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# ABNORMAL COLONOSCOPY FINDINGS AMONG PATIENTS WHO ATTEND AL SALAM TEACHING HOSPITAL IN MOSUL CITY

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### ABSTRACT

**Background:** Colorectal cancer is one of the most common cancers. The epidemiology of colorectal cancer varies significantly; developed countries are more likely to have it than low- and middle-income countries. But because of environmental changes and westernization, the incidence is rising in developing countries. Colonoscopy is important because it enable the physicians from detection of cancer at early stages. Objectives: To describe the colonoscopy findings of patients who attend Al Salam Teaching hospital in Mosul/ Iraq, highlighting characteristics of colorectal cancer with regard to demographics, clinical, and pathologic features. Methods: An observational, descriptive, prospective case series study done at endoscopy unit- Al Salam Teaching Hospital in Mosul/Iraq. The colonoscopy was done by the investigator to available patients how attend endoscopic unit of Al Salam Teaching Hospital between 1<sup>st</sup> of July 2023 to the end of December 2024. The Questionnaire was composed of three parts, the first included demographic information of the patients, the second for colonoscopy findings and the third for details of patients' comorbidities. Results: The study participants were 334; sixteen patients were excluded before doing colonoscopy because they do not meet inclusion criteria. The remaining 318 patients were doing colonoscopy. Of them 150 patients were excluded due to benign or normal colonoscopy findings. Among the 168 patients with abnormal findings, 94 (55.95%) patients were males, with male to female ratio is 1.27:1. The mean age for the study participants was  $53.75 \pm 14.26$  years. 109 (64.88%). The mean BMI of the study participants was  $26.72 \pm 5.13$ . Active smoking was present among 51 (30.35%) patients. The study found that the rectum is the commonest site of tumor, the average tumor size at time of diagnosis is 5.24 cm, mostly of invasive adenocarcinoma type, with moderate differentiation and having positive lymph node involvement or metastasis to other organs. Conclusion: The majority of cases occur in males, after the age of 50 years for both males and females, in those who live in urban areas. Colonoscopy is very important in diagnosis of colorectal carcinoma at different times of cancer presentation.

KEYWORDS: Colonoscopy, Colorectal cancer, Mosul, Iraq.

## **1- INTRODUCTION**

Colorectal cancer (CRC) is one of the most common cancers.<sup>[1]</sup> Colorectal cancer ranks second in terms of mortality (9.2%) and third in terms of recognition (6.1%).<sup>[2]</sup> The overall CRC incidence proportion (CIP) for both males and females in Iraq rose from 2.28 to 6.18 per 100,000 population in 2000 to 2019, respectively.<sup>[3]</sup> Globally, the epidemiology of colorectal cancer varies significantly; developed countries are more likely to have it than low- and middle-income countries. But because of environmental changes and westernization, the incidence is rising in developing countries, and it is predicted to increase by

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60% at 2030.<sup>[4]</sup> Since cancer is associated with aging, the majority of CRC occurrences occur after the age of fifty, and it is more common in men than in women because environmental variables appear to have a greater impact on men.<sup>[5-7]</sup> The chance of developing colorectal cancer is double-four folds that of the general population when first-degree relatives have a history of colorectal cancer.<sup>[8]</sup> The most important behavioral variables that contribute to the development of CRC are obesity and physical inactivity.<sup>[9-11]</sup> Studies have shown that people who regularly exercise had a 25% decreased risk of developing colorectal cancer.<sup>[12]</sup> In order to treat colorectal cancer, early detection by screening,

adenomatous polyp excision, and early-stage disease identification are important, which is usually done by colonoscopy<sup>[13-14]</sup> The development of CRC is also largely influenced by genetic factors, primarily the inactivation of tumor suppressor genes or the activation of proto-oncogenes.<sup>[15-16]</sup>

More than 90% of colorectal cancers (CRCs) are are malignant tumors which adenocarcinomas, originating from the glandular epithelial cells of the colon and rectum.<sup>[17]</sup> Squamous cell carcinoma, and undifferentiated adenosquamous carcinoma, carcinoma are less prevalent types.<sup>[17-18]</sup> Many CRC tumors start out as small, asymptomatic polyps, and patients usually show no symptoms in the early stages of the disease.<sup>[19-20]</sup> When symptoms do appear, they vary according on the location of the tumor, the involvement of lymph nodes, and organ metastases.<sup>[21]</sup>

The aim of the study is to describe the colonoscopy findings of patients who attend Al Salam Teaching hospital in Mosul/ Iraq, highlighting characteristics of CRC with regard to demographics, clinical, and pathologic features.

