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A retrospective descriptive study of emergency presentation and surgical management of colorectal cancer

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ABSTRACT

Background and objectives. Colorectal cancer (CRC) is one of the leading causes of cancer-related death in Iraq, where no nationwide screening programs exist. Data on emergency presentations and surgical outcomes are limited. This study aimed to describe the clinical manifestations and surgical management of colorectal cancer in patients presenting emergently in Basrah, southern Iraq.

Patients and methods. Between September 2021 and September 2023, 37 patients were identified from 300 colorectal cancer cases admitted to Al-Sadr Teaching Hospital and Basrah Oncology Center. Patients presented with acute symptoms, including intestinal obstruction, perforation, rectal bleeding, anemia, and generalized weakness. All underwent diagnostic evaluation, including colonoscopy, tumor markers, and imaging. Surgical and oncological management were recorded.

Results. Of 37 patients, 23 were male (62.2%) and 14 female (37.8%). The most common presentation was partial intestinal obstruction (46%), followed by complete obstruction (13.5%), perforation (13.5%), and rectal bleeding (13.5%). Adenocarcinoma and mucinous adenocarcinoma were the predominant histological subtypes. Surgical resection with primary anastomosis was performed in 24 patients, resection with colostomy in 5, and resection with double stomas in 2. Two patients were deemed inoperable, 2 refused surgery and received neoadjuvant chemoradiotherapy, and 2 declined all treatment.

Conclusion. Emergency presentation of colorectal cancer remains common in Basrah, reflecting delays in diagnosis and the absence of systematic screening. Implementation of early detection and population-based screening strategies is essential to reduce emergency admissions and improve outcomes.

Keywords: colorectal cancer, emergency presentation, surgical management, screening

INTRODUCTION

Colorectal cancer (CRC) is one of the most common malignancies worldwide and a leading cause of cancer-related morbidity and mortality. Early detection plays a crucial role in improving survival rates, as CRC often progresses slowly from precancerous polyps to invasive cancer over several years. Effective detection methods allow timely diagnosis and intervention, significantly reducing the disease burden. In developed countries, there has been a notable decline in CRC-related mortality over the past decades, largely due to organized screening programs and prompt treatment referral [1–4]. The emphasis on early detection enables tumor removal before progression to advanced stages [5,6].

In contrast, the situation is less favorable in developing countries, where CRC remains a major health burden. Emergency presentations, such as bowel obstruction, occur in 20–30% of CRC patients and are associated with high mortality rates [7,8].

Primary detection involves identifying precursor lesions in the early stages, either asymptomatically

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or with site-specific symptoms such as rectal bleeding, changes in bowel habits, or abdominal pain. Advanced disease may present with systemic manifestations such as anorexia, weight loss, fatigue, and anemia, although these symptoms are nonspecific. Worldwide, several screening methods are employed depending on age, family history, and risk profile, including stool-based tests, imaging techniques, and colonoscopy. Each approach has advantages and disadvantages [9]. However, adherence to screening remains a challenge due to patient reluctance, limited accessibility, and procedural discomfort.

In Iraq, the incidence of CRC has increased steadily over the past two decades, as documented by the Iraqi National Cancer Registry. CRC is now the seventh most common cancer in both sexes and a major cause of death after cardiovascular diseases [10,11]. Despite this trend, comprehensive national data and systematic screening programs are lacking.

Recently, there has been a growing recognition in Iraq of the importance of early detection and screening. This includes efforts to encourage timely referrals and earlier surgical intervention to prevent complications. The present study aimed to examine the clinical manifestations and surgical treatment outcomes of colorectal cancer in patients presenting emergently in Basrah, southern Iraq.

MATERIALS AND METHODS

Study design and setting

A retrospective descriptive study was conducted between September 2021 and September 2023 at Al-Sadr Teaching Hospital and Basrah Oncology Center, Basrah, Iraq.

Patient selection

Out of 300 patients diagnosed with colorectal cancer during the study period, 37 were included in this analysis. These were patients who presented with emergency symptoms and required urgent evaluation. Selection was based on clinical presentation and availability of complete records. Patients without sufficient data, those with recurrent colorectal cancer, and those who had previously undergone screening (e.g., colonoscopy or fecal occult blood testing) were excluded.

