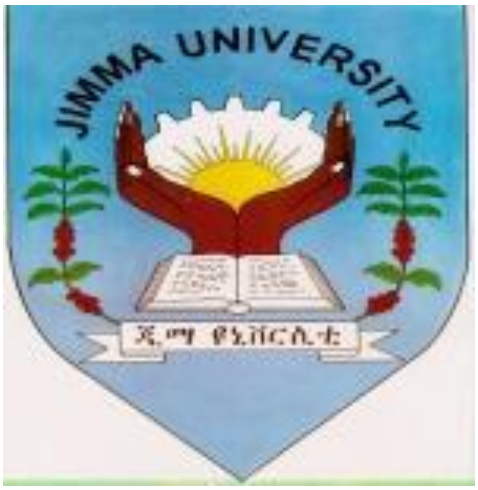

ONE YEAR PROSPECTIVE STUDY ON PATTERN ,CLINICAL PRESENTATION AND SURGICAL MANAGEMENT OF COLORECTAL CANCER IN JIMMA UNIVERSITY MEDICAL CENTER FROM DECEMBER 2020-DECEMBER 2021, JIMMA, SOUTH-WEST ETHIOPIA

A RESEARCH THESIS TO BE SUBMITTED TO SCHOOL OF MEDICINE, COLLEGE OF PUBLIC HEALTH AND MEDICAL SCIENCES, JIMMA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENT OF SPECIALTY CERTIFICATE IN SURGERY

BY: ABERA MENGISTU (MD)

JAUNARY ,2022

JIMMA ETHIOPI

JIMMA UNIVERSITY

FUCALTY OF MEDICAL SCIENCES

SCHOOL OF MEDICINE, DEPARTEMENT OF SURGERY

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Abstract

Background: Colorectal cancer is the third most commonly diagnosed cancer in males and the second in females worldwide. According to the Addis Ababa cancer registry, it is the first in male and fourth in female in Ethiopia. However, there have not been studies on pattern , clinical presentation and surgical management of colorectal cancer in JUMC. Hence, this study aimed to estimate the pattern ,clinical presentation and surgical management of colorectal cancer in JUMC.

Objective: To assess the patterns , clinical presentation and surgical management of colorectal cancer in JUMC from December 2020-december 2021.

Methodology: In this institution based prospective cross sectional study , all patient with colorectal cancer admitted to JUMC surgical ward was included and their medical records were evaluated . Data was entered using epi-data, version 3.0 and was analysed using SPSS for windows version 26, and descriptive data analysis using frequency was made to answer the research question

Results: The mean age of the study subjects was 47 + 16 years, ranging between 18 and 83 years. Only 14.3% of the patients are below 30 year sand31 % are above fifty years .57.1% were men, almost all come from out side Jimma town and 73.8% presented as an emergency. Vague abdominal pain was the leading symptoms in 39(92.9%)of pateints . Followed by bowl habit change and symptoms of obstruction which were in 21(71.4%) of the the patients each. Sign of obstruction found in 27(67.5%) and ,mass per Rectum in 14(35%) are most common signs.In twenty six(61.9%) of the patient the mass were obstructing, and obstructing with metastasis in 23.8%.one patient had non obstructing mass with metastasis. Recto sigmoid junction (35.7%) and caecum (21.4 %) were the common site of tumour. Low Anterior Resection were the commonly performed procedures among the elective cases and Diversion and biopsy was the commonly performed procedure among the emergency cases. Around two third had stage III and IV disease. Adenocarcinoma is the most common histologic type.

Conclusion: The prevalence of colorectal cancer is increasing and most of the patients comes with advanced disease, so increasing awareness of the health professionals and community are mandatory**.**

Key words: Colorectal cancer ,Frequency ,Clinical presentation ,surgical management.

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List Of Abbreviations

JUMC- Jimma University Medical Centre

CRC- Colorectal cancer

CBC-Complete blood count

LFT-Liver function test

RFT-Renal function test

DM-Diabetes mellitus

HTN--Hypertension

CEA- Carcinoembryonic Antigen

HIV-Human Immunodeficiency Virus

AIDS –Acquired Immunodeficiency Syndrome

DRE- Digital rectal examination

AR- Anterior resection

LAR- Low anterior resection

APR- Abdominoperineal resection

HAR-High anterior resection

SNNPR-Southern ,Nation, Nationalities And Peoples Region

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Operational definitions

Colorectal cancer (CRC) :Is a rapid abnormal cell growth that affects the large intestines and/or rectum

Frequency :Measures the number of times something occurs in a specific amount of time.

Emergent surgery: Surgery for a condition which is immediately life-threatening. Surgery must be performed within a few hours.

Urgent surgery: Surgery for a condition that is potentially life threatening surgery usually must be completed within 24 hour.

Co morbidity: The presence of one or more additional disease or disorder co-occurring with a primary disease or disorder.

Complication: Is unfavourable evolution or consequence of a disease, a health condition or a therapy.

CHAPTER ONE : Introduction

1. Background information

Cancer has surpassed the mortality rates of tuberculosis, malaria, and HIV/AIDS combined as the biggest cause of death worldwide, and it is quietly gaining centre stage. Colorectal cancer is a type of cancer that develops in the large intestine. It is also known as colon cancer or rectal cancer anatomically, but when both appear with comparable symptoms, it is referred to as colorectal cancer (CRC) [1–5]. The size, presence or absence of metastases, and tumour site all influence the clinical presentation of CRC. Early CRC is generally asymptomatic [6].CRC is the third most commonly diagnosed cancer in men and the second most commonly diagnosed cancer in women, making it the second-leading cause of cancer-related death worldwide and one of the world's deadliest malignancies. Its impact is projected to grow. Despite this growing burden, CRC remains a low public health priority in Africa due to inadequate resources and the prevalence of other urgent diseases [3, 5, 7, 8].

In Ethiopia's adult population, CRC is the third most common malignancy, and patients usually present with advanced disease stages [9]. According to the Addis Ababa cancer registry [10], it is the first in males and fourth in females. CRC was shown to be responsible for 11.2 percent of men's cancer-related fatalities (14,500) and 4.8 percent of women's cancer-related deaths (26,200) [11]. CRC is the most common cancer in the gastrointestinal tract today, accounting for 13% of all malignant tumours. Less developed countries showed a larger percentage of CRC deaths (52%) than developed countries, implying a worse rate of survival [3,12].

Despite the lack of data from Ethiopia, a recent report from the Global Cancer Statistics Centre showed an increase in the prevalence of cancer throughout Sub-Saharan Africa. The average age of the study subjects was 47 + 16 years, with a range of 18 to 83 years, according to a two-year review of colorectal cancer done at Tikur Anbessa Specialized Hospital. A third of those who presented were under the age of 40, 58 percent were men, nearly half were from Addis Ababa, and 20% appeared as an emergency. Rectal haemorrhage (63.0%), stomach pain (54.3%), weight loss (44.9%), tenesmus (39.4%), change in bowel habit (48.0%), and obstruction symptoms were also reported by study participants (17.3 percent). Mass on Digital Rectal examination is found in 50%, anaemia in 24.4%, abdominal mass in 22.8% and signs of obstruction among 11.8% of patients.

Rectum was the most common site of cancer in 48.3 percent of patients, followed by the caecum (12.5 percent), sigmoid colon (11.5 percent), and recto-sigmoid junction (11.5 percent) (10.8 percent). More over half of the study participants were in stages III and IV of the disease. More than 94 percent of the individuals had adenocarcinoma that had been confirmed histologically. In 34% of the instances, the tumour was either inoperable or unrespectable, indicating a delayed presentation. The hospital s to determine the hospital prevalence of colorectal cancer, as well as the most common presenting symptoms, signs, location, stage, and histology.

