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Spectrum of Colorectal Cancers in a Tertiary Care Centre-A Clinico-Pathological Correlation

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Abstract
Introduction: *Large intestine is affected by various types of lesions, both non-neoplastic and neoplastic. Due to vague symptoms, the clinical diagnosis is usually delayed. Colorectal cancer is the third leading cancer worldwide, accounting for approximately 9% of all cancers. A set of laboratory tests including biopsy is essential to arrive at a specific diagnosis for appropriate management.*
Aims and Objectives: *The aim of this study is to find out the site wise distribution of colorectal tumours and to study the clinical profile and histopathology of various lesions.*
Materials and Methods: *This two years study was done in Department of Pathology, Dr SCGMC Nanded from 2015-2017 which included biopsies and resected specimens of large intestine and Anal canal. All tissues were fixed in formalin, stained with H&E and special stains like Periodic Acid Schiff (PAS), Reticulin, Zeihl Neelsen (ZN) were done as and when required.*
Results: *Out of 37 malignant lesions, 13 cases(35.0%) were Well differentiated Adenocarcinomas, 10 cases (27.1%)were Moderately differentiated Adenocarcinomas, 01 case (02.7%) was Poorly differentiated, 05 cases (13.6%) were Mucin secreting Adenocarcinomas and 01 case(02.7%) was Signet ring cell carcinoma. The most common histological grade in the present study was well differentiated Adenocarcinoma.*
Conclusion: *Adenocarcinomas are the most common malignant lesions of colon in our study. As there is increasing incidence of malignancies early diagnosis by endoscopic biopsies in clinically suspicious patients is recommended for good management.*
Keywords: *Adenocarcinoma, Colon, Rectum, Histopathology, Malignant lesion.*

Introduction

Colorectal cancer is the third leading cancer worldwide, accounting for approximately 9% of all cancers. The large intestine and Anal canal are sites for broad array of non- neoplastic and neoplastic diseases, which at times, can lead to serious complications. They can be sites for infections, vascular disorders, ulcers, various inflammatory conditions and neoplasms[1]. Adenocarcinomas are the commonest malignancies arising in the colorectal region, other being carcinoid, anal zone carcinoma & melanoma.

Both macroscopic and microscopic appearance when correlated with clinical data helps in a definitive diagnosis of the lesion, which helps in early treatment and better outcome of the patient.

The present study was conducted to study the large intestinal malignant lesions including Anal canal, correlate them with clinical data.

Aims and Objectives

1. To find out the site wise distribution of colorectal tumours at Government Medical College.
2. To study the clinical profile and histopathology of various lesions.

Material and Methods

The present study included histopathological examination of surgical specimens and biopsies of colorectal lesions at Department of Pathology, Government Medical College, Nanded for a period of 2 years.

Brief clinical data were noted from the case records, which included the age and sex of the patients, relevant habits if any, presenting symptoms, operative findings and diagnosis. Whenever both biopsy and resected specimens were available, it was considered as a single case.

The surgical specimens and biopsies were fixed in 10% buffered formalin. Gross examination of the specimens was done, for assessing appearance and extent of lesion. Sections for histology were taken from tumour, non-neoplastic mucosa, proximal and distal lines of resection, other grossly abnormal areas, appendix (in case of colectomy) and lymph nodes.

Sections were processed for histopathological study. They were stained by routine hematoxylin and eosin stain for basic study of lesion. Based on its histomorphology, Special stains like Periodic acid Schiff (PAS) and Reticulin were performed wherever necessary. The clinical and histological data so obtained were analyzed. The lesions were diagnosed as per WHO classification of tumors.

Results

During the study period, thirty seven biopsies and resected specimens were examined histologically with assessment of clinical data.

Table No.1: Sex wise distribution of colorectal malignancies

Site	Sex	Total
	Male Female	
Colon	10(60.0%) 06(40.0%)	16(100.0%)
Rectum and anal canal	14(66.7%) 07(33.3%)	21(100.0%)
Total	24(64.9%) 13(3	37(100.0%)

Sixteen cases of colon cancers were found. It was slightly more common in Males with M:F ratio of1.6:1.Cancers of rectum and anal canal has also male preponderance and M:F ratio being 2:1.

