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ORIGINAL ARTICLE – OPEN ACCESS

Changes in Colorectal Cancer Practices during the Early COVID-19 Period

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Objective: The aim of our study is to investigate the management of colorectal cancer patients during the Coronavirus Disease 2019 (COVID-19) pandemic, which has affected our daily routine. We aimed to compare our results between the pre-pandemic and pandemic periods, and evaluate any seasonal differences within the COVID-19 pandemic.

Materials and Methods: Our retrospective study was conducted in a single center. We included all participants who had elective and emergency gastrointestinal operations due to colorectal cancer between March 2019 and March 2021. Participant data were separated and compared between the pre-pandemic and pandemic periods, with the latter divided into two groups (Group 1: Phase 1–2, Group 2: Phase 3).

Results: There were no statistically significant differences between the cases treated before and during the COVID-19 pandemic period in terms of mean age, gender distribution, diagnosis, tumor location, American Society of Anesthetists (ASA) score, recurrence, or mortality (p>0.05). We found no differences between the pre-pandemic and pandemic periods in admission to the hospital, surgical approach, need for stoma, complications, length of stay in the intensive care unit (ICU), total hospitalization, or tumor stage (p>0.05). However, we observed that the percentage of open surgical operations was statistically significantly higher, and the percentage of laparoscopic surgical operations was statistically significantly lower in Group 2 compared to Group 1 (p=0.020).

Conclusion: The pandemic periods should not be assessed with the same perspective. Treatment approaches can change according to hospital capacity during peak periods of COVID-19 disease.

Keywords: COVID-19, colonic neoplasms, rectal neoplasms, general surgery

ABSTRACT

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INTRODUCTION

The Coronavirus Disease 2019 (COVID-19), caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), emerged in December 2019 in the Wuhan province of China, causing a serious respiratory disease (1).

It quickly spread around the world, and on January 30, 2020, the World Health Organization (WHO) declared COVID-19 a Public Health Emergency of International Concern (2).

Türkiye reported its first confirmed case of COVID-19 on March 11, 2020 (3), the same day the WHO declared a pandemic (4).

Countries around the world have reorganized their health systems to respond to COVID-19 patients and other patients according to the number of serious and in need of intensive care patients, and based on the capacity of health services (2). As a result, many elective surgeries have been postponed (5). However, oncological and emergency surgeries continued to be performed whenever possible (6).

Colorectal cancers (CRC) are the third most common malignancy in men and the second most common malignancy in women. CRC is also the third most common cause of cancer-associated death worldwide (7).

Due to changes in the management of CRC patients during the COVID-19 pandemic, elective procedures were delayed, emergency procedures increased, screening programs decreased, and delays were seen in the definitive treatment of patients (7).

The purpose of this study is to investigate our management of colorectal cancer patients during the COVID-19 pandemic, which has affected our daily routine, and compare our results with the pre-pandemic period, taking into account seasonal differences within the COVID-19 pandemic.

MATERIALS and METHODS

Our study is a cross-sectional study designed retrospectively in a single center. Patient data from individuals who underwent surgery for colorectal cancer were obtained from a surgical database received from a single training and research hospital. Ethical approval was obtained for our study from the local ethics committee of Kanuni Sultan Süleyman Training and Research Hospital with the number 2021.07.222.

All participants who underwent elective and emergency gastrointestinal operations due to colorectal cancer between March 2019 and March 2021 were included in the study. The period between March 2019 and March 2020 was determined as the period before the COVID-19 pandemic, and the period between March 2020 and March 2021 was determined as the period during the COVID-19 pandemic.

All patients who were planned for emergency or elective surgery during the pandemic period were evaluated for COVID-19.

The elective surgery of patients with at least one positive result (lung imaging or nasal swab) was suspended. Patients with both negative results were operated on. In emergency cases, if one of the results was positive, the patient was considered COVID-positive and operated on under COVID conditions. SARS-CoV-2 testing was not routinely done in the postoperative period unless acute infection was clinically suspected.

During the pandemic period, emergency cases were operated on without delay. In elective cases, the time of surgery was determined by considering the physical and tumor characteristics of the patients, hospital bed and intensive care occupancy rates, and the course of the epidemic, in order to maintain pre-pandemic practices.

