

**St. Paul's Hospital Millennium Medical
College, Department Of Surgery**

**A Research Paper On Pattern and
Management of Colorectal Malignancies In
St. Paul's Hospital Millennium Medical
College, a two year Retrospective Study**

Pattern and Management of Colorectal Malignancies In St. Paul's Hospital Millennium Medical College, a two year Retrospective Study

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ABSTRACT

Background: Colorectal cancer is the most common malignancy of the gastrointestinal tract. Aging is the dominant risk factor for colorectal cancer, with incidence rising steadily after age 50 years. The majority of patients presenting with symptomatic CRC have hematochezia or melena, abdominal pain, otherwise unexplained iron deficiency anemia and/or a change in bowel habits. Surgical resection is the primary treatment modality for CRC, and outcome is most closely related to the extent of disease at presentation.

Objective: This study aims to assess the frequency of colorectal malignancies; the common presenting symptoms and signs; the site, stage and histology; and management options of colorectal malignancies in SPHMMC.

Method: A hospital based retrospective cross-sectional study design, by reviewing of patient records from January 1st 2016-December 31st 2017 was used. Patient card numbers with colorectal cancer were retrieved from registry log book in the department of surgery. Individual patient cards were retrieved from the hospital record office. A total of 101 out of 112 patient cards were included in the study. Data were entered and analyzed using SPSS for windows version 22, and descriptive data analysis using frequency was made to answer the research question.

Results: 57.4% (58/101) were male and 42.6(43/101) were female. Majority of patients were in the age group 60-69years, 29.7% (30/101), and 25.7% (26/101) of cases were below the age of 40 year. The main presenting symptoms were abdominal pain (71.3%, 72/101), and rectal bleeding (52.5%,53/101); and the most common presenting signs were mass on DRE(42.6%, 43/101), and signs of large bowel obstruction(30/101, 29.7%). 42.6%(43/101) of the tumors were located in the rectum; 14.9%(15/101) in the descending colon; 11.9%(12/101) in the rectosigmoid junction; and 9.9%(10/101) in the sigmoid colon. Histopathology was performed in 83 of the patients, and all of them (100%, 83/83) were reported to be adenocarcinoma. Majority (24.8%, 25/101) of cases were stage II, followed by stage III(16.8%, 17/101). APR and left hemicolectomy were the most commonly performed procedures among elective cases; and sigmoid loop colostomy and right hemicolectomy were the most common procedures in emergency patients.

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2. LIST OF ABBREVIATIONS

APR-Abdominoperineal resection

AR-Anterior resection

CEA-Carcinoembryonic antigen

CRC- Colorectal cancer

CT- Computed tomography

DRE- Digital rectal examination

FAP-Familial Adenomatous Polyposis

HCT-Hematocrit

Hgb-Hemoglobin

HNPCC-Hereditary Nonpolyposis Colon Cancer (Lynch's Syndrome)

LAR-Low anterior resection

MRI-Magnetic resonance imaging

PET-Positron emission tomography

SPHMMC- Saint Paul's Hospital Millennium Medical College

SPSS- Statistical package for the social sciences

TNM- Tumor node metastasis

3. INTRODUCTION

3.1. STATEMENT OF THE PROBLEM

Colorectal cancer is the most common malignancy of the gastrointestinal tract. Approximately 80% of colorectal cancers occur sporadically, while 20% arise in patients with a known family history of colorectal cancer. Aging is the dominant risk factor for colorectal cancer, with incidence rising steadily after age 50 years. The majority of risk factors for CRC are modifiable, and include the use of diets rich in saturated or polyunsaturated fats and low in fibers, obesity and sedentary life style, alcohol ingestion. Excessive consumption of increased amount of red meat either cooked, processed or prepared on charcoal fire are also known risk factors. Other risk factors include inflammatory bowel disease, cigarette smoking, ureteric implantation, acromegaly, pelvic irradiation for pelvic malignancies, cholecystectomy, and hereditary risk factors like FAP and HNPCC¹.

