



## Study Of Colorectal Malignancy Pattern & Its Clinical Outcome

**Dr. A. Mohideen Abdul Kadar**

Medical Superident I/C, Government Medical College, Nagapattinam

**\*Corresponding Author:**

**Dr. A. Mohideen Abdul Kadar**

Medical Superident I/C, Government Medical College, Nagapattinam

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### Abstract

**Introduction:** Colorectal carcinoma remains a leading cause of morbidity and mortality in many developed countries. The scene is much worse in third world countries like India due to the absence of screening programs and basic tests like occult blood in stool, the disease is often diagnosed late in course of the disease, and hence the outcome is very poor. In India, the incidence of colorectal carcinoma is low, compared to the western world. Colorectal carcinoma is an eminently curable disease, provided that is detected at an appropriate stage and treated adequately. Early diagnosis is, therefore, the key to success with this disease. In India, most of the patients present at an advanced stage due to the absence of screening programs and lack of investigation facilities and because of illiteracy, especially in rural areas.

**Aim Of The Study:** To study the risk factors which predispose to colorectal carcinoma. To study the histological and morphological types of colorectal carcinoma in admitted patients. To review the methods of management of colorectal carcinoma in our hospital and outcome.

**Materials And Methods:** The study includes 55 histologically proven cases of carcinoma of the large intestine (colorectal carcinoma) that were admitted to the Department of surgery, at Government medical college, nagapattinam during the periods of 3 months from May 2021 to October 2021 those were admitted and treated in the various units of this hospital. Thorough evaluation of these patients was done clinically, radiologically and other relevant investigations were done to arrive at a confirmatory diagnosis. Those patients who did not undergo any definitive line of management like surgery (or) investigations were excluded from our study. Most of the patients were treated surgically. The various modalities and factors involved in etiopathogenesis, disease presentation, and treatment about prognosis and morbidity profile of the patients with colorectal carcinoma were analyzed.

**Results:** The commonest sign was anemia. A palpable mass was present in 31% of our patients. 7 patients (12.72%) were admitted as an acute emergency with intestinal obstruction. The most common site of the tumor which produced intestinal obstruction was the sigmoid colon and rectosigmoid (57.14%). The common macroscopic type of carcinoma was ulcerative type and the microscopic type was moderately differentiated adenocarcinoma.

**Conclusion:** This study involves a very small subset of patients with colorectal carcinoma. The peak incidence of colorectal carcinoma in our region is in the fifth decade. According to the western study reports the peak incidence is in the seventh decade. Our study revealed a male preponderance with a male to female ratio of 1.2:1. High intake of a fatty diet, smoking, and alcoholism among the male population increase the risk of colorectal carcinoma in our region. In our study, most of the patients were diagnosed in the late stage of the disease. The commonest clinical symptom was bleeding per rectum which was correlated with other studies

**Keywords:** Colrectal Cancer, Intestinal Obstruction, Adenocarcinoma, H Plyroi Infection

## Introduction

Colorectal cancer (CRC) is the third most commonly diagnosed cancer among men and women in the United States [1, 2]. Though colon and rectum cancer is often referred to as colorectal cancer, they are distinct disease entities. They have a different inherent prognosis, a different potential for treatment response (and indeed different standard treatment options), and may have different metastatic patterns [3]. Previous studies had generated insight into metastatic patterns and showed that different primary cancers tended to metastasize with different frequencies and to different sites [4, 5]. At the time of diagnosis, about 20% of CRC patients have already developed metastatic diseases [6]. It is well known that the most common metastatic site for CRC patients is the liver, followed by the lung [4, 7, 8]. Several clinical studies regarding CRC have already demonstrated that there are differences in metastatic patterns between colon and rectum cancer. A nationwide retrospective review of 5,817 pathological records of CRC patients showed that rectum cancer patients more often had metastasis at extra-abdominal sites while patients with colon cancer had a higher rate of abdominal metastasis [5]. A review of autopsy data from patients who died from colorectal cancer shows that the liver is the only site of metastatic disease in one-third of patients. Studies of selected CRC patients undergoing surgery to remove liver metastases have shown that cure is certainly attainable in this population [9]. Therefore patients diagnosed with potentially resectable metastatic CRC should ideally undergo an upfront evaluation by a multidisciplinary team to maximize the curative potential [10-12]. Thus it is crucial to exclude extrahepatic (or extra-pulmonary) metastasis before local treatment. A clear understanding of the metastatic pattern and distribution becomes especially important. In this Surveillance, Epidemiology and End Results (SEER)-based study, we compare the metastatic pattern of colon and rectum cancers. Moreover, we analyze the distribution of metastatic site(s) for these patients.

