

HISTOMORPHOLOGICAL STUDY OF COLORECTAL MALIGNANCIESSarvesh B. M¹, Abhishek M. G²**HOW TO CITE THIS ARTICLE:**

Sarvesh B. M, Abhishek M. G. "Histomorphological Study of Colorectal Malignancies". Journal of Evidence based Medicine and Healthcare; Volume 2, Issue 30, July 27, 2015; Page: 4402-4412, DOI: 10.18410/jebmh/2015/622

ABSTRACT: BACKGROUND: Colorectal cancer is the most common cancer in men and in women worldwide. Incidence rates of colorectal cancer vary 10-fold in both sexes worldwide, Within Asia, the incidence rates vary widely and are uniformly low in all south Asian countries and high in all developed Asian countries. Fortunately, the age adjusted incidence rates of colorectal cancer in all the Indian cancer registries are very close to the lowest rates in the world. The present study is under taken to study the prevalence and types of colorectal cancer among the patients in the rural population in and around Chidambaram. **OBJECTIVES:** To study the prevalence of malignant colorectal neoplasms among the specimens received in the Department of Pathology and the gross and histomorphological pattern of the lesions and finally to correlate the findings with clinical data. **METHOD:** The materials consisted of 68 specimens who were submitted to the Department of Pathology, during the period of Jan 2008-Dec 2012. Data collected and entered in MS-Excel and were analyzed using SPSS-16. **RESULTS:** Out of 8454 colonoscopic specimens, 68(0.8%) showed colorectal malignancy. A higher frequency of colorectal was seen in 6th decade. Out of 68 specimens of malignant neoplasms majority were Carcinoma of the Rectum (79.41%) followed in decreasing order of frequency by malignant lesions of descending colon(8.82%), ascending and Sigmoid colon (4.41% each), recto-sigmoid (2.94%) and cecum (2.63%), and transverse colon (2.63%). Youngest patient was 19 years old and the oldest patient was 80 years old with a mean age of 49.5 years and median age of 50 years. **CONCLUSION:** Colorectal cancer is a common and lethal disease. The adenoma carcinoma. Sequence offers a window of opportunity in which the precursor lesion or early carcinoma can be removed endoscopically to prevent systematic disease. The result of a careful and systematic examination of surgical specimens from patients with tumors of the colon plays an important role in patient care and the assessment of prognosis.

KEYWORDS: Colonoscopic biopsy, Colorectal carcinoma, Adenocarcinoma.

INTRODUCTION: Colorectal cancer is the third most commonly diagnosed cancer and also the third leading cause of cancer death in both men and women in United States of America.^[1] Colorectal cancer is the third most common cancer in men (663,000 cases, 10.0% of the total cancers) and the second in women (570,000 cases, 9.4% of the total cases)worldwide.

The incidence of colorectal cancer vary considerably throughout the world being one of the leading cancer sites in developed countries.^[2] Carcinoma of large bowel is common in Northwest Europe, North America and other Anglo-Saxon areas and low in Africa, Asia and parts of South America.^[3]

These colorectal neoplasms remain asymptomatic for years. Symptoms develop insidiously and therefore go undetected for long periods. Caecal and other right sided lesions most often

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present with fatigue, weakness due to iron deficiency anemia. Left sided lesions present with occult bleeding, change in bowel habits.^[4]

Surgical resection is the primary treatment for colorectal cancer and pathologic assessment of the specimen provides data that is essential for patient management such as the estimation of post-operative outcome and rationale for adjuvant therapy. The essential elements of the pathologic assessment of colorectal cancer resection specimens include the pathologic determination of TNM stage, tumour type, histologic grade, status of resection margins and vascular invasion.^[5]

Pathologic assessment of the colorectal carcinoma resection specimen, the gold standard for assessment of tumor stage and stage-independent morphologic features, such as vascular/lymphatic invasion, influences treatment strategies for the individual patient, such as the decision to offer adjuvant therapy after surgery is of critical importance.^[6]

The present study is under taken to study the prevalence and types of colorectal cancer among the patients attending Hospital catering mainly to the rural population in and around Chidambaram.

METHODS: The present prospective and retrospective histomorphological study is a study included colorectal biopsies and resected specimens with a clinical diagnosis of colorectal neoplasm which were received in the Department of Pathology during the study period of 5 years from January 2008 to December 2012.

Relevant clinical data was collected from the case files of the patients in the Medical Records Division.

The specimens were received in 10% formalin. Gross appearances of the specimens such as size, location, and appearance on cut section were recorded.