1.2. Statement of the problem

In the West, cancer is the main cause of mortality, but in underdeveloped countries, it is the second highest cause of death. Cancer is expected to cause over 13 million deaths per year by 2030 in nations where infections have traditionally been the leading cause of death. The number of new cases of colorectal cancer increased from 12.7 million in 2008 to 14.1 million in 2012, according to Global Cancer Statistics. Colorectal cancer is the world's third most prevalent malignant tumour, and the fifth most common in Sub-Saharan Africa. Colorectal cancer is becoming more common in Sub-Saharan Africa, despite the fact that most countries' epidemiological data is of poor quality. Access to healthcare has improved.. Colorectal cancer is the third most prevalent cancer in men and the second most common cancer in women. Colorectal cancer is diagnosed 4.1 percent of the time in women and 5% of the time in men. In Sub-Saharan Africa, the crude incidence of colorectal cancer for both sexes was reported to be 4.04 per 100,000 people (3.69 for women and 4.38 for men), with a male to female ratio of 1.2:1.The objective of this study was to assess the hospital pattern, common presenting symptoms, common presenting signs, site, stage ,surgical management and histology of colorectal cancer.

1.3 Significance of the study

Our study result helps surgical staff in the setting an opportunity to assess their performance and a chance to improve and helps for further research. The hospital administration can also be made to give a special attention on colorectal cancer. It also provide important information to the government and NGO's for intervention, by allocating budget in order to create awareness on surgical staff and communities on clinical presentation of colorectal cancer ,so that early diagnosis and management intervention will be made which intern improve outcome of the patients

CHAPTER TWO:- LITERATURE REVIEW

Colorectal cancer is a form of gastrointestinal cancer that develops in the colon or rectum. Despite the fact that both types of cancer can be simply described as colon or rectal cancers depending on their origin, they are frequently grouped together due to their many similarities(1).

In the study done in Tanzania a total of 7014 malignancies were registered. Of these, 332 (4.7%) were histopathologically confirmed colorectal cancer which formed the study population. The number of males was 202 (60.8%) and the number of females was 130 (39.2%) with a male to female ratio of 1.6:1. The age ranged from 15 to 82 years with a median age of 46 years. The modal age group at presentation was 41–50 years. One hundred and twenty-seven (38.3%) patients were aged 40 years and below. Family history of colorectal cancer was reported in 18 (5.4%) cases. The majority of patients, 234(70.5%) came from the rural areas and most of them, 204 (61.4%), had either primary or no formal education(2). According to the study done in black lion 69 (58%) were males with a male to female ratio of 1.3:1. Fifty six (49%) of the study subjects were between the age group of 40 and 60, while 44(36.6%) were under the age of 40 years. Sixty one (50.4 %) of the patients were from the capital, Addis Ababa(3).

According to the study done in Tanzania duration of symptoms at presentation ranged from 3 weeks to 7 years with a median duration of 22 months. Two hundred and forty-two (72.9%) patients presented within 6 months of onset and 90 (27.1%) presented longer than 6 months(2).

From the study in black lion ,Bleeding per rectum and vague abdominal pain were the leading symptoms in 63% and 54% followed by change in bowel habit, weight loss and tenesmus in 48%, 45% and 39 % respectively. Palpable abdominal mass was present in 29(23%) of patients and mass in the rectum was detected in 60(50%) cases. Twenty four percent of the patients were found to be anaemic (3).

According to the study in Tanzania there were 202 (60.8%) left-sided (distal colon) tumours, 78 (23.5%) right-sided (proximal) tumours and 52(15.7%) rectal tumours. The recto-sigmoid region was the most frequent site for colorectal cancer in 182 (54.8%) cases followed by cecum, ascending colon, descending colon and transverse colon in 40 (12.0%), 25 (7.5%), 20 (6.0%) and13 (3.9%) cases, respectively. The anorectum was involved in 52 (15.7%) cases. Of these, the tumour was palpable on digital rectal examination in 48 (92.3%) cases and in the remaining 4 (7.7%) patients the tumour was accessible only by proctoscopic and sigmoidoscopic examinations(2). Study in black lion shows 48.3% of the tumours were located in the rectum. The sigmoid and the recto sigmoid junction were seats of tumour in12.5% and 10.8% respectively. Hence sigmoid, recto sigmoid and rectum combined were the commonest (71.6%) sites involved in this study(3).

Microscopically, adenocarcinoma was the most common histopathological tumour in 328 (98.8%) patients. The majority of adenocarcinomas were moderately differentiated adenocarcinoma in 185(56.4%), 102 (31.1%) were well-differentiated and 41(12.5%) were poorly differentiated carcinoma(2). Adenocarcinoma (94.8%) was the most frequently reported cancer(3).

The most common colorectal cancer is adenocarcinoma, which accounts for up to 95% of cases, followed by carcinoid tumours, gastrointestinal stromal tumours (GISTs), lymphomas, and sarcomas. In well-differentiated adenocarcinoma, gland formation is over 95%, whereas in moderately differentiated and poorly differentiated adenocarcinoma, gland formation is only 50–95% or less than 50%, respectively (1).

According to TNM staging, only 11 (3.3%) patients were identified as being in early stages (TNM stage I) and 321 (96.7%) patients were presented in advanced stages (stage II-IV)(2). Of the 92 cases whose pathological stage of the tumour was documented only 8.7 % had stage I disease. It is worth noting that significant proportion (41.5%) of the cases had stage II disease which is amenable for curative surgery. The remaining 16.3 % and 31.5% of the cases were stage III and IV cancers respectively which are late stages(3).

The diagnosis of colorectal cancer was made by barium enema and proctosigmoidoscopy in 111 (33.4%) and 98 (29.5%) patients, respectively. The remaining 123 (37.0%) patients were diagnosed during laparotomy for other pathologies such as abdominal mass in 68 (55.3%) patients, intestinal obstruction in 38(30.9%), intussusception in 10(8.1%) and bowel perforation in 6 (4.9%) patients. No patients had colonoscopy examination(2). None of the emergency patients had undergone a colonoscopy within the previous year(4).

Of these 326, 282 (86.5%) patients were operated electively and the remaining 44 (13.5%) were operated on an emergency basis for intestinal obstruction in 38 (86.4%) and bowel perforation with peritonitis in 6 (13.6%) patients. Left hemi colectomy was the most frequent type of surgical procedure performed, accounting for 58.6% of cases(2). Of the 120 cases 80 % presented as an elective and 20% as an emergency(3). According to this study Anterior and Low Anterior Resection combined with Abdomino-Perineal Excision (38%) were the commonly performed procedures among the elective cases which correlate to the frequently encountered tumour site. Twenty percent of the tumours were unrespectable while 12.5% inoperable. Only 38(65.5%) patients of the rectal cancer cases had tumours amenable for resection while the remaining 20 (34.4%) were either unrespectable or inoperable(3). Of these 75 patients 32 (43%) presented on an emergency basis(4).

Colorectal cancer incidence rates are highest in registries of newly economically developed countries in Eastern Europe, such as the Czech Republic and Slovakia, and remain high in long-standing, economically developed countries such as Japan and Australia, as well as the majority of registries in Western Europe and North America.. In many countries, colorectal cancer mortality rates are decreasing, most likely due to improved screening and/or treatment; however, increases in mortality rates are still occurring in countries with limited resources, such as Mexico and Brazil in South America and Romania and Russia in Eastern Europe, when compared to long-standing, econometric models(5).

Overall, CRC incidence and mortality rates have decreased dramatically, owing in part to increasing screening among those over the age of 50. These reductions have not happened in persons under the age of 50. Incidence rates of CRC have risen in younger populations, whereas mortality rates have remained steady. When more screening is used to detect tumours sooner, the incidence of cancer rises while the mortality rate remains unchanged. Given the growing worry about the rising prevalence of young-onset CRC, etiologic investigations aimed at determining the processes that underlie increases in CRC incidence should carefully assess the impact of changing colonoscopy use over time(6).

