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Clinical presentation and management patterns of colorectal malignancy: A prospective observational study

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Abstract

Background: Colorectal malignancy remains a major cause of cancer burden worldwide. Early diagnosis significantly improves outcomes; however, late presentation is common in low-resource settings.

Aim: To evaluate clinical presentation, diagnostic characteristics, and management outcomes of colorectal malignancy in patients presenting to a tertiary care center.

Methods: This prospective observational study was conducted in the Department of General Surgery, GSL Medical College, Rajahmundry, from October 2019 to May 2020. Consecutive patients aged ≥18 years with suspected colorectal cancer were evaluated through detailed clinical history, physical examination, colonoscopy with biopsy, and imaging. Tumors were staged using AJCC TNM classification, and management decisions were made based on operability and disease stage. Treatment modalities included curative resection, diversion procedures, and chemoradiotherapy for rectal malignancies. Early postoperative complications and in-hospital outcomes were recorded.

Results: Of 72 patients, most presented with altered bowel habits (66.7%) and rectal bleeding (56.9%). Colon was the predominant tumor site (62.5%). Majority presented with Stage III (37.5%) or Stage IV disease (27.8%). Curative surgery was performed in 54.2%, while 19.4% required palliative procedures. Postoperative complications occurred in 23.6%, and mortality was 5.6%.

Conclusion: Most patients presented with advanced disease, emphasizing the need for early diagnosis, improved awareness, and strengthened multidisciplinary care.

Keywords: Colorectal malignancy, Clinical presentation, Study, Management outcomes, Tertiary care center

Introduction

Colorectal malignancy is one of the most prevalent gastrointestinal cancers worldwide and remains a major contributor to cancer-related morbidity and mortality. Its burden is rapidly increasing in low- and middle-income countries due to changes in lifestyle, dietary patterns, and improved diagnostic capabilities. Early clinical presentation is often subtle, and many patients present with advanced-stage disease because symptoms such as altered bowel habits, anemia, abdominal pain, or rectal bleeding are commonly overlooked or attributed to benign conditions. Recent evidence highlights the significant variability in tumor biology, anatomical distribution, and symptomatology across populations, emphasizing the need for region-specific clinical evaluations and management strategies. Enhanced awareness and early recognition of clinical features significantly improve

prognosis, especially when combined with timely colonoscopy, imaging, and risk-stratified diagnostic approaches [1–3].

Management of colorectal malignancy depends on tumor stage, patient comorbidities, and institutional resources. Advances in minimally invasive surgery, neoadjuvant chemoradiotherapy, and targeted systemic therapy have transformed outcomes, reduced recurrence and improving survival. Despite these developments, many patients in resource-limited settings continue to face diagnostic delays and suboptimal treatment access. Evaluating patterns of presentation, diagnostic timelines, therapeutic choices, and outcomes is crucial for identifying gaps in local healthcare delivery. The aim of this study is to assess the clinical presentation, diagnostic profile, and management outcomes of colorectal malignancy among patients presenting to our tertiary care center, thereby generating evidence that may guide early detection strategies, optimize treatment pathways, and improve patient survival in this region [4, 5].

Methods

This prospective observational study was conducted in the department of General Surgery, GSL Medical College and General Hospital, Rajahmundry, Andhra Pradesh, from October 2019 to May 2020. All consecutive patients who presented with suspected colorectal malignancy during the study period were evaluated. Patients aged 18 years and above who exhibited clinical features suggestive of colorectal cancer such as altered bowel habits, rectal bleeding, unexplained weight loss, abdominal pain, anemia, or palpable abdominal/rectal mass—were included after providing informed written consent. Patients with recurrent colorectal malignancy, prior colorectal surgery, or incomplete diagnostic workup were excluded. A detailed clinical history focusing on symptom duration, bowel habits, bleeding pattern, family history, dietary habits, comorbidities, and lifestyle factors was recorded. Thorough physical examination, including abdominal palpation and digital rectal examination, was performed for all cases. Baseline hematological, biochemical investigations, and tumor markers such as CEA were obtained. All patients underwent colonoscopy with biopsy for histopathological confirmation, along with imaging studies contrast-enhanced computed tomography (CECT) of abdomen and pelvis, and chest X-ray or CT thorax to assess tumor location, local invasion, nodal disease, and distant metastasis.

