

Colorectal cancer: clinicohistopathological study at tertiary care hospital in Western Maharashtra

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Aims and objectives: To study the clinicopathological features of primary colorectal cancer and classify it on histopathology and grading of tumor. **Materials and Methods:** This is retrospective, descriptive, analytical study carried out in the department of pathology at tertiary care hospital in Western Maharashtra. The study period was 5 years from May 2008 to April 2013. **Result:** A total of 217 cases of colorectal lesion were studied. Among these 73 cases (33.64%) were of non-neoplastic lesion, 19 cases (8.75%) were of benign, 125 cases (57.60%) were of colorectal malignancies. The rectum was commonest site of involvement by tumor. Maximum number of cases were observed in the age group of 61-70years of age (27.3%) with slight male predominance (M:F- 1.1:1). Bleeding per rectum was frequently seen clinical manifestation. Left sided colonic malignancy cases were common-89 cases / 125 (71.2%). The most common malignancy was adenocarcinoma which constitute 96 cases (76.8%) followed by mucinous adenocarcinoma 12 cases (9.6%), Signet cell adenocarcinoma 4 cases (3.2%). Among the 96 cases of adenocarcinoma grade I were 36 cases (37.89%), Grade II were 50 cases (52.08%), and grade III were 10 cases (10.52%). **Conclusion:** This study shows colorectal cancer is not an uncommon in this geographic region. The patients were presented at later age, left sided colonic malignancies were more. Bleeding per rectum is frequently seen clinical manifestation. Adenocarcinomas constitute (76.8%) as most common histological type with maximum cases in grade II (52.08%). This analysis suggests the need for patient awareness of this common cancer. Regular mass screening program to be implemented which will help for early detection and treatment of CRC

Keywords: Colon cancer, Adenocarcinoma colon, Histopathology colon

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Introduction

Colorectal carcinoma (CRC) is a relatively uncommon malignancy in India as compare to western world. It is the fourth most common cancer in man and third most common cancer in women worldwide [1, 2, 3]. The incidence and pattern of CRC is variable among the various genetics, geographical and environmental factors [4]. These rates changes with time. The CRC incidence is gradually declining with early detection of precancerous polyps on screening programs.

Materials and Methods

This retrospective study was conducted in the department of Pathology during the period from May 2008 to April 2013 for 5 years. The patients diagnosed to have CRC on histopathology were analyzed for clinical details like age, gender, chief complaints, habits, family history, site of primary tumor and all relevant laboratory and radiological investigations.

Only malignant colorectal cancer where included. Gross and microscopic histopathological study was done. Formalin fixed tissue, paraffin embedded block were used.

Haematoxyline and Eosin stain was used for all.

Other stain like mucicarmin and PAS were used wherever required. The tumors were classified according to WHO classification of colorectal carcinomas.

Results

In the present series 217 cases of colorectal lesions were studied. Among these 73 cases (33.64%) were of non-neoplastic lesion, 19 cases (8.75%) of benign tumor, 125 cases (57.60%) were of colorectal malignancies (Table no 1)

Table No-1: Year wise distribution of cases of colorectal lesions.

Duration(Year)	Non - Neoplastic	Neoplastic		Total cases
		Benign	Malignant	
2008	7	4	29	40
2009	15	6	17	38
2010	13	2	28	43
2011	15	4	14	33
2012	18	3	19	40
2013	5	0	18	23
Total	73(33.64%)	19(8.75%)	125(57.60%)	217

Malignant colorectal lesions was the commonest finding in our study.

Table No-2: The age wise distribution of colorectal cancer cases.

Age at diagnosis	Sex		No of cases
	Male	Female	
21-30	6	6	12
31-40	7	3	10
41-50	7	13	20
51-60	18	14	33
61-70	18	16	34
71-80	7	3	10
81-90	4	2	6
Total	68	57	125

CRC in our study showed the mean age of presentation is 52.5 year.

Table No-3: The sitewise distribution of colorectal cancer.

Site	Adenocarcinoma	Mucinouscarcinoma	SR		NH		GIS		NE		M		SC		U	
			C	L	T	C	M	C	D	C	D					
Caecum	7	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ascendingcolon	20	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transversecolon	4	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Descendingcolon	6	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SigmoidColon	29	1	3	-	2	1	-	-	-	-	-	-	-	-	1	-
Rectum	30	6	1	1	1	4	2	-	-	-	-	-	-	-	-	-
Total cases	96	12	4	1	4	1	4	2	1	1	2	1	-	-	-	-

SRC- signet ring cell carcinoma, NHL- Non Hodgkins lymphoma, GIST- Gastrointestinal Stromal Tumor, NECNeuroendocrine tumor, MM- malignant melanoma, SCC- squamous cell carcinoma, UD- undifferentiated carcinoma. Left sided colonic malignancy cases were common, with rectum and sigmoid colon being the common sites.

