

## A Clinical Study of Colorectal Malignancies and its Outcomes in a Tertiary Care Hospital

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### Abstract

**Background:** Colorectal Cancer is one the most prevalent cancers globally and the incidence is increasing especially in developing countries due to the adoption of the western way of life. Several factors such as obesity, sedentary lifestyle, red meat consumption, alcohol, and tobacco are some of the etiological factors.

**Methods:** Histopathologically confirmed cases of colo-rectal carcinoma were included in the study. Each patient was asked to provide a thorough history, with a focus on early symptoms, habitual history, and family history. A comprehensive physical examination was performed to assess the patient's overall health and clinical symptoms. All patients had digital rectal examinations (DRE). Each patient's case had a thorough laboratory investigation workup. In all other circumstances outside the emergency, radiographic tests were done. Colonoscopy and abdominal computed tomography (CT) were performed when needed.

**Results:** A total of n=40 cases were included in the study out of which n=28/40(70.0%) were detected with cancer on the left side. Cancer of the rectum accounted for the majority of cases in n=25 (63%) of cases. Cases were detected with cancer of ascending colon in n=10 instances, sigmoid colon, caecum, hepatic flexure, anal canal, and splenic flexure in n=1 case each respectively. 75% of cases were found with moderately differentiated carcinoma. Curative abdominal resection was carried out in 40% of the cases in the study.

**Conclusion:** there is a likelihood of a large increase in colorectal cancers owing to epidemiological change and the relative scarcity of the complex and expensive treatment methods normally employed to treat the illness making colorectal cancer a significant problem for the Indian healthcare system going forward. A more rigorous study with larger sample size and long-term follow-up must be done to determine how the epidemiology of the illness is being impacted by newly identified risk factors in India, such as a changing diet.

**Keywords:** Colorectal Malignancies, Risk factors, moderately differentiated carcinoma of the colon.

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### Introduction

The incidence of colorectal cancer (CRC), which is now the third most common cancer fatality globally, is rapidly

increasing in emerging countries. CRC, also known as colorectal adenocarcinoma, often develops from the glandular, large

intestine epithelial cells. When certain epithelial cells have several genetic or epigenetic changes that provide them a selective advantage, cancer develops. [1] Colorectal cancer ranks third among all cancers in the world. In 2012, there were 1.4 million new cancer cases recorded worldwide, or 10% of all new cancer cases. [2] In 2018, this figure rose to 1.80 million. 2 Colorectal cancer was the second most prevalent cause of cancer-related mortality in 2018, accounting for 862000 deaths. [3] The countries with the greatest estimated incidence rates worldwide include Australia and New Zealand, whilst Western Africa has the lowest rates. 3 Men in India have rectal and colon cancer with annual incidence rates (AARs) of 4.4 and 4.1 per 100,000, respectively. In India for women, the annual incidence rate for colon cancer is 3.9 per 100000. Colon and rectal cancers are ranked eighth and ninth in males, respectively, while they are ranked ninth and outside of the top ten in women. The highest annual incidence rate of CRCs among males was recorded from Thiruvananthapuram (4.1), followed by Bengaluru (3.9), and Mumbai (3.9), according to the ICMR data from 2013. (3.7). The highest AARs among females were in Nagaland (5.2) and Aizwal (4.5). [4]

The colon's main function is to reabsorb water and any residual minerals and nutrients from the chyme. Diverse bacteria in the large intestine can digest any residual proteins and carbohydrates. The gastrointestinal epithelium is set up as an axis of crypts and villi to aid in absorption. The progenitor and stem cells of the colon are found near the base of the crypt. Self-renewal is a function of these pluripotent cells. [5] The progenitor cells move out of the crypt and up the villus as they develop into specialized epithelial cells. Enterocytes and Paneth, Goblet, and enteroendocrine cells are differentiated epithelial cells. These cells undergo

apoptosis, or programmed cell death after they reach the top of the villus after around 14 days.

A gradient of signaling proteins, the most prevalent of which are WNT, BMP, and TGF- $\beta$ , strongly control this process. [6] The CRCs are a fairly diverse set of illnesses that are triggered by a wide variety of mutations and mutagens. It has been challenging to develop a "catchall" molecular treatment since not all CRCs have the same underlying mutations. [7] Surgery is still the major therapeutic option in situations of early diagnosis, but it is no longer effective in cases of metastatic cancer that has spread, which accounts for roughly 25% of diagnoses [8] The fast emergence of medication resistance and cancer recurrence in these individuals has hindered the efficacy of neoadjuvant, cytotoxic therapy [9] The current study aimed to determine the distribution, etiopathogenesis, clinical presentation and treatment of cases diagnosed with colon carcinoma.

### Material and methods

This prospective study was conducted in the Department of General Surgery, Prathima Institute of Medical Sciences, Naganoor, Karimnagar, Telangana State. Institutional Ethical approval was obtained for the study. Written consent was obtained from all the participants of the study after explaining the nature of the study in the vernacular language.

