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RESEARCH ARTICLE

CLINICOPATHOLOGICAL PROFILE OF COLORECTAL CARCINOMA

***,[1]Dr. Nazia Quyoom, [2]Dr. Ruby Reshi, [1]Dr. Bushra Rashid, [1]Dr. Shaista Mushtaq, [1]Dr. Rukhsana Akhter and [3]Dr. Ouber Qayoom**

[1]Senior Resident Department of Pathology, GMC Srinagar
[2]Head of the Department, GMC Srinagar
[3]Senior Resident Department of Medicine, Maharishi Markendeshwar Institute of Medical Sciences and Research, Mullana

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ABSTRACT

The colon including the rectum is host to more primary neoplasms than any other organ in the body. Colorectal carcinoma is an important cause of cancer deaths worldwide, but has variable geographical distribution.In developed countries it is among the 3 most common cancers with an incidence of 570000 new cases per annum.Colorectal cancer in Kashmir valley is the 3rd most common gastrointestinal cancer after esophageal and gastric cancer as per reports. The present study was conducted prospectively from September 2009 to August 2011 in the Department of Pathology, Government Medical College, Srinagar.In the present study there were a total of sixty eight (68) cases of colorectal carcinomas with mean age being 49.8 (SD 16.4) years and maximum number of patient were in the age group of 50-59 years with 32.35% of patients were below forty years of age. Male to female ratio was 1.3:1. The most common presenting symptom was bleeding per rectum (57.36%). Rectum was the predominant anatomic site accounting for 35.5% of carcinomas. On histological examination 94.11% were adenocarcinomas, 4.41% were mucinous adenocarcinomas and 1.47%were signet ring cell carcinoma.

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INTRODUCTION

The colon including the rectum is host to more primary neoplasms than any other organ in the body. At least 50% of the western population develops a colorectal tumor by the age of 70 years. In 10% of these individuals, the tumor progresses to malignancy (Bi *et al*., 2006). Colorectal carcinoma also called as colon cancer or large gut cancer includes cancerous growths in the colon and rectum. Colorectal carcinoma is an important cause of cancer deaths worldwide, but has variable geographical distribution. In developed countries it is among the 3 most common cancers with an incidence of 570000 new cases per annum (Makinen *et al*., 2007). There are nearly one million new cases of cancer diagnosed worldwide each year and half a million deaths (Boyle *et al*., 2002). Many Asian countries have experienced an increase of 2-4 times in the colorectal cancer during past few decades. Although changes in dietary habits and life style are believed to be the reasons underlying increase, the interaction between these factors and genetic characteristics of Asian population seem to play a pivotal role (Sung *et al*., 2005).

****Corresponding author: Dr. Nazia Quyoom,***
Senior Resident Department of Pathology, GMC Srinagar

Kashmir has been reported by now as a high incidence area of gastrointestinal cancers (Mir *et al.,* 2005., Salam *et al.,* 2009; Shah *et al*., 1990). Colorectal cancer in Kashmir valley is the 3rd most common gastrointestinal cancer after esophageal and gastric cancer as per reports (Sameer *et al*., 2009). Environmental factors, particularly dietary practices are implicated as predisposing factors for higher incidence of colorectal cancer (Burnstein *et al*., 1993). In addition, dietary studies implicate obesity and physical inactivity as risk factors for colon cancer (Giovannucci *et al*., 1995).

MATERIALS AND METHODS

The present study was conducted prospectively from September 2009 to August 2011 in the Department of Pathology, Government Medical College, Srinagar. All cases of colorectal carcinoma received in the department during this period were included in the study. Cases with recurrence and incomplete details were excluded from the study.Patient's complete clinical data was recorded including age, sex, residence and presenting symptoms. All the samples were routinely grossed and processed. The sections were stained routinely with Haematoxylin and Eosin and studied.

Observations

In the present study there were a total of sixty eight (68) cases of colorectal carcinomas. The range of age for patients with colorectal carcinoma varied from fourteen (14) to eighty (80) years with the mean age being 49.8 (SD 16.4) years. In this study maximum number of patients was in the age group of 50-59 years which constituted 30.88% of the total number of cases. In our study 17.64% of patients were below thirty years of age and 32.35% of patients were below forty years of age.

