

# Audit of Rectal Cancer in a tertiary cancer hospital of Nepal

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## ABSTRACT

**INTRODUCTION:** Rectal cancer is a major health related burden worldwide. Although it is considered a disease of old age, the rectal cancer presentation in young age is quite common in B P Koirala memorial Cancer Hospital. The purpose of this study was to find out the demographic factors of the patients of rectal cancer and the statistical status of the disease, which will help to plan prevention, treatment and palliation of this cancer in Nepal.

**METHODS:** Total number of patients of rectal cancer, along with their age and gender, registered in a period of ten years from 1999 to 2008, were retrieved from the record section. Demographic factors, presenting complaints, disease status, radiological findings, treatments provided, follow up, and further management of 245 patients of rectal cancer were recorded in a format and analyzed.

**RESULTS:** All together 21,025 cancer patients were registered in the period of 10 years. Out of which 2,330 (11.06%) cases were of gastrointestinal tract cancers and 388 (1.85%) cases were of rectal cancer. Out of 388 cases, 203 (52.31%) cases were male and 185 (47.69%) female. The range of the age was 15 to 96; the median age at the diagnosis was 46.5 years. Out of 245 patients, about 2.58% patients were diagnosed under age 20; 23.97% between 20 and 34; 18.56% between 35 and 44; 17.01% between 45 and 54; 20.10% between 55 and 64; 13.66% between 65 and 74; 3.35% between 75 and 84; 0.77% in 85 + years of age. About 94.7% of the cases were of adenocarcinoma histology. About 17.92% of patients had metastatic disease when they first came to hospital. Only 103 patients underwent surgery, and only 64 patients could complete the recommended treatment. Only 59 patients came for follow-up after treatment. Only 23 patients were disease free until their last visit.

**CONCLUSION:** The incidence of rectal cancer in Nepal is low in comparison to developed westernized countries. The prevalence of the disease at a very young age group is alarming. There is a great need to study the possible causes of the disease in young-age group.

**KEY WORDS:** disease status, patients' age, rectal cancer.

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## INTRODUCTION

Colorectal cancer is one of the major health related problems worldwide. It is the third most common malignancy accounting for 9-10% of all cancers. Approximately, 1.2 million new cases of colorectal carcinoma are diagnosed annually; with 608,000 deaths.<sup>1</sup> Although many risk factors such as increasing age, male sex, family history of colorectal cancer, increasing height, increasing body mass index, processed meat intake, excessive alcohol consumption are shown to increase the risk of developing colorectal cancer, only increasing age, male sex and excessive use of alcohol are associated with rectal cancer.<sup>2</sup> There is a greater impact of age on colorectal cancer incidence greater than any other demographic factor. The risk of the sporadic colorectal cancer increases dramatically above the age of 45 to 50 years,<sup>3</sup> and the median age is seventh decade; however colorectal adenocarcinoma can occur any time in adulthood.<sup>4</sup> It is estimated that 3% of colorectal cancers occur in patients younger than 40 years of age.<sup>5</sup>

Peak incidence rates of this cancer are observed in Western Europe, Australia and New Zealand with the lowest rates noted in Africa (except southern Africa) and south central Asia, with intermediate rate in Latin America.<sup>1</sup> In general, it can be stated that the colorectal cancer incidence and mortality rates are highest in developed Western countries<sup>3</sup> and also in economically advantaged countries which may be related to the consumption of a high-fat and high red meat diet and lack of physical activity leading to obesity.<sup>6,7</sup>

Although colon and rectal cancers are two separate diseases, they are often considered together as both shares many common features.<sup>8</sup> Approximately two third of cases occurs in colon and one third in rectum.<sup>9</sup>

Though colorectal cancer is considered to be a disease of old age, we frequently see young patients suffering from this malignancy, mainly from rectal cancer in B P Koirala Memorial cancer Hospital (BPKMCH). They are usually not obese and belong to lower to middle socio-economic group. The purpose of this study was to observe the demographic pattern of the patients

of rectal cancer who were registered in BPKMCH and to find out the statistical status of the disease. The findings can help to plan prevention, treatment and palliation of rectal cancer in Nepal.

