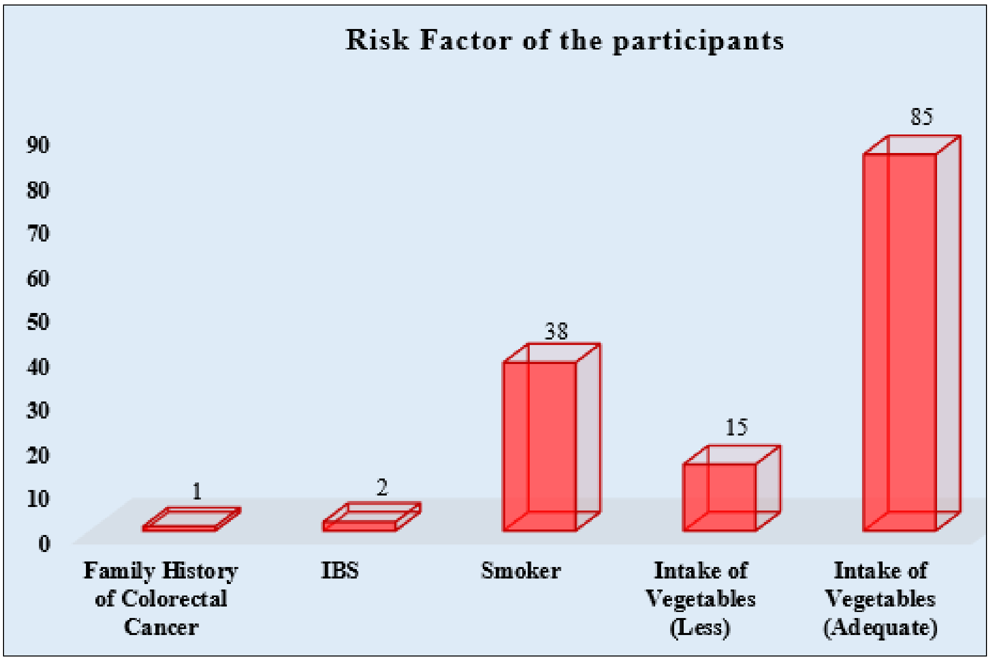

Fig 2: Column chart showed risk Factor wise patient distribution (N=75)

Table 4: Distribution of Patients by Symptoms of Right-Sided Colonic Carcinoma (N=100)

Symptoms	Frequency (n)	Percentage (%)
No Symptoms (Incidentally Diagnosed)	2	2.0
Abdominal Pain	64	64.0
Altered Bowel Habit	24	24.0
Weight Loss, Anorexia, Weakness	82	82.0
Nausea, Vomiting, Dyspepsia	60	60.0
Abdominal Lump	56	56.0
Features of Intestinal Obstruction	12	12.0
Features of Acute Appendicitis	2	2.0

Table 4 shows the distribution of patients based on symptoms associated with right-sided colonic carcinoma. The majority of patients presented with multiple symptoms, with 82% experiencing weight loss, anorexia, and weakness, and 64% reporting abdominal pain. Other common symptoms included nausea, vomiting, dyspepsia (60%), and abdominal lumps (56%). A smaller proportion had altered bowel habits (24%) or features of intestinal obstruction (12%).

Table 5: Distribution of Patients by Physical Signs (N=100)

Physical Sign	Frequency (n)	Percentage (%)
Built & Nutrition (Poor)	64	64.0
Significant Anemia	86	86.0
Dehydration	36	36.0
Lymphadenopathy	12	12.0
Fever	28	28.0
Blood Pressure (Normal)	34	34.0
Blood Pressure (High)	64	64.0
Blood Pressure (Low)	16	16.0
Abdominal Mass	20	20.0
Abdominal Distension	56	56.0
Ascites	14	14.0
Hepatomegaly	24	24.0
Positive DRE	16	16.0

Table 5 presents the distribution of physical signs observed in patients with right-sided colonic carcinoma. A significant proportion of patients exhibited poor nutritional status (64%) and significant anemia (86%). Dehydration was noted in 36% of patients, while lymphadenopathy and fever were less common, affecting 12% and 28% of patients, respectively. Regarding blood pressure, 64% had high blood pressure, 34% had normal blood pressure, and 16% had low blood pressure. Abdominal-related signs were prevalent, with 56% showing abdominal distension, 20% presenting with an abdominal mass, and 14% having ascites. Hepatomegaly was found in 24% of patients, and 16% had a positive digital rectal exam (DRE).

