



Original article

Clinical and Pathological Characteristics of Colorectal Carcinoma

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Abstract

Background and aims. Colorectal cancer is the most common malignancy of the GI tract and is a major cause of morbidity and mortality worldwide. Colorectal cancer is a major health problem in developing countries. The purpose of this study was to analyze the clinico-pathological characteristics of colorectal carcinoma in Benghazi Libya. **Methods:** A retrospective study was conducted in Department of Radiotherapy, National Cancer Center, Benghazi, Libya. This study included 60 cases of colorectal cancer diagnosed over a period of three years (January 2018 through December 2020). **Results:** A total of 60 patients were studied out of these, 34 (57%) patients were male, whereas 26 (43%) were female with male: female ratio of 1.3:1. The mean age was 60.7 ± 13.5 years with age ranged from 21 to 81 years. Maximum number of cases were observed between the ages of 51-60 years and 71-80 years. In the studied cases, the most common histological type of colorectal adenocarcinoma was non-mucinous adenocarcinoma 42 (70%), mucinous adenocarcinoma 18 (30%). The rectum was the predominant site with 42 (72%) cases followed by the recto-sigmoid colon with 9 (15%) cases. In both non-mucinous and mucinous colorectal adenocarcinoma, the commonest histological grade was grade II 34 (56.7%). Majority of cases presented at TNM stages IIIB, and IV 27 (45%), 25 (41.7%) respectively. **Conclusions:** Adenocarcinoma was the most common histological type. Patients with colorectal cancer were more expected to present with more advanced stages in older age group. Such results necessitate the need for screening program for the detection at an earlier stage and to achieve a reduction of mortality rate.

Keywords: Adenocarcinoma, Mucinous Adenocarcinoma, Histopathological Characteristics.

Introduction

Colorectal cancer (CRC) is the second leading cause of cancer related deaths in both sex causing prime health issue in developing countries (1). CRC is the fourth most common cancer in males (after lung, prostate, and stomach cancer) and the third most common cancer in women (after cancers of breast and uterine cervix) (2). The role of environment, dietary habit and life style is seen even in families inheriting muted high penetrance genes are responsible for over two thirds of all CRC (3). The sites of cancer in families with hereditary nonpolyposis colorectal cancer (HNPCC) have matched the prevalence of sporadic cancer (4). Age, tumor grade and differentiation, mucinous subtype, geographic area, the degree of lymph node involvement and disease stage at presentation were found as prognostic factors for overall survival in colorectal cancer patients (5-7). The present study was aimed to find out the frequency pattern, age and sex distribution, as well as histopathologic characteristics of CRC in Benghazi Libya.

Methods

The material of the present study retrospectively collected from the archives of Department of Radiotherapy, National Cancer Center, Benghazi, Libya covering the period from January 2018 through December 2020. The pathology reports of 60 patients of colorectal carcinoma were collected and the type, grade and staging of the tumors were obtained. The clinical data for gender, age, and tumor location were retrieved from the patients' records. The clinical data and histopathological characteristics were analyzed using Microsoft Excel software and presented as tables and graphs. The collected data then analyzed using the Microsoft Excel.

Results

A total of 60 patients were diagnosed as having colorectal carcinoma over period of two years. Out of these, 34 (57%) patients were male, whereas 26 (43%) were female with male: female ratio of 1.3:1. Age ranging from 21 to 81 years with a mean age of 60.7 (SD±13.5). The distribution of patients in various age groups is shown in (Table 1). Maximum number of cases were observed in the age groups between 51-60 years (25%), 61-70 years (20%), and 71-80 years 15 (25%), in both males and females gender (Table 1).

The most common histological types of colorectal carcinoma observed in the studied cases was non-mucinous adenocarcinoma (42 cases, 70%), and both genders were equally affected (21 cases, 35% each), followed by mucinous adenocarcinoma 18 (30%) cases with male predominance 13 (12%) (Figure 2). Representative images from both non-mucinous and mucinous colorectal adenocarcinoma were illustrated in Figure 3.

More than half of the cases were located in the rectum (43 cases, 72%) followed by recto-sigmoid region (9 cases, 15%), colon (6 cases, 10%), and ano-rectal region (2 cases, 3%) each as shown in (Figure 4).

