**Research Article**

# Clinicopathological Profile of Colorectal Cancer Patients in Suez Canal University Hospitals-Egypt

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## Abstract

**Introduction:** Colorectal cancer (CRC) is the third most common malignancy and the fourth leading cause of cancer death worldwide. In Egypt, it is the six cancers in both males and females. This study was performed to define the epidemiological and clinicopathological characteristics of CRC in Egypt.

**Material and Methods:** Retrospective study included all patients diagnosed with colorectal carcinoma at Suez Canal University Hospitals, Egypt from January 2006 to December 2016.

**Results:** A total of 193 patients were included in this study, 57% were females and 43% were males. Colon cancer were more common than those located in the rectum, (58.6% vs. 25.4%), the ascending colon was the commonest location (56.2%). Descending colon and rectum were equally the commonest in females (29.1%) while the ascending colon was the commonest in males (28.9%). Most tumors were adenocarcinoma (76.2%). In terms of tumor markers, CEA was elevated in 45.6% and CA19.9 was elevated in 40.9% in preoperative evaluation. Most patients presented with stage II (30.6%). Liver was the most common metastatic site (67.6%). The overall survival was 18.8 month.

**Conclusion:** Colon cancer is more frequent than rectum cancer where ascending colon is the most affected sub site. The mean age at diagnosis was 52.6 years with female predominance. Most patients had tumors that were adenocarcinoma, low grade and most presented in stage II. Liver is the commonest metastatic site. The overall survival was 18.8 month. Three-year and 5-years survival rate were 16.1% and 3.6%.

## INTRODUCTION

Worldwide Colorectal cancer (CRC) is the third most common cancer after lung & breast cancers with two-thirds of all colorectal cancers occurring in the more developed regions of the world [1]. Only 2–6% of CRC cases occur in patients younger than 40 years [2,3]. It is unclear if the high young-onset rate is due to adoption of a more "westernized" lifestyle and diet or due to intense environmental exposures with more susceptibility among the younger generations [4].

In Egypt, Colorectal cancer ranked tenth in males and ninth in females in Aswan in 2008. Mean age at diagnosis in males was 55.3 years with a median of 57 years. Mean age at diagnosis in females was 54.6 with a median of 53.5 years [5]. The predominant histopathological type of colorectal cancer is adenocarcinoma. It accounts for about 50% of all gastrointestinal tract-cancer cases [6]. At the time of diagnosis, about 40% of patients present with metastatic disease, and chemotherapy is routine for these patients [7]. Population based studies as well as hospital based studies in Egypt and Arab countries have shown high rates of CRC in patients aged 40 years or younger.

Colon cancer represents a significant health challenge worldwide. Prognosis actually varies widely according to combination of risk factors. The aim of this study was to review the clincopathological features of colorectal cancer in Clinical oncology department, Suez Canal University, Egypt.

## AIMS AND OBJECTIVES

The purpose of this study was to study the clinicopathological profile of colorectal cancer patients in oncology department, Suez Canal University, Egypt

## MATERIALS AND METHODS

This retrospective study was included 193 patients who attended oncology department, Suez Canal University, Egypt in a period from Jan 2006 to DEC 2016. Data were collected from patients' files and pathology records. Parameters studied were age, six, clinical presentation, site, size, type, microscopic features of the tumor.

## RESULTS

Total of 193 patients diagnosed with colorectal cancer were enrolled in this study, 110 females (57.0%) and 83 males

(43.0%). Their age ranging from 22 to 88 years (mean ± SD: 52.6 ±1.4) and the highest proportion were observed in age group > 50 years (60.1%) (Table 1).

The highest incidence was recorded in year 2012 (5.1%) followed by 2009 (4.3%) while the least incidence was recorded in 2016 (1.6%) (Figure 1).

Colon cancer was more common than those located in the rectum (58.6% vs. 25.2%). The ascending colon was the commonest anatomical site between the patients (56.2%) and in relation to the gender, descending colon and rectum were equally the commonest in females (29.1%) while the ascending colon was the commonest in males (28.9%) (Figure 2).