Table No.02: Relationship of habits with colorectal tumours

Site	Betelnut		Smoking		Alcohol	
	Male	Female	Male	Female	Male	Female
Colon	02	03	07	-	06	-
Rectum and anal canal	04	02	09	-	08	-

Out of 37 (24 males and13 females) patients with colorectal cancers 11 (29.7%) were betelnut chewers, 16 (43.2%) were smokers and 14 (37.8%) consumed alcohol.

It was seen that habits like smoking and alcohol were seen exclusively in males while betelnut chewing was seen in almost equal proportions in males and females.

Table No.03: Presenting signs and symptoms of cancers of colorectal cancers.

Signs and Symptoms	No.of cases	Percentage
Pain in abdomen	12	75.0%
Altered bowel habits	11	68.7%
Palpable lump/growth	09	56.2%
Weight loss	08	50.0%
Blood stained stools	06	37.5%
Malena	04	25.0%

Table No.04: Site wise distribution of colorectal cancers

Site	No.of cases	Percentage
Caecum	06	16.3%
Appendix	01	02.7%
Ascending colon	01	02.7%
Hepatic flexure	01	02.7%
Transverse colon	02	05.4%
Splenic flexure	01	02.7%
Descending colon	02	05.4%
Sigmoid colon	02	05.4%
Rectosigmoid	03	08.1%
Rectum	16	43.2%
Anal canal	02	05.4%
Total	37	100.0%

Left sided malignancies had higher frequency than right side in the present study. Cancer of rectum was commonest amongst all colorectal cancers.

TableNo.05: Gross features of colorectal cancers

Gross features	No. of cases	Percentage
Exophytic	20	54.0%
Endophytic	13	35.2%
Annular	03	08.1%
Polypoid	01	02.7%
Total	37	100.0%

In the present study, exophytic growth was seen in more than half of all cases and least common was polypoid type of growth.

Table No.06: Histopathological diagnosis of colorectal and anal canal cancers

Histopathological diagnosis	No.of cases	Percentage
Adenocarcinoma:		
- Well differentiated	13	35.0%
- Moderately differentiated	10	27.1%
- Poorly differentiated	01	02.7%
Mucinous adenocarcinoma	05	13.6%
Signetring cell carcinoma	01	02.7%
Squamous cell carcinoma	03	08.1%
Undifferentiated carcinoma	01	02.7%
Non-Hodgkin'slymphoma	02	05.4%
Carcinoid	01	02.7%
Total	37	100.0%

Adenocarcinoma constituted most of colorectal cancers (64.8%) in present study. Amongst all adenocarcinomas, well differentiated type was commonest type observed in the present study.
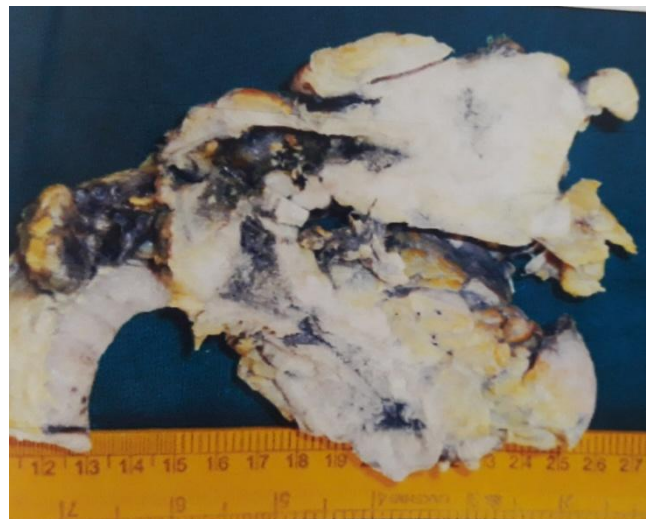

