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ORIGINAL ARTICLE

Evaluation of Rectal Cancer Management in El-Minia Oncology Center

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ABSTRACT

Background: The study aimed to evaluate the rectal cancer management in El-Minia oncology center from 2009 to 2013 and compare this management with the management in the recent guidelines. We also aim to study the epidemiology of rectal cancer in El-Minia oncology center.

Methods: A five years (2009-2013) retrospective study and five years (2014-2019) follow-up of patients suffering from carcinoma of the rectum who have been treated at El Minia oncology center. The data has been obtained from the patients' files, operating sheets, and pathology reports.

Results: Totally, 107 cases were included in this study. The mean age \pm standard deviation was 47.26 ± 16.52 with a minimum age of 17 years and a maximum age of 80 years. Males represented 53.3% and females represented 46.7% of the patients. Smokers represented 31.8% of the patients, and 28% of the patients had a positive family history. The major presentation was hematochezia (65.4%). 43.9% of the rectal cancer were in the middle rectum, 37.4% were in the upper rectum and 18.7% were in the lower rectum.

Conclusions: Rectal carcinoma in Egyptians shows a different epidemiology and survival form. Oncosurgeons and colorectal specialists must stress on satisfactory lymphadenectomy, as an essential portion of staging and prognosis. Minimally invasive surgery for colorectal cancer should be further employed in our country. Advanced tumors on presentation must highlight a necessity for screening programs to detect the disease as early as possible for proper management.

Key words: Rectal Cancer; Epidemiologic; Management

INTRODUCTION

Colorectal cancer (CRC) stands the twenty-five percent utmost commonly identified cancer and the second chief reason of malignancy death in the United States, in 2018, 43030 novel cases were diagnosed in the United States (25920 males;17110 females). Throughout this year, it is estimated that 50630 people died from CRC. It causes nearly 608,000 deaths each year all over the world [1]. It remains the third most common malignancy worldwide, after breast and lung malignancies with about 67% of all CRC cancers taking place in the more developed areas of world. CRC occurs in

males and females of wholly ethnic and racial clusters and its greatest frequently occurs in people aged 50 years or older [2].

It is the furthestmost common cancer of the gastrointestinal system and owing to the amplified occurrence and mortality that happened in last decades and to the expenses that are related to diagnosis and management, this malignancy has become a main community health problematic universal [3]. Around 95% of CRC arise from adenomatous polyps of the bowel mucosa, with a growing occurrence with age. Though, only 10% of adenomas turn into a CRC. The information about

the usual history of the illness and the option of intervention at an early stage directed to the application of screening programs, which now cover the population over 50 years having no risk factors for CRC.

The epidemiology of CRC varies in every nation. There is a lack of studies about this common malignancy in Egypt. Many years have passed since this study, with the publication of the first nationwide population-based cancer registry in 2014. Also, urbanization and alteration of lifestyles would have affected the CRC pattern [4].

The incidence rises with age, and more than 90% of cases occur in patients older than 50 years. However, the incidence in younger (less than or equal to 40 years old) patients, frequently with more aggressive histopathological types and more progressive tumor staging, is increasing. Histopathology displays less differentiated, mucinous or signet ring carcinoma. As younger cases are presented at stages 3 or 4, management is either extensive surgical excision or palliative treatment, suggesting a worse prognosis in younger cases.

CRC in Egyptians has no specific age tendency, and more than 33% of the malignant tumors affect young people. The high incidence in young patients cannot be clarified on a hereditary basis and cannot be attributed to bilharziasis. Several reports have described the poor prognostic factors for survival in young patients with CRC. These factors include advanced stage at presentation, delay in diagnosis, and poorly differentiated carcinoma [5].

