

An Overview of Colorectal Cancer in Tertiary care Cancer Center of Nepal

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Abstract

Introduction:Colorectal carcinoma is primary epithelial malignancy arising in the colorectum areas. 98% of colonic and rectum cancers are adenocarcinomas. The prevalence of colorectal cancer has been dramatically growing at an alarming rate globally in recent years.

Materials and methods: This is retrospective study at Department of Pathology in B P Koirala Memorial Cancer Hospital effective from 1st January 2018 to 31st December 2019. All the data were retrieved and analyzed.

Results:Total 56 colorectal cancer cases were analyzed, among them 36 cases were males accounting 64 % and 20 cases were females accounting 36 %. Rectum was the commonest site and commonest age group was 61-70 years accounting 55.3%. 44.6 % cases were in advanced stage either stage III or IV.

Conclusion:Colorectal cancer is more common in males than in females. Most commonly affected age group was 61-70 years. Most common histological type was well differentiated adenocarcinoma. 44.6 % cases were diagnosed in advanced stage either stage III or IV.

Key Words: Colo-rectal Cancer, Stage, Treatment, Pathology

Introduction:

Colorectal carcinoma is primary epithelial malignancy arising in the colorectum areas. 98% of colonic and rectum cancers are adenocarcinomas. The prevalence of colorectal cancer has been dramatically growing at an alarming rate globally in recent years. There are estimated 1.93 million new colorectal cancer cases diagnosed, and 0.94 million colorectal cancer caused deaths in 2020 worldwide,

representing 10% of the global cancer incidence and 9.4% of all cancer caused deaths (total 9.96 million deaths). Colorectal cancer is the third leading cause of cancer related deaths in both genders worldwide, with estimated 515,637 deaths among males and 419,536 deaths among females in 2020. Today, more than 5.25 million (5-year prevalence) people worldwide are living with colorectal cancer, only less than breast cancer, which causes 7.79 million cancer cases.¹

According to estimates from GLOBOCAN 2020, there are 1.15 million new cases of colon cancer, 0.7 million new cases of rectal cancers in 2020 globally representing 60% colon cancer and 40% rectal cancer respectively among total colorectal cancer cases.

The highest colorectal cancer incidence rates in 1998-2002 were observed in registries from North America, Oceania, and Europe, including Eastern European countries. These high rates are most likely the result of increases in risk factors associated with "Westernization," such as obesity and physical inactivity.²

Nevertheless, it is increasing rapidly in less developed countries due to the increased exposure to colorectal cancer risk factors. This rising burden of disease reflects the progressive "Westernization" of lifestyle, including increased red and processed meat consumption, sedentary living, and obesity.

Colorectal cancer is generally asymptomatic. When the symptoms of colorectal cancer appear, such as rectal bleeding, anemia, or abdominal pain, most patients are already in the advanced stage where cancers are aggressive, malignant, and metastatic. Diagnosis at advanced stages is one of the determinants of the disparity in survival and a large number of colorectal cancer deaths worldwide. Thus, population-based screening programs have been widely proposed and implemented in some highly developed countries since more than 10 years ago, with the aim of shifting colorectal cancer distribution to early stages and improving therapy outcomes.

Some other risk factors, which are related to lifestyle, can be reduced by implementing modest

lifestyle changes in terms of dietary and physical activity habits. For instance, it is thought that a sedentary lifestyle can increase the risk of developing colorectal cancer, although this relationship between colorectal cancer and inactivity is not completely defined. However, it has been proved that moderate physical activity increases metabolic rates and gut motility and, in the long term, increases metabolic efficiency and reduces blood pressure.