The decision for neoadjuvant treatment was made according to pre-pandemic criteria. The initiation time of neoadjuvant treatment, treatment period for patients, and waiting time until the surgery were not extended if hospital resources allowed. Patients were referred to adjuvant therapy according to their pathological stages.

Initially, surgeons were hesitant to perform laparoscopic surgery due to the risk of aerosolization during the onset of the pandemic. However, this practice was abandoned due to the known advantages of minimally invasive surgery (MIS), such as early discharge, and the lack of strong evidence against MIS.

In elective cases during the pandemic period, if COVID-19 was not detected in the preoperative period and MIS was suitable for the patient and tumor, the operation was performed with MIS. If COVID-19 was detected before the operation in emergency cases, open surgery was preferred.

No additional criteria were determined for stoma preferences in emergency and elective cases during the pandemic period.

Age, gender, tumor locations, the American Society of Anesthesiologists (ASA), hospital admissions (emergency/elective), surgical approaches (open, laparoscopic), need for stoma, complications, length of stay in the intensive care unit (ICU), length of hospital stay, pathological stages, neoadjuvant, and adjuvant treatments were recorded in detail. These data were compared between the two groups before and after the COVID-19 pandemic. Length of stay in the hospital was determined as the time from hospitalization to discharge.

Since emergency and elective cases were the least affected by the pandemic process in our hospital conditions, phases 1–2 were evaluated together. By analyzing statistical data on daily active cases in https://www.worldometers.info/coronavirus/country/turkey/ and the volume of our hospital, it was determined that the first peak period (PHASE 3) of the pandemic was between March 26, 2020 and May 20, 2020. The second peak period (another PHASE 3 period) was observed between November 10, 2020, and January 2, 2021. In this context, comparisons were made between the cases that were intervened during the phase-3 periods and the cases that were intervened during the phase 1–2 (except phase 3 periods) periods.

Patients' age, gender, tumor locations, ASA, hospital admissions (emergency/elective), surgical approaches (open, laparoscopic), need for stoma, pathological stages, length of stay in the ICU and hospital, neoadjuvant and adjuvant treatment conditions were compared between patients who underwent elective surgery in phases 1–2 and phase-3 in terms of surgical approach (open/laparoscopic), time to surgery, and stoma opening status.

Statistical Analysis

The IBM SPSS Statistics ver. 25.0 (IBM Corporation, Armonk, NY, US) package program was used for data analysis. The Kolmogorov-Smirnov test was used to determine if the distribution of discrete numerical factors was normal. Descriptive statistics were used to express discrete numerical factors as mean±standard deviation or median (minimum–maximum), while categorical factors were expressed as the number of cases and percentage (%). The statistical significance between groups was evaluated using Student's t-test, and the Mann-Whitney U-test was used to analyze numerical factors non-normal distribution. Pearson's χ^2 test was used to evaluate categorical data unless otherwise stated. If the anticipated frequency was below 5 in at least ¼ of the cells in the 2x2 crosstabs, the categorical data were analyzed with Fisher's exact probability test, while the χ^2 test with continuity correction was used when the expected frequency was between 5–25. In the analysis of categorical data in the crosstabs of RxC (if at least one of the categorical variables in the row or column has more than two results), the Fisher Freeman Halton test was used when the anticipated frequency was below 5 in at least ¼ of the cells. Results with $p<0.05$ were considered statistically significant. However, Bonferroni Correction was performed to control for Type I error in all possible multiple comparisons.

RESULTS

No statistically significant differences were found in age, gender distribution, diagnosis, tumor location, ASA, recurrence, and mortality between the cases treated before and during the COVID-19 pandemic period ($p>0.05$) (Table 1).

Figure 1 shows the distribution of all cases treated by month before and during the COVID-19 period as a bar graph.

Table 1. Demographic and clinical characteristics of cases, categorized by pre-COVID-19 and COVID-19 period groups

	pre-COVID-19 period (n=92)		COVID-19 period (n=97)		p
	n	%	n	%	
Age (years)	63.7±12.2		63.9±12.3		0.911†
Gender					0.278‡
Male	62	67.4	58	59.8	
Female	30	32.6	39	40.2	
Diagnosis					0.850¶
Colon	51	55.4	52	53.6	
Rectum	37	40.2	38	39.2	
Rectosigmoid	3	3.3	6	6.2	
Synchronous tumor	1	1.1	1	1.0	
Tumor location					
Right colon	14	15.2	22	22.7	0.262¥
Transverse colon	5	5.4	5	5.2	>0.999§
Left colon	12	13.0	8	8.2	0.404¥
Sigmoid colon	22	23.9	22	22.7	0.977¥
Rectum	37	40.2	35	36.1	0.558‡
Rectosigmoid	3	3.3	7	7.2	0.332§
ASA					0.866¶
I	3	3.3	2	2.1	
II	69	75.0	75	77.3	
III	20	21.7	20	20.6	
Relapse	6	6.5	4	4.1	0.529§
Mortality	16	17.4	13	13.4	0.576¥

