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## A Morphological Study Of Colorectal Neoplasms: Observational Study.

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### ABSTRACT

The incidence of colorectal neoplasms in India is historically low but has shown an alarming rise in recent studies. This morphological study conducted at the Central Diagnostic Laboratory focused on colorectal biopsies. Epithelial lesions predominated, constituting 97.1%, with colorectal neoplasms presenting clinical features such as bleeding per rectum, altered bowel habits, and intestinal obstruction. Males exhibited a higher prevalence (72.4%) than females (27.6%), with a M:F ratio of 2.6:1. Both benign and malignant neoplasms showed a male preponderance, with the rectum being the most common site. Notably, rectal malignant neoplasms exceeded benign neoplasms (50.7% vs. 43.8%). The study underscores the need for targeted diagnostic interventions and preventive measures, especially in males and the rectum. The balance between biopsies and resections emphasizes the pivotal role of initial biopsies in guiding subsequent therapeutic decisions. This comprehensive analysis focus light on the evolving landscape of colorectal neoplasms in India, necessitating a holistic approach to their management.

**Keywords:** Colorectal neoplasms, epithelial lesions, morphological study.

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## INTRODUCTION

The incidence of colorectal adenomas and malignancies are low in India [1]. Colorectal carcinomas predominate over benign tumors. Colorectal cancer is one of the most common forms of gastrointestinal malignancies and the third leading cause of cancer related death in the world [2]. Colorectal cancer account for approximately 9.4% of total worldwide cancer cases [3]. The incidence of colorectal neoplasms are low in India when compared to western countries but recent studies show that the incidence rates are rising where rates were previously low which is highly alarming [4].

Colorectal neoplasms show wide geographic variation which may be attributed to both environmental and genetic factors. A high incidence of colorectal cancer is observed in population who followed a western type diet rich in animal fat combined with a sedentary lifestyle. Environmental factors like obesity, meat consumption, smoking, alcohol consumption was identified as modifiable risk factors [4].

The incidence of Colorectal cancers in India is about 7/100000 [5]. Compared to the western world the incidence rates of colorectal cancer are low in India; for colon cancer they vary from 0.7 to 3.7/100000 among men and 0.4 to 3/100000 among women, and for rectal cancer from 1.6 to 5.5/100000 among men and 0 to 2.8/100000 among women [6].

## METHODOLOGY

The study was conducted at the Central Diagnostic Laboratory at A.J Institute of Medical Sciences and Research Centre, Mangalore. The research comprised both retrospective and prospective components, with a retrospective analysis covering two and a half years, followed by a two-year prospective study. The primary objective of the investigation was to undertake a descriptive study focusing on colorectal biopsies and specimens referred to the laboratory for histopathological evaluation during the specified period.

The sample size for the study included fifty cases that met the inclusion criteria. All colorectal biopsies for tumors and colorectal tumor resection specimens referred to the Central Diagnostic Laboratory during the study period were considered. Exclusion criteria were established for colorectal specimens received for non-neoplastic conditions such as inflammatory and ischemic conditions. The data collected underwent thorough statistical analysis, with clinical findings, age, sex, clinical presentation, site, operative findings, gross features, histologic subtypes, lymphovascular invasion, TNM staging, grading of tumors, and lymph node involvement being among the parameters examined. The information was meticulously gathered from requisition forms, medical records, histopathology reports, and direct examination of hematoxylin and eosin-stained slides.

In the process of data analysis, a detailed procedure was followed. The clinical details and pathological findings were entered into a data collection proforma sheet. The data underwent comprehensive descriptive analyses, and the results were tabulated using MS EXCEL. Relevant statistical tests were applied as needed, and the findings were presented in the form of tables, graphs, and figures, providing a comprehensive overview of the collected data.

## RESULTS

Epithelial lesions formed the major portion of study with total 102 cases out of 105 accounting for 97.1% of all cases, followed by 1.91% of mesenchymal (2 cases of GIST) and 0.95% of neuroendocrine tumor (1 case of NET).

