Original Article

A clinicopathological study of colorectal carcinomas

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Abstract

Objectives: To study the clinicopathological correlation of colorectal carcinoma and its histopathological typing. **Materials and Methods**: Retrospective study of one year duration from Jan 2013-Dec 2013 was done in Yenepoya Medical College Hospital, Mangalore. Hematoxylin and eosin stained slides were retrieved from pathology archives and light microscopic diagnosis and typing was done according to the WHO classification. Correlation was done with the clinical findings obtained from clinical records. Histochemistry and immunohistochemistry were done wherever indicated. **Results**: There were a total of 24 cases of colorectal cancer, majority being adenocarcinomas (87.5%), with age range of 26 to 75 years and almost equal sex ratio. One case was associated with familial adenomatous polyposis coli (FAP). Majority were well differentiated (66.6%) followed by moderately differentiated (28.6%) and poorly differentiated type(4.8%) About 67% of adenocarcinomas occurred in the rectum followed by rectosigmoid junction (17%) and sigmoid colon(8%). Other three rare tumours (12.5%) were neuroendocrine tumour of transverse colon, leiomyosarcoma and mixed adenocarcinoma and neuroendocrine tumour. **Conclusion**: The diagnosis and management of colorectal carcinomas require a team perspective. The pathological assessment of colorectal carcinoma is of critical importance to know the type and extent of tumour, grade and stage, and important prognostic factors, which are of crucial value in patient treatment and predicting the prognosis.

Key words: Colorectal carcinoma, Clinicopathological, Neuroendocrine tumor

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INTRODUCTION

Colorectal carcinoma is the third most common cancer in men and the second in women worldwide. [1]In India though the incidence is low compared to the western countries, a trend of significant increase in the incidence has been observed with urbanization, adoption of western life style and food habits. [2] The incidence of colorectal carcinomas increases with age, it is rare before the age of 40 years except in individuals with genetic predisposition (inherited bowel cancer syndromes) or predisposing conditions such as chronic inflammatory bowel disease. Most colorectal carcinomas are located in the sigmoid colon and rectum, but there is evidence of changing distribution in recent years, with increasing proportion of more proximal carcinomas. Molecular pathology has shown site d ifferences , tumors with high levels of microsatellite instability (MSI-H) or RAS proto-oncogene mutation are most frequently located in the caecum, ascending colon and transverse colon.

MATERIALS AND METHODS

This is a retrospective study done on the specimens received in the department of pathology, Yenepoya Medical College, Mangalore. The study was done for a period of 1 year from Jan 2013-Dec 2013. Relevant clinical information including age, sex, site, size and type of lesion were collected as far as possible. The microscopic features were studied with routine hematoxylin and eosin stained tissue sections and classified according to WHO classification.[3]

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Histochemical study for mucin was done with periodic acid shiffs stain (PAS) wherever necessary. Immunohistochemistry was done for the rare tumors.

RESULTS

There were total 24 cases of colorectal carcinomas, with 4 cases of biopsy specimens and 20 cases of resected specimens. Around 67% of colorectal carcinomas occurred in the rectum followed by other sites (Fig 1)

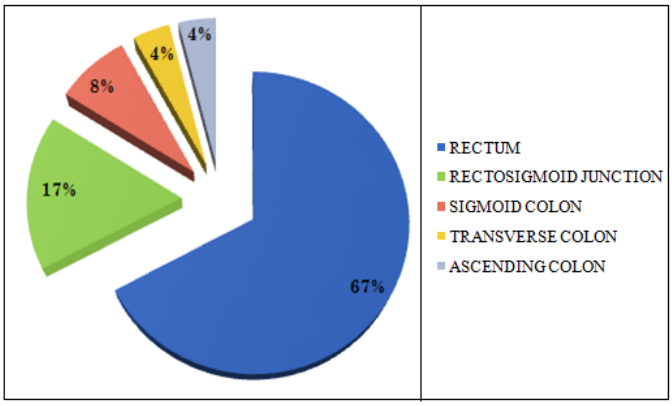

Figure 1: Site distribution of colorectal carcinomas.