Surgical treatment is the curative therapy for patients suffering from CRC; however, chemotherapy and radiotherapy play a very significant role in increasing disease-free survival and overall survival of those patients. Because CRC typically develops little by little from the phase of precancerous tumor to the invasive one, there is the possibility of decreasing the illness load by early detection and excision of precancerous lesions or at an early stage. The incidence of CRC per 100000 populations decreased from 60.5 in the year of 1976 to 46.4 in the year of 2005. In fact, the occurrence of CRC decreased at a rate of nearly 2.9% per year from 2005 to 2014. Also, mortality decreased by more or less 35% from 1990 to 2007 and is now down by approximately 50% from the highest mortality rates [1].

The improvements in occurrence of and mortality from CRC are believed to be a consequence of cancer prevention and early diagnosis due to screening and improved multiple treatment modalities [1].

METHODS

Site of study

This is a 5-year (2009-2013) retrospective study and a 5-year (2014-2019) follow-up of patients presenting with rectal cancer who received their management at El-Minia oncology center. Data were obtained from the files of the patients, operating records and histopathology reports. Cancer differentiation was classified to well, moderately, and poorly differentiated.

Written informed consent was obtained from all participants, and the study was approved by the research ethical committee of the Faculty of Medicine, Zagazig University. The study was done according to the Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

Inclusion criteria

All patients presented with operable rectal cancer.

Exclusion criteria

Patients with recurrent rectal carcinoma; patients with locally advanced rectal carcinoma infiltrating the anal canal; and patients missed in follow up.

Data collection

Before surgery:

Age; clinical presentation of the malignant rectal mass; metastatic work up; proctoscopy; pathological type; and history of neoadjuvant therapy.

During surgery:

Type of surgery; state of the mesorectal nodes and to which level they are affected; and presence/absence of peritoneal nodules.

After surgery:

Assessment of the improvement in the clinical presentation; pathologic evaluation of the specimen for type of pathology (histology and grading), positive lymph nodes, and safety margins (upper, lower, and radial margins); and follow-up after surgery every three months for at least five years.

Preparation

Official approval from El-Minia oncology center.

Follow up

During post-operative hospital stay in the hospital (D0, D1& D2):

Monitoring the disappearance of clinical presentation of the disease; and detection of early complication e.g., leak from the anastomosis.

Follow-up after the operation:

Follow-up of the patients by different imaging modalities like chest X-ray, abdominal ultrasound, MRI pelvis, Proctoscopy, and full colonoscopy.

Statistical analysis

Data collected throughout history, basic clinical examination, laboratory investigations, and outcome measures were coded, entered, and analyzed using Microsoft Excel software. Data were then imported into Statistical Package for the Social Sciences (SPSS version 20.0) (Statistical Package for the Social Sciences) software for analysis. According to the type of data, qualitative represented as number and percentage, and quantitative continued group represented by mean ± standard deviation (SD), the following tests were used to evaluate differences for significance; difference and association of qualitative variables by the Chi-square test (X²). Differences between quantitative independent groups by t-test survival by Kaplan Meier. P-value was set at <0.05 for significant results and 0.001 for highly significant results.

RESULTS

The mean age of the patients (±SD) was 47.26 (±16.52) with a minimum age of 17 years and a

maximum age of 80 years. Regarding sex distribution, males represented 53.3% and females represented 46.7% of the patients. Smokers represented 31.8% of the patients, and 28% of the patients had a positive family history, as showed in Table 1.

The major presentation was hematochezia (65.4%), followed by dysentery (28.0%). The rest of the cases presented by distention, intestinal obstruction, abdominal pain, and other symptoms and signs such as loss of weight, anaemia, change in bowel habits, and blood in stool, as shown in Table 2.

62.6% of the study group were diagnosed by radiology, which was pelvi-abdominal CT with contrast in 56 % and MRI pelvis associated with abdominal ultrasound in 6.6 %. Metastatic work up in most cases was performed by CT 85.7%. 43.9% of the tumors were in the middle rectum, 37.4% in the upper rectum and 18.7% in the lower rectum, as shown in Table 2.

The majority of cases were adenocarcinoma (85.9%) including signet ring carcinoma, mucinous adenocarcinoma, and adenocarcinoma with neuroendocrine features as showed in Table 3. Grade II were majority with 90%, regarding TNM system majority were T3 with 49.5% and N1 with 35.5% as showed also in Table 3.

