

# A Comparative Study of Colorectal Cancer Based on Patient's Age

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## Abstract:

**Background:** Colorectal cancer is a serious disease that can lead to death, especially when the tumor is diagnosed late. The cells of the colon or rectum lining sustain changes until those cells develop outside the body control. Cancer screening helps in the early detection and treatment, and prevents spread of the disease.

**Objective:** To determine the extent of colorectal cancer based on the patient's age and to study, based on age, the most common symptoms, clinical findings, the most common tumor site, as well as the types of surgical intervention.

**Patients and methods:** In the period between January 2012 to March 2013, 35 patients with colorectal cancer were admitted to Al-Yarmouk hospital for surgical treatment after final confirmation of the diagnosis using various screening tests including colonoscopy, sigmoidoscopy and fecal occult blood test.

**Results:** Of the 35 patients included in this study 25 (71.4%) were above the age of 40 years (12 males and 13 females), and the remaining 10 (5 males and 5 females) were 22-40 years. Anemia was the most common clinical finding among younger and older patients (90% and 88% respectively). Weakness and lethargy were indicated as the most common symptom among older patients (88%). Surgical treatment for younger patients involved different sites, 30% each of left hemicolectomy, right hemicolectomy and anterior resection, while among the older patients 56% had left hemicolectomy.

**Conclusions:** Colorectal cancer is most common among older people, yet it also occurs in younger people as well. The apparent symptoms were nearly the same in younger and older patients. Weakness and lethargy were the most common symptom in younger and older patients. Most of the patients over 40 years of age underwent left hemisection.

**Keywords:** Colorectal cancer, Malignancy, Hemicolectomy, Bleeding per rectum.

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## Introduction:

Colorectal cancer is the most common cancer of the gastrointestinal tract [1]. Its mortality is expected to exceed heart disease mortality [2]. Studies based on clinical trials indicate that some colorectal cancer screening tests help a lot in detecting the disease at an early stage, which in turn reduces the number of deaths from the disease. The best five screening tests for colorectal cancer include: Fecal occult blood test, colonoscopy, sigmoidoscopy, DNA stool test and virtual colonoscopy [3]. After the diagnosis is confirmed, what remains to find is whether or not the disease has spread, and if it has "how far". This will help us determine how serious the cancer is, and what is the best treatment method [4]. The stages of colorectal cancer are further subdivided into stage I '0' if the cancer is very early, or may range from stage

I to stage IV. The lower the stage, the less the cancer has spread, with the widest spread in stage 4 [5]. Colorectal cancer is the most common cause of cancer death [6]. During the period from 2002-2014, Iraq recorded 7246 cases of colorectal cancer for both genders [7]. Globally, the prevalence rates of colorectal cancer have increased dramatically in the last few years [8], while in Iraq increased after 2007 [9]. The prognosis of colorectal cancer is known to be related to the extent of the tumor at the time of diagnosis [10], therefore colorectal cancer is considered to be one of the favorable forms of malignancy in terms of operability and long term survival if it is diagnosed and treated at an early stage [11]. Most cases of colorectal cancers are diagnosed above the age of fifty [2]. The patient's complaints are clinically based on the location and size of the tumor, as well as the presence or absence of metastasis [2]. It has been noted that there is an increase in the number of colorectal cancer in young patients (about 6-8% diagnosed before the age of 40) [12]. Young

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patients are more prone to the delay in the diagnosis because many clinicians do not suspect it in young patients and they do not pay much attention to the underlying cause of their complaints especially if those young patients present with early and mild symptoms of the disease.

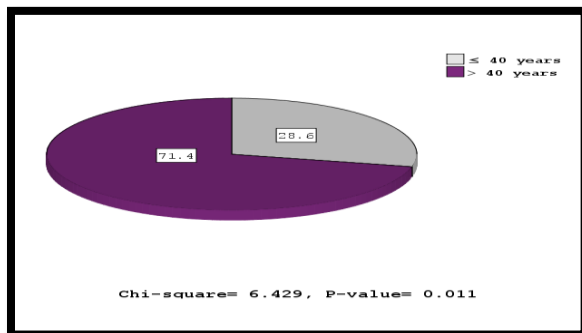
**Patients and methods:**

In this case series study, we analyzed the data of 35 patients diagnosed with colorectal cancer and treated in Al-Yarmouk Teaching Hospital over a period of 15 months (between January 2012 and March 2013). The data included age, sex, site of the tumor, presenting symptoms, duration of the symptoms and the histopathological results of the operative specimens. We compared the presenting symptoms, the clinical finding, the surgical treatment and the pathological findings between patients below age of 40 and those above age of 40. The following modified Duke's classification was used, as shown below:

- Duke's Classification: Duke A: tumor limited to rectal wall (serosa not breached).
- Duke B: extra-rectal spread of the tumor but no lymph node involvement.
- Duke C: Nodal involvement: C1 para-rectal (local) C2 regional (apical).