Symptoms of CRC are typically due to growth of the tumor into the lumen or adjacent structures. As a result, symptomatic presentation is often a manifestation of relatively advanced disease. The majority of patients presenting with symptomatic CRC have hematochezia or melena, abdominal pain, otherwise unexplained iron deficiency anemia and/or a change in bowel habits. The classic first symptoms are a change in bowel habits and rectal bleeding. Because of the caliber of the bowel and the consistency of the stool, left-sided tumors are more likely to cause obstruction than are right-sided tumors. Rectal tumors may cause bleeding, tenesmus, and pain².

CRC staging is based on tumor depth and the presence or absence of nodal or distant metastases and the Dukes and the TNM staging are the most commonly used ones. Stage I disease includes adenocarcinomas that are invasive through the muscularis mucosa but are confined to the submucosa (T1) or the muscularis propria (T2) in the absence of nodal metastases. Stage II disease consists of tumors that invade through the bowel wall into the subserosa or non-peritonealized pericolic or perirectal tissues (T3) or into other organs or tissues or through the visceral peritoneum (T4) without nodal metastases. Stage III disease includes any T stage with nodal metastases, and stage IV disease denotes distant metastases. In colon cancer, differentiating stages I, II, and III depends on examination of the resected specimen.

In rectal cancer, endorectal ultrasound or MRI may predict the stage (ultrasound stage, uTxNx) preoperatively, but the final determination depends on pathologic examination of the resected tumor and adjacent lymph nodes (pathologic stage, pTxNx). Disease stage correlates with 5-year survival. Patients with stages I and II disease can expect excellent survival rates. The presence of nodal metastases (stage III) decreases survival. The 5-year survival rate with stage IV disease is less than 16%. However, in well-selected patients, metastasectomy, especially of isolated liver or lung lesions, can result in cure. In rectal cancer, staging has been further refined, and outcomes suggest that subgroups of patients within each stage may have very different prognoses. Once a colon or rectal carcinoma has been diagnosed, a staging evaluation should be undertaken. The colon must be evaluated for synchronous tumors, usually by colonoscopy as synchronous disease will be present in up to 5% of patients¹.

For rectal cancers, digital rectal examination and rigid or flexible proctoscopy with biopsy should be performed to assess tumor size, location, morphology, histology, and fixation. Endorectal ultrasound or MRI can be invaluable in staging rectal cancer and is used to classify the ultrasound T and N stage of rectal cancers. A chest/abdominal/pelvic CT scan should be obtained to evaluate for distant metastases. Pelvic CT scan, and sometimes MRI, can be useful in large rectal tumors and in recurrent disease to determine the extent of local invasion. Among patients with obstructive symptoms, a water-soluble contrast study (Gastrografin enema) may be useful for delineating the degree of obstruction. It is important to avoid mechanical bowel preparation (for either colonoscopy or surgery) in a patient who appears to be obstructed. PET scan may be useful in evaluating lesions seen on CT scan and in patients in whom a risky or highly morbid operation is planned (pelvic exenteration, sacrectomy). Preoperative CEA is often obtained and may be useful for postoperative follow-up¹.

Surgical resection is the primary treatment modality for CRC, and outcome is most closely related to the extent of disease at presentation². The objective in treatment of carcinoma of the colon is to remove the primary tumor along with its lymphovascular supply¹. Because the lymphatics of the colon accompany the main arterial supply, the length of bowel resected depends on which vessels are supplying the segment involved with the cancer. Any adjacent organ or tissue, such as the omentum, that has been invaded should be resected en bloc with the tumor. If all of the tumor cannot be removed, a palliative procedure should be considered, although it is important to note that “debulking” is rarely effective in colorectal adenocarcinoma.

Palliative surgery also has a role in metastatic colorectal cancer, especially to relieve obstruction or treat bleeding or perforation. The presence of synchronous cancers or adenomas or a strong family history of colorectal neoplasms suggests that the entire colon is at risk for carcinoma (often called a field defect), and a subtotal or total colectomy should be considered. Metachronous tumors (a second primary colon cancer) identified during follow-up studies should be treated similarly.

Because the majority of colorectal cancers are thought to arise from adenomatous polyps, preventive measures focus on identification and removal of these premalignant lesions. In addition, many cancers are asymptomatic, and screening may detect these tumors at an early and curable stage. Screening with fecal occult blood testing, endoscopy, or radiology can lead to diagnosis at an earlier stage of disease and thereby reduce cause-specific mortality. Compliance with CRC screening guidelines is steadily improving but still relatively low; CRC continues to be diagnosed after the onset of symptoms in the majority of patients¹.

