Clinicopathological Profile Of Colorectal Cancer Patients

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Abstract
Background: *Colorectal cancer (CRC) is the third and second most common cancer affecting males and females respectively. Based on area, race and ethnicity, variations in rate of prevalence of CRC is seen. Studies have found that in India, a five-year survival rate of CRC is one of the lowest (40%) among world. The present study aimed to take such a preliminary step by studying the clinicopathological profile of colorectal cancer patients presenting at Dr. Rajendra Prasad Government Medical College Kangra, Tanda.*
Materials and method: *The present prospective observational study was conducted on 30 patients presenting with CRC admitted in the surgery wards. Patients were subjected to proctoscopy / sigmoidoscopy / colonoscopy to confirm the diagnosis. The histopathological examination (HPE) was done to confirm the type and grade of the tumor. Ultrasonography (USG) and contrast enhanced computed tomography (CECT) were done to study the stage of disease and to find the distant metastasis. Tumor marker carcinoembryonic antigen (CEA) levels were done and recorded. The treatment in the form of surgery / radiotherapy / chemotherapy was recorded in the proforma. The data collected was subjected to statistical analysis using IBM SPSS version 20.0 software.*
Results: *The present study comprised of 30 patients with majority aged more than 60 years, with mean age 56.03yrs. The most common presenting symptoms were pain in abdomen and bleeding per rectum followed by altered bowel habits. On colonoscopy, most of the growth were seen at rectum (61%). Twenty seven patients underwent definitive surgery. Histopathological examination revealed that maximum (46.7%) cases showed well differentiated adenocarcinoma. Pathological staging showed maximum (46.7%) patients presented in stage 2A.*
Conclusion: *Large bowel obstruction was present in 30% of colorectal cancer patients at the time of diagnosis. Despite early availability of diagnostic modalities, 50% patients were having locally advanced tumors and 10% patients presented with metastatic disease. Histopathologically, 46.7% of colorectal cancer were well differentiated adenocarcinoma and the prevalence of signet ring cell tumors was only 3.3% in this study.*
Key words*: Colorectal cancer; Colonoscopy; Histopathology; Treatment*

I. Introduction

Colorectal cancer (CRC) is the most common gastrointestinal tract tumor with a high prevalence rate in the world. It is the third and second most common cancer affecting males and females respectively. It is characterised by evident patient sufferings, increased cost of treatment and raised burden on health care system.[1] It has been advocated that around 60% of total cases are observed in developed countries. Rate of incidence generally varies 10-times in both the genders worldwide. Maximum rates were seen in population of New Zealand, Australia and Western Europe, intermediate rate in Latin America, whereas minimum rates were seen in South-Central Asia and Africa (except Southern Africa).[1] Prevalence is more among males than females; rectal tumors are more common in males and colonic cancer among females. In countries showing high prevalence rate, it has been found that around 25% of CRC are seen in the rectum, out of which 30% are found in males and 21% among females.[2] In western civilization, a lifetime risk of around 5-6% is noticed, with half of the population suffered with colorectal cancer till 70 years of age, making it a major public health issue.[3]

Geographical variations have been seen in incidence of CRC, with maximum incidence being 6.5 and 7.7 cases per 1 lac females and males respectively in under developed areas, in contrast to a very high incidence rate of 50.9 and 60.8 among females and males respectively in more developed areas. On the basis of race and ethnicity, variations in rate of prevalence of CRC is also seen.[4] In India, the age standardised rate (ASR) for CRC is found to be as low as 7.2 and 5.1 per 1 lac population among men and women

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respectively.[5] In a country having population of more than a billion, the absolute number of patients having CRC is quite more.

Studies have found that in India, a five-year survival rate of CRC is one of the lowest (40%) among world. The CONCORDE-2 study advocated that a five-year survival rate in India for rectal cancer is falling down in few registries.[6] This situation shows inadequate diagnostic and treatment pathways available for CRC in India. Thus there is an urgent need to evaluate the reasons for such poor survival. It is necessary to conduct a baseline study for assessing both demographic as well as the clinical profile of patients having CRC. This will help in planning the strategy to manage this disease in India. The present study aimed to take such a preliminary step by studying the clinicopathological profile of colorectal cancer patients presenting at Dr. Rajendra Prasad Government Medical College Kangra, Tanda for a period of one and half year.

II.   Materials and method:

The present prospective observational study was done in Dr. Rajendra Prasad Government Medical College Hospital, Kangra at Tanda after obtaining the approval of Institutional Review Committee. The study was done for a period of one and half year starting from January 2021 to June 2022. A written informed consent was taken from all the participants or their legally accepted representatives. The study was conducted on the patients presenting with CRC and getting admission to the surgery wards. Patients having non-malignant lesions as observed in histological examination of the colorectal region, or suffering from Non-Hodgkin lymphoma and other non-epithelial tumors of the colon; and those who refused to give consent, were excluded from the study.