Those with rectal cancer made up two-thirds of the cases brought to the tumour board, while patients with colon cancer made up one-third. The proportion of patients with colon cancer versus rectal cancer was found to be the polar opposite of what was seen in Western countries. This is possibly because the current management recommendation for rectal cancer in many patient requires combination radiotherapy and chemotherapy, which is only available in a specialized hospital, and this is the cause more common referral to the Multidisciplinary tumour board(7).

Unhealthy lifestyles are thought to be responsible for over 70% of CRC incidences in the United States. These risk factors, notably obesity, are extremely common in the United States, with high calorie intake and only small increases in physical activity(8). Although the processes underlying physical activity's protective impact against the formation of adenomas are mostly unclear, numerous putative methods by which physical activity may influence colorectal polyp and cancer risk have been proposed(9).

Colorectal adenomas have been identified as a significant predictor of colorectal cancer, however they have been linked to cigarette smoking more consistently in investigations. In Egypt, synchronous adenomas were discovered in only 6% of colorectal carcinoma patients, and polyploidy colorectal carcinoma is far less common in Asia and Africa than in the United States. If cigarette smoking operates early in the development of polyploidy colorectal cancer, it may have a lower impact on colorectal carcinogenesis in the absence of adenomas(10).

When compared to urban residency and non-farming occupation, rural residency and farming occupation have been linked to a lower incidence of colorectal cancer. Intense pesticide exposure, on the other hand, may raise the risk of cancer in rural inhabitants and farmers. The geographic distribution of high colorectal cancer incidence in the United States appears to be correlated with high agricultural activity. Villages in China with higher levels of polychlorinated biphenyl (PCB) and dichlorodiphenyltrichloroethane (DDT) in rice and soil samples had a considerably higher rate of colorectal cancer(10).

Consumption of red meat has been linked to an increased risk of colorectal cancer. The frequency of red meat eating, rather than the total amount of meat ingested, is linked to an increased risk of colorectal cancer(11).Fruit consumption was found to be negatively related to colorectal cancer risk, whereas vegetable consumption was found to be mostly irrelevant to risk among middle-aged and older Chinese men(12).

Traditional screening methods divide the population into high-risk (e.g., personal or family history, or diseases like ulcerative colitis) and average-risk (age ≥50) groups. The latest guidelines divide the available screening approaches into those that primarily detect malignancies and those that may also detect adenomas (with implications for CRC prevention). In general, tests with higher patient acceptability have lower sensitivity, while more accurate tests have lower patient compliance (secondary to cost, discomfort, intrusiveness etc.).Patients, for example, tolerate the faecal occult blood test (FOBT), although its sensitivity for advanced adenomas is just 10%. Colonoscopy is undoubtedly the greatest test because of its diagnostic and therapeutic aspects, yet many patients are hesitant to have it done (13).

While most people believe that individuals with a higher risk of colon cancer should have a colonoscopy, the majority of CRC patients were classified “average-risk” from the outset. Colonoscopy screening of the entire average-risk population, on the other hand, is ineffective because only 5–10% of those screened will have advanced neoplasia (carcinomas or advanced adenomas). Due to resource restrictions, it is unlikely that all of the 80% of the population ≥50 who now have not have a colonoscopy will ever have one(13).

The paradox is that the majority of people who require a colonoscopy do not receive one, while the majority of those who do receive one do not benefit from one. The drive for CRC risk categorization came from this conundrum. Age, gender, race, food, obesity, diabetes, smoking, and alcohol are only a few of the non-familial CRC risk factors. Indeed, it has been estimated that modifiable risk factors are responsible for 39–71 percent of CRCs. African-Americans are more likely to get CRC and die from it. There are a variety of possible explanations, including societal difficulties (access to healthcare, for example) as well as biological differences (a higher proportion of tumours evolve via DNA mismatch repair deficiency, and hence may behave more aggressively)(13).

Advanced stage at presentation and adjuvant therapy administration delays have a significant impact on patient survival. Colorectal cancer prognostic variables included the primary tumours site, lymph node involvement, distant metastasis, and treatment methods. Colorectal cancer patients who had rectal cancer, node-positive cancer, or metastatic cancer at the time of diagnosis had a worse survival rate. Adjuvant therapy, on the other hand, improved survival rates. Adjuvant chemotherapy administration will improve outcomes by increasing access to chemotherapy and radiation(14).

Colorectal cancer patients had overall survival rates of 90.7 percent, 47.0 percent, and 21.7 percent after one, three, and five years, respectively. The disparity in survival rates between young and older colorectal cancer patients is due to a variety of factors, including treatment techniques, unfavourable effects of medication and intoxication, comorbidity in older patients, and slow disease progression in younger individuals. This could be due to a lack of health awareness while seeking medical help, adherence to treatment during outpatient treatment, and the need for regular follow-up(15).

Almost two-thirds of the individuals in the survey had little knowledge of colorectal cancer. Similarly, as compared to risk variables, participants' awareness of CRC signs and symptoms was relatively low. Participants with a high level of education, a high income, and an age of more than 50 years, as well as females, were more aware of CRC, but the overall situation is unsatisfactory. Gender, residence, degree of education, monthly income, hearing about CRC, and information sources were all linked to CRC awareness. In order to prevent and reduce the incidence of CRC, it is critical to raise public knowledge about the disease and its associated risks(16)**.**

CHAPTER THREE :OBJECTIVES OF THE STUDY

3.1 General objectives

- To assess the patterns , clinical presentation and surgical management of colorectal cancer in JUMC from December 2020-december 2021

3.2 Specific objectives

- To assess the patterns of colorectal cancer in JUMC from December 2020-december 2021.
- To assess the clinical presentation of colorectal cancer in JUMC from December 2020-december 2021.
- To assess the most common site of colorectal cancer in JUMC from December 2020-december 2021.
- To assess types of surgery done for colorectal cancer in JUMC from December 2020-december 2021.
- To assess the histologic types of colorectal cancer in JUMC from December 2020-december 2021.

CHAPTER FOUR: METHOD AND MATERIALS

4.1 Study area and period

This study was carried out in Jimma, the largest city in south western Ethiopia. It is the special zone of the Oromia region, and is surrounded by Jimma zone. Jimma University is located in the city of Jimma; it is one of the largest and comprehensive public research universities in Africa.

This study was conducted in JUMC from December 2020- December 2021 G.C. since it is possible to obtain a sufficient number of surgical patients serving patients coming from different parts of southwestern Ethiopia; Jimma medical center provides services to 20 million people with 1700 staff member and 800 beds. Department of surgery is one of the main department in JUMC, which gives full-fledged clinical service and offers specialty training

4.2 Limitations of the study

Loss of the whole patient chart, incomplete documentations of patient's data on OR log book and morbidity sheet and missing documented paper works from patient charts. In complete documentation of the patient's sample at pathology department.

4.2 Study period

This study was conducted in JUMC conducted from December 2020- December 2021 G.C.

4.3 Study design

Prospective cross-sectional study design was employed.

4.4 Source population

All patients admitted to JUMC surgical ward.

4.5 Study population and unit

Surgical patients with colorectal cancer

4.6 Sampling

4.6.1 Sample size

All patient with colorectal cancer admitted to JUMC surgical ward during the study period were included

4.6.2 Sampling method

All Patient who met the inclusion criteria were. This was intended to attain a sample size large enough for validity of the study.

4.7 Description of a surgical patient admitted to the surgical ward

4.7.1 Inclusion criteria

All surgical patients with colorectal cancer

4.7.2 Exclusion criteria

Those surgical patients who were not operated and those patient with lost chart.