### Inclusion criteria

1. Histopathologically confirmed cases of colorectal carcinoma.
2. Males and females
3. Aged 20 and above.
4. Admitted to our Hospital.
5. Willing to participate in the study.

### Exclusion criteria

1. Recurrent colorectal carcinoma
2. Metastasis in the colon from primary at other organs

3. Patients who did not undergo treatment at our hospital.
4. Those not willing to participate in the study.

Each patient was asked to provide a thorough history, with a focus on early symptoms, habitual history, and family history. The data was gathered using a semi-structured interview schedule that had been evaluated beforehand. Every attempt was made to keep all of the participants' information private. The subject had the option to withdraw their permission and cease taking part in the study at any point if they felt uncomfortable. Following the elicitation of the patient's history, a comprehensive physical examination was performed to assess the patient's overall health and clinical symptoms. All patients had digital rectal examinations (DRE). Each patient's case had a thorough laboratory investigation workup. In all other circumstances outside the emergency, radiographic tests were done. Colonoscopy and abdominal computed tomography (CT) were performed when needed.

All patients had chest X-rays taken for pre-operative assessment and to look for secondary tumors. As was standard

practice, liver function tests were conducted to evaluate the patient's nutritional condition. Preoperative biopsies were collected under proctoscopic and/or colonoscopic supervision for all potential instances. Before deciding on a treatment approach, the histologic type of malignancy was identified. To stage the tumor and evaluate the grade of differentiation, thorough histopathology findings were employed.

*Statistical analysis:* The data was collected and uploaded on an MS Excel spreadsheet and analyzed by SPSS version 22 (Chicago, IL, USA). Quantitative variables were expressed on mean and standard deviations and qualitative variables were expressed in proportions and percentages.

### Results

A total of n=40 cases of colorectal carcinoma were studied we found n=62.5% males and n=37.5% cases were females. The age range of the cohort was from 29 – 73 years and the mean age of the group was  $48.5 \pm 5.5$  years. The most commonly affected age group was 41 – 50 years with 37.5% of all cases followed by 51 – 60 years with 27.5% of cases the details of age and sex-wise distribution of cases are given in table 1.

**Table 1: Age and sex-wise presentation of cases in the study**

Age group in years	Male	Female	Total (%)
20-30	1	0	1(2.5%)
31-40	3	2	5(12.5%)
41-50	9	6	15(37.5%)
51-60	8	3	11(27.5%)
61-70	2	5	7(17.5%)
>70	2	1	3(7.5%)
Total	25	15	40 (100.0%)

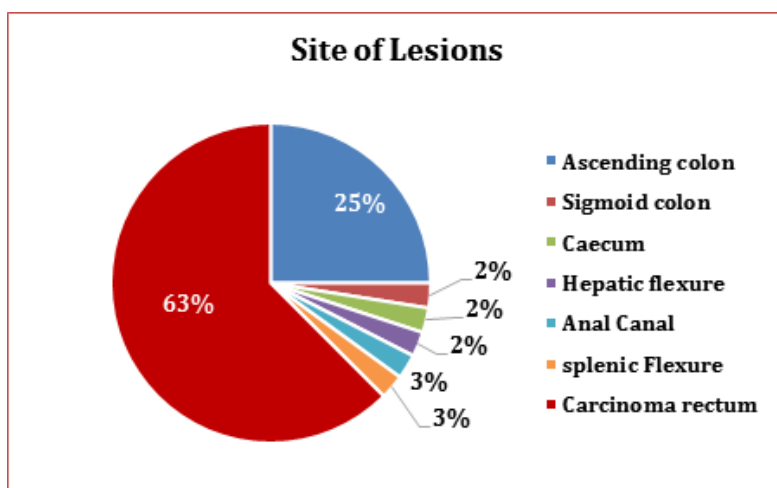
Regarding past eating habits, n=4 were severe vegetarians. As the majority were illiterate, they were unable to describe the precise makeup of their diets. The dietary history provided demonstrates that the majority of patients consumed enough fat and fiber. More than half of the individuals

(n=21 patients) used cigarettes in some way. Except for one man, almost all of the men smoked beedis and/or cigarettes often. Of the n=15 females, 4 were using pan masala and smokeless tobacco.

N=28/40(70.0%) were detected with cancer on the left side. Cancer of the

rectum accounted for the majority of cases in n=25 (63%) of cases. Cases were detected with cancer of ascending colon in n=10 instances, sigmoid colon, caecum, hepatic flexure, anal canal, and splenic flexure in n=1 case each respectively depicted in figure 1. In most of the cases

the left-sided growths were presenting as masses or obstructions and right-sided lesions appeared as a mass in later stages the majority of the rectal growths being palpable on digital rectal examination made it easier to diagnose the patients.