Patients were subjected to a detailed history and a thorough physical examination, followed by necessary biochemical and radiological investigations as per the protocol. Patients were further subjected to proctoscopy / sigmoidoscopy / colonoscopy to confirm the diagnosis. The histopathological examination was done to confirm the type and grade of the tumor. USG and CECT was done to study the stage of disease and to find the distinct metastasis. Tumor marker (CEA) levels were done and recorded. The treatment in the form of surgery / radiotherapy / chemotherapy was recorded in the performa. The data collected was subjected to statistical analysis using IBM SPSS version 20.0 software.

III.   Results

The present study comprised of total 30 patients having CRC, with maximum rate of prevalence seen among patients aged more than 60 years, and mean age being 56.03 yrs. Male to Female ratio was found to be 1:1.3, most common presenting symptoms being pain abdomen (50%) and bleeding per rectum (50%), followed by altered bowel habits in 40% patients. Out of these patients, 36.7% cases were alcohol consumers, 50% patients were smoker. Total 33.3% patients were vegetarian and 66.7% were non vegetarian. In the present study, out of 30 patients of CRC, 30% patients presented with abdominal distention and 3.3% patients had palpable abdominal lump. Ascites was present in 10% patients. On DRE and proctoscopy, growth could be appreciated in 33.3% patients.

Investigations like Hemoglobin (Hb), Renal function test (RFT), CEA, abdominal X-ray, USG abdomen, CECT abdomen and colonoscopy were done in these patients. Mean Hb was 10.7 milligram per decilitre(mg/dl) and 63.33% patients had CEA levels between 10 to 100 nanogram per decilitre(ng/dl). On X-ray abdomen, 30% patients presented with multiple air fluid levels. USG abdomen showed 10% patients having ascites. On CECT, abdomen, 40% patients had early CRC at the time of presentation. On colonoscopy, 30% patients had constricting growth, followed by 20% with polypoidal growth. On colonoscopy, most of the growth were seen at rectum (61%) patients, followed by (16.67%) patients having growth in sigmoid colon, and (6.6%) patients had growth in transverse colon

Pre-operative clinical staging was done and 40% patients were managed with Neo-adjuvant chemotherapy / radiotherapy (NACT/RT) followed by definitive surgery, 33.3% were subjected to ileostomy/colostomy then NACT/RT followed by definitive surgery. Twenty seven patients underwent definitive surgery, out of which 44.44% cases underwent high anterior resection and 25.9% patients underwent low anterior resection. HPE showed maximum (46.7%) cases as well differentiated, followed by 30% moderately differentiated and 20% being poorly differentiated adenocarcinoma. Pathological staging showed that maximum 46.7% patients presented in stage 2A, followed by stage 2C comprising 16.6% patients. The study revealed that 10 patients had suffered from morbidity on 3 month follow up out of which 2 patients had mortality on 3 month follow up.

IV.   Discussion:

Colorectal cancer (CRC) is the most prevalent gastrointestinal tract malignancy, with 90% cases reported in patients aged more than 50 years. The increasing incidence and mortality rate are noticed in colorectal cancer affecting mainly affluent societies.[6]

In present study, mean age was 56.03yrs. In accordance with our study, **Bhattarai S et al[7]** observed that the mean age of subjects was 56 ± 11.42 years, with majority (78.9%) of cases aged between 51-70 years. **Bhat SA et al[3]** in Kashmir, India found that the mean age of presentation was 54.7 years. In the study conducted by, **Paudyal S et al[8]** (Nepal), **Kumar et al[9]** (Oman), **Nadeem U et al[10]** and **Saha M et al[11]**(Bangladesh) the mean age of the CRC patients was 56.6, 56, 44.04 ± 16.16, 50.77 years respectively. In our study, 56.7% patients with CRC were females and 43.3% were males. In the study done by **Menon D et al[12]**, there was female predominance, whereas all the other studies had observed male predominance in CRC.

In our study, 36.7% patients consumed alcohol, 50% each were smoker and hypertensive and 66.7% cases were meat consumer. In a study done by **Saha M et al[11]**, 68% were smokers. **Murphy G et al[13]** concluded that differential exposure to dietary and lifestyle-related risk factors like alcohol, consumption of red meat were the probable cause of CRC.

In present study, the common presenting symptoms were pain in abdomen and bleeding per rectum. Mean BMI was 20.35 in our study. Pallor was present in 23% cases and edema in 33.33% cases. On DRE and proctoscopy, in 33.3% cases growth could be palpated/seen. Abdominal distention was present in 30% of patients. **Table no. 1** shows the comparison of presenting symptoms in various studies. It is evident that the bleeding per rectum and pain abdomen were common presenting symptoms in most studies.