3.2. LITERATURE REVIEW

Colorectal cancer is a problem of significant magnitude and its incidence is increasing. It is the 3rd most common cancer worldwide, with nearly 1.4million new cases diagnosed in 2012. It is predominantly a disease of older patients, with the peak incidence being in the seventh decade. However, it must be borne in mind that the disease can occur at virtually any age and may be seen in patients in their twenties and thirties. It has been estimated that only 5% of colorectal carcinomas occur in patients who are younger than 40 years of age.

C Faivre-Finn, A-M Bouvier-Benhamiche, J M Phelip, S Manfredi, V Dancourt, J Faivre³: Overall, 77.9% of patients presented with symptoms and 13.7% presented as an emergency (obstruction and/or perforation of the colon). The remaining 5.8% were patients diagnosed after a routine examination or faecal occult blood testing. Presentation as an emergency was influenced by age (12.6% in the younger age group compared with 16.5% in those aged 80 years and older), by location of the tumour (15.0% for left colon compared with 12.1% for right colon), and by stage at diagnosis (2.1% for stage I, 16.3% for stage II, 18.1% for stage III, and 13.7% for advanced stages). Of the patients presenting as an emergency, 67.9% underwent curative resection, 16.6% had palliative resection, and 14.0% had surgery but had no tumour resection.

Safa M. M. Al-Obaidi, Ali Abbas Gatea, and Maan M.A.Hamid⁴ conducted a retrospective study on 70 CRC patients from October 2008 to October 2010. In their study the male: female ratio is 1.4:1 with peak age of incidence is the sixth decade (27%). 24% of cases are below age of 40 and most of them were with worse histopathological types and advanced stage. The main presenting symptom was bleeding per rectum (56%). The mean of the period between onset of presenting symptoms and final diagnosis was 8 months. The most common sites were rectum (36%), 58% were moderately differentiated, 43% were Duke's-C.

Shiyam Kumar, Ikram A Burney, Khawaja Farhan Zahid, Philomena Charlotte D Souza, Muna AL Belushi, Taha Dawood Mufti Waeil AL Meki, Muhammad Furrukh, Mansour S AL Moundhri ⁵: In their retrospective review of 162 patients diagnosed to have CRC, the majority were males (58.6%), with a median age of 56 years. Rectum was involved in 29.6% of patients, followed by ascending and sigmoid colon. The majority of patients had stage III (42.6%) and stage IV (32.7%) disease at presentation.

In a prospective study conducted by Abubakar Alhaji. Bakari, Haruna Nggada, Abubakar Sadiq Adamu, Mbata Gali, Usman Babayo Deba, Usman Nganjiwa⁶ in 262 patients with 80 out of 102 patients less than or equal to 40 years of age that were managed with colorectal cancer between 2005 and 2011, male to female ratio was 2.33: 1 and a median age of 28 ± 3.45 years. The peak age was in the 3rd decade of life. The duration of symptoms prior to presentation ranges from 6 months to 4 years with a mean average of 16 months and the major clinical features were abdominal pain/rectal bleeding (77%), change in bowel habits (80%), weight loss (86.2%), anorexia (92.5%), anaemia (90%) and abdominal mass/distention (55%). Majority of the patients presented with advanced colorectal cancer and about 37% were poorly differentiated adenocarcinoma out of which 20% were mucinous and 40% signet ring subtypes.

D. Zemenfes, B. Kotisso⁷, in their retrospective cross-sectional study of 120 patients from 2010 to 2011, the mean age of the study subjects was 47 ± 16 years. A third was below the age of 40 years, 58% were men, and 20% presented as an emergency. Study subjects presented with rectal bleeding (63.0%), abdominal pain (54.3%), weight loss (44.9%), tenesmus (39.4%), change in bowel habit (48.0%) and symptoms of obstruction (17.3%). The study revealed mass on digital rectal examination in 50%, anemia in 24.4%, abdominal mass in 22.8% and signs of obstruction among 11.8% of patients. The common sites of cancer were the rectum in 48.3% of cases followed by caecum (12.5%), sigmoid colon (11.5%) and recto-sigmoid junction (10.8%). More than half of the study subjects had stage III to IV disease. More than 94% of the patients had histologically proven adenocarcinoma. Thirty four percent of the cases had either inoperable or unresectable tumor indicative of delayed presentation. The hospital mortality was 8.0%.

