

The Influence of Pandemic COVID-19 on the Oncology Patient, in Diagnostic and Therapeutic Surgical Sequence

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Abstract

Introduction: Global cancer patient care is changing from a disease-focused approach to a patient-centered approach. The care problems of the oncological patient are complex, the diversity of cases, the complexity of the surgery, the associated comorbidities were influenced by Pandemic Covid 19. *Objectives:* The objective of our study was to capture the level of the Surgery II section and as well as the influence of the COVID-19 pandemic on the type of surgery performed, complications and problems of preoperative and postoperative care. *Material and method:* We performed a retrospective, descriptive study that included patients with oncological diagnoses hospitalized at the level of Surgery II SCJU Oradea between 15.03.20-15.03.21, the period in which the medical-surgical activity was influenced by the COVID-19 pandemic. We used the records in the Care File that contains, the Care Plan, its annexes, and the observation sheets. We analyzed the types of surgeries performed for esogastric, colorectal and breast cancer, complications at the time of hospitalization and associated comorbidities and the influence of the Covid Pandemic19. *Results:* One-hundre eithy four oncology patients were hospitalized in which 162 surgeries were performed, of which 25 patients with esogastric cancer, 62 patients with colorectal cancer and 20 patients with breast cancer. 12 feeding gastrostomes, 14 colostomies and 7 mastectomies were performed, interventions that affect the quality of life of the cancer patient. *Conclusions:* The COVID-19 pandemic delayed the time of cancer diagnosis and the time of therapeutic surgery. The therapeutic decision was influenced by the rules and recommendations imposed in the context of this pandemic. Comorbidities and complications in these cancer patients have increased the care problems specific to the surgical and oncology patient, in the conditions of the Covid Pandemic 19.

Keywords: Cancer patient; Surgery; Complications; Comorbidities, COVID-19 Pandemic

Introduction

The burden of cancer continues to grow globally, patients with malignant disease face numerous physical, psychological, social and spiritual problems. Cancer surgery plays an important role in the multimodal treatment of cancer: diagnostic, prophylactic and therapeutic. The major goal of surgical therapy is to completely resect the tumor and maximize the preservation of organ function and shape, as far as possible, the surgical stage is an important element that makes a difference in the patient's outcome, surgery increases the chance of survival and quality of life if done in optimal time. Since the beginning of this COVID-19 pandemic, it has been appreciated that patients with cancer are both

at increased risk of contracting the SARS-CoV-2 infection and have a more severe course of disease. This has led to radical changes in cancer management for all cancers. The impact of the COVID-19 pandemic on cancer treatment may be catastrophic [1]. In many European countries, there have been delays in establishing diagnosis and starting treatment, which could increase colorectal cancer deaths [2] and breast cancer deaths over the next five years [3]. During this period of the COVID-19 pandemic, the care of cancer patients followed protocols and recommendations of the surgical [4] and cancer societies [5]. The oncology patient requires a multidisciplinary approach [6], and in the context of the COVID-19, the risks to which these patients are exposed are higher, due to the underlying disease and because of the threat of infection with Covid 19, they are exposed to a double risk [7].

At the start of the COVID-19 elective medical procedures [8] that were not considered urgent, including cancer screening, were largely suspended, in order to prioritize urgent needs and reduce the risk of spreading Covid 19 infection. Once the State of Emergency restrictions were in place, no scheduled admissions were made in the context of the Covid 19 Pandemic, only cases that were urgent were assessed and treated surgically. In April, May, June 2020 no scheduled admissions were performed, until July when scheduled admissions for oncology patients resumed. During the state of emergency, imposed by the authorities, After the relaxation of measures, many patients avoided having the necessary investigations or therapies for fear of possible infection [9].

The present work aimed to analyze the oncological pathology treated at the level of Surgery II and the influence of the Covid 19 pandemic on the type of surgery performed, the complications that patients with oncological diseases have presented at the time of admission and on the problems of preoperative and postoperative care in these patients, admitted and treated surgically at the level of our department.

Material and Method

We conducted a retrospective descriptive study of oncological cases admitted to the Surgical Department II, Emergency Clinical County Hospital of Oradea, between 15.03.20-15.03.21, a year in which medical and surgical activity was marked by the Coronavirus Disease 2019, Covid19 pandemic and the rules imposed during this period.