ASA: American Society of Anesthetists; †: Student's t-test; ‡: Pearson's χ^2 test; ¶: Fisher-Freeman-Halton test; ¥: Continuity-corrected χ^2 test; §: Fisher's exact probability test

Table 2 displays the comparisons of other clinical features of the cases according to the pre-COVID-19 and COVID-19 period groups.

No differences were found between the cases that underwent intervention in the pre-COVID-19 and COVID-19 period in terms of application type, surgical approach, need for stoma, complications, length of stay in the ICU, total hospitalization, and tumor stage (p>0.05).

No statistically significant differences were observed between the two groups in the frequency of adjuvant and neoadjuvant treatment (p>0.05).

Table 3 shows the comparisons made in demographic and clinical characteristics between cases with a stoma opened before the COVID-19 pandemic and cases with a stoma opened during the COVID-19 period.

No statistically significant differences were observed between the group whose stoma was opened before COVID-19 and the group whose stoma was opened during the COVID-19 period in age,

Table 2. Comparison of other clinical features between pre-COVID-19 and COVID-19 period groups

	pre-COVID-19 period (n=92)		COVID-19 period (n=97)		p
	n	%	n	%	
How to apply					0.098†
Elective	79	85.9	73	75.3	
Urgent	13	14.1	24	24.7	
Sugical approach					0.504‡
Open	50	54.3	48	49.5	
Laparoscopic	42	45.7	49	50.5	
Need for stoma	30	32.6	38	39.2	0.347‡
Complication	15	16.3	13	13.4	0.721†
Wound infection	7	7.6	10	10.3	0.693†
Anastomotic leak	2	2.2	0	0.0	0.236¶
Pulmonary	3	3.3	0	0.0	0.113¶
Cardiac	1	1.1	1	1.0	N/A
Other complications	4	4.3	5	5.2	>0.999¶
Length of stay in ICU (days)	0 (0–68)		0 (0–21)		0.062¥
Total hospitalization (days)	6 (2–24)		7 (0–51)		0.264¥
Stage					0.057§
Complete remission	7	7.6	1	1.0	
Stage 1–2	53	57.6	54	55.7	
Stage 3–4	32	34.8	42	43.3	

ICU: Intensive care unit; †: Continuity-corrected χ^2 test; ‡: Pearson's χ^2 test; ¶: Fisher's exact probability test; ¥: Mann-Whitney U-test; §: Fisher-Freeman-Halton test; N/A: No available

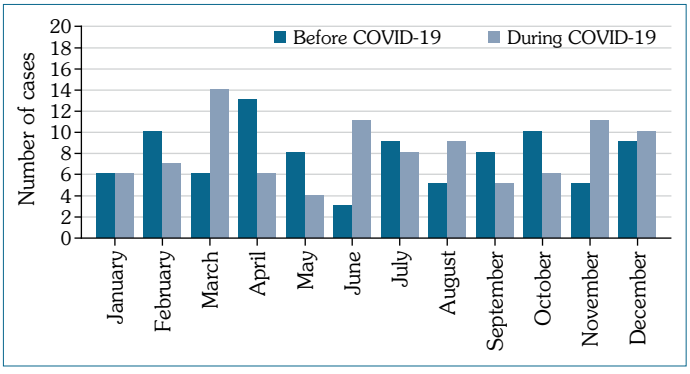

Figure 1. All cases (emergency, elective); pre-COVID-19 period, COVID-19 period

gender distribution, tumor location, ASA, type of admission (emergency or elective), and surgical approach (open/laparoscopic) according to Bonferroni correction (p>0.025).

No statistically significant differences were found between the elective cases before the COVID-19 and elective cases during the COVID-19 period in open or laparoscopic intervention rates, median time to surgery, whether a stoma was opened, or stoma type according to the Bonferroni correction (p>0.025).