4.8 Study Variables

4.8.1 Dependent variable

Colorectal cancer , surgical management of colorectal cancer

4.8.2 Independent variables

Age

Sex

Clinical presentation

Residency

Family history

4.9 Data collection tools and procedures

By using hospital records from OR and Pathology department, patient document card and morbidity and mortality report.

4.10 Ethical Considerations

Ethical clearance was obtained from Institutional Review Board of Jimma University and permission was obtained from the authorities of the hospital. Information from card review was used only for the purpose of this research and confidentiality of information will be kept for all patients.

4.11 Dissemination and Utilization of the result

The result of this study will be compiled with three copies and would be given to the department of surgery, School of medicine, and college of medicine and health science.

CHAPTER FIVE :RESULT AND DISCUSSION

5.1 RESULT

5.1.1: Socio-demographic characteristics

There were 42 patients in one year who treated for colorectal cancer. Twenty four (57%) were males with a male to female ratio of 1.3:1. Twenty three (54.8%) of the study subjects were between the age group of 30 and 50, while only six (14.3%) were under the age of 30 years and 13(31%) where above 50 years. Thirty three (78.8%) of the patients were from Jimma town and Jimma zone (Table .1)

Only nine (19.0%) of the study population has comorbidities. The comorbidities found are DM and cardiac diseases including HTN. One patient has family history of colorectal cancer. Eighteen (42.9%) of the patients are chat chewing history but only small number have history of smoking and alcohol ingestion Table (2).

Table 1. Socio-demographic characteristics of colorectal cancer cases in JUMC from December 2020- December 2021 G.C.

Features		**Frequency**	**Present**
Sex	Male	24	57.1
	Female	18	42.9
	Male; Female Ratio	1.3:1	
Age	<3o	6	14.3
	30-50	23	54.8
	>50	13	31.0
Address	Jimma Town	2	4.8
	Jimma Zone	31	73.8
	SNNPR	4	9.5
	Other	5	11.9

Table 2. Comorbidities, family history and risk factors of colorectal cancer cases in JUMC from December 2020- December 2021 G.C.

Features		Frequency	Percentage
Comorbidities	yes	8	19.0
	No	34	81.0
Family history	yes	1	2.4
	No	41	97.6
smoking	**yes**	3	7.1
	No	39	92.9
alcohol	**yes**	6	14.3
	No	36	85.7
Chat	**yes**	18	42.9
	No	24	57.1

5.1.2. Presenting compliant, modes of presentation, symptoms and sign

The the main chief compliant of the patient's Abdominal pain 20(47.6%),followed by failure to pass faeces and flatus 18(42.9%). Fifteen(35.7%) had duration of compliant of less than a month and Eleven(26.2%) patient presented after with compliant of between one and three month duration. only six(14.3%) patient had compliant which lasted more than a year(fig,1and 2).

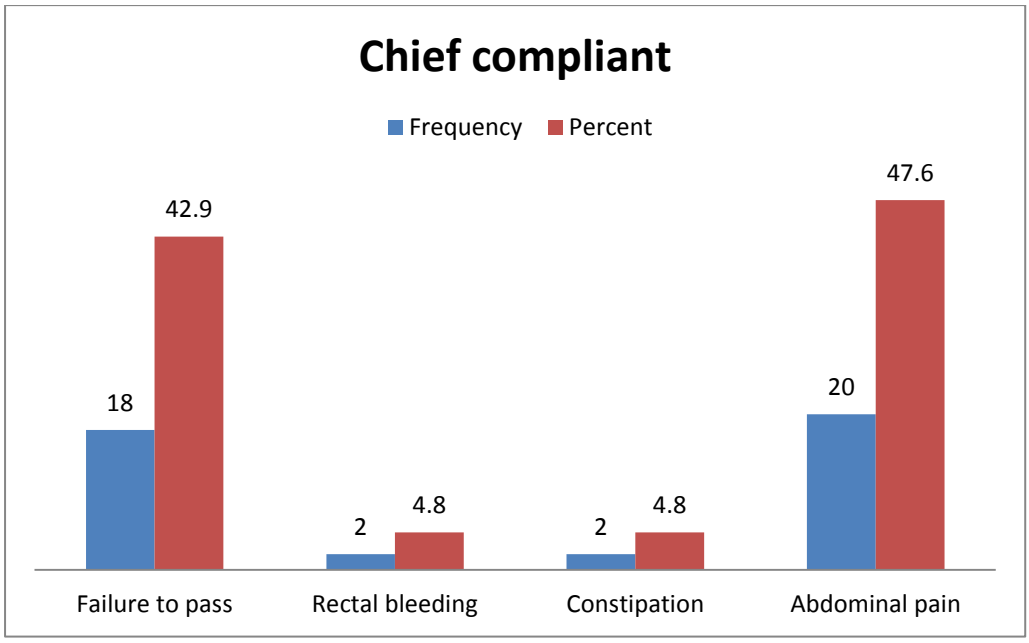

FIGURE 1.CHEIF COMPLIANT OF THE PATIENT.

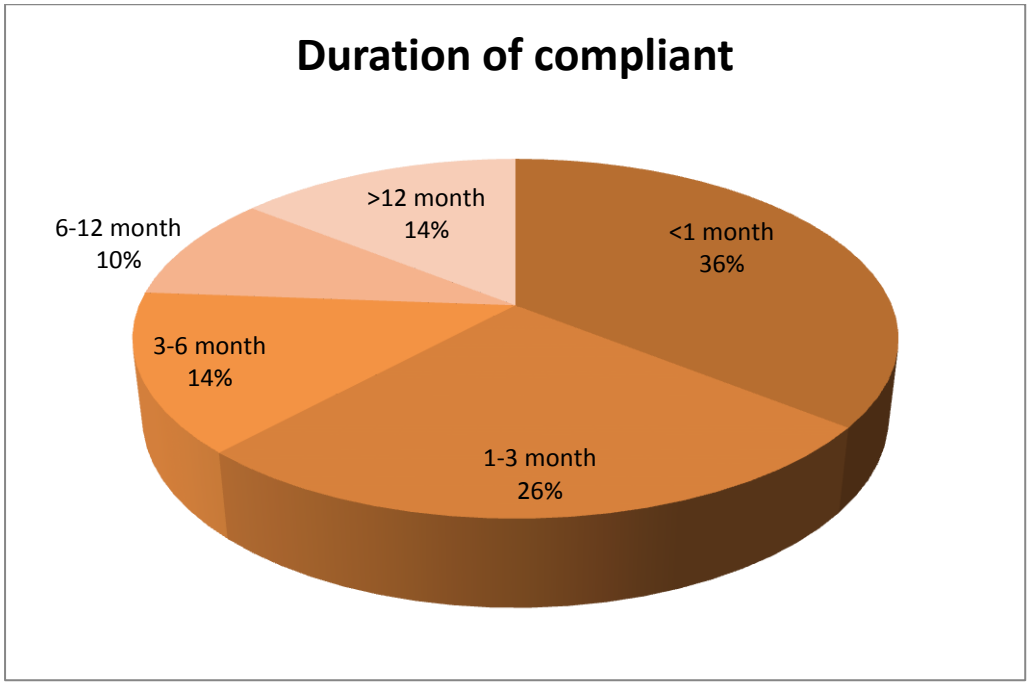

FIGURE 2. DURATION OF COMPLIANT.

Of the 42 cases (73.8 %) presented as an emergency and 11(26.3%) as an elective. Vague abdominal pain was the leading symptoms in 39(929%) of patients . Followed by bowl habit change and symptoms of obstruction which were in 21(71.4%) of the the patients each. Rectal bleeding,weight loss and tenesmus in 50%,45.2% and 11.9% .respectively. Sign of obstruction found in 27(67.5%) of the patient, mass per Rectum in 14(35%) and 25% of the patients were anaemic .only 5(7.5%) of the patient had palpable abdominal mass Table (3).