3.3. SIGNIFICANCE OF THE STUDY

The incidence of CRC is higher in developed countries compared to developing countries, however, the trend is changing. Early detection and improvements in medical and surgical care are important to decrease the mortality associated with CRC. There is limited data (study) available on the prevalence of colorectal malignancies, patterns of presentations, the site, stage and histology, and management of colorectal malignancies in our setup particularly in SPHMMC. Therefore this study will be important to know the prevalence of CRC, patterns of presentations, site, stage and histology, and management of CRC in SPHMMC and will be a base for future studies.

4. OBJECTIVE

4.1. General objective

- This study aims to assess the pattern and management of colorectal malignancies in SPHMMC

4.2. Specific objectives

- To determine the frequency of colorectal malignancies in SPHMMC
- To identify the common presenting symptoms and common presenting signs of colorectal malignancies in SPHMMC
- To assess the site, stage and histology of colorectal malignancies in SPHMMC
- To find out the management options of colorectal malignancies in SPHMMC

5. METHODOLOGY

5.1. Study area and period

- This study was conducted in SPHMMC, Addis Ababa, Ethiopia; the second largest hospital in Ethiopia. It was established through a decree of the Council of Ministers in 2010, although the medical school opened in 2007 and the hospital was established in 1968 by the late Emperor Haile Selassie. The college has more than 2800 clinical, academic and administrative and support staffs that provide medical specialty services to patients who are referred from all over the country, teaching medicine and nursing students and doing basic and applied researches.
- The study period was from January 2018-September 2018

5.2. Study design

- Hospital based retrospective descriptive study design, by reviewing patient records

5.3. Study variables

5.3.1. Dependent variables: CRC, presenting symptoms and signs, histological type, location of the tumor, clinical presentation, stage at diagnosis, type of surgery

5.3.2. Independent variables: sex, age at diagnosis, place of residence(address), income, marital status, religion, ethnicity

5.4. Source population

- Adult patients who were admitted to SPHMMC surgical wards.

5.5. Study population

- All adult surgical patients who were admitted to SPHMMC surgical wards with colorectal malignancies in the period from January 1st 2016-December 31st 2017.

5.6. Sampling technique

- No sampling technique was used as all patients admitted to SPHMMC surgical ward with colorectal malignancies were included in the study.

5.7. Plan for data Collection, processing, and analysis

- Data was collected by reviewing charts (medical records) of all adult surgical patients admitted to surgical wards with colorectal malignancies. The charts were retrieved using medical records in surgical wards and log book of the operating room. Data was collected and filled on a prepared data abstract questionnaire, and entered into a computer and analyzed using SPSS for windows version 22. Results were presented using tables, figures, and statements. Descriptive statistics and Chi-square test were used to test the association among various variables (P-value of <0.05).
- The whole data collection process and analysis was made by the investigator and, was conducted from January 2018- September 2018.

5.8. Limitations of the study

- Given the retrospective nature of the study, some patient data were having incomplete recordings and some charts are lost from the record office.
- As a cross sectional study, cause and effect relationship cannot be established.

5.9. Operational definition

- **Right colon** is to mean cecum, ascending colon, hepatic flexure, and transverse colon.
- **Left colon** is used to describe splenic flexure, descending colon, sigmoid colon, rectum, and anus.

5.10. Inclusion criteria

- All adult surgical patients admitted to surgical wards with a diagnosis of colorectal malignancies from January 1st 2016 to December 31st 2017 were included in the study

5.11. Exclusion criteria

- Patients who were admitted & operated for colorectal malignancies in other hospitals and referred to SPHMMC for any reason.
- Patients who were operated for assumption of colorectal malignancies whose histopathology report turnout to be a benign or other pathology, or secondary involvement of the colon and rectum from other malignancies of adjacent intra-abdominal organs.
- Incomplete patient charts were also excluded.

5.12. Data quality assurance

- The data collection process was done strictly throughout the study.
- The questionnaire was checked whether it is filled in completely before finishing each questionnaire paper.
- The data was reviewed during the data entry and analysis stage to check whether data were complete and consistent.

