Original Article

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A Study of Neoplastic Lesions of Colorectum in a Tertiary Care Hospital

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Abstract

Background: Intestinal tumors account for a large proportion of all neoplasm. Colorectal cancer is the third most common cancer in men and the second in women worldwide, with significant geographical, racial and ethnic variation in its incidence rate and pattern.

Aims and Objectives: (1) To study the occurrence of neoplastic lesions of colorectum during a period of 1-year, (2) to evaluate different histopathological types of tumors of colorectum and staging them based on histopathological examination and clinical correlation, (3) to correlate the various neoplastic types of colorectum in relation to age, sex, family history, and dietary habits of the patient, (4) to compare the various histologic types with data available from other parts of India and also western countries.

Materials and Methods: The material consist of 120 specimens which consist of resected specimens and biopsies of neoplastic lesions of colorectum received in Department of Histopathology in Gauhati Medical College were analyzed with clinical and gross details and histopathological findings. The duration of study is 1 year from April 2014 to March 2015.

Results: Out of 120 specimens received, 61% were resected specimens and 39% were biopsy specimens. Lesions were further divided into benign and malignant lesions. Malignant lesions were a more common than benign lesions. Benign lesions were common in younger age, whereas malignant lesions were commonly seen in the elderly. Age group varies from 4 to 88 years. The majority of cases were seen in the 7th decade of life followed by the 6th decade. Males (66%) were more common affected than females (34%) and male:female ratio was 1.9:1. Overall, adenocarcinoma was the most common neoplastic lesions. Adenoma was the most common polypoidal lesion.

Conclusion: Malignant neoplasm is a more common than benign neoplasm in the colon. The most common neoplastic lesion is the adenocarcinoma of colon.

Key words: Adenocarcinoma, Adenoma, Colon, Neoplasm, Polyp

INTRODUCION

Colorectal cancer (CRC) account for a large proportion of all neoplasm. Epithelial tumors of the colorectum are a major cause of morbidity and mortality worldwide. In general, cancer incidence and mortality rates have been higher in economically advantaged countries.[1]

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CRC is the third most common cancer in men and the second in women worldwide.[2] Cancer of the colon is not a very common disease in our country and the incidence is much lower than in the western world. The incidence in India is about 7/100,000.[3] A great majority (98%) of all cancers in the colorectum are adenocarcinomas. The cause and pathogenesis of colorectal carcinoma are related to both environmental and genetic factors. The most obvious genetic factor is the high predisposition for colorectal carcinoma in patients with familial adenomatous polyposis (nearly 100% by age 50 years).

Overall, about 80% of colonic polyps are adenomatous in type.[4] Hyperplastic and juvenile polyps are the other common forms.

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MATERIALS AND METHODS

This is a cross-sectional observational study. The duration of study is 1 year from April 2014 to March 2015. It was carried out in the Department of Pathology, Gauhati Medical College and Hospital, Guwahati. The ethical approval was taken from the Srimanta Sankardeva University of health sciences Ethical Review Committee. The material for the study consists of resected specimens and biopsies of neoplastic lesions of colorectum. Biopsies of adequate size and from the representative sites were included in the study. Similarly, inadequate biopsies were excluded from the study.

The biopsy specimen obtained in the Department of Pathology was fixed in 10% buffered formalin. Formalin fixed specimens were subjected to detailed gross examination and subjected for histopathological processing and paraffin blocks prepared. Sections were cut at 3-5 μ thickness and stained by hematoxylin and eosin and mounted in DPX. Immunohistochemistry was done in selected case to confirm the diagnosis. The slides thus prepared were then examined under the microscope, and the lesions were diagnosed and classified according to the recent WHO classification.

RESULTS

A total of 120 cases were received out of which 31 cases (25.8%) showed benign tumors and 89 cases (74.2%) were diagnosed to have malignant tumors. A total number of resected specimens were 73 (60.9%) and biopsy specimens were 47 (39.1%). Among the resected specimens 58 were colectomy specimens and 15 were polypectomy. The age ranged from 4 to 88 years (Table 1). Out of these 79 (65.9%) were males and 41 (34.1%) were females.

Malignant Tumors of Colorectum

Age range of malignant tumor was in the range of 15-88 years with a mean age of 56 years (Table 2). A maximum number of tumors were observed between 61 and 70 years of age.

Majority of the patients with CRC were non-vegetarian. Most of the patients consumed bakery items regularly. 20 (22.5%) out of 89 patients has family history of CRC.