The most common histological grade in this study was moderately differentiated tumors (grade II) which was observed in 34 cases (56.7%) in both non-mucinous and mucinous colorectal adenocarcinoma, followed by well differentiated tumors (grade I) observed in 14 cases (23.3%), and poorly differentiated tumors (grade III) represented in 12 cases (20%) in both histological types as shown in Table 2.

Pathological staging of colorectal adenocarcinoma using TNM staging systems, most of the studied case presented with stage III B 27 (45%), followed by stage IV 27 (45%), stage IIIA, stage IIA, and stage IIB, 5(8.3%), 4(6%), and 2 (3%) respectively as shown in Table 2.

Table 1: Distribution of colorectal carcinoma according to age group and gender.

Age	Male	Female	Total No.
21-30	1 (2%)	0	2%
31-40	3 (5%)	1 (2%)	7%
41-50	3 (5%)	8 (13.3%)	18%
51-60	10 (16.7%)	5 (8.3%)	25%
61-70	7 (11.7)	5 (8.3%)	20%
71-80	10 (16.7%)	5 (8.3%)	25%
> 80	1 (2%)	1 (2%)	3%
Total	35 (58%)	25 (42%)	60 (100%)

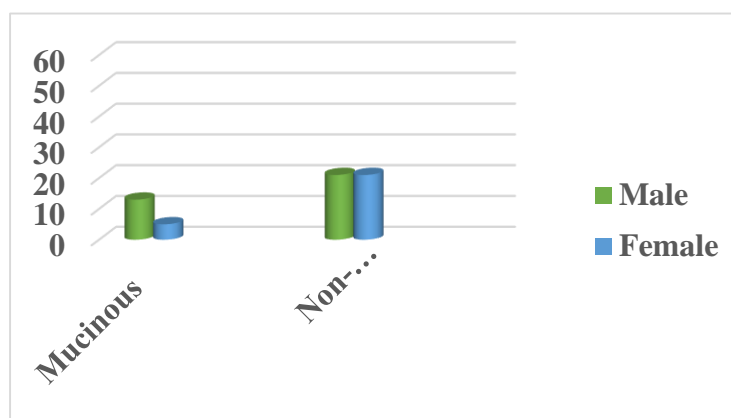


Figure 1: Histopathological pattern of colorectal adenocarcinoma distribution by gender

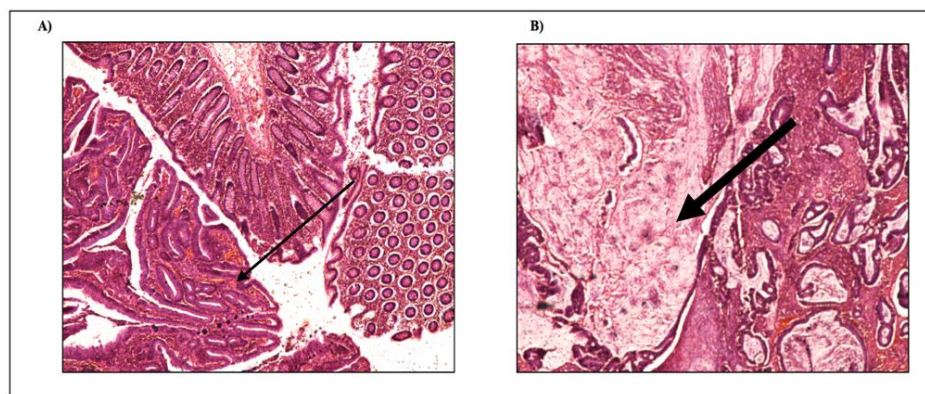


Figure 2: Representative photomicrographs of H&E-stained sections of colorectal adenocarcinoma showing: A) Non-mucinous adenocarcinoma.: adenocarcinoma with tubulovillous features consisting of usually intraglandular papillary projections (Thin arrow). B) Mucinous adenocarcinoma: Presence of large pools of mucin (thick arrow) associated with tubular structures of neoplastic epithelium.

