

Colon Cancer and Rectum. A Critical Problem in Mexico

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Received: March 17, 2021; **Published:** March 30, 2021

Abstract

Introduction: Colon and rectal cancer has become a stigma that, unfortunately, is believed to have increased its incidence exponentially in Mexico. The International Agency for Research on Cancer of the WHO estimates that colon and rectal cancer is the 3rd most frequent in Mexico.

Aim: Describe the experience of the results obtained in the Colon and Rectum Surgery Service of some hospitals in Mexico.

Material and Method: Study with a retrospective, longitudinal, observational and descriptive design. The records and files of all patients who underwent a diagnosis and treatment of colorectal cancer were reviewed in the Colon and Rectal Surgery Services, as well as General Surgery, second and third level of health care in six hospitals in Mexico City and the State of Mexico.

Results: 5,594 patients were included who were diagnosed with colorectal cancer; of which 2,070 were female (37%) and 3,524 male (63%). The age range was 16 to 83 years with an average of 55 years. The clinical picture is diverse with a time between the onset of symptoms and diagnosis of between 4 to 15 months.

Discussion: Regarding the statistics of colorectal cancer in Mexico, it is unknown including: the incidence, prevalence, morbidity and mortality of this disease. All of the above is alarming, so this work is an absorbed one that requires a meticulous review of what is happening in Mexico.

Conclusion: It is a priority to change the guidelines of health policies in Mexico and the world, where the ethical morass is abolished, directing strategic, political, legislative, economic and scientific resources towards primary and secondary prevention; and not in that the economic and power groups of the pharmacological companies have focused the objectives in the palliative or in a hopeful chronicity, causing dependency, dominance and death.

Keywords: Cancer; Colorectal; Palliative; Prevention; Primary

Introduction

Colon and rectal cancer (CRC) has become a stigma that is believed to have increased the incidence exponentially in Mexico. In ancient times Hippocrates of Cos (460-379 BC) first described the CCR; after 18 centuries, in the work of Morgagni (1682-1771) the CCR is mentioned. In 1826 Jacques Lis Franc successfully carried out the first rectal resection as a treatment for cancer of this organ [1,2]. The uniqueness of colorectal cancer is that with early and timely detection, it offers a completely curative treatment; and failure to do so has devastating consequences [3].

CRC is considered the second cause of death in the United States of America, which, unlike in Mexico, the statistical data are outdated, nonspecific, inaccurate, unreliable and/or even unknown [4,5]. In Mexico it is described in some reports as the third cause of death to digestive tumors, but it is not further specified [5,6]. Therefore, CRC is not identified as a public health problem, despite the tangible perception of an increase in the incidence and prevalence of this pathology worldwide; which causes a lack of strategy, priority or public health policy [7,8].

The International Agency for Research on Cancer of the WHO, (estimates that colon and rectal cancer is the 3rd most frequent in Mexico; on the other hand, PAHO (Pan American Health Organization) points out that the CCR in Latin America is the third cause of death and which will increase by 2030, with an increase in incidence and mortality by up to 70% and 80%, respectively, when compared with current data [9,10].

Objectives

Describe the experience of the results obtained in the Colon and Rectum Surgery Service, as well as the General Surgery Service, of CCR in patients managed in six hospitals, deductively and critically analyzing the data obtained.

Material and Méthods

It is a study with a retrospective, longitudinal, observational and descriptive design. The records and files of all patients who underwent a diagnosis and treatment of CRC were reviewed in the Colon and Rectal Surgery Services, as well as, General Surgery of the second and third level of health care, in six hospitals in Mexico City and the State of Mexico.

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In a study period that ran from September 2005 to September 2020. The following were evaluated: age, sex, clinical picture, anatomical location, stage, hereditary syndromes, pre-existing diseases, synchronism, metachronism, surgical time, treatment lines or behaviors treatments with surgical intervention, reported bleeding, unit costs of the total treatment, morbidity and mortality. In addition, an analysis of the research on the current state of CRC in Mexico is carried out, based on national and international medical literature.