Rectum was the common location involved with 23 (25.8%) cases of the total 89 carcinoma of colorectum followed by sigmoid colon with 20 (22.5%) cases. (Table 3)

The most common morphology of tumor was ulceroproliferative, followed by annular type (Figure 1).

Table 1: Age incidence of all 120 cases of neoplastic lesions in present study

Age in years	Number of cases	Percentage
0-10	12	10.0
11-20	5	4.2
21-30	6	5.0
31-40	11	9.1
41-50	17	14.2
51-60	27	22.5
61-70	30	25.0
71-80	9	7.5
81-90	3	2.5
Total	120	100

Table 2: Age and sex incidence of colorectal carcinomas

Age in years	Male	Female	Total
11-20	1	1	2
21-30	3	2	5
31-40	3	1	4
41-50	9	4	13
51-60	15	9	24
61-70	19	11	30
71-80	5	3	8
81-90	2	1	3
Total	57	32	89

Table 3: Location of the tumors of colorectum

Location	Total	Percentage
Caecum	1	1.1
Ascending colon	9	10.1
Transverse colon	10	11.2
Descending colon	8	9.0
Sigmoid colon	20	22.5
Rectosigmoid junction	18	20.2
Rectum	23	25.8
Total	89	100

Table 4: Dukes staging

Dukes stage	Number of cases	Percentage
A	20	34.4
B	22	38.0
C	12	20.6
D	4	7.0
Total	58	100

Patient with lesions in proximal colon mainly presented with pain abdomen, mass per abdomen and anemia. Patients with more distal lesions presented with altered bowel habits, spurious morning diarrhea, and constipation. Patients with rectal lesions mainly presented with bleeding per rectum and mass per rectum.

Of the 89 malignant lesions, 86 were adenocarcinoma, constituting 96.6% of the colon. Two cases were malignant

Table 5: TNM staging

TNM stage	Number of cases	Percentage
O	0	0
I		
A	6	10.3
B	14	24.1
II		
A	22	38.0
B	0	0
III		
A	7	12.0
B	5	8.6
IV	4	7.0
Total	58	100

TNM: Tumor, Nodes and Metastasis

gastrointestinal stromal tumor (GIST) and a single case of non-Hodgkin lymphoma of diffuse large B-cell lymphoma (DLBCL) was found. Immunohistochemistry with CD117 for GIST and CD19 and CD20 were done for DLBCL to confirm the diagnosis.

Histologicaly adenocarcinoma was divided into three groups, based on mucin production and signet ring cell into adenocarcinoma, mucinous adenocarcinoma and signet ring cell carcinoma. In our study total 73 adenocarcinoma, 8 mucinous adenocarcinoma, and 5 signet ring cell carcinoma were encountered. (Figures 2 and 3)

Non mucinous adenocarcinoma was divided into four grades based on degree of differentiation of tumor. Well differentiated adenocarcinoma (38), moderately differentiated adenocarcinoma (26), poorly differentiated adenocarcinoma (9), and undifferentiated adenocarcinoma (0).

Distant metastasis was observed in four cases. Three cases have distant metastasis to liver and 1 has metastasis to liver and lung. Both Dukes staging (Table 4) and Tumor, Nodes and Metastasis (TNM) staging was done for resected specimens of colon.

Polyps of Colorectum

Total 31 polypoidal lesions were encountered in colorectum. Out of 31, 30 were benign, and 1 adenocarcinoma was found to arise in an adenomatous polyp. A maximum number of polypoidal lesions encountered was adenomas, total 20 (64.5%) in numbers. The other polypoidal lesion was juvenile polyp, total 11 (35.5%) in numbers. Among the adenomas 17 (85.0%) were tubular and 3 (15.0%) were villous. Maximum number of cases was seen in age group of 0-10 years. The majority of patients had clinical history of bleeding per rectum.

Majority of the polyps were located in rectum 20 (64.5%) followed by sigmoid colon 8 (25.8%) and descending colon 3 (9.7%).