Inclusion criteria:

- Patients with a first diagnosis of colorectal cancer during the study period.
- Patients presenting with emergency manifestations such as intestinal obstruction, perforation, or acute bleeding.
- Patients admitted to the surgical or oncology units at either hospital.

Exclusion criteria:

- Patients with recurrent colorectal cancer.
- Patients with prior screening or previous colorectal cancer diagnosis.
- Patients with chronic comorbidities or complex medical conditions likely to confound the outcomes (e.g., autoimmune disease, other active malignancies).

Data collection

Clinical, demographic, and pathological data were obtained from hospital records. Diagnostic procedures included colonoscopy, abdominal X-ray with contrast, and CT scans of the abdomen and pelvis with oral and intravenous contrast, depending on patient stability. Tumor markers, including carcinoembryonic antigen (CEA), were measured in all cases. Biopsies were obtained when feasible, including via esophagogastroduodenoscopy (OGD) when indicated. Data recorded included age, sex, presenting symptoms, tumor location, staging (where available), histological subtype, type of surgical intervention, and treatment outcomes.

Histopathology and staging

The predominant histological subtypes were adenocarcinoma and mucinous adenocarcinoma. Tumor staging was classified according to the TNM system where records were complete, although staging data were not consistently available across all patients due to the retrospective design.

Statistical analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 23. Descriptive statistics were used to summarize patient demographics, presenting symptoms, tumor characteristics, and treatment modalities. Categorical variables were expressed as numbers and percentages. Chi-square and Fisher's exact tests were applied where appropriate. Statistical significance was defined as $p < 0.05$.

RESULTS

Patient demographics

Among the 37 patients diagnosed with colorectal cancer, 23 were male (62.2%) and 14 female (37.8%) (Table 1). The mean age was [insert if available], with a slight male predominance.

