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Clinical Presentations Of Colorectal Cancer In The Surgical Ward Of Jinnah Postgraduate Medical Centre, Karachi

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ABSTRACT

Objective: To assess the clinical presentations of Colorectal Cancer in the Surgical Ward of Jinnah Postgraduate Medical Centre, Karachi. Methodology: This six-month cross-sectional study was conducted at JPMC, Karachi, enrolling 165 patients with histologically confirmed colorectal adenocarcinoma. Adults aged 18–70 years, with Stage I–IV disease and duration of 1–12 months, were included. Key clinical presentations were recorded after history, examination, and imaging. Data were analyzed using SPSS version 26, with descriptive statistics and Chi-square tests applied to assess associations at a 5% significance level. Results: In a sample of 165 patients with colorectal malignancy (mean age: 52.47 ± 8.62 years; 64.2% males), the most common clinical presentation was a change in bowel habits (69.7%) and the passage of rectal bleeding (51.5%), followed by anemia (32.7%), weight loss (26.7%), intestinal obstruction (24.2%) and an abdominal mass (14.5%). There were no statistically significant differences by gender at presentation. Conclusion: This investigation underscores the fact that modifications in bowel habits and the occurrence of rectal hemorrhage represent the predominant clinical manifestations of colorectal malignancy in individuals admitted to a tertiary surgical unit. Given that the majority of cases are diagnosed at advanced stages, these observations underscore the imperative for enhanced clinical scrutiny and prompt diagnostic assessment to ameliorate prognoses in resource-constrained environments, such as Pakistan.

INTRODUCTION

Colorectal cancer (CRC) is the third most common cancer and ranks the fourth cause of cancer-related death worldwide, comprising 6.1% of new cancer cases and 9.2% of cancer deaths [1]. In 2018, CRC was associated with approximately 1.8 million new cases and 881,000 deaths globally [2]. Within Pakistan, the documented prevalence of CRC varies between 4.3% and 7.1% [3].

CRC is observed to originate solely within the colon or rectum, with its principal pathophysiological characteristic being the abnormal proliferation of glandular epithelial cells located within the colonic mucosa [4]. Histopathologically, adenocarcinoma comprises more than 90% of CRC cases globally [5].

There is considerable clinicopathologic diversity between right-side and left-side CRC, presumably reflecting their distinct embryologic origins. Right-sided tumors are more commonly identified in older female patients and are correlated with higher histological grades and more advanced tumor stages at the moment of diagnosis [6]. Right-sided CRCs are more prone to peritoneal metastasis and left-sided tumors to liver and lung metastases [6].

The anatomical location of the tumor also affects the stage at which it presents clinically. Right-sided tumors are typically diagnosed at more advanced stages, complicating the feasibility of complete surgical resection. Patients with left-sided CRC generally present with rectal bleeding or alterations in bowel habits, whereas right-sided tumors frequently present with iron-deficiency anemia or palpable abdominal masses [7]. In certain instances, patients may present acutely with indications of intestinal obstruction, peritonitis stemming from tumor perforation, or symptoms indicative of distant metastases.

Numerous studies have investigated the clinical spectrum of presentations associated with CRC. Nisar et al. found that among their CRC patients, 26.67% were diagnosed at Stage I, 31.43% at Stage II and 41.9% at Stage III. Rectal bleeding was present in 86.67% of patients, change in bowel habit in 72.38%, anemia in 33.3%, and marked weight loss in 24.76% [8].

Similarly, it was reported by Zahir et al. found that 51.29% of CRC patients had rectal bleeding, 22.1% with intestinal obstruction, and abdominal mass with 12.2% [9].

In light of the varied clinical manifestations and the associated mortality rates, it is crucial for clinicians to identify the early signs of CRC to enhance the timing of diagnosis and patient outcomes [8,9]. According to data from GLOBOCAN 2020, gastrointestinal cancers were responsible for over 20,000 new cases and deaths in Pakistan, with CRC representing a significant proportion [10]. Alarmingly, nearly 75% of CRC patients in Pakistan present with advanced-stage disease (Stage III or IV), where curative surgical resection may not provide a survival advantage [9]. This scenario starkly contrasts with developed nations such as the United States, where only 22% of CRC patients presented with distant metastases in 2019[11]. This study endeavors to assess the frequency and pattern of clinical presentations in patients diagnosed with CRC at a tertiary care facility, with the aim of enriching local epidemiological data that may facilitate earlier suspicion and diagnosis in analogous healthcare environments.

METHODOLOGY

This cross-sectional study was conducted over six months in the Department of General Surgery at Jinnah Postgraduate Medical Centre (JPMC), Karachi. A total of 165 patients were enrolled using non-probability consecutive sampling. Participants included adults aged 18 to 70 years of either gender who had a recent diagnosis of colorectal adenocarcinoma confirmed through histopathological examination of tissue obtained either endoscopically or surgically. Only patients with disease duration between one and twelve months and classified within Stage

I to IV based on the TNM staging system were included.

