A retrospective Study of Colorectal Carcinoma in Kirkuk, Iraq

*Chalack Qader Nader, Naisan Khaleel Abdullah, Muna Adil Mohammed

General Surgery, Department of General Surgery, Kirkuk General Hospital, Kirkuk-Iraq

*Corresponding author: mbcffs53@gmail.com

ABSTRACT

Colorectal cancer (CRC) is a common disease with global burden as the 4th frequently diagnosed malignancy in male and female; approximately with one million sample developing CRC per year. It is the 3rd death cause of cancer in worldwide [1]. This colorectal carcinoma research could assist us to diagnose the clinical symptoms of disease, histopathological typing and grading for identifying the surgery process beside other therapeutic options as well as disease outcome(s). In terms of methodology, this study as a retrospective research includes 140 colorectal carcinoma analyzing cases, clinic-pathological characteristics and results after various therapies as radiotherapy, surgery and chemotherapy. As a result, it is found that colorectal carcinoma is highly seen in 40 to 60 years of age with male predominance. Also, lymph node metastasis is more common than other sites’ metastasis. The diagnosing of lymphatic metastasis and infiltration of surrounding tissues are more accurately performed through CT scan. Therefore, in this study, the sphincter saving process percentages were low in rectal malignancies. Additionally, all the database respected gender - age incidences, clinic-pathological characteristics and therapeutic results could be compared to the related literatures.

Keywords: Classification of Malignant Tumors, Colorectal Carcinoma, Kirkuk

INTRODUCTION

CRC is a global hard disease as the 4th frequently diagnosed malignancy in male and female; approximately with one million sample developing CRC per year. It is the 3rd death cause of cancer in worldwide [1]. Finding new practical applications are astonishingly accelerating than previous years [2]. While CRC is the 3rd most common cancer in males (10.0% of total cancers = 663,000 cases), it is the 2nd in females (9.4% of total cases = 570,000 cases) globally [3]. Though the occurring of 7% of cases is lower than 50 years old, colon cancer index is exponentially increased after 50 years old in general population [4]. Thus the male to female ratio is 5:3. These malignancies have been neglected in the early years of this century due to the lower frequency of disease, lack of diagnosing facilities, lower life-expectancy and commonilliteracy about the malignancy among young groups. Nowadays, there is a reduction in death cases compared to the former year(s) [5].

MATERIALS AND METHODS

Epidemiology (Risk Factors):

Age is a determinant risk parameter in CRC with a steady growth index after 50 years, therefore, more than 90% of diagnosed cases belong to 50 years and more. Thus, starting the screening tests of asymptomatic...
patients at average risk of developing colorectal cancer at age 50 could be rationale. However, CRC could be developed in individuals of any age.

Hereditary Risk Factors: While around 80% of CRC occur sporadically, 20% is occurred due to known family CRC backgrounds. Better understanding of the familial disorders has raised an early interest in CRC diagnosis through genetic combing

Environmental and Dietary Factors: According to observations, CRC occurs more commonly in populations consuming diets with low fiber and high animal fat that raise the hypothesis that dietary factors contribute the carcinogenesis. A diet enriched by polyunsaturated or saturated fats could raise the risk of CRC, however, a diet enriched by oleic acid (olive oil, coco-nut oil, fish oil) couldn’t raise risk. The incidence of CRC and alcohol intake are proposed. The ingestion of vitamins A, C, and E, selenium, carotenoids, calcium and plant phenols might reduce the risk of developing CRC. Obesity and sedentary lifestyle could visibly raise malignant cancer-related deaths such as CRC [6].

Inflammatory Bowel Disease: Patients suffering from long lasting colitis from inflammatory bowel disease are more vulnerable to high risk of CRC development. It is hypothesized that chronic inflammation predisposes the mucosa to malignant alterations, adding that inflammation degree influences the risk. The extent and duration of colitis are typically aligned with risk. Other parameters to raise the risk are the presence of primary sclerosing cholangitis and family history of CRC

Other Risk Factors: Smoking is related to a growing risk of colonic adenomas particularly after 35 years smoking. Patients with ureterosigmoidostomy are at high risk for the formation of carcinoma and adenoma [7]. Acromegaly as an abnormality over an increased level of growing hormone in human and insulin-like growth factor-1 increase the risk of CRCs well. It is noted that pelvic irradiation might raise the risk of CRC development [8].