The sections of 3-5 micron were prepared and stained with Haematoxylin and Eosin stain. All lymph nodes isolated were subjected for histopathological examination.

The slides were examined by the pathologist of the department and reports were dispatched. Biopsy of adequate size and from represented sites was included in the study. Inadequate biopsies were excluded.

RESULTS: A total of 8454 surgical specimens were obtained during the Five year study period.

Anatomical site	Cases
Cecum	1
Ascending colon	3
Transverse colon	1
Descending colon	4
Sigmoid colon	3
Rectosigmoid	2
Rectum	54
Total	68

Table 1: Shows the various anatomical location of tumors

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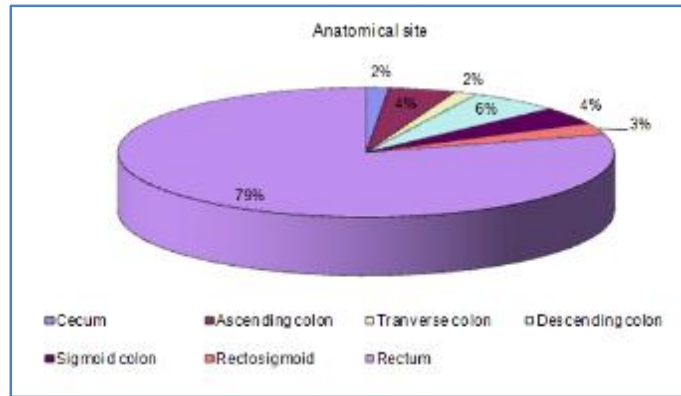


Fig. 1: Distribution of colorectal malignancies based on anatomical location

Age and Sex Incidence: In the present study youngest patient was 19 years old and the oldest patient was 80 years old with a mean age of 49.5 years and median age of 50 years. Maximum prevalence was seen in 6th decade followed by 5th decade, there was a slight male predominance in the 6th decade. Of the 68 specimens males and females both had 34 cases each, so equal incidence was seen in either sex in the present study.

Age group (In years)	Men	Women	Total
10-20	1		1
21-30	1	3	4
31-40	2	7	9
41-50	9	10	19
51-60	12	10	22
61-70	8	3	11
71-80	1	1	2
Total	34	34	68

Table 2: Colorectal Malignancy-Age and Sex Incidence

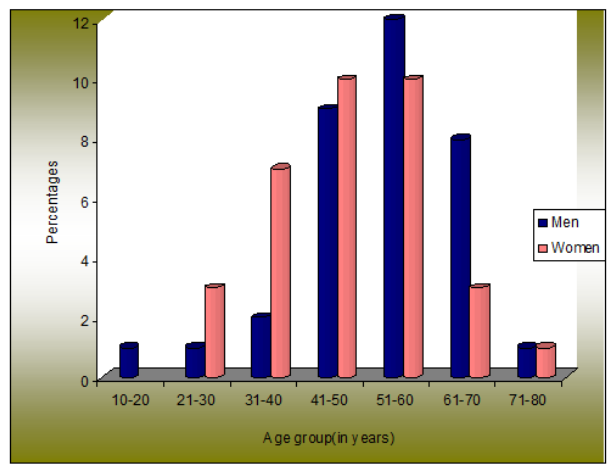


Fig. 2: Age incidence of colorectal malignancy

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Clinical Presentation: Bleeding per rectum was most common presenting symptom in cases of Carcinoma rectum and pain abdomen in cases of Carcinoma colon. A few patients of Carcinoma rectum complained of mass descending through anus during defecation.

Complaints	Men	Women	Cases
Bleeding per rectum	21	20	41
Mass descending through anus	4	3	7
Pain while defecation	2	3	5
Abdominal distension	1	1	2
Intestinal obstruction	1		1
Pain in anal region		1	1
Pain abdomen	5	5	10
Mass abdomen		1	1
Total	34	34	68