Table 3. Demographic and clinical characteristics of cases treated in phase 1–2 and cases treated in phase 3 during the COVID-19 period

	Phase 1–2 (n=70)		Phase 3 (n=27)		p
	n	%	n	%	
Age (years)	63.1±12.1		66.1±12.9		0.277†
Gender					0.276‡
Male	39	55.7	19	70.4	
Female	31	44.3	8	29.6	
Diagnosis					0.325¶
Colon	41	58.6	11	40.7	
Rectum	24	34.3	14	51.9	
Rectosigmoid	4	5.7	2	7.4	
Synchronous tumor	1	1.4	0	0.0	
ASA					0.120¶
I	0	0.0	2	7.4	
II	56	80.0	19	70.4	
III	14	20.0	6	22.2	
How to apply					0.667‡
Elective	54	77.1	19	70.4	
Urgent	16	22.9	8	29.6	
Sugical approach					**0.020‡**
Open	29	41.4	19	70.4	
Laparoscopic	41	58.6	8	29.6	
Need for stoma	26	37.1	12	44.4	0.668‡
Stage					0.541¶
Complete remission	1	1.4	0	0.0	
Stage 1–2	41	58.6	13	48.1	
Stage 3–4	28	40.0	14	51.9	
Length of stay in ICU (days)	0 (0–21)		0 (0–16)		0.901¥
Total hospitalization (days)	6 (0–51)		7 (1–20)		0.290¥

ASA: American Society of Anesthetists; ICU: Intensive care unit; †: Student's t test; ‡: Continuity-corrected χ^2 test; ¶: Fisher-Freeman-Halton test; ¥: Mann-Whitney U-test; §: Fisher's exact probability test

Table 4 displays the comparisons made in demographic and clinical information of the cases that were intervened in Phase 1–2 and the cases that were intervened in Phase 3 during the COVID-19 period.

No differences were observed in gender distribution, mean age of the cases, diagnosis, ASA, type of application (elective/emergency), surgical approach (open/laparoscopic), need for stoma, stage, length of stay in the ICU, total hospitalization, or frequency of receiving adjuvant and neoadjuvant treatment during the pandemic between the Phase 3 period and the other (Phase 1–2) periods (p>0.05). On the other hand, the rate of open surgery was statistically significantly higher in Phase 3 compared to Phase 1–2, and the rate of those who underwent laparoscopic surgery was statistically significantly lower (p=0.020).

Table 4. Comparisons between cases with ostomy before COVID-19 and cases with ostomy opened during COVID-19 period

	Before COVID-19 (n=30)		COVID-19 period (n=38)		p
	n	%	n	%	
Age (years)	64.6±12.6		63.3±12.4		0.669†
Gender					0.329‡
Male	17	56.7	27	71.1	
Female	13	43.3	11	28.9	
Tumor location					
Right colon	1	3.3	1	2.6	N/A
Transverse colon	0	0.0	1	2.6	N/A
Left colon	4	13.3	2	5.3	0.394¶
Sigmoid colon	6	20.0	9	23.7	0.945‡
Rectum	20	66.7	23	60.5	0.789‡
Rectosigmoid	0	0.0	3	7.9	0.249¶
ASA					0.775¥
I	1	3.3	0	0.0	
II	20	66.7	26	68.4	
III	9	30.0	12	31.6	
How to apply					>0.999‡
Elective	22	73.3	27	71.1	
Urgent	8	26.7	11	28.9	
Surgical approach					0.358‡
Open	20	66.7	20	52.6	
Laparoscopic	10	33.3	18	47.4	

ASA: American Society of Anesthetists; †: Student's t-test; ‡: Continuity-corrected χ^2 test; ¶: Fisher's exact probability test; ¥: Fisher-Freeman-Halton test; N/A: No available was made; §: According to Bonferroni correction, the results were considered statistically significant for p<0.025

Compared to the elective cases in Phase 1–2, the rate of open surgery was statistically significantly higher in the elective cases in Phase-3, and the rate of those who underwent laparoscopic surgery was statistically significantly lower (p=0.008). On the other hand, no statistically significant difference was observed between the elective cases in Phase 1–2 and the elective cases in Phase 3 in terms of median time to surgery, need for stoma and ostomy type, according to Bonferroni correction (p>0.025).

