

## Research Article

# Histopathological study of neoplastic lesions of large intestine in Kashmir Valley, India

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## ABSTRACT

**Background:** Aim of current study was to study the histopathological spectrum of neoplastic lesions of large intestine and histopathological pattern of colorectal carcinoma in young adults.

**Methods:** We took a combined retrospective & prospective study in the department of pathology. The specimens were collected from subjects diagnosed as colorectal carcinomas in histopathology department and clinical details were sought from the medical records. Variables like age, sex, dietary habit, relevant history, tumor size, location, type of lesion, histological pattern of patients were checked.

**Results:** In the series of 446 patients of colorectal neoplasm, maximum number of patients presented in 4<sup>th</sup> to 6<sup>th</sup> decade of life (47.30%), while as (15.46%) were between 20-40 years. The youngest patient with an adenocarcinoma was 18 years (male) of age and the oldest one was 80 years (male) of age. Average age of patients was 50.50 years. The male to female ratio was 1.3:1. The study revealed that the carcinoma of ascending colon was much more prevalent, constituting 107 (40.07%) cases. The proportion of well differentiated carcinoma was highest in left side colon and rectum. The incidence of moderately differentiated and poorly differentiated carcinoma was greater on right side colon.

**Conclusion:** Adenocarcinoma is the most common histological variant of colon carcinomas.

**Keywords:** Neoplastic lesions, Adenocarcinoma, Large intestine

## INTRODUCTION

Globally, nearly 800000 new colorectal cancer cases are believed to occur, which accounted for approximately 10% of all incident cancers, and mortality from colorectal cancer was estimated at nearly 450000.<sup>1</sup> Although its incidence varies widely with higher incidence rates in North America, Australia and Europe and lower in developing countries. The risk for developing invasive colorectal cancer increases with age, with more than 90%

of new cases being diagnosed in patients older than 50 years. The overall incidence of colorectal cancer decreased at a rate of 2.1% per year from 1998 to 2003, and the death rate decreased 2.8% annually over the period 2001 to 2003.<sup>2</sup> Generally speaking, colorectal cancer incidence and mortality rates are the greatest in developed Western nations.<sup>1-5</sup> It ranked as the third commonest cancer among males and fourth among females in the Kashmir Valley.<sup>6</sup> Generally, cancer incidence and mortality rates have been higher in

economically advantaged countries.<sup>3,7</sup> This may be related to consumption of a high-fat and high red meat diet, lack of physical activity with resulting obesity, and variations in mortality causes over a longitudinal period of time.

## METHODS

The period from April 2007 to May 2012 was chosen for present study. It was a combination study with retrospective data of three years from April 2007 to March 2010 and prospective data of two years from April 2010 to May 2012 conducted in the department of pathology Sher-i-Kashmir Institute of Medical Sciences (SKIMS), Soura, Srinagar, Jammu & Kashmir - a northern state of India. All the relevant clinical information and pathological records of all of these patients were collected from the record section of the department of pathology at SKIMS. The specimen obtained after surgical exploration of patient were examined externally and then opened as per conventional method after overnight fixation by 10% formalin & processed as per convention method. All the slides had been routinely stained with H&E. In addition, histopathology records of all malignancies during the study period were reviewed to determine the relative frequency of colorectal carcinomas. Name, age, sex, parentage, address, and MRD number and lab number of patients was checked in the record section of the department to avoid double entry. Ethical approval was taken for this study from the institutional ethical committee. Corresponding slides were collected and re-evaluated for the confirmation of diagnosis.

## RESULTS

In the present series of 446 patients of colorectal neoplasm maximum number of patients presented in 4<sup>th</sup> to 6<sup>th</sup> decade of life (47.30%), while as (15.46%) were between 20- 40 years (Table 1). The youngest patient with an adenocarcinoma was 18 years (male) of age and the oldest one was 80 years (male) of age. Average age of patients was 50.50 years of age. Statistically no significant difference was observed between patients of above 35 years to those who were under 35 years of age in terms of sex and site of the tumor. The disease usually presents with poorer grades of differentiation and more advanced stage in those below 35 years of age. The male to female ratio was 1.3:1 It was observed that carcinoma of left sided colon cancer constituting 282 (63.23%) cases was more common than carcinoma of right sided colon cancers comprises of 164 (36.77%), with a left sided carcinoma to right sided carcinoma ratio was 1.72:1. Rectum was the most common affected site constituting about 179 (40.14%) cases followed by ascending colon with 107 (24.01%) cases, sigmoid colon with 53 (11.89%) cases, descending colon with 39 (8.74%) cases, caecum with 28 (6.28%) cases and hepatic flexure, splenic flexure and transverse colon constituting 20 (4.49%), 11 (2.47%) and 9 (2.02%) cases respectively

(Table 2). The most common findings was ulcero-infiltrative type of growth (37.67%) (Figure 1), followed by ulcero-proliferative type of growth (28.48%) (Figure 1), polypoidal mass (17.71%), stenosing type of growth (9.64%) and polyps only in (6.5%) of cases. The predominant histological type in our study was adenocarcinoma constituting 439 (98.43%) cases, of which well differentiated type in 142 (31.83%), moderately differentiated type in 224 (50.24%) (Figure 2) and poorly differentiated type in 73 (16.37%) (Figure 3) cases while others like Non-Hodgkin's lymphoma, carcinoids and malignant GIST constitutes 0.67%, 0.44% and 0.44% respectively.

