

Colorectal Cancer in Young Adults: Epidemiological, Therapeutic, and Prognostic Aspects

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Abstract

Original Research Article

Background: Colorectal cancer is increasingly diagnosed in individuals under 45. This study aimed to analyze the specific features of diagnosis and treatment in this population group. **Methods:** This was a cross-sectional, descriptive, and retrospective study including patients under 45 years of age, of all sexes, managed at the CHU of Point G between 2016 and 2023 for histologically confirmed colorectal cancer. The parameters studied included: clinical stage at diagnosis, treatments, and therapeutic responses. **Results:** Out of 55 recorded cases (13.5% of digestive cancers), the majority were male (54.5%) with a mean age of 34.9 years. The main risk factors included obesity, low dietary fiber intake, smoking, and a family history of cancer (14.8%). Diagnosis was often delayed (47.3%), with an average symptom duration of 10 months due to the trivialization of symptoms. The most common histological type was adenocarcinoma (85.5%). Treatment included surgery (80%), chemotherapy (58.2%), and radiotherapy (9.1%). Remission was achieved in 3.6% of patients. The 5-year survival rate was 7.3%. The rate of patients lost to follow-up reached 58.2%. **Conclusion:** The study highlights a high frequency of colorectal cancer among young adults, with late diagnosis leading to a poor prognosis. This underlines the importance of raising awareness to promote early diagnosis and improve survival chances.

Keywords: Colorectal cancer, young adults, late diagnostic, treatment challenges, survival.

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INTRODUCTION

Colorectal cancer (CRC) represents a global public health concern. It is the third most commonly diagnosed cancer and the second leading cause of cancer-related death worldwide. While high-income countries remain the most affected, incidence is rising in developing nations, including those in Africa [1,2]. In 2022, over 1.9 million new cases of CRC were recorded worldwide, accounting for approximately 9.6% of all new cancer cases [2,3]. In Africa alone, 70,428 new CRC cases and 46,087 deaths were reported in 2022, with a standardized incidence rate of 8.2 per 100,000 inhabitants [1].

Known risk factors include diets rich in red and processed meats, obesity, alcohol use, smoking, and physical inactivity [2]. Recent research also suggests associations with gut microbiota dysbiosis, microplastic exposure, and hormonal or metabolic disruptions due to environmental chemicals [4,5].

Traditionally considered a disease of older adults, CRC incidence in individuals under 50 has increased by 79% since 1990 [2,3]. In recent years, we have observed a growing number of young adult CRC cases in our practice. This trend raises concerns about etiological factors, clinical characteristics, diagnostic stage, therapeutic options, and prognosis in this population. The aim of this study was to analyze the epidemiological and clinical features and treatment outcomes of CRC in young adults in a resource-limited setting at Point G University Hospital.

PATIENTS AND METHODS

This was a retrospective, descriptive, cross-sectional study conducted in the Surgery Department B at Point G University Hospital. Inclusion criteria were patients aged 18 to 45 years with histologically confirmed CRC. Data were collected from archived medical records using a standardized data collection sheet.

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Analyzed parameters included: sociodemographic characteristics (age, sex, origin), risk factors, initial symptoms, time from symptom onset to diagnosis, diagnostic pathway, clinical stage at diagnosis, treatment modalities (chemotherapy, surgery, radiotherapy, and combinations thereof), treatment outcomes (remission, progression, recurrence), and survival (1-, 3-, and 5-year survival rates and median survival). Minimum follow-up was 1 year.

RESULTS

Epidemiological Characteristics

Of 407 digestive cancer cases, 55 involved young adults aged 18 to 45 (13.5%). Males comprised 54.5% (n=30), and females 45.5% (n=25). The mean age was 34.9 ± 7.9 years, with a peak incidence (67.3%) in the 20–40-year range.

Reported risk factors included: family history of cancer (14.5%; n=8), obesity (3.6%; n=2), low-fiber,

high-fat diet (10.9%; n=6), and smoking (10.9%; n=6). The average BMI was 21.4 ± 5.1 (range: 12.8 to 33.7). Socioeconomic status was low in 45.5% (n=25), middle in 49.1% (n=27), and high in 5.4% (n=3).

Clinical and Histopathological Characteristics

Presenting symptoms included: abdominal pain (52.7%; n=29), rectal bleeding (21.8%; n=12), bowel obstruction (20%; n=11), weight loss (3.6%; n=2), and abdominal mass (1.8%; n=1). The average symptom duration was 10 months (range: 1 to 96 months).

Reasons for delayed diagnosis were: lack of symptom awareness (47.3%; n=26), symptom trivialization (38.2%; n=21), and initial misdiagnosis by healthcare providers (14.5%; n=8). Tumor locations were: colon (10.9%; n=6), rectum (80%; n=44), and anal canal (9.1%; n=5). Advanced-stage disease was observed in 61.8% (n=34).

Table I: Tumor Stage at Diagnosis

Tumor Stage	Frequency	Percent (%)
Extended parietal (n=55)		
T2	3	5.4
T3	17	30.9
T4	35	63.6
Locoregional Extension (n=34)		
Locally Advanced	21	38.2
Metastatic	13	23.6

Histologically, tumors were primarily adenocarcinomas (90.9%; n=50), with subtypes as follows: Lieberkühnian (85.5%; n=47), mucinous (1.8%;

n=1), and colloid (3.6%; n=2). Other types included squamous cell carcinoma (5.4%; n=3), sarcoma (1.8%; n=1), and lymphoma (1.8%; n=1).