**Figure 1: Distribution of Site of the lesions in the cases of the study**

A solitary instance of right-sided lesions appeared with mucus discharge, although the majority of them showed symptoms of changed bowel habits, anemia, and abdominal lump. The majority of those with bleeding in the rectum were later discovered to have rectum and sigmoid colon malignancies. One rectal cancer patient who was at an advanced stage and experiencing excruciating agony arrived. In one case of sigmoid colon growth and one case of hepatic flexure growth, respectively, an abdominal lump served as the presenting symptom.

The majority of the lesions on the left side of the rectosigmoid were annular and

ulcerated with infiltration. There was infiltration into the bladder and left ovary in one sigmoid growth. Much of the growth on the right side was polypoidal or cauliflower-like.

Table 2 provides the staging of the instances as determined by Duke's staging. The majority of instances, as indicated in the table, fall within Duke's stage 3 and are clearly distinguished. All patients had surgical resection to either cure, relieve symptoms, or provide palliative bypass/colostomy care. Table 3 lists the numerous surgical procedures that were carried out.

**Table 2: Staging and grading of the colorectal cancer cases.**

Staging of the cancers	Frequency	Total (%)
Duke's stage A	1	2.5
Duke's stage B	7	17.5
Duke's stage C	24	60.0
Duke's stage D	8	20.0
Grading of the cancers		
Well-differentiated	6	15.0
Moderately differentiated	30	75.0
Poorly-differentiated	4	10.0

**Table 3: Types of surgical procedures performed.**

Name of procedure	Frequency	Percentage
Hartmann's procedure + temporary colostomy	4	10.0
Re-anastomosis (stapler technique)	1	2.5
Curative abdominoperineal resection	16	40.0
Anterior resection with colono-anal anastomosis	6	15.0
Right hemicolectomy	10	25.0
Left hemicolectomy	2	5.0
Right extended hemicolectomy	1	2.5

The majority of patients were recommended to have 5-fluorouracil and calcium folinate-based adjuvant treatment. Patients who showed just a partial response received an extra 4 cycles after receiving a minimum of 6 cycles. One patient who had Hartmann's surgery received radiotherapy before the procedure. 30% of the patients overall disobeyed follow-up instructions. Two patients experienced recurrence; one had the abdominal wound as the site and passed away, while the other had the anastomotic site, for which subtotal colectomy was performed. After APR surgery, three individuals experienced local recurrence. Regular follow-up, a routine repeats USG, a colonoscopy, and fundamental investigations were performed on 20 cases.

### Discussion

In the current study, we found the age range of the cohort was from 29 – 73 years and the mean age of the group was  $48.5 \pm 5.5$  years. The most commonly affected age group was 41 – 50 years with 37.5% of all cases. In the US, those over 65 have an about threefold increased risk of receiving a CRC diagnosis compared to people between 50 and 64, and a roughly thirtyfold increased risk compared to people between 25 and 49. While the condition has become less prevalent among those over 50 during the previous few decades, it has become more prevalent among people under 50. [10] Researchers have recently advised decreasing the screening age to 45 years to discover instances in younger persons earlier,

believing that this may reflect a more sedentary lifestyle. [11] Our study data show that relatively younger individuals are affected as compared to other studies where the mean age was found to be more than 60 years. [12, 13] Javid et al., [14] found that 16% of cases were between the age of 55 – 59 years. 10% of the research population included were having pure veg in their diet. This shows that eating a vegetarian diet can help prevent colorectal cancer, as other studies have shown. 13–18 According to earlier research, cigarette smoking was widespread (particularly among male patients), suggesting that it may have some negative effects. 19 According to Goh et al., [13] and Mik et al., [15] the most malignant lesion was found to be on the left side in the current investigation. 10,20 In the gastrointestinal system, the rectum (62%) and ascending colon (26%) were the most frequently affected areas. Compared to earlier research, which found that between 25% and 47% of recorded CRC cases occurred in the rectum, the proportion of cases occurring in this region is significantly greater. Nonetheless, the results were in concordance with those of Peedikayil et al. [16] and other studies. [12, 14] The individuals frequently had changed bowel habits, an abdominal mass that could be felt, abnormal digital rectal examination, anemia, and intestinal blockage. The majority of the patients fell into the group of grade II or moderately differentiated carcinomatous cells, according to the histological grading of the cells. Akkoca et al., [17] and Sinha et al., [18] have

previously published similar findings. A contrasting trend, with the well-differentiated category dominating, is shown by studies like those by K Badmos et al., [19] Similar to other research in this field we found the majority of the patients showed signs of cancer in its second and third stages. [20]

### Conclusion

Within the limitations of the current study, it can be concluded that there is a likelihood of a large increase in colorectal cancers owing to epidemiological change and the relative scarcity of the complex and expensive treatment methods normally employed to treat the illness make colorectal cancer a significant problem for the Indian healthcare system going forward. A more rigorous study with larger sample size and long-term follow-up must be done to determine how the epidemiology of the illness is being impacted by newly identified risk factors in India, such as a changing diet and lifestyle.

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