We analysed the casuistry through data related to gender, age, environment of origin, type of hospitalization, comorbidities, complications, types of interventions performed, care problems, level of dependency, duration of hospitalization, data being collected from the electrical and electronic records of the General Clinical Observation Sheet and the Care Record. We used the Care Plan and its appendices, the scales used to assess pain, risk of scald, risk of fall implemented at hospital level and used at ward level. Through the assessment of the 14 Fundamental Needs:

1. The need to breathe and have good circulation
2. The need to nourish and hydrate
3. The need to eliminate
4. The need to move and have a good posture
5. The need to sleep and rest
6. The need to dress, to undress
7. The need to be clean, to protect the skin
8. The need to maintain the temperature
9. The need to avoid dangers
10. The need to communicate
11. The need to practice religion, values, beliefs
12. The need to be busy and useful
13. The need to recreate yourself
14. The need to learn how to stay healthy

The conceptual model of Virginia Henderson [9], incorporating the dependency score, the level of dependency, the particularities of the care problems, the interventions given, was used to follow the oncological cases in which a surgical procedure was performed.

Results

During the study period, 184 patients were admitted to the Surgical Department II with an oncological disease as the main diagnosis, representing 24.5% of the total of 749 admissions during this period.

Of the 184 patients admitted for oncological diseases, 64 were admitted by appointment, representing, elective cases in the surgical therapeutic sequence and for confirmation of diagnosis and 120 cases with presentation in the emergency department, for complications of oncological disease, intestinal occlusion, perforation, peritonitis, hemorrhage, weight loss, caseous, inability to feed, dyspnea, abdominal pain, dysphagia (Figure 1).

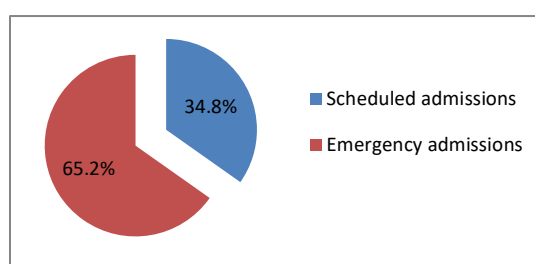


Figure 1. Distribution of oncology cases by type of admission

Of the total number of oncological cases admitted, 102 are female, given the exclusivity of ovarian, uterine and breast cancer representing (Table 1). The male cases, not include the pathology of the male urogenital sphere, which is not addressed to the general surgery service.

Table 1. Gender distribution of cancer cases

Oncology cases	Women	Men	Total
Number	102	82	184
Percent	55.4	44.5	100

Out of the total number of 184 oncological cases, 162 patients underwent surgery, with an operability rate of 88% in oncological cases.

The distribution of oncological cases according to their location shows a predominance of colorectal and eso-gastric cancer in men, and breast cancer predominates in women (Table 2).

Table 2. Distribution of operated cancers by location

Location/ gender	Cancer eso- gastric	Cancer colon	Rect cancer	Other cancers pharyngeal, laryngeal, spleen,	Pancreatic cancer	Ovarian cancer	Uterine cancer	Breast cancer	Total Cases
Women	6	21	6	8	1	11	11	20	84
Men	19	24	11	14	10	0	0	0	78
Total	25	45	17	22	11	11	11	20	162

Eso-gastric cancer in men represents 24.6% and colorectal cancer 4.8% of all cancers in men. Breast cancer accounts for 24% of all cancers in women.

