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**Dar Abdul Waheed**
Senior Resident Radiation Oncology Department Government Medical College Srinagar Kashmir, India

**Dar Sajad Ahmad**
Senior Resident Radiation Oncology Department Government Medical College Srinagar Kashmir, India

**Sheikh Owais Ahmad**
Senior resident Radiation Oncology Department Government Medical College Srinagar Kashmir, India

**Wani Shahid Bashir**
Assistant Professor, Radiation Oncology Department Government Medical College Anantnag Kashmir, India

**Akhtar Hanifa**
Lecturer Radiation Oncology Department Government Medical College Srinagar Kashmir, India

**Kaneez Subiya**
Assistant Professor Radiation Oncology Department Government Medical College Srinagar Kashmir, India

**Lone Yasir Iqbal**
Senior Resident General Surgery Government Medical College Srinagar Kashmir, India.

**Correspondence**
**Dar Sajad Ahmad**
Senior Resident Radiation Oncology Department Government Medical College Srinagar Kashmir, India

# Demographic profile of cancer colorectal and anal canal, a study conducted government medical college Srinagar Kashmir India: A retrospective study

**[1]Dar Abdul Waheed, [2]Dar Sajad Ahmad, [3]Sheikh Owais Ahmad, [4]Wani Shahid Bashir, [5]Akhtar Hanifa, [6]Kaneez Subiya and [7]Lone Yasir Iqbal**

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**Abstract**
**Introduction:** Colorectal cancer (CRC) is one of the most common forms of gastrointestinal malignancies in the world. Compared to the Western world, the incidence rates of colorectal cancer are low in India. CRC is relatively uncommon in Indian sub continent. In India the incidence of colorectal cancer was found to be 4.2 and 3.2 per hundred thousand for male and female population respectively. Early detection of colonic cancers is a challenging task as because clinical symptoms develop slowly.
**Objective:** The aim of the present study was to analyze the demographic spectrum of colorectal and anal canal cancers in Kashmir valley.
**Material and Method:** This was a retrospective study, So all patients were included who had Histopathologically confirmed colorectal and anal canal neoplasm registered at Regional Cancer centre of Government Medical College Srinagar Kashmir between 2015 to 2018. All the patient characteristics including age, sex, clinical presentation, anatomical site, histopathological type, stage of the disease and including metastasis, treatment received in each case was studied in detail.
**Results:** Total of 108 patients with histopathologically confirmed as colorectal and anal canal cancers formed the study population. Rectal cancers constituted 42 patients (39%), colon cancers constituted 64 patients (59%) and anal canal constituted 02 (2%) patients. The male to female ratio in rectal cancers was 1.25:1. In colon cancers male to female ratio was 1.5:1. In anal canal two patients are male. The commonest age group is 45-64 years, followed by greater than 64 years. There were 42 cases of carcinoma rectum, In colon cancers, right colon constituted 35 cases (55%) followed by 20 cases (31%) of left colon constituted and transverse colon 9 cases (14%) of cancer. According to TNM staging in rectal cancers, majority of patients 42 (39%) are in stage III followed by 7 cases (17%) are stage ii, while as in case of colon cancer majority of cases (57.5%) are in stage ii and two patients in anal canal cancer are in stage ii.
**Conclusion:** In conclusion, early detection will reduce the number of death of colorectal cancer patients. A significant number of colorectal and anal canal patients in Kashmir present with early stage of disease and probably due to clinical presentation in our centre, that major clinical presentation was bleeding. Most of the cases (90%) where diagnosed by clinical examination and colonoscopy. colorectal and anal canal cancers are observed at an middle age group that is more than 40 years of age.

**Keywords:** colorectal, anal canal, demographic profile

## Introduction

Colorectal cancer (CRC) is one of the most common forms of gastrointestinal malignancies in the world (Boyle P *et al* 2000) [1]. In the USA, CRC ranks as third most common overall cancer for the period 1992–2001 (Goh KL *et al* 2005) [2]. Compared to the Western world, the incidence rates of colorectal cancer are low in India; for colon cancer they vary from 0.7 to 3.7/100,000 among men and 0.4 to 3/100,000 among women, and for rectal cancer from 1.6 to 5.5/100,000 among men and 0 to 2.8/100,000 among women (Mohandas KM *et al* 1999) [3]. CRC is relatively uncommon in Indian sub continent. In India the incidence of colorectal cancer was found to be 4.2 and 3.2 per hundred thousand for male and female population respectively (Afroza A *et al* 2007) [4]. Early detection of colonic cancers is a challenging task as because clinical symptoms develop slowly. Patients with colorectal cancer have usually presented with abdominal pain, alteration of bowel habit, loss of weight, vomiting, frequently with colic, anorexia, bleeding per rectum, lump, indigestion and acute on-chronic obstruction (Hossain T *et al* 2007) [5]. Screening tests like digital rectal examination, simple laboratory investigations like

