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Original Research Article

DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF COLORECTAL CANCER PATIENTS: A RETROSPECTIVE ANALYSIS AT A TERTIARY CARE HOSPITAL IN PAKISTAN

AFZAL A[1], SHEIKH F[2], ZAFAR A[2], TARIQ S[1], IQBAL S[3], ZAFAR U[3]

[1]*Department of Surgery, Allama Iqbal Medical College / Jinnah Hospital, Lahore, Pakistan*
[2]*Department of Oncology, Allama Iqbal Medical College / Jinnah Hospital, Lahore, Pakistan*
[3]*Department of General Surgery, Allama Iqbal Medical College / Jinnah Hospital, Lahore, Pakistan*
**Corresponding author`s email address:* ammarahfarazchaudhry@gmail.com

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Abstract: *Colorectal cancer remains a significant global health concern, ranking as the fifth most frequent cancer in Pakistan. Projections indicate a rapid increase in colorectal cancer cases worldwide over the next two decades, with emerging nations expected to account for the majority of the cases.* ***Objective:*** *This research aimed to monitor the clinical and demographic details of patients with colorectal cancer treated.* ***Methods:*** *The study included all patients diagnosed with colorectal cancer and treated at the Surgical and Oncology Department of Jinnah Hospital Lahore between January 2020 to January 2023. Gender, age, co-morbid conditions, presenting symptoms, histopathology, grade of histopathology, and T/N/M staging were assessed.* ***Results:*** *One hundred fifteen individuals were examined, comprising 31.3% females and 64.3% males. The majority of patients (31.3%) were under 50 years old, with no significant difference in mean ages between sexes (p = 0.42). The mean age of patients was 45.46±15.2 years. Smoking history was present in 2.6%, diabetes in 11.3%, and hypertension in 1.3% of cases. Abdominal pain was the predominant presenting complaint (15.7%), followed by diarrhea (2.6%). Histopathology revealed moderately differentiated adenocarcinoma in 38.3% of cases, with grade 2 tumors being the most common (32.3%).* ***Conclusions:*** *The study highlights an increased risk of colorectal cancer, even in younger individuals in the Pakistani population. Encouraging screening among the youth with family history and getting the general population to look into their symptoms early on is crucial to identify patients in the early stages of the disease, thereby enhancing the chances of survival.*

Keywords: Adenocarcinoma, Colorectal Neoplasms, Demography, Histopathology, Risk Factors

Introduction

Colorectal carcinoma (CRC) ranks third in incidence and fourth in terms of the leading cause of cancer-related deaths globally. (1). Both men and women can have this cancer, although men are more likely to be impacted than women. (2). A significant number of cases involve a large intestine distal to the splenic flexure. Hence, sigmoidoscopy is the recommended method for screening. (3).

Years of age, family history, inflammatory bowel disease (IBD), being obese, a lack of physical activity, environmental variables, nutritional factors, and other variables are risk factors for colon cancer. (4). It has been shown that the prevalence of rectal cancer varies by region. (2).

Although CRC is considered an elderly age illness, increased prevalence has been seen in emerging nations' younger populations (5)(6). The most prevalent clinical manifestation of colon cancer is hematochezia, particularly in those with recto-sigmoidal region cancer (7). Young patients typically arrive with changed bowel habits, rectal bleeding, and stomach discomfort (8). Additional signs and symptoms include fever, anaemia, a decrease in weight and abdominal mass.

In Pakistan, colorectal carcinoma ranks as the fifth most prevalent kind of cancer. It has a mean age of around 36 years; a predominant histological type is adenocarcinoma. (9). Duke's staging method is the most widely utilized set of criteria for colorectal cancer staging. Based on this categorization, patients may get adjuvant treatments or participate in clinical studies (10). The prognosis for CRC is worse in younger people than in older people (11) .

The objective of the present research was to explore the following factors: presenting symptoms, co-morbid conditions, age, gender, histology, grade of histopathology, and T/N/M staging.

Methodology

This study involved an observational retrospective examination of patients hospitalized in the surgical and oncology departments of Jinnah Hospital in Lahore, Pakistan, who were diagnosed with colorectal cancer.

We conducted a retrospective analysis of the patient data from the Surgery and Oncology Department of Jinnah Hospital Lahore, Pakistan, who had treatment for colorectal cancer between January 2020 to January 2023. Every ethical concern was taken care of, and the Helsinki Declaration was followed in every aspect of the research. Additionally, the institute permitted IRB. Consent was not required due to the retrospective nature of our study.

All individuals diagnosed with colorectal carcinoma were included regardless of whether they had recurring rectal carcinoma, metachronous (metastatic disease establishing after six months of original diagnosis), synchronous (metastatic illness at the time of detection or within six months of the original diagnosis), or both.

