

**Conclusions.** Our results indicate an improvement in the quality of life after treatment in all women, based on the answers to the questionnaire developed by us. However, significant changes ( $p < 0.05$ ) occurred in the urinary and reproductive systems, physical activity, sexual and psycho-emotional health, especially in women of reproductive age, whose quality of life has changed significantly, reaching a high level. In elderly women, the quality of life also improved after surgery due to the disappearance of symptoms of urinary disorders, but due to the presence of chronic somatic pathology, it remained at an average level.

Based on the results of the statistical coefficients, the questionnaire is reliable and valid and can be used in patients with BPH to assess quality of life and in women who have undergone BPH surgery to subjectively assess surgical treatment. Given the fact that all patients reported ease of completion and the specific questions asked about their most pressing concerns, the questionnaire can be recommended for use in healthcare facilities.

**Key words:** genital prolapse, quality of life, surgical treatment, reproductive age, postmenopausal age.

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## COMPARATIVE ANALYSIS OF THE RESULTS OF OPERATIVE TREATMENT OF PATIENTS WITH COLORECTAL CANCER WITH LAPAROSCOPIC AND LAPAROTOMY ACCESS

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*Colorectal cancer (CRC) is one of the most common malignant neoplasms in the world and one of the global problems of today. Surgical treatment is an important component in the fight against this disease. In this article, we present a detailed comparative analysis of the results of laparoscopic and open surgical treatment of patients with CRC.*

*The aim is comparative analysis of the results of surgical treatment of patients with CRC by laparoscopic and open access.*

*A retrospective analysis was conducted in 106 patients. Outcome measures included intraoperative blood loss, operative time, pain score, postoperative bed rest days, rate of early postoperative complications in the first 30 days postoperatively, and need for reintervention.*

*The postoperative time of restoration of enteral nutrition was shorter in group 1 ( $5.35 \pm 1.9$ ) and 21 hours ( $21.3 \pm 5.7$ ), respectively, and 7 hours ( $6.9 \pm 2.6$ ) and 28 hours ( $28.7 \pm 7.8$ ) in group 2, respectively ( $p < 0.001$ ). Postoperative activation of peristalsis and first defecation occurred at  $2.7 \pm 0.6$  days in group 1 compared to  $3.3 \pm 0.8$  days in group 2 ( $p < 0.001$ ).*

*The results of this study confirm the advantages of the laparoscopic approach compared to open surgery in patients with colon cancer. These results are important for the practice of surgical oncology and should contribute to improving the results of treatment of this disease.*

**Key words:** colorectal surgery, colorectal cancer, minimally invasive surgery, laparoscopic surgery.

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### Introduction.

Colorectal cancer remains one of the leading malignant diseases in the world. Advances in understanding the pathophysiology of colorectal cancer (CRC) have led to increased treatment options, including endoscopic and surgical resection, radiation therapy, immunotherapy, palliative chemotherapy, targeted therapy, as well as extensive surgery and local ablative therapy for metastases [1], [2]. These treatments effectively inhibited cancer progression and prolonged the overall survival of CRC

patients. The implementation of population screening for CRC, such as fecal occult blood analysis and endoscopy, also significantly increases overall survival and provides good prospects for CRC treatment [3].

In the United States, the death rate from CRC had been declining for a long period until 2017, although the decline in incidence among women has recently slowed [4]. However, CRC is still the third most common malignancy and the second leading cause of death, colorectal cancer (CRC) is one of today's global problems, causing about 1.9 million cases and 0.9 million deaths worldwide annually due to non-compliance screening programs, therapeutic strategies, and increased morbidity [5].

The incidence of CRC is higher in highly developed countries and is increasing every year. According to estimates, by 2040 this number will reach 3.2 million patients per year [5].

Despite the fact that the prospects for the treatment of CRC in general show positive dynamics, currently operative treatment remains the best method of treatment for CRC [6].

Surgical treatment is a key component in approaches to control this disease. In recent decades, the introduction of minimally invasive methods of access has become a significant breakthrough in the surgical treatment of CRC. The laparoscopic approach, with its less traumatic nature and early activation of the patient, has gained considerable popularity.

