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Original Article

Proportion of Colorectal Cancer Proved by a Histopathological Study on Patients Who Underwent Colonoscopy

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Abstract

Background: Colorectal cancer is the third most common cancer in the world, and the general lifetime risk of development cancer in the United States is 6%. Many people with colon cancer experience no symptoms in the early stage of the disease. When symptoms appear, they will likely vary, depending on the cancer size and location in the large intestine. **Objective:** The objective of this study was to determine the proportion of colorectal cancer proved by a histopathological findings on patients who underwent colonoscopy and also to study the association of colorectal cancer with age, gender, and presenting signs. **Materials and Methods:** This study has been carried out at gastroenterology, and colonoscopy has been done for 366 patients with signs and symptoms of lower gastrointestinal tract infection. Out of those patients, biopsies have been taken from 320 patients. **Results:** Results of distribution of the patients who underwent colonoscopy by presenting signs and symptoms found that the majority (80.6%) of the patients presented with bleeding per rectum. The distribution of (320) patients by histopathological findings found that only 17.8% of patients had colorectal tumors. **Conclusion:** Younger age group is more involved in colon cancer and left colon was the most common site, and when symptoms occur, the tumor is locally invasive.

Keywords: Colonoscopy, colorectal cancer, polyps

Introduction

Colorectal cancer is the third most common cancer in the world causing death for high population and the general lifetime risk of development cancer in the United States is about 6%.[1]

Colorectal cancer almost always develops from precancerous polyps (abnormal growths) in the colon or rectum. There are various screening tests available for colon cancer; flexible sigmoidoscopy and colonoscopy are the most commonly used. Flexible sigmoidoscopy only checks for polyps or cancer inside the rectum and lower third of the colon, while colonoscopy checks for colon polyps or cancer inside the rectum and the entire colon. It is also used as a follow-up test if anything unusual is found during one of the other screening tests. Other screening tests being studied are virtual colonoscopy and stool DNA test. However, these tests are currently not covered uniformly by the insurance companies.[2]

There are many factors linked to an increased chance of developing colorectal cancer such as age, polyps, family history, ulcerative colitis, diet, and smoking.

Many people with colon cancer experience no symptoms in the early stage of the disease. When symptoms appear, they will likely vary, depending on the cancer size and location in the large intestine.[3] The influence of age and sex on the site distribution of large bowel malignancies is widely reported to change with time. There is a relative decrease in frequency in the left side of the colon with relative increase on the right.[4] In the left colon, cancer might present as bleeding per the rectum or change in bowel habit, while in the right colon, cancer might present usually as anemia with its consequent fatigue, weight loss, and fever in 50% of patients. It might cause intestinal obstruction in 10%. The tumor might invade other organs, which leads to other signs and symptoms.[5]

The standard treatment for colorectal cancer is surgery with wide resection and anastomosis. The aim of surgical treatment for cure is to remove the tumor and its lymphatic drainage and

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provide adequate clear margins ensuring removal of entire tumor burden.[6] The risk of recurrence after surgery varies from 20% to 40%; This result comes from incomplete tumor excision. Several studies found that implantation of tumor cells or the development of new growth and the risk can be reduced by total mesorectal excision.[5] So the postoperative follow-up is important in every case, especially those regarded as high-risk groups and this can be achieved by colonoscopy and barium anemia.

The aim of this study was to determine the proportion of colorectal cancer proved by a histopathological study on patients who underwent colonoscopy and the association of colon rectal cancer with age, gender, and presenting symptoms and signs.

Materials and Methods

Patients and study design

This study was carried out at the gastroenterology department (Center of Al-Shaheed Dr. Majed), Marjan Medical City, by teamwork. This study was conducted from January 2018 to December 2018. This was a hospital-based cross-sectional study to determine the proportion of colorectal cancer proved by a histopathological study on 320 biopsies taken from 366 patients who underwent colonoscopy and the association of colorectal cancer with age, gender, presenting signs and symptoms, colonoscopic finding, and site of lesion.

The inclusion and exclusion criteria for the patients were as follows: (A) inclusion criteria: All patients with lower gastrointestinal tract disease and (B) exclusion criteria: patients with normal colonoscopy. Data were collected from all the eligible patients who had given consultation to participate. The data were obtained from the colonoscopy and histopathological report.

Study variables

A: Dependent variable: This included the histopathological findings proved cancer or not. B: Independent variable of this study, which included several variables such as age, gender, presenting signs and symptoms, colonoscopy finding, and site of lesion.

Data analysis

Statistical analysis was carried out using SPSS version 21 (SPSS, IBM Company, Chicago, IL, USA). Categorical variables were presented as frequencies and percentage. Continuous variables were presented as means with their 95% confidence interval. Pearson's Chi-square test was used to find the association between dependent and independent variables. $P \leq 0.05$ was considered as statistically significant.