Table 1. Age distribution of colorectal carcinoma

Age (in years)	No. of patients	%Age
10-19	3	4.41
20-29	9	13.23
30-39	10	14.70
40-49	8	11.76
50-59	21	30.88
60-69	12	17.6
≥70	5	7.4

Out of sixty eight patients with colorectal carcinomas, thirty nine (57.35%) were males were males and twenty nine (42.64%) were females with a male to female ratio of 1.3:1. The mean age for males 51.5±15.7 was and the mean age for females was 47.5±17.3. The most common presenting symptom of colorectal carcinoma was bleeding per rectum (57.36%) and altered bowel habits (52.94%) like constipation and diarrhea .Twenty six (38.2%) of patients presented with history of weight loss. Left sided colorectal carcinomas presented most commonly with bleeding per rectum and altered bowel habits. Right sided carcinomas presented with weight loss, weakness and malaise.

Table 2. Presenting symptoms of carcinomas

Symptoms	No. of patients	%age
Bleeding per rectum	39	57.36
Altered bowel habits	35	51.5
Weight loss	26	38.2

Out of the total of sixty eight colorectal carcinomas, three (4.45%) were located in caecum, eleven (16.2%)in ascending colon, three(4.4%) in the hepatic flexure, one (1.5%)in transverse colon, four (5.9%) in splenic flexure, nine (13.2%) in descending colon, thirteen (20.8%) in sigmoid colon and twenty four (35.5%) in rectum. Rectum was the predominant anatomic site accounting for 35.5% of carcinomas followed by sigmoid colon (20.8%). Left-sided carcinomas accounted for 73.53% of cases.

Table 3. Anatomic distribution of colorectal carcinomas

Anatomic site	No. of carcinomas	%Age
Caecum	3	4.4
Ascending colon	11	16.2
Hepatic flexure	3	4.4
Transverse colon	1	1.5
Splenic flexure	4	5.9
Descending colon	9	13.2
Sigmoid colon	13	20.8
Rectum	24	35.5

The gross appearance of majority of colorectal carcinomas was ulcerative/infiltrative and annular accounting for fifty two (76.47%) of carcinomas. The bulky exophytic appearance was seen in fifteen (22.05%) of carcinomas. One (1.47%) of the carcinoma appeared diffusely infiltrative on gross examination. On histological examination, out of sixty eight carcinomas sixty five (94.11%) were adenocarcinomas, three (4.41%) were mucinous adenocarcinomas and one (1.47%) was signet ring cell carcinoma.

Table 4. Histological types of carcinoma

Histological type	No. of carcinoma	%AGE
Adenocarcinoma	65	94.11
Mucinous adenocarcinoma	3	4.41
Signet ring cell carcinoma	1	1.47

Out of sixty eight carcinomas were well differentiated, twenty (29.4%) thirty (54.4%) were moderately differentiated and eleven (16.2%) were poorly differentiated. Grading was based on the least differentiated component

Table 5. Histological grade of carcinomas

Differentiation	No. of carcinomas	%Age
Well differentiated	20	29.4
Moderately differentiated	37	54.4
Poorly differentiated	11	16.2

Out of the total of sixty eight carcinomas ten (14.7%)were in Dukes Stage A, forty (58.8%) were in Dukes Stage B and eighteen (26.5%) were in Dukes Stage C.