### 2-PATIENTS AND METHODS

The study is confidential and did not include any information that might be used to identify a specific individual. Ethical approval was given by Nineveh Health Directorate. It is a prospective analysis, descriptive, case series study done at endoscopy unit- Al Salam Teaching Hospital in Mosul, Iraq, and the colonoscopies were performed by the author using an Olympus Japan SN-2510583/CF-P10 Storz video colonoscopy SN1349. The study period was from the 1<sup>st</sup> of July 2023 to the end of December 2024. Patients who complained from lower gastrointestinal or constitutional symptoms of suspected malignancies were included in the study; patients with upper gastrointestinal symptoms, acute active bloody diarrhea, or bleeding diathesis were not included in the study; in addition to that; patients with benign or normal examination were excluded as well. The patients were prepared for the procedure; and informed consent were signed. The rectum and almost whole colon were visualized, biopsies were taken from the lesions, and it transferred to the hospital's histopathology laboratory. The resulted findings were documented and some of the lesions were photographed. The questionnaire form contained many parts, part one for patient's socio-demographic characteristics and anthropometric information, part two for cancer-related information, part three for patient's comorbidities.

The statistical software SPSS-30 (Statistical Packages for Social Sciences, version 30) was used to analyze the data. Data were interpreted in simple measures of frequency, percentage, mean and standard deviation.

## **3-RESULTS**

The study participants were 334; sixteen patients were excluded before doing colonoscopy due to different upper gastrointestinal symptoms (9 patients) or acute active bloody diarrhea (4 patients) or bleeding diathesis (3 patients). The remaining 318 patients were doing colonoscopy. Of them 150 patients were excluded due to benign or normal colonoscopy findings. As shown in figure 1.



Figure 1: The study population.

Among the 168 patients with abnormal findings, 94 (55.95%) patients were males and 74 (44.05%) patients were females, with male to female ratio is 1.27:1. The mean age for the study participants was  $53.75 \pm 14.26$  years. Moreover; 109 (64.88%) patients were from urban residency and 59 (35.12%) patients were from rural

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residency. Additionally; the mean BMI was  $26.72 \pm 5.13$ . Lastly; active smoking was present among 51 (30.35%) patients, while passive smoking, x-smoking and nonsmoking were present among 25 (14.89%), 29 (17.26%) and 63 (37.50%) patients respectively. As shown in table 1.

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 Table 1: Socio-demographic information of the study population.

Variable		Number	Percent
Gender	Male	94	55.95
	Female	74	44.05
Age, mean ± (SD)		$53.75 \pm 14.26$	

BMI, mean ± (SD)		$26.72 \pm 5.13$	
Residence	Urban	109	64.88
	Rural	59	35.12
Smoking	Active	51	30.35
	Passive	25	14.89
	X-smoker	29	17.26
	Non smoker	63	37.50

Table 2 shows cancer related information, abnormal lesions were present at the left side of the body among 122 (72.61%) patients versus 46 (27.39%) patients having right sided lesion. Moreover, ano-rectum, rectum, recto-sigmoid, sigmoid, descending colon, splenic flexure, transverse colon, hepatic flexure, ascending colon and cecum were present in 6 (3.57%), 33 (19.64%), 15 (8.93%), 38 (22.62%), 19 (11.31%), 5 (2.97%), 4 (2.38%), 4 (2.38%), 29 (17.27%) and 15 (8.93%) respectively. The mean size of the lesions was  $5.24 \pm 2.68$  centimeter. Furthermore; Invasive adenocarcinoma was prevalent among 150 (89.29%) patients, while Invasive mucinous carcinoma and Signet ring carcinoma were prevalent among 12 (7.14%) and 6

(3.57%) patients respectively. Regarding tumor (16.67%) patients were well differentiation: 28 differentiated, 122 (72.62%) patients were moderately differentiated and 18 (10.71%) patients were poorly differentiated. Additionally; 71 (42.26%) patients were had stage II, while 64 (38.09%) and 33 (19.65%) had stage III and IV respectively. From the other hand; tumor invasion results were founded to be T 1 among 5 (2.97%), T2 among 25 (14.88%), T3 among 86 (51.19%) and T4 among 50 (29.76%) patients. Lymph node score was founded to be N 0 among 71 (42.26%), N 1 among 43 (25.59%) and N2 among 54 (32.15%) patients. Lastly; metastasis was present among 87 (51.78%) of the study participants.

