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Original Research Article

Clinical and histopathological pattern of colorectal malignancies, the experience in a tertiary hospital in south-western region, Saudi Arabia

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ABSTRACT

Background: Colorectal cancer is the third most common cancer all over the world and the second leading cause of the cancer death in both sexes. CRC is the second most common cancer in Kingdom Saudi Arabia. However, this aspect was not recently studied.
Methods: This is a retrospectively cohort based study. We collected and analyzed the records of the patients with CRC diagnosed at Aseer Central Hospital, Abha, Saudi Arabia from January 2008 to June 2016. A pre-specified data sheet was used to collect information regarding socio-demographics, age, Altitude, site of tumor, clinical presentation, outcome and prognosis as well as histopathological pattern of cancer and the stages of disease. Descriptive statistics was performed using SPSS.
Results: A total of 291 cases of CRC were registered in the Aseer Central Hospital. 171 cases 58.87% were males while 120 cases 41.2% were females. The mean age of patients (SD) at the time of diagnosis was 59.38 years. At the time of diagnosis, 219 patients 84.6% presented with early stage disease and 40 15.4% had distant metastasis advanced stage. The most frequent CRC located in sigmoid 26.5%, rectal 23.7%and 14% in ascending. The moderately differentiate adenocarcinoma grade of tumor is being the most common grade among all variants 75.6%.
Conclusions: In this study, we have nearly similar results found in previously published study by Alshehri et al. Males considered most affected, most of the patients were more than 50 years, 84.6% of the patients came with early stage disease. Left side colon were the most common site of CRC.

Keywords: Colorectal cancer, Aseer, Histopathology, Clinical and KSA

INTRODUCTION

Colorectal malignancy is a disease where malignant cells are growing in the colon tissues and it's in the third place among most common cancer all over the world.[1,2] This cancer is considered the second leading cause among cancer deaths in both sexes combined in the United States of America. The American Cancer Society estimates that annually 136,830 people will be diagnosed and 50,310 will die from this disease.[3] Research identified people with those risk factors including: age over 50, Family history of polyps, Family history of colon cancer, Genetic alterations, Hereditary non-polyposis colon cancer (HNPCC), Familial adenomatous polyposis (FAP), Ulcerative colitis or Crohn's disease. Those are more likely than others to develop colorectal malignancies.[4]

Previous study has shown that healthy food habits specially vegetables intake reduce the risk of having colorectal malignancies.[5]

In spite of the relatively low incidence, colorectal malignancy is the second most common cancer in Saudi Arabia, ranking first among men (10.6%) and third among women (8.9%).[6] Women in Saudi Arabia have a higher incidence and mortality rate, as compared to other populations in less developed areas of the world.[7] The survival is nearly related to the clinical and pathological stage at diagnosis, and a lots of reports suggest that colorectal malignancies occurring at a young age is associated with much severe disease and high mortality rate, which has a similar relevance to the Saudi population.[6] A study was done in 1996 at Aseer central hospital showed that in colorectal carcinoma and the age of the highest incidence is shown between 51 and 60 years and the most common presenting symptom was rectal bleeding. Left sided colon carcinoma was more commonly seen (67%) than right sided colon carcinoma. Most of the lesions were seen in Dukes B and C stages. No significant sex difference was detected.[8] No recent publication regarding the condition in Aseer region was found. However, according to the last report of Saudi General Authority of Statistics, Aseer region is considered the fourth most populated area in KSA and its Central Hospital (ACH) is a referral hospital for Aseer region and for other southern regions.

Based on above we would like to identify the clinical and Histopathological pattern of colorectal malignancies in a tertiary hospital in southwestern region, Saudi Arabia.

METHODS

We conducted this retrospective -cohort study in Aseer Central Hospital, Saudi Arabia

Study population

We included 291 patients, 171 cases (58.87%) were males while 120 cases (41.2%) were females giving a male to female ratio of 1.4: 1. with colorectal cancer admitted to Aseer Central Hospital during the period of 2006 to 2016.

Study tools and data collection

Data was collected through pre-specified questionnaire and the collected data included patients attended to Aseer Central Hospital during the period of 2006 to 2016 and it was traced from hospital records and the Histopathological Registry after we obtained the ethical approval from the local medical ethical committee, in addition to the permission from the medical director of Asser Central Hospital.