**Table 1: Age profile of patients with colorectal carcinoma.**

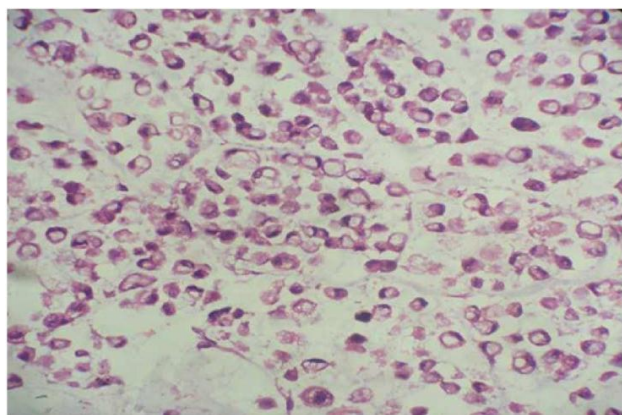
Age in years	No. of cases	Percentage	Male	Female
00-20	3	0.67	2	1
21-40	67	15.02	26	41
41-60	210	47.30	111	99
61-80	166	37.21	113	53
<b>Total</b>	<b>446</b>	<b>100</b>	<b>252</b>	<b>194</b>

**Table 2: Site of primary tumor.**

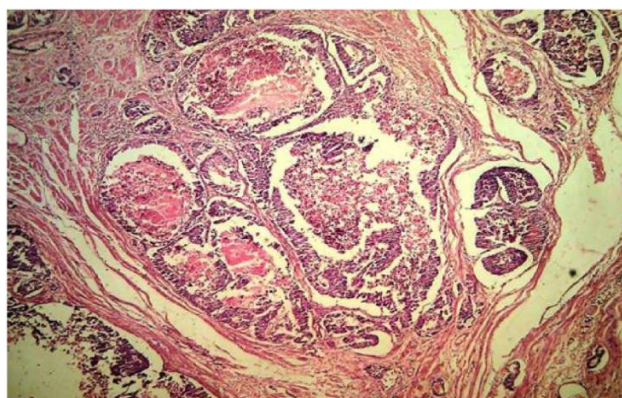
Location	No. of cases	Percentage
Caecum	28	6.28
Ascending colon	107	24.01
Hepatic flexure	20	4.49
Transverse colon	09	2.02
Splenic flexure	11	2.47
Descending colon	39	8.74
Sigmoid colon	53	11.89
Rectum	179	40.14
<b>Total</b>	<b>446</b>	<b>100</b>



**Figure 1: Gross photograph of colon showing an ulcero- polypoidal growth.**



**Figure 2: Microphotograph showing moderately differentiating adenocarcinoma with intra-tumoral necrosis (H&E 40x).**



**Figure 3: Microphotograph showing poorly differentiated adenocarcinoma with signet ring morphology (H&E 40x).**

## DISCUSSION

The common age group involved in our study was the 4<sup>th</sup> to 6<sup>th</sup> decade of life.<sup>8-11</sup> An important finding of the present study was that 10.31% of our patients were younger than 35 years of age.<sup>8,9,12,13</sup> In our study males outnumbered females with male to female ratio of 1.3:1.<sup>14-16</sup> Around 61.43% of our patients had bleeding PR as their common presenting symptom. Other common presenting symptoms were altered bowel habits, pain abdomen and anemia. A minority of our patients presented with rare clinical features of sub-acute intestinal obstruction or distention.<sup>17,18</sup> Majority of the patients in our study were non-vegetarians. Only 7% were vegetarians. Consumption of red meat, obesity and lack of physical activity were found important risk factors in our patients. Overall it is a well-known fact that the excess of red meat intake, increased calorie intake and lack of physical activity are potential risk factors for colonic malignancy.<sup>19-23</sup>

In our study carcinoma colon (267 cases) outnumbered carcinoma rectum (179 cases), which is consistent with other world literature.<sup>16</sup> The carcinoma of left sided colon

exceeds the number of cases of carcinoma right sided colonic cancers which was consistent with world's literature and other Indian studies.<sup>9,16</sup> Also in our study we found that among the colon cancers (i.e. excluding rectal cancer), ascending colon constitutes the maximum number of colon cancers (40.07%).<sup>16</sup> The most common USG abdomen and pelvis findings in colonic neoplasm was distention of gut loops (20%), followed by thickening of gut loops/Bowel mass in 11%. However USG was normal in majority of patients (76%). Thickened gut loops/ Bowel mass was seen in 51% of cases, followed by pericolic fat infiltration/adherence (23%) and distention of gut loops in 13% of cases, However CECT abdomen and pelvis was normal in 21% cases. The poorly differentiated tumors were more common in younger age group (<35 years).<sup>10</sup> The increasing prevalence of obesity and decreasing physical activity in many parts of the world, resulting from "Westernization," is likely to increase the incidence of colorectal carcinoma in countries with low rates if these behaviors are not modified.

## CONCLUSION

1. Adenocarcinoma colon is a most common histological tumor type of large intestine which is similar to that reported in the rest of India and World.
2. Adenocarcinoma of ascending colon is the most common malignant lesion in our population.
3. Carcinoma colon and rectum shows increased trend towards younger age group ( $\leq 35$  years) constituting 10.31% of total cases, with increased number of cases among females with unfavorable histological grade.

## Take home massage

Colonic carcinoma is seen with increasing frequency in young adults, so any person with bowel symptoms, iron deficiency anemia should undergo proper evaluation as early as possible.

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*Ethical approval: The study was approved by the institutional ethics committee*

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