Fig 1: Gross appearance of exophytic carcinoma of colon showing grayish white tumour mass
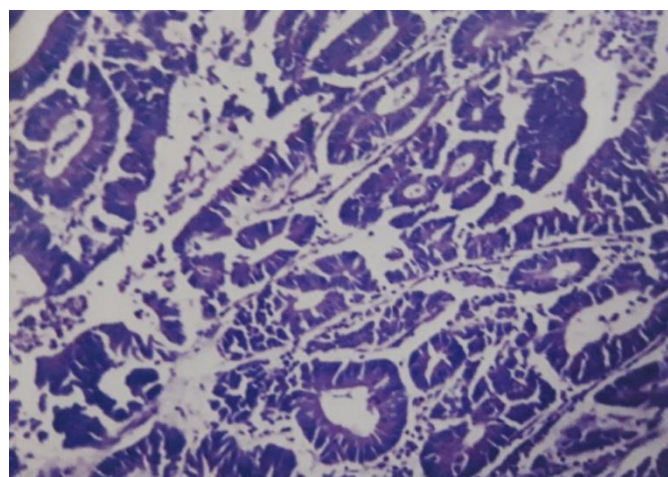

Fig 2: Well differentiated tubular adenocarcinoma of colon showing orderly well formed glands and basally placed nuclei without stratification (H&E,10X)
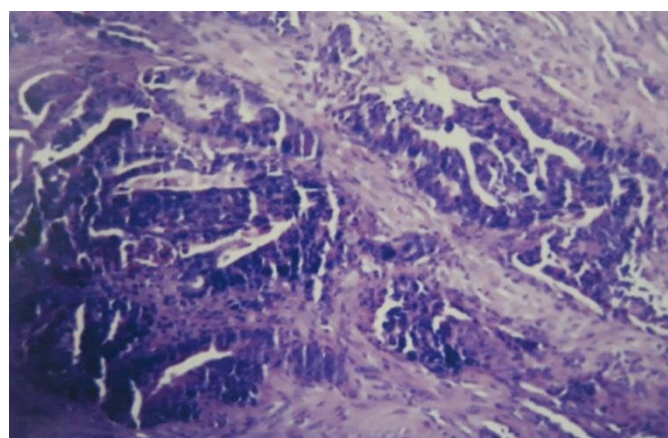

Fig 3: Moderately differentiated tubular adenocarcinoma of colon showing gland formation with focal cribriform areas lined by pleomorphic tumour cells (H&E ,10X)
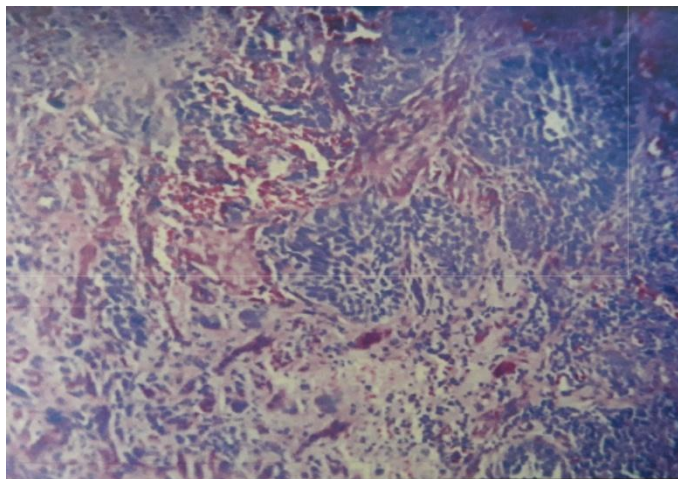
Fig 4: Undifferentiated carcinoma of colon composed of sheets of tumour cells with focal necrosis and no evidence of gland formation (H&E,10X)