All eligible patients were prospectively followed during their diagnostic evaluation and management course. Tumor characteristics including anatomical site (colon vs rectum), tumor size, growth pattern, degree of obstruction, and mucosal appearance were documented. Histopathological examination confirmed the diagnosis and identified tumor type, grade, and margin involvement. Staging was performed based on the American Joint Committee on Cancer (AJCC) TNM classification. Treatment decisions were made by the surgical team in consultation with oncology specialists depending on tumor stage, patient comorbidities, and operability status. Patients with resectable tumors were planned for curative surgery right or left hemicolectomy, anterior resection, abdominoperineal resection, or subtotal colectomy as indicated. Those presenting with advanced or obstructing lesions underwent diversion colostomy or palliative procedures when necessary. Patients with rectal carcinoma in Stage II–III disease were referred for neoadjuvant chemoradiotherapy before definitive surgical intervention.

Postoperative patients were monitored for complications such as surgical site infection, anastomotic leak, ileus, respiratory complications, or septicemia. Length of hospital stay, need for reoperation, readmission, and in-hospital mortality were recorded. Patients receiving adjuvant chemotherapy or radiotherapy were followed through outpatient visits to assess treatment completion, tolerance, and early recurrence. All patients were followed until discharge or completion of primary treatment. Data were systematically

recorded using a structured proforma that captured demographic variables, presenting symptoms, diagnostic findings, staging details, surgical procedures, postoperative outcomes, and follow-up status. Confidentiality was maintained throughout. The primary outcome parameters included patterns of clinical presentation, stage at diagnosis, treatment modality used, and immediate postoperative outcomes. Secondary outcomes included complication rates and histopathological characteristics. The collected data were entered into Microsoft Excel and analyzed using descriptive statistics such as means, proportions, and frequencies, while categorical variables were compared using Chi-square test where applicable. The study adhered to ethical guidelines, and institutional ethical committee approval had been obtained prior to commencement of the research.

Results:

A total of 72 patients were included in the study, with the majority belonging to the age group of 50–70 years (52.8%), and males constituted 61.1% of the cohort. Most patients were from rural regions, reflecting the hospital's catchment population. Clinical presentation varied, but altered bowel habits (66.7%) and rectal bleeding (56.9%) were the most common symptoms. Abdominal pain was reported by 54.2% of patients, while nearly half experienced significant weight loss. A smaller proportion (23.6%) had a palpable abdominal or rectal mass at presentation, indicating late-stage diagnosis in many cases. Anemia was identified in 38.9% of the patients, consistent with chronic blood loss from colorectal lesions.

On diagnostic evaluation, the colon was the predominant tumor site (62.5%), followed by the rectum (37.5%). Histopathology revealed adenocarcinoma as the chief malignancy type in 94.4% of cases. Staging demonstrated that a considerable number of patients presented with advanced disease—Stage III in 37.5% and Stage IV in 27.8%. Only 9.7% were detected in Stage I, reflecting delayed healthcare-seeking behavior and low awareness. Treatment varied based on operability and tumor stage. Curative resection was performed in 54.2% of cases, while 19.4% required palliative procedures. Diversion colostomy was necessary in 15.3% of patients with obstructive or advanced lesions. Among rectal cancer patients, 25% received neoadjuvant chemoradiotherapy. Postoperative complications occurred in 23.6% of patients, and the in-hospital mortality rate was 5.6%. These findings underscore the need for earlier diagnosis and improved cancer awareness in the region.

Discussion

Colorectal malignancy continues to be a major global health burden, with rising incidence in both developed and developing nations. The present prospective observational study, conducted at a tertiary care hospital in Andhra Pradesh, provides insight into the patterns of clinical presentation, diagnostic profile, and early management outcomes of colorectal cancer in this region. A predominance of patients aged 50–70 years, with males more commonly affected, mirrored global epidemiological patterns. Similar demographic findings have been widely reported, with age and sex being major non-modifiable risk factors associated with colorectal carcinogenesis [6]. Rural predominance in our study population reflects the geographical distribution of service utilization at our institution and underscores the disparities in distribution of healthcare infrastructure.