estimation of CEA, estimation of hemoglobin, fecal occult blood test and visualization of the gut mucosa by sigmoidoscopy and colonoscopy examination may be a help in the diagnosis (Keating J *et al* 2003) [6].

CRC occurring before age of forty years accounts for less than 10% of the total CRC (Pal M *et al* 2006) [7]. It has been reported that CRC in the Asia-Pacific region and Africa occur a decade or more earlier compared to the USA (Qing SH *et al* 2003) [8]. The histological types include squamous cell carcinoma, melanoma, small cell carcinoma, carcinoid, sarcoma, and c flexure (Cheng X *et al* 2001) [9]. The risk of CRC increases with age; the median age at diagnosis for colon cancer is 68 in men and 72 in women; for rectal cancer it is 63 years of age in both men and women (Howlader N *et al* 2016) [12].

Tumors of the colorectal arise in the mucosa and virtually all (>90%) are adenocarcinomas (Czito BWC *et al* 2007) [10]. Other histological types include squamous cell carcinoma, melanoma, small cell carcinoma, carcinoid, sarcoma, and lymphoma.

Anal cancers are about one-tenth as common as cancers of the rectum. Cancers arise in the canal with three to four times the frequency of perianal cancers. In North America and Europe, anal canal cancers are more common in women than in men, although this difference is decreasing [11]; perianal cancers occur with about equal frequency in both sexes. The annual age-adjusted rates per 100,000 for squamous cell cancers of the anus, anal canal, and anorectum in the U.S.

**Methods**

This retrospective study was carried out in the Department of radiation oncology Government Medical College Srinagar Kashmir India during the period of November 2015 to December 2018. Patients with colorectal and anal canal carcinoma from all ages and both sexes were included in the study. Clinically suspected colorectal and anal canal carcinoma subsequently proved to be non-malignant lesions after histological examination; non-Hodgkin lymphoma and other non epithelial tumors of the colon were excluded from this study.

A retrospective study was conducted to find the Information regarding age, sex, clinical presentation, anatomical site, histopathological type, stage of the disease and including metastasis. The diagnosed of Colorectal, anal cancer performed by digital rectal examination colonoscopy and CECT scan and confirmed by biopsy of tumor. Records of patients who had complete colonoscopy examination till the cecum, presence of tumor in the colon or rectum, anal canal and biopsy showing adenocarcinoma, were scrutinized. The tumor was classified according to the World Health Organization classification and the tumor staging was done using TNM classification. Baseline investigations were done to assess the patient's fitness for surgery. Treatment modalities included surgery, neoadjuvant or adjuvant chemotherapy and radiotherapy.

**Statistical analysis**

Descriptive analysis was used to report the study results. Categorical data were summarized as percentages. We analyzed the cancer characteristics according to age and sex. The aim of the present study was to analyze the demographic spectrum of colorectal and anal canal cancers in Kashmir valley.

**Results**

Total of 108 patients with histopathologically confirmed as colorectal and anal canal cancers formed the study population. Rectal cancers constituted 42 patients (39%), colon cancers constituted 64 patients (59%) and anal canal constituted 02(2%) patients. The male to female ratio in rectal cancers was 1.25:1. In colon cancers male to female ratio was 1.5:1. In anal canal two patients are male none is female. The age group varied from 16 to 80 years with most common age group in colon cancer were between age of 45-64years, however in rectal cancer most common age group were between age of <45 years for males and 45-64 years for females. In anal canal cancer most common age group were 45-64 years. The commonest age group is 45-64 years, followed by greater than 64 years in our study. Less than 45 years age group constituted 24% of the cases (26 patients) shown in table 1.