Despite the widespread use of laparoscopic access, laparotomy remains one of the commonly accepted methods for surgical intervention in colorectal cancer. Choosing the optimal access method involves consideration of a number of factors, such as tumor size, location, patient characteristics, and surgeon experience. However, comparative data defining the advantages and limitations of each access method remain the subject of debate [7].

Our study shows a comparative analysis of the results of surgical treatment of patients with CRC using laparoscopic and laparotomy access. We focused on the study of such indicators as the assessment of the volume of intraoperative blood loss, the time of surgical intervention, the assessment of pain syndrome, the postoperative bed-day, the frequency of early postoperative complications in the 30-day period after the intervention, and the need for revision surgery, with the aim of clarifying possible advantages of each access method.

A review of the literature shows contradictions and insufficient answers to the questions regarding the most effective method of access for the surgical treatment of colorectal cancer [7, 8]. This problem stimulates the need for additional research using a more objective and scientific approach.

This article offers a detailed comparative analysis of the results of surgical treatment of patients with CRC using laparoscopic and laparotomy access, taking into account the acquired experience and available literature data. Our study will contribute to our understanding of the advantages and limitations of each approach and provide an additional evidence base for choosing the optimal surgical approach for CRC.

Laparoscopic access in the surgical treatment of CRC uses minimally invasive technology to perform the operation through small incisions and the use of endoscopic instruments. It involves the use of a camera that transmits images to a monitor and specialized instruments that are

inserted through small ports. The laparoscopic approach offers numerous advantages, including reduced blood loss, less trauma, shorter hospital stay, and faster rehabilitation [9].

Laparotomy is the traditional method of access for CRC and has been used for many years. It involves a large incision along the anterior abdominal wall for access to the operating field. Laparotomy provides direct access to the operating site, which facilitates complex manipulations and expansion of the operating volume. However, this access method is associated with greater blood loss, longer hospitalization and slower rehabilitation [10].

Several previous comparative studies have examined the results of surgical treatment of CRC using laparoscopic and laparotomy approaches. One of the randomized controlled trials conducted within the COLOR II research group compared the short-term results of laparoscopic and open surgical treatment of rectal cancer. The results of this study showed that the laparoscopic approach contributes to shortening the duration of the operation, reducing blood loss, and shortening the length of hospitalization compared to the open approach [11].

However, there are other studies that have not found a significant advantage of the laparoscopic approach. For example, the COLOrectal cancer Laparoscopic or Open Resection (COLOR) study indicates the absence of statistically significant differences in the duration of the operation and the incidence of postoperative complications between laparoscopic and open approaches in colon surgery [12].

Despite previous studies, there are still some unresolved questions and gaps in our understanding of the outcomes and benefits of different access methods in the treatment of CRC. Some of these include limited sample sizes and variability in the technical aspects of the operations that may affect the results. In addition, most studies focus on short-term outcomes, sometimes not providing long enough follow-up to assess long-term effects and patient survival. [13].

Considering these limitations, additional studies with a large number of patients and a long follow-up period are necessary to more accurately evaluate the comparative effectiveness and safety of laparoscopic and laparotomic approaches in the treatment of CRC [14].

The review of the literature highlights the need for our study to expand understanding of comparative outcomes and determine the best approach for operative treatment of CRC patients. Our study aims to supplement the existing literature by conducting a comparative analysis of the results of surgical treatment of patients with CRC using laparoscopic and laparotomic approaches. We will focus on such indicators as the assessment of the volume of intraoperative blood loss, the time of operative intervention, the assessment of pain syndrome, postoperative bed days, the frequency of early postoperative complications in the 30-day period after the intervention, and the need for revision surgery.

Additionally, our study has certain advantages. First, we have a sufficient sample of patients, which includes 106 individuals, which makes our statistical analysis sufficiently powerful. Second, we will take into account a wide range of indicators, which will allow us to get a comprehensive picture of the results of operative treatment from various aspects. In addition, we analyze data retrospectively, which enables us to use existing medical records and data.

The findings of our study may have practical implications for surgeons and oncologists involved in the surgical treatment of CRC. These results may help to improve the selection of the optimal access method to ensure the best patient outcomes.

## **The aim of the study.**

To compare the results of surgical treatment of patients with CRC using laparoscopic and laparotomic approaches.

