COLORECTAL CANCER;
PATTERN AND DISTRIBUTION OF COLORECTAL CANCER. A RETROSPECTIVE HOSPITAL BASED STUDY AT CMCH & LINAR, LARKANA

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ABSTRACT… Objectives: To determine the changing clinicopathological pattern and distribution of colorectal cancer in our setup, highlighting future planning and designing for its prevention. **Study Design:** A retrospective study. **Place and Duration:** Department of Surgery, Chandka Medical College and LINAR, Larkana from January 2012 to December 2016. **Methodology:** All the diagnosed cases of colorectal cancer were included in our study. The records analyzed for age, gender, clinical presentation, socioeconomic status, risk factors, histopathological variable types, site of distribution, tumor grading & staging based on TNM. The method of treatment & surgical procedures performed, were also recorded. Statistics data was entered and analyzed by SPSS version 17. **Results:** 363 diagnosed cases of colorectal cancer were registered from January, 2012 to December, 2016. 211 (58. %) were male and 147 (40.9%) female, with ratio of 1.3:1. Age ranged between 17 to 88 years with mean age of 56 + 12. 217 patients were > 50 years, while 146 < 50 years. The predominant subsite distribution was found in rectum & recto sigmoid junction in 205 cases (56.49%). Majority of cases belong to low socioeconomic class with Duke's B and C stages (45.73%. and 39.11%). The mortality rate was observed in 12.9%, however 30% of patients were not returned for follow-up. **Conclusion:** Colorectal cancer is shown rising higher up and vated cancer was found increasing in incidence among young population < 50 years. There is a need of early detection, to reduce the number of CRC in future.

Key words: Colorectal Cancer, Risk Factors, Changing Pattern.

INTRODUCTION
Cancer is a condition characterized by the uncontrolled division and survival of abnormal cells. When such abnormality is identified in the large intestine it is labeled as Colorectal Cancer (CRC).[1] This abnormal growth usually arises from the inner lining of mucosa of the colorectum is known as adenocarcinoma that accounts for probably 96% of all CRCs.[2]

CRC is the third most frequent type of gastrointestinal malignancy in older population globally and is the fourth most common cancer in Asia, but it is also quite frequent among young adults in developing countries.[3]

CRC is the fourth leading cause of cancer death worldwide, reporting 1.4 million new cases and about 700,000 deaths in 2012.[4]

Colorectal cancers that once was considered the disease of the West, is now frequently diagnosed in developing countries in many parts of the world with higher incidence rate.[5]

It has been thought that increasing incidence of CRC in less developed socioeconomically transitioning countries is thought reflect changes in dietary and lifestyle factors associated with adoption of Westernized diets (consumption of saturated fat, low fiber diet, and calorie-dense food), smoking, obesity, and reduced physical activity.[6,7]

The incidence of cancer cases reported in developing countries projected to increase from 56% in 2008 to more than 60% in 2030, among them CRC is on the rise.[8]

Dietary factors play a role between 30% to 50% of all CRC incidences.[9] In recent years nutrition transitions in developing countries including Pakistan have contributed to consumption of low fiber, high sugar, and saturated fat-containing diet often related to processed and packaged foods.[10] The consumption of cakes, sugary drinks, and chocolate has increased in younger population that led to gradients in energy intake between rural and urban populations.[11]

World Health Organization (WHO) reported that 14% of CRC deaths are probably related to insufficient intake of fruits and vegetables all over the world.[12] Most of the researchers also reported that higher consumption of vegetables and fruits probably lowers the risk of CRC.[13,14]

In various studies it was reported that physically active individuals are at a lower risk for CRC, a factor considered independent of other risk factors (i.e diet and obesity).[15,16] Moderate level of activity such as brisk walking for 30 minutes to one hour daily, can reduce risk of CRC.[17] Cigarette smoking is also associated as one of the risk factors for causing CRC. Cigarette smoke contains more than 60 known carcinogens and free radicals, causing potentiating the transformation of cancer related genes.[18]

The association depends upon age of initiation of smoking, number of cigarettes smoked, and length of exposure over continuous period.[19]

CRC can occur at any age and equal in both genders, the chances of occurrence of this disease increase with age and peak occurs after the age of fifty.[20] In most low socioeconomic countries, this disease occurs at a relatively younger age than in advanced countries.[21]

In most developed countries CRC related mortality rates have been decreasing. This may be accounted, in part, to improved treatment, increased awareness, and early detection by implementing screening program.[22] In several studies it is reported that Japan is the only country in Asia to have achieved a decreased incidence in CRC.[23]

The incidence of mortality however, continue to rise in developing countries with limited resources and health infrastructure including our country.[24] Five year survival rates for CRC in developing countries range from 28% to 42%[25,26] compared with more than 60% in advanced countries. Probably because of minimizing consumption of red meat, saturated fat and alcohol, maximizing consumption of fruits and vegetables, and cessation of cigarette smoking.[27,28]

On the basis of these complex issues and changing trends, the aim of our study was to determine the clinicopathological pattern and distribution of colorectal cancer in Pakistan (specially in our setup) in order to highlight future planning and designing for its prevention.