Figure 2a shows the curvilinear distribution of the cases that underwent emergency and elective interventions during the March 2020 – March 2021 periods of the pandemic. Figure 2b displays the curvilinear distribution of the cases in terms of open and laparoscopic surgery within the same periods. Finally, Figure 2c shows the curvilinear distribution of cases with the need for stoma within the same follow-up period.

COVID tests were performed on 81 out of 97 patients who underwent surgery during the COVID period, and all of them tested negative. Computed Tomography (CT) scans were taken for COVID in 75

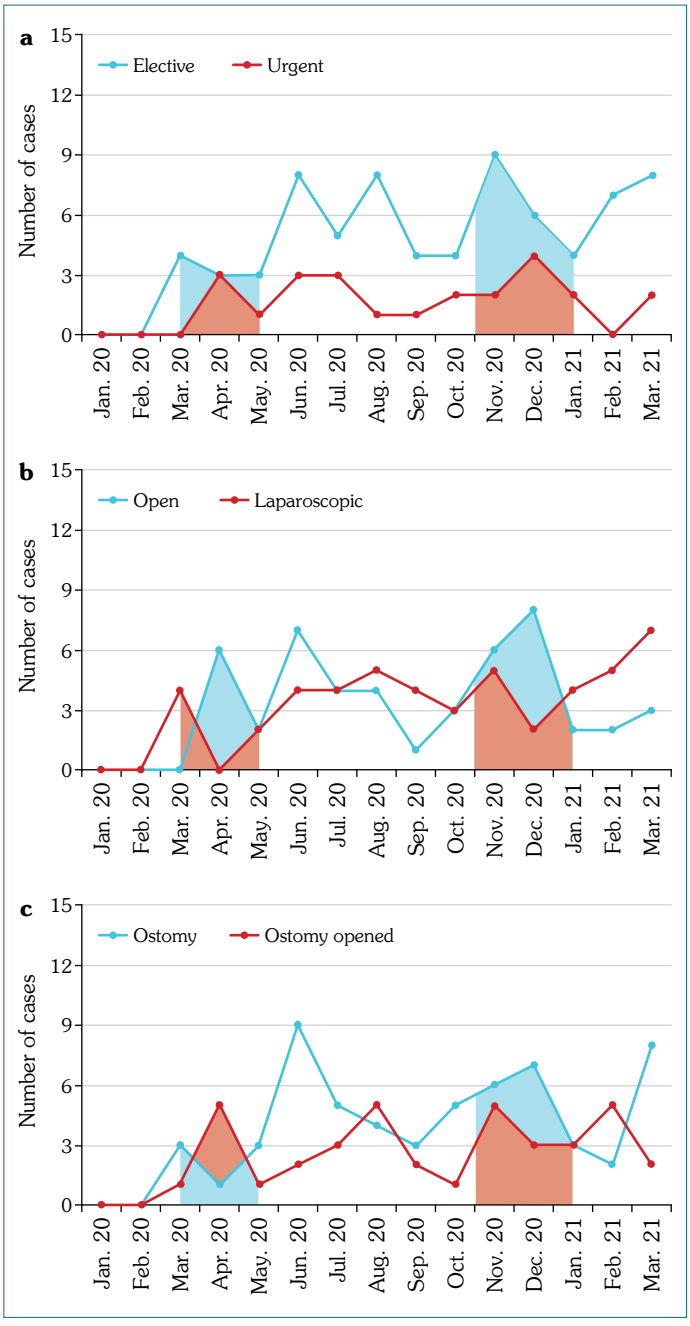

Figure 2. (a) Distribution of emergency and elective patients during the COVID-19 period, separated by month. Painted areas indicate the phase 3 period. (b) The distribution of operation types according to the months of the COVID-19 period. Painted areas show the phase 3 period. (c) The ostomy distribution curve according to the months of the COVID-19 period. Painted areas show the phase 3 period

patients, with negative COVID-19 CT findings in 68 patient. Atypical findings were found in six patients, and COVID-19 findings were found in one of these patients. Two of the patients underwent emergency surgery, while the other five underwent elective surgery after their COVID-19 findings had regressed. Although two patients tested negative for COVID-19 in the preoperative period, they tested positive after developing symptoms during postoperative service follow-ups. These two patients were followed up in the ICU due to COVID-19.