Variable		Number	Percent
	Left	122	72.61
Side of the lesion	Right	46	27.39
	Ano-rectum	6	3.57
	Rectum	33	19.64
	Recto-sigmoid	15	8.93
	Sigmoid	38	22.62
Site of the logion	Descending colon	19	11.31
Site of the lesion	Splenic flexure	5	2.97
	Transverse colon	4	2.38
	Hepatic flexure	4	2.38
	Ascending colon	29	17.27
	Cecum	15	8.93
Size of the lesion in cm, Me	$an \pm (SD)$	$5.24 \pm 2.68$	
	Invasive adenocarcinoma	150	89.29
Type of tumor	Invasive mucinous carcinoma	12	7.14
	Signet ring carcinoma	6	3.57
	Well	28	16.67
Tumor differentiation	Moderate	122	72.62
	Poor	18	10.71
	Stage II	71	42.26
Tumor Stage	Stage III	64	38.09
	Stage IV	33	19.65
Tumor Invasion	T 1	5	2.97
	T 2	25	14.88
	Т 3	86	51.19
	T 4	50	29.76
	N 0	71	42.26
Lymph node involvement	N 1	43	25.59
	N 2	54	32.15
Motostosis	Yes	87	51.78
Wietastasis	No	81	48.22

## Table 2: Cancer related information

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Table 3 illustrates different clinical comorbidities associated with patients with abnormal lesions. Its evident that Cholecystectomy was prevalent in 18 (10.71%) patients, gall stone in 29 (17.26%) patients, hypertension in 65 (38.69%) patients, diabetes mellitus in 39 (23.21%) patients, ischemic heart disease in 9 (5.35%) patients, Hypercholesterolemia in 13 (7.74%), family history of colorectal cancer in 29 (17.26%), family history of other cancer in 49 (29.16%) and radiation therapy exposure among 3 (1.78%) patients.

Table 3: Clinical	comorbidities	associated with	n patients with	abnormal lesions.
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Variable	Number	Percent
Cholecystectomy	18	10.71
Gall stone	29	17.26
Hypertension	65	38.69
Diabetes mellitus	39	23.21
Ischemic heart disease	9	5.35
Hypercholesterolemia	13	7.74
Family history of colorectal cancer	29	17.26
Family history of other cancer	49	29.16
Radiation therapy exposure	3	1.78

## 4- DISCUSSION

The use of flexible colorectal endoscopy resulted in a revolution in the diagnosis of different types of colorectal carcinoma in many communities. This prospective study which was conducted in Mosul was designed to identify the pattern of colorectal diseases among patients presented with various lower gastrointestinal symptoms to endoscopic unit of Al Salam teaching hospital. The study shows that male gender is the predominant gender, of more than 50 years old and of overweight-obese body building, which are consistent with a study conducted in Baghdad/ Iraq by Rand Muthanna Farhad et al.<sup>[22]</sup> Urban residency patients are associated with colorectal cancers more than rural residency, this might due to low fiber diet intake and lower physical activity among urbanization society, From the other hand; about 30% of the study participants are active smokers these findings are in agreement with Ammar Mahad Mohammed et al study findings.<sup>[23]</sup>

The study found that the left side of the body are affected more than the right side and the rectum is the commonest site of tumor, the average tumor size at time of diagnosis is 5.24 cm, mostly of invasive adenocarcinoma type, with moderate differentiation which are consistent with Makkie A. K. Alyouzbaki et al, Ammar Mahad Mohammed et al study findings.<sup>[24, 23]</sup>

The study found different tumor stages with having advanced tumor invasion and positive lymph node involvement or metastasis to other organs are the commonest patient presentation, which is runs with Taha HT Al-Saigh et al<sup>[25]</sup> and Rand Muthanna Farhad et al. studies' findings.<sup>[22]</sup> Different associated comorbidities were founded among cancerous patients, some of them are essential and the other are family or genes related, comparable results are obtained from Ammar Mahad Mohammed et al.<sup>[23]</sup> The limitations of the study include a relatively small number of patients and the fact that recruitment was only from a single center of Mosul/Iraq. In addition to; the difficulties of limited sources which have a great deal of impact on the study such as absent of

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isolation room and data collection time for conducting the research.

## 5- CONCLUSION AND RECOMMENDATION

The majority of cases occur in males, after the age of 50 years for both males and females, in those who live in urban areas. The most common site of cancer was in the rectum; the most prevalent grade was grade II, and the frequent stage was T3 according to TNM staging. The majority of patients had metastatic cancer and most of them had lymph node involvement. The most common chronic disease in the patient was hypertension and about one of the patients having positive family history of another site of tumor. Colonoscopy is very important in diagnosis of colorectal carcinoma at different times of cancer presentation.

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**Conflict of interest:** About this study, the authors disclose no conflicts of interest.

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