Patients of colorectal neoplasms presented with clinical features like bleeding per rectum, altered bowel habits, intestinal obstruction, pain & palpable mass, and pallor.

The most common clinical feature was bleeding per rectum in 37 out of 105 cases, accounting for 35.2% irrespective of the type of growth, i.e. benign or malignant, followed by altered bowel habits in 31 cases (29.5%), intestinal obstruction in 10 cases (9.5%) and pallor in 15 cases (14.3%).

Colorectal neoplasms were more common in males (72.4%) as compared to females (27.6%) with M:F ratio of 2.6:1.

Benign neoplasms showed male preponderance (71.90%) in the present study. Gender distribution of benign colorectal neoplasms depicted in figure 4.

Malignant neoplasms too showed a male preponderance (72.60%) with M:F ratio of 2.6:1.

The commonest site of benign as well as malignant colorectal neoplasms in the study was rectum. Rectum was the site in 50.7% cases of malignant neoplasms and 43.8% cases of benign neoplasms. Thus malignant neoplasms were more common than benign neoplasms in rectum.

**Table 1: Occurrence of colorectal neoplasms during study period**

	Neoplasms of organs/tissue	Colorectal Neoplasms	Percentage (%)
<b>Benign neoplasms</b>	524	32	6.1%
<b>Malignant neoplasms</b>	1086	73	6.7%
<b>Total</b>	1610	105	6.5%

**Table 2: Types of colorectal biopsies/ specimens received during study period**

BIOPSIES	RESECTION	TOTAL
68 cases (64.8%)	37 cases (35.2%)	105 cases (100%)

**Table 3: Proportion of different types of epithelial lesions**

Primary epithelial lesions	No of cases	Percentage
Carcinomas	70	68.6%
Adenomas	21	20.6%
Polyps (Juvenile & Hyperplastic)	11	10.8%
Total	102	100%

**DISCUSSION**

A morphological study of colorectal neoplasms reveals a substantial prevalence of epithelial lesions, accounting for 97.1% of the cases studied. The dominance of epithelial lesions, comprising carcinomas, adenomas, and polyps, signifies the significance of exploring the morphological aspects of these lesions in the colorectal region.

The clinical presentation of colorectal neoplasms in the study cohort is characterized by various features, with bleeding per rectum being the most common (35.2%). This emphasizes the importance of recognizing and addressing rectal bleeding as a key indicator for further investigation. Altered bowel habits and intestinal obstruction follow closely, underlining the diverse ways in which colorectal neoplasms manifest. Pallor, though less prevalent, highlights the potential systemic impact of these lesions.

The gender distribution reveals a higher incidence of colorectal neoplasms in males, with a notable M:F ratio of 2.6:1. This male preponderance is consistent across both benign and malignant neoplasms. The prevalence of colorectal neoplasms in males may prompt further research into potential gender-specific risk factors and screening strategies.

The anatomical site distribution of benign and malignant colorectal neoplasms indicates the rectum as the most common location, with 50.7% of malignant cases and 43.8% of benign cases occurring in this region. This finding suggests a higher susceptibility of the rectum to neoplastic growth, with malignant neoplasms being more frequent than benign ones. Further investigation into the factors influencing the predilection of colorectal neoplasms for the rectum could provide valuable insights [6, 7].

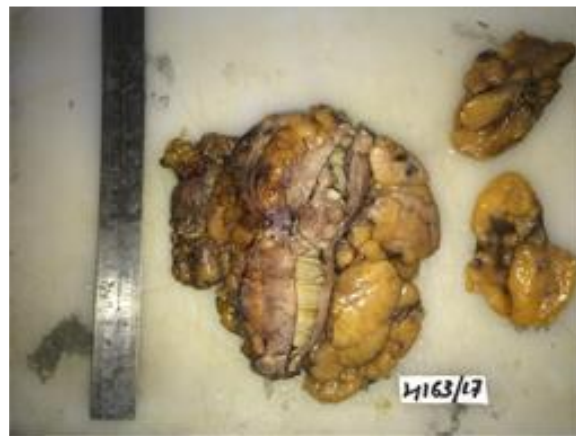
Examining the overall occurrence of colorectal neoplasms during the study period, benign neoplasms constitute 6.1%, while malignant neoplasms account for 6.7%. This suggests a relatively balanced distribution between benign and malignant lesions, emphasizing the clinical significance of both categories.