DISCUSSION

The COVID-19 pandemic has had a severe impact on the health systems of many countries (8, 9). The postponement of elective cases and endoscopic procedures has led to discussions about the management of patients with colorectal cancer who have been diagnosed, are under treatment, and are asymptomatic. It has been demonstrated that there is a relationship between delays in colon cancer treatment and reduced survival times (10).

As our hospital is a reference hospital, the number of patients who underwent surgery for colorectal cancer due to referrals from regional hospitals increased during the pandemic period compared to the pre-pandemic period (97 and 92 patients, respectively). However, no statistically significant difference was detected (p=0.098).

Due to the initial ignorance of the risks posed by the pandemic, patient management underwent changes in every clinic compared to the pre-COVID-19 period. However, these patients were managed in accordance with the guidelines published both worldwide and in our country regarding the approach to colorectal cancers.

According to the guidelines published by the Turkish Colorectal Surgery Society (TKRCD), it is recommended to evaluate patients and their tumors under five headings (4, 11). In the first step, it is recommended to determine the patients' risk factors (age, comorbidity, ASA, performance status, nutritional status) (p>0.05). In the second step, it is recommended to evaluate the clinical presentation [obstruction, perforation, massive bleeding, and severe anemia (Hb<7g/dl)]. In our country, 20–25% of colorectal cancers are first diagnosed in emergency services (4). In our series, the rate of patients who were operated on under emergency conditions in the pre-pandemic period was 14.1%; this rate increased to 24.7% during the pandemic period, but this difference was not statistically significant (p=0.098). The third step is to determine the tumor characteristics with radiological imaging (Early (Tis/Pt1), local, regional (LN+), systemic). Among the patients, the rate of stage 3–4 patients who were operated on was not statistically significant during the pandemic period but increased from 34.8% to 43.3%. (p=0.057). The fourth step is to determine the risk of surgery (duration of the surgical procedure, need for intensive care, need for blood transfusion). There was no statistically significant difference in the length of stay of patients in the ICU during the pre-pandemic [median=0, (min: 0–max: 68) days] and pandemic periods [median=0, (min: 0–max: 21) days], (p=0.062). The last step is to evaluate the adequacy of health workers, health facilities, and ICUs, as well as the status of operating rooms. The American College of Surgeons (ACS) has published a directive for colorectal cancer surgery according to the patient's condition and the health center (12). Within the framework of this directive, and according to the data of https://www.worldometers.info/coronavirus/country/turkey/, by examining the trend of active cases and the volume of our hospital, the Phase-3 period was evaluated as between March 26, 2020, and May 20, 2020, and between November 10, 2020, and January 2, 2021.

In the TKRCD guideline, immediate surgery is recommended for emergency cases (obstruction, perforation, bleeding). Surgery should be postponed for three months for malignant polyps and six months for prophylactic treatment of polyposis syndromes (4, 11).

Surgery is recommended for stage 2, 3, and 4 colon cancer cases when patients are asymptomatic and have poor quality of life. For asymptomatic patients in stage 1, 2, and 3, a re-evaluation is recommended after a 30-day postponement. An additional 30-day delay is recommended for stage 1 and 2 patients, while neoadjuvant therapy may be appropriate for stage 3. For stage 4, the oncology council recommends three cycles of chemotherapy and a response-based decision (4, 11).

Surgical treatment is recommended for stage 2, 3, and 4 rectal cancer cases when patients are symptomatic and have a poor quality of life. For stage 1 asymptomatic patients, a 30-day postponement and re-evaluation are recommended. For patients in stage 2 and 3, short-term radiotherapy and an 8-week response evaluation are recommended in. If the response is poor, surgery is advised; if the response is positive, surgery is recommended at 12–16 weeks. Consolidation treatment may be performed during the waiting period. For stage 4, the oncology council recommends three cycles of chemotherapy and a response-based decision (4, 11).

Throughout the pandemic, we continued to apply long-term chemoradiotherapy (CRT) our hospital's conditions.

In our series, although the rate of rectal cancer in elective cases increased from 43% to 47.9% during the pandemic compared to the pre-pandemic period, the rate of patients receiving neoadjuvant treatment decreased from 15.4% to 15.1%, and this change was not statistically significant (p>0.999).

Wanis et al. (13) compared 908 patients with stage 1–3 colon cancer in disease-free survival (DFS) and overall survival (OS) according to the time from diagnosis to surgery. They found no difference in OS or DFS between those who had surgery before or after 30 days. Furthermore, there was no difference when the threshold were 60 and 90 days, separately.