Abdominal pain was the predominant presenting symptom between the patients (47.7%) followed by bleeding per rectum (15.5%), constipation (6.2%), intestinal obstruction (5.2%) and diarrhea (2.6%). However, 8% of the patient was asymptomatic (Table 2). Regarding the macroscopic aspect of the tumor diagnosed by colonoscopy, polypoid shape was the commonest finding (44.0%) followed by ulcerative (23.3%) (Table 3).

Adenocarcinoma was the most histopathological type (76.2%) followed by mucinous carcinoma (17.6%) (Figure 3).

Grade II was the most common pathological grade (75.6%)

**Table 1:** Demographic data of the studied population.

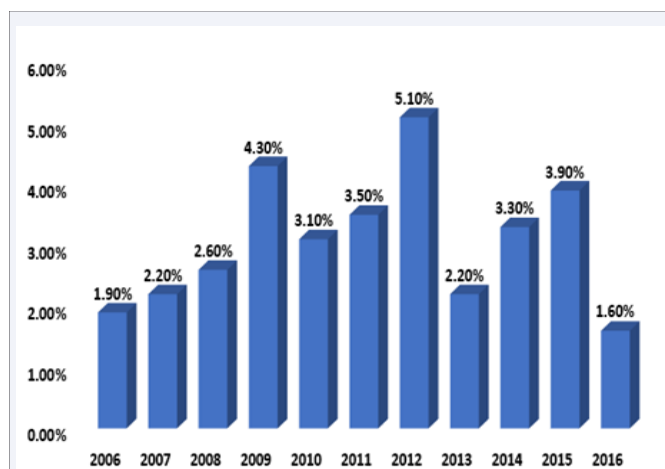| Variables | No. Of patients |
|---|---|
| **Age** | |
| <30 years | 14 (7.3%) |
| 30-50 years | 63 (32.6%) |
| >50 years | 116 (60.1%) |
| Mean ±SD | 52.6±13.4 |
| Median (Range) | 54 (22-88) |
| **Gender** | |
| Male | 83 (43.0%) |
| Female | 110 (57.0%) |



**Figure 1** The incidence of colorectal carcinoma per year for the studied population.

**Table 2:** Clinical presentation of the studied population (n=193).

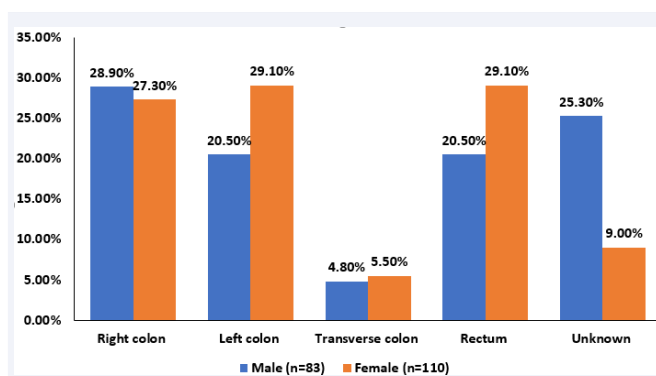| symptom | No. Of patients (n=193) |
|---|---|
| Asymptomatic | 8 (4.1%) |
| Abdominal pain | 92 (47.7%) |
| Bleeding per rectum | 30 (15.5%) |
| Intestinal obstruction | 10 (5.2%) |
| Constipation | 12 (6.2%) |
| Diarrhea | 5 (2.6%) |
| Abdominal mass | 2 (1.0%) |
| Weight loss | 1 (0.5%) |



**Figure 2** Anatomic distribution of the lesion according to the gender.

followed by grade III (13%), grade I (3.6%), grade IV (0.5%), while (7.3%) were unknown (Table 4).

In this study most of the patients presented in stage II (30.6%) followed by stage III (26.4%), stage IV (19.2%) and stage I (9.3%). While (14.5%) were TxNo (Table 5).

The liver was the commonest metastatic site (67.6%) followed by bone (3.1%), lung (2.6%) and spleen (0.5%) (Figure 4).

In terms of tumor markers, CEA was elevated in 45.6%, while CA19-9 was elevated in 40.9% in preoperative evaluation (Table 6).

