Emergency presentation of colorectal cancer in Northwestern Saudi Arabia

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ABSTRACT

الأهداف: تهدف هذه الدراسة إلى تحديد نسبة المرضى الذين يعانون من هذا المرض ومظاهره في منطقة تبوك في شمال غرب المملكة العربية السعودية، بالمقارنة مع النتائج المماثلة لها محلياً، إقليمياً وعالمياً.

الطريقة: تمت دراسة جميع الحالات التي أدخلت الى المستشفيات الرئيسية في منطقة تبوك، وهي: مستشفى الملك سلمان للقوات المسلحة بالشمالية الغربية، مستشفى الملك خالد ومستشفى الملك فهد خلال خمسة أعوام بين عامي 2010 و2015.

النتائج: شملت الدراسة 72 مريضا. المرضى الذين قدموا إلى المستشفى كحالة طارئة كان عددهم 22 وشكلوا نسبة 30.6% . وقد كانت الحالات الطارئة أكثر شيوعا في المرضى المسنين (81.8%) ولكن نسبة أكبر من المرضى صغار السن قد تأثرت بالمرض (40% مقابل 29% في المرضى المسنين). يعد هذا المرض أكثر شيوعا في الإناث من الذكور (37% و26.7% على التوالي) وكان الانسداد المعوي هو السبب الأساسي لهذه الحالات الطارئة. كما أن الأورام في الجانب الأيمن (61.9%) قد تسببت في حالات طارئة أكثر من نظيرتها على الجانب الايسر من القولون (30.2%). ولوحظ أن هذه الحالات الطارئة تأتى الى المستشفى في حالة متأخرة من المرض (40%) مع ازدياد نسبة انتشاره في الجسم.

الخاتمة: لقد وجد ان حالات سرطان المستقيم التي تشخص كحالات طارئة تعتبر نوعا ما شائعة في منطقة تبوك. ويصل المرضى إلى المستشفيات في مراحل متقدمة من المرض، وهو ما يتطلب بذل الجهود لمحاولة اكتشاف المرض في وقت مبكر، وذلك من خلال الشروع في برامج التثقيف الصحي والفحص المبكر. نوصي بمزيد من الدراسات لاستكشاف هذا المرض ومضاعفاته بصورة أعمق.

Objectives: To investigate the frequency and clinical characteristics of emergency presentation of colorectal carcinoma (CRC) in Tabuk Region of Saudi Arabia.

Methods: This is a retrospective, descriptive hospital-based study. All cases with CRC that presented to the main referral hospitals in Tabuk, Saudi Arabia between 2010 and 2015 were retrieved. The relevant hospitals are: King Salman Military Hospital, King Khalid Hospital, and King Fahad Hospital.

Results: Seventy-three patients were included in the study. Twenty-two patients presented emergency constituting 30.6% of the total. Emergency CRC presentation was more common in elderly patients (81.8%), but a greater proportion of young patients was also affected (40% versus 29% in elderly patients). The disease is more common in females (37%) than males (26.7%) and intestinal obstruction was the sole form of presentation. Patients presenting emergency had more right-sided (61.9%) than left-sided tumors (30.2%). Advanced presentation with metastasis was noted in 40% of the patients presenting acutely.

Conclusion: Emergency CRC presentation is common in the Tabuk region. Patients tend to present at an advanced stage, which necessitates an endeavor to detect the disease in its early stages, possibly through initiation of health education programs and suitable screening projects.

Saudi Med J 2017; Vol. 38 (5): 528-533
doi: 10.15537/smj.2017.5.17719

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Received 16th November 2016. Accepted 8th February 2017.

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Disclosure. Authors have no conflict of interests, and the work was not supported or funded by any drug company. This work was funded by the Deanship of Research, University of Tabuk, Tabuk, Saudi Arabia (Grant # S-144-1436).