Results

Proportion of patients with colorectal cancer

Colonoscopy has been done for 366 patients with signs and symptoms of lower GI problem; out of those patients, biopsies have been taken from 320 patients. Only 57 patients (17.8%) had malignant changes proved by biopsy.

Sociodemographic characteristics of patients with colonoscopy

The overall mean age of patients who underwent colonoscopy was 44.24 ± 17.91 years, and majority (62.8%) of them were male. There was no significant difference between the mean age of male (44.55 ± 17.41) years old and female (43.70 ± 18.78) years old, $t = 0.439$, df = 364, $P = 0.66$.

Signs and symptoms of patients

The distribution of the patients (who underwent colonoscopy) according to presenting signs and symptoms are shown in Figure 1. Majority (80.6%) of patients presented with bleeding per the rectum.

Colonoscopy finding and site of lesions

The distribution of patients by colonoscopy findings is shown in Figure 2; the majority (32.8%) of colonoscopic finding was colorectal polyps; meanwhile, only 25% of the finding was pancolitis and only (17.8) of the finding was colorectal masses.

Histopathological finding for patients with biopsies

Figure 3 shows the distribution of 320 patients by histopathological finding. Only 17.8% of histopathological finding was colorectal tumors; meanwhile, ulcerative colitis, Crohn's disease, and nonspecific colitis represented 45% and colorectal polyps represented 32.8%.

Site of colorectal tumor

Results of site of colorectal tumor revealed that 49.1% was of tumor located in the left colon, 33.3% in the rectum, 14.0% in the right colon, and 3.5% in more than one site [Figure 4].

Association between histopathological finding and risk factors

Table 1 shows the association of histopathological finding by age, sex, site of the tumor, presentation of the patients, and colonoscopic finding. There was a significant association between histopathological finding with age, sex, presentation of the patients, and colonoscopic finding; meanwhile, there was no significant association between histopathological finding and site of the lesion. Majority (70.2%) of patients with tumor by histopathological finding were younger than 60 years and male (50.9%). Furthermore, majority (71.9%) of patients with tumor presented with bleeding per the rectum and colorectal mass as colonoscopic finding.

Discussion

The incidence of colorectal cancer varies widely with higher incidence rates in North America, Australia, and Northern and Western Europe.[7] Developing countries have lower rates, particularly Africa and Asia.[8,9] The incidences of colon and rectum cancer in the Arab world are relatively low. There is only limited variation in incidence rate between sex

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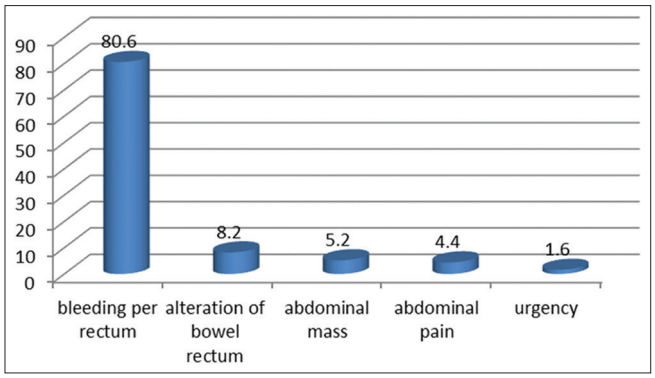

Figure 1: Distribution of patients by presenting signs and symptoms

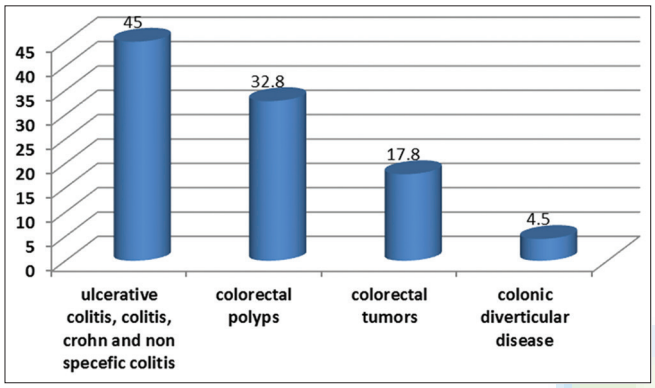

Figure 3: Distribution of patients by histopathological findings

Table 1: Association between histopathological finding and its associated risk factors

Variable	Tumor (%)	χ^2	df	*P*
Age (years)				
<60	40 (70.2)	4.84	1	0.028*
≥60	17 (29.8)	8		
Sex				
Female	28 (49.1)	5.51	1	0.019
Male	29 (50.9)	0		
Site of the lesion				
Left colon	28 (50.9)	2.26	1	0.132
Other sites	27 (49.1)	6		
Presentation of the patients				
Bleeding per rectum	41 (71.9)	4.27	1	0.039*
Other presentations	16 (28.1)	9		
Colonoscopic finding				
Colonic and rectal mass	41 (71.9)	176.0	1	<0.001**
Other findings	16 (28.1)	2		