Table 3: Colorectal Malignancies – Clinical Presentation

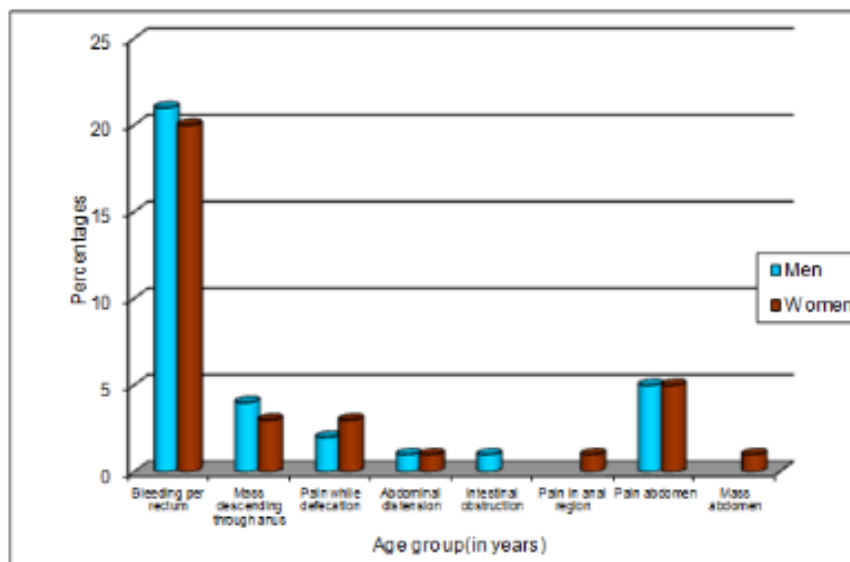


Fig. 3: Clinical presentation of colorectal malignancies

ON EXAMINATION: Among 54 cases of rectal carcinoma details of rectal examination were available for 45 cases. Majority had a hard mass in the rectum followed by Ulceroproliferative pattern of growth.

Findings	Cases
Fissure in ano	1
Circumferential/Annular growth	11
Hard mass felt	18

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Ulceroproliferative lesion	12
Mass descending through anus	2
Ulcerative lesion with haemorrhoids	1
Total	45

Table 4: Colorectal Malignancy – Per Rectal Examination

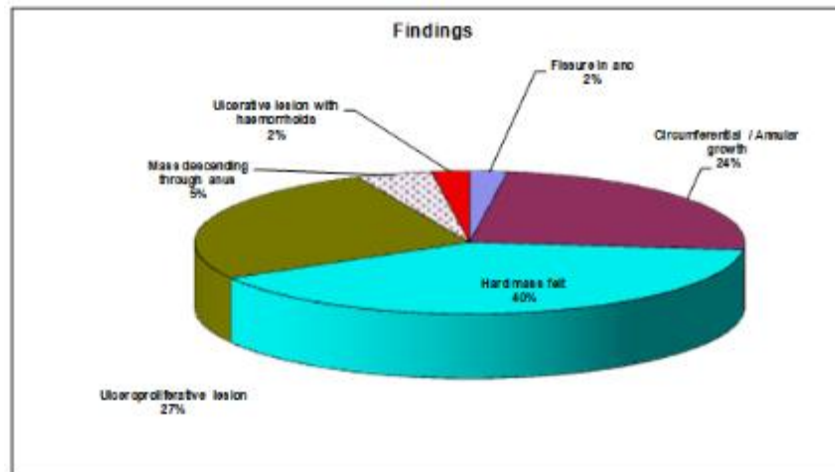


Fig. 4: Per rectal examination findings in Colorectal malignancy

PATTERN OF GROWTH: Ulceroproliferative pattern was the dominant pattern seen in the gross specimens. Structural type of growth was seen in the sigmoid colon.

Pattern of growth	Cecum	Ascending Colon	Transverse Colon	Descending Colon	Sigmoid colon	Rectum	Cases
Proliferative	2						2
Ulcerative						2	2
Ulcerative with stricture					2		2
Ulceroproliferative		2	1	4	2	11	20
Polypoidal						2	2
Polypoidal with stricture					1		1
Annular growth					1	2	3
Total	2	2	1	4	6	17	32

Table 5: Pattern of Growth In Gross Specimens

Histomorphological Patterns: Adenocarcinoma was the major type of carcinoma arising in the colorectal region (65 cases). There were 2 cases of well differentiated adenocarcinoma arising in a rectum. There were 2 cases of poorly differentiated carcinoma and a single case of cloacogenic carcinoma in the rectum.