In the last report published by the Cancer Registry in 2011, colorectal cancer (CRC) was the second most common cancer in the Kingdom of Saudi Arabia (KSA), with 1,194 newly diagnosed cases each year. The Tabuk Region has the fifth highest incidence of the disease among other provinces in KSA, with an age-standardized incidence of 8.7 for every 100,000 of the population.[1] Emergency presentation of CRC has been reported frequently in the KSA, as well as worldwide.[2] Ayyub et al[3] studied 160 CRC patients in a tertiary hospital in the Western Province of Saudi Arabia, and they identified 39 cases (21.3%) who presented acutely with intestinal obstruction. Eltinay and Gyraya[4] also investigated 43 patients with CRC in King Khalid University Hospital, Riyadh (central region of KSA). Twenty-three percent of patients in their study involved emergency presentation. They also noted that emergency presentation was observed more in patients with left-sided than right-sided tumors (13.9% versus 4.7%). In addition, they pointed out that patients with emergency presentation tended to receive fewer curative resections of their tumors in comparison to those who presented electively.[4] In a subsequent study in the same hospital, Aljebreen[5] studied 118 patients with CRC and found that 51 patients (45%) presented acutely with complete large bowel obstruction. In Eastern Province of KSA, Amin et al[6] examined 142 patients with CRC, of whom 44 (31%) presented acutely. Intestinal obstruction with abdominal mass was the main clinical presentation encountered among those patients (41.5%), with a greater predilection for females.[6] In the southern part of KSA, Al-Shehri et al[7] studied 63 CRC patients and found that 20 of them (32%) presented acutely with intestinal obstruction. They attributed the higher percentage of emergency presentation in their series to late presentation, which is evident from the presence of a palpable abdominal mass in 22% of patients.[7] Studies in the Arab States of the Arabian Gulf and other neighboring countries have reported findings similar to those in Saudi Arabia for emergency-room presentation of CRC. In a study of 277 Sudanese patients carried out in Sudan, 35% of patients presented acutely, and intestinal obstruction was the main mode of emergency presentation, accounting for 94% of those cases.[8] A lower percentage of emergency presentation (11%) as intestinal obstruction was reported in the state of Qatar by Rasul et al,[9] in a study of 110 CRC patients in 2001. Bakari et al[10] demonstrated a high percentage of emergency presentation of CRC in Nigeria, where they examined 262 patients with the disease. They reported that most patients (88.7%) in the study presented with features of acute abdominal pain and that most of them presented late where the diagnosis was established during laparotomy for acute abdomen.[10] A-Jabri et al's[11] study of 202 CRC patients in Jordan showed that emergency presentation, in the form of intestinal obstruction and perforation, was observed almost equally in groups of young and elderly patients (22.5% and 22.2%). Considering the worldwide situation, studies from the UK and the US have reported emergency presentation of around 30%, which was also linked to poor outcomes compared to elective presentation in terms of higher complications and lower 5-year survival rates.[12-14] In Canada, Hwang's 2012 study of 75 patients with CRC revealed that 43% of patients presented emergently with intestinal obstruction, perforation and hemorrhage. He added that those patients were more likely to be elderly and tended to present with an advanced pathologic stage and metastasis.[15] This was further supported by a Swedish study, which concluded a tendency toward emergency CRC presentation in older patients with an advanced stage; the study also showed that tumors have less propensity to affect the cecum.[16] (this must be in the Discussion Section?)

This study aims to investigate the frequency and clinical characteristics of emergency presentation of CRC in Tabuk Region. Tabuk is in the northwestern part of KSA, and is an area with one of the highest incidences of CRC in the country. Provision of data regarding the percentage of CRC patients presenting acutely, as well as their clinical, pathological, and demographic characteristics, would help the public and health authorities in the region to address the disease with appropriate planning and strategies.

Methods. This is a retrospective, descriptive hospital-based study, which was conducted in Tabuk, northwestern part of KSA. Ethical approval to conduct the study was issued by the Ethical Committee, King Salman Military Hospital, Tabuk, Saudi Arabia. The study was conducted in accordance with the Helsinki Declaration of Ethical Principles for Medical Research Involving Human Subjects. For the study questionnaire, we retrieved and recorded records for all patients diagnosed with CRC (proven by histopathology), and who presented to the main referral hospitals in Tabuk Region between 2010 and 2015. The hospitals included in the study are: King Salman Military Hospital, King Khalid Hospital, and King Fahd Hospital. The clinical, pathological, and demographic features of emergency CRC presentation were examined and compared to those of elective presentation.