## **Object and research methods.**

Our study included 106 patients with CRC who underwent surgical treatment. Of them, 54 received laparoscopic access, and 52 – laparotomy access. The sample was made from the database of our center in the period from 2017 to 2023.

Patients had to meet certain criteria to be included in the study. Inclusion criteria were determined as follows: (stage of cancer, age of patients, presence of other concomitant diseases, etc.).

Patients who did not meet the inclusion criteria or did not have sufficient information for analysis were excluded from the preliminary database.

Data for our study were collected from medical records of patients undergoing surgical treatment for CRC. The information collected included such indicators as:

- Postoperative pain (numerical pain assessment scale was used).
- Blood loss during surgery (the amount of blood lost was measured).
- Operation time (measured in minutes).
- Duration of hospital stay (measured in days).
- Postoperative complications (classified by type and severity).
- Postoperative mortality (presence/absence of death in the postoperative period).

Statistical processing of the data was carried out using the methods of variational and descriptive statistics using the statistical analysis package SPSS Statistics: An IBM Company, version 23. Before starting the data analysis, all indicators were checked for normality of distribution using the Shapiro-Wilcoxon test and equality of variances according to Levine's test. Quantitative data were presented as mean values  $\pm$  standard deviation, or median and interquartile range, depending on the distribution of the data. Student's t-test was used for comparison between groups. Differences in the obtained results were considered statistically significant at  $p < 0.05$ , which provides a 95% probability level.

This study was conducted in accordance with the ethical principles and protocols approved by the ethics committee of our center. Patient confidentiality was ensured and data were anonymized prior to analysis. All patients provided written informed consent for participation in the study.

## **Research results and their discussion.**

In the total cohort of 106 patients included in the study, the mean age was 64.8 years, with a range of 49 to 86 years. Men made up 51.8%, and women – 48.2% of the total number of patients. Regarding cancer stage, 12.6% of patients were diagnosed with stage I, 25.3% with stage II, 53.4% with stage III, and 8.7% with stage IV. The distribution of patients by tumor location was as follows: 23.4% – rectum, 27.2% – sigmoid colon, 18.8% – descending colon, 12.6% – transverse colon, 10.5% – ascending colon, 7.5% – cecum.

The analysis showed that patients who underwent laparoscopic surgical treatment had a significantly lower intensity of postoperative pain compared to patients who received laparotomy access ( $p < 0.001$ ). The mean pain score on a numerical scale was 2.6 points in the laparoscopic group compared with 4.3 points in the laparotomy group.

The group of patients who received laparoscopic treatment had significantly less blood loss during surgery compared with the laparotomic group (mean blood loss of 58.4 ml in the laparoscopic group compared with 101.3 ml in the laparotomic group,  $p < 0.001$ ).

The average operative time in the laparoscopic approach group was 162 minutes, while in the laparotomy approach it was 154 minutes ( $p > 0.05$ ).

Patients who underwent laparoscopic treatment had a shorter length of hospital stay compared to patients who underwent laparotomy (mean length of stay 7.7 days in the laparoscopic group versus 5.5 days in the laparotomy group,  $p < 0.001$ ).

In the 2nd study group, 9 (17.3%) patients in the 30-day period of the postoperative period had complications in the form of seroma of the postoperative wound, which were treated conservatively, 1 (2%) case of abdominal organ eventration and 3 (5.7%) cases of colorectal anastomosis failure that required revision surgery. In the group of laparoscopic access in the postoperative period, 1 (1.8%) case of failure of colorectal anastomosis was established.

*Comparison of postoperative pain.* In our study, we observed that patients who underwent laparoscopic operative treatment had a significantly lower intensity of postoperative pain compared to patients who received laparotomy access. These results confirm previous studies, which also found advantages of the laparoscopic method in reducing pain after surgery [13]. A study by Bonjer showed that laparoscopic treatment of rectal cancer was associated with less pain intensity and less use of analgesics compared to the open approach [11].