TABLE 1. Gender distribution of colorectal cancer patients

Gender	Number of patients	%
Male	23	62.2
Female	14	37.8
Total	37	100

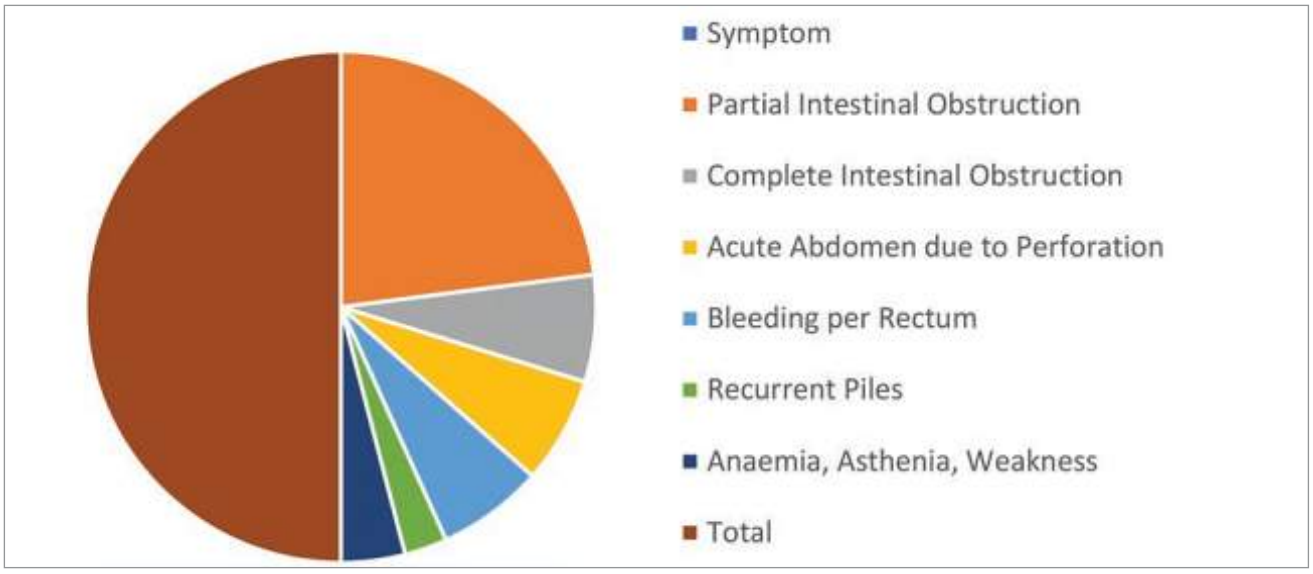

FIGURE 1. Symptoms at emergency presentation of colorectal cancer

TABLE 2. Symptoms at emergency presentation of colorectal cancer

Symptoms	Number of patients	%
Partial intestinal obstruction	17	45.9
Complete intestinal obstruction	5	13.5
Perforation with acute abdomen	5	13.5
Rectal bleeding	5	13.5
Recurrent Piles	2	5.4
Anemia, asthenia, weakness	3	8.1
Total	37	100%

Clinical presentation and case categorization

Patient symptoms were documented in the days leading up to admission. The most frequent presentation was partial intestinal obstruction (17 patients, 45.9%), followed by complete obstruction (5 patients, 13.5%), perforation with acute abdomen (5 patients, 13.5%), and rectal bleeding (5 patients, 13.5%). Other presentations included recurrent piles (2 patients, 5.4%) and nonspecific symptoms such as anemia, asthenia, and generalized weakness (3 patients, 8.1%) (Table 2, Figure 1).

Case categorization by disease stage revealed that:

Stage I: 2 patients (ascending colon, nonspecific symptoms).

Stage II: 5 patients (transverse colon, rectal bleeding initially misdiagnosed as hemorrhoids).

Stage III: 5 patients (rectal tumors with lymph node involvement, complete obstruction).

Stage IV: 5 patients (rectum and sigmoid colon with perforation, advanced disease).

Remaining patients presented with partial obstruction (17 cases) or atypical symptoms (3 cases) not clearly staged due to incomplete data.

Histopathology

The predominant histological subtype was adenocarcinoma, followed by mucinous adenocarcinoma. Detailed distribution was not consistently recorded due to the retrospective nature of the study.

Surgical and oncological management

Surgical intervention was the primary treatment modality. Resection with end-to-end anastomosis was performed in 24 patients, resection with colostomy in 5, and resection with two stomas in 2. Two patients were deemed inoperable. Two patients refused surgery and were managed with neoadjuvant chemoradiotherapy, while another two refused both medical and surgical treatment (Table 3, Figure 2).

Additional clinical findings

Several illustrative cases demonstrate the complications of delayed colorectal cancer presentation. Figure 3 shows massive colonic dilatation proximal

TABLE 3. Surgical procedures performed for colorectal cancer patients

Surgical procedure	Number of patients	p-value	Significance
Resection with end-to-end anastomosis	24	0.03	Significant
Resection with end colostomy	5	0.12	Not significant
Resection with two stomas	2	0.25	Not significant
Inoperable tumors	2	0.001	Significant
Neoadjuvant chemoradiotherapy (refused surgery)	2	0.45	Not significant
Refused all treatment	2	0.07	Not significant
Total	37		