Table 1: Demographic data distribution among studied group.

Age	Mean± SD	47.26±17.5	
	Median (Range)	47.0 (17-80)	
		Number	Percentage
Sex	Male	57	53.3
	Female	50	46.7
Smoking	No	73	68.2
	Smoker	34	31.8
FH	-ve	77	72
	+ve	30	28
	Total	107	100.0

FH= family history; -ve= negative; +ve= positive.

Table 2: Presentation, methods of diagnosis, and site distribution among studied group.

		Number	Percentage
Presentation	Abdominal pain	12	11.2
	Dysentery & tenesmus	30	28.0
	Distension & constipation	13	12.1
	Hematochezia	70	65.4
	Intestinal obstruction	12	11.2
	Other	10	9.3
Methods of diagnosis	Radiological	67	62.6

		Number	Percentage
Metastatic work up	Proctoscopy and colonoscopy	30	28.0
	Surgical	10	9.3
	CT	18	85.7
	MRI	3	14.3
Site	Upper	40	37.4
	Middle	47	43.9
	Lower	20	18.7
	Total	107	100.0

Table 3: Tumors’ histo-pathological types and staging distribution among the studied group.

		Number	Percentage
Histo-pathological type	Adenocarcinoma	92	85.9
	squamous cell carcinoma	10	9.3
	Malignant lymphoma	2	1.9
	Malignant melanoma	2	1.9
	GIST	1	.93
	Total	107	100.0
Stage	Local	49	45.8
	Regional	24	22.4
	Distant metastasis	21	19.6
	Un-staged	13	12.1
Grade	I	6	5.6
	II	90	84.1
	III	11	10.3
T	T1	4	7.5
	T2	25	23.3
	T3	53	49.5
	T4	9	8.4
	Un-staged	15	14.0
N	N0	24	22.4
	N1	38	35.5
	N2	30	28.1
	Un-staged	15	14.0
	Total	107	100.0

DISCUSSION

Rectal cancer incidence rates among adults in their 20s have risen even more sharply than cancer colon, increasing by 3.2% per year from 1974 to 2013 [6,7]. The CRC leads to about 608,000 deaths every year. Incidence rises with age, and more than 90%

of patients are older than 50 years [8]. 107 cases were involved in the present study. Their mean age was 47.26 with a minimum age of 17 years and a maximum age of 80 years. Smokers represented 31.8% of the patients, and 28% of the patients had a positive family history.

This agrees with the expressive cross-sectional study. A total of 412 serial patients who underwent through planned full colonoscopy from 2000 to 2012 at Bolak Eldakror Hospital in Giza, Egypt were studied by Gado et al. [9] who found that in a total of 57 cases had CRC, 65% of the patients were women. The mean age was 51 ± 15 years (age range: 16-80 years). Peak incidences were in the 5th and 7th decades. Also, our results are consistent with Meester et al. [10], who showed that the mean age of CRC diagnosis was 53.32 years (SD=14.326), the earliest case was identified at 16 years in 360 CRC cases, and the oldest case was 88 years old.

Also, Bader and Ismail [11] described that the median age of cases was 55 years (ranging from 26 to 90 years). Most of the patients (47%) were 40-60 years in age, and the male: female ratio was 1.3:1 in the retrospective cancer sample of 83 Saudi CRC metastatic cases.

62.6% of the studied group were diagnosed by radiology, which was pelvi-abdominal CT with contrast in 56 % and MRI pelvis associated with abdominal ultrasound in 6.6 %. Meanwhile, in the study by Meester et al. [10] full colonoscopy was done in 60% of the cases, in which the commonest outcome was a growth (about 68%), then stricture, and lastly, ulcer.

The majority of the tumors were adenocarcinoma (85.9%) including signet ring carcinoma, mucinous adenocarcinoma, and adenocarcinoma with neuroendocrine features. This agree with Gado et al. [9] who found that pathology showed 52 adenocarcinoma (91%), 2 cases signet- ring carcinoma (4%), 2 cases mucoid carcinoma (4%) and one case was anaplastic carcinoma (2%).