**Results:**

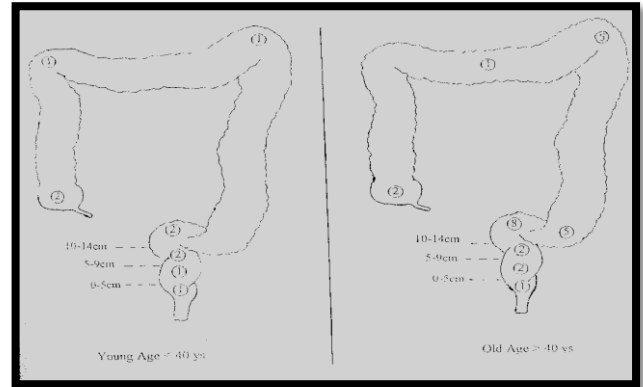
Figure 1 shows that the majority of colorectal cancer patients (71.4%) were 40 years and over.



**Figure 1: Distribution of colorectal cancer cases by age.**

Based on the distribution of tumors in the colon and rectum by age group, Figure 2 shows that patients under the age of 40 years had 3 tumors located in the right colon, 1 tumor located in the left colon and 4 tumors located in the rectum, while patients over 40 years of age, had 2 tumors located in the right colon, 18 tumors in the left colon, 5 tumors in the rectum and only 1 tumor located in the transverse colon. Table 1 Patients ≤40 years of age underwent surgical treatment with right and left hemisectomy and anterior resection (30% each), while most of the

shows that the most common symptoms among patients ≤ 40 years were weakness and lethargy (100%), alteration of bowel habits (80%) and abdominal pain (70%). As for patients over 40 years of age, weakness and lethargy occurred in (88%) and abdominal pain occurred in (60%).



**Figure 2: Anatomical distribution of tumors in younger and older patients**

**Table 1: Distribution of symptoms associated with the disease by age**

Symptoms	Age of patients (Years)			
	≤40 (Total =10 cases)		>40 (Total = 25 cases)	
	No.	%	No.	%
Weakness and lethargy	10	100	22	88
Alteration of bowel habits	8	80	20	80
Abdominal pain	7	70	15	60
Bleeding per-rectum	5	50	13	52
Abdominal distension	5	50	11	44
Vomiting	2	20	8	32
Pain on defecation	1	10	5	20

In table 2, among patients ≤ 40 years of age, the most common clinical finding was anemia (90%) followed by abdominal distension and abdominal tenderness (50% each), similar to patients aged over 40, in whom anemia was the most common (88%) of the patients.

**Table 2: Distribution of clinical findings by age**

Clinical findings	Age of patients (Years)			
	≤40 (Total =10 cases)		0 (Total = 25 cases)	
	No.	%	No.	%
Anemia	9	90	22	88
Abdominal distension	5	50	11	44
Abdominal tenderness	5	50	10	40
Abdominal mass	3	30	6	24
Neoplasm palpable rectally	2	20	3	12
Palpable liver	1	10	2	8
Jaundice	0	0	2	8
Ascites	0	0	1	4

patients over 40 years of age underwent left hemisectomy more frequently (56%) as shown in table 3.

**Table 3: Distribution of surgical treatment by age**

Surgical treatment	Age of patients (Years)			
	≤40 (Total = 10 cases)		>40 (Total = 25 cases)	
	No.	%	No.	%
Right hemicolectomy	3	30	2	8
Left hemicolectomy	3	30	14	56
Anterior resection	3	30	3	12
Abdomino-perineal resection	1	10	0	0
Limited resection of left colon	0	0	2	8
Colostomy only	0	0	4	16

**Discussion:**

Colorectal cancer is the third leading cause of cancer deaths in the world for both sexes to which the age of the patient might contribute [13]. In this study, it is noted that colorectal cancer does not only affect older people, but young people as well (28.6%). An old study in Iraq (1980) observed that 30.2% of patients with cancer of the colon were under 40 years of age [14]. This may suggest that colorectal cancer patients at an early age represent a distinct subgroup and their tumors may be more aggressive compared to those of older patients [15]. The rate of colorectal cancer in this study is much higher compared to a study conducted in Basra-Iraq, where the incidence of the disease was 6.5 / 100 000 population [16]. Lifestyle and diet may play a role in this disease. In this study, approximately three-quarters of colorectal cancer cases occurred at the age of 40 or older. It was found that colorectal cancer was common between the ages of 40-60 years in Kirkuk city, Iraq [176.5/100000 population]. In another old study (1981) the peak occurrence was between 60-70 years [18]. In the current study, Lethargy and weakness were the most common symptom in younger and older colorectal cancer. In a systematic review applied to 27 previous studies, which focused on the prevalence of fatigue in cancer patients, it was found that its prevalence ranges from 4%-91% [19]. Anemia is common (40%) among patients with solid tumors, including colon cancer, and lack of control over it reduces survival [20]. Accordingly, in our study, anemia was common in younger and older patients. However, it was more pronounced in older patients as a clinical indication among the overall presenting symptoms. A Japanese study of colorectal cancer patients based on a multivariate analysis found that advanced age is a significant factor associated with anemia [21]. The distribution of the tumors throughout the colon and rectum inpatients younger than 40 years showed that the most common site was the rectum and recto-sigmoidal area (similar finding were reported by others) [22]. Since most of the tumors are located in the rectum therefore we can easily detect these tumors by per-rectal examination and proctoscopy and