A sedentary lifestyle is also related with obesity, another important risk factor for colorectal cancer. Remarkably, this increased risk is linked to both food intake and increased levels of visceral adipose tissue (VAT), a hormonally active component of total body fat that can promote the development of colorectal cancer through the secretion of pro-inflammatory cytokines, which leads to an inflammatory situation in the colon and rectum, insulin resistance and modulation of metabolic enzymes such as adiponectin or lectin. In this context, diet is strongly linked to the risk of colorectal cancer such that unhealthy nutritional habits increase the chances of developing colorectal cancer by up to 70%. For instance, red meat releases heme groups in the intestine, which enhance the formation of carcinogenic N-nitroso compounds as well as cytotoxic and genotoxic aldehydes by lipoperoxidation, and meat cooked at high temperatures produces heterocyclic amines and polycyclic hydrocarbons after digestion, both of which are considered to be potential carcinogens. Furthermore, smoking and alcohol consumption have also been shown to increase CRC risk. In the case of alcohol consumption, acetaldehyde (the main metabolite of ethanol) has been

described as carcinogenic by increasing the risk of developing colorectal cancer among populations depending on polymorphisms of alcohol metabolism enzymes. However, the relationship between alcohol consumption and CRC has not yet been totally elucidated. Tobacco smoking, in turn, can increase the chances of suffering from CRC by up to 10.8% due to the high content in carcinogens such as nicotine, the metabolites of which can easily reach the intestine and generate polyps. Although smoking increases CRC risk, a significant relationship has only been found for long-term smokers, whether they have stopped smoking or not.

Materials and methods

This is retrospective study at Department of Pathology in B P Koirala Memorial Cancer Hospital effective from 1st January 2018 to 31st December 2019 for two years. This study included the patients who were seen, biopsied or operated at BPKMCH or referred cases from elsewhere, but the specimen was processed and reported at BPKMCH. All the data were retrieved and analyzed.

Table:- I, Primary sites of colorectal carcinoma were as follows;

Primary site of tumour	Number of cases	%
Rectum	31	55.3%
Caecum	9	16.1%
Sigmoid Colon	6	10.7%
Ascending Colon	5	8.9%
Descending Colon	2	3.6%
Transverse Colon	2	3.6%
Splenic Flexure	1	1.8
Total	56	100%

Results

Total 56 colorectal cancer cases were analyzed, among them 36 cases were males accounting 64 % and 20 cases were females accounting 36 % among all colorectal cancer cases. Among 56 cases, 27 (48.2%) cases were well differentiated adenocarcinoma, 14 (25%) cases were moderately differentiated adenocarcinoma, 6 (10.7%) cases were poorly differentiated adenocarcinoma, 9 (16.1%) cases were mucinous carcinoma.

Among nodal involvement by tumour cells, 25 (44.6%) cases were positive for one or several lymph nodes involved by tumour cells, where as 31 (55.4%) cases were having no nodal involvement. Thus 44.6 % cases were diagnosed in advanced stage either stage III or IV.

Table:- II, Age-wise colorectal cancer cases were as follows;

Age group	Number of breast cancer cases	Percentage
Less than 20 Years	2	3.6%
21-30 Years	4	7.1%
31-40 Years	11	19.6%
41-50 Years	9	16.1%
51-60 Years	7	12.5%
61-70 Years	14	25%
More than 71 Years	9	16.1%
Total	56	100%

Discussion

Colorectal cancer (CRC), is known as the development of cancer from the colon or rectum (parts of the large intestine). Signs and symptoms

may include blood in the stool, a change in bowel movements, weight loss, and fatigue.

Risk factors include diet, obesity, smoking, and lack of physical activity. Dietary factors that increase the risk include red meat, processed meat, and alcohol. Another risk factor is inflammatory bowel disease, which includes Crohn's disease and ulcerative colitis. Some of the inherited genetic disorders that can cause colorectal cancer include familial adenomatous polyposis and hereditary non-polyposis colon cancer; however, these represent less than 5% of cases.

Colorectal cancer may be diagnosed by obtaining a sample of the colon during a sigmoidoscopy or colonoscopy. This is then followed by medical imaging to determine whether the disease has spread. Screening is effective for preventing and decreasing deaths from colorectal cancer.