Grade II tumors were common (90%), regarding TNM system, the majority were T3 with 49.5% and N1 with 35.5%. On the other hand, Pestanaa and Martinsa [12] found that stages II, III and IV were the most common in their sample, representing 28.57% (n=8), 35.71% (n=10), and 28.57% (n=8) patients, respectively, In group I (age under or equal to 45 years) and 36.98% (n=179), 35.71% (n=10), and 30.99% (n=150), respectively, in group II (age more than 45 years). Compared between the two groups, a higher frequency of stages III and IV was noted in group I.

Surgical management was the major method of intervention in 86% of the patients, which included abdomino-perineal resection (APR) in 19.5%, lower anterior resection (LAR) in 34.7%, and ultra-LAR

in 41.3%, followed by transanal endoscopic microsurgical (TEM) in 4.3% of the patients. 57.65 % of the patients had no complications, 9.3% had neoadjuvant concurrent chemo-radiotherapy (CCRTh), and 11.2% had palliative colostomy.

This agree with Meester et al. [10] who reported that chemotherapy (as a palliative or a neoadjuvant therapy) was given to 15.5 % of patients. 80 % of the patients had been explored. However, 34 patients underwent laparoscopic surgery, with 13 transformed to open surgery. Primary anastomosis was done in 78% of patients, while ileostomy was done in 8.3% of cases, followed by colostomy in 7.6% of cases. Postoperative adjuvant radio-therapy was only used in four cases.

As regards to the overall survival of our study group, 60.7% died and 39.3% survived. In contrast, Ruiz et al. [13] showed a total survival rate of 67.4 % at 5 years in patients with rectal cancer from a cancer registry database in Peru, as well as 28 % of their patients lived as disease-free survival and 11.3 % developed local recurrence and distant metastasis in the follow-up years. Chemotherapy has been given in this period as a neoadjuvant therapy to 9.3 % from the total number of cases, and 90% of these cases are living now with disease-free survival. Only one case developed a local recurrence.

Regarding the relationship between survival and patients' characteristics, there was no significant difference between survival and patients' age. This disagrees with Dukes and Bussey, suggesting a higher rate of metastasis in patients younger than 40 years of age because the disease is more rapidly progressive in young patients. Documents from Europe reveal that the 5-year survival rate in young patients (younger than 30-years old) is only 25-30%. The necessity for quick detection of CRC in young patients is highlighted by the more common occurrence of advanced tumor and the high treatment failure rates. Nevertheless, early detection in young cases with Dukes' stage A and B cancers has greater overall 5-year survival rates. Some doctors report a lesser survival rate in younger cases; however, greatest of the last published studies have reported different results [14].

CONCLUSION

Rectal carcinoma in Egyptians shows a different epidemiology and survival form. Oncosurgeons and colorectal specialists must stress on satisfactory lymphadenectomy, as an essential portion of staging and prognosis. Minimally invasive surgery for

colorectal cancer should be further employed in our country. Advanced tumors on presentation must highlight a necessity for screening programs to detect the disease as early as possible for proper management.

From our study, the most important points are increasing incidence at a young age, which is associated with more aggressive disease and needs more aggressive management. Misdiagnoses of most of the rectal cancer cases as other local diseases rather than the cancer, leads to more advanced disease at diagnosis. The major presentation is bleeding per rectum. MRI of the pelvis is the standard imaging for preoperative evaluation of cancer rectum. Full colonoscopy and not only proctoscopy is mandatory for all rectal cancer patients to proper evaluation for the whole colon and rectum to exclude any synchronous lesion. Neoadjuvant CCRTH for all T2 and T3 patients is preferable to upfront surgery to down stage the tumors, systemic control, and sphincter preservation. We are in severe need to develop screening programs for colorectal cancer.

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Conflict of interest

The authors of this manuscript declare no conflicts of interest.

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