J Surg Med. 2025;9(11):222-224.
https://doi.org/10.28982/josam.8205

JOSAM

Research article
https://jsurgmed.com/

Journal of Surgery and Medicine

e-ISSN: 2602-2079

Colorectal malignancy in the younger non-screened age group – A national study

Mark Sammut [1], Matthew Sammut [1], Melanie Farrugia [1], Jurgen Gatt [1], Neville Spiteri [1], Noel Gatt [2]

[1] Department of General Surgery, Mater Dei Hospital, Malta
[2] Department of Pathology, Mater Dei Hospital, Malta

ORCID of the author(s)

MS: https://orcid.org/0000-0001-7847-1556
MS: https://orcid.org/0000-0002-1758-2663
MF: https://orcid.org/0000-0002-3776-1220
JG: https://orcid.org/0009-0003-1024-0921
NS: https://orcid.org/0000-0001-9478-7462
NG: https://orcid.org/0009-0009-7298-0996

Corresponding Author
Matthew Sammut
Department of General Surgery, Mater Dei Hospital, Malta
E-mail: matthew.a.sammut@gov.mt

Ethics Committee Approval
Permissions and approvals from the Data Protection Review Unit and the General Surgical Department at Mater Dei Hospital (Malta) were obtained for data analysis of non-identifiable data. All procedures in this study involving human participants were performed in accordance with the 1964 Helsinki Declaration and its later amendments.

Conflict of Interest
No conflict of interest was declared by the authors.

Financial Disclosure
The authors declared that this study has received no financial support.

Published
2025 October 30

Abstract

Background/Aim: Colorectal cancer (CRC) continues to be a significant public health issue. There is growing concern that the incidence rate for CRC in adults under 55 years of age is on the rise. This study aimed to identify the trends in incidence rates for CRC cases among the non-screened adult population.
Methods: All patients, aged between 18 and 55 years, who were diagnosed and underwent colorectal resections for histologically confirmed CRC between January 2010 and December 2023, were identified and included in the data set.
Results: A total of 162 patients under the age of 55 were diagnosed and operated on for CRC, with an even gender distribution of 81 males (50%) and 81 females (50%). The median age was 44 years (range: 18 to 55 years). No significant statistical difference was detected between female and male patients in terms of median age (P=0.41), both had a median age of 45 years. The total amount of CRC tumors diagnosed per year in patients under 55 averaged about 12.00 cases (mean=11.58 cases per year). There appeared to be a slight trend of increasing incidence by 0.36 cases per year. No significant statistical differences were found in relation to tumor location, tumor stage, and gender (P=0.93, P=0.11). The median survival period was 32.15 months (range: 1–112 months).
Conclusion: The incidence of CRC in younger, non-screened patients was found to be on the rise in our local population. Clinicians need to be vigilant for CRC in younger individuals. Additionally, early investigations may need to be undertaken within this age group.

Keywords: screening, colorectal, cancer, population

How to cite: Sammut M, Sammut M, Farrugia M, Gatt J, Spiteri N, Gatt N. Colorectal malignancy in the younger non-screened age group – A national study. J Surg Med. 2025;9(11):222-224.

Introduction

In the European Union (EU), colorectal cancer (CRC) is the second most frequently diagnosed cancer, following breast cancer, and is cited as the second leading cause of cancer-related mortality, after lung cancer. The EU's standardized death rate for CRC stands at 29.7 per 100,000 population, highlighting that CRC remains a significant public health issue. Among EU Member States, the standardized death rates for CRC are higher in male patients compared to female patients [1].

Although CRC cancer cases are being identified through population screening programs, there is growing public health concern that the incidence rate for adults aged under 55 years with CRC has increased [2-4]. The objective of this study was to determine incidence rate trends in CRC cases in the local adult population that has not been screened.

Materials and methods

Permissions and approvals for data analysis of non-identifiable data were obtained from the Data Protection Review Unit and the General Surgical Department at Mater Dei Hospital (Malta). All patients aged between 18 and 55 years who were diagnosed with and had undergone colorectal resections for histologically confirmed CRC between January 2010 and December 2023 were identified and included in the dataset. These patients were identified from prospectively maintained CRC histology and theatre databases. A retrospective data analysis of this dataset was conducted. Staging of CRC utilized computed tomography (CT), magnetic resonance imaging (MRI), and histology results. Collected data comprised age at presentation, demographics, CRC stage at presentation, tumor location, and mortality.

