Frequency and Clinical Presentation of Colorectal Carcinoma among Patients with Lower Gastrointestinal Symptoms

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Authors' contributions

This work was carried out in collaboration among all authors. Author SK designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors RAM, AS, SK and FH managed the analyses of the study. Author SK, FHM and AHP managed the literature searches. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Objective: To determine the frequency and presentation of colorectal carcinoma (CRC) among the patients presenting with lower gastrointestinal (GI) symptoms.
Study Design: Observational study
Place and Duration: Department of Surgery, Liaquat University of Medical and Health Sciences, Jamshoro/Hyderabad from January 2013 to February 2014.
Methodology: A sample of 105 patients complaining of lower GI symptoms was selected. Data regarding the age, sex, presenting symptoms and signs, local examination and location of lesions were noted in a pre-structured proforma. Patients were examined by digital rectal examination (DRE), proctoscopy, colonoscopy; computerized tomography and biopsy. Data analyzed on SPSS 21.0 at 95% CI (P≤ 0.05).
Results: Age of the patients was 53.17±14.90 years (95%CI: 51.28 to 55.05). Of 105 subjects; 65 (61.9%) were males and 40 (38.09%) were females. The CRC was observed in 11 (10.47%)

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patients of ≤ 40 years, 77 (73.3%) patients of 40 – 59.9 years and 17 (16.19%) cases were ≥60 years of age. Anemia 81 (77.14%), weight loss 74 (70.47%), abdominal pain 60 (57.14%), bleeding per rectum 79 (75.23%), tenesmus 55 (52.38%) and constipation 48 (45.71%) were common presenting symptoms of the CRC patients. Adenocarcinoma was found in 87 (82.85%), carcinoid tumor in 11 (10.47%), lymphoma in 5 (4.76%) and squamous cell carcinoma in 2 (1.9%).
Conclusion: Colorectal adenocarcinoma was most common tumor found in males in their sixth decade of life. Anemia, weight loss, abdominal pain and bleeding per rectum were common clinical symptoms and rectum was common tumor site.

1. INTRODUCTION

Colon and rectum injuries include infections, inflammatory and neoplastic diseases, and vascular malformations. Clinical presentation of colon problem is usually different but symptoms may be common for various disease processes [1]. Colorectal cancer (CRC) is one of the most common cancer in the World over, accounted for 10.2% of all new cancer cases diagnosed in 2018. It is third commonest cancer, caused 1.80 million cases and second leading cause of mortality. It accounts for 862,000 deaths Worldwide [2]. CRC incidence is highest in Australia and New Zealand followed by the America, Europe and east Asian countries 1,2. CRC burden has been attributed to a number of etiological factors like dietary and environmental factors, and genetic predispositions. CRC varies according to the geographical locations. CRC is cancer of elderly, and the occurrence is not common in young age. Risk of developing CRC at young age has been linked to the genetic causes. Young age CRC carries poor prognosis in less than 40 year of age group and with advanced staging [1-3]. For reducing adverse outcomes, it is needed to analyze the descriptive epidemiology of CRC according to geographical locations. Published literature shows CRC occurrence in younger age group (<40 years) since last two decades. A previous study [4] demonstrated 3.95% patients belonging of age <40 years in Los Angeles. Similarly, Keswani et al. [5] investigated 3.6% of patients were under forty in New Orleans. Contrary to that, Nath et al [6] identified high frequency of colorectal cancer of 35.5% in young Indian population. This shows the behavior of CRC is changing according to the environmental and dietary factors, geographical, racial, and other factors.[3] CRC occurrence in younger patients has been documented [7]. As the Pakistan has no National cancer registries hence the incidence, prevalence and mortality are not known. Only demographic study`s estimations are available for the cancer burden in the country. However, some reported case series studies show available burden of the disease. In 2016, 450 new cases of CRC were reported from the Shaukat Khanum Memorial Cancer Hospital, Lahore mentioning it as second most common malignancy [7,8]. Approximately 61% population of country residing in rural areas and it is not possible to have data of incidence, prevalence, mortality, histotyping and molecular genetics evaluation [9,10]. We planned a prospective study to determine the frequency and presentation of colorectal carcinoma among the patients presenting with lower gut symptoms at our tertiary care hospital.