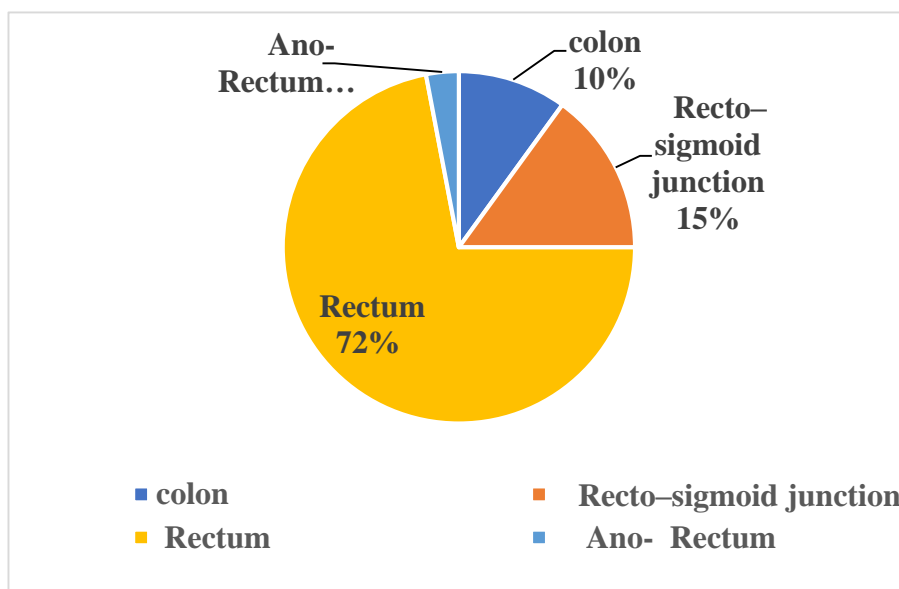


Figure 3: Site distribution of colorectal adenocarcinoma

Table 2: Pathological characteristics of colorectal adenocarcinoma of studied cases

	Mucinous N(%)	Non-Mucinous carcinoma N(%)
Histological grade		
Well differentiated (Grade I)	5(8.3%)	9(15%)
Moderately differentiated (Grade II)	10 (16.7%)	24 (40%)
Poorly differentiated (Grade III)	5(8.3%)	7(11.7%)
Pathological staging		
TNM staging		
Stage I	0	0
Stage IIA	2 (3%)	2 (3%)
Stage IIB	0	2(3%)
Stage IIIA	0	5(8.3%)
Stage IIIB	11(18.3%)	16(26.7%)
Stage IV	3(5%)	22 (36.7%)

Discussion

It is crucial to identify the histological pattern of tumor that is present, because different tumor types differ in their local behavior, and tendency for regional and systemic metastasis. In the present study we have assessed the different patterns of colorectal cancer, the data showed that colorectal adenocarcinoma is the most common histopathological type of colorectal cancer. Most patients have non-mucinous adenocarcinoma type 42 (70%) cases. This result is also in accordance with another study (8).

In the current research a total of 60 cases were included, out of which 34 (57%) were male and 26 (43%) were female which is consistent with the study done by Mahmood et al (9). The gender prevalence is in favor of males with M:F ratio of 1.3:1, which is in accordance with previous study (10).

The peak age at presentation of colorectal carcinoma was in between the age of 51-60 years and 71-80 years. A similar trend was observed in other study (11). Colorectal carcinoma in older age group has been shown to present a diagnostic and therapeutic problem and prognosis is typically less promising as indicated in other study (12).

With regard to the tumor site, our study revealed that the majority of patients had primary disease involving rectum 72% as a commonest site of colorectal carcinoma followed by rectosigmoid colon 15%. Our study concurs with previous study which have showed that majority of colorectal cancers are located in the rectosigmoid (13).

A significant predictor for local invasion or systemic metastases of malignant tumors is the histological grade of tumors. In reviewing these 60 cases it was revealed that more than half of the patients with moderate differentiated tumours (Grade II) as compared to well (Grade I) or poorly differentiated (Grade-III) tumours. This result is similar with other studies (14,15). Most of studied cases present in advanced stage of the disease (stage IIIB, IV), which might be due to the lack of screening programs as well as, the low levels of awareness. Such findings were reported in other research (16).

Conclusion

It is concluded that the vast majority of the studied cases non-mucinous colorectal carcinoma are usually moderately differentiated and diagnosed at a more advanced stage (TNM stage IIIB, and IV), therefore the use of colonoscopy along with biopsy when required should be encouraged as a screening program in an elderly age group for the detection of colorectal carcinoma at an earlier stage.

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