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Histomorphology	Rectum	Colon	Cases
Adenocarcinoma	50	13	63
Adenocarcinoma in Villo adenomatous Polyp	2	0	2
Poorly Differentiated Carcinoma	2	0	2
Cloacogenic carcinoma	1	0	1
	55	13	68

Table 6: Histomorphological Variants

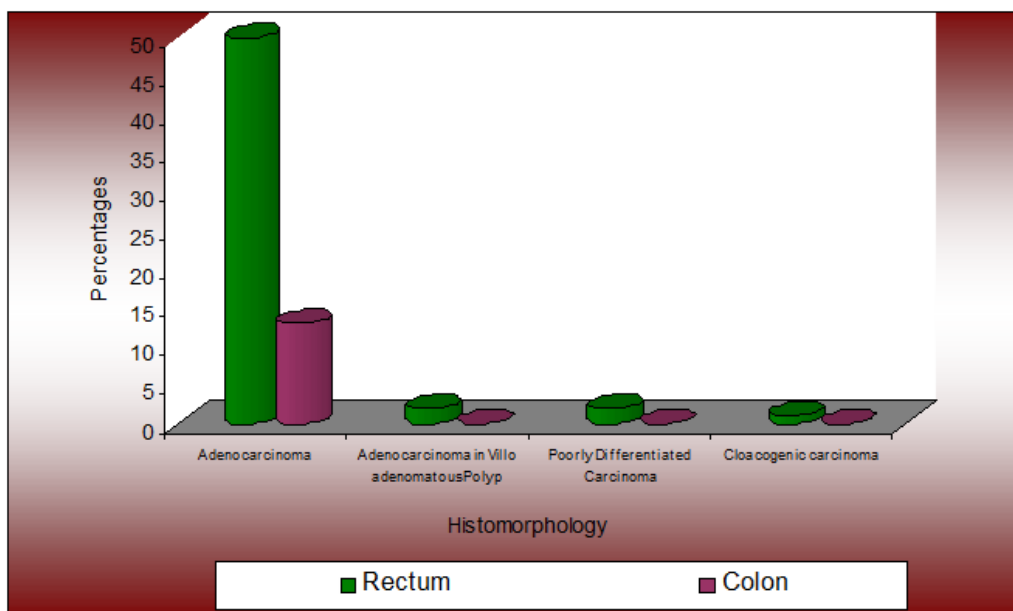


Fig. 5: Histomorphological patterns in colorectal malignancy

GRADING: Based upon degree of differentiation the lesions of adenocarcinoma can be graded as well differentiated, moderately differentiated and poorly differentiated. Majority of tumours in the colorectal region 42(64.6%) were well differentiated.

Differentiation	Rectum	Colon	Total
Well	35	7	42
Moderate	7	5	12
Poor	10	1	11
	52	13	65

Table 7: Colorectal Adenocarcinoma – Grading

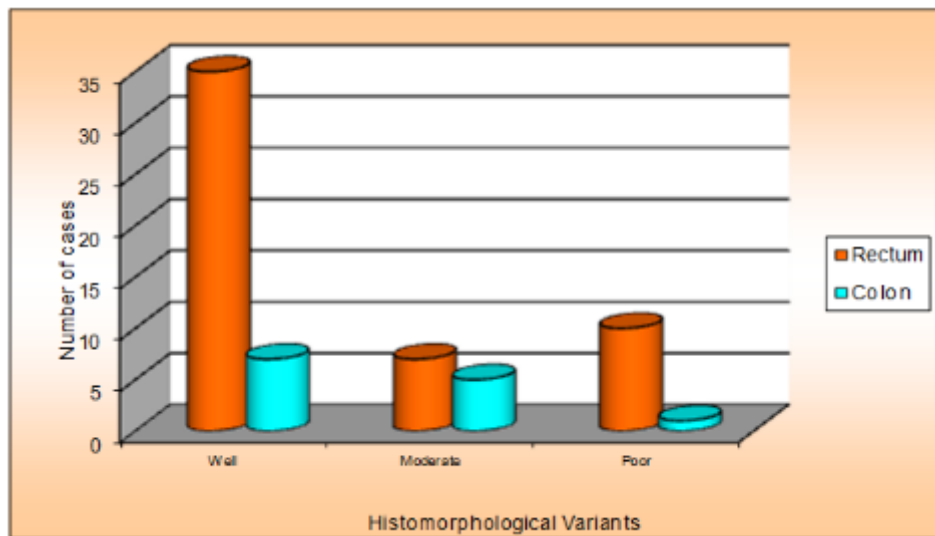


Fig. 6: Classification of adenocarcinoma in the colorectal region based on differentiation