Adenoma–carcinoma sequence

An accepted model of CRC development is that it is raised by adenomatous polyps after frequent genetic mutations affected by environment. This adenoma–carcinoma sequence is strongly observed and summarized as box 1:

<table>
<thead>
<tr>
<th>Summary box 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Evidence for adenoma–carcinoma sequence</strong></td>
</tr>
<tr>
<td>The prevalence of adenomas and carcinomas is very similar carcinoma patients are about five years older. The distribution of adenomas in the colon is the same as that of cancers (70 per cent left sided)</td>
</tr>
<tr>
<td>When small cancers are studied, they almost always have adjacent adenomatous tissue. Adenomas are found in a third of specimens resected for colorectal cancer</td>
</tr>
<tr>
<td>Sporadic adenomas are identical to the adenomas of familial adenomatous polyposis, which is associated with a 100 per cent chance of colorectal adenocarcinoma unless treated. Larger adenomas are more likely to be dysplastic and to have higher grades of dysplasia than small adenomas.</td>
</tr>
<tr>
<td>Incidence of colorectal cancer falls within a screening programme that involves colonoscopy and polypectomy</td>
</tr>
</tbody>
</table>

Pathology

Considering macroscopically, tumor might be one of the four forms as 1) annular 2) tubular 3) ulcer and 4) cauliflower (Figure 1). The annular type tends to bring obstructive symptoms, while tubular, ulcer and
cauliflower are seen more commonly with bleeding. Microscopically, neoplasm is an adenocarcinoma originated in colonic epithelium.

Figure 1 the four common macroscopically varieties of carcinoma of the colon
(1) annular (2) tubular (3) ulcer (4) cauliflower

**Spread of CRC**

It is as Transcoelomic spread, Lymphatic spread, Direct spread, Haematogenous spread, and Staging colorectal cancer. Based on pathological reporting, different staging systems are explicated for CRC for predicting prognosis and guide adjuvant treatment. The classification of Dukes has been mainly expressed for rectal tumors, but adopted for histopathological reporting of colon cancer as well. This classification is simple and commonly recognized, however, Tumour Node Metastasis (TNM) system has been recently regarded as an international standard for its accuracy.

**Clinical features**

Colon Carcinoma typically seen in people over 50 years and most common in 80 years. CRC is not uncommon in early adult life, however, 20% of cases is in intestinal obstruction or peritonitis emergency. An emergency CRC is occurred when it is matched for disease stage related to a considerably worse prognosis, requiring precise family history. People with first degree relatives carrying developed CRC at age 45 years or less are at higher risk and might be part of CRC familial syndromes. Tumors of the left side of colon which are far more common (Figure 2) usually are presented with a change in bowel habit or rectal bleeding. In contrast, more proximal lesions normally are presented with iron deficiency anemia or a mass. Patients might be initially presented with metastatic disease. Lesions of flexures might be presented with unclear upper abdominal symptoms for many months before other, then more specific symptoms of colonic disease are appeared.
Investigation of colorectal cancer

Screening

Colon cancer is highly proper for screening because prognosis is proper for early-stage disease while polypectomy prevents cancer development. A screening program has been identified in the UK according to fecal occult blood testing (FOBT) of people in 60 to 69 years followed by colonoscopy in ones with positive test.

Endoscopy

A fibre optic flexible sigmoidoscope (60 cm) has been growingly applied in one-stop rectal bleeding clinics. Colonoscopy is applied while suspecting to CRC, providing the patient to adequately fit to undergo the required Mechanical Bowel Preparation (MBP). This brings the merits of identifying primary cancer and having the capability for detecting synchronous polyps or multiple carcinomas occurred in 3% to 5% of cases. Ideally, every case should be examined histologically by biopsy prior to surgery.

Radiology

Double-contrast barium enema could show CRC as a constant irregular filling defect while defined like an apple core. False positives occur in 1% to 2% of cases and false negatives in 7% to 9% of cases. CT scan is applied as a diagnostic tool in patients with palpable abdominal masses. Nowadays, using the spiral CT of chest and abdomen is standard to stage CRC by assessing T stage and detecting metastases. Liver ultrasound and chest x-ray are alternatives for CT scan. CT virtual colonoscopy as an impressive tool in diagnosing modalities of polyps down to 6 mm could largely be replaced instead of barium enema. It is less invasive than colonoscopy, however, in case of biopsy requiring, endoscopy is still needed [9].

Samples and methodology

Regarding the study of CRC incidence analysis, clinical pathological characteristics and results have been conducted after various therapies of 140 recorded cases. Surgeries have been performed in Kirkuk.
surgery departments in public and private hospitals, while radiotherapy or chemotherapy have been done in Cancer Hospitals at Sulaimanya and Kirkuk from 2011-2016. Patients have been examined and treated based on protocols. Case records have been analyzed in terms of demographic data emphasizing age, gender and incidence. All patients were examined for their presentations, course of disease, different tests and analysis. These records have been also analyzed for surgical interventions and outcome. In this study, totally 140 malignant CRC patients have been taken part while recording their detailed records at every visit in face to face or via phone (if necessary). All data have been analyzed through statistical calculations.

RESULTS

The Table 1 presents the age distribution of patients (140 malignant CRC) involved in the study.