Table II: Histological Characteristics

Histological Type	Frequency	Percent (%)
Adenocarcinoma (n=50)		
- Lieberkühnian	47	85.5
- Colloid	2	3.6
- Mucinous	1	1.8
Squamous Cell Carcinoma	3	5.4
Sarcoma	1	1.8
Lymphoma	1	1.8
Tumor Differentiation		
- Moderately differentiated	16	29.1
- Poorly differentiated	3	5.4
- Undetermined	36	65.4

Treatment: Therapeutic approaches included surgery (80%; n=44) with 9.1% R0 resection and 38.6% R1

resection; chemotherapy (58.2%; n=32) and radiotherapy (9.1%; n=5). Table III

Table III: Treatment Modalities

Modalities	Frequency	Percent (%)
Surgery (n=44)		80
Resection (n=25)		
R0	05	9.1
R1	17	30.9
R2	03	5.4
Abdominoperineal Resection	03	5.4
Stoma	16	29.1
Chemotherapy (n=32)		58.2
Neoadjuvant	07	12.7
Adjuvant	19	34.5
Palliative	06	10.9
Radiotherapy (n=05)	05	9.1

There were 5.4% (n=3) immediate postoperative complications. Postoperative complications included anastomotic fistula (n=2) and anal incontinence (n=1).

Table IV: Treatment Outcomes and Survival

Response to treatment	Frequency	Percent (%)
Patient follow-up results (n=55)		
Alive (n=5)		
Remission	02	3.6
Disease Progression metastatic	01	1.8
Local Recurrence	02	3.6
Deaths	18	32.7
Lost to Follow-Up	32	58.2
Survival Rates: (n=55)		
1-year survival	29	52.7
3-year survival	10	18.2
5-year survival: 7.3%	04	7.3
Median survival	13 mois	

DISCUSSION

Epidemiology of Colorectal Cancer in Young Adults

In this study, 13.5% of colorectal cancers diagnosed between 2016 and 2023 occurred in young adults aged 18 to 45 years, with 67.3% of patients aged between 20 and 40 years. This increase in colorectal cancer among young adults is not an isolated finding; similar observations have been reported in other African studies, such as the one conducted in Burkina Faso, where 39.2% of colorectal cancer cases were diagnosed in patients aged 20 to 45 years [6]. This age group is particularly vulnerable to aggressive forms of colorectal cancer, often associated with modifiable risk factors such as obesity, diets low in fiber and high in fat, tobacco use, and low to middle socioeconomic status [3, 7].

Globally, the incidence of colorectal cancer in individuals under 50 has increased by 79% since 1990, with projections indicating a 139.7% increase by 2050 in Africa [3, 8]. The continent is undergoing an epidemiological transition marked by lifestyle westernization and rapid urbanization. These dynamics contribute to the rising incidence of colorectal cancer in a region with limited screening infrastructure. Preventive programs remain insufficient, despite the emergence of national guidelines in some North African countries. The

rising burden of colorectal cancer among young adults also suggests shifts in the biological and environmental determinants of the disease, warranting increased scientific and policy attention [4, 5].

Gender Distribution

The male predominance (54.5%) observed in our cohort is consistent with findings from several other studies, thus corroborating the existing medical literature [9, 10]. This gender disparity, widely reported, may be attributed to hormonal, behavioral, and environmental factors [10].

Histopathological Characteristics

In this study, 90.9% of cases were adenocarcinomas, with 29.1% being moderately differentiated. The high frequency of aggressive forms is consistent with international data, which show that younger patients often present with more aggressive tumors, notably mucinous adenocarcinomas or signet ring cell carcinomas, and are more likely to receive intensive treatments [11].

Diagnostic Delay and Advanced Stages

The mean diagnostic delay in this cohort was 10 months. Contributing factors included lack of awareness of warning signs (47.3%), symptom trivialization by

patients themselves (38.2%), and initial misattribution of symptoms to benign causes by healthcare providers (14.5%). This delay is concerning as it frequently leads to late-stage diagnoses, reducing the likelihood of optimal curative treatment.

Treatment and Outcomes

Surgical treatment was performed in 80% of cases, but only 9.1% achieved R0 resection margins. This low rate of complete surgical resection suggests suboptimal surgical management, which may contribute to poor prognostic outcomes. This also partly explains the low remission rate of 3.6% observed in this study. Radical surgery via abdominoperineal amputation was performed in 5.4% (n=3), and colostomy in 29.1% (n=16). Although often necessary, these surgical options are poorly accepted by young adults.

Chemotherapy was administered in 58.2% of cases; however, treatment response was generally unsatisfactory, with 5.4% disease progression and a mortality rate of 32.7%. Although young adults are generally better able to tolerate aggressive treatments, their availability was often limited either due to drug shortages or financial barriers to accessing recommended modern therapies.

Radiotherapy is recommended for anal canal cancers and mid-rectal cancers. However, this treatment option was unavailable in our country. The few patients (9.1%; n=5) who received radiotherapy had to travel abroad to neighboring countries such as Senegal or Côte d'Ivoire.

Survival

The one-year survival rate was 52.7%, the three-year survival rate was 18.2%, and the five-year survival rate was 7.3%, with a median survival time of 13 months. These figures are significantly lower than those reported in high-income countries, where five-year survival for young patients can reach up to 67.7% [11]. Factors contributing to this poor survival include diagnostic delays, advanced stages at presentation, substandard surgical care, and limited chemotherapy response.

In sub-Saharan Africa, five-year survival for colorectal cancer remains low, averaging 28%. This situation is further exacerbated by limited access to healthcare services, lack of systematic screening, and poor awareness of symptoms among the population [12].

CONCLUSION

Colorectal cancer in young adults is alarmingly frequent, with delayed diagnosis contributing to poor prognosis. Raising awareness and promoting early detection are essential to improve survival outcomes in this vulnerable population.

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