MATERIALS AND METHODS
Our study was conducted as a retrospective chart audit method approach which collects data that were originally recorded for non-research purposes such as admission and discharge documents, and laboratory and diagnostic testing reports. The records were obtained from Department of Surgery, Chandka Medical College and Larkana Institute of Nuclear medicine and Radiotherapy (LINAR) from January, 2012 to December, 2016, a five years study.

All the diagnosed cases of colorectal carcinoma (biopsy proven) were included in this study. The records were analyzed for age, gender, occupation, address, risk factors, clinical presentation, clinical and pathological variables including the site of distribution, histological type, grade of tumor and staging based on TNM classification as developed by American Joint Committee on Cancer (AJCC) and Union for International Cancer Control (UICC). The method of treatment including neo-adjuvant and adjuvant therapy, the operative procedure performed, and follow up were analyzed.

Baseline laboratory tests, liver function tests, stool microscopy, abdominal ultrasonography, X-Ray chest, barium enema, Proctosigmoidoscopy, colonoscopy and biopsy were entered. Computerized Tomography (CT scan) chest,

abdomen and pelvis were also recorded for staging and treatment plan. Statistical data was entered and analyzed by SPSS version 17.P-value ≤ 0.05 was considered as significant.

RESULTS

A total of 363 cases of colorectal cancer were diagnosed and registered from January, 2012 to December, 2016.

Out of 363 cases, 211 (58.1%) were males and 147 (40.9%) females with male to female ratio of 1.3:1. Age ranged between 17 to 88 years with mean age of 56 years ± 12. 217 (59.7%) patients were ≥ 50 years, while 146 (40.22%) ≤ 50 years.

The common clinical presentations were rectal bleeding, altered bowel habits, abdominal pain, mass, loosing wait and lethargy in 278 patients (76.58%). Majority of the patients presented with more than one features. 85 cases presented in acute emergency with intestinal obstruction or peritonitis. The socioeconomic status of majority of patients belong to lower middle class, 213 patients (56.67%).

The distribution of CRC shows a predominance of rectal cancer. (205 rectal cancer (56.49%), 158 colonic cancer (43.52%) with subsite distribution (Table-I).

Among all CRC, the distribution of different categories of Duke's classification, the majority of cases found in stage C and B, 166 (45.73%) and 142 (39.11%) respectively (Table-I).

The commonest surgical procedure performed was abdominoperineal resection (APR) for low rectal carcinomas in 81 patients (22.31%), followed by right hemicolectomy in 79 (21.7%) (Table-I).

Overall mortality rate was observed in 47 patients (12.9%) in one year. The cause of death was multifactorial, as advanced stage of tumor, emergency presentation, old age and co-morbidity.

We identified 363 patients of CRC, 158 with colon cancer and 205 with rectal cancer. The pattern and distribution of each is separately tabulated in Table-II and III respectively.

Pattern	Incidence	%
Total No. of patients	363	
	Rectal cancer=205	56.49%
	Colonic cancer=158	43.52%
Gender no = 363	Male=211	58.1%
	Female=147	40.9%
Age (in years) no = 363	≥ 50=217	59.7%
	≤ 50=146	40.22%
Duke's staging no = 363	A=25	6.88%
	B=142	39.11%
	C=166	45.73%
	D=30	8.26%
Histopathology no = 363	Adenocarcinoma	
	Well differentiated=142	39.11%
	Mod: differentiated=132	37.7%
	Poorly differentiated=72	19.8%
	Squamous cell Ca=06	1.65%
	Malignant Carcinoid=04	1.10%
	Melanoma=02	0.55%
Socioeconomic status no = 363	Poor class=113	31.1%
	Lower middle class=213	58.67%
	Middle class=37	10.19%
Surgical procedure no = 363	APR=81	22.31%
	Rt. Hemicolectomy=79	21.7%
	Lt. Hemicolectomy=50	13.7%
	Only colostomy=48	13.2%
	Low ant: resection=46	12.67%
	Hartman's procedure=30	8.26%
	Resection & stoma=24	6.61%
	Bypass procedure=05	1.37%
Mortality no = 363	47 patients	12.9%
	Male=27	
	Female=20	