The mean overall survival was 18 months. The three-years survival rate was 16.1% while 5-years survival rate was 3.6% (Figures 5,6).

## DISCUSSION

Colorectal cancer is a major cause of morbidity and mortality worldwide with wide geographical variation [8]. This study aimed to find the pattern of the colorectal cancer in the patients seen in Suez Canal University hospitals, Egypt, over a period of 10 years retrospectively with a focus to define the epidemiological and clinicopathological characters of this cancer.

As it is known that more than 90% of CRC cases occur in people aged 50 years or older [1], in the present study, the majority of cases was in the age group above 50 years, which is comparable also to many reports from developed counties [9]. The mean age of our patients at the time of diagnosis was 52.6 years, our data are similar to those reported in other Middle-
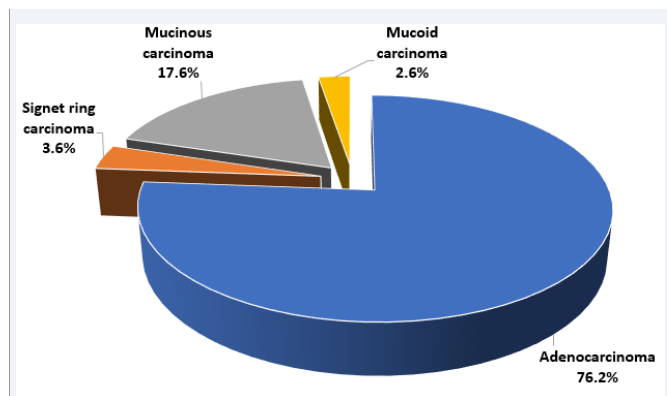
**Figure 3** The pathological type of colorectal cancer for the studied population.

**Table 3:** Macroscopic aspect by colonoscopy among the studied population.

| Colonoscopy | No. Of patients |
|---|---|
| Polypoid | 85 (44.0%) |
| Ulcerative | 45 (23.3%) |
| Annular stricture | 43 (22.3%) |
| Not performed | 20 (10.4%) |

**Table 4:** The pathological grade.

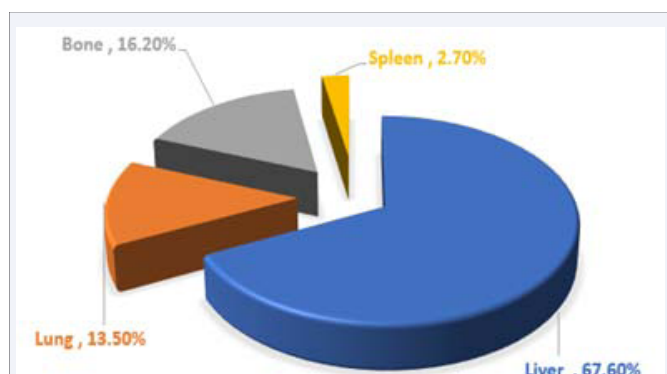| Grade | No. Of patients (n=193) |
|---|---|
| Grade I | 7 (3.6%) |
| Grade II | 147 (75.6%) |
| Grade III | 25 (13.0%) |
| Grade IV | 1 (0.5%) |
| Unknown | 14 (7.3%) |



**Figure 4** The site of metastasis among the studied population.

Eastern countries and are much higher than in western countries [1], While 32.6% of the patients were within 30-50 years' age group, which is consistent with Egypt reports showed that CRC was diagnosed in 29-31% of patients aged 40 years or younger [10], but this is higher that reported from western world. This can be explained due to difference between population structures and life expectancy as the life expectancy in Egypt is 71 years

compared to 78 years for the American and almost 95% of the Egyptian are below 60 years compared to 13% for the American [11].