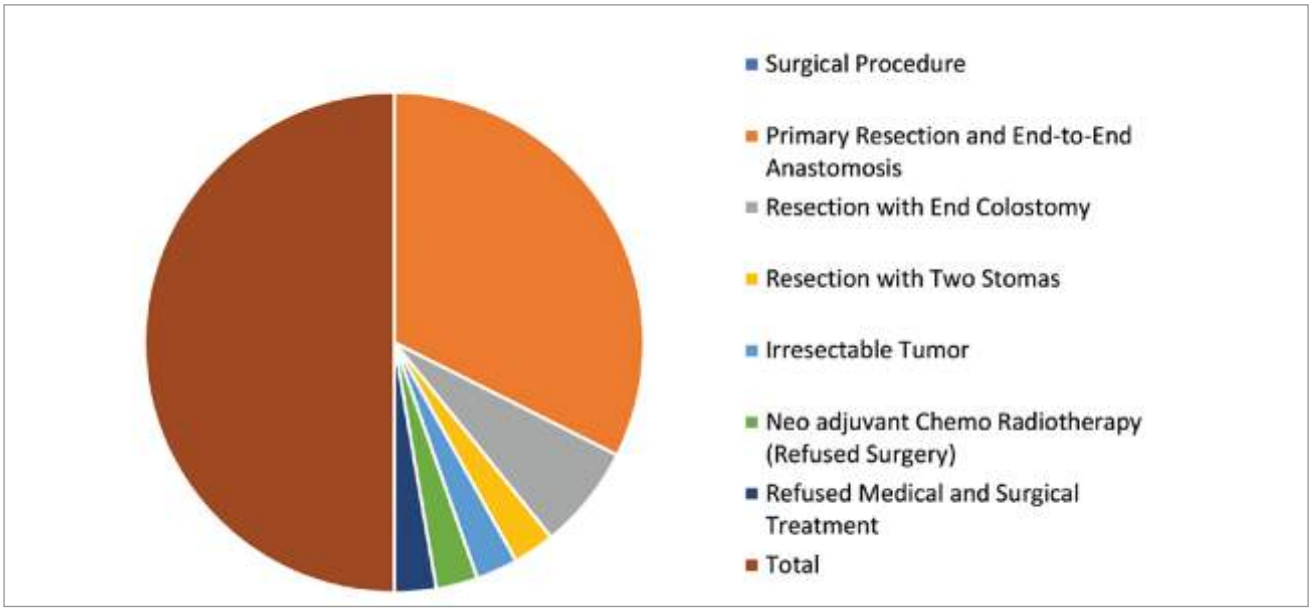

FIGURE 2. Types of surgical procedures performed for colorectal cancer patients

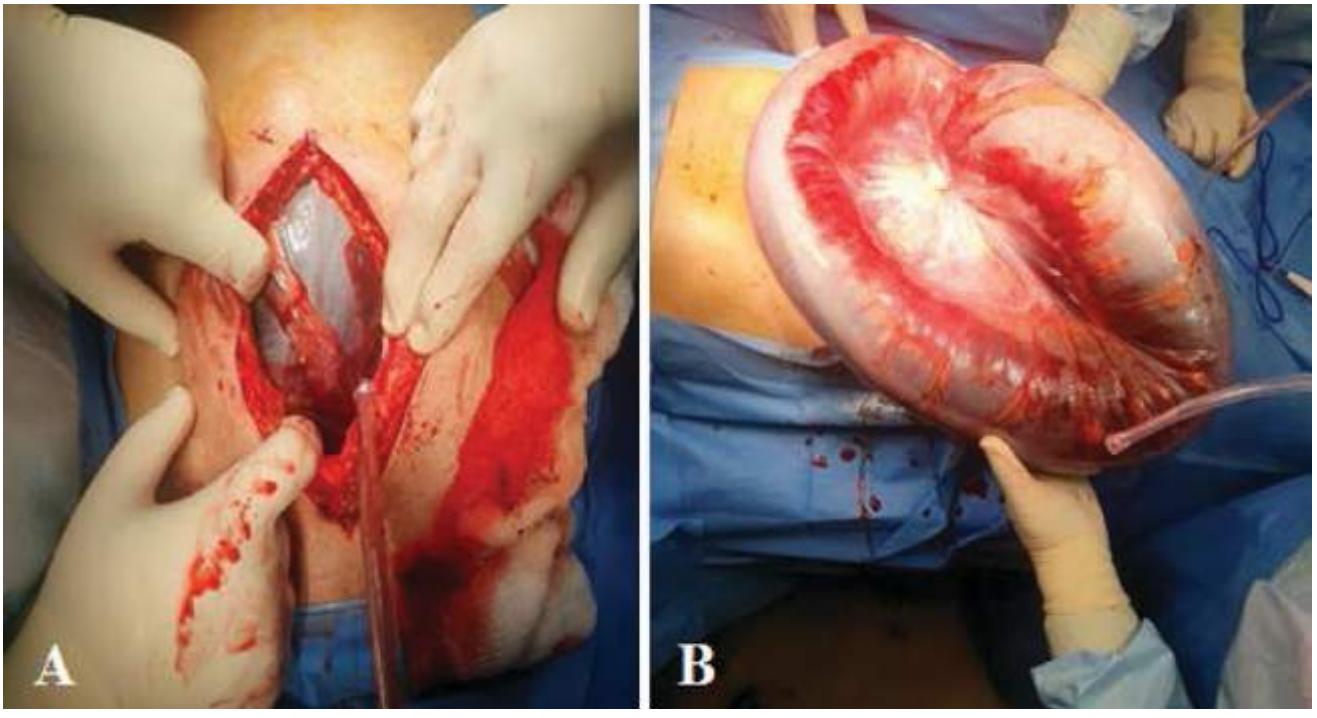

FIGURE 3. Delayed presentation of colorectal tumor with intestinal obstruction and gangrenous bowel. (A) Intestinal obstruction. (B) Marked dilatation of the colon proximal to the obstruction

to obstruction with associated gangrenous bowel. Figure 4 depicts a 52-year-old woman who presented with partial intestinal obstruction; laparotomy revealed a cecal tumor, and surgical resection with proximal ileostomy was performed. Figure 5 illustrates a loop colostomy performed in a 45-year-old male following tumor resection. Other complications included a perforated cecal ulcer (Figure 6) and a perforated Meckel's diverticulum (Figure 7).

DISCUSSION

Colorectal cancer is considered a largely preventable disease according to the American Cancer Society and the United States Preventive Services Task Force (USPSTF). In developing countries, however, significant challenges remain due to limited resources, lack of widespread screening programs, and low public awareness. As a result, many patients present with advanced disease or as surgical emergencies, such as bowel obstruction or perforation, which are associated with high morbidity and mortality [12].