Table-I. Pattern and distribution of colorectal cancer

DISCUSSION

Colorectal cancer is one of the frequent cause of cancer deaths in developed countries. About 38 million people die per year from non-communicable diseases like cancer according to WHO report and 3/4th of this mortality occurring in developing countries.[29]

It was previously considered to be less common in developing countries like Pakistan in young patients below 50 years. Recently the incidence of CRC is increasing among young population in low socio economic countries.[30]

Pattern	Incidence	%
Total No. of patients	158	43.52%
Gender no = 158	Male=99	62.6%
	Female=59	37.34%
Age (in years) no = 158	≥ 50=93	58.86%
	≤ 50=65 Range=28-88	41.65%
Subsite distribution no = 158	Rt. Sided=87 (cecum, asc: & trans: colon)	55.06%
	Lt. Sided=71 (desc: colon, sigmoid & rectosigmoid)	44.9%
Duke's staging no = 158	A=13	8.22%
	B=35	35.22%
	C=88	55.6%
	D=22	13.9%
Histopathology no = 158	Adenocarcinoma	
	Well differentiated=70	44.3%
	Mod: differentiated=53	33.54%
	Poorly differentiated=31	19.6%
	Malignant Carcinoid=04	2.53%
Surgical procedure no = 158	Elective=130	82.27%
	Emergency=28	17.7%
Mortality no = 158	35 patients	22.15%
	Male=20	
	Female=15	

Table-II. Pattern and distribution of colonic cancer

Pattern	Incidence	%
Total No. of patients	205	56.47%
Gender no = 205	Male=112	54.63%
	Female=88	42.9%
Age (in years) no = 205	≥ 50=124	60.48%
	≤ 50=81 Range=16-82	39.5%
Duke's staging no = 205	A=98	47.8%
	B=70	34.1%
	C=29	14.1%
	D=08	3.9%
Histopathology no = 205	Adenocarcinoma	
	Well differentiated=95	46.3%
	Mod: differentiated=74	36.09%
	Poorly differentiated=25	12.1%
	Squamous cell ca=06	2.9%
	Melanoma=02	0.97%
Surgical procedure no = 205	Elective=148	72.1%
	Emergency=57	27.8%
Mortality no = 205	12 patients	5.85%
	Male=07	
	Female=05	

Table-III. Pattern and distribution of rectal cancer

In our study 40.22% of patients with CRC were ≤ 50 years, with slight higher incidence in male gender (1.3:1). This is also reported in other studies.[31] Currently, there is gradual decreasing the incidence of CRC in the West because of adopting early detecting methods and treatment modalities in susceptible population.[32] There is a challenging practice that these modalities are not to be encouraged in our country resulting facing poor outcome of management.

Gender difference in CRC is well documented in various studies. In our study the incidence of CRC is more higher in males than females (58.1% vs 40.9%). Various studies suggested that the incidence is more in female gender than males in poor countries.[33]

The more prevalence of CRC occur in rectum and rectosigmoid subsite is more documented in the literature than other subsites, a finding which was similar in our study also (56.49%).[34] This subsite is also more common in younger patients in contrary to a study conducted in Tanzania where right colon involvement was more observed in younger age < 40 years.[35]

Over 60% of patients in our study belong to low socioeconomic class, as compared to Western countries. There could be multi factorial risk factors of CRC in our country. The common clinical features of presentation were rectal bleeding, weight loss, and altered bowel habits. Most of these patients were being treated by Hakeems and were not referred until the disease got advanced. In our study 8.26% of patients presented with distant metastasis. The same presentations were reported in other studies.[36] The poverty, illiteracy, late presentation, and ignorance were still a challenging issue for management of CRC that

require public awareness.

In our study the majority of the CRC subsites were rectum and rectosigmoid region, therefore most of the lesions were palpable on digital rectal examination. The most frequent surgical procedure performed was abdominoperineal resection (22.3%) as very low anterior resection with stapling anastomosis facilities were not available in our Institution. Few cases of low anterior resection were performed by manual anastomosis with covering stoma (8.26%) and results were successful.

Predominant histopathology report was well differentiated adenocarcinoma (13.11%) in our study. CRC is considered more aggressive tumor leading to poor prognosis when presented late.[37]

In our study the mortality rate was observed 12.9% from the record because 30% of patients were not returned for follow-up, as compared to world statistics in 2014 (20%).[38] The reasons were patients presented in advanced stage, old age, emergency admission with intestinal obstruction or peritonitis and co-morbidity.