Results

A total of 7,478 files and files were reviewed; where 5,594 patients were included who were diagnosed with CRC; of which 2,070 were female (37%) and 3,524 male (63%). The age range was from 16 to 83 years with an average of 55 years. The clinical picture is diverse and the onset of symptoms varies over a period of time from 4 to 15 months. The most frequent signs and symptoms found in the patients were: abdominal pain in 89%, weight loss in 76%, lower gastrointestinal bleeding in 68% and evacuation disorders in 62%. See table 1. According to the anatomy, the patients with the most affected sites with CRC were: the rectum with 3,018, in second place sigmoid with 1,276, third place in the right colon 630 of them with a predominance in the cecum 571 and later in the ascending colon 59, consequently in the descending colon 378 and finally the transverse colon 292. See table 2; Each patient was documented with the TNM system and its correlation of clinical staging and histopathological result. In stage 0, 311 patients were detected with 6%, in stage I 183 cases are reported that are 3%, in stage II there were 625 patients that are 11%, in stage III 847 affected who are 15%, and finally, in stage IV, 3,629 patients were obtained, expressing in 65%. See table 3. The variation from clinical stage to surgical stage (with histopathological report) is very wide in values, obtaining a sensitivity of only 43% and a specificity of 61%.

Signs and Symptoms	No. of Patients	Percentage
Hemorrhage	3,781	68 %
Weight loss	4,225	76 %
Asthenia and adynamia	3,147	56 %
Wasting syndrome	2,611	47 %
Abdominal pain	4,974	89 %
Diarrhea and / or Bowel disorder	3,470	62 %
Abdominal tumor	1,754	31 %
Abdominal occlusion	2,225	40 %
Drilling	912	16 %
Anemia	2,972	53 %

Table 1: Presentation of the clinical picture in number and percentage of patients with colon and rectal cancer.

Segment Anatomical	No.	%
Right	3,018	54
Lower third	456*	15*
Middle third	1,243*	41*
Upper Third	1,319*	44*
Sigmoid	1,276	22
Blind	571	10
Ascending	59	2
Falling	378	7
Transverse	292	5

Table 2: Colon and rectal cancer by affected anatomical segment expressed in number and percentage.

Stage	No. Patients	Percentage%
0	311	6
I	183	3
II	625	11
III	847	15
IV	3,629	65
TOTAL	5,595	10

Table 3: Colon and rectal cancer patients by stage in number and percentage.

177 patients and relatives were diagnosed with hereditary genetic syndromes, which are 3% of CRC, associated with cases where there is a pre-installed disease factor; It is described in frequency, percentage and stage:

- Lynch I syndrome were 51 cases and 29% in total, with 26 relatives in detection included with CRC 20 in stage IV, 7 in stage III and 2 in stage II the rest, of 22 in stage I.
- Lynch II syndrome, 7 cases were detected, which are 4% and 2 of them relatives, all of them stage IV.
- Familial Adenomatous Polyposis 83 cases were found, 47%, 22 relatives already included, 63 patients in stage IV and 20 in stage III. figure 1.
- Attenuated Familial Adenomatous Polyposis 9 affected which are 5% and all in stage IV.
- Gardner syndrome 18 cases CRC was not detected.
- Peut Jeghers syndrome in 3 patients, 2% of which are stage IV.
- Cowden syndrome, there were no cases.
- Bannayan-Riley-Rubalcaba syndrome no cases are reported.

- Juvenile polyposis only one patient in clinical stage IV.
- Nonspecific Chronic Ulcerative Colitis with 22 patients that is 12%, all in stage IV.
- Crohn's disease a patient in stage IV less than 1%.



Figure 1: 34-year-old female with Familial Adenomatous Polyposis.

On the other hand, in the intentional search for synchronism in patients with CRC at the time of intraoperative and 20 days after surgical treatment, 210 intraoperative colonoscopies and 2,119 postoperative ones were performed. A total of 53 patients were diagnosed preoperatively, 11 were intraoperatively and the rest were medically postoperative, with a grand total of 247 patients; ruling out hereditary syndromes, as well as pre-installed diseases. Therefore, synchronism represented 5% of the total of the study. With regard to metachronism, 26 patients are described and they are less than 1% of the entire study.

The surgical treatment to be decided in patients with CRC, ranging from severe dysplasia or isolated polyps, to metastatic CRC, involves from an endoscopic procedure in stage 0 to an elective or emergency surgical intervention, which is consequently the stage of each patient at the time of diagnosis. Figure 2 3,472 emergency surgeries are performed, which is 66%, 1,822 scheduled surgeries, which is 34%, 301 endoscopic procedures, which is 5%; The types of procedures are divided into palliative (loop ileostomy or loop colostomy with laparoscopic option, diagnostic and/or laparoscopic laparotomy) and potentially curative radical surgical treatments (full thickness excisional biopsy; colostomy or partial colectomy less than 15 cm segment, conventional and/or assisted laparoscopic extended right or left hemicolectomy; assisted laparoscopic sigmoidectomy; conventional or assisted laparoscopic low anterior resection; ultra-low anterior resection; abdominoperineal resection; posterior or complete pelvic exenteration with ileal canals; proctocolectomy with ileal reservoir in J or in S; hepatic, splenic, epiploic and/or lymphatic metastasectomy. Regarding the endoscopic procedure, 311 were added, with surgical interventions being 5,298; of these were urgent in 3,485, representing 66%, and scheduled counted in 1,813 with the percentage remaining 44%.