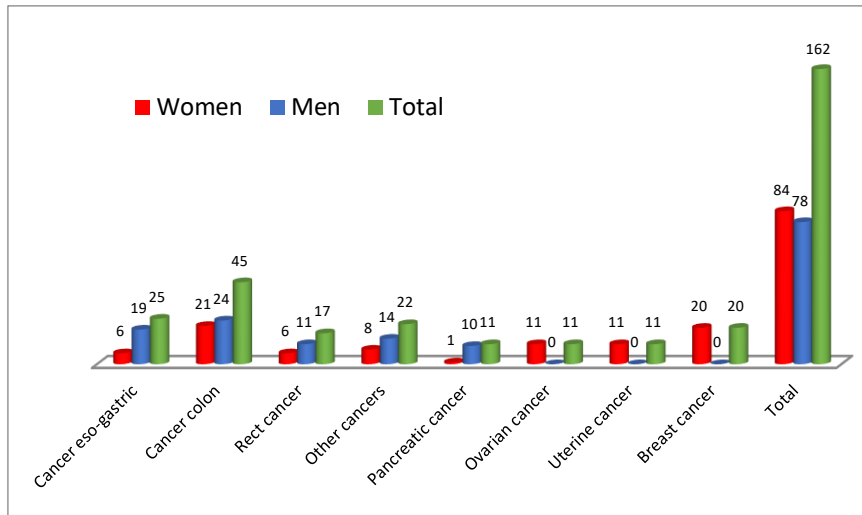


Figure 2. Distribution of oncology cases by localization and gender

The analysis shows a high prevalence of colorectal cancer among all cancers, predominantly located in the rectosigmoid colon and cecum. The most common surgery was Dixon rectosigmoid resection followed by right hemicolectomy of cases (Figure 3). Five Hartman rectosigmoid resections with stoma formation representing 11% of interventions and four segmental sigma resections were performed, in a percentage of 9% of cases (Figure 3).

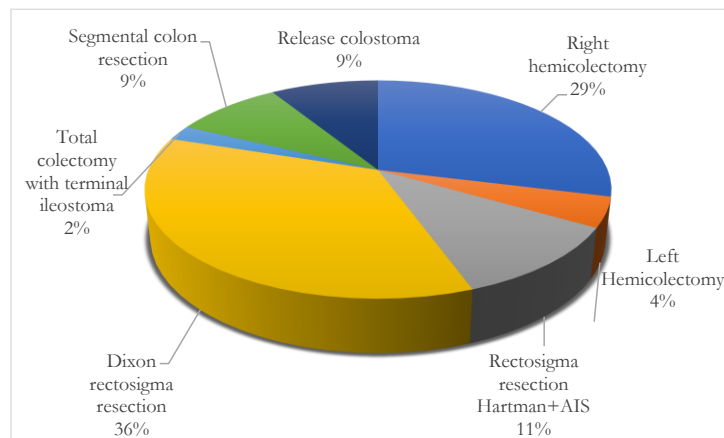


Figure 3. Types of surgeries performed on colon cancers

As particular case, we had a patient with stenotic, invasive sigmoid colon cancer, with perforation of cecum with fecaloid peritonitis, in which a clearance cecostoma was performed. Another particular case of a patient with ascending and transverse colon cancer who underwent a total colectomy with terminal ileostoma. We have had 5 patients with colon perforation, with fecaloid peritonitis, 3 for cancers located in the rectosigma, 2 cancers in the cecum and one in the splenic angle of the colon.

Rectal cancer was present in 17 patients, more frequently in men. As surgical interventions 10 resections with restorative anastomosis were performed, representing 58.8% of rectal cancer cases. In 5 patients with lower rectal cancer, elective cases, Milles type abdominoperineal amputation with definitive colostoma was performed, patients in whom neoadjuvant treatment was previously practiced 29.4 % of rectal cancer cases.

As a result of surgical treatment of colorectal cancer, the total number of patients with temporary and definitive colostoma was 14 out of 62 colorectal cancer patients, with a percentage of 22.5%, these patients presenting important problems of postoperative care, affecting the quality of life.

Postoperative complications included parietal oozing, 2 cases of anastomotic fistula, which required reoperation, and 1 case of stoma disinsertion, which required reoperation.

In the case of gastric and oesophageal cancer, 11 radical operations were performed, 6 total gastrectomies and 5 oesophagectomies (Table 3). In the 5 esophagectomies an esogastric or esophjejunal anastomosis was performed, these are laborious surgeries with high postoperative care requirements with a good evolution without complications. In one of the cases there was a minimal fistula at the level of the intrathoracic anastomosis, with low flow, with good evolution, with spontaneous closure in 3 weeks during which the patient benefited from sustained nursing and artificial feeding.

Table 3. Distribution of surgeries in patients with gastric cancer and esophageal cancer

	Total gastrectomy/ esophagectomy	Partial gastrectomy	Gastrostoma Feed	Total
Gastric cancer	6	2	4	12
Esophageal cancer	5	0	8	13

Radical surgeries were performed in 44% of cases and feeding gastrostomy was performed in 48% of the total number of cases of esogastric cancer.