2. SUBJECTS AND METHODS

The present observational study was conducted at the Department of Surgery, Liaquat University of Medical and Health Sciences, Jamshoro/Hyderabad, Pakistan. Study covered duration from January 2013 to February 2014. A sample of 200 patients with complaints of lower gastrointestinal (GI) symptoms was selected according to the inclusion and exclusion criteria. Patients were selected through non probability convenience sampling. Patients complaining of bleeding per rectum, tenesmus, spurious diarrhea, mass prolapse per rectum, acute intestinal obstruction of both genders were included. Diagnosed case of colorectal carcinoma was exclusion criteria. Patients presenting with lower gastrointestinal symptoms were selected after their consent and volunteer willingness. Patients were interviewed for the purpose of study, harms and benefits. They were informed that the data gathered will be used for patient benefit in future. They were ensured that the personal data will never be publicized and will be published in a medical journal for patient benefit. They were informed that inclusion in the study protocol did not pay more expenses. Subjects were requested to abide by the study protocol voluntarily. Volunteers were informed of the clinical history and physical examination procedures. Data regarding the age, sex, presenting symptoms and signs, local

examination and location of lesions were noted in a pre – structured proforma. Patients with lower GI symptoms were examined by digital rectal examination (DRE), proctoscopy, colonoscopy; computerized tomography and biopsy. Specimens were sent for histopathological examination and reports were collected. Data was kept confidential in lockers. Data variables were typed and saved in a Microsoft Excel sheet. SPSS software 21.0 (IBM, Inc USA) was used for statistical analysis. Continuous variables were analyzed by Student`s t-test and presented as mean +/- standard deviation (SD). Categorical variables were cross tabulated using Chi-square testing and presented as frequency and percentage. Statistical level of significance was taken at 95% confidence interval (CI) [p≤ 0.05].

3. RESULTS

Mean age of the patients was 53.17±9.75years (95%CI: 51.28 to 55.05) with statistical significance (P<0.01). Age categories were noted as <20.0 years was found in 2 (1.9%), 20 - 29.9 years in 3 (2.8%), 30 – 39.9 years in 6 (5.7%), 41 - 49.9 years in 15 (14.2%), 50 – 59.9 in 62 (59.0%) and ≥60 years was noted in 17 (16.19%). Of 105 subjects; 65 (61.9%) were male and 40 (38.09%) were female. Table 1 shows the symptom distribution of CRC patients. Age wise distribution of CRC shows ≤ 40 years 11 (10.47%) cases, 40 - 59 .9 years 77 (73.3%) cases and ≥60 years 17 (16.19%) cases (Graph 1). Surgical location of tumor was found as rectum 51 (48.57%), sigmoid colon 25 (23.80%), descending colon 9 (8.57%), ascending colon 11 (10.47%), transverse colon 6 (5.71%) and cecum 3 (2.85%) (Graph 2). Histopathology shows adenocarcinoma was found in 87 (82.85%), carcinoid tumor in 11 (10.47%), lymphoma in 5 (4.76%) and squamous cell carcinoma in 2 (1.9%) (Graph 3).

Table 1. Demographical and clinical profile of patients with colorectal carcinoma

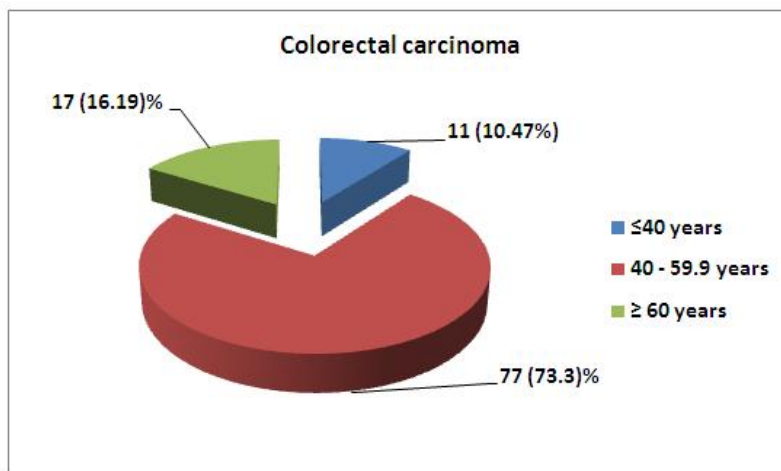|	(N=105)	%
Male	65	61.90
Female	40	38.09
Anemia	81	77.14
Weight loss	74	70.47
Abdominal pain	60	57.14
Bleeding per rectum	79	75.23
Tenesmus	55	52.38
Constipation	48	45.71
Spurious diarrhea	16	15.23
Prolapse per rectum	30	28.57
Acute Intestinal Obstruction	16	15.23
Total	**105**	**100**