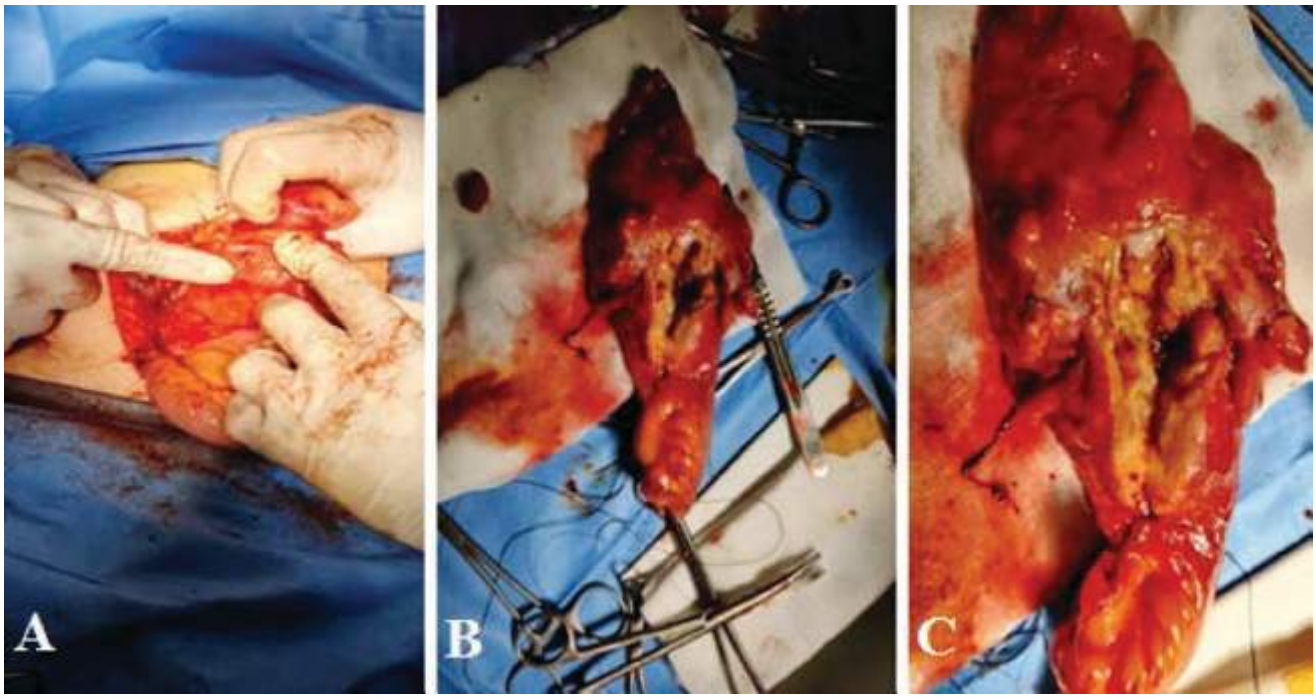

FIGURE 4. A 52-year-old woman with partial intestinal obstruction. (A) Clinical presentation. (B–C) Laparotomy revealed a cecal tumor; surgical resection with safe margins and proximal ileostomy was performed.

FIGURE 5. Loop colostomy performed in a 45-year-old male patient following resection of colon cancer

In our study, the majority of patients presented with symptoms of intestinal obstruction, perforation, or rectal bleeding, findings consistent with previous reports from other low-resource settings. These emergency presentations reflect delays in diagnosis and the absence of systematic screening in Basrah. Several international studies have shown that in developed countries, population-based screening programs – such as fecal occult blood testing (FOBT), fecal immunochemical test (FIT), sigmoidoscopy, and colonoscopy – have significantly reduced emergency presentations and improved survival [13-15]. However, such programs remain difficult to implement in developing nations due to cost, accessibility, and cultural barriers [16,17].

Our results also highlight a male predominance, which aligns with global epidemiological data showing slightly higher incidence in men [18]. The predominance of adenocarcinoma and mucinous adenocarcinoma as histological subtypes is also consistent with international findings [19]. However, staging information in our cohort was incomplete, reflecting the limitations of retrospective record review.

Importantly, several cases in this series were initially misdiagnosed (e.g., rectal bleeding attributed to hemorrhoids), contributing to diagnostic delay. Similar misattributions have been reported in other studies, underlining the importance of increasing both physician and patient awareness of early warning signs [20-23].

FIGURE 6. Perforated cecal ulcer as a complication of colorectal cancer. (A–B) Intraoperative findings