Fig. 7: Ulceroproliferative growth in the descending colon

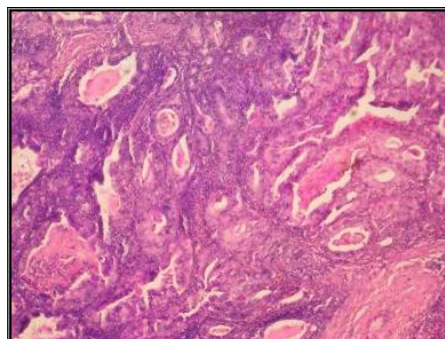


Fig. 8: A-Well differentiated adenocarcinoma of Rectum 20X (H & E)

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DISCUSSION: Age: Peak incidence of colorectal carcinoma is 60 to 79 years, fewer than 20% of the cases occur before age 50.^[4] Age incidence in various studies ranged from 10-95years.^[7,8,9,10,11,12] Findings of present study is comparable with that of Fazeli et al(2007)^[9] and Abdul kareem et al(2008)^[9]

Sex Incidence: Males are affected slightly more often than females. Male to female ratio is 1.2:1 for the lesions in rectum, while there is no gender difference for more proximal cancers.^[4] A male predominance is seen in most of the studies.^[7,8,9,10,11,12,13,14]

In the present study the male to female ratio was 1:1 for all colorectal neoplasms which is similar to studies by Fazeli Sm et al(2007)^[9], Mostafa G et al(2004)^[13] and and Parsons et al(2007)^[14]

Clinical Presentation: Symptoms are common and prominent in subject presented lately and the prognosis is poor but is less common and less obvious early in the disease. Common symptoms include abdominal pain, rectal bleeding, altered bowel habits, and involuntary weight loss. Although colon cancer can present with either diarrhea or constipation, a recent change in bowel habits is much more likely to be from colon cancer than chronically abnormal bowel habits. Less common symptoms include nausea, vomiting, anorexia, and abdominal distention.^[15]

Rectal bleeding was the commonest presentation in various studies ^[14,15,16,17,18] (Ranging from 29.24%-58%) which was also the case in the present study(60.29%).

LOCATION: Most colorectal carcinomas are located in the Sigmoid colon and rectum, but there is evidence of changing distribution in the recent years with an increasing proportion of more proximal carcinomas.^[2]

In studies by Abdul Kareem FB et al(2008),^[13] Phillip L Chalya (2013)^[12] incidence of malignancy was highest in the rectosigmoid region. Most common site in the present study was rectum followed by ascending colon which is similar to studies by Osime, Morgan and Gorguis(1982).^[19]

Histomorphological Pattern: Adenocarcinoma was the most common type of malignancy encountered in the colorectal region accounting for 95.58% of the tumors, a finding consistent with the studies by various authors.^{[12,13,14,15][19,20]}

Studies	Adenocarcinoma as No. (%)	Squamous Cell ca No (%)	NHL No (%)	Poorly Differentiated No (%)	Others No (%)*	Total
Qizilbash AH (1982) ⁽²⁰⁾	244 (94.9)				13 (5.1)	257
Osime, Morgan, Guirguis (1998) ⁽¹⁹⁾	73(96.05)				3 (3.95)	76
Fazeli SM et al (2007) ⁽⁹⁾	403(96.2)				16(3.8)	419

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Abdul Kareem FB et al (2008) ⁽¹⁰⁾	405(96.4)			15(3.6%)		420
Shyamal Kumar Halder (2013) ⁽¹¹⁾	180(93.8%)	3(1.5%)	6(3.12%)	3(1.5%)		192
Phillipo L Chalya (2013) ⁽¹²⁾	328(98.8%)	1(0.3%)	1(0.3%)		2(0.6%)	332
Present study(2013)	65(95.58%)			2(2.94%)	1(1.47%)	68

Table 8: Incidence of different types of malignant lesions in colon and rectum

NHL = NON HODGKIN'S LYMPHOMA.

*Other histomorphological types included Leiomyosarcoma, Malignant Gastro Intestinal Stromal tumour, Cloacogenic carcinoma.

CONCLUSION: Although Adenocarcinoma was the major type of carcinoma arising in the colorectal region in the developed countries, due to urbanization and change in the life style including food habit of developing countries like India, the incidence of colorectal malignancies has increased considerably. The careful and systemic examination of the resected specimen plays an important role in the diagnosis, staging and management of the disease. Our study indicates equal sex incidence and more towards right. It is thus important to investigate further regarding the genetic and other environmental factors for increase occurrence of colo rectal malignancies.

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Date of Submission: 06/07/2015.
Date of Peer Review: 07/07/2015.
Date of Acceptance: 10/07/2015.
Date of Publishing: 24/07/2015.