**Table 1:** Demographic profile

| Site | Total | Sex | Total Patients | | <45 | | 45-64 | | >64 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | N | % | N | % | N | % | N | % |
| Colon | 64 (59%) | Male | 38 | 35 | 5 | 4.6 | 19 | 17 | 14 | 13 |
| | | Female | 26 | 24 | 5 | 4.6 | 12 | 11 | 09 | 8 |
| Rectum | 42 (39%) | Male | 20 | 18 | 8 | 7.4 | 2 | 2 | 10 | 9 |
| | | Female | 22 | 20 | 8 | 7.4 | 10 | 9 | 4 | 4 |
| Anal canal | 02 (2%) | Male | 2 | 2 | - | - | 2 | 2 | - | - |
| | | Female | - | - | - | - | - | - | - | - |
| Total | 108 | | 108 (100%) | | 26 (24%) | | 45 (41%) | | 37 (34%) | |

**Clinical presentation, anatomical sites, histological patterns and tumor stage**

The duration of symptoms at presentation ranged from one month to 1 year with mean duration of 6 months. In colorectal cancers bleeding per rectum was the chief complaints in 45% of the patients, followed by altered bowel habits in 25% of the patients followed difficulty in passing the stools in 15% of the patients and 15% presented with abdomen distention (intestinal obstruction). Pain and mass per abdomen was the presenting symptom in colon cancer group. Bleeding per rectum was presenting symptom of cancer rectum and complaint of anal discomfort in anal canal cancer.

There were 42 cases of carcinoma rectum, of these 22(52%) cases are in middle third followed by 12 patients (29%) are in lower third and 8 patients (19%) had upper third rectum shown in table 2. The distance measured is arbitrary measured by clinical digital examination and colonoscopy.

In colon cancers, right colon constituted 35 cases (55%) followed by 20 cases (31%) of left colon constituted and transverse colon 9 cases (14%) of cancer shown in table 3.

**Table 2:** Distribution of stage according to sub site in rectal and anal canal cancer

| Site | Total | | Sex | Total | |
|---|---|---|---|---|---|
| | N | % | | N | % |
| Lower third | 12 | 29 | Male | 6 | 14 |
| | | | Female | 6 | 14 |
| Middle third | 22 | 52 | Male | 10 | 24 |
| | | | Female | 12 | 28 |
| Upper third | 8 | 19 | Male | 4 | 10 |
| | | | Female | 4 | 10 |
| total | 42 | 100 | | | |
| ***Anal canal*** | | | | | |
| Anal canal | 2 | 100 | Male | ***2*** | 100 |
| | | | Female | ***0*** | |

**Table 3:** Distribution of stage according to sub site in COLON cancer

| Site | Total | | SEX | Total |
|---|---|---|---|---|
| | N | % | | |
| Right Colon | 35 | 55 | Male | 22 |
| | | | Female | 13 |
| Transverse Colon | 9 | 14 | Male | 06 |
| | | | Female | 03 |
| Left Colon | 20 | 31 | Male | 10 |
| | | | Female | 10 |
| Total | 64 | 100 | | 64 |

Pathologically adenocarcinoma was observed in 98% of the cases (colorectal cancer) and 2% had squamous cell cancer i.e anal canal cancer.

According to TNM staging in rectal cancers, majority of patients 42 (39%) are in stage III followed by 7 cases (17%) are stage ii and 4 cases (9%) are in stage iv. while as in case of colon cancer majority of cases (57.5%) are in stage ii followed by 19 cases (30%) are in stage iii and 6 case (9.5%) are in stage iv, however right colon is the most common site followed by left colon. Two patients in anal canal cancer are in stage ii shown in Table-4.

**Table 4:** TNM Staging

| Site | Total | Stage I | Stage II | Stage III | Stage IV |
|---|---|---|---|---|---|
| **Colon** | | | | | |
| Right Colon | 35 (55%) | 1(1.5%) | 22 (34%) | 7(11%) | 5 (8%) |
| Transverse Colon | 9(14%) | - | 5(8%) | 4(6%) | - |
| Left Colon | 20 (31%) | 1 (1.5%) | 10 (15.5%) | 8(12%) | 1 (1.5%) |
| Total | 64(100%) | 2 (3%) | 37(57.5%) | 19 (30%) | 6 (9.5%) |
| **Rectum** | | | | | |
| Rectum | 42 | 2 (5%) | 7 (17%) | 29 (69%) | 4 (9%) |
| **Anal canal** | | | | | |
| Anal Canal | 2 | - | 2 (100%) | - | - |
| Total | 108 | 4 | 46 | 48 | 10 |

**Treatment modalities** Treatment plan was made according to the stage of presentation assessed by clinical examination, radiological findings. Operability and type of surgery was assessed by the operating surgeon by clinical examination and examination under anesthesia. Neoadjuvant, adjuvant chemotherapy and radiotherapy was given according to protocols.