A particular case was a patient with multiple episodes of hospitalization for renal colic, who was subsequently transferred to our service due to the installation of a subocclusive syndrome. The patient was investigated and diagnosed with an invasive splenic tumour in the gastric wall, compressive on the colic frame, in which splenectomy with partial gastric resection was performed, subsequently diagnosed as non-Hodkin's lymphoma, with good evolution and continued treatment in the haematology department.

For breast cancer, after resuming scheduled admissions for oncology patients, diagnostic and therapeutic surgical procedures were performed on continuous hospitalization. Eight diagnostic biopsies were performed, patients were confirmed by histopathological examination with breast cancer. As therapeutic surgeries, 6 Madden modified radical mastectomies with axillary lymphadenectomy and 1 simple mastectomy were performed (Figure 4). Conservative surgery was performed in 7 cases, 7 conservative surgeries with axillary lymphadenectomy. Axillary lymphadenectomy was performed in 13 patients.

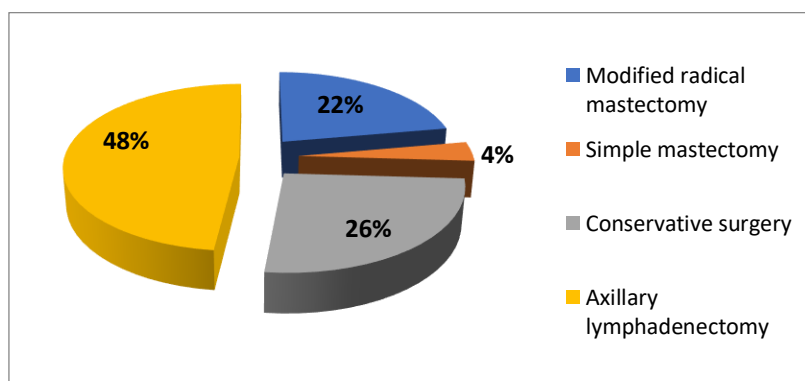


Figure 4. Distribution of curative surgeries in breast cancer patients

The main comorbidities associated with oncological pathology, diseases chronically treated in the patients' history, are represented by cardiovascular diseases, including hypertension, right bundle branch block, heart failure, mitral stenosis, aortic stenosis, etc. in 40% of patients (Table 4). Obesity was present in 27.7% of patients, diabetes mellitus in 13.5%. Lung diseases were present in 27 cases, kidney diseases in 17 cases. Neuropsychological disorders were present in 15 patients with minimal cognitive and motor impairment up to severe cognitive impairment and severe motor deficit. All these comorbidities associated with specific care problems of the surgical and oncological patient increased the care needs and overloaded the staff under the conditions of the COVID-19 pandemic.

Table 4. Comorbidities associated with oncological pathology

Secondary diagnoses	No.
Cardiovascular diseases	65
Obesity	45
Pulmonary disorders	27
Diabetes mellitus	22
Renoureteral disorders	17
Neurological and/or psychiatric disorders	15

Complications of esogastric cancer at the time of hospitalization were upper gastrointestinal hemorrhage, anemia, hypoproteinemia, asthenia, adynamia, inability to feed, caseous Complications of colorectal cancer preoperatively were intestinal occlusion, upper gastrointestinal hemorrhage, anemia, severe electrolyte imbalances, peritonitis, septic state, asthenia, adynamia.

Complications of breast cancer at the time of admission, 2 patients had lymphoedema of the arm and one patient had tegumentary exulceration, in the advanced stage of the disease.

Discussion

The percentage of oncology patients admitted by appointment is low (34.8%), most of the admissions were made by emergency (65.2%), patients were found with complications of the underlying disease. Our results showed that the number of oncology patients is decreasing, as shown by the results at the national level of a report published in 2020 [10].