5.13. Ethical Considerations

- Official letter was obtained from the hospital institutional review board (IRB).
- Information obtained from patients' medical records was not disclosed to any third person, nor used for any other purpose apart from the study.

5.14. Plan for dissemination of findings

- The results of this study will be distributed to the department of surgery, the college, the school library, the research office, and will be published in journals.

6. RESULTS

There were 112 patients in two years period and the records of only 101(90.1%) patients could be retrieved for analysis. 58(57.4%) were males and 43(42.6%) females, with a male to female ratio of 1.3:1. 39.6%(40/101) of patients were from Oromia region, followed by Addis Ababa(37.6%, 38/101), Amhara region(9.9%, 10/101), and the rest 12.9%(13/101) from other parts of the country. Majority of patients (29.7%, 30/101) were in the age group 60-69 years, while 25.7% (26/101) of patients were under the age of 40 years (See table 1).

Table 1- Socio-demographic characteristics of CRC cases

Features		Frequency	Percent
Sex	Male	58	57.4
	Female	43	42.6
Age	Less than 20 yrs	1	1
	20-29 yrs	8	7.9
	30-39 yrs	17	16.8
	40-49 yrs	17	16.8
	50-59 yrs	23	22.8
	60-69 yrs	30	29.7
	70 yrs and above	5	5
Address	Addis Ababa	38	37.6
	Oromia	40	39.6
	Amhara	10	9.9
	Other regions	13	12.9
Religion	Orthodox Christian	40	39.6
	Protestant	10	9.9
	Muslim	12	11.9
	Other	1	1
	Not documented	38	37.6

65.3%(66/101) of cases presented as an elective, and 34.7%(35/101) as an emergency with bowel obstruction(77.1%, 27/35) and tumor perforation(22.9%, 8/35). Majority of patients(72.3%, 73/101) present in the period between 1month-1year of the onset of the symptoms (See table 2). 5 patients (4.9%) gave a history of previous treatment for intestinal parasites in other health facilities several times before, and 7 patients (6.9%) had history of treatment for hemorrhoid either in health centers or traditional healers.

Abdominal pain was the most common presenting symptom(71.3%,72/101), followed by rectal bleeding(52.5%, 53/101), weight loss(43.6%, 44/101), bowel habit change(36.6%, 37/101), and symptoms of bowel obstruction(either complete or partial)(33.7%, 34/101). 6.9%(7/101) of cases were present with a complaint of fecal incontinence. Mass on DRE was the most common physical finding(42.6%, 43/101), followed by signs of bowel obstruction(29.7%, 30/101), abdominal mass(17.8%, 18/101), signs of anemia(10.9%, 11/101), and signs of peritonitis(7.9%,8/101). 17.8%(18/101)of patients have no positive physical finding (See table 2).

Table 2- Clinical presentation of Colorectal Cancer cases

Duration of presentation	Frequency	Percentage
<1month	22	21.8
1month-1year	73	72.3
>1year	6	5.9
Mode of presentation		
Elective	66	65.3
Emergency	35	34.7
Symptoms		
Abdominal pain	72	71.3
Bleeding per rectum	53	52.5
Weight loss	44	43.6
Bowel habit change	37	36.6
Symptoms of obstruction	34	33.7
Tenesmus	30	29.7
Abdominal swelling	7	6.9
Fecal incontinence	7	6.9
Symptoms of anemia	5	5
Signs		
Mass on DRE	43	42.6
Signs of obstruction	30	29.7
Abdominal mass	18	17.8
Signs of anemia	11	10.9
Signs of peritonitis	8	7.9
No physical finding	18	17.8

Anemia was present in 30.7%(31/101) of the cases. Base line CEA was determined in 54 patients and is found elevated in 61.1%(33/54), and normal in 21 of the patients(38.9%, 21/54) (See table 3).