Table 3. Mode of Presentation of Colorectal Cancer cases to JUMC from December 2020- December 2021 G.C.

Presentation	**Frequency**	**Percentage**
emergency	31	73.8
elective	11	26.2
Symptoms		
Rectal bleeding	21	50.0%
Abdominal pain	39	92.9%
Bowl habit change	30	71.4%
Wt loss	19	45.2%
Tenesmus	5	11.9%
Obstruction	30	71.4%
Abdominal mass	3	7.1%
Symptoms of anaemia	2	4.8%
sign		
Mass per rectum	14	35.0%
Abdominal mass	3	7.5%
Presence of anaemia	10	25.0%
Obstruction	27	67.5%

5.1.3. Laboratory and Imaging

Seven (16.7%) of the patient had leucocytosis and 16(38.1%) were anaemic. All patients for whom RFT and LFT determined had normal laboratory value (Table 4). Twenty two of the patients had preoperative ultrasound. Six (14.3%) of which had intussusception, 11.9% had colonic mass and 9.5% shows lymph node and liver metastasis. Six patients had normal abdominal u/s (Table 5). Preoperative CT scan was done for 13 patient, Seven of which shows colonic mass, two patient had lymph node metastasis and two had normal CT scan despite ultrasound finding of colonic mass (Table 6).As described in Table 7, Nine the patient had preoperative Colonoscopy of which and, four patient had colorectal cancer and incomplete for one patient due to collapsed bowl.

Table 4.laboratory finding Of Colorectal Cancer patient In JUMC From December 2020- December 2021 G.C.

		Frequencies	**Percentage**
WBC	**Normal**	35	83.3
	Leucocytosis	7	16.7
Hct	Normal	26	61.9
	mild anaemia	13	31.0
	moderate anaemia	3	7.1
RFT	Normal	38	90.5
	Abnormal	**0**	**0**
	not done	4	9.5
LFT	Normal	34	81.0
	Abnormal	**0**	**0**
	not done	8	19.0

Table 5.Ultrasound Of Colorectal Cancer patients In JUMC from December 2020-December 2021 G.C.

	Frequencies	**Percentage**
colinic mass	5	11.9
lymph node metastasis	1	2.4
intussucception	6	14.3
colorectal mass with both lymphnode and liver metastasis	4	9.5
normal	6	14.3
not done	20	47.6

Table 6. CT scans Of Colorectal Cancer patients In JUMC from December 2020- December 2021 G.C.

	Frequencies	**Percentage**
Colonic Mass	7	16.7
Rectal Mass	1	2.4
Colorectal Mass	1	2.4
Lymphnode Metastasis	2	4.8
Normal	2	4.8
Not Done	29	69.0

Table 7.Colonoscopy finding Of Colorectal Cancer patients In JUMC from December 2020- December 2021 G.C.

	Frequencies	**Percentage**
Rectal Mass	2	4.8
Colonic Mass	2	4.8
Colorectal	4	9.5
Not Done	33	78.6
Incomplete	1	2.4

5.1.4 Preoperative Diagnosis and Staging

Fourteen (33.3%) of the patient had preoperative diagnosis of large bowl obstruction secondary to colonic mass, followed by 8(19%) patient secondary to rectal mass. Large bowl obstruction of unspecified ethology and small bowl obstruction accounts for 19% and 14.3% respectively. Preoperative staging was done for 11 patients; six patients were stage two and five patients were stage three. No stage four diseases diagnosed preoperatively (Table 8).

Table 8.preoperative diagnosis of colorectal Cancer patients In JUMC from December 2020- December 2021 G.C.

Preoperative diagnosis	Frequencies	Percentage
Large Bowl Obstruction	8	19.0
Small Bowl Obstruction	6	14.3
Large Bowl Obstruction Secondary To Colonic Mass	14	33.3
LBO Secondary To Rectal Mass	8	19.0
LBO Sec To Colorectal Mass	6	14.3

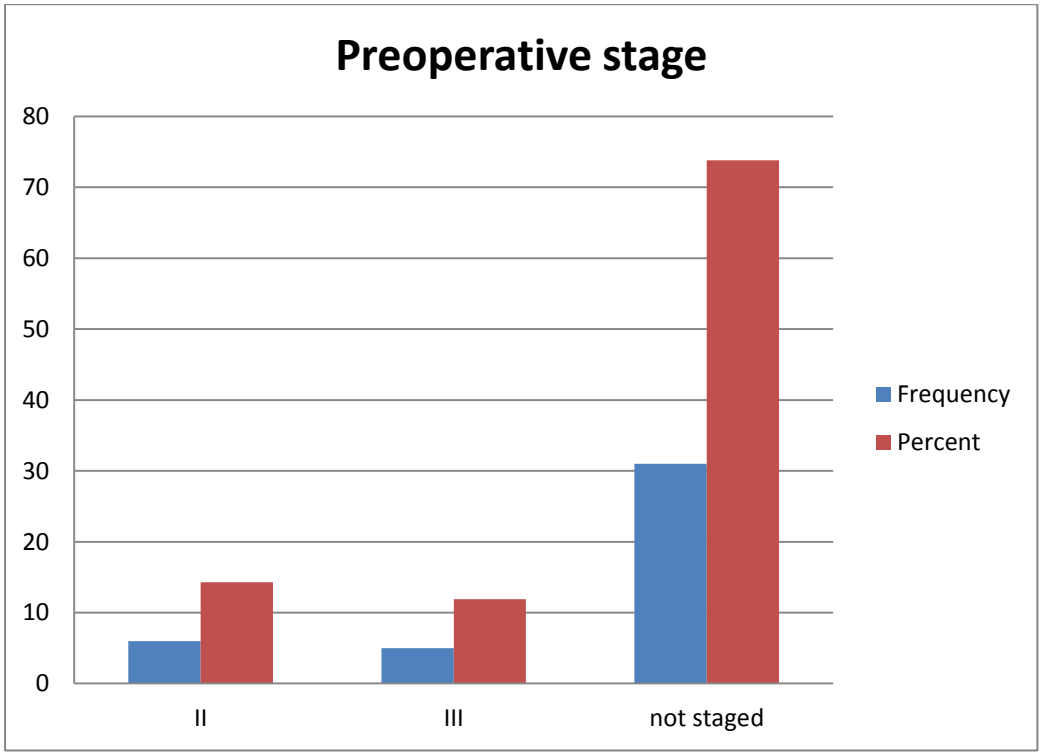

FIGURE 3. PREOPERATIVE STAGE

5.1.5 Intraoperative feature, Site and Intraoperative staging

In twenty six(61.9%) of the patient the mass were obstructing, and obstructing with metastasis in 23.8%.one patient had non obstructing mass with metastasis (fig.4) Recto sigmoid junction (35.7%) and cecum (21.4 %) were the common site of tumour ,followed by sigmoid and rectum in 14.3% and 9.5% respectively . Rectum, Recto sigmoid and sigmoid accounted for 59.5% of the cases. Twelve (28.6%) of the patient had intraoperative stage four disease, while stage two and three accounts for 35.2% each (Table 9).