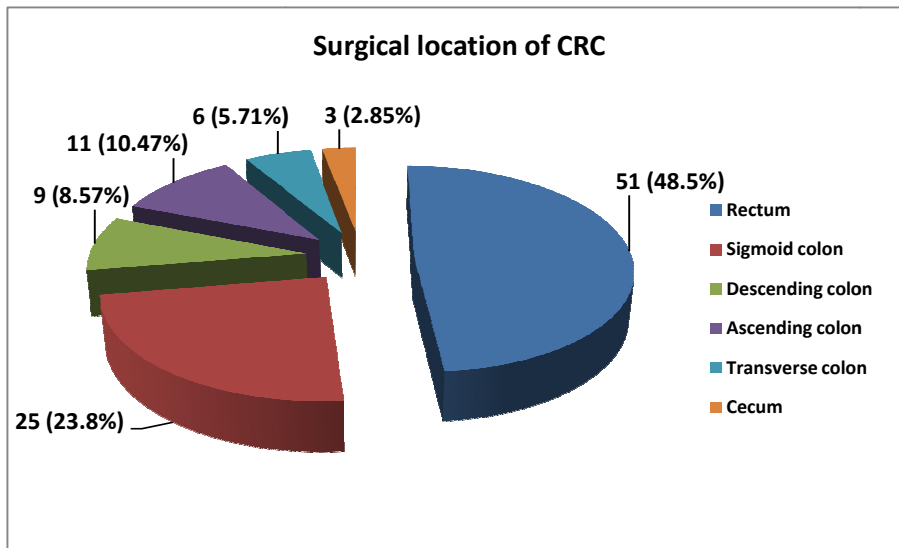**Fig. 1. Age group distribution of colorectal carcinoma**

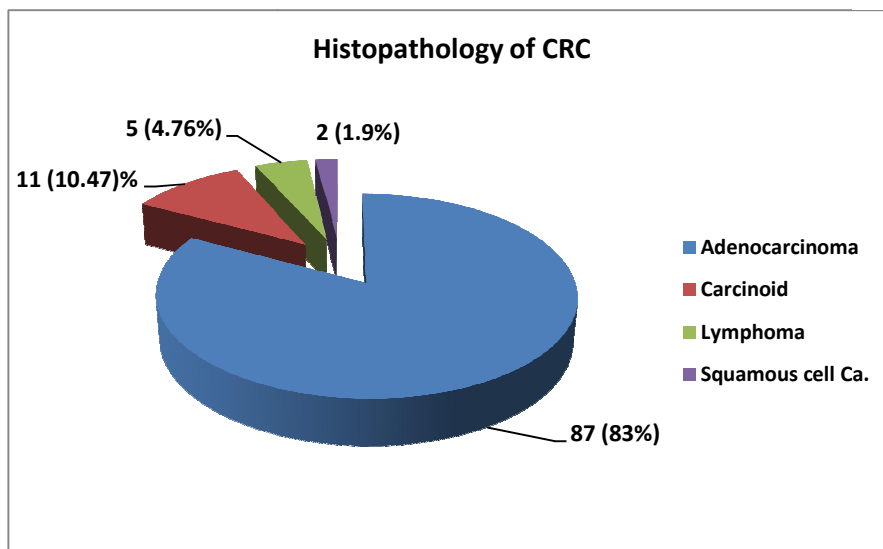**Fig. 2. Surgical location of CRC (colorectal carcinoma)**

Fig. 3. Histopathological types of CRC (colorectal carcinoma)