Fig 5: Gross appearance of mucinous adenocarcinoma of colon. The tumour is extremely large and has a homogenous gelatinous appearance.
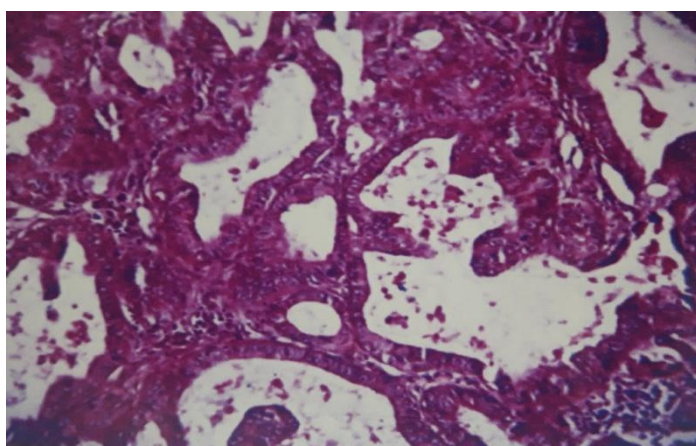

Fig 6: Mucinous adenocarcinoma of colon showing tumour cells floating within the extracellular pools of mucin (H&E,10X)

Discussion

Colorectal cancer is the third prevalent cancer in men and women. Although distributed worldwide, incidence is higher in industrialized and western countries.

Meat consumption, smoking alcohol consumption, ulcerative colitis, Crohn's disease, therapeutic pelvic irradiation all increases the risk of colorectal carcinomas. Inverse associations include vegetable consumption, prolonged use of non steroidal anti-inflammatory drugs, physical activity and oestrogen replacement therapy.[2]

Carcinomas are rare before the age of 40 years except in individuals with genetic predisposition or predisposing conditions[3]. It is inherited in 5% of cases.[4] Haematochezia and anaemia, diarrhea in case of right sided lesion and constipation, abdominal distension, tenesmus, weight loss, fever, and abdominal pain are the presenting symptoms in left sided lesion,. Most colorectal carcinomas are located in the sigmoid colon and rectum.

Adenocarcinoma is the commonest malignant tumor of the colon and rectum. The rising trend in incidence and mortality from colorectal cancer is more striking in affluent than in poorer societies and differs substantially among ethnic groups. Although, changes in lifestyle and dietary habits are believed to be the reasons underlying the increase, the interaction between these factors and genetic characteristics might also have a pivotal role. Colorectal cancer is generally a disease affecting individuals, 50 years of age or older.[5]

Histological grade of tumor

In the present study, out of 37 malignant lesions, 13 cases(35.0%) were Well differentiated Adenocarcinomas, 10 cases (27.1%) were Moderately differentiated Adenocarcinomas, 01 cases (02.7%) were Poorly differentiated, 05 cases (13.6%) were Mucin secreting Adenocarcinomas and 01 cases (02.7%) were Signet ring cell carcinomas. The most common histological grade in the present study was well differentiated Adenocarcinoma.

Our study is in accordance with the study series of Laishram et al[6] and Chaitanya et al[7] where in the most common histological grade was well differentiated adenocarcinoma. Our finding was similar to Shah and Wani[8] in their study of 107 cases of colorectal carcinoma found that 72% of cases were of well-differentiated type while mucinous carcinoma constituted 20% of the cases. Left sided colon cancers were more commonly observed than Right sided cancers in various studies. Of all colorectal cancers, cancer of rectum showed highest frequency i.e.43.2% in the present study, which is in accordance with the studies of Mc Swain et al[9] and Falter manetal.[10]

In the present study, exophytic carcinomas were the commonest type seen in 54.0% cases, followed by endophytic 35.2%, annular 8.1% and polypoid 2.7% cases. Frequency of exophytic and endophytic growths matches approximately well with study of Ahmadetal[11].

Conclusion

This study concludes that various types of lesions occur in the colon affecting the persons from early childhood to late adulthood. Most of the lesions present vaguely which prevent their early diagnosis and treatment leading to grave complications. So this study emphasises the need for early diagnosis of the disease through histopathology, which when correlated clinically will help the surgeon/clinician to implement the appropriate treatment and improve the survival of the patients.

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