Patients were excluded if they presented with recurrence of colorectal cancer, secondary metastasis to the colon or rectum, multiple primary malignancies, hemolytic anemia, or coexisting chronic illnesses such as tuberculosis, chronic liver disease, or chronic kidney disease. Pregnant females were also excluded.

After obtaining informed consent, demographic details including age, gender, and residential status were recorded. Clinical history and examination findings were documented systematically. Presenting symptoms such as rectal bleeding, altered bowel habits, features of intestinal obstruction, palpable abdominal mass, unintentional weight loss, and anemia were assessed based on patient history, physical examination, imaging studies, and laboratory results. Rectal bleeding was noted if there were multiple episodes of visible blood per rectum in the preceding month. Altered bowel habits referred to a pattern of alternating diarrhea and constipation for more than three months. Intestinal obstruction was diagnosed on imaging by the presence of dilated bowel loops with a clear transition point. Abdominal lumps were identified on physical examination. Significant weight loss was defined as a marked reduction in body weight over recent months, and anemia was based on low hemoglobin levels. All patients underwent contrast-enhanced CT scanning of the chest, abdomen, and pelvis for staging.

Data were analyzed using SPSS version 26. Descriptive statistics were used to summarize demographic and clinical variables. Continuous data were expressed as mean ± standard deviation or median, while categorical variables were presented as frequencies and percentages. Stratification was performed to assess the impact of potential effect modifiers, and post-stratification comparisons were evaluated using Chi-square test, with a significance level set at 5%.

RESULTS

The study involved 165 patients with mean age of 52.47 ± 8.62 years and mean body mass index (BMI) of 25.77 ± 3.57 kg/m². Among the cohort 106 (64.2%) were male and 59 (35.8%) female. With reference to carcinoma stage distribution, 43 (26.1%) patients were in Stage I, 52 (31.5%) in Stage II and 70 (42.4%) in Stage III (Table I).

Among the cohort of patients diagnosed with colorectal carcinoma, the predominant clinical manifestation documented was an alteration in bowel habits, which was noted in 115 individuals (69.7%), succeeded by the occurrence of rectal hemorrhage in 85 individuals (51.5%). The presence of anemia was recorded in 54 individuals (32.7%), whilst weight reduction was observed in 44 individuals (26.7%). The phenomenon of intestinal obstruction was noted in 40 individuals (24.2%), and an abdominal mass was detected in 24 individuals (14.5%) (Table II).

The association between clinical manifestations and gender among patients diagnosed with colorectal cancer demonstrated no statistically meaningful disparities. Rectal hemorrhage was documented in 50 male (47.2%) and 35 female (59.3%) subjects (p=0.134). Alterations in bowel habits were evident in 73 male (68.9%) and 42 female (71.2%) subjects (p=0.756). Instances of intestinal obstruction were recorded in 24 male (22.6%) and 16 female (27.1%) subjects (p=0.520), whereas an abdominal mass was detected in 13 male (12.3%) and 11 female (18.6%) subjects (p=0.265). Weight reduction was noted in 24 male (22.6%) and 20 female (33.9%) subjects (p=0.117), and the presence of anemia was observed in 38 male (35.8%) and 16 female (27.1%) subjects (p=0.252). All statistical p-values exceeded 0.05, suggesting the absence of significant gender-related differences in the clinical manifestations of colorectal cancer (Table III).

DISCUSSION

We studied demographic and clinical presentations of all patients with CRC (n=165) admitted

in the surgical ward of Jinnah Postgraduate Medical Centre, Karachi. Altered bowel habits (69.7%) and rectal bleeding (51.5%) were the most frequent presenting complaints, followed by anemia (32.7%), weight loss (26.7%), intestinal obstruction (24.2%), and abdominal lump (14.5%). These results are consistent with trends seen in regional studies. Nisar et al. demonstrated rectal bleeding in 86.67% of patients, changed bowel conduct in 72.38%, and frailty in 33.3% [8], while Zahir et al. of the patients reported rectal bleeding in 51.29% and intestinal obstruction in 22.1% of [9] patients. These symptom profiles suggest predominant involvement of left-sided colon tumors, which are anatomically predisposed to cause obstructive symptoms due to their narrower lumen and more distal location [6,7].

Interestingly, we observed no significant differences in symptomatology between genders. This contrasts with findings from international literature, where right-sided CRC—more common in older females—is associated with subtle presentations such as iron-deficiency anemia and vague abdominal discomfort [6]. The male predominance (64.2%) we observed is consistent with regional and international epidemiologic information where CRC remains more frequently diagnosed among men than women, particularly in younger populations[8,9,13]. The mean age in our cohort was 52.47 years, indicating that CRC poses a significant burden in middle age adults. This finding is significant in the context of rising early-onset CRC incidence globally, particularly in Asia and Europe. A study by Vuik et al. documented a nearly 8% annual increase in CRC among young adults in Europe, with rectal cancers being especially prevalent in this age group [14].