One of the most striking finding at this study was the predominance of females of CRC cases. This is in contrast to reports from developed countries, where men are more often

**Table 5:** The distribution of the patients according to the staging.

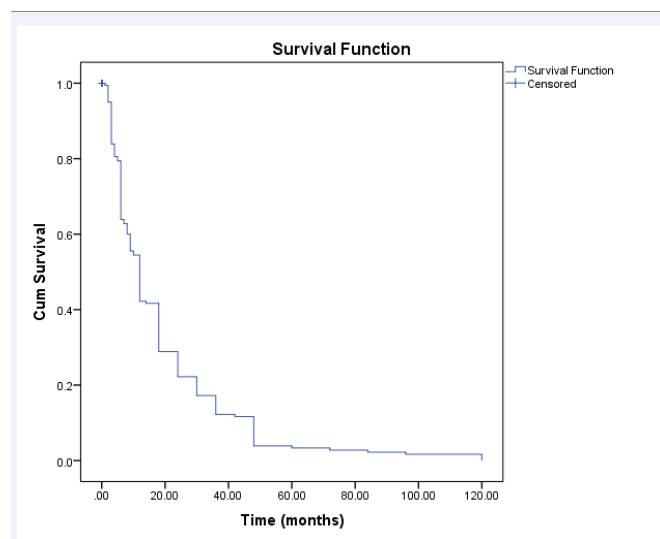| Stage | No. Of patients |
|---|---|
| Stage I | 18 (9.3%) |
| Stage II | 59 (30.6%) |
| Stage III | 51 (26.4%) |
| Stage IV | 37 (19.2%) |
| TxN0 | 28 (14.5%) |



**Figure 5** Kaplan-Meier survival curve of the studied patients.
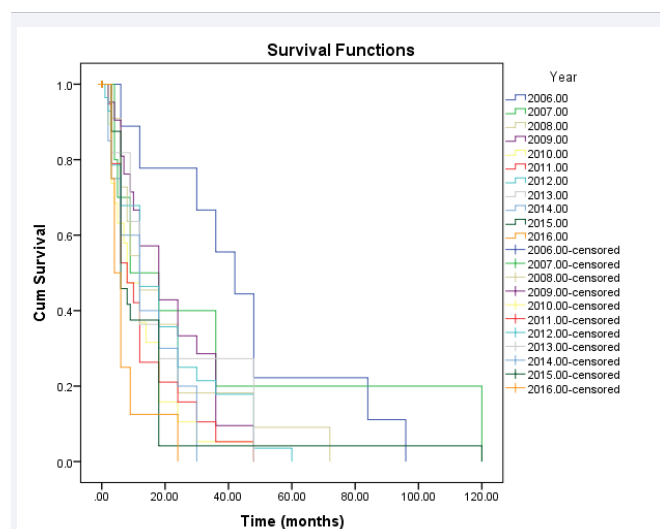


**Figure 6** Kaplan-Meier survival curve of the studied patients according to year of diagnosis.

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**Table 6:** Tumor markers in the studied population.

| Markers | No. Of patients | | |
|---|---|---|---|
| | **Elevated** | **Normal** | **Unknown** |
| CEA | 88 (45.6%) | 66 (34.2%) | 39 (20.2%) |
| CA19.9 | 79 (40.9%) | 75 (38.9%) | 39 (20.2%) |

diagnosed with CRC, and also differ from western counties where male predominance is obvious [12-15]. The male predominance in CRC in the literature is poorly understood; Wu et al. explained that by a more exposure to risk factors for this cancer between males [16].

Colon cancer was more common than rectum cancer, this finding agreed with the studies done by Gado, et al. [1], Eisa, et al. [17], and El-Moselhy et al. [18], who reported similar results as well as the registries from Middle East countries and many developing and developed counties [19]. Indeed, in a 21-years registry of colorectal cancer, Ponz de leon et al. [20], reported a tendency over time towards a progressive increase of colonic tumours and decrease in rectal cancer.

In this study, sparing rectal cancer, colon cancer were more on Rt colon (56.2%) which is similar to the cases in developed countries as in the USA and Canada where the most affected site is the proximal colon [21,22]. The relation between gender and proximal or distal colon cancer varies between countries. In the present study, women predominance was observed in distal colon, which matched results of study done by Khiari et al. [8]. In Tunisia while in western countries, it is the proximal.

We noticed that abdominal pain, and rectal bleeding was the commonest symptoms for CRC in the current study which in agreement with other studies reported in developing countries [23].