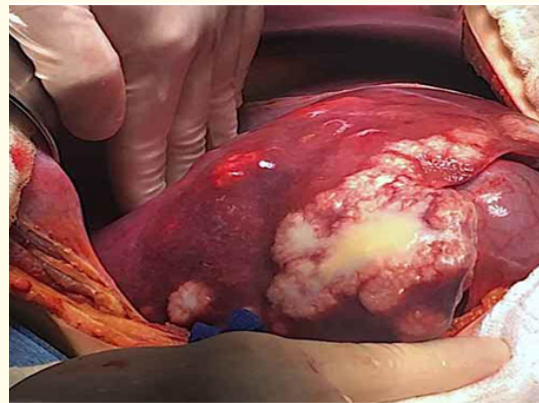


Figure 2: 41-year-old male. With locally advanced rectal cancer.

Morbidity was very difficult to identify given the clinical conditions that the patient was in at the time of diagnosis, which is why they are not mentioned in this document. Mortality from CRC was adjusted exclusively to the progression of the disease or the morbidities secondary to it, at one year of follow-up and 3,332 patients were detected, representing 59% of this study. See table 4.

Pathology	No.	Stage	Percentage	Procedure	Type	Morbidity	Mortality
Crohn's Disease	1	IV	<1	Derivative colostomy Laparoscopic	U	Occlusion. Drilling Pneumonia	1
CUCI Dysplasia	17	II	1	Proctocolectomy Ileal reservoir inj: 17	P	No	0
CUCI Tumor	5	IV	<1	Derivative colostomy CX Palliative	U	Occlusion Drilling	5
Polyp Isolated Haggitt I to III	297	0	5	Polypectomy Endoscopic Total 311	P	No	0
Polyp Isolated Haggitt IV	14	0	1	Colotomy Vs Biopsy Excisional	P	No	0
Syndromes no Polyposis	58	IV=27 I-III=31	1	Colostomy: 27 Proctocolectomy with ileal reservoir in J and S: 31	U P	Occlusion Drilling	33
Syndromes Polyposis	96	IV=76 III=20	2	Ileostomy: 76 Proctocolectomy With reservoir ileal at J: 20	U P	Pneumonia Occlusion	71
Cancer of Colon and Rectum	1,587	I-II-III	28	CXRC	P	No	19
CCR and QX metastasis	144	IV	3	CXRC Metastasectomy	P	Pneumonia Sepsis	88
CCR and Metastasis	3.376	IV	60	Palliative Surgery Laparoscopic Colostomy	U	Sepsis Occlusion Drilling Attrition syndrome	3,115
Synchronism Metachronism Carcinomatosis	247 7 12	II-IV IV	5 < 1 1	CX	P U	Sepsis Attrition syndrome	231

Tabla 4: Colon and rectal cancer patients by stage in number and percentage.

Endowments: U = Emergency Surgery, P = Scheduled Surgery, Cx = Ciugia, Cxrc = Radical Surgery: Extended Right Or Left Hemicolectomy, Laparoscopic Sigmoidectomy Or Not, Low Laparoscopic Anterior Resection, Ultra-Low Anterior Resection, Abdomino-Perineal Resection. And Complete Pelvic Exemption With Ill Duct. M: Liver, Splenic, Epiploic And Lymphatic Metastasectomy. Potentially Curative Radical Surgical Procedures. The Mortality Measured To One Year.

The quantification of hemorrhage in the endoscopic procedures was nil and that of the surgical interventions ranged from 20 to 750 ml without involving a surgical specimen with an average of 250 ml and that depended on the clinical stage, the general conditions of the patient and the type of surgery, whether it was scheduled or emergency. The average time of the surgical procedure was 135 minutes, with a range of 23 to 221 minutes, from a palliative laparoscopic surgery to a complete pelvic exenteration with ileal reservoir. The simulated unit cost extremes in the CRC stages in Mexico are detailed, where the lower end of unit costs is \$ 3,500.00 MXN in stage 0 and in the upper end in stage IV, on average the sum is reached of \$ 1,750,000.00 MXN per patient per year.