## METHODS

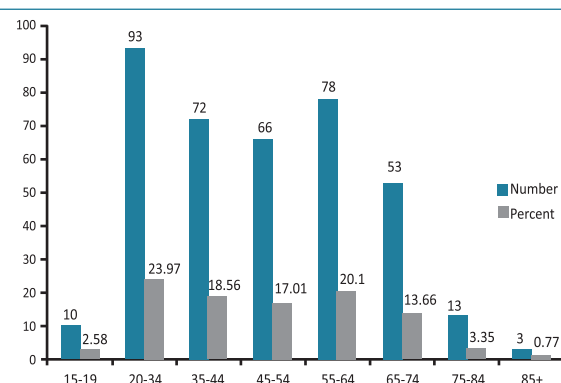
This is a retrospective study carried out in the Department of Radiation Oncology at B P Koirala memorial cancer Hospital. Three hundreds and eighty-eight cases of rectal cancer were registered in a period of ten years from 1999 to 2008 in the hospital. Out of 388 cases only 245 case record files were available in the record section of the hospital. Demographic information were archived in computer thus age and gender of all 388 cases were retrieved. Presenting complaints, disease status, radiological findings, treatments provided, follow up, and further management of each patient were retrieved from the available case record files and recorded in a format and analyzed. Only histopathological confirmed cases were included in the study. Similarly total number of patients of gastrointestinal tract cancer and total number of all cancer cases registered in the hospital was also retrieved from the computer for the comparison with the rectal cancer. Approval for the study was obtained from the Academic Committee of the hospital.

## RESULTS

All together 21,025 cancer patients were registered in the period of 10 years, from 1999 to 2008 in B P Koirala Memorial Cancer Hospital. Out of which 2330 (11.06%) cases were of gastrointestinal tract (GIT) cancers and 388 (1.85%) cases were of rectal cancer. Out of 388 cases, 203 (52.31%) cases were male and 185 female (47.69%).

### Age

The age range was 15 to 96, the median and mean age at the diagnosis of rectal cancer were 46.5 and 46.9 years respectively. One hundred and thirty-seven (35.31%) patients were below the age of 40. Two hundreds and eleven patients (54.38%) were below the age 50 and 177 (45.62%) were of 50 or above. Figure 1 shows the incidences of rectal cancer among the different age groups.



**Figure 1: Numbers of patients according to the age group**

### Presenting Complaints

Most of the patients had complaints of rectal bleeding of different durations, pain low abdomen, weight loss, painful defecation, loss of appetite and altered bowel habit. Twenty patients presented to the hospital with features of intestinal obstruction. Major complaints are listed in Table 1.

**Table 1: Common presenting complaints of patients with rectal cancer**

| Complaints                        | Number of patients<br>n (%) |
|-----------------------------------|-----------------------------|
| Bleeding P/R                      | 175 (71.42)                 |
| Pain low abdomen/ perineal region | 57 (23.26)                  |
| Loss of weight                    | 57 (23.26)                  |
| Painful defecation                | 46 (18.78)                  |
| Loss of appetite                  | 45 (18.37)                  |
| Altered bowel habit               | 45 (18.37)                  |
| Mucus discharge per rectum        | 20 (8.16)                   |
| Others                            | 10 (4.1)                    |

### Histopathology

Out of 245 patients, histopathology of only 225 patients could be retrieved. Approximately 94.7% of the patients had adenocarcinoma. Twelve patients have uncommon histopathology. Table 2 shows the

histopathology pattern.