Figure 1: An annular type of growth in large bowel (adenocarcinoma)

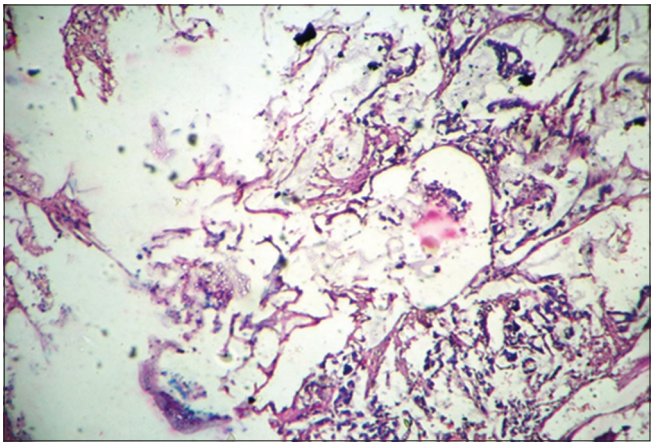

Figure 2: Mucinous adenocarcinoma (H and E, ×10)

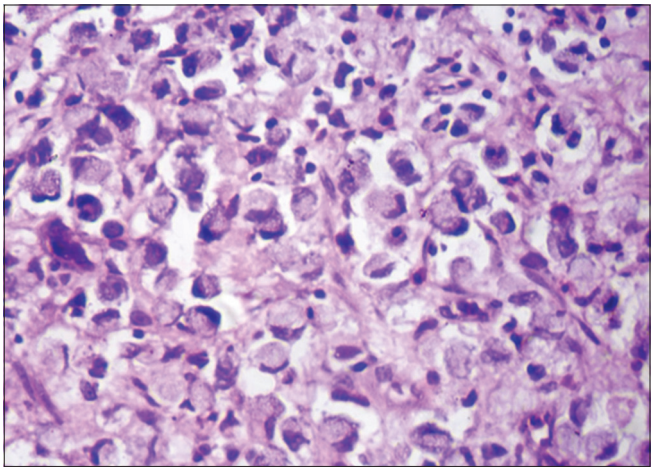

Figure 3: Signet ring cell carcinoma (H and E, ×40)

DISCUSSION

Peak age of incidence of colorectal carcinoma is 61-70 years. Around 27% cases of cancer occur before the age 50.

The risk of CRC increases significantly after the age of 50 years. Age range of malignant tumor was in the range of 15-88 years with a mean age of 56 years. Dakubo *et al.* 2014[5] and Fazeli *et al.* 2007[6] got similar results. The present study shows a higher incidence of malignant lesions than benign lesions. The study shows male preponderance which is compared with other Indian study.[7] Most of the patients in our study were non-vegetarian taking meat frequently. Most colorectal tumors are located in distal colon, mainly in sigmoid colon and rectum, but there is evidence of change in pattern of distribution in recent years, with an increasing proportion of more proximal carcinomas.[8] Ul-Rasool *et al.*,[9] Hamid *et al.*[10] and Abdulkareem *et al.*[11] has similar findings with the present study. Adenocarcinoma was the most common type of malignancy accounting for 96.6% of malignancy which is consistent with findings of other studies.[7,9,11,12] Histological grading of adenocarcinoma varies in different studies. Hamid *et al.*,[10] Abdulkareem *et al.*[11] and the present studies got higher percentages of well differentiated adenocarcinoma where as some got higher percentages of moderately differentiated adenocarcinoma.[9,12] Most of the cases presented in TNM Stage II and only few in TNM Stage IV (Table 5).

The present study shows majority of adenomatous polyps followed by juvenile polyp. The finding is close to Chitale,[13] 2000. No hyperplastic polyp was encountered in the study due to lower number of cases studied. There is higher incidence of tubular adenomas and most of them are pedunculated. Majority of the polyps were located in rectum which is consistent with Jose Tony *et al.* 2007.[14]

CONCLUSION

From the present study it can be concluded that the malignant lesions are more common than the benign lesions in colorectum. Males are the predominantly affected both in benign and malignant lesions. The most common neoplastic lesion is the adenocarcinoma of colon which was seen commonly in 7th decade of life. The most common location was found to be in rectum. The age and sex prevalence, as well as histopathological characteristics, are similar to findings from other parts of the world. -Family history, alcohol, smoking and red meat are the major risk factors associated with intestinal malignancies. The most common polyp found to be adenomatous polyp followed by juvenile polyp which was commonly seen in young age. The most common location was rectum.

The present study has shown malignant lesions of the intestine in many young aged persons. So, any adult with complaints of vague abdominal pain, blood or mucus in the stool or features of hemorrhoids which may herald the onset of CRC should be adequately investigated with digital rectal examination and proctosigmoidoscopy, barium enema and other radiological investigation where appropriate.

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