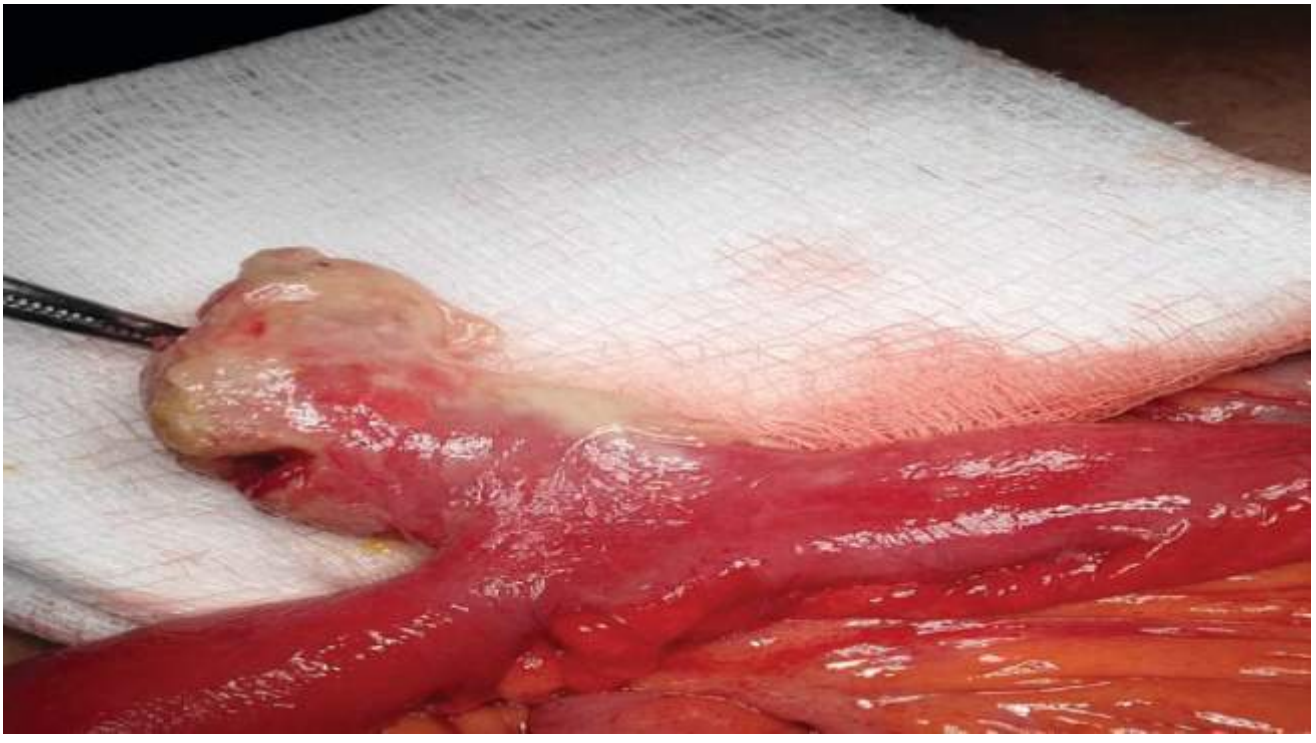

FIGURE 7. Perforated Meckel's diverticulum associated with colorectal cancer

Limitations and strengths

In interpreting these findings, several limitations should be considered. First, the sample size was small (37 patients), which limits the statistical power and generalizability of the results. Second, as a retrospective review, the study relied on hospital records that did not consistently capture key details such as symptom onset timelines, TNM staging, and histopathological subtypes. Third, long-term follow-up data, including survival and recurrence rates, were not available, preventing assessment of treatment effectiveness. Fourth, statistical analysis was largely descriptive due to the limited sample size, and p-values should therefore be interpreted with caution.

Despite these limitations, the study provides valuable insight into the emergency presentation and surgical management of colorectal cancer in Basrah, a region with very limited published data. The findings highlight the urgent need for improved screening, timely diagnosis, and resource allocation for colorectal cancer care in low-resource settings.

CONCLUSIONS AND RECOMMENDATIONS

Emergency presentation of colorectal cancer remains a significant challenge in Basrah, reflecting delays in diagnosis, misinterpretation of early symptoms, and the absence of organized screening programs. Our findings underscore the urgent need for structured approaches to improve early detection and reduce the burden of advanced disease requiring emergency surgery.

Recommendations

- Implement a pilot CRC screening program using the fecal immunochemical test (FIT) for adults aged 50 and above in Basrah by 2026.
- Train at least 100 primary care physicians within the next two years in recognition of CRC symptoms and appropriate referral pathways.
- Develop public awareness campaigns by 2025, focusing on risk factors, warning signs, and the importance of early diagnosis, delivered through schools, hospitals, and media outlets.
- Strengthen hospital record systems to ensure consistent documentation of staging, histopathology, and symptom-to-presentation timelines for future research and quality improvement.

Ethical consideration:

Ethical approval was obtained from the Institutional Review Board of the University of Basra (approval number 784/21, dated August 8, 2021). Participants were provided with a full explanation of the study, and informed consent was obtained from patients who were still alive at the time of data collection. Patient confidentiality was strictly maintained throughout the study.

Authors' contributions:

Conceptualization: Wisam Hamza Al-Sewadi, Hameed Raffish, Nawal Mustafa Abdullah.
Methodology: Wisam Hamza Al-Sewadi.
Software: Hameed Raffish.
Validation: Wisam Hamza Al-Sewadi.
Formal analysis: Hameed Raffish.
Investigation: Wisam Hamza Al-Sewadi.
Resources: Hameed Raffish.
Data curation: Hameed Raffish.
Writing – original draft preparation: Nawal Mustafa Abdullah.
Writing – review and editing: Nawal Mustafa Abdullah.
Visualization: Wisam Hamza Al-Sewadi.
Supervision: Nawal Mustafa Abdullah.
Project administration: Nawal Mustafa Abdullah.
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All authors have read and approved the final manuscript.

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