Due to the COVID-19 pandemic, there was a panic created by the fear of infection with SARS-CoV-2, which is why many patients presented in the advanced stage of the disease, when they already had complications. In patients with colorectal cancer, there were 5 cases out of 62 in which patients presented with altered status, with colonic perforation with fecaloid peritonitis, in a percentage of 8%. The female and male sex distribution of colorectal cancer being approximately equal, in line with the estimates of expected cancer incidence by sex and main causes in European Union countries in 2020 [11]. The approach to colorectal cancer cases aimed to perform surgery with radical intent to preserve patient quality of life, especially in elective cases, the results being in line with those of a study published in March 20121, performed in a UK hospital [12]. Only four clearance colostomies were performed, without tumor resection, in a proportion of 6.5%. Attempts have been made where possible to prepare the colon, particularly in electives [13] and to perform surgery with radical intent in a safe manner for the patient. There were two anastomotic fistulas as postoperative complications and 2 anastomotic fistulas, one with low flow with spontaneous closure in 4 weeks and one with medium flow in which surgery and protective ileostomy were performed.

Regarding esophageal cancer, only 5 surgeries were performed with the intention of radicality, esophagectomy with esogastric and esophagejunal anastomosis, laborious and long-lasting surgeries, requiring mechanical ventilation of the patient postoperatively. Under the conditions of the COVID-19 pandemic, this type of intervention was chosen for eligible, carefully assessed patients with oesophageal cancer, who were assessed as being able to be weaned from a ventilator as soon as possible, given the need for ventilators and resources in the intensive care unit for patients with COVID-19. Eight gastrostomies for feeding were performed, in patients in whom neoadjuvant chemotherapy was also initiated, which can be considered a priority. Esophageal cancer a cancer with strong malignancy, requires optimal treatment strategies during this COVID-19 pandemic, aspects also recorded in the results of a study [14] conducted in Greece and published in June 2020.

In gastric cancer, a total of 6 surgeries with radical intent, total gastrectomies with splenectomy and lymphadenectomy were performed, with similar results recorded in the results of a study conducted in Poland [15]. Four feeding gastrostomies were performed. A total of 12 feeding gastrostomies were performed in a total of 25 cases, in a percentage of 48%, affecting the patient's quality of life and long-term survival. The surgical approach also took into account the recommendations of the societies in this epidemiological context [16,17].

Regarding the surgical approach to breast cancer [18] in this year of COVID-19, the hospitalisation was discontinued with negative consequences on the stage of breast cancer diagnosis, but also on the timing of initiation of systemic and locoregional treatment which was also confirmed in a retrospective study [19] conducted in Croatia and published in April 2021. Conservative surgery and radical surgery are in a 1 to 1 ratio in breast cancer surgery, which is in line with randomized studies conducted in previous years, although currently oncoplastic breast reconstruction surgical techniques have led to an increasing tendency of patients to opt for radical surgery, as reported in the results of the study conducted in Denmark [20]. A total of 13 axillary lymphadenectomies were performed station I and II, no sentinel node biopsies were performed, which increases the potential risk of lymphoedema [21] of the affected breast side.

In the surgical treatment of colorectal cancer, the surgical approach was chosen with the intention of radicality. As far as possible, the tumour removal and the restoration of the digestive tract's continuity were considered to maintain the quality of life.

In the approach to oesogastric cancer in these conditions of COVID-19, the number of palliative gastrostoma feeding surgeries was higher than radical surgeries with tumour resection and anastomosis to restore the continuity of the digestive tract. These surgeries are laborious and time-consuming and postoperatively patients required continuous ventilatory support, and intensive care unit resources were relocated during this period for Pandemic Covid 19.

By stopping day hospitalisation during this period, early diagnosis of breast cancer was postponed in many situations with a long-term effect on survival and delayed the time of surgery in some situations with an impact on short-term survival.

The COVID-19 pandemic has delayed the time of cancer diagnosis, the effects will be visible in time. It has also delayed the therapeutic surgical moment of the oncological disease with immediate influences on the morbidity and mortality of oncological patients and has influenced the therapeutic decision both from the patient's and the professionals' point of view.

Comorbidities and complications occurring in these oncology patients have increased the specific care problems of the surgical and oncology patient, increased the care needs and overburdened the staff under the conditions of the COVID-19 pandemic.

Clinicians should take a universal and enhanced approach to patient care during this Covid Pandemic 19, especially for vulnerable populations.

Ethical Issues

The use of the data was made respecting the legislation in force.

Conflict of Interest

I declare that I have no conflict of interest.

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