The types of colorectal biopsies and specimens received during the study period indicate a prevalence of biopsies over resections, with 64.8% of cases undergoing biopsy and 35.2% undergoing resection. This distribution underscores the importance of diagnostic biopsies in the initial assessment of colorectal neoplasms [8].

Focus into the proportion of different types of epithelial lesions, carcinomas emerge as the predominant subtype, constituting 68.6% of primary epithelial lesions. Adenomas and polyps (Juvenile & Hyperplastic) contribute 20.6% and 10.8%, respectively. The predominance of carcinomas underscores the aggressive nature of these lesions, necessitating thorough diagnostic and therapeutic approaches.

### CONCLUSION

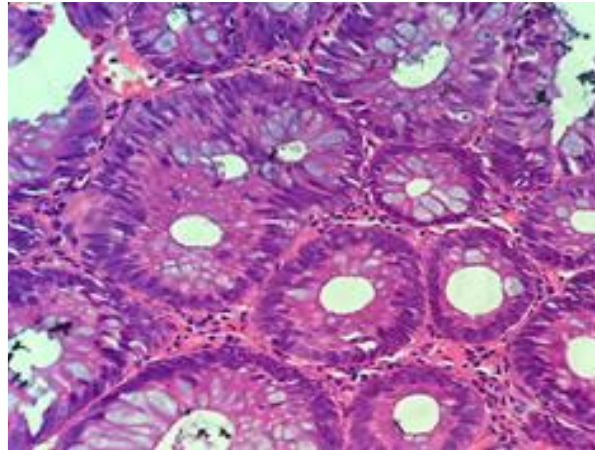
In conclusion the morphological study of colorectal neoplasms highlights a comprehensive understanding of their clinical and anatomical characteristics. The predominance of epithelial lesions, particularly carcinomas, emphasizes the need for targeted diagnostic and therapeutic interventions. The gender disparity in incidence, with a male preponderance, warrants further investigation into potential contributing factors. The prevalence of colorectal neoplasms in the rectum highlights the importance of focused screening and preventive measures in this specific anatomical region. The distribution of benign and malignant neoplasms underscores the clinical significance of both categories, necessitating a holistic approach to their management. The balance between biopsies and resections in diagnostic procedures highlights the critical role of initial biopsies in guiding subsequent therapeutic decisions.



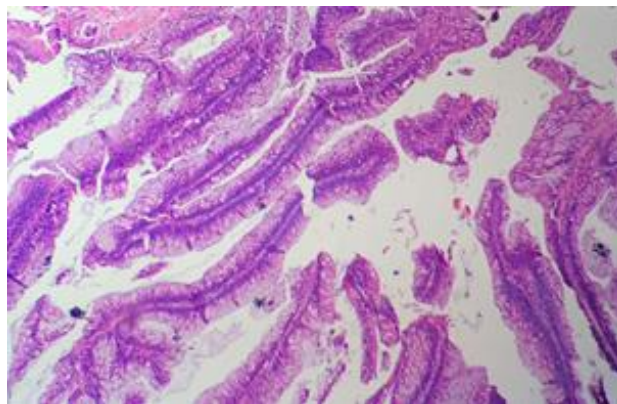
**Figure 1: Tubulovillous Adenoma Rectum Showing A Polypoidal Growth**



**Figure 2: Adenocarcinoma-Rectum Showing An Ulceroproliferative Growth**



**Figure 3: Tubular Adenoma (H&E, 40x)**



**Figure 4: Villous Adenoma (H &E, 10x)**

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