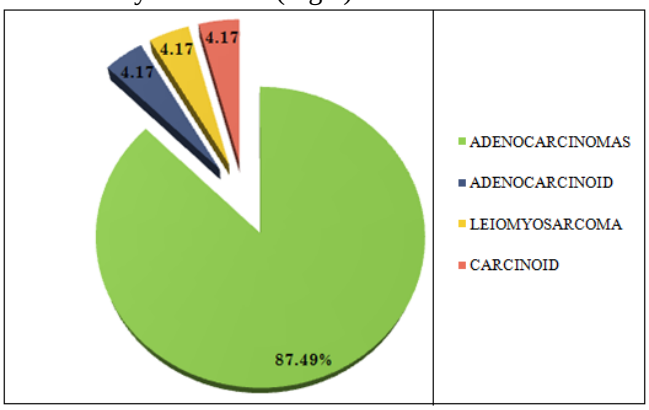

Figure 2: Histopathological types of colorectal carcinomas

The age group ranged from 26-75 years with the mean age of occurrence of 50.5 years. There was a near equal incidence of colorectal carcinoma in both sexes. In our series most of the cases presented with abdominal pain, and this was the commonest clinical presentation (41%), followed by altered bowel habits like constipation or diarrhea (38%), blood in stools (17%) and one case which presented with abdominal mass(4%). On comparing the site and the clinical presentation, abdominal pain was the relatively common symptom at all sites and predominant symptom in right colon while most of the left colon and rectal cases presented with altered bowel habits and blood in stools. Tumor configuration was mostly related to the site of the tumor. In our series, out of the 20 cases of resected specimens, 12 cases were from rectum and most cases were ulceroproliferative. In rectosigmoid junction and sigmoid colon, most cases were ulcerative followed by exophytic growth and one with annular/ napkin ring like configuration. In right colon, the growth was exophytic. In our study 87.5% of the tumors were adenocarcinomas out of which majority were adenocarcinomas-NOS type accounting for 81%, followed by three cases of mucinous type (15%) and 1 case of signet ring cell type (4%). The remaining 12.5% of tumors were constituted by three rare tumors (Fig 2). One was a neuroendocrine tumour of the transverse colon in a 62 year old male patient, others were leiomyosarcoma of the rectum in a 26 year old female and mixed adenocarcinoma and neuroendocrine tumour in a 56 year old female in the ascending colon. In the adenocarcinoma, well differentiated ones were predominating (66.6% of cases), followed by moderately differentiated and poorly differentiated (Table- 1)

Table 1: Grading of adenocarcinoma

Grades of Adenocarcinoma	Number of cases	Percentage
Well differentiated	14	66.6
Moderately differentiated	6	28.6
Poorly differentiated	1	4.8
Total	**21**	**100**

One case was associated with familial adenomatous polyposis coli (FAP), with adenocarcinoma in the rectosigmoid junction. The patient was a 34 year old female. (Fig 3)