Table 6. Pathological stage of carcinomas

Duke's stage	No. of carcinomas	%Age
A	10	14.7
B	40	58.8
C	18	26.5

DISCUSSION

In the present study the mean age for patients with colorectal carcinoma was 49.8 years with the age range from 14 to 80 years. In our series maximum number of carcinomas was between age group of 50-59 years. In our study 17.64% of patients were below thirty years of age and 32.35% of patients were below forty years of age. This mean age is lower as compared with previous studies by Khoshbaten *et al* (2008) who reported mean age of their patients as 60.25 years. Wentink *et al*. (2010) reported mean age of patients with colorectal carcinoma as 59 years. The mean age reported by these authors is higher than our observation. Rajesh *et al* (2010) reported that mean age of presentation for colorectal carcinoma was 47.5 years. Fatimah *et al* (2008) reported mean age of patients was 50.7 years. An Gao *et al* (2010) reported mean age of patients as 52 years. Monirath *et al* (2011) recorded that mean age of patients with colorectal carcinoma was 49 years. These observation about mean age of patients with colorectal carcinoma as recorded by different authors quoted above is in conformity with the mean age observed in our study. In our study of 68 colorectal carcinomas, thirty nine (57.35%) were in males and twenty nine (42.64%) were in females with a male to ratio of 1.3:1.This does not conform to the findings of Monirath *et al* (2011), Chattar *et al* (1998). Aljebreen *et al* (2007) reported that 58% of colorectal cancer occurred in males. Fazeli *et al* (2007) reported that males constituted 52% of patients with colorectal carcinoma. Fatimah *et al* (2008) reported a male female ratio of 1.3:1.These

observations about sex distribution quoted by different authors are in conformity with our observation. Fenoglio *et al* (2010) reported that male gender made 57.8% of colorectal cancer cases. Javed *et al* (2011) recorded that male to female ratio for colonic as well as rectal cancer was 1.2:1. These observations are also in close approximation with our observation. In our study the most common clinical presentation of colorectal carcinoma was bleeding per rectum (57.36%), altered bowel habits (52.94%) like constipation and diarrhea and history of weight loss in 38.2% of cases. Majumdar *et al* (1999) reported most common symptoms of colorectal cancer were rectal bleeding (58%), change in bowel habits (51%). Bafandeh *et al* (2006) reported that the most common presenting symptom of patients with colorectal cancer was rectal bleeding (52.7%). McFarlene *et al* (2004), reported predominant symptoms were change in bowel habits (52.38%) rectal bleeding (50.34%) and weight loss (40.8%). These observations about presenting symptoms quoted by different authors are in conformity with our observation.

In the present study rectum was the predominant anatomic site accounting for 35.5% of carcinomas followed by sigmoid colon (20.8%). Carcinomas were more common in left colon accounting for 73.53% of cases. This does not conform to the findings of Salman *et al* (2006) and Khoshbaten *et al* (2008). Aljebreen*et al* (2007) reported left sided colorectal cancer in 73.6% of cases. Wentink *et al* (2010) reported 69% cases of colon cancer were located in left colon and rectum was the most common site accounting for 35.9% of cases. Papagiorgis *et al* (2006) reported that 67.4% of colorectal cancers were located in left colon. Zivkovic *et al* (2007) reported that 67.74% of colorectal cancers were left sided. Saida *et al* (2008) reported that a total of 78.65% of colorectal cancers were left sided. Chatter *et al* reported that left colon and rectum accounted for 70% of all the cases. These observations about site distribution quoted by different authors are in conformity with our observation.

In the present study majority (94.11%) were adenocarcinomas, three (4.41%) were mucinous adenocarcinomas and one (1.47%) was signet ring cell carcinoma. Mansoor *et al* (2002) reported 5% of colorectal cancers as mucinous. Song Wu *et al* (2009) reported 5.4% of colorectal cancers as mucinous adenocarcinoma and 1.2% as signet ring cell carcinoma. In the present study most (54.4%) of the tumors were moderately differentiated, 29.4% were well differentiated, 16.2% were poorly differentiated. This does not conform to the findings of Shah *et al* (1991), Fatimah *et al* (2008) and Rajesh *et al* (2010). Mansoor *et al* (2002) reported that moderately differentiated carcinomas accounted for 55.3% of cases, 28.9% were well differentiated and 15.8% were poorly differentiated.McFarlene *et al* (2004) reported that most colorectal cancers were well or moderately differentiated. Aljebreen *et al* (2007) reported that 56% of carcinomas were moderately differentiated. These observations about grading of carcinomas are in conformity with our observation.

Conclusion

Colorectal cancer in this study had a mean younger age of presentation, was more common in males with rectum being the predominant anatomic site. Adenocarcinoma was the most common histological type of colorectal carcinoma with majority being moderately differentiated.

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