**Table 2: Types of histopathology**

| Histopathology Type                    | Number of patients | Percentage |
|--|--------------------|------------|
| Adenocarcinoma, NOS                    | 165                | 73.33      |
| Adenocarcinoma, Mucin producing        | 35                 | 15.56      |
| Adenocarcinoma, Signet ring cell       | 13                 | 5.78       |
| Squamous cell carcinoma                | 4                  | 1.78       |
| Malignant Melanoma                     | 4                  | 1.78       |
| Adenosquamous cell carcinoma           | 3                  | 1.33       |
| Tumor of Uncertain malignant potential | 1                  | 0.44       |

### Disease Status

Thirty-eight patients already had metastatic disease when they came to the hospital for the first time. Liver and lungs were the most common metastatic sites. Seven patients were referred from other centers when recurrent disease was found in already treated patients. Out of 245 patients only 103 underwent surgery. Out of them 3 cases of malignant melanoma and one patient with Tumor of Uncertain Malignant Potential were not staged. Clinical staging was done in 37 patients. Twenty-eight patients including patients presented with features of acute intestinal obstruction underwent exploratory laparotomy and staged as locally advanced disease. Staging was either not recorded or not done in 33 patients. Thirty-seven patients were staged clinically on the basis of clinical and radiological findings. Table 3 shows the stage of the disease of patients and figure 2 shows the metastatic sites.

**Table 3: Staging according to AJCC/UICC**

| Staging   | Number of Patients | Percent |
|-----------|--------------------|---------|
| I         | 14                 | 6.61    |
| II        | 57                 | 26.88   |
| III       | 92                 | 43.39   |
| IV        | 38                 | 17.93   |
| Recurrent | 7                  | 3.3     |
| Others    | 4                  | 1.89    |
| Total     | 212                | 100     |

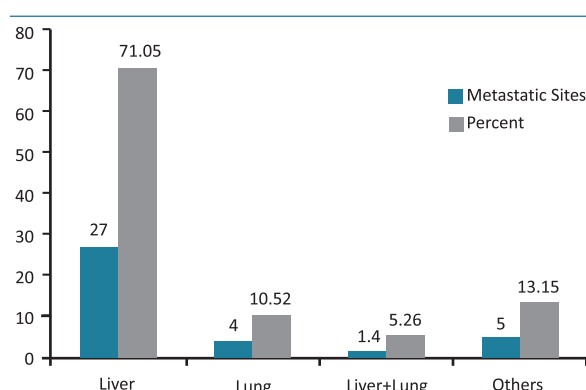


Figure 2: Metastatic sites

### Treatment

Only one fourth of 245 patients received complete treatment i.e. surgery only for pT1-2N0M0 disease and surgery followed by adjuvant treatment for >pT1-2 or node positive or resection margin positive cases and or neo-adjuvant chemoradiation followed by surgery followed by remaining cycles of chemotherapy and radiation.

Among local and regional disease group, 25 patients did not receive any treatment, 21 patients underwent surgery and did not return for further management, 7 received only chemotherapy, 6 had surgery followed by 6 cycles of chemotherapy, 3 had chemo-radiation therapy, 14 had surgery, radiation and 2-3 cycles of chemotherapy and 13 had surgery and incomplete chemotherapy. Two patients denied for surgery and chemotherapy, thus received only radiation. Eighteen patients received only neo-adjuvant chemoradiation therapy and lost follow up. Six patients had exploratory laparotomy and colostomy followed by concurrent chemoradiation followed by Abdominoperineal resection (APR), 6 had colostomy followed by chemoradiation, and 1 had colostomy only. All patients lost follow up. Six patients had exploratory laparotomy for acute intestinal obstruction. They also lost follow up for further management. Three patients of malignant melanoma and 1 patient of "Tumor of uncertain malignant potential" underwent surgery and lost follow up. In metastatic disease group, 3 patients had no treatment, 1 had APR only, 1 had APR followed by incomplete chemotherapy, 1 patient underwent APR and metastatectomy, and 7 had exploratory laparotomy and colostomy. Twenty patients received palliative chemo and 5 had chemoradiation therapy. Seven patients with recurrent disease received

palliative chemo and or radiation therapy. All of them lost follow up. Table 4 shows the types and status of the treatment provided to the patients.