## Materials And Methods

The study includes 55 histologically proven cases of carcinoma of the large intestine (colorectal carcinoma) that were admitted to the Department of surgery, at Government medical college,

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## Pathology

Commonest site of tumour is the rectum(38%), followed by the sigmoid colon(21%), the caecum(12%), the rectosigmoid junction(7%), the transverse colon(5.5%), the ascending colon(5%), the descending colon (4%), the splenic flexure(3%) and the hepatic flexure(2%). Macroscopic appearance: Macroscopically carcinoma of the large intestine belongs to 4 types, 1. Proliferative (or) fungating (or) cauliflower 2. Ulcerative 3. Annular 4. Tubular. About 2/3 of the tumors are ulcerating and 1/3 are fungating. Right-sided cancers are usually proliferative. Left-sided cancer tends to grow in an annular fashion. Microscopic Appearance: The major histologic type of large bowel cancer is adenocarcinoma, which accounts for 90% to 95% of all large bowel tumors. It is the only histologic type further classified by grade, and several histologic types of the large bowel. Colloid (or) mucinous adenocarcinoma represents about 17% of large bowel tumors. Rare signet-ring cell carcinoma accounts for 2 to 4% of mucinous carcinomas. Some signet-ring tumors appear to form a linitis plastica type tumor by spreading intramurally, usually not involving the mucosa. Other rare variants of epithelial tumors

include squamous cell carcinomas and Aden squamous carcinomas, sometimes called adenocanthomas. Undifferentiated carcinomas include carcinoma simplex, medullary carcinoma, trabecular carcinoma. Carcinoid tumor - 4% to 17% appear in the rectum. 2 – 7% may appear in the colon. Other tumors are leiomyosarcoma, (accounts for 0.1 to 0.3%), lymphoma, melanomas, and unclassified tumors.

**Statistical Analysis**

The patients’ demographic and tumor characteristics were summarized with descriptive statistics. Comparisons of categorical variables among different groups of patients were performed using the Chi-square test, and continuous variables were compared using Student's t-test. Statistical significance was set at two-sided  $P < 0.05$ .

**Table :1 Age & Sex Incidence**

Age in years	Incidence		Total	Percentage %
	Male	Female		
6-10	0	0	0	0
11-20	0	0	0	0
21-30	1	2	3	5.45
31-40	5	6	11	20
41-50	3	10	13	23.63
51-60	10	3	13	23.63
61-70	7	4	11	20
71-80	4	0	4	7.27
81-90	0	0	0	0
91-100	0	0	0	0

Table :1 In males, peak incidence was between 51 – 60 years of age. In females, the peak incidence was 41 – 50 years. The reported study shows the peak incidence between 41-50 & 51 – 60 years of age. In our study of fifty-five patients, the youngest one was 25 years old male patient and the oldest one was eighty years old. Irrespective of pathology the maximum incidence occurred between the age of 41-50 & 51 – 60 years. Colorectal carcinoma is more common in males than women. In our series, out of 55 cases male to female ratio is 1.2:1, being 30 males and 25 females. The slight high incidence among males is probably due to increased association with a high-fat diet, smoking, and alcohol consumption compared to females.

**Table:2 Clinical Presentation**

Sl.No.	Symptom	No. of Cases	Percentage %
1.	Bleeding PR	34	61.81
2.	Pain Abdomen	29	52.7
3.	Altered bowel habits	29	52.7
4.	Loss of appetite weight	20	36.36
5.	Swelling in the abdomen	13	23.63

6	Others	12	21.81
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Table:2 In our study apart from the acute cases, bleeding per rectum is seen in 34 patients, pain abdomen in 29 patients, altered bowel habits in 29 patients abdominal swelling in 13 patients loss of appetite, and weight in 20 patients and others (12 nos).