According to the literature, the most common histological type of CRC is Adenocarcinoma, which was recorded in this study. Also histopathological grading in our study showed that 75.6% of the cases with grade II, a finding that is consistent with most studies analyzed [24-26].

In this study, most patients presented with stage II (30.6%) followed by stage III (26.4%), this results similar to study done by El-Moselhy et al., [18]. Were most cases presented with stage II followed by stage III. Eisa [17], noticed most patients presented in stage II then stage III as 42.7% and 33.7% of CRC respectively. We found that liver was the most common metastatic site (67.6%), which agreed with previous reports [27].

The overall survival rates in the current study are below that of developed countries with mild differences while with marked differences like USA SEER data [19,28]. However, disparities in colorectal cancer survival exist globally and even within regions [28,29]. This disparity can reflect differences in disease stages at diagnosis [19], health care systems [21], particularly the limited access of the Egyptian CRC patients to many of the state-of-art diagnostic and therapeutics as well differences in surgical practices [19]. For example limited medical insurance and limited availability of the expensive medications [30].

## CONCLUSION

Colon cancer is more frequent than rectum cancer where ascending colon is the most affected sub site. The mean age at diagnosis was 52.6 years with female predominance. Abdominal pain was the commonest complain. Most patients had tumors that were adenocarcinoma, low grade and most presented in stage II. Liver is the commonest metastatic site. The overall survival was 18.8 month. Three-year and 5-years survival rate were 16.1% and 3.6% respectively.

## REFERENCES

1. Gado A, Ebeid B, Abdelmohsen A, Axon A. Colorectal cancer in Egypt is commoner in young people: Is this cause for alarm? Alexandria J Med. 2014; 50: 197-201.

2. Cascinu S, Ferro ED, Grianti C, Ligi M, Catalano G. S-phase fraction and tumor aneuploidy in colorectal carcinoma of young patients. Cancer: Interdisciplinary Int J Am Cancer Soc. 1996; 78: 1857-1860.

3. Cusack JC, Giacco GG, Cleary K, Davidson BS, Izzo F, Skibber J, et al. Survival factors in 186 patients younger than 40 years old with colorectal adenocarcinoma. J Am Coll Surg. 1996; 183: 105-112.

4. Veruttipong D, Soliman AS, Gilbert SF, Blachley TS, Hablas A, Ramadan M, et al. Age distribution, polyps and rectal cancer in the Egyptian population-based cancer registry. World J Gastroenterol. 2012; 18: 3997-4003.

5. Ibrahim AS, Khaled HM, Mikhail NN, Baraka H, Kamel H. Cancer incidence in egypt: results of the national population-based cancer registry program. J Cancer Epidemiol. 2014; 2014: 437971.

6. Ibrahim A, Mikail N, Khaled H, Baraka H, Abdeen M, Bishara A, et al. Cancer profile in Aswan, Egypt, Methodology and Results chart book 2008. Egypy: Egypt National Cancer Registry; 2010.

7. Bendell J. Optimum chemotherapy for metastatic colorectal cancer. Lancet. 2006; 368: 2039-2041.

8. Khiari H, Hsairi M. Colorectal cancer incidence and clinicopathological features in northern Tunisia 2007–2009. Colorectal Cancer. 2017; 6: 131-141.

9. Elamyal R, Kamoka H, Hashmi H. Clinico-Demographic Profile of Colorectal Cancer Patients in National Cancer Institute of Sabratha – Libya. JMSCR. 2017; 5: 31123-31126.

10. Zakaria M, Hashem A, Abdelbary M, Amer A, Serag K, Lashin S. The pattern of colonic diseases in Egypt: a colonoscopic study. Arab J Gastroenterol. 2006; 7: 53-58.

11. Central Agency for Public Mobilization and Statistics. Egyptian population pyramid. 2011.

12. Manne U, Shanmugam C, Katkoori VR, Bumpers HL, Grizzle WE. Development and progression of colorectal neoplasia. Cancer Biomark. 2010; 9: 235-265.