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>No. of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>4</td>
<td>2.85%</td>
</tr>
<tr>
<td>11-20</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>21-30</td>
<td>24</td>
<td>17.14%</td>
</tr>
<tr>
<td>31-40</td>
<td>28</td>
<td>20%</td>
</tr>
<tr>
<td>41-50</td>
<td>28</td>
<td>20%</td>
</tr>
<tr>
<td>51-60</td>
<td>36</td>
<td>25.71%</td>
</tr>
<tr>
<td>61-70</td>
<td>8</td>
<td>5.71%</td>
</tr>
<tr>
<td>71-80</td>
<td>12</td>
<td>8.87%</td>
</tr>
</tbody>
</table>

Considering 140 patients including 76 males and 64 females, in this research, more common sites for malignancy observed is rectum (80%) and less common sites are descending colon, ascending colon, sigmoid colon and caecum. On the other hand, weight loss 60%, anaemia 60%, bleeding per rectum 80% and altered bowel habits 77.13% were the presenting symptoms. All participants have been subjected to biopsy or fine needle aspiration cytology to confirm the diagnosis. Malignancy types are shown in figure 3 based on histopathological type. Also, ultrasonography, barium enema, CT scan, CEA and etc. have been implemented for more investigations. 88 patients out of 140 ones (62.8%) had operable growth different surgical processes (figure 4). Adjuvant chemotherapy was performed to 76 patients (54.2%) and radiotherapy was performed to 36 patients (25.7%). The most common site for metastasis was regional lymph node. As a result, 16 patients have secondary deposits in liver, 4 have deposit in anterior abdominal wall and 4 females have secondary deposits in both ovaries.

DISCUSSION

In last 30 years, the incidence of CRC was in low level in urban and suburb areas in developing countries compared to developed countries of North America and Europe (10). Essential developments have been made in CRC in last few years. Thorough understanding of molecular basis for this disease coupled with new therapeutic approaches’ advancement could drastically change the managing of patients [11]. Considering the access to a plethora of medical information sources, being up-to-date must be changed like this text [12]. In this study, 28 patients were below 30 years of age. Thus, the incidence is increased by raising the age at most between 40 to 60 years. On the other hand, there were slight male predominance with 54.28% male to 45.71% females. The lifetime risk for CRC is 1 in 18 for men and 1 in 28 for women, whereas the occurrence ratio is low below 50 years of age [13]. In this study, the common malignant site is rectum and the most common symptom is rectal bleeding. Colon cancer (particularly the right-side colon) is commonly seen in women, and rectum cancer is more common in men [14]. 70% of the colorectal malignant patients have been clinically diagnosed by digital P/R examination and proctosigmoidoscopy, which is confirmed by histopathological examination and
biopsy. Barium enema, CT Scan, CEA, X ray chest and USG abdomen were also applied. Accordingly, lymph node metastasis (17.14 %) is properly diagnosed on CT scan like MRI. PET/CT scans are proper to detect recurrences and metastatic disease, but likely not necessary as part of routine initial evaluation [15].

Stage

Concerning colorectal malignancies, the stage wise distribution of disease (in percentage) is observed and shown in table 2. The most common histopathological variety was adenocarcinoma 54.28 %, while mucinous adenocarcinoma variety was 31.42%. The most common colon cancer cell type is adenocarcinoma with 98% of cases. Lymphoma and squamous cell carcinoma have been rarely observed [16]. Malignant types are shown in Figure 3 based on histopathological varieties. The most common site for metastasis was in the surrounding regional lymph node draining found in 17.14 % of cases. 88 patients out of 140 (62.85%) of colorectal malignancies had operable growth, while 44 patients out of 140 ones (31.42%) were inoperable. Table 3 shows the operability of rectal tumors found in various studies. Figure 4 shows different performed surgical procedures.

### Table 2: stage distribution in different studies

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Dukes A</th>
<th>Dukes B</th>
<th>Dukes C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dukes</td>
<td>1940</td>
<td>15%</td>
<td>35%</td>
<td>50%</td>
</tr>
<tr>
<td>Astler&amp;Coller</td>
<td>1954</td>
<td>0.3%</td>
<td>60.2%</td>
<td>39.5%</td>
</tr>
<tr>
<td>Federico et al</td>
<td>1999</td>
<td>25.42%</td>
<td>28.81%</td>
<td>37.29%</td>
</tr>
<tr>
<td>Lawrence et al</td>
<td>1999</td>
<td>0.4%</td>
<td>32.71%</td>
<td>44.6%</td>
</tr>
</tbody>
</table>

### Table 3 shows operability of rectal tumors found in various studies

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Percentage of operability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eisenberg et al</td>
<td>1967</td>
<td>72%</td>
</tr>
<tr>
<td>Maden&amp;Kandalaft</td>
<td>1971</td>
<td>67.53%</td>
</tr>
<tr>
<td>Lock et al</td>
<td>1993</td>
<td>86.25%</td>
</tr>
<tr>
<td>Present study</td>
<td>2011-2016</td>
<td>62.85%</td>
</tr>
</tbody>
</table>
CONCLUSION

The management of CRC has been developed over the past few decades including genetics, pathology, imaging, medical oncology, radiation oncology, and surgery [16]. Undoubtedly, the management of patients afflicted with CRC will be evolved in multiple disciplines that is contributed to the diagnosis and treatment of colorectal cancer [17].

REFERENCES