Table 4: Types and status of the treatment provided to the patients

| Treatment            | Number of patients | Percent |
|----------------------|--------------------|---------|
| Complete treatment   | 64                 | 26.56   |
| Incomplete treatment | 107                | 44.39   |
| No treatment         | 28                 | 11.62   |
| Palliative treatment | 42                 | 17.43   |
| Total                | 241                | 100     |

### Treatment outcome

There were four deaths after surgery. Among 64 patients who completed treatment, 49 patients had complete response, 1 had residual disease, 2 had progressive disease, 10 patients did not come for follow up, and there were 2 adjuvant treatment (chemoradiation) related deaths at the end of the treatment.

Among 107 patients who did not or could not complete the treatment due to different reasons 10 could achieve complete response, 2 had partial response, 14 had residual disease, 4 had stable disease, 11 had progressive disease, and 59 patients did not come for follow up. There were 7 disease and or treatment related deaths.

Thirty-one patients among those who received palliative treatment did not come for follow up. Three patients died due to progressive disease. One had stable disease and 7 had progressive disease. Figure 3 shows the treatment outcome.

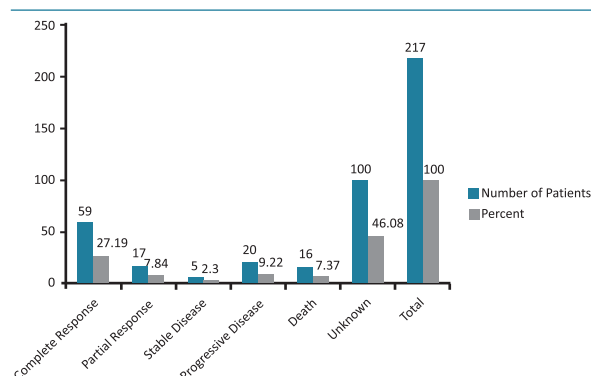


Figure 3: Treatment outcome

### Follow up

Only fifty-nine patients came for follow-up after completion of treatment, even that was very irregular.

Most of the patients came for once or twice when they had sign and symptoms of recurrent disease. Patients were evaluated with clinical examinations including imaging and tumor marker when needed.

## DISCUSSION

The intent of this study was to find the incidence of rectal cancer, patients' age, gender, presenting complaints, histopathology and staging of the disease along with the treatment and its outcome.

Although colorectal cancer is third most common cancer, it is not uniformly common through the world. It is mainly a disease of developed countries with western culture and dietary habits.<sup>10</sup> As a matter of fact, more than 63% of colorectal cancer cases are prevalent in developed countries.<sup>11</sup> There is a great variation in the incidence rate of up to 10-fold between countries with the highest rates and those with the lowest rates.<sup>12, 7</sup> It ranges from more than 40 per 100,000 people in the United States, Australia, New Zealand, and Western Europe to less than 5 per 100,000 in Africa and some parts of Asia.<sup>14</sup> The incidence of rectal cancer in BPKMCH in ten years period was only 1.85%. The incidence is very low in comparison to the modern westernized countries.