Table No.-4: Clinical presentation of colorectal carcinoma.

Clinical presentation	No. of Cases	Percentage
Bleeding Per Rectum	45	36
Change in bowel habits	17	13.6
Tenesmus	10	08
Pain in abdomen	23	18.4
Pain in abdomen, Vomiting	6	04.8
Bleeding PR, Change Bowel Habbit	6	04.8
Bleeding PR,pain abdomen	18	14.4
Total	125	100%

We observed that, bleeding per rectum was the commonest clinical presentation.

Table No.-5: Various histopathological types of colorectal carcinoma and its age wise presentation.

Type of malignancy	Age range (year)	Mean age(year)
Adenocarcinoma	22-85	27.3
Mucin secreting adenocarcinoma	20-70	47.5
Signet ring adenocarcinoma	31-55	39.7
Lymphoma	70	70.0
GIST	45-73	56.2
Neuroendocrine tumor	67	67.0
Malignant melanoma	46-85	66.5
Undifferentiated	46	46.0
SCC	50-65	57.5

Mean age of presentation of adenocarcinomas was at 27.3 year, which is earlier than other histological types.

Table No.-6: Colorectal carcinoma histopathological grades of tumor.

Histopathological Type	Grade I	Grade II	Grade III	Total
Adeno carcinoma	36	50	10	96
Mucinous adenocarcinoma	3	8	1	12
Signet ring adenocarcinoma	-	-	4	4
Squamous cell carcinoma	2	-	-	2

Our study showed majority of cases in Grade II.

Discussion

CRC represents 9.4% of all incidental cancers in men and 10.1% in women [5]. Approximately 1,48,300 new cases detected per year and about 56,600 deaths account for 10% of all cancer related deaths in the United States[6]. Colorectal cancer is a major cause of mortality and morbidity throughout the world [6]. Striking geographical differences in incidence have been listed. It is higher in United states, Eastern European countries, Australia and New Zealand, while lower in Africa, India, South America and China [7]. Dietary factors play important role for occurrence of CRC [8]. It is well known fact that the excess of red meat intake, excessive consumption of refined carbohydrates, animal fat diet, lack of physical activity low fruits and vegetable intake are potential risk factor for CRC [9,10]. It is also proved that CRC arises from preexisting adenomas, inflammatory bowel diseases, diverticular diseases, family history and genetic risk.

CRC in our study showed the mean age of presentation is 52.5 year. With maximum

Number of cases in age group of 61 – 70 years with male predominance. The study by Ayyub M et al [11], Mahmood Q et al [12] ensures similar trend. Incidence of CRC rises sharply and shows 90% of cases occurring more than the age of 50 year [13, 14]. The incidence of CRC rises with age. The average age of patient is about 60 years.

Bleeding per rectum was the commonest clinical presentation (36%) noted in our study. The study by Mohsin-ul- Rassol et al [15] observed similar presentation. Left sided colon involvement was seen in majority of our patients (89%). Similar findings were observed by Alljebreen Am et al [16], Gul J. et al [17].

In our study, 96 cases (76.8%) showed adenocarcinoma on histopathological examination. It is observed that glandular neoplasm of colorectum representing 98% of colonic cancer [18]. The various subtypes and uncommon variants have been recognized like mucinous, serrated, signet ring cell, micropapillary, clear cell, etc.

The Colorectal adenocarcinomas are graded into Grade I, II and III (well, moderately and poorly differentiated adenocarcinoma). Our study shows majority of cases in Grade II constitute 50 cases (52.08%). The study by Alljebreen AM et al observed similar findings [16].

The prognosis of CRC depends on variable features like location of tumor, extent of bowel involvement, histologic grade of tumor, evidence of metastasis and stage of disease. The reported incidence of mortality to CRC worldwide is approximately half that of the incidence. The overall 5 year survival rate is 90% for cancer detected at localized stage, while 10% for patient diagnosed at distant metastatic stage [19].

Rarely synchronous malignancies or coexistence of other diseases like tuberculosis should be carefully looked for prognosis [20]. With excellent access, improved diagnostic techniques, mass screening programs, and modern treatment plans patient's survival can be improved.

Conclusion

Our study analysis showed colorectal carcinoma are most commonly seen in age group of 61–70 years. The adenocarcinoma is the most common histological tumor type. Left sided

Colonic involvement is frequently noted. Most of patients diagnosed at our tertiary care hospital reported at advanced grade of tumor. With the application of existing knowledge about colorectal cancer, mass screening programs for early detection of lesion and prompt treatment can substantially reduce the mortality and morbidity of CRC.

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