Data included patients' demographics, clinical symptomatology, investigative modality, therapeutic intervention, histopathological results and long-term outcomes were assessed.

Plan of data analysis

Statistical Package for Social Sciences (SPSS) software version 18.0 was used for data analysis. Descriptive statistics were presented as number and percentage for categorical data and mean and standard deviation for continuous data. Chi-square tests ($\chi 2$) were used for the association between categorical variables. Student t-test was used to compare continuous variables. P value equal or less than 0.05 was considered statistically significant.

RESULTS

A total of 271 cases of CRC were registered during the period from January 2008 and June 2016. The data revealed a general increase in CRC incidence (Figure 1). The annual number of CRM admitted to Aseer central hospital was increased from 2008 (12 patients only) to 2015 (53 patients) and the first half of the years 2016, the registered patients was reached to 29 patients. The highest percentage were in 2015 (n=53, 18.2%) then in 2012 (n=41, 14.1%) while the lowest percentage of registered patients was in year 2008 (n=12, 4.1%).

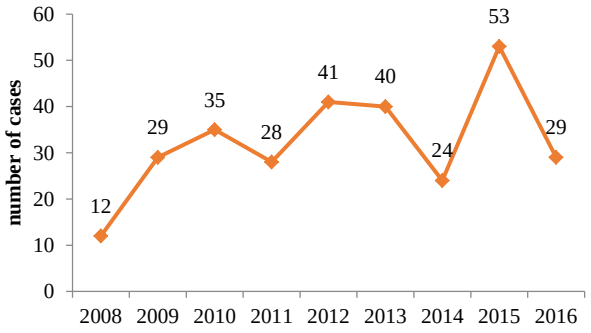

Figure 1: Annual number of colorectal malignancies admitted to Aser central hospital during the period from 2008 to 2016.

Table 1 shows the histopathological features of CRC cases in relation to patient's gender, there were 171 cases (58.8%) males and 120 cases (41.2%) females giving a male to female ratio of 1.4: 1. The age of the studied cases ranged from 11to 100 years with a mean age 59.38 year with standard deviation 15.79 years. The age is grouped into 6 categories, the peak age range was 50-69 years. A total of 32 (11%; male=20; female=12)were below 40 years of age; while 29 patients (10%; male=15; female=14) were aged above 80 years. The highest number of patients was between the ages of 60 and 69 (n=69; 23.7%; male=42; female=27). For altitude 223 of cases (76.6% male=130; female=93) have high altitude while 68 of cases have low altitude (23.4% male=41; female=27). It is obvious that male have higher altitude than female.

Table 1: Distribution of CRM according to demographic characteristics.

Variables		Male (%)	Female (%)	Total(%)
Age (years)	<40	20 (6.9)	12 (4.1)	32 (11.0)
	40-49.9	23 (7.9)	15 (5.2)	38 (13.1)
	50-59.9	44 (15.1)	24 (8.2)	68 (23.4)
	60-69.9	42 (14.4)	27 (9.3)	69 (23.7)
	70-79.9	27 (9.3)	28 (9.6)	55 (18.9)
	>=80	15 (5.2)	14 (4.8)	29 (10.0)
	Total	171 (58.8)	120 (41.2)	291(100.0)
Altitude	High	130 (44.7)	93(32)	223 (76.6)
	Low	41 (14.1)	27 (9.3)	68 (23.4)
	Total	171 (58.8)	120 (41.2)	291(100.0)

Table 2: Pathology features of CRM cases in relation to patient's gender.