Statistical analysis

Results were analyzed using SPSS version 21.0, and a p-value of less than 0.05 was considered statistically significant. Continuous variables were evaluated using the unpaired Student's t-test, while the Chi-square and Fisher tests were employed for categorical variables. The study was conducted in accordance with the STROBE guidelines [5].

Results

From 2010 to 2023, a total of 162 patients under the age of 55 were diagnosed and treated for CRC, evenly split between males (81 or 50.00%) and females (81 or 50.00%). There was no significant statistical difference (P=0.41) between the median age of female patients (45 years) and male patients (45 years) at their initial CRC presentation (Table 1).

Figure 1 displays the total number of CRC cases per year in patients under the age of 55 (median=12.00 cases per year). Linear regression analysis indicates an overall trend of increasing CRC cases in the non-screened patient group, with an increase rate of 0.36 cases per year; however, this increase was not statistically significant (P=0.181).

There was no statistical difference in tumor location, tumor stage, and gender (P=0.93, P=0.11) (Table 2 and Table 3).

The median survival was 32.15 months (range=1–112 months) for all CRC patients under the age of 55 years included in the dataset.

Figure 1: Total CRC cases detected and linear regression analysis.

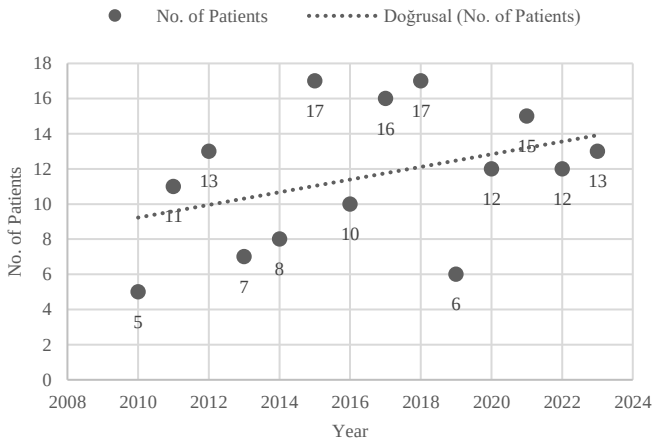

Table 1: Age range and gender differences.

Age Range (years)	Male (n (%))	Female (n (%))	Total (n (%))	*P*-value
20 - 24	1 (1.47)	0 (0.00)	1 (0.73)	1.00
25 - 29	2 (2.94)	3 (4.35)	5 (3.65)	1.00
30 - 34	6 (8.82)	10 (14.49)	16 (11.68)	0.42
35 - 39	15 (22.06)	13 (18.84)	28 (20.44)	0.66
40 - 44	14 (20.59)	13 (18.84)	27 (19.71)	1.00
45 - 49	41 (60.29)	34 (49.28)	75 (54.74)	0.33
50 - 54	2 (2.94)	8 (11.59)	10 (7.30)	0.09

Table 2: Colorectal cancer location and gender.

Tumor Location	Male (n (%))	Female (n (%))	Total (n (%))	*P*-value
Right-sided	11 (13.58)	13 (16.05)	24 (14.81)	0.82
Left-sided	30 (37.04)	32 (39.51)	62 (38.27)	0.86
Rectum	37 (45.68)	33 (40.74)	70 (43.21)	0.58
Anal	3 (3.70)	3 (3.70)	6 (3.70)	1.00

Table 3: Colorectal cancer stage and gender.

Tumor Stage at presentation	Male (n (%))	Female (n (%))	*P*-value
Stage 1	21 (25.93)	14 (17.28)	0.19
Stage 2	23 (28.40)	15 (18.52)	0.14
Stage 3	26 (32.10)	33 (40.74)	0.24
Stage 4	11 (13.58)	19 (23.46)	0.12

Discussion

Predictive population modeling suggests that there will be an increase from 4.8% (colon cancer) and 9.5% (rectal cancer) in 2010 to 10.9% (colon cancer) and 22.9% (rectal cancer) in 2030 among the non-screened younger age groups [6-7]. This has led to heightened public health concern due to the increasing incidence rate of CRC in these non-screened younger age groups [4,8-10].