**Table :3 Signs of the colorectal carcinoma**

Signs	No. of Cases	Percentage %
Anemia	44	80
Mass abdomen	17	31
Abdominal Distension	15	27.27

Table :3 The most important signs of colorectal carcinoma are anemia, mass abdomen, abdominal distension, and ascites. In our study, most of the patients were anemic (44 patients). Abdominal mass was palpated in 15 patients including hepatomegaly in 2 people, abdominal distension was present in 12 patients including ascites in 2 patients

**Table:4 Intestinal obstruction according to the site of the tumour are as follows:**

Site	No. of cases	Percentage %
Sigmoid Colon	2	28.57
Rectosigmoid	2	28.57
Rectum	1	14.28
Transverse colon	1	14.28
Descending Colon	1	14.28

Table:4 Out of 7 intestinal obstruction patients, one had intestinal perforation with fecal peritonitis.

**Table:5 Site of the tumour**

Site of Tumour	No. of cases	Percentage %
Rectum	24	43.63
Trans colon inc hepatic&splenic flexure	11	20
Caecum	7	12.72
Sigmoid	5	9
Ascending Colon	5	9
Recto sigmoid	2	3.6
Descending colon	1	1.8

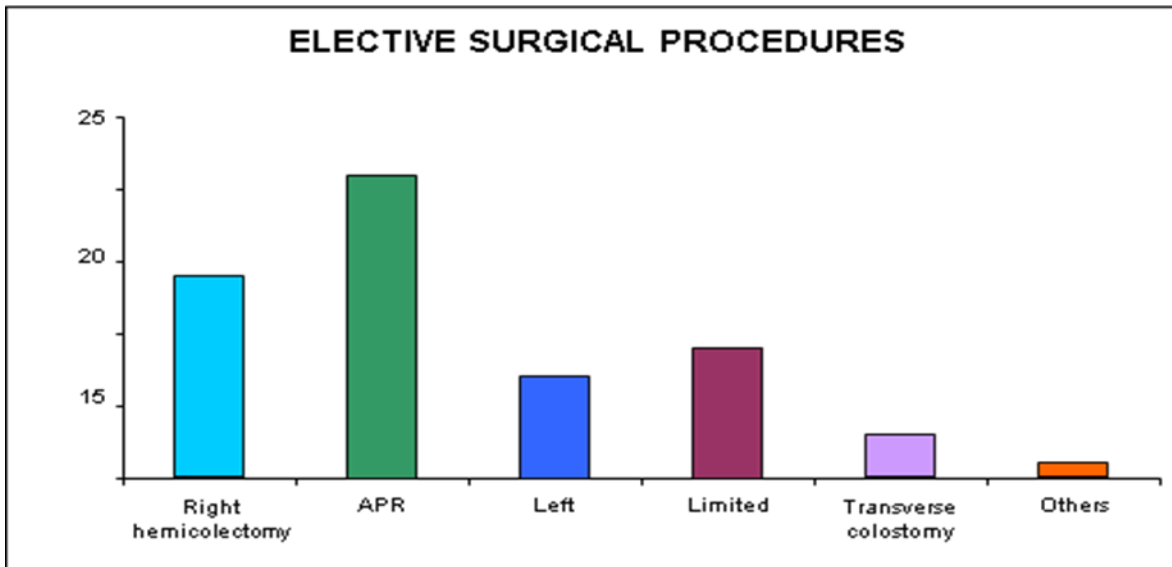
Table:5 In our study, the most common site of the tumor is the rectum (24 patients), followed by the transverse colon including hepatic & splenic flexure(11 patients), the caecum (7 patients), the ascending colon & sigmoid (every 5 patients), the rectosigmoid (2 patients)and the descending colon (1 patient).

**Table:6 differentiatIon degree**

Differentiation Degree	No.	Percentage %
Well-differentiated	6	10.9
Moderately differentiated	37	67.27
Poorly differentiated	12	21.81

The major histological type of colorectal carcinoma is adenocarcinoma. In our series of 55 cases, all cases were proved as adenocarcinoma in various differentiations. Out of 55 adenocarcinomas, 37 were moderately differentiated adenocarcinoma, 6 were well-differentiated adenocarcinoma, and 12 were poorly differentiated adenocarcinoma.