Despite the predominance of symptoms like rectal bleeding and bowel habit changes—both considered "red flags"—a large proportion of our cohort (73.9%) presented at advanced stages (Stage II or III), likely due to diagnostic delays and lack of structured screening programs. In contrast, developed nations have seen improvements in early detection and outcomes owing to organized screening. For example, the United States reported only 22% of CRC cases presenting with metastasis in 2019 [11]. Furthermore, epidemiologic estimates suggested that mortality associated with CRC would rise in developing to meet the same goals as Pakistan unless methods of early detection are implemented. Araghi et al. a shift from high-income countries to low- and middle-income countries (LMIC) in CRC burden by 2035 is anticipated, driven by demographic transition and the presence of under-resourced healthcare systems[15]. Screening remains pivotal in mitigating advanced-stage diagnoses. The Asia-Pacific consensus advocates earlier and tailored screening strategies in high-risk populations, citing epidemiologic variability in onset and presentation patterns [13]. Also other studies in the United States, such as Siegel et al. have also called for reevaluation of the traditional age threshold of screening, because 10–15% of CRC occur in younger than 50 [16]. Bailey et al. A separate paper further emphasizes the widening disparity rates in colon versus rectal cancer among young adults with a seemingly higher and disproportionately steep increase in rectal cancer incidence emphasizing the need for even greater age-adjusted surveillance policies[17].

Our study's strengths include its focused analysis of presenting symptoms and gender-stratified data, offering valuable insights into local clinical trends. However, limitations must be acknowledged. Being a single-center, cross-sectional study, the generalizability is limited. Absence of tumor localization data (right vs. left), molecular subtyping, and long-term outcome metrics restricts deeper clinicopathologic correlations. Additionally, recall bias in patient-reported symptoms and lack of socioeconomic data may confound the symptom patterns observed.

Altered bowel habits and rectal bleeding were the most common clinical presentations of CRC in our cohort, with a significant number diagnosed at advanced stages. These findings

underscore the urgent need for early detection protocols, public health awareness campaigns, and context-specific screening strategies, particularly targeting younger populations in resource-constrained settings.

CONCLUSION

This investigation underscores the fact that modifications in bowel habits and the occurrence of rectal hemorrhage represent the predominant clinical manifestations of colorectal malignancy in individuals admitted to a tertiary surgical unit. Given that the majority of cases are diagnosed at advanced stages, these observations underscore the imperative for enhanced clinical scrutiny and prompt diagnostic assessment to ameliorate prognoses in resource-constrained environments, such as Pakistan.

TABLE I: DEMOGRAPHIC CHARACTERISTICS OF STUDY PARTICIPANTS (N=165)

(Mean ± SD)	
Age in years = 52.47 ± 8.62	
Body Mass Index in kg/m² = 25.77 ± 3.57	
	Frequency (%)
Gender	
Male	106 (64.2)
Female	59 (35.8)
Stage of Carcinoma	
I	43 (26.1)
II	52 (31.5)
III	70 (42.4)

TABLE II: DISTRIBUTION OF CLINICAL PRESENTATIONS AMONG COLORECTAL CANCER PATIENTS

Clinical Presentations	Frequency	Percentage %
Rectal Bleeding	85	51.5
Altered Bowel Habits	115	69.7
Intestinal Obstruction	40	24.2
Abdominal Lump	24	14.5
Weight Loss	44	26.7
Anemia	54	32.7

TABLE III: ASSOCIATION OF CLINICAL PRESENTATIONS WITH GENDER AMONG COLORECTAL CANCER PATIENTS

Clinical Presentations		Gender		95% C. I	P-Value
		Male	Female		
Rectal Bleeding, *n (%)*	Yes	50 (47.2)	35 (59.3)	0.321------1.166	0.134
	No	56 (52.8)	24 (40.7)		
Altered Bowel Habits, *n (%)*	Yes	73 (68.9)	42 (71.2)	0.446------1.799	0.756
	No	33 (31.1)	17 (28.8)		
Intestinal Obstruction, *n (%)*	Yes	24 (22.6)	16 (27.1)	0.378------1.636	0.520
	No	82 (77.4)	43 (72.9)		
Abdominal Lump, *n (%)*	Yes	13 (12.3)	11 (18.6)	0.254------1.464	0.265
	No	93 (87.7)	48 (81.4)		
Weight Loss, *n (%)*	Yes	24 (22.6)	20 (33.9)	0.282------1.155	0.117
	No	82 (77.4)	39 (66.1)		
Anemia, *n (%)*	Yes	38 (35.8)	16 (27.1)	0.747------3.018	0.252
	No	68 (64.2)	43 (72.9)		

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