The study did not include any individuals who had tumours that were metastatic, rectal gastrointestinal stroma cell

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tumours (GIST), anal canal squamous cell carcinoma, or familial adenomatous polyposis. The information was gathered using a self-administered questionnaire. Gender, age, co-morbid conditions, presenting symptoms, histopathology, grade of histopathology, and T/N/M staging were assessed, along with the medical treatment that was given to the patients.

SPSS version 21.0 was employed to analyse the data. The mean and standard deviation of continuous data were displayed. Frequencies and percentages were used to display the category data. A P-value of less than 0.05 was deemed significant.

Results

We conducted a retrospective analysis of colorectal cancer patients who visited the oncology and surgical departments at Jinnah Hospital in Lahore from January 2020 to January 2023. Out of all the patients, we identified 115 who met our inclusion criteria. The mean age of the study population was 45.46±15.2 years. The majority of the patients, approximately 66.9%, were male, while females made up 33.1% of the study population. (Table 1).

Table 1: Age and Gender distribution among the study population

Variable	Result N,%
Age in years	45.46±15.2
Gender	
Male	77 (66.9)
Female	38 (33.1)

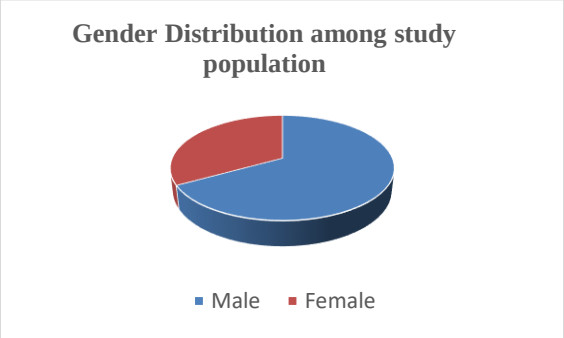

Figure 1 shows gender distribution among the study population.

Table 2: Comorbidity status of the study population

Variable	Number	Percentage
Smoking	3	2.6
Diabetes mellitus	13	11.3
Hypertension	2	1.7
Hepatitis	4	3.5
More than 1	12	10.4
None	58	50.4

Of the participants in this study, 2.6% were smokers, 11.3% had diabetes, 1.7% had hypertension, and 3.5% had hepatitis. 10.4% of the people had more than one comorbidity, and 50.4% had no associated comorbidity (Table 2).

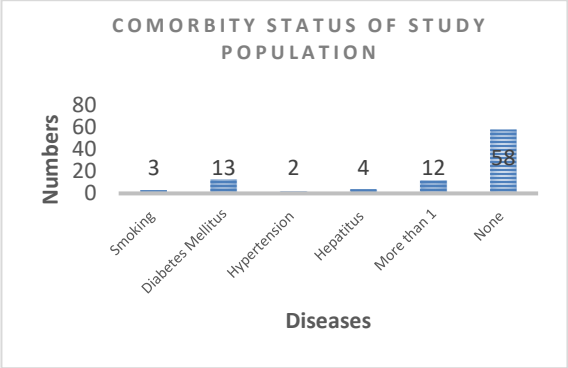

Figure 2 shows the comorbidity status of the study population.

Table 3: Presenting Complains of the study population

Variable	Number	Percentage
Weight loss	11	9.6
Abdominal pain	18	15.7
Anorexia	4	3.5
Diarrhea	3	2.6
More than 1	9	7.8
Others	10	8.7
Not applicable	60	52.1

The research population presented a variety of complaints, as Table 3 illustrates. 9.6% of the research participants reported experiencing weight loss, 15.7% reported stomach discomfort, 3.5% reported anorexia, 2.6% reported diarrhoea, 7.8% reported having more than one complaint, and 8.7% reported other presenting complaints (Table 3).

Table 4: Histopathology of tumor

Variable	Number	Percentage
Adenocarcinoma		
Well-differentiated	12	10.4
Moderate differentiated	44	38.3
Poor differentiated	23	20
Mucinous adenocarcinoma	5	4.3
Others	31	26.9

Adenocarcinoma was the most common histopathology in the study population. Well-differentiated adenocarcinoma was found in 10.4%, moderately differentiated in 38.3%, and poorly differentiated in 20% (Table 4). Mucinous adenocarcinoma was found in 4.3% of the study population.

Table 5: Grade of histopathology

Variable	Number	Percentage
Grade 1	21	18.3
Grade 2	37	32.3
Grade 3	31	27
Grade 4	2	1.7
Not available	24	20.8

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Grade 2 tumour was most prevalent in the study population, 32.2%. Grade 3 tumour was present in 27%, Grade 1 in 18.3%, and Grade 4 in 1.7% of the study population (Table 5).