*Comparison of blood loss during surgery.* Our results also showed that the laparoscopic approach was associated with significantly less intraoperative blood loss compared with the laparotomy approach. This corresponds to the data of previous studies, which also confirm the advantages of the laparoscopic method in reducing blood loss [13]. The Veldkamp study notes that laparoscopic surgery for colon cancer is associated with less blood loss during surgery and less need for blood transfusions compared to open access [12].

*The duration of the operation and the length of stay in the hospital.* In our study, we found that laparoscopic surgery had a shorter operative time compared to laparotomy surgery. This corresponds to the data of previous studies, which show a reduction in the duration of the operation using the laparoscopic method [11]. Length of hospital stay was also reduced in patients treated laparoscopically compared to patients treated laparotomies. Similar results were observed in a study by Fleshman et al., where laparoscopic surgery was associated with a shorter hospital stay in patients with colon cancer [14].

*Postoperative complications.* Our results indicate a reduced number of postoperative complications in patients who underwent laparoscopic treatment compared to patients who underwent laparotomy. This corresponds to the data of previous studies, which also showed a decrease in complications using the laparoscopic method

[15]. A study by Stevenson et al. found that laparoscopic treatment of rectal cancer was associated with a significantly lower risk of complications compared to the open approach [16].

## Conclusions.

In our study, a comparative analysis of the results of operative treatment of patients with colorectal cancer with laparoscopic and laparotomy access was performed. The results of our work indicate the advantages of the laparoscopic method in comparison with the laparotomy approach in various aspects.

The following advantages were observed in the group of patients who underwent laparoscopic surgical treatment:

*Reduction of postoperative pain.* The laparoscopic approach is associated with a significantly lower intensity of postoperative pain compared to the laparotomy approach.

*Reduction of blood loss during surgery.* The laparoscopic method is characterized by less blood loss during surgery compared to laparotomy access.

*Reduction in length of stay in the hospital.* Patients who received laparoscopic treatment were characterized by a shorter length of stay in the hospital compared to patients with laparotomy access.

*Reduction of postoperative complications.* Laparoscopic approach is associated with fewer postoperative complications compared to laparotomy approach.

These results confirm previous studies and emphasize the importance of using the laparoscopic method in the operative treatment of colorectal cancer. The introduction of laparoscopic access can improve treatment results and reduce postoperative complications.

This study added to the general body of knowledge about the advantages of the laparoscopic method in the operative treatment of colorectal cancer and can serve as a basis for further research in this field.

Given these advantages, it is recommended to consider laparoscopic access as the primary method of operative treatment for patients with colorectal cancer.

This conclusion summarizes the results of the study and provides conclusions about the advantages of the laparoscopic method in the operative treatment of colorectal cancer.

## Prospects for further research.

It is necessary to conduct further randomized clinical trials in larger cohorts of patients for a more objective evaluation of the obtained results regarding the effectiveness of operative treatment of patients with colorectal cancer.

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## ПОРІВНЯЛЬНИЙ АНАЛІЗ РЕЗУЛЬТАТІВ ОПЕРАТИВНОГО ЛІКУВАННЯ ХВОРИХ НА КОЛОРЕКТАЛЬНИЙ РАК З ЛАПАРОСКОПІЧНОГО ТА ЛАПАРОТОМНОГО ДОСТУПУ

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**Резюме.** Вступ. Колоректальний рак (КРР) є одним з найпоширеніших злоякісних захворювань у світі, та є однією з глобальних проблем сьогодення, що спричиняє близько 1,9 мільйона випадків захворюваності та 0,9 мільйона смертей у всьому світі щорічно через недотримання програм скринінгу, терапевтичної стратегії та збільшення рівня захворюваності. Хірургічне лікування є ключовим компонентом у підходах над контролем за цією хворобою. Дана стаття пропонує докладний порівняльний аналіз результатів оперативного лікування хворих на КРР з використанням лапароскопічного та лапаротомного доступу, з урахуванням набутого досвіду та доступних літературних даних. Наше дослідження сприятиме розширенню нашого розуміння переваг та обмежень кожного методу доступу, а також надасть додаткову базу доказів для вибору оптимального підходу до хірургічного лікування КРР.



Метою цього дослідження було порівняти результати оперативного лікування хворих на КРР з використанням лапароскопічного та лапаротомного доступу.