Table 3- Various forms of investigations

Investigations	Finding	Frequency	Percent
HCT/Hgb	Low	31	30.7
	Normal	70	69.3
CEA	High(>3ng/ml)	33	32.7
	Normal(<3ng/ml)	21	20.8
	Not documented	47	46.5
Abdominal ultrasound	Bowel wall thickening	42	41.6
	Intra abdominal collection	7	6.9
	Liver metastasis	9	8.9
	Normal abdominal ultrasound	15	14.9
	Not documented	28	27.7
Abdominopelvic CT/MRI	Bowel wall thickening	39	38.6
	Locally advanced	5	5
	Liver metastasis	6	5.9
	Normal	1	1
	Not documented	50	49.5
Colonoscopy	Fungating, ulcerated, or obstructing lesion	57	56.4
	Normal colonoscopic finding	1	1
	Not documented	43	42.6

42.6%(43/101) of the tumors were located in the rectum; 14.9%(15/101) in the descending colon; 11.9%(12/101) in the rectosigmoid junction; and 9.9%(10/101) in the sigmoid colon. Tumors were found in more than one site of the colon in 6 patients(6%). Histopathology was performed in 83 of the patients, and all of them (100%, 83/83) were reported to be adenocarcinoma. Pathological staging was documented in 60 patients, and 41.7%(25/60) of them were stage II, 28.3%(17/60)stage III, 25%(15/60) stage IV, and the rest 5%(3/60)stage I (See table 4).

Table 4- Site, histologic type, and stage of CRC patients

		Frequency	Percent
Site	Cecum	8	7.9
	Ascending colon	4	4.0
	Hepatic flexure	4	4.0
	Transverse colon	2	2.0
	Splenic flexure	6	5.9
	Descending colon	15	14.9
	Sigmoid colon	10	9.9
	Rectosigmoid junction	12	11.9
	Rectum	43	42.6
	Anorectum	3	3.0
Histology	Adenocarcinoma	83	82.2
	Not documented	18	17.8
Stage	Stage I	3	3.0
	Stage II	25	24.8
	Stage III	17	16.8
	Stage IV	15	14.9
	Not documented	41	40.6

In our study, left side colonic tumors are associated with bleeding per rectum and bowel habit change than right side tumors (p value of 0.021 and 0.052 respectively), and right side colonic tumors are associated with anemia than left sided tumors (p value 0.002). (see table 5)

Table 5- Crosstabulation: Site of tumor versus bowel habit change, rectal bleeding, bowel obstruction, and anemia

		Bowel habit change		Total	P value
		Yes	No		
Site	Right colon	3	15	18	0.052
	Left colon	34	49	83	
	Total	37	64	101	
		Rectal bleeding		Total	P value
		Yes	No		
Site	Right colon	5	13	18	0.021
	Left colon	48	35	83	
	Total	53	48	101	
		Bowel obstruction		Total	P value
		Yes	No		
Site	Right colon	5	13	18	0.844
	Left colon	25	58	83	
	Total	30	71	101	
		Anemia		Total	P value
		Yes	No		
Site	Right colon	11	7	18	0.002
	Left colon	20	63	83	
	Total	31	70	101	

According to this study, APR was the most commonly performed procedure(21.2%, 14/66) among elective cases, followed by left hemicolectomy(19.7%, 13/66) and LAR with primary anastomosis (13.6%, 9/66). Sigmoid loop colostomy with biopsy was performed in 37.1%(13/35)of emergency cases, right hemicolectomy performed in 17.1%(6/35) and sigmoidectomy with Hartmann colostomy in 14.3%(5/35). (see table 6)

Table 6- Type of surgery in patients with CRC, SPHMMC, 2016-2017

Type of surgery	Mode of admission		Total	Percent
	Elective	Emergency		
Right hemicolectomy	7	6	13	12.9
Extended right hemicolectomy	1	1	2	2
Left hemicolectomy	13	2	15	14.9
Sigmoid resection and anastomosis	1	-	1	1
AR and primary anastomosis	1	-	1	1
LAR and primary anastomosis	9	-	9	8.9
LAR and colostomy	5	-	5	5
APR	14	-	14	13.9
Sigmoidectomy + Hartmann colostomy	3	5	8	7.9
Sigmoid loop colostomy + biopsy	5	13	18	17.8
Left hemicolectomy + transverse end colostomy	-	3	3	3
Left hemicolectomy + sigmoidectomy + transverse end colostomy	-	2	2	2
Transverse colon loop colostomy	1	-	1	1
Others	6	3	9	8.9

7. DISCUSSION

We have seen 112 patients in 2 years period which is almost similar with the study by *D. Zemenfes, B.Kotisso*⁷ which reported 120 patients in similar time period. It is a bit higher than the study by *Safa M. M. Al-Obaidi*⁴ which shows 70 patients in 2 years period. In our study, 57.7% were males with M:F of 1.3:1 and this figure is similar with *D. Zemenfes, B.Kotisso*⁷ which shows 58% male predominance and M:F of 1.3:1, but the study conducted by *Abubakar Alhaji. Bakar*⁶ shows a higher male predominance with M:F of 2.33:1.