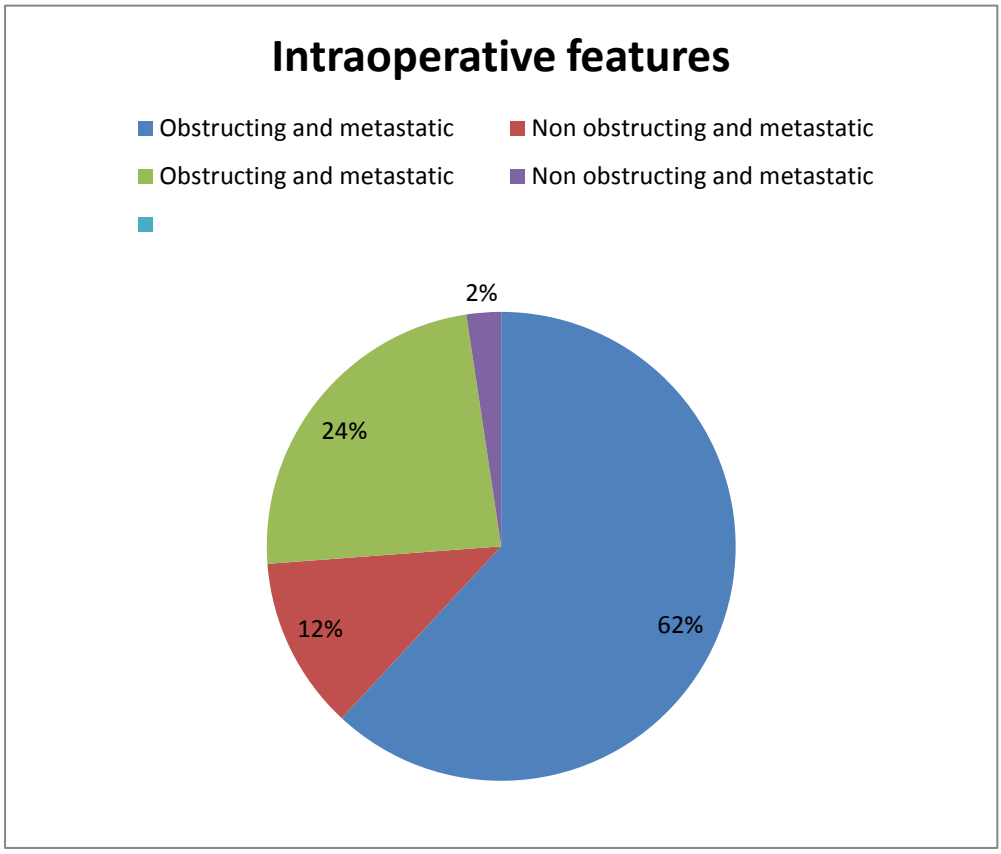

FIGURE 4. INTRAOPERATIVE FEATURES OF THE MASS.

Table 9. Site of Tumour In Cases Of Colorectal Cancer In JUMC From December 2020- December 2021 G.C.

	Frequency	**Percentage**
Site of the tumour		
Rectum	4	9.5
Sigmoid	6	14.3
Recto sigmoid	15	35.7
Descending Colon	1	2.4
Transverse Colon	3	7.1
Cecum	9	21.4
Cecum And Ascending Colon	3	7.1
Ascending Colon And Descending Colon	1	2.4
Intraoperative stage		
II	15	35.7
III	15	35.7
IV	12	28.6

5.1.6 Types of surgery for elective vs emergency cases

According to this study Low Anterior Resection were the commonly performed procedures among the elective cases done for 4 patients, three with primary anastomosis and one with stoma, followed by right hemi colectomy (2 patients). Diversion and biopsy was the commonly performed procedure among the elective cases done for 10 patients. Right hemi colectomy and sigmoid resection with Hartman's colostomy were the next common done for 6 and 5 patients respectively**.** Total colectomy was done for one patient on elective bases (Table 10 and fig 5).

Table10. Type of surgery for elective Vs emergency cases in JUMC from December 2020- December 2021 G.C.

Types of surgery	Emergency	Elective	Total
Extended right hemi colectomy AND colostomy	1	0	1
Left hemi colectomy + stoma	1	0	1
Sigmoid resection +Hartman's	5	0	5
LAR +anastomosis	0	3	3
LAR +colostomy	1	0	1
Operated ,advanced un resectable tumour, biopsy taken	3	1	4
In operable	1	0	1
Diversion ,biopsy	10	0	10
Right hemi colectomy +stoma	1	1	2
Right hemi colectomy +primary anastomosis	6	2	8
Total colectomy + ileostomy	0	1	1
Sigmoid colectomy + primary anastomosis	0	1	1
Subtotal colectomy and diversion	1	0	1
Extended right hemi colectomy and anastomosis	0	1	1
Total proctocolectomy	0	1	1
HAR and Hartman's procedure	1	0	1

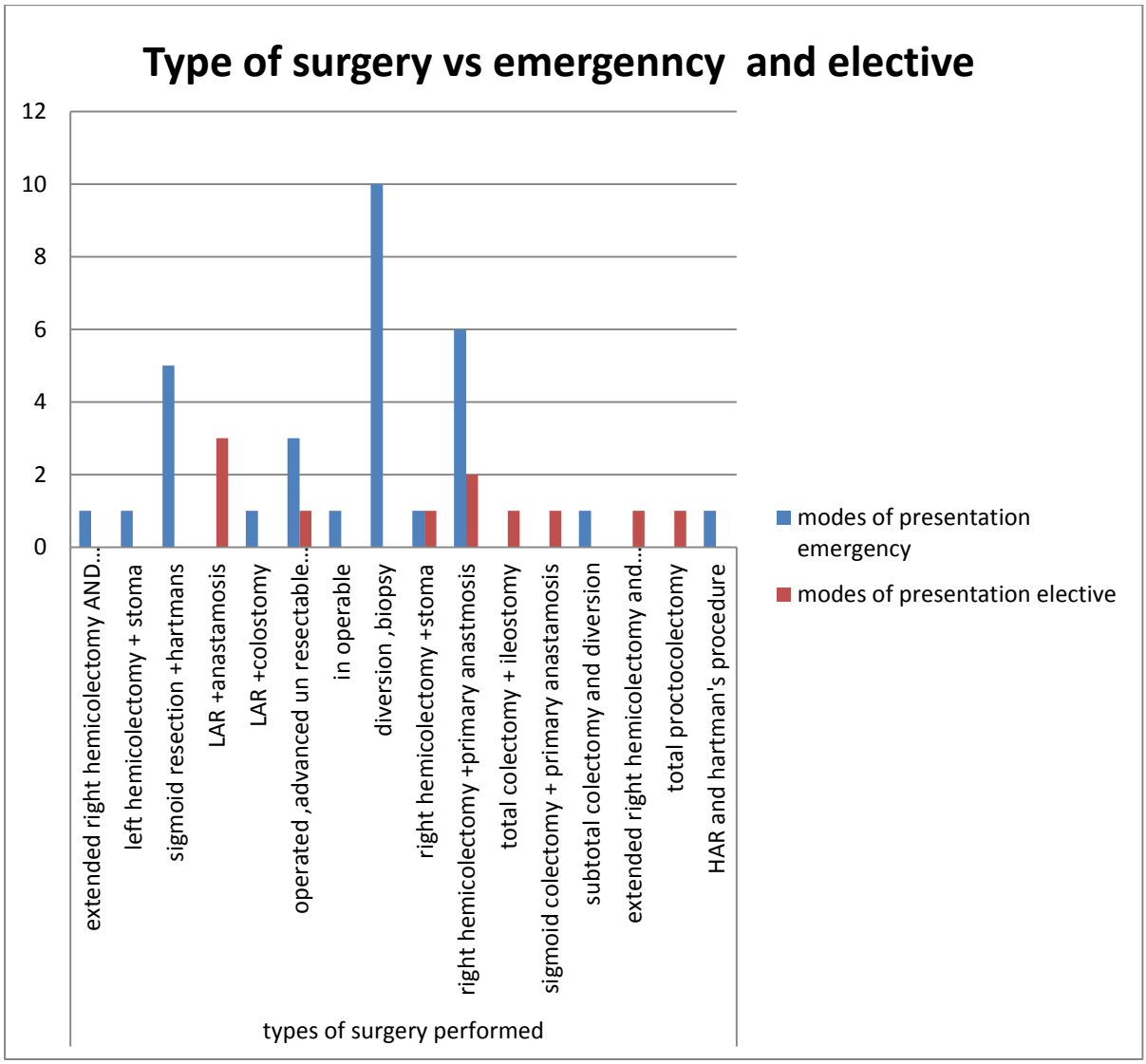

FIGURE 5.TYPES OF SURGERY FOR ELECTIVE AND EMERGENCY CASES

5.1.7. Histology type and stage

Around 78.5% of the diagnosis were histologically confirmed, other are not found, not sent or still waiting but I included in these study because the intra operative finding strongly goes with malignancy. Adenocarcinoma accounts for 100% of histologically confirmed cases.