CONCLUSION
It was depicted from the record that Colorectal carcinoma in our setup is shown rising upward [39]. Rectal cancer was found increasing than colonic cancer among young population ≤ 50 years. There is a need to focus attention to find out the risk factors for the changing pattern of colorectal cancer in our country. Cigarette smoking, increased use of inferior quality saturated fat in pakora and samosa, high sugary diet and beverages are being consumed by young generations, therefore these could be the strong risk factors for CRC in developing countries.

More work is required on these associated risk factors, and implementation of screening methods for early detection of CRC in high risk populations.
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PREVIOUS RELATED STUDY

Muhammad Akram, Wasim Amer, Javaid Iqbal. COLORECTAL CANCER; OVERALL SURVIVAL AND ITS PROGNOSTIC FACTORS, A RETROSPECTIVE ANALYSIS FROM 10 YEAR DATA FORM JHL. (Original) Prof Med Jour 16(4) 492-498 Oct, Nov, Dec 2009.

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There is a king who is aware of every mask you put on.

– Rumi –
"
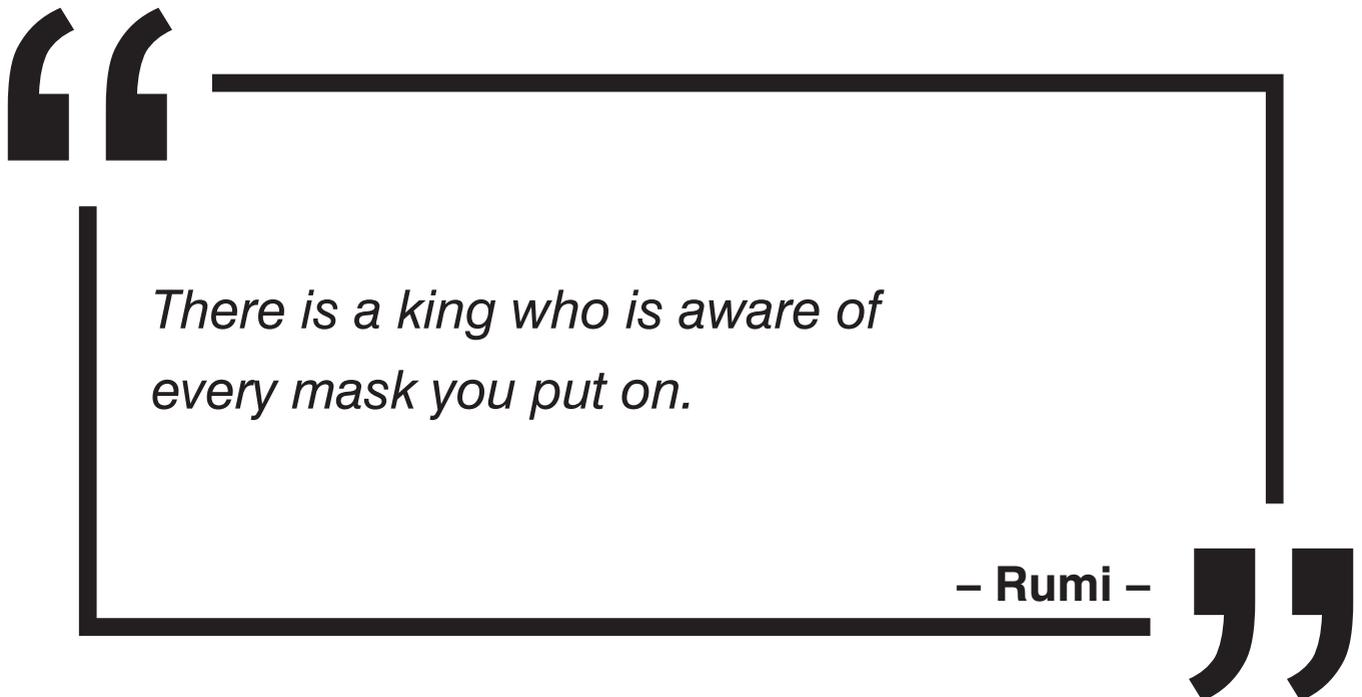
AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	M. Saleem Shaikh	Data collection & Analysis + Discussion.	
2	Muharram Ali	Interduction and methodology.	
3	Muhammad Ali Naper	Result and discussion.	