Majority of patients (29.7%) in our study were in the 7th decade of age, while in the study by *Safa M. M. Al-Obaidi*⁴, most (27%) were in the 6th decade, and majority (27%) of cases were in the 3rd decade in the study conducted by *Abubakar Alhaji. Bakar*⁶. 25.7% of our study subjects were below the age of 40 years which is comparable (24%) with *Safa M. M. Al-Obaidi*⁴. Majority of our patients (72.3%) present in the time period between 1 month and 1 year, which is similar with a study by *Safa M. M. Al-Obaidi*⁴, but majority of patients by *Abubakar Alhaji. Bakar*⁶ present in the time period between 6 months-4 years. 65.3% of cases were elective and 34.7% emergency in our study, but only 20% and 13.7% were emergency in a study by *D. Zemenfes, B.Kotisso*⁷, and *C Faivre-Finn*³ respectively.

In this study, the most common presenting symptoms were abdominal pain (71.3%), rectal bleeding (52.5%), weight loss (43.6%), and bowel habit change (36.6%); the study by *D. Zemenfes, B.Kotisso*⁷ reveals rectal bleeding the most common presentation (63%), followed by abdominal pain (54.3%), weight loss (44.9%), and bowel habit change (48%); rectal bleeding was the most common symptom in the study of *Safa M. M. Al-Obaidi*⁴. Mass on DRE was the most common physical finding in this study which is similar with a study by *D. Zemenfes, B.Kotisso*⁷.

Anemia was present only in 30.7% of patients in this study, while 90% of cases have anemia in a study of *Abubakar Alhaji. Bakar*⁶. Base line CEA was found elevated in 61.1% (33/54) of the cases in our study, only 21.1% of the cases have elevated baseline CEA in the study of *Bello Arkilla Magaji*⁸.

Rectum was the most common site in this study (42.6%), which go in line with findings from *D. Zemenfes*, *B.Kotisso*⁷, *Shiyam Kumar*⁵, and, *Safa M. M. Al-Obaid*⁴. In this study adenocarcinoma was the sole histologic type, while 94% was adenocarcinoma in the study by *D .Zemenfes*, *B.Kotisso*⁷, and 87.8% in the study of *Abubakar Alhaji. Bakar*⁶.

Majority (41.7%) of patients in this study present in stage II CRC, followed by stage III, IV, and I; a similar finding by *D. Zemenfes*, *B.Kotisso*⁷; but in a study by *Shiyam Kumar*⁵, and *C Faivre-Finn*³, majority of cases were stage III. APR was the most common procedure done in those elective cases, similar with *Abubakar Alhaji. Bakar*⁶ and *Safa M. M. Al-Obaid*⁴.

8. CONCLUSION

About a quarter of cases (25.7%) were below the age of 40 years. In this study, 5 patients (4.9%) gave a history of previous treatment for intestinal parasitosis in other health facilities several times before, and 7 patients (6.9%) had history of treatment for hemorrhoid either in health facilities or traditional healers.

The study shows abdominal pain and bleeding per rectum as the most common presenting symptoms, and mass on DRE as the most common physical finding.

Rectum was the most common site, and one third of our cases were in the advanced stage of the disease (stages III and IV).

Poor documentation of patient chart is noticed in this study.

9. RECOMMENDATION

It is important to know that there should be a high index of suspicion among health workers in all health facility levels in patients with abdominal pain and rectal bleeding in patients of all age groups, and diagnose and refer cases early when necessary.

We should also emphasize the importance of awareness creation to the community that whenever patients have abdominal pain and bleeding per rectum, they should visit health care facilities early rather than attributing it to some other disease like intestinal parasitosis and hemorrhoid and going to traditional healer.

Given the most common site being rectum in this study, routine DRE may help in early diagnosis and treatment of rectal cancer.