Increasing age is one of the most important non-modifiable risk factors. The likelihood of colorectal cancer diagnosis increases after the age of 40, increases progressively from age 40, rising sharply after age 50.<sup>13</sup> Almost 91% of cases are diagnosed in the age of 50 and above.<sup>14</sup> According to Surveillance, Epidemiology, and End Results (SEER) National Cancer Institute US from 2005-2009, the median age at diagnosis for cancer of the colon and rectum was 69 years of age. Approximately 0.1% of the patients were diagnosed under age 20; 1.1% between 20 and 34; 4.0% between 35 and 44; 13.4% between 45 and 54; 20.4% between 55 and 64; 24.0% between 65 and 74; 25.0% between 75 and 84; and 12.0% 85+ years of age.<sup>15</sup> However, colorectal cancer appears to be increasing among younger persons.<sup>16, 17</sup> In fact, in the United States, colorectal cancer is now one of the 10 most commonly diagnosed cancers among men and women aged 20 to 49 years.<sup>18</sup> Cress et al. documented an increase in incidence rates in ages 0 to 49 years in rectal cancer, but not colon cancer, in all races combined during 1992 to 2001.<sup>19</sup> In our study, the median age at the diagnosis was 46.5 years. Out of 245

patients, 2.58% patients were diagnosed under age 20; 23.97% between 20 and 34; 18.56% between 35 and 44; 17.01% between 45 and 54; 20.10% between 55 and 64; 13.66% between 65 and 74; 3.35% between 75 and 84; 0.77% in 85 + years of age. The median age at the onset of rectal cancer is much lower in comparison to western countries. More than 45% of the patients were diagnosed to have the cancer at the age less than 45. Almost 24% of the patients were in the age group of 20-34. Another peak incidence was seen in the age group of 55-64. If we compare our result with the SEER data, the picture is just opposite. We have much more cases in the younger age groups.

The actual cause of early onset of disease is not clear in Nepal. Family history of rectal cancer was absent in most of the cases. Polyp was not common finding during colonoscopy. Though literature from western world shows that the incidence of colorectal cancer in the age group below 40 is about 3% only<sup>5</sup>, our study shows that the incidence of rectal cancer in this age group is around 35%. This situation is much more than just a little alarming. Screening program for colorectal cancer is well accepted in developed western countries. In USA it is recommended to start the screening at the age of 50<sup>20</sup> while it is 60 in the United Kingdom<sup>21</sup>. Although we do not have screening program in our country, the need of screening is obvious and it should be started at early age.

Colorectal cancer affects male and female almost equally, representing 9.4% of all incident cancer in men and 10.1% in women worldwide.<sup>1</sup> we had almost same result.

Rectal cancer can exert a broad range of clinical presentations. Early symptoms that suggest rectal carcinoma include rectal bleeding and subtle changes in bowel habits. Rectal bleeding is often mixed with stools or may coat the surface of the stool. It can be bright red and separate from the stools and therefore is often mistakenly attributed to hemorrhoids.<sup>22</sup> Although not mentioned previously, most of young patients in our study were initially treated for hemorrhoids. Rectal bleeding was the most common symptom in our study. Same result was found in other studies as well.<sup>23</sup>

The most common histopathological type of colorectal cancer is adenocarcinoma, which accounts for 90% to 95% of all large bowel tumors.<sup>24</sup> Other rare variants



of epithelial tumors include squamous cell carcinomas, adenosquamous carcinoma (adenocanthoma), undifferentiated carcinomas, small cell,<sup>25</sup> and neuroendocrine cancers.<sup>26</sup> In our study, 94% of cases were of adenocarcinoma.

Although exact staging of every patient was not feasible we found that more than 63% of the patients had advanced disease in our study. Almost same results were found in another study done by PR Neupane in BPKMCH.<sup>27</sup>

This study shows that only 26% patients completed the treatment. But among the patients who completed the treatment 76% were in complete remission. This means if we develop the system to improve the patients' compliance to the treatment then more patients will be cured from rectal cancers.

## CONCLUSION

Rectal cancer is not a very common cancer and the incidence of the cancer is less in comparison to the developed countries. The median age at the onset of the disease is also less, however, it is very common in young age group. Any patient presenting with abdominal complaints, mainly rectal bleeding, should be investigated thoroughly and treated thereafter only. This alarming finding warrants a vigorous research to establish causative factors in this age group of patients.

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