Clinical symptoms in the present study highlighted the delayed nature of presentations, with altered bowel habits and rectal bleeding being the predominant complaints. This aligns with earlier research showing that symptomatic colorectal malignancies commonly manifest with changes in stool caliber, chronic bleeding, weight loss, or anemia [7]. Unfortunately, patient awareness of alarming symptoms remains low, leading to late-stage disease at diagnosis. Nearly two-thirds of our patients presented with Stage III or IV disease. This is consistent with several Indian and Asian studies, where late diagnosis is common due to lack of screening programs, delayed health-seeking behavior, and limited access to

specialist care [8]. In countries with established colorectal cancer screening programs, such as Japan, the United States, and parts of Europe, earlier detection has significantly improved survival rates [9].

Tumor distribution in our study showed a predominance of colonic involvement (62.5%) compared with rectal tumors. This distribution reflects the gradual rightward shift in colorectal cancer localization observed globally over the past two decades [10]. The etiological explanation may relate to changes in diet, lifestyle, and the biological behavior of adenomas. Histologically, adenocarcinoma remained the predominant subtype (94.4%), consistent with global patterns. Mucinous adenocarcinoma, although less common, was present in a minority of cases (5.6%) and is known to be associated with younger age groups, advanced disease, and poorer prognosis [11]. This reinforces the importance of histopathological evaluation not merely for diagnosis but also for prognostic stratification.

Treatment approaches in this study varied according to clinical stage and operability. Over half of the patients underwent curative resection, while one-fifth required palliative procedures. The proportion of patients requiring diversion colostomy (15.3%) likely reflects the advanced nature of many rectosigmoid lesions, which frequently present with obstruction. Several studies from India and other low-resource settings have reported similar trends, emphasizing that a high proportion of colorectal cancers are diagnosed only after onset of complications such as obstruction or perforation [12]. Among rectal cancers, 25% of the patients received neoadjuvant chemoradiotherapy, in line with internationally accepted treatment pathways such as the NCCN and ESMO guidelines.

Postoperative complications occurred in 23.6% of patients, which is within acceptable ranges reported in contemporary colorectal cancer literature. Surgical site infection, anastomotic leak, respiratory complications, and ileus remain well-known early postoperative events. In-hospital mortality of 5.6% in the present study aligns with reported rates from similar tertiary care institutions but remains higher compared to specialized colorectal centers worldwide, where improved perioperative care pathways have reduced mortality to less than 2% [13]. This highlights the need for specialized colorectal units, enhanced perioperative monitoring, and early identification of high-risk patients.

The findings of this study underscore multiple important observations. First, the delayed diagnosis of colorectal malignancy remains a pressing concern in this region. Efforts must focus on improving public awareness, promoting early evaluation for rectal bleeding and altered bowel habits, and strengthening referral pathways. Establishing screening programs for high-risk groups could significantly shift the stage at presentation. Second, multidisciplinary management is essential for optimizing treatment outcomes. Access to endoscopy, oncology services, histopathology, and imaging needs to be streamlined. Third, early postoperative morbidity, although within global averages, still warrants improvement through evidence-based perioperative care bundles.

The strength of this study lies in its prospective design and standardized evaluation of clinical presentation and management outcomes. However, some limitations must be acknowledged. The relatively short duration of follow-up restricted long-term survival assessments. Additionally, as a single-center study, the results may not fully represent the broader population. Nevertheless, the study contributes meaningful local data, highlighting key gaps and opportunities for improving colorectal cancer care.

Conclusion:

This prospective observational study demonstrated that colorectal malignancy in our region continues to present predominantly in advanced stages, largely due to delayed symptom recognition, lack of screening, and limited access to specialized care. Altered bowel habits, rectal bleeding, and abdominal

pain were the most common presenting symptoms. Although more than half of the patients underwent curative resection, a significant proportion required palliative or diversion procedures due to late presentation. Postoperative morbidity and mortality, though comparable to similar centers, highlight opportunities for improvement. Strengthening early diagnostic pathways, public awareness, and multidisciplinary cancer care can improve overall outcomes.

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