13. Siegel RL, Fedewa SA, Miller KD, Goding-Sauer A, Pinheiro PS, Martinez-Tyson D, et al. Cancer statistics for Hispanics/Latinos, 2015. CA Cancer J Clin. 2015; 65: 457-480.

14. McPhail S, Johnson S, Greenberg D, Peake M, Rous B. Stage at diagnosis and early mortality from cancer in England. Br J Cancer. 2015; 112 Suppl 1: S108-115.

15. Murphy G, Devesa SS, Cross AJ, Inskip PD, McGlynn KA, Cook MB. Sex disparities in colorectal cancer incidence by anatomic subsite, race and age. Int J Cancer. 2011; 128: 1668-1675.

16. Wu X, Cokkinides V, Chen VW, Nadel M, Ren Y, Martin J, et al. Associations of subsite-specific colorectal cancer incidence rates and stage of disease at diagnosis with county-level poverty, by race and sex. Cancer. 2006; 107: 1121-1127.

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17. Eisa HH. Colorectal Cancer in Upper Egypt, Does Age Make A Difference in Survival? Med J Cairo Univ. 2010; 78: 145-150.

18. El-Moselhy EA, Hassan AM, El-Tiby DM, Abdel-Wahed A, Mohammed A, El-Aziz AA. Colorectal cancer in Egypt: clinical, lifestyle and socio-demographic risk factors. PRAS1. 2017; 4: 1-15.

19. Ciccolallo L, Capocaccia R, Coleman MP, Berrino F, Coebergh JW, Damhuis RA, et al. Survival differences between European and US patients with colorectal cancer: role of stage at diagnosis and surgery. Gut. 2005; 54: 268-273.

20. Ponz de Leon M, Rossi G, di Gregorio C, De Gaetani C, Rossi F, Ponti G, et al. Epidemiology of colorectal cancer: the 21-year experience of a specialised registry. Intern Emerg Med. 2007; 2: 269-279.

21. Haggar FA, Boushey RP. Colorectal cancer epidemiology: incidence, mortality, survival, and risk factors. Clin Colon Rectal Surg. 2009; 22: 191-197.

22. Rim SH, Seeff L, Ahmed F, King JB, Coughlin SS. Colorectal cancer incidence in the United States, 1999-2004 : an updated analysis of data from the National Program of Cancer Registries and the Surveillance, Epidemiology, and End Results Program. Cancer. 2009; 115: 1967-1976.

23. Saidi HS, Karuri D, Nyaim EO. Correlation of clinical data, anatomical site and disease stage in colorectal cancer. East Afr Med J. 2008; 85: 259-262.

24. Charua-Guindic L, Lagunes-Gasca AA, Villanueva-Herrero JA, Jimenez-Bobadilla B, Avendano-Espinosa O, Charua-Levy E. [Epidemiological characteristics of colorectal cancer in the General Hospital of Mexico. A 20 years analysis: 1988-2007]. Rev Gastroenterol Mex. 2009; 74: 99-104.

25. McDermott FT, Hughes ES, Pihl E, Milne BJ, Price AB. Comparative results of surgical management of single carcinomas of the colon and rectum: a series of 1939 patients managed by one surgeon. Br J Surg. 1981; 68: 850-855.

26. Greene FL. Distribution of colorectal neoplasms. A left to right shift of polyps and cancer. Am Surg. 1983; 49: 62-65.

27. Aykan NF, Yalçın S, Turhal NS, Özdoğan M, Demir G, Özkan M, et al. Epidemiology of colorectal cancer in Turkey: A cross-sectional disease registry study (A Turkish Oncology Group trial). Turk J Gastroenterol 2015; 26: 145-153.

28. Boyle P, Langman JS. ABC of colorectal cancer: Epidemiology. Bmj. 2000; 321: 805-808.

29. Jackson-Thompson J, Ahmed F, German RR, Lai SM, Friedman C. Descriptive epidemiology of colorectal cancer in the United States, 1998-2001. Cancer. 2006; 107: 1103-1111.

30. Zeeneldin AA, Saber MM, El-Din IS, Farag SA. Colorectal carcinoma in gharbiah district, Egypt: Comparison between the elderly and non-elderly. J Solid Tumors. 2012; 2: 13.