Discusión

CRC is defined as the uncontrolled growth of cells in the colon and/or rectum, called colorectal malignant tumors. The most frequent histological lineage is adenocarcinoma, which ranges from 90 to 95%, but there are also lymphoma, sarcomas, melanoma, among others, with a combined percentage of less than 5%.

Regarding the statistics of CRC in Mexico, it is unknown in all its components: the incidence, prevalence, morbidity and mortality of this disease. All of the above is alarming, so this work is an absorbed one that requires a meticulous review of what is happening in our country. This genesis is based on:

- The absence of the construction of research protocols of scientific-statistical value with scientific evidence level I or II carried out in Mexico, by the expert-operational staff and in the international scope of the CCR [12,13].
- There is no update of the medical personnel in Mexico in CCR [14].
- High specialization in the different areas of Medicine, with little integration, coupled with benefits or biased, non-joint and non-optimal results in relation to CCR in Mexico, due to the absence of leadership, knowledge, lack of an adequate organization, as well as management of a senior management of the authorities [15].
- There is no CCR Public Health Policy in Mexico [16].
- The absence of a statistical, reliable and comprehensive database in the CCR in Mexico [17].
- Lack of adequate hospital infrastructure, as well as human resources that apply it accurately, economically and in the proper use of supplies; added to administrative mismanagement by the authorities, which can be summed up in total waste, underutilization, abandonment or crucial shortages; for the correct management of the patient with CRC in Mexico [18].
- The idiosyncrasy, culture and academic level of both Mexican citizens and health managers [19,20].

The Organization for Economic Cooperation and Development (OECD) highlights the statistic with the highest number of registered deaths of CRC in the world, where the United States, Japan and Germany, reach the first places, in decreasing order and meanwhile Mexico occupies place number twelve [21].

Risk factors inherent to primary prevention outside of genetic syndromes or pre-existing diseases with a tendency to CRC, such as a diet without fiber and overweight (obesity), as is the scenario in our country, have been evidenced [22,23].

In CRC, the clinical picture is not very specific and its late manifestations in already very advanced stages of the disease, for this reason it is not very useful as a diagnostic strategy; This justifies how difficult it is to prevent secondary prevention, which has been evident since the last century in the 1970s and, to date, 50 years later, there is no success [24,25]. The results of this disease are catastrophic both in

Mexico and in the world, since at present there is not a single process with scientific evidence that provides sustainable results in early diagnosis or secondary prevention; [26] However, the authors of this work point out that colonoscopy is today the gold standard to fulfill this strategy. Others mention endoanal ultrasound and high resolution nuclear magnetic resonance, as the reference tools in secondary prevention, being able to evaluate the wall of the rectum with the finest details, but unlike in the application in the colon due to peristaltic movement, loses that ability [28,29].

Regarding the diagnosis, it is imperative to obtain the confirmatory histopathological report, carcinoembryonic antigen and it is essential to establish the clinical stage, identify synchronism or metachronism, in order to dispense a management strategy in a potentially curative or otherwise palliative setting; The results are directly linked to expertise, infrastructure and are projected to affect the:

- The forecast.
- Incidence.
- Mortality.
- Scientific research.
- The costs [30,31].

In addition, the location of the tumor should not be overlooked; [33] the reduction of permanent stomata and a longer survival, which will depend on the main axis that is the surgical treatment, resulting from the surgeon's expertise [34-37].

Mexico is characterized by a segmented, slow, disorganized, deferred, backward, saturated, repetitive, inefficient, lacking resources, no innovation, no research, no continuous training and with the privilege of pharmacological companies, where the objective it focuses on the palliative, causing dependency, dominance, chronicity and politicization, with the sole purpose of an unethical gain: the economic [32].

Surgery in RCC is the answer to every possible solution in the matter of a curative, palliative, emergency and diagnostic option. Its multiple applications range from conventional, laparoscopic and robotic surgery, each with all its techniques and variants; This being multifaceted and consequently linked to the clinical stage, general conditions of the patient, the surgical technique used, the surgeon as operator-dependent and his surgical expertise, as well as the hospital infrastructure available [38-42].