4. DISCUSSION

This paper is the first hospital based prospective clinicopathological study that analyzed the presenting symptoms, CRC tumor types and surgical location. Tertiary care hospital of Liaquat University caters thousands of surgical patients yearly. In recent decades cancer prevalence has increased in the World [11]. CRC is a common cancer of lower gastrointestinal tract. Screening program covers the population >50 years of age without any risk factor is recommended because

of the natural history of CRC as it has been considered tumor of elderly. Age is considered the major risk factor for the CRC development. More than 90% of cases are reported above 50 years of age [11,12]. In present study, mean age of patients was 53.17±14.90 years (95%CI: 51.28 to 55.05) that is supported by previous studies [11,12]. It is arguable that young age CRC is associated with aggressive histopathological behavior of tumor, poor tumor differentiation and mucin secretion and worse prognosis in young age. While other studies

contradict above observations and describe similar prognosis to those of patients with a later diagnosis [11,13,14]. However, prevalence of CRC shows geographical variation; highest rates are reported from USA, Australia and lowest in Africa and Central Asia [13-15]. CRC occurrence in young age also shows geographical distribution. A previous study from Canada reported 3.36% of patients belonged to <45 years of age [15] contrary to 11.3% from USA [16]. 17% under 40 and 43.84% under 50 years from Sudan [17]. Most contrary 40% CRC occurrence in young age is reported from India.[5,6,17,18] Age findings of above studies are debatable. In present study, age wise distribution of CRC shows ≤ 40 years 11 (10.47%) cases, 40 - 59 .9 years 77 (73.3%) cases and ≥60 years 17 (16.19%) cases, the findings are heterogeneous, however elderly age group is a consistent finding. Eleven (10.47%) CRC cases ≤ 40 years are in agreement with previous studies from Pakistan [15]. Colorectal carcinoma ranks second most common cancer in women while we noted 65 (61.9%) were male and 40 (38.09%) were female of 105 subjects,[15] this controversy is most probably because of geographical variation. Umana et al [19] reported male to female ratio of 1.2:1 that is close to 1.65:1 of present study. Similarly a previous study (Abdul Kareem et al) showed male to female ratio of 1.35:1.[20] Male to female ratio of present study is similar to that reported from the Western world.[21] While other studies suggest male gender is frequently affected, the gender disparity is because of genetic, geographical, hormonal reproductive history, environmental and dietary factors [21-23]. However, gender findings of male predominance present study closely approximates to a recent study from Pakistan that reported 46 (57.14%) males and 24 (42.85%) females [22]. In present study, the anemia 81 (77.14%), weight loss 74 (70.47%), abdominal pain 60 (57.14%), bleeding per rectum 79 (75.23%), tenesmus 55 (52.38%) and constipation 48 (45.71%) were common symptoms of the CRC patients. The findings are consistent with recent study from Pakistan that reported most common presenting symptom was bleeding per rectum 48 (68.57%) while anemia was commonest in present study. However, other findings of weight loss 38 (54.28%), abdominal pain 30 (42.85%), tenesmus 15 (21.42%) and acute intestinal obstruction 10 (14.28%) are comparable findings [22]. Surgical location of tumor was found as rectum 51 (48.57%), sigmoid colon 25 (23.80%), descending colon 9 (8.57%), ascending colon 11

(10.47%), transverse colon 6 (5.71%) and cecum 3 (2.85%). Surgical location of tumor in different parts of large intestine is partly consistent with a previous study that reported rectum 25 (35.71%), descending colon 19 (27.1%), ascending colon & cecum 16 (22.8%), sigmoid colon 5 (7.1%) and transverse colon 5 (7.1%) [22]. The minor differences are probably because of different sample size. Histopathology shows adenocarcinoma was found in 87 (82.85%), carcinoid tumor in 11 (10.47%), lymphoma in 5 (4.76%) and squamous cell carcinoma in 2 (1.9%). This is in accordance to previous study [19] that reported adenocarcinoma in 67 (95.7%) cases. Finding is supported by other previous studies [23, 24]. The limitation of present study is a small sample size that is not generalizable to whole population of country. Further studies and data collection on colorectal carcinoma is required to make national statistics on this type of cancer.

5. CONCLUSION

Colorectal adenocarcinoma was most common tumor predominantly found in male mostly in their six decade of life. Carcinoid tumor, lymphoma and squamous cell carcinoma were also found. Anemia, weight loss, abdominal pain and bleeding per rectum were common clinical symptoms and rectum was the most common tumor site.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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