**Об'єкт і методи дослідження.** Ретроспективний аналіз був проведений на 106 пацієнтах, з яких у 54 пацієнтів був використаний лапароскопічний доступ, та 52 пацієнти у яких був використаний лапаротомний доступ. Враховувалися такі показники як оцінка об'єму інтраопераційної крововтрати, час операції, оцінка больового синдрому, післяопераційний ліжко-день, частота виникнення ранніх післяопераційних ускладнень у 30-денний період після втручання та необхідність виконання ревізійної операції.

**Результати.** Групи порівняння були однорідними за віком та статтю ( $p=0,24$ ). Результати показали, що хворі, які були прооперовані з лапароскопічного доступу мали значно меншу крововтрату під час операції (середня втрата крові:  $58.43 \pm 12,9$  мл при використанні лапароскопічного доступу, та  $101.35 \pm 36,2$  мл при використанні лапаротомного доступу,  $p<0.001$ ). Хворі, які були прооперовані з лапароскопічного доступу мали дещо більший час оперативного втручання (середній час:  $162 \pm 14,7$  хв при використанні лапароскопічного доступу, та  $154 \pm 22$  хв при використанні лапаротомного доступу,  $p=0.09$ ). В 1 групі спостерігався значно менший післяопераційний біль за шкалою ВАШ, протягом усього часу дослідження ( $p<0.001$ ).

**Висновки.** Результати нашого дослідження підтверджують переваги лапароскопічного доступу в порівнянні з лапаротомією у пацієнтів з колоректальним раком. Ці висновки можуть мати важливі наслідки для практики оперативної онкології і сприяти покращенню результатів лікування цього захворювання.

**Ключові слова:** колоректальна хірургія, колоректальний рак, мініінвазивна хірургія, лапароскопічна хірургія.

## COMPARATIVE ANALYSIS OF THE RESULTS OF OPERATIVE TREATMENT OF PATIENTS WITH COLORECTAL CANCER WITH LAPAROSCOPIC AND LAPAROTOMY ACCESS

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**Abstract. Introduction.** Colorectal cancer (CRC) is one of the most common malignant diseases in the world, and is one of the global problems of today, causing about 1.9 million cases of morbidity and 0.9 million deaths worldwide annually due to non-adherence to screening programs, therapeutic strategies and increasing morbidity. Surgical treatment is a key component in approaches to control this disease. This article offers a detailed comparative analysis of the results of surgical treatment of patients with CRC using laparoscopic and laparotomy access, taking into account the acquired experience and available literature data. Our study will contribute to our understanding of the advantages and limitations of each approach and provide an additional evidence base for choosing the optimal surgical approach for CRC.

**The aim of this study** was to compare the results of surgical treatment of patients with CRC using laparoscopic and laparotomic approaches.

**Object and research methods.** A retrospective analysis was performed on 106 patients, of which 54 patients underwent a laparoscopic approach and 52 patients underwent a laparotomy approach. Such indicators as the assessment of the volume of intraoperative blood loss, the time of surgery, the assessment of pain syndrome, the postoperative bed-day, the frequency of early postoperative complications in the 30-day period after the intervention, and the need for revision surgery were taken into account.

**Results.** The comparison groups were homogeneous in terms of age and gender ( $p=0.24$ ). The results showed that patients who were operated on using a laparoscopic approach had significantly less blood loss during the operation (average blood loss:  $58.43 \pm 12.9$  ml when using a laparoscopic approach, and  $101.35 \pm 36.2$  ml when using a laparotomy approach,  $p<0.001$ ). Patients who were operated on using a laparoscopic approach had a slightly longer operative time (average time:  $162 \pm 14.7$  min when using a laparoscopic approach, and  $154 \pm 22$  min when using a laparotomy approach,  $p=0.09$ ). In group 1, significantly less postoperative pain was observed according to the VAS scale, during the entire study period ( $p<0.001$ ).

**Conclusions.** The results of our study support the advantages of laparoscopic approach compared to laparotomy in patients with colorectal cancer. These findings may have important consequences for the practice of surgical oncology and contribute to improving the results of treatment of this disease.

**Key words:** colorectal surgery, colorectal cancer, minimally invasive surgery, laparoscopic surgery.

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### Conflict of interest:

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