Table 11. Histology type and stage of confirmed colorectal cancer cases in JUMC from December 2020- December 2021 G.C.

HISTOLOGY	**Frequency**	**Percentage**
Adenocarcinoma	33	78.5
Carcinoid	0	0
Lymphoma	0	0
Maltoma\ MALT LYMPHOMA	0	0
Sarcoma	0	0
Not found	4	9.5
Not sent	2	7.1
Still waiting	3	4.7

5.2 DISCUSSION

Although prevalence could not be determined due to the limitation of data and absence of similar research in the past in our setup , it seems that there is an increasing trend of colorectal cancer cases in our country based on two studies done in black lion hospital[3].Increased awareness and improved access to health service might play a role in increasing the number of colorectal cancers seen, however this may not be the sole explanation as this might as well be due to the change in life style of the population as a whole since this has also been witnessed in other researches from Africa [2, 3, 5, 6].

Twenty three(54.8%) of the study subjects were between the age group of 30 and 50,which is comparable with study done in black lion hospital which shows mean age of 47 + 16 years[3] There were also another study done in study Tanzania[2] and sub Saharan Africa[18]which shows mean age of 46 and 51.35 years respectively. However, it is in great dissimilarity with reports from developed world where elderly populations dominate the picture[17]. Only six (14.3%) were under the age of 30 years which is against the study done in black lion[3] which shows 36 percent of patients were under the age of 40 years. The studies from Nigeria and Tanzania[2] also shows higher number. Around 73.8%of the patients were from Jimma zone (rural area), which is comparable to study done in Tanzania[2], which shows 70.5% from rural area.

In this study a slight male preponderance was seen with a male to female ratio of 1.3:1 which is similar to a study done in black lion hospital showing the same result [3]. And almost comparable with the study done in Tanzania [2] where the ratio is 1.6:1. But some of the studies from the West show the male to female ratio is 1:1 [17] and studies from sub-Saharan Africa shows male: female ratio of 3:1[18].

Vague abdominal pain and bowl habit change are the common presenting symptoms which were found in 92.3% and 71.4% of the patients respectively, unlike the studies done in black lion hospital[2] and sub-Saharan Africa[18] which put the rectal bleeding as leading presenting symptoms. Palpable Mass per Rectum is the common physical finding which is comparable to above listed studies, followed by clinical sign of obstruction.

Most of (61.9%) of the patient resented with in three month of compliant unlike the study done in Tanzania[2] were most of the patient present between 3 and 7 month of compliant and the studies in sub-Saharan Africa[18] which was between 4 and 7 month. But 76.2% 0f the patient presented with in six month which is comparable with the studies done in Tanzania[2].

Of the 42 cases (73.8 %) presented as an emergency and 11(26.3%) as an elective, unlike the studies done in black lion hospital [3] where (80%) of the cases were operated on elective base, the study from Tanzania[2] where 86.5% of the study subjects were operated as an elective and study from Vernon jubilee hospital, Canada [4] which reported 43% of patients presented as an emergency. In These study almost all emergency patients had obstruction (mainly large bowl obstruction) which is comparable to the study done in Tanzania[2] (86.6%) and unlike study from Vernon Jubilee hospital, Canada[4] 59% where of the emergency patient presented with obstruction.

Most of our patient had no preoperative imaging (both diagnostic and staging). CT scan was done for 30.9% and Colonoscopy was done for 21.4% of patients. From the study done at Vernon Jubilee hospital, Canada[4] none of the emergency patient had preoperative colonoscopy.

Intraoperative most of the mass were obstructing (61.9%) and 23.8% has obstruction with metastasis. Recto sigmoid junction is the commonest site of the tumour (35.7%) but the number is less than the study done in black lion hospital[3](71.6%) and Tanzania[2] which shows 54.8%. cecum (21.4 %) is the second followed by ascending colon(9.5%) which is comparable with study from Tanzania which were 12% and 7.5% respectively. Rectum, Recto sigmoid and sigmoid accounted for 59.5% of the cases, but from the study done in black lion[3]it accounts for 71.9%. This distribution further falls down for western countries where there is clear change in distribution from left to right[19]. The reason for this anatomical difference among these countries is not clear.

Adenocarcinoma was the commonest histology type (100%), which is comparable with the study done in black lion where it accounts for 94.8%. This is also similar to studies from Tanzania which revealed 98.8%. It is difficult to conclude pathologic staging because only few patients had complete pathological diagnosis.

In this study 28.6%)of the patient stage four disease and three accounts for 35.2% which is comparable to the study done in Tanzania[2] where lymph node and distant metastases were encountered in 30.4% and 24.7% respectively. However, it is in contrast with the study done in black lion hospital[3] where lymph node metastases (stage III) were relatively less (16.3%) compared to distant metastasis (31.5%) which was mainly liver metastasis. In the study done in sub-Saharan Africa[18]Fifty five percent of the operated patient showed evidence of distant (liver) metastasis. Stage two diseases also account for 35.2% and most of the patients present with with intuccesseption secondary to intraluminal mass.

Although the data is limited and difficult to conclude according to this study Low Anterior Resection were the commonly performed procedures among the elective cases done for 4 patients, three with primary anastomosis and one with stoma, followed by right hemi colectomy (2 patients). According to the studies done in black lion hospital[3] Anterior and Low Anterior Resection combined with Abdomino-Perineal Excision (38%) were the commonly performed procedures among the elective case. Left hemi colectomy were the most commonly performed procedures from the study done in Tanzania [2].More of the right hemi colectomy performed where for emergency cases in our site but from the study in black lion it was commonly performed for elective cases .The number advanced unrespectable tumours accounts for 33.3% of the patients which is higher than study from black lion which were 19.3%.

The Fact that 33.3% of our patients were either inoperable or had unrespectable tumor tells that there was a significant delay in presentation which is similar to the report from black lion[3] and Tanzanian[2].Late presentation in our series could be due to lack of awareness of both the patients and health physicians, low level of education, and lack of accessibility to health care facilities which could be an area of future research. Some of the cases were being treated as parasitic disease and hemorrhoids which further added to the delay. Therefore the role of digital rectal examination in adult patients coming with bloody and or mucoid diarrhea cannot be overemphasized.

Surgery continues to be the primary treatment option for colorectal cancer patients and resection has been the standard procedure for cancers primarily localized to the colon and rectum[3]. Complete resection of colorectal cancer with excision of adjacent lymph nodes is the only chance of cure in early stage cancer[3].

CHAPTER SIX: CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Most of the patients are between 30 and 50 years of age. Male are commonly affected than female with Male: Female ratio of 1.3:1.around seventy four percent of the patient are from country side which may add to delay presentation. Most of the patients (73.8%) come on emergency base were the main compliant were abdominal pain and failure to pass. Mass per rectum the most common physical finding which signifying the importance of a thorough physical examination. More than two-third of the study subjects had advanced cancer (stage III and IV) which shows a big gap on early diagnosis and referral; both at community and facility level.

6.2 Recommendation

Build the capacity of health care providers on early identification and referral of cases, and also improve the capacity of the health facilities by availing the much needed diagnostic tools. Create awareness among the community and health professionals at the teaching institutions and through different media to increase early diagnosis and care seeking behaviour for improved outcome. Proper documentation of data at all levels so as to use for future research, advocacy purpose and informing policy makers. Further research should also be done with more extended period to have sample size and including outcome.