Although CRC is more common in females above the age of 55 years, this study demonstrated an equal CRC incidence rate between females and males under the age of 55 years (P=0.41). A limitation of our study was that patients who were not operated on (e.g. due to inoperable CRC) were excluded. This exclusion may lead to an underestimation of the rising incidence of CRC malignancies in the younger patient age group. Furthermore, the CRC incidence in the non-screened group may be underestimated due to missing data and selection bias related to retrospective studies.

The increasing prevalence of CRC in younger patients necessitates further research to ascertain the causes of this rise [12]. Although most CRC cases in youthful patients are presumed to be sporadic, environmental factors likely play a part [3]. Cohort and case-control studies have identified modifiable risk factors such as obesity, smoking, heavy alcohol consumption, insufficient physical activity, and a diet high in meat but low in fiber [8,12-14].

One implication of the increasing incidence rate in the younger, non-screened group is the recommendation to initiate CRC population screening programs at an earlier age both locally

and in several countries worldwide [4]. However, there is limited data on screening patients below the age of 55, as the total number of CRC cases in younger patients remains low. This scarcity incites questions about the cost-effectiveness and increasing demand for endoscopy suites related to lowering the age for screening programs [2,15]. Screening individuals with risk factors, such as a positive family history, may be effective, yet further studies are required to stratify risk among young patients [7,10,12].

Limitations

One limitation of our study is that it excluded patients who were not operated on, such as those with inoperable CRC. However, it is important to note that this was a retrospective study, subject to the limitations of data bias.

Conclusion

In conclusion, we found an increasing incidence of CRC in the younger non-screened patient group within our local population. If this rise persists, it may necessitate further studies in risk stratification and a reconsideration of current CRC screening practices. It is crucial to heighten clinicians' awareness of CRC in younger patients and we may need to consider early investigations in this age group.

References

1. European Cancer Information System (ECIS). Colorectal cancer factsheet. March 2021.
2. Olivo R, Ratnayake S. Colorectal cancer in young patients: a retrospective cohort study in a single institution. ANZ J Surg. 2019;89(7):905–7.
3. Chambers AC, Dixon SW, White P, Williams AC, Thomas MG, Messenger DE. Demographic trends in the incidence of young-onset colorectal cancer: a population-based study. Br J Surg. 2020;107(5):595–605.
4. Cho MY, Siegel DA, Demb J, Richardson LC, Gupta S. Increasing colorectal cancer incidence before and after age 50: implications for screening initiation and promotion of "on-time" screening. Dig Dis Sci. 2022;67(8):4086–91.
5. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP; STROBE Initiative. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. BMJ. 2007;335(7624):806–8.
6. Mauri G, Sartore-Bianchi A, Russo AG, Marsoni S, Bardelli A, Siena S. Early-onset colorectal cancer in young individuals. Mol Oncol. 2019;13(2):109–31.
7. Ho SB, Zaher S. Inverted yield curve: the alarming rising incidence of CRC in young people. Dig Dis Sci. 2020;65(6):1590–2.
8. Vuik FER, Nieuwenburg SAV, Bardou M, Lansdorp-Vogelaar I, Dinis-Ribeiro M, Bento MJ, et al. Increasing incidence of colorectal cancer in young adults in Europe over the last 25 years. Gut. 2019;68(10):1820–6.
9. Fields PM, Anderson JC, Fedewa SA. The time to act is now: the rationale to start colorectal cancer screening at age 45. Curr Treat Options Gastroenterol. 2021;19(3):421–33.
10. Patel G, Patil P. Worrisome trends in young-onset colorectal cancer: now is the time for action. Indian J Surg Oncol. 2022;13(3):446–52.
11. Law JH, Koh FH, Tan KK. Young colorectal cancer patients often present too late. Int J Colorectal Dis. 2017;32(8):1165–9.
12. Lu XQ, Li Y, Wang W, Feng WT, Shi OM, Wang Q. International incidence trends in early- and late-onset colorectal cancer: a population-based study. Int J Colorectal Dis. 2020;35(6):1077–86.
13. Exarchakou A, Donaldson LJ, Girardi F, Coleman MP. Colorectal cancer incidence among young adults in England: trends by anatomical subsite and deprivation. PLoS One. 2019;14(12):e0225547.
14. You YN, Lee LD, Deschner BW, Shibata D. Colorectal cancer in the adolescent and young adult population. J Oncol Pract. 2020;16(1):19–27.
15. Murphy CC. Colorectal cancer in the young: does screening make sense? Curr Gastroenterol Rep. 2019;21(7):28.