Table 6: Distribution of Patients by Hemoglobin Percentage (N=100)

Hemoglobin Percentage	Frequency (n)	Percentage (%)
<50%	30	30.0
50-75%	58	58.0
>75%	12	12.0
Total	100	100.0

Table 6 shows the distribution of patients based on their hemoglobin percentage. The majority of patients had a hemoglobin level between 50-75%, accounting for 58% of the total. A significant portion (30%) had hemoglobin levels below 50%, indicating severe anemia. Only 12% of patients had hemoglobin levels above 75%, suggesting a lower prevalence of normal or near-normal hemoglobin levels in this cohort.

4. Discussion

Right-sided colonic carcinoma (RCC) presents unique epidemiological and clinical characteristics that distinguish it from left-sided colonic carcinoma. This study analyzed 100 patients diagnosed with RCC in a tertiary-level hospital, focusing on their presenting symptoms and physical signs. The findings highlight critical aspects of RCC that can aid in early detection and better clinical management. The age distribution in this study revealed that the highest incidence of RCC occurred in the sixth decade of life (44%), followed by the fifth decade (22%). These findings align with previous studies indicating that the risk of RCC increases with age, with the majority of cases occurring in individuals over 50 years old [1, 12]. However, a notable 16% of cases were observed in individuals below 40 years, demonstrating that RCC is not exclusive to older populations. The youngest patient in this study was 21 years old, with the tumor located at the right colic flexure, suggesting that clinicians should remain vigilant for RCC even in younger patients presenting with suspicious symptoms [14]. Regarding gender distribution, RCC was more common in males (74%) than females (26%), with a male-to-female ratio of 2.8:1. This male predominance is consistent with previous epidemiological data indicating that men have a higher risk of developing colorectal cancer, potentially due to genetic, hormonal, and lifestyle factors, including higher rates of smoking and dietary habits [6, 7]. In this study, the most common site of RCC was the cecum (56%), followed by the ascending colon (30%) and the hepatic flexure (14%). This distribution is similar to previous findings, where the cecum was the predominant site due to its anatomical position and relatively slower colonic transit time, which may contribute to prolonged exposure to carcinogens [9]. Analysis of risk factors showed that only 1% of patients had a family history of colorectal carcinoma, while 38% were smokers, emphasizing smoking as a significant environmental risk factor in RCC development [5]. The most common presenting symptom in this study was weight loss, anorexia, and weakness (82%), followed by abdominal pain (64%) and nausea, vomiting, and dyspepsia (60%). The high frequency of weight loss and anorexia suggests a more advanced disease state at presentation, which is consistent with the often-insidious nature of RCC [13] unlike left-sided colorectal cancer, which frequently presents with overt rectal bleeding, none of the patients in this study exhibited per rectal bleeding or painful defecation. Instead, 56% had an abdominal lump, likely due to the slow-growing nature of RCC tumors that reach a substantial size before causing significant symptoms. Notably, only 2% of cases were incidentally diagnosed, reinforcing the need for improved early detection strategies such as routine colonoscopy in high-risk populations [11]. Features of intestinal obstruction were present in 12% of patients, indicating that while complete obstruction is less common in RCC than left-sided tumors, late-stage disease can still cause significant complications.

Additionally, two patients (2%) presented with features of acute appendicitis, a rare but documented presentation of RCC, particularly when tumors obstruct the appendiceal orifice (4). The most notable physical finding was significant anemia, observed in 86% of patients. This is consistent with the tendency of RCC to present with chronic occult blood loss rather than overt bleeding [15]. Poor nutritional status was also common (64%), reflecting the progressive cachexia associated with malignancies. Abdominal distension was noted in 56% of cases, possibly due to tumor bulk or secondary effects such as ascites, which was present in 14% of patients. Other signs such as hepatomegaly (24%) and lymphadenopathy (12%) indicate possible metastatic disease at presentation.

5. Limitations of the Study

The study was conducted in a single hospital with a purposively selected small sample size in a short period. So, the results may not represent the whole community.

6. Conclusion

This study concludes that RCC often presents at an advanced stage with non-specific symptoms such as weight loss, anemia, abdominal pain, and an abdominal lump, rather than overt rectal bleeding. The predominance of cases in older males, the association with smoking, and the high prevalence of anemia emphasize the need for early recognition and screening, particularly in high-risk populations. Given the silent nature of RCC progression, improving awareness, promoting routine colonoscopic screening, and addressing modifiable risk factors is crucial for timely diagnosis and better clinical outcomes.

7. Recommendation

To improve early detection and outcomes of right-sided colonic carcinoma, routine screening programs, including colonoscopy and fecal occult blood testing, should be emphasized, especially for high-risk individuals. Clinicians should maintain a high index of suspicion for RCC in patients presenting with unexplained anemia, weight loss, or vague abdominal symptoms. Public health initiatives should focus on raising awareness about modifiable risk factors such as smoking and dietary habits. Long-term, multi-center studies with larger sample sizes are needed to assess the impact of screening programs on early diagnosis and survival outcomes.

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