*$P \leq 0.05$ was significant, **$P \leq 0.01$ was significant

and colon–rectum ratio from approximately 1:1 to 3:1. In Yemen, there is a relatively high proportion of early-onset tumors (19.35% of cases were <40 years), with a left-sided distribution (49.4% of cases in the rectum and rectosigmoid junction).[10] Similarly, in Egypt, 38% of patients are younger than 40 years and 75% of lesion are on the left side,[11] and in Qatar, the descending and sigmoid colon is the most common

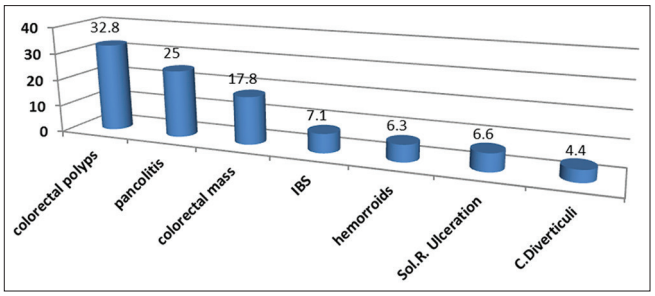

Figure 2: Distribution of patients by colonoscopic findings

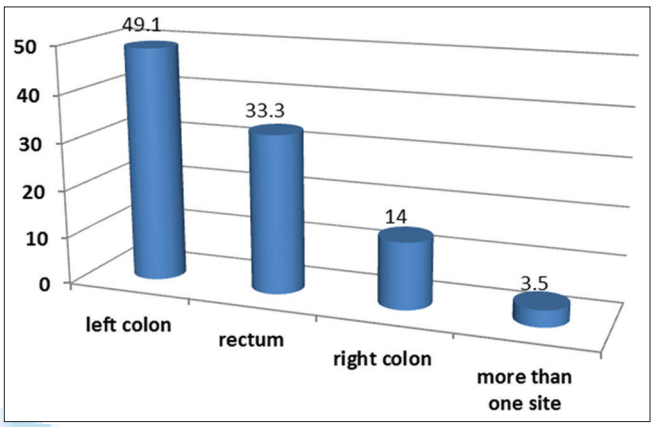

Figure 4: Distribution of patients with colorectal tumor by site of lesion

anatomical site affected.[12] The first reported incidence of colorectal and esophageal cancer in Iraq was published in 1979 and 1980 by Al-Bahrani *et al.*[13] who reported low frequency of colorectal cancer and a high frequency of esophageal and stomach in Iraq. Meanwhile, Al-Humid study in 2008 reported that there were 511 patients diagnosed with colorectal cancer from 1965 to 1994.

The male\female incidence was 1.4:1 for colon cancer. The highest incidence was seen at the median age of 50, with the higher incidence ratio for colon cancer than rectal cancer. The most common symptom was change in bowel habits with obstruction for colon cancer (51%), rectal bleeding, and change in bowel habits for rectal cancer (71.5%). The rectum was the most common site (47%), followed by the left colon and sigmoid colon (27%) and the right colon (26%). The predisposing factors were seen in 3% for adenomatous polyps, 5% for familial polyps, and 3%. for ulcerative colitis.

The overall mean age of patients in the current study was older than 44 years, and majority (62.8) of patients were male; Meanwhile, the most common site of lesion in the current study was the left colon, followed by rectum. Bleeding per rectum was the most common symptoms followed by change in bowel habits. These results are incompatible to several previous local studies. Still, colorectal polyps are the most common pathology of these studies. There has been a change in the cultural dietary habits and the types of foods consumed in Iraq since the introduction of the freezer and refrigerator within the last 30 years. It is well known that

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fruits, vegetable, and grains provide insoluble fiber with micronutrient antioxidants with possible anticarcinogenic properties.

The increased consumption of red meat, especially lamp and beef with preservative, along with other sources of saturated fats and the decreased intake of fruits and vegetable, may be contributing factors in the rise of colorectal cancer in Iraq from 1970s to 1990s.[14] This increase could be related to economic, organic, and environmental factors. The possible interaction of genetic and environmental factors, physical activity, change in lifestyle, and use of tobacco in addition to the dietary habitat may influence to increase the incidence of colon and rectal cancer in Iraq.[15]

Conclusion

Younger age group is more involved in colon cancer, and there is a shift of colon cancer in this study to the left side of the colon. Hence, left colon was the most common site, and when symptoms occur, the tumor is locally invasive.

Ethical clearance

The study was conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki. The study protocol and the subject information and consent from were reviewed and approved by a local Ethics Committee.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest

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