It is known that the survival rate is lower in rectal surgery when the period between the initial clinical symptoms and surgery is more than 60 days (14). Similarly, Yun et al. (15) found an association between delaying surgery for more than 30 days and worse survival in rectal cancer.

Throughout the pandemic period, emergency colorectal cancer patients were operated on without any delay after the indication for surgery. In elective cases, the average time to surgery in the pre-COVID period was 29 days, while it was 22 days in the COVID period (p=0.928). When we compare the phase-3 period (70.4%) with the phase 1–2 period (77.1%) in our series, there is a non-statistically significant decrease in the rate of patients who underwent elective surgery in the phase 3 period (p=0.667). For elective cases, while the average time to surgery was 22 days in the phase 1–2 period (n=54), it was 23 days in the phase 3 period (n=19) (p=0.910). However, if our hospital conditions were insufficient to manage these patients, we might have had to evaluate alternative treatment approaches recommended in the guidelines (16).

To identify patients who are asymptomatic or in the incubation period, it is recommended to test every patient scheduled for surgery for COVID-19 (17, 18). Elective surgeries of patients with positive tests should be postponed. However, this is not suitable for emergency patients. In our series, COVID was detected in only five of the 73 elective patients who were operated on during the pandemic period. These patients were operated on after their COVID symptoms regressed.

While there are authorities suggesting MIS advantages by prioritizing it, there are also some centers stating they avoid it. However, many international societies stated that the surgical team should make the choice before reaching a final decision (10, 19). The American College of Surgeons (ACS) stated that there is not enough evidence and experience to recommend open surgery instead of MIS. The Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) recommended the use of carbon dioxide (CO_2) filter systems if MIS is to be preferred (20). Although there are doubts about the use of MIS during the pandemic period, the rate of patients operated on in advanced stage (3–4) in our series increased. Although the rate of elective cases increased from 34.8% to 43.3% and the rate of elective cases decreased from 85.9% to 75.3% compared to the pre-pandemic period, our MIS rate increased from 45.7% to 50.5% and it was not statistically significant (p=0.504).

In the TRKCD guidelines, it is suggested that a stoma can be opened to reduce the risk of surgery (stoma, resection and stoma, and protective stoma etc.) (8, 9). There are publications recommending the opening of a stoma instead of anastomosis during the operation throughout the pandemic (21). In our series, the number of patients who had an ostomy was 32.6% in the pre-pandemic period, while it was 39% during the pandemic period (p=0.347) (Table 2). When only elective patients were evaluated, stoma rates were 28.4% (n=) in phase 3 (p=0.668, p>0.999, respectively). Despite the increase in the number of patients who had an ostomy during the COVID period, this was not statistically significant. When the patients who had an ostomy before and during the COVID period were compared, there was no difference between them (p>0.05).

Most studies on colorectal cancer and COVID-19 report an increase in stage progression, the need for stoma, and complication rates during the pandemic period (7). In our study, an increase was found in the rate of stage 3–4 patients and the rate of stoma, but this was not statistically significant.

A statistically insignificant decrease was observed in the complication rate compared to the period before the COVID-19 pandemic. The reason for this was thought to be that the treatment of these patients had been conducted in conditions isolated from COVID-19 patients.

This study has some limitations. Firstly, our study has a retrospective design. Another limitation was our positive discrimination compared to patients with other chronic diseases in planning the treatment of oncology patients in accordance with the algorithms before the COVID-19 pandemic if hospital conditions allowed. This situation has been effective in our results not showing a significant change compared to the pre-COVID-19 pandemic period.

CONCLUSION

In conclusion, it is essential to recognize that all pandemic periods should not be assessed through the same lens. Treatment approaches may vary according to hospital capacity during peak periods of the disease. When comparing the pandemic period to the pre-pandemic period, there is no significant difference in practices. However, when evaluating in distinct phases, differences in practices become evident. To effectively prepare for future pandemics, it is crucial to reassess and strengthen health systems, ensuring that health facilities and workers are sufficiently equipped and efficient in managing such challenging situations.

Ethics Committee Approval: The Kanuni Sultan Süleyman Training and Research Hospital Clinical Research Ethics Committee granted approval for this study (date: 07.2020, number: 2021.07.222).

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