Table no. 1: Presenting symptoms in various studies on CRC

Symptoms	Present study	Saha M et al.[11], 2016	Bhattarai S et al.[7]	Bhat SA et al.[3], 2019	Paudyal S et al.[8], 2019
Bleeding per rectum	50%	55.06%	46.2%	68%	55%
Pain abdomen	50%	20.8%	84.6%	61%	86%
Altered bowel habits	40%	17.7%	92.3%	75%	
Anemia	23.3%	9.4%	13.5%	-	22%
Abdominal mass	10%	16.4%	15.4%	15%	19%
Intestinal obstruction	23.3%	13.9%	11.6%	4%	-
Significant weight loss	13.3%	18.3%	42.3%	-	-

In the present study, the mean Hb of the patients was 10.63gm/dl. CEA was elevated (>10 ng/ml) in 63.3% patients. In accordance with our study, **Bhattarai S et al[7]** revealed that mean haemoglobin level at presentation was 9.4 gm/dl. Tumor marker carcinoembryonic antigen (CEA) was elevated >4 ng/ml in 75% patients. High preoperative CEA levels above 100ng/dl are associated with increased recurrence rate / metastatic disease. In the present study, multiple air fluid levels were seen on abdominal x-ray in 30% cases which also showed dilated bowel loops on USG. On CECT abdomen, early CRC was observed in 40% patients, locally advanced CRC in 50% patients and 10% patients had metastatic disease. **Bhattarai S et al[7]** found that 46.7% patients presented with stage III (locally advanced cancer) and 38.4% presented with stage I and II (early CRC)

On colonoscopy, it was observed that 23.33% had ulcerative growth, 30% had constricting growth, 26.6% showed proliferative growth and 20% patient showed polypoidal growth. Further the most common site of growth was rectum (61%), followed by sigmoid colon (16.67%) and transverse colon 2(6.66%) patients. The growth was seen in ascending colon, hepatic flexure, descending colon and anal canal in 1case each. Similarly **Bhattarai S et al[7]** found that rectum was most common site (35%) of CRC followed by ascending colon (14%) and descending colon (10%). In a study of CRC by, **Paudyal S et al[8]** and **Bhat SA et al[3]** the involvement of rectosigmoid region was seen in 54% and 63% patients respectively. **Saha M et al[11]**, found that most common site was rectum followed by sigmoid and ascending colon. However, **Giovannucci et al[14]** observed that 20% of colon cancers were present in caecum, 20% in rectum, and 20% in rectosigmoid junction.

In our study, on preoperative and postoperative HPE, the prevalence of well differentiated, moderately differentiated, poorly differentiated adenocarcinoma and signet ring cell tumor was seen in 46.7%, 30%, 20% and 3.3% cases. **Table no. 2** shows the tumor grade in different studies.

Table no. 2: Tumor grades in different studies.

HPE Type	Present study	Bhattarai S et al.[7]	Bhat SA et al.[3]	Paudyal S et al.[8]
Well differentiated	46.7%	26.9%	49.7%	10%
Moderately differentiated	30%	51.9%	34.2%	70%
Poorly differentiated	20%	21.2%	16.1%	20%
Signet ring cell tumor	3.3%	-	-	-

In the present study, on pre-operative workup, 50% patients had early colorectal carcinoma, 40% locally advanced colorectal carcinoma and 10% were having metastatic disease. In the present study, maximum number of patients (63.4%) presented in the stage II, in accordance with study by **Menon D et al[12]** and **ChalyaPL et al[15]** Whereas in all other studies the stage of CRC at the time of presentation was III/ IV. This early presentation in our study might be due to easy availability of colonoscopy facility in the local government and private institutions in this region (**Table no.** 3).

Table no. 3: Stage of CRC at the time of diagnosis in various studies:

Stage	Present study	Menon D et al.[12]	Bhat SA et al.[3]	Kumar et al.[9]	Eisenhardt et al.[16]	ChalyaPL et al.[15]	Tarek T et al.[17]
Stage I	-	72.5%	24.7%	5.3%	3%	3.3%	11%
Stage II	63.4%	5.8%	19.9%	14.9%	32.4%	41.6%	30%
Stage III	20%	19.60%	49.8%	40.4%	24.6%	30.4%	23%
Stage IV	16.6%	1.96%	5.5%	36.8%	40%	24.7%	36%

In our study, 33.3% cases were managed with colostomy, and 10% with ileostomy. Anterior resection was the commonest performed surgery in 62.7% patients followed by APR in 13.2% cases. Right and left hemicolectomy was performed in 3.7% cases each. Extended right and left hemicolectomy was done in 3.7% cases each. All the patients in our study were given chemotherapy and out of these 50% patients received radiotherapy also. Three month mortality was 6.7% in the present study.

V. Conclusion:

Colorectal cancer is advocated as a disease affecting elderly population with a mean age of 56.03 years. Pain abdomen, bleeding per rectum and altered bowel habits are the common presenting symptoms. Large bowel obstruction is present in 30% of colorectal cancer patients at the time of diagnosis. Despite the now easily available diagnostic modalities (CT scan and colonoscopy), 50% patients are having locally advanced tumors and 10% present with metastatic disease. Histopathologically 46.7% of colorectal cancers were well differentiated adenocarcinoma and the prevalence of signet ring cell tumors was 3.3% in this study.

Conflict of interest : Non declared

References:

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