M Rajbhandari et. al. studied 25 patients diagnosed with colorectal carcinoma, among them 48% (n=12) were males and 52% (n=13) were females with a mean age of 55.17 years in men and 59.46 years in females. Male and female ratio among cancer groups was 1:1.08. Total 36% (n=9) were diagnosed with cancer before the age of 50. Out of these nine cases, 6 (66.7%) were males and 3 (33.3%) were females. The male and female ratio in younger and older age groups were 2:1 and 1:1.7. The younger age group had concordance with our study, whereas older age group had disparity. They concluded that the incidence of colorectal carcinoma is on rise in Nepalese society. Although colorectal carcinoma is more common in older age group the incidence are also increasing among young especially among women.³

A Celestino et. al. reported a clinic-endoscopic study about 365 patients, both of sex, between 26-95 years old, with colonoscopic diagnosis of colorectal cancer. Results showed that 61.92% were men and 38.08% women; in 92.60% the disease occurred over 40 years old. Pathology showed that adenocarcinoma was the most frequent tumor 95.23%; 1.06% mucoid carcinoma; 1.06% epidermoid carcinoma; and 2.65% lymphoma. Authors emphasize the value of the detection and early diagnosis to decrease the colorectal cancer mortality.⁴ In our study males accounting 64 % and females accounting 36 % among all colorectal cancer cases. Colorectal cancer cases were more common in 61-70 years age group. 48.2% cases were well differentiated adenocarcinoma, 25% cases were moderately differentiated adenocarcinoma, 10.7% cases were poorly differentiated adenocarcinoma, 16.1% cases were mucinous carcinoma.

Surendra Shah et. al. analyzed the clinicopathological characteristics of colorectal carcinoma at Patan hospital, Nepal. According to them there were 73 patients (37 males and 36 females) with colorectal carcinoma. The mean age was 52 years. There were 21 (28.77%) patients below 40 years of age. Rectum was involved in 31 (42.47%) and right colon in 30 (41.10%). Adenocarcinoma was seen in 72 (98.63%).⁵

According to the Dennis J Ahnen et.al. In the United States, colorectal cancer (CRC) is the third most common and second most lethal cancer. More than one-tenth of CRC cases (11% of colon cancers and 18% of rectal cancers) have a young onset (ie, occurring in individuals

younger than 50 years). The CRC incidence and mortality rates are decreasing among all age groups older than 50 years, yet increasing in younger individuals for whom screening use is limited and key symptoms may go unrecognized.⁶ In our study also second commonest age group involved by colorectal carcinoma was 31-40 years accounting 19.6% among all colorectal cancer cases.

According to the Shrestha Gambhir MDa et. al. the incidence of colorectal carcinoma is increasing in Nepal with significant burden borne by younger age groups. Implementation of healthy lifestyle measures, awareness programs, along with routine screening should be implemented to control the burden of colorectal carcinoma in Nepal.⁷

K O Ibrahim et. al. did retrospective study of all cases of histologically diagnosed colorectal carcinoma in the University of Ilorin Teaching Hospital, Ilorin, Nigeria, over a 30-year period (January 1979-December 2008), using the departmental record and histological slides of the cases. A total of 241 cases of colorectal carcinoma were reported, 144 cases (60%) in males and 96 cases (40%) in females with a male: female ratio of 1.5:1. The peak age of occurrence for males was between 51 and 60 years, while that of the females was between 41 and 50 years. The malignancy was found in the rectum in 60.2% of the cases, while the least affected site is the descending colon (1.2%). The most common histological type is adenocarcinoma (77.2%) with well, moderately, and poorly differentiated forms constituting 52.3%, 32.8%, and 14.9% respectively. Of the

241 cases that were seen over the last 30 years, 93 cases (38.6%) were seen in the last 5 years.⁸

Prasan Kansakar and Yogendra Singh concluded that colorectal carcinoma among Nepalese young adults accounts for a high incidence (28%) of all colorectal carcinoma cases. Although right sided colonic cancer has been increasing, rectum is the commonest site. There is also an increasing trend for diagnosis at earlier stages of the disease which can be treated with curative intent.⁹

Conclusion

Colorectal cancer is more common in males than in females. Most common affected age group was 61-70 years. Most common histological type was well differentiated adenocarcinoma. 44.6 % cases were diagnosed in advanced stage either stage III or IV.

Early detection of colorectal carcinoma aims to cure the disease. Regular screening like PR examination and colonoscopy helps to prevent the disease. Life style can be changed by doing regular exercises instead of living a sedentary lifestyle which also reduce obesity. Avoid taking red meat, quit smoking and reducing alcohol consumption will certainly help to prevent colorectal carcinoma.

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