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Annex II Questionnaire

Jimma University

College of Public health and Medical sciences

Department of Surgery

Questionnaire and consent on pattern, clinical presentation and surgical management of colorectal cancer at JUMC, Jimma zone, Oromia region, Southwest Ethiopia, 2021

INFORMED CONSENT

Date: dd ____ mm___ yy_____

My name is Abera mengistu and I'm surgery resident from jimma university medical centre. I intend to conduct a research on pattern, clinical presentation and surgical management of colorectal cancer in JUMC.I want to enrol and interview eligible study participants, and fill in questionnaire forms. There will not be a risk to participants from being involved in the study and the participant may not get direct or indirect benefit from the study .The information obtained from each participant will remain confidential. I am delighted to tell you that I am really value your participation as your individual contribution to the study output will definitely be very significant .I am glad to inform you that, you are one of the eligible study participants and you are welcome to take part in this study. But you can freely decide whether to participate in this study or not. I will admire and respect what so ever your decision is. I would also like to inform you that your name will not be written anywhere in this paper. Would you like to participate in this study?

1. Yes _____ 2. No _____

Ani maqaan Koo Abarraa Mangistuuun jedhaama. Giddu gala yaala fayyaa Jimmaati reesiidentii ispeeshalistii baqaqsaani yaaluuti. Giddu gala yaala fayyaa kana keessatti waa'ee fafaca'insa,mallattolee fi gosa baqaqsanii yaaluu kansaarii mari'ummaan guddaa fi dhumma mari'ummaan guddaa, irratti qorannoo gochaan jira.kanaaf namoota qorannoo kana keesatti hirmachuu danda'an qorannoo kana keessatii hirmaachisee guca qophaa'e guutun barbaada.Sababa qoranno kana keessatti hirmaataniif rakkoon irra qaqabuu fi hirmaachuu isaanif bu'aan kallatti ykn alkallatti argattan hin jiru.Odeeeffanonnon hirmaatota qorannoo kanaa irraa funaaname hundi icitiin isaa kan eegameedha .Qoranno kana irratti yoon isin/si hirmaachisuu gammachuudhani. Hirmaannan keessan baay'ee barbaachisaa fi qorannoof waan filaatameef feedhi keessan/kee irratti hundaa'un , hirmaachuuf yaada keesssan bilisaan murteessu dandeessu/sa. Qoranna kana keessatti maqaan keessan/kee kan hin barreefamne fi icittin kan eegamee ta'u isinif/sif ibsun barbaada. Irratti hirmaachuuf feedhi qabduu?

1. Eeyyee_____ 2. Lakki _____

ስሜአበራ መንግስቱ እባላለሁ በጅማዩኒቨርሲቲ የህክምና ኮሌጅ የቀዶ ህክምና ሬዝደንት ነኝ። በ JUMC ወስጥ በአንጀት እና የፊንጢጣ ካንሰር ስርጭት እና ህክምና ላይ ምርምር ለማካሄድ አስባለሁ። ብቁ የሆኑ የጥናት ተሳታፊዎችን መመዘገብ እና ቃለ መጠይቅ ሚድረግ እና መጠይቅ ቅጾችን መመላት እፈልጋለሁ በጥናቱ ወስጥ ተሳታፊ በመሆን አደጋ አይኖርም እንዲሁም ተሳታፊው ከጥናቱ ቀጥተኛ ወይም ቀጥተኛ ያልሆነ ጥቅም ላይገኝ ይችላል። ከእያንዳንዱ ተሳታፊዎች የተገኘውመረጃ ሚስጥራዊ ሆኖ ይቆያል:: ለጥናቱ ወጩት የግለሰብ አስተዋፅኦዎ በጣምአስፈላጊ ስለሚሆን ለእርስዎ ተሳትፎዎ በጣምዋጋ እሰጣለሁ። እርስዎ ብቁ ከሆኑ የጥናት ተሳታፊዎች መካከል አንዱ ስለሆኑ እና እርስዎ እንዲሳተፉ እንኳን በደህና መጡ። ግን በዚህ ጥናት ለመሳተፍ ወይምላለመሳተፍ በነፃነት መወሰን ይችላሉ። ውሳኔዎ ምን እንደ ሆነ ሁል ጊዜ አደንቃለሁ እና አከብራለሁ። እንዲሁም በዚህ ወረቀት ወስጥ ስምዎ በየትኛውምቦታ እንደሚይፃፍ ለማወቅ እወዳለሁ። በዚህ ጥናት ወስጥ መሳተፍ ይፈልጋሉ?

1. አዎ _____ 2. አይደለም_____

Jimma University

College of public health and medical sciences Department of Surgery

Questionnaire to assess the patterns, clinical presentation and surgical management of colorectal cancer in JUMC, Jimma zone, Oromia region, south west Ethiopia 2021.

A. Socio-demographic questionnaire

1. Age ----------
2. Sex 1. Male 2. Female
3. Occupation 1.Farmer 2.Driver 3.Merchant 4.Employee 5.Other
4. Residence 1) Jimma Town 2) Jimma zone 3) SNNPR 4) Gambella Region
5. Chronic illness (comorbidity) 1) Yes 2) No
6. If yes to No 5 1) DM 2) HTN 3) Cardiac diseases 4) Renal Disease 5) Other.
7. Family history of same illness 1) yes 2)No

8.Smoking History 1)yes 2)No

9.Alchol Consumption 1)yes 2)No

1O.Chat Chewing 1)yes 2)No

B.**Modes of presentation**

1.Presentation

A. Emergency 1,Yes 2,No

B. Elective 1, Yes 2, No

2.Chief Compliant

A, Failure to pass B, Rectal bleeding C .abdominal mass

D, Constipation E, Mass per rectum F. Abdominal pain

3. Symphtoms

A.Rectal bleeding B. Abdominal pain

C.Bowel habit change D. Wt. loss

E.Tenesmus F. Obstruction

G.Abdominal mass H. Symptoms of anaemia

3.Duration Of Compliant

A.≤1 Month B.1-3 Month C. 3-6 Month D.6-12 Month E.≥12 Month

4.Signs

A.Mass on DRE C. Presence of anaemia ,

B.Abdominal mass D. Obstruction

C.Laboratory and imaging

1, CBC

A, WBC; 1,NORMAL 2,LUECOCYTOSIS

B,Hct/Hgb 1,Normal 2,Mild Anemia 3,Moderate Anemia ,4,Severe Anemia

2,LFT : A, Normal B, Abnormal finding C. Not done

3.RFT : A, Normal B, Abnormal finding C. Not done

4.CXR: A, Normal B, Abnormal finding C. Not done

5.U/S: A, Normal B, abnormal finding(List)

6.CT scan: A,Normal B,abnormal finding (List)

7.Colonoscopy: A,Normal B,abnormal finding(List)

8.OTHER

D.Preoperative Diagnosis

E.Preoperative Staging

1, I 2,II 3,III 4, IV

F,Intra operative finding

1.Feature of the mass

A ,Obstructing B, Non obstructing C, Metastatic

2,Location of the mass

A, Rectum B, Sigmoid C, Ascending colon D, Transverse colon E, Cecum

3.Intra operative staging A,I B, II C,III D, IV

G.Types of surgery performed

1.Right Hemi colectomy 2. Extended right Hemi colectomy

3.Left Hemi colectomy 4.Sigmoid Resection

5.AR + primary anastomosis 6.LAR +primary anastomosis

7.LAR +Colostomy 8.APR

9.Operated, advanced unrespectable tumour 10.Inoperable /advanced

11.Hartmann's colostomy 12.Others

H**. Histologic Finding**

A.Adenocarcinoma B.Carcinoid C. Lymphoma

D. Maltoma\ MALT LYMPHOMA E. Sarcoma