## Discussion

Incidence of colorectal cancer varies throughout the world. Colorectal cancer is the third most common cancer and cause of cancer death in both men and women in the United States. The present study included 108 patients of colorectal and anal canal cancer.

The mean age of presentation was 69 years in the western population. Most common age group in colon cancer was between age of 45-64years, however in rectal cancer most common age group is between age of <45 years for males and 45-64 years for females. Our study was similar to a study conducted by Howlader N *et al*. [12] that, the risk of CRC increases with age; the median age at diagnosis for colon cancer is 68 in men and 72 in women; for rectal cancer it is 63 years of age in both men and women [12]. However we found rectum cancer in male are presented in younger age than female group. This suggested that the young male patients are more prone to cancer rectum.

A study conducted by Siegel RL *et al*. [13] that Approximately 4.6% of men (1 in 22) and 4.2% of women (1 in 24) will be diagnosed with CRC in their lifetime [12]. The present study was similar that the male to female ratio in rectal cancers was 1.25:1. In colon cancers male to female ratio was 1.5:1.

Anal cancers are about one-tenth as common as cancers of the rectum, the most significant risk factors so far identified are sexually transmissible viruses, immunosuppression [11]. In present study only two cases of anal canal cancer this reveals that as per etiology point of view in our region HIV or other sexual transmitted disease has very low incidence.

In colorectal cancers bleeding per rectum was the chief complaints in 45% of the patients, followed by altered bowel habits in 25% of the patients followed difficulty in passing the stools in 15% of the patients and 15% presented with abdomen distention (intestinal obstruction). Which is in agreement with other studies reported in developing countries (Majumdar SR *et al* 1999) [14].

Regarding anatomical location of the tumor, colon cancers predominate in our study group due to referral bias but some studies have shown predominance of rectal cancer in Indian population (Mohandas KM *et al* 1999) [15] in contrast to the West, where right sided colonic tumors predominate. Exact cause is not known for the predominance of rectal cancers further studies need to been done. In colon cancers right colon constituted 35 cases (55%) followed by 20 cases (31%) of left colon constituted and transverse colon 9 cases (14%) of cancer. Our study was contradicted to study conducted by Cheng X, 2001 that the most common location of CRC is the left side of the colon including the rectum. However, reports from the West suggest that the tumor location of CRC is moving proximal to the splenic flexure. So far as rectum cancer is concern, there were 42 cases of carcinoma rectum, of these 22(52%) cases are in middle third followed by 12 patients (29%) are in lower third and 8 patients (19%) had upper third rectum.

Tumors of the colorectal arise in the mucosa and virtually all (>90%) are adenocarcinomas (Czito BWC *et al*. 2007) [10]. In our study all cases of the colorectal malignancies are adenocarcinomas and about 85% to 90% of primary anal canal cancers are squamous cell type. So far as our study concern all the case had histology squamous cell cancer.

Rectal cancer is diagnosed at a localized stage more often than colon cancer, 43% versus 38%, likely due to the earlier appearance of symptoms According to TNM staging majority of patients in present study are localized disease however in rectal cancers 4 cases (9%) are in stage iv. while as in case of colon cancer 6 case (9.5%) are in stage iv.

The limitations of our study are, more often the patients are referred to outside state, and most of patients were registered and treated at other cancer centre Skims kashmir valley. Hence, our study group may not exactly reflect the prevalence and incidence of colorectal and anal canal cancer in the whole

population in this region. Despite these limitations, our institution being a major oncological centre in this region, it may reflect the nature of the disease in this population and emphasizes the significance of early diagnosis by proper and timely evaluation, and management of the disease.

**Conclusion**

In conclusion, early detection will reduce the number of death of colorectal cancer patients. A significant number of colorectal and anal canal patients in Kashmir present with early stage of disease and probably due to clinical presentation in our centre, that major clinical presentation was bleeding. Most of the cases (90%) where diagnosed by clinical examination and colonoscopy. Colorectal and anal canal cancers are observed at an middle age group that is more than 40 years of age. People should be educated for an early consultation for symptoms and high risk individuals should be encouraged for screening. The health programmed about colorectal and anal canal cancer should be carried out in open places to give more information about cancer to the public.

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