Variables		Male	Female	Total
TNM stages	Stage I	39 (23.5)	30 (18.1)	69 (41.6)
	Stage II	10 (6)	3 (1.8)	13 (7.8)
	Stage III	47 (28.3)	28 (16.9)	75 (45.2)
	Stage IV	5 (3)	4 (2.4)	9 (5.4)
	Total	101 (60.8)	65 (39.2)	166 (100)
Lymph node size	≥12 LN	19 (18.1)	14 (13.3)	33 (31.4)
	< 12 LN	49 (46.7)	23 (21.9)	72 (68.6)
	Total	68 (64.8)	37 (35.2)	105 (100)

Table 2 summarizes the TNM stages and lymph node size. Tumor stage, size and lymph nodes status were available for 166 cases and 105 cases, respectively. The majority of patients i.e. 47.8% were diagnosed in stage III (n= 75; male=47; female=28) and 41.6% in stage I (n= 69; male=39; female=27), whereas 7.8% (n=13) and 5.4% (n=9) of patients were in stage I and stage IV respectively. The size of the tumor was less than 12 cm in 72 cases (68.6%; male=49; female=23), while equal to or more than 12 cm in 33 cases (31.4%; male=19; female=14).

Out of 69 (41.6%) cases are in stage I.

Table 3: Number and percentage of presence clinical presentation.

	Count	N (%)
Altered bowel habits	34	11.7
Anemia	30	10.3
Weight loss	77	26.5
Abdominal pain	192	66
Rectal pain	12	4.1
Rectal mass	23	7.9
Rectal bleeding	115	39.5
Abdominal mass	14	4.8
Sudden discovered using usual screening	1	0.3
Obstruction: Vomiting, constipation, distention	131	45.0

Table 3 presents the presence of common sigma mf symptom for CRC in Asir hospital, 192 (66%) patients had abdominal pain, 131 (45%) had obstruction vomiting constipation distention115 (39.5%) had rectal bleeding. 26.5% (77) had weight loss sign. Only 0.3% had sudden discovered using usual screening.

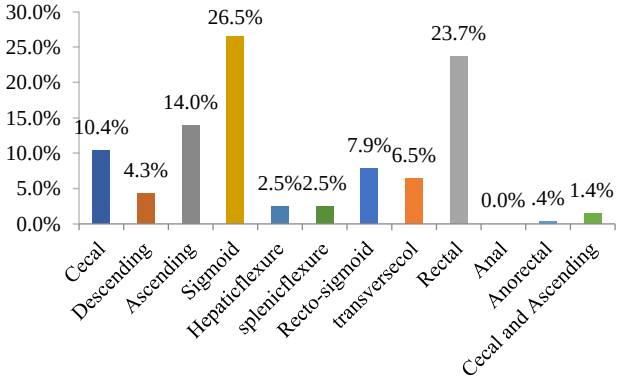

Figure 2: Frequency of colorectal malignancy by location.

From Figure 2 represents the percentage of cases by colorectal malignancies (CRM) location. The most common location in order was the sigmoid (26.5%), rectal (23.7%), ascending (14%) and cecal (10.4%). while no appearance in anal (0%).

Table 4 describe the stage of CRM patients where 219 (84.6%) out of 259 cases were in early stage and 40 cases

(15.4%) were in advanced stage (metastatic). The most frequent pathological variant was adenocarcinoma (95%). 249 cases (85.6%) were elective operated and 37 (12.9%) were reoffered. 83 (50.6%) cases of available recorded data were positive LN and 81 (49.4) were LN noninvolved.

Table 4: Distribution of colorectal malignancy by stage, pathological type, action taken and pathology details.

Variables	No (%)
Stage	
Early stage	219 (84.6)
Advanced stage (metastatic)	40 (15.4)
Pathological type	
Adenocarcinoma	274 (95.9)
Lymphoma	9 (3.2)
Neuroendocrine (carcinoid)	1 (0.3)
Others	2 (0.6)
Action Taken	
Operated (timing?) elective	249 (85.6)
Operated emergency	1 (0.3)
Referred	37 (12.9)
Pathology details	
Positive LN	83(50.6)
LN noninvolved	81(49.4)

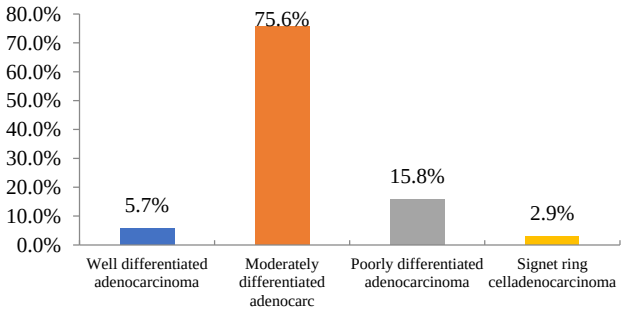

Figure 3: Frequency of colorectal malignancy by grade of tumor.