Data were analyzed using the Statistical Package for Social Sciences version 16 (SPSS Inc., Chicago,

IL, USA). Descriptive statistics using both numbers and percentages were used to highlight the results. The statistical significance of the results, where appropriate, was tested using the Chi-square formula.

A search of the literature for previous similar studies in KSA and elsewhere was conducted through the designated literature search engines: PubMed, Saudi Digital Library, Google Scholar, and Medline. Thirty-five studies, which focus on CRC in Saudi Arabia and some neighboring countries, were identified. Ultimately, 25 of these had a particular emphasis, or relevant data on CRC emergency presentation and were used in the study.

Results. Seventy-two CRC patients were identified during the study period, 22 of whom presented emergency, accounting for 30.6% of all patients. **Table 1** shows the distribution of emergency presentation, according to the patient age and gender. Most patients who presented acutely were elderly (≥40 years), comprising 18 patients (81.8%). Ten patients were younger than 40 years, of whom 4 presented acutely (40%), while the corresponding percentage of patients older than 40 years was 29% (18 out of 50 patients). Emergency presentation of CRC was more common in females (37%) than in males (26.7%) and this association was statistically significant (p=0.000). Intestinal obstruction was the sole form of emergency presentation (100%).

Table 2 demonstrates the pathological characteristics of tumors in emergency presentation in terms of tumor site, stage, and degree of differentiation. A greater proportion of right-sided tumors presented acutely (61.9%) compared with left-sided tumors (30.2%), with no statistical significance. Patients who presented emergency tended to have a more advanced stage and metastatic disease than those who presented electively (Duke's stage D; 40% and 25.5%). Most tumors were well-differentiated adenocarcinomas (63.6%), with equal proportions of poorly and well-differentiated varieties (18.1%).

Table 3 delineates the association between curative and palliative resections offered to patients during treatment. Curative resections were undertaken in 63.6% of patients who presented acutely, 72% of those who presented electively. Conversely, of all the palliative resections carried out, 14 (63.6%) were performed on elective patients, while 8 (36.4%) were performed on emergency patients. Palliative resections tended to be undertaken significantly more often in elective rather than emergency presentations.

Discussion. This study aims to identify the important clinical and pathological characteristics of emergency presentation of CRC in Tabuk Region and to compare the results to those from corresponding studies in other regions of the KSA, regionally, and worldwide. The percentage of CRC patients presenting acutely in Tabuk region seems to be among the highest in KSA (higher than the reported percentages in the Western and Central regions, equal to that in the Southern region, and lower than the corresponding percentage in the Eastern Province). The frequency of the disease in

Table 1 - Age and gender of patients with emergency and non-emergency presentation (N=72).

Age/gender	Emergency presentation		Non-emergency presentation		Significance Chi-square*
Age (years)					0.485
<40	4	(40.0)	6	(60.0)	
≥40	18	(29.0)	44	(71.0)	
Gender					
Males	12	(26.7)	33	(73.3)	0.00
Females	10	(37.0)	17	(63.0)	

*p<0.05

Table 2 - Pathological characteristics of tumors in emergency and non-emergency presentation (N=72).

Presentation	Emergency	Non-emergency	Significance Chi-square
Tumor site			
Right-sided	16 (30.2)	37 (69.8)	0.946
Left-sided	6 (31.6)	13 (68.4)	0.216
Stage			
Deuk's D	8 (40.0)	12 (25.2)	0.161
Degree of differentiation			
Well-differentiated	4 (18.1)	14 (28.6)	0.368
Moderately differentiated	14 (63.6)	31 (63.3)	
Poorly differentiated	4 (18.1)	4 (8.1)	

Data are expressed as number and percentage (%)

Table 3 - Curative resections in emergency and non-emergency presentations (N=72).