Proper documentation of data at all levels should also be emphasized so as to use for future research.

Finally, further research, particularly retrospective, should also be done to identify determinant factors of colorectal cancer.

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11. ANNEX

Data abstract questionnaire for collection of the data

I) SOCIODEMOGRAPHIC DATA

1. Age
 1. Less than 20 yrs
 2. 20-29 yrs
 3. 30-39 yrs
 4. 40-49 yrs
 5. 50-59 yrs
 6. 60-69 yrs
 7. 70 yrs and above
2. Sex
 1. Male
 2. Female
3. Religion
 1. Orthodox christian
 2. Protestant
 3. Muslim
 4. Catholic
 5. Others
 6. Not documented
4. Address
 1. Addis Ababa
 2. Amhara
 3. Oromia
 4. Other regions
5. Marital status
 1. Married
 2. Single
 3. Widow
 4. Divorced
 5. Not documented
6. Occupation
 1. Farmer
 2. Government employee
 3. Private employee
 4. Unemployee
 5. Retired
 6. Not documented
7. Education
 1. Illiterate
 2. Primary school (grades 1-8)
 3. Secondary school (grades 9-10)
 4. Preparatory school (grades 11 and 12)
 5. College and above
 6. Not documented
8. Family history of colorectal cancer
 1. Yes
 2. No
 3. Not documented

II) CLINICAL DATA

1. Modes of admission
 1. Elective 2. Emergency
2. Duration of the presenting symptom
 1. <1month 2. 1month-1year 3. >1year
3. Presenting symptoms
 1. Abdominal pain 2. Abdominal swelling 3. Bleeding per rectum
 4. Bowel habit change 5. Weight loss 6. Tenesmus 7. Symptoms of obstruction 8. Symptoms of anaemia 9. Fecal incontinence
4. Signs
 1. Mass on digital rectal examination 2. Signs of anaemia
 3. Abdominal mass 4. Signs of obstruction 5. Signs of peritonitis
 6. No physical finding
5. Investigations
 - A. CBC
 - I. WBC..... 1. Low(<4000) 2. Normal(4000-10000) 3. High (>10000)
 - II. HCT/HGB... 1. Low 2. Normal
 - III. PLT... 1. Low 2. Normal 3. High
 - B. Renal function test
 - i. BUN..... 1. Normal 2. High 3. Not documented
 - ii. Cr..... 1. Normal 2. High 3. Not documented
 - C. CEA..... 1. Normal 2. High 3. Not documented
 - D. Plain abdominal x-ray..... 1. Normal 2. Suggestive of bowel obstruction 3. Not done
 - E. Colonoscopy and biopsy..... 1. Normal 2. There is positive finding 3. Not done
 - F. Abdominal Ultrasound..... 1. Normal 2. Bowel wall thickening 3. Suggestive of metastasis 4. Intrabdominal collection 5. Not documented
 - G. Chest x-ray..... 1. Normal 2. Suggestive of metastasis 3. Not done
 - H. Abdominopelvic CT/MRI..... 1. Normal 2. Bowel wall thickening 3. Locally advanced 4. Distal metastasis

6. Site of the tumor

1.Caecum 2. Ascending colon 3. Hepatic flexure 4. Transverse colon
5. Splenic flexure 6. Descending colon 7. Sigmoid colon

8. Rectosigmoid Junction 9. Rectum 10. Anorectum

7. Histology

1. Adenocarcinoma 2. Carcinoid 3. Lymphoma 5. Sarcoma
6. Others 7. Not done

8. Stage

1. Stage 1 2. Stage 2 3. Stage 3 4. Stage 4 5. Not documented

9. Type of Surgery

Type of surgery	Emergency	Elective
1. Right Hemicolectomy		
2. Extended right Hemicolectomy		
3. Left Hemicolectomy		
4. Sigmoid Resection and anastomosis		
5. AR + primary anastomosis		
6. LAR + primary anastomosis		
7. LAR + Colostomy		
8. APR		
9. Sigmoidectomy + Hartmann colostomy		
10. Sigmoid loop colostomy + biopsy		
11. Left hemicolectomy + transverse end colostomy		
12. Left hemicolectomy + sigmoidectomy + transverse end colostomy		
13. Transverse colon loop colostomy		
14. Others		