From Figure 3, overall histologically, the differentiation characteristics of tumors were: 5.7% well differentiated, 75.6% moderately differentiated, 15.8% poorly differentiated and 2.9% Signet ring cell adenocarcinoma. From Table 5, there a significant relation between grades of tumor and age ($p<0.05$), altitude, TNM stages ($p<0.05$), while there is significant relation between tumor grades and gender ($p>0.05$).

Table 5: Test the association between grades of tumor and age, gender, altitude and TNM stages.

	Chi- square	P value
Age	26.33	0.035
Gender	5.36	0.147
Altitude	7.038	0.041
TNM stages	19.71	0.020

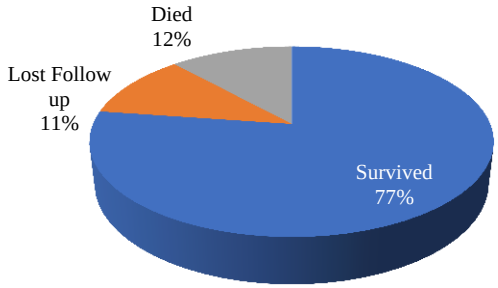

Figure 4: Frequency of colorectal malignancy by location.

From Figure 4, 77% of CRM cases are survived, 12% died 11% lost follow up.

DISCUSSION

Gastrointestinal tract (GIT) cancer in general and colorectal carcinoma (CRC) in particular, have been addressed in many reports in the medical literature through the last few years.[9-14] Previous reports from Aseer area have shown colorectal carcinoma incidence as 21% of all gastrointestinal tract cancer, and GIT cancer to be the second leading cause of malignant tumors after skin cancer.[15,16]

There's an obvious tendency in incidence of CRC to increase with advanced age especially in western countries. Colon and rectum cancer is most frequently diagnosed among people aged 65-74 with median age of 67.[17] This tendency in age is seen in this study as well with <50 of patients above age of 60. However, a significant percentage young patient (24%) has been diagnosed with CRC below age of 50. This percentage is far higher than those reported form Western populations.[18,19] However, these finding are similar to other studies done in Saudi Arabia while it was 31% in Riyadh Central Hospital, 21% in King Faisal Specialist Hospital, and 8% in the West.[20-22]

These rates in Saudi population suggesting the association of a familial risk factors for the development of CRC for which more controlled and validated studies are needed.[23,24] Similarly, Jaberi et al. reported that 68% of CRC patients were >40 years and also had advanced lesions (Duke's C or D) compared to only 40.0% of those patients >40 years.[24] This should make the reliability of the current recommendation of screening at age of 50 very questionable which will cause high proportion of those patients to misdiagnosis at the right time.[25,26] There are some but non-significant differences in gender regarding incidence and can staging. On the other hand, there was a significant impact of altitude on incidence with 76.6% of patients are of high altitude.

Most of the patients in this study were of adenocarcinoma type (95.9%) are at advanced stage III (45%). Mansoor et

al.23 reported in their study done at urban center of Jeddah, 28.9% of patients as Duke's C. Isbister compared the CRC between Saudi and New Zealand patients and reported more aggressive pattern in Saudi Arabia.[27] Similarly, Rozen et al also reported this changing trend with more aggressive pattern in Arabs.[28] The emphasize the significance of early screening for better detection and prognosis of CRC in Arab populations. Unfortunately, there is a lack of proper screening program in Saudi Arabia. Therefore, it seems reasonable that changing dietary pattern especially with genetic predisposition is necessity. However, CRC screening in Saudi Arabia could be improved by information systems identifying patients with higher risk for earlier screening and track their results. Primary care physicians, may also play an important rule by educating patients about cancer with different benefits and options for screening to detect early lesions.

CONCLUSION

In conclusion, this study shows that the age of the highest incidence is above 50 years which is coinciding with other reports from other parts of Saudi Arabia, UK, USA, and Africa. The most common presenting symptom was abdominal pain. Most of cases are seen in advanced stages with no significant gender difference detected.

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