therefore it is disturbing to realize that this simple fact is ignored by some surgeons. All patients in our study underwent surgery. Inpatients below the age of 40 it was possible to undertake a potentially curative resection in all patients. In a recent Egyptian study, it was found that the prognosis of the disease in younger patients was not bad compared to older people [23]. In younger patients, right hemicolectomy was performed in 3 patients, left hemicolectomy in 3 patients, and anterior resection in 3 patients with upper and middle third rectal tumor, while AP-resection was done in one patient with lower third rectal tumor. This suggests that surgical treatment may differ from one patient to another according to the location of the tumor.

**Conclusions:**

Colorectal cancer is most common among older people, yet it also occurs in younger people as well. The apparent symptoms were nearly the same in younger and older patients. Weakness and lethargy were the most common symptom in younger and older patients. Most of the patients over 40 years of age underwent left hemisectomy.

**Conflict of Interest**

There is conflict of interest, and the authors have self-funded this study.

**Authors' Contributions:**

1st author: data collection, writing the introduction, objectives, methods, results, and discussion.

2nd author: data analysis, abstract, keywords, references, and some additions to the discussion, writing the conclusions and make all the corrections and amendments that have been sent by you.

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## دراسة مقارنة لسرطان القولون والمستقيم بناءً على عمر المريض

د. ناصر كريم ظاهر

د. عقيل عباس نعمان

الخلاصة:

**خلفية الدراسة:** سرطان القولون والمستقيم مرض شديد الخطورة يمكن أن يؤدي إلى الوفاة، خاصة عندما يتم تشخيص الورم في وقت متأخر. بسبب التغيرات في الخلايا السليمة للقولون أو بطانة المستقيم تتطور تلك الخلايا خارج سيطرة الجسم. إذا قمنا بفحوص الغرلة للسرطان قبل ظهور الأعراض، فإنه يساعدها كثيراً في العلاج وأيضا في منع انتشاره اعتمادا على أفضل خمسة فحوص مختلفة.

**الهدف من الدراسة:** لتحديد مدى الإصابة بسرطان القولون والمستقيم بناءً على عمر المريض وتحديد أكثر النتائج السريرية شيوعاً وأعراض سرطان القولون والمستقيم بناءً على العمر، والموقع الأكثر شيوعاً للورم، وكذلك أنواع التدخل الجراحي.

**المرضى وطرق البحث:** في الفترة ما بين يناير 2012 إلى مارس 2013، تم إدخال 35 مريضاً مصابين بسرطان القولون والمستقيم إلى مستشفى اليرموك للعلاج الجراحي بعد التأكد النهائي للتشخيص باستخدام اختبارات الفحص المختلفة بما في ذلك تنظير القولون والتنظير السيني واختبار الدم الخفي في البراز.

**النتائج:** تكشف هذه الدراسة أن غالبية مرضى سرطان القولون والمستقيم (71.4%) أصيبوا بشكل كبير في سن فوق الـ40 عاماً. لوحظ أن فقر الدم هو النتيجة السريرية الأكثر شيوعاً من بين جميع النتائج السريرية الأخرى عند المرضى الأصغر والأكثر سناً بنسبة 90% و 88% على التوالي. بينت الدراسة أن الضعف والحمول قد لوحظا بشكل كبير على أنهما أكثر الأعراض شيوعاً عند المرضى الأكبر سناً (88%). العلاج الجراحي للمرضى الأصغر سناً طبق في مواقع مختلفة من القولون، 30% لكل من استئصال النصف الأيسر، استئصال النصف الأيمن واستئصال الجزء الأمامي، وفي الأعمار فوق الـ40 سنة، في 56% تم استئصال النصف الأيسر للقولون.

**الاستنتاجات:** يُستنتج أن سرطان القولون والمستقيم أكثر شيوعاً عند كبار السن، ولكنه يحدث أيضاً لدى الأقل سناً، قد يكون السبب هو التأخير في التشخيص لذلك يجب تأكيد المرض أو استبعاده لدى المرضى الذين يعانون من نزيف في المستقيم، وتغير في عادة الأمعاء مع أو بدون ألم في البطن، بغض النظر عن العمر. الأعراض الظاهرة للمرض كانت متماثلة تقريباً لدى المرضى الأصغر والأكثر سناً. كان المستقيم هو الموقع الأكثر شيوعاً للسرطان لدى الشباب.

**الكلمات المفتاحية:** سرطان المستقيم والقولون، الأورام الخبيثة، استئصال الأمعاء، نزيف المستقيم.