Resection	Curative	Palliative	Total
Emergency	14 (63.6)	8 (36.4)	22 (100)
Elective	36 (72.0)	14 (28.0)	50 (100)
Significance Chi-square	0.207	0.045*	-

*p<0.05

Tabuk region also appears considerably higher than in some other regions and countries. These variations may be attributed to the differences in the incidence of CRC between different parts of the KSA and globally. The percentage of emergency CRC presentation in Tabuk region, which surpasses other regions in the KSA, may reflect the rising incidence of CRC in the area, which was ranked fifth among other regions in the KSA.[1] The incidence of CRC in KSA has increased remarkably in the last 2 decades, having almost doubled between 1996 (5.8%) and 2011 (11%) according to the Saudi Cancer Registry Report.[1,17,18] This tremendous leap in the incidence of CRC in the KSA was linked to various factors, including sociocultural changes in food and lifestyle, and to the increasing detection rate of the disease, owing to the advancement and availability of diagnostic facilities in governmental and private health care sectors.[17,19,20]

Emergency CRC presentation was much more frequently encountered in the elderly than in young patients. However, a greater proportion of young patients was affected compared with elderly patients. This is contrary to what was reported in Jordan and some other countries. The higher number of cases among elderly patients can be explained in view of the higher incidence of the disease in general in the elderly population. However, several recent reports from inside and outside KSA have indicated an increased tendency toward CRC affecting more young people than elderly people.[21] The disease has also been shown to be more aggressive and to manifest at an advanced stage in young patients, which may explain the higher frequency of emergency presentation in that group of patients.[5] Emergency CRC presentation was significantly higher in females than males, which is consistent with the finding of Amin et al in the eastern part of KSA. This trend toward an increased predilection for females may be related to differences in the timing and stage of presentation between males and females, but it requires further elaboration through future research. In accordance with the uniform major mode of presentation described in the literature, intestinal obstruction constituted the main form of acute CRC presentation in Tabuk region.

A notable finding in this study is that patients with emergency presentation had more right-sided than left-sided tumors, which contrasts with what Eltinay and Guraya[4] and Gunnarsson et al[16] affirmed in their studies. It is well known from the literature that tumors in the left side of the colon tend to cause more obstruction than the right-sided counterparts, owing to the narrower diameter of the colon on the left side. However, it was also emphasized that right-sided tumors could cause obstruction if they presented at an advanced stage.[22] Further analysis of the cases and prospective studies may be required to provide legitimate reasons for these findings.

It was noted in this study that patients with emergency CRC presentation tend to present late, when distant metastasis is already proven in 40% of cases, compared to 25.2% for elective presentation. This is consistent with the findings of some local and international studies,[6,10,15] which may underline the essential requirement for early diagnosis and management of the disease.[23] Public health-education programs, the establishment of disease protocols for healthcare providers, and implementation of a suitable screening program, are among the strategies that could be used for that purpose.[17,20,24,25] However, contrary to this trend toward late presentation in emergency cases, most patients undergone a curative procedure, a finding that contrasts to the study of Eltinay and Guraya.[4] Moreover, it was found that palliative procedures tended to be carried out more in the elective presentation than in acute. Although this style of curative surgery in emergency patients does not favor their presentation stage, it is well known that even in the presence of hepatic metastasis, surgery is not precluded for a cure. In fact, in favorable cases, some metastatic foci are amenable to resection.[22] Further research and prospective studies are advocated to further elaborate on these findings and to consider survival data for those patients.

Study limitations. Although the study was conducted in the main referral hospitals in Tabuk region to yield a representative sample of the population, some cases could have escaped this system and presented to hospitals in other cities in the KSA. Lack of some essential information from the medical records of some of the patients. Therefore, prospective studies should be conducted to shed more light on the topic, based on the findings delivered by this pilot work.

In conclusion, acute presentation of CRC is common in Tabuk region, which mainly takes the form of intestinal obstruction. While the disease is common in the elderly population, an increasing tendency toward affecting young patients has been observed. The disease tends to affect females more than males and, in accordance with what is indicated in the literature, patients usually present at an advanced stage when metastasis has already occurred in many of them. An interesting finding, which requires further elaboration, is that right-sided tumors were more obstructive than their left-sided counterparts.

Health education programs and implementation of suitable screening schemes are required to detect patients at an early stage of the disease and to help mitigate the problem. Advocated is the pursuit of further research and prospective studies to provide further insight into the disease in this area of increasing incidence.

Acknowledgment. *Authors would like to thank Mr. Ehab Farah, who conducted the statistical analysis of the results. Gratitude is also expressed to the statistical department officers in the hospitals where the study was conducted for their generous help during the process of data collection. Thanks are also due to the Deanship of Research, University of Tabuk, Tabuk, Saudi Arabia which funded this work.*

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