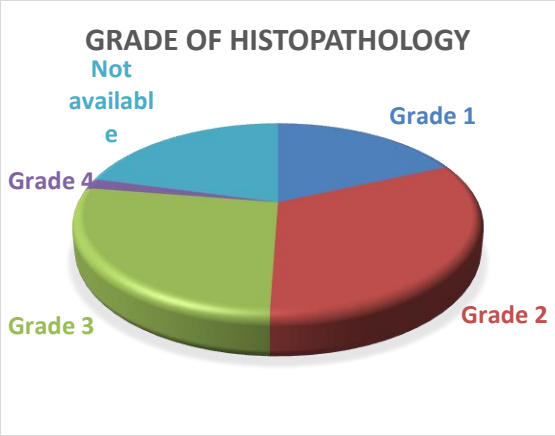

Figure 3 shows the grading of the tumour in the study population

Table 6: TNM staging of the tumour in the study population

Variable	Number	Percentage
T-Stage		
T1	3	2.6
T2	19	16.5
T3	46	40
T4	39	33.9
Not available	8	6.9
N-Stage		
Nx	1	0.9
N0	19	16.5
N1	33	28.7
N2	48	41.7
N3	5	4.3
Not available	9	7.8
M-Stage		
Mx	11	9.6
M0	55	47.8
M1	41	35.7
Not available	8	6.9

TNM staging indicated that T3 was the most common stage (40%) in the study population, followed by T4 (33.9%). N-Stage analysis showed that the N2 stage was most prevalent in the study population, with a prevalence of 41.3%, followed by the N1 stage (28.7%). M-Stage data showed that M0 was most commonly present in the study population, 47.8%, followed by the M1 stage (Table 6).

Discussion

Although colorectal carcinoma is among the top three most frequent malignancies worldwide (12), it ranks sixth most common in Pakistan (13). Numerous risk factors have been linked to its pathogenesis, with a history of cancer in the family being the most significant risk factor related to this malignancy (14). While CRC is often associated with older persons, recent statistics in our area revealed a notable proportion of young adults receiving a diagnosis of this illness (6, 15). Of the patients in our research, 43.2% were under 40 years old. Previous research in our region has also shown that young people have a greater prevalence of colorectal cancer. According to Taha et al.'s research investigation from Sudan (16) 43.84% of patients with CRC were under 50 years old. According to Saluja (17)**,** 42% of those under 40 had a CRC diagnosis. According to research by Pirzada (18) Carried out in Pakistan, 43.8% of the patients with CRC in that research were under 40 years old. These results are in line with the findings of our study. These data present a concerning picture and mandate that screening be extended to a younger group to identify the illness early and start treatment as soon as possible for improved outcomes.

Male patients comprised more than half of the study population, accounting for 66.9% of the total, while female patients comprised 33.1%. This finding is comparable to one from prior Pakistani research where around 70% of the participants were men (19) .

In our analysis, adenocarcinoma remained the most prevalent histological form of colorectal cancer. Our results were consistent with research conducted in the United States, which found 96% of the participants to have adenocarcinoma (20). 95% of those who participated in another Iranian research had adenocarcinoma (21), which is similar to our findings.

A large proportion of patients in our research (32.3%) presented at grade 2 and 27 % at grade 3. These results are consistent with research done in Pakistan (22), where 90.5% of patients had advanced disease. Our results contrast with those of Iranian research in which 24% had stage IV illness, and 33% had stage III cancer (23)This discrepancy may result from our research's smaller sample size than that of the Iranian study. Geographic diversity might also be a reason.

Our investigation found that more than two-thirds of the patients had synchronous cancer, which is similar to the research conducted by Ubink (24) That found synchronous colorectal cancer in 91.4% of cases.

One limitation of the study was its tiny sample size, which would have allowed for better evaluation. Although this study is centred in a single location, a multicenter study will contribute to a clearer picture of the prevalence of colorectal cancer.

Conclusion

Tragically, our research showed that CRC is being identified in young individuals. As a result, steps should be taken to encourage youth screening, particularly for those with positive family histories. Most patients arrived in the advanced stages of the illness, which raises questions regarding the efficacy of screening strategies and public knowledge of the condition. Thus, we advise that screening programs be started to identify individuals in the early stages of the disease, increase survival and lower morbidity, and increase education efforts to raise public knowledge.

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Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate.
Approved by the department concerned. (JHLIRBEC-2021.May.22/032)
Consent for publication
Approved
Funding
Not applicable

Conflict of interest

The authors declared the absence of a conflict of interest.

Author Contribution

DR. AMMARAH AFZAL (Assistant Professor)
Study Design, Review of Literature.
Conception of Study, Development of Research Methodology Design, Study Design, Review of manuscript, final approval of manuscript.
DR. FAREEHA SHEIKH (Assistant Professor)
Coordination of collaborative efforts.
The conception of the Study and final approval of the manuscript.
DR. AMJAD ZAFAR (Assistant Professor)
Manuscript revisions, critical input.
Coordination of collaborative efforts.
DR. SUNDAS TARIQ (Senior Registrar)
Data acquisition and analysis.
Manuscript drafting.
DR. SAUD IQBAL
Conception of Study, Development of Research Methodology Design, Study Design, Review of manuscript, final approval of manuscript.
DR. USAMA ZAFAR
Data entry and Data analysis, drafting article.
Coordination of collaborative efforts.

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