- Specific premises of management are indicated in the CCR:
- Colon preparation remains the cornerstone that unequivocally reduces morbidity in elective surgery [43].
- Emergency surgery is specific in each patient due to occlusion, perforation and/or sepsis; with a variety of options where indicated: loop colostomy for rectal location, stent, colon bypass, resection and even anastomosis, conventional or laparoscopic [44,45].
- Patients with locally advanced disease in lower and middle third rectal cancer still benefit from neoadjuvant resectability, survival, and prognosis [46].
- In selected patients, aortic lymphadenectomy achieves an even longer survival, compared to chemotherapy alone, with optimization with less recurrence at 3 years [47-49].

- Protective ileostomy in RCC with J reconstruction is an appropriate option for rectal anastomosis smaller than 6 cm, however the authors of this study in their expertise do not perform this, with similar results, reducing morbidity and the use of resources [50].
- The curative option is crucial and highly varied, ranging from an endoscopic polypectomy, to a complete pelvic exenteration with reconstruction of ileal ducts, or a proctocolectomy with an ileal reservoir in J, in S, infra-pelvic and with mucosectomy; extremely complex procedures [28, 51-54].
- It has been determined that postoperative recurrence is greater in CRC in the left colon, even in stages II, however this decreases significantly with an extended lymphadenectomy; radial or circumferential resection margins greater than 2 mm makes a significant difference in the incidence of recurrence figure 3 and 4, in addition to what is already known [49,55-59].
- There is evidence that positron emission tomography compared to maximized computed tomography is much superior for the detection of recurrent tumor activity; on the other hand, it has a high specificity in determining that there are no metastases with an accurate follow-up [60].

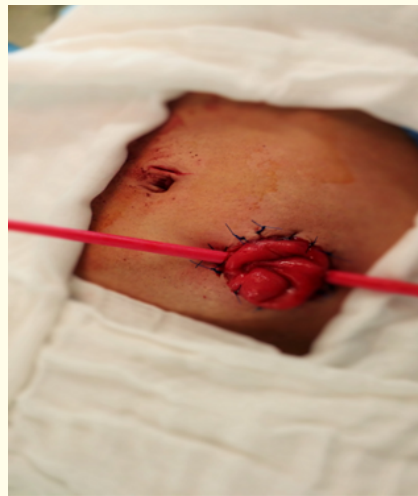


Figure 3: 26-year-old female. Laparoscopic loop stoma in an intestinal occlusion for locally advanced rectal cancer.

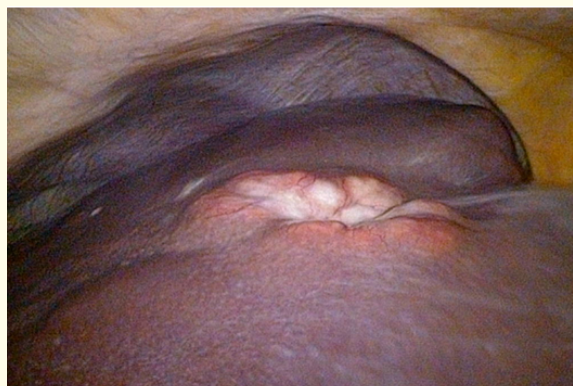


Figure 4: Liver metastasis from colorectal cancer.

Conclusions

CRC is a disease with a high incidence in Mexico and in the world, with a higher rate of morbidity and mortality, with devastating consequences, both for the patient's quality of life and for the prognosis; Furthermore, the impact on the health sector in Mexico and in each country has exorbitant costs.

The uniqueness of colorectal cancer is that with an early and timely detection, it offers a completely curative treatment, and failure to do so, the consequences are devastating.

The diagnosis and treatment of CRC is demanding, it requires a comprehensive knowledge of the pathology and demanding medical training with a multidisciplinary team with a high degree of expertise, hospital infrastructure and a high investment in technology.

The use of technology in CRC is prevailing in a massive way, but not in a palliative or follow-up approach, but in a secondary prevention premise; aimed at implementing a strategic detection with the use of endoscopy, endorectal ultrasound, endoscopic ultrasound and the same positron emission tomography.

It is a priority to change the directive of health policies in Mexico and in the world, where the ethical morass is abolished, and only strategic, political, legislative, economic and scientific resources converge towards primary and/or secondary prevention; and not in that the economic or power groups of the pharmacological companies have created an empire with the objectives that focus, in the palliative or in a hopeful chronicity, causing dependency, dominance and death.

Conflict of Interests

The authors declare that they have no conflict of interest.

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