Figure 3

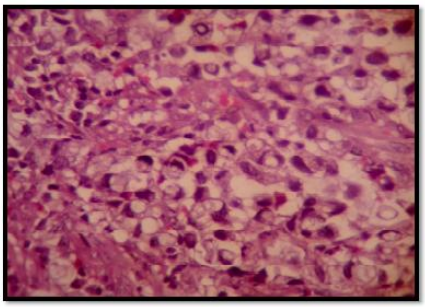

Figure 4a

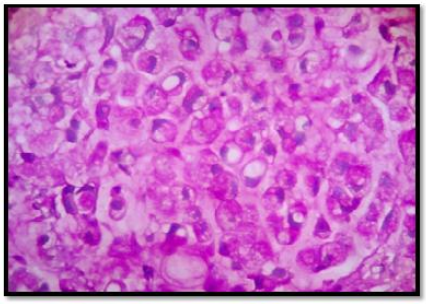

Figure 4b

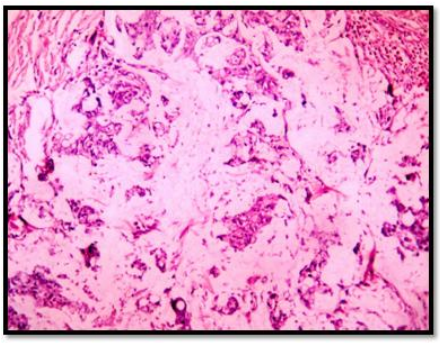

Figure 5

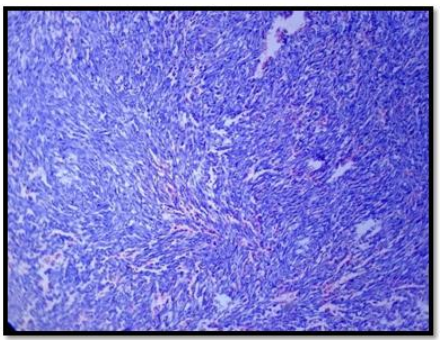

Figure 6

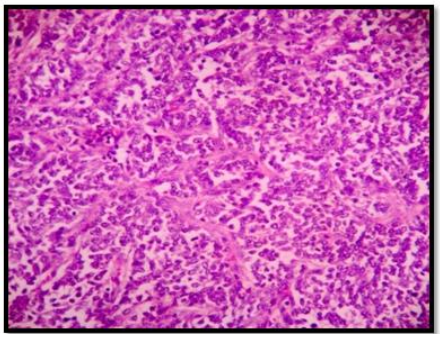

Figure 7a

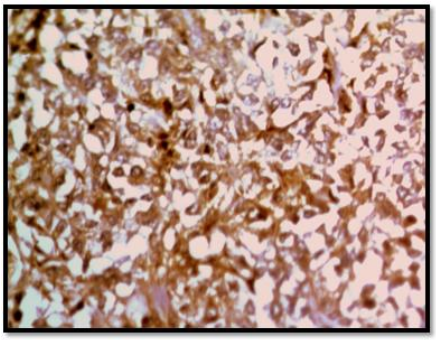

Figure 7b

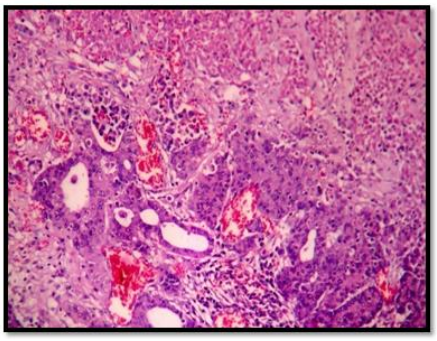

Figure 8a

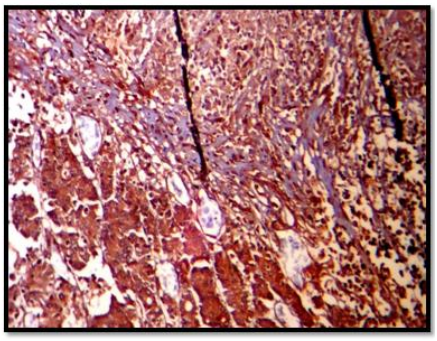

Figure 8b

Legend

Figure 3: FAP associated with rectosigmoid adenocarcinoma; **Figure 4a:** Signet ring carcinoma Hand E 400X**; Figure 4b:** showing PAS positive signet ring cells 400X**; Figure 5:** Mucinous adenocarcinoma H and E 400X; **Figure 6:** showing spindle cells in Leiomyosarcoma H and E 400X; **Figure 7a:** Carcinoid of large bowel showing ribbon pattern Hand E 400X; **Figure 7b:** NSE showing diffuse cytoplasmic positivity in carcinoid colon 400X; **Figure 8a:** Showing glandular and organoid pattern of Adenocarcinoid H and E 400X; **Figure 8b:** NSE strongly positive for Adenocarcinoid 400X.

DISCUSSION

The incidence of colorectal carcinoma increases with age, with near equal incidence in both sexes and most of them occurring in rectum and sigmoid colon[4], but recently changing distribution of site with trend of proximal colon shift has been found especially in young adults.[5] Adenocarciomas are the commonest histological type of all carcinomas. In the present study of 24 cases, mean age group affected was 50.5 years which was comparable to the study done in 2007 by Aljebreen AM[6] on 113 cases with mean age of 55 years. The sex incidence in our study was almost equal in male and female which was comparable to the study done by Shen SS *et al* in 2008[7] on 434 cases. Rectum with 48% cases was the most common site of malignancy followed by sigmoid colon and descending colon in the study done by Aljebreen AM, 2007[6] whereas study done by Shen SS *et al* got a low incidence, with 16% in rectum and 42% cases each in sigmoid and descending colon[7]. Our study with 67% of cases in rectum followed by 17% cases in sigmoid colon (Fig 1)was in comparison to Aljebreen AM study. In study by Aljebreen AM, abdominal pain was the commonest symptom with 68% cases, followed by bleeding per rectum, weight loss, altered bowel habits.[6] In our study 41% cases had abdominal pain followed by altered bowel habits and bleeding per rectum. In the

previous studies adenocarcinoma was the commonest histological type, and moderately differentiated adenocarcinoma was the commonest type in al. In the present study there were 17 cases of adenocarcinoma , 3 cases of mucinous carcinoma (Fig 5) and 1 case of signet ring carcinoma (Fig 4a and 4b), and well differentiated adenocarcinoma was the commonest histological type.(Table 2)

Table 2: Comparison of grades of adenocarcinoma

Histological type	Aljebreen AM	Shen SS *et al*	Present study
Well differentiated adenocarcinoma	24%	8%	66.6%
Moderately differentiated adenocarcinoma	56%	75%	28.6%
Poorly differentiated adenocarcinoma	10%	17%	4.8%
Total	**100%**	**100%**	**100%**

Leiomyosarcoma of the rectum (Fig 6) is a rare disease, corresponding to 0.1 to 0.5% of all malignant tumors of the rectum. The natural history and appropriate treatment protocols have not been well defined due to scarcity of cases.[8] Other rare cases were one was a neuroendocrine tumor of the transverse colon a(Fig 7a,b) and mixed adenocarcinoma and neuroendocrine tumor of ascending colon.(Fig 8a,b). Diagnosis is virtually impossible without proper immuohistochemistry.

CONCLUSION

The diagnosis and management of colorectal carcinomas require a team perspective. A careful gross examination of the specimen and adequate sampling of the tumor is essential. Histochemistry and immunohistochemistry are helpful in addition to the routine Haematoxylin and eosin for proper diagnosis of colorectal carcinomas. Significant advances have been made in the study of colorectal cancer in the past few years with thorough understanding of molecular basis of the disease and adenoma-carcinoma sequence, but pathological assessment of colorectal carcinoma is of critical importance to know the type and extent of tumour, grade and stage, and important prognostic factors, which are of crucial value in patient treatment and predicting the prognosis.

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