**Graph :1 Elective Surgical Procedures**



Graph :1 In our series, curative surgical procedures like right hemicolectomy, left hemicolectomy, extended right and left hemicolectomy, anterior resection, abdominoperineal resection, and various anastomoses were done for 47 patients. Palliative surgical procedures were done for 4 patients and a biopsy was taken for 1 patient

**Discussion**

As for the metastatic patterns of colon and rectum cancers, we reaffirm that both colon and rectum cancer predominantly metastasize to the liver. Moreover, colon cancer patients presented with liver metastasis more often, whereas rectum cancer patients presented with lung and bone metastasis with relatively higher frequency. This was consistent with previous reports that colon cancer patients present with abdominal metastasis more often, while rectum cancer patients present more frequently with extra-abdominal metastatic sites [13]. Although the brain is an extra-abdominal organ, there is no difference in the rate of brain metastasis between colon cancer and rectum cancer in our study, while other reports showed a higher risk of brain metastasis in patients

with primary rectum cancer [14]. Previous studies have reported that the incidence rate of brain metastasis in CRC patients ranges from 1-3% [15]. However, metastasis to the brain is most commonly a late-stage phenomenon [16], whereas our study only assessed patients with synchronous metastasis. The rate of brain metastasis is extremely low at the time of diagnosis, only 0.2% in this dataset. Moreover, we found that left colon cancer patients had a higher incident rate of metastasis to the liver, lung as well as bone than right colon cancer patients. More and more studies have indicated that right- and left-sided colon cancers should not be regarded as a single entity. They are significantly different regarding epidemiological, clinical, and histological parameters [17]. One study by Yamauchi M *et al.* reported 17,641 patients with colon cancer and found that

hepatic and pulmonary metastasis were more frequently found in those with left-sided colon cancer. This is consistent with our data [18]. We also found that African-American patients had a higher risk of lung and liver metastasis. Lee GH UR et al. demonstrated that a greater proportion of African American patients presented with metastatic disease than Caucasian or Asian people [19], but they didn't mention the detailed metastatic sites. Of note, we found that uninsured patients had more metastasis to the liver, lung, and bone than insured patients. Unmarried patients had more metastasis to the liver and lung than married patients. Previous studies showed that spouses might provide social support and encourage the patients to seek medical treatment [20]. Knowledge of differences in metastatic patterns may be useful in making diagnostic and treatment decisions. Since liver and lung metastasis are most common, current guidelines suggest that regular imaging of these sites should be maintained, such as computed tomography (CT) or Magnetic Resonance Imaging (MRI). However, in the case of unusual lesions or with specific symptoms, imaging of other sites should be employed, especially for rectum cancer patients who have a higher risk of extra-abdominal metastasis or for left-side colon and Africa American patients who have a higher overall risk of metastasis.[21]There are few reports about the combination of metastasis in CRC patients. In Aizer AA study, they analyzed different metastatic patterns among different histological types and found that adenocarcinoma patients exhibited the highest percentage of liver metastasis compared with mucinous adenocarcinoma and signet-ring cell carcinoma [22]. We found that around 10% of colon cancer patients and 7% of rectum cancer patients would have liver-only metastasis at the time of diagnosis.

### Conclusion

The commonest clinical symptom was bleeding per rectum which was correlated with other studies. The commonest sign was anemia. A palpable mass was present in 31% of our patients. 7 patients (12.72%) were admitted as an acute emergency with intestinal obstruction. The most common site of the tumor which produced intestinal obstruction was the sigmoid colon and rectosigmoid (57.14%). The common macroscopic type of carcinoma was ulcerative type and the microscopic type was

moderately differentiated adenocarcinoma. Emergency surgery was done in 7 patients, 4 patients were expired post-operatively. So the mortality rate in emergency surgery was high. Some of our patients have to travel long distances for chemotherapy and radiotherapy and end up subsequently as defaulters of these adjuvant modalities. So surgery is often the only treatment given. Hence early diagnosis and surgical resection are the best options for better results in our region.

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