

# Postoperative complications of videolaparoscopic colorectal surgery in patients with oncological pathologies: Experience at the Social Security Institute - Ingavi, from April 2022 to December 2024

*Complicaciones postoperatorias de cirugías colorrectales videolaparoscópicas en pacientes con patologías oncológicas: Experiencia en el Instituto de Previsión Social – Ingavi, de Abril del 2022 a Diciembre del 2024*

Luz Janina Franco Chávez\* , Walter Osmar Zayas\*\* , Natalia Esther Ayala Barreto\* , Juan Carlos Zaracho\*\*

*Instituto de Previsión Social, Paraguay*

## ABSTRACT

**Introduction:** Colon cancer is the most frequent malignancy of the digestive tract. Its primary treatment consists of surgical resection, with laparoscopic surgery currently recommended due to its association with shorter hospital stays and reduced healthcare costs. **Objective:** To describe the postoperative complications observed in laparoscopic colorectal surgeries performed on patients with oncological conditions at the Instituto de Previsión Social – INGAVI between April 2022 and December 2024. **Materials and Methods:** This was an observational, descriptive, retrospective, cross-sectional study. Patients over 18 years of age with a histopathological diagnosis of colon or rectal cancer who underwent elective surgery during the study period were included. **Results:** A total of 85 patients were included, 47 of whom were female, with a mean age of 65.6 years. Ten patients presented postoperative complications, with anastomotic dehiscence being the most frequent. **Conclusion:** Laparoscopic colorectal surgery is considered a safe technique. In this study, the overall complication rate was 11.7%, with anastomotic dehiscence being the most frequent complication, higher than reported worldwide. The occurrence of complications was associated with a significant increase in hospital stay, from 7.8 to 21.5 days.

**Keywords:** *Colorectal Neoplasms, postoperative complications, Surgical Procedures.*

## RESUMEN

**Introducción:** El cáncer de colon es la neoplasia más frecuente del tubo digestivo. Su tratamiento consiste la resección quirúrgica, siendo la cirugía laparoscópica la recomendada en la actualidad, dado que se asocia con menor estancia hospitalaria y reducción de costos. **Objetivo:** describir las complicaciones postoperatorias presentadas en cirugías videolaparoscópicas colorrectales realizadas en pacientes con patologías oncológicas en el Instituto

de Previsión Social – INGAVI, de abril del 2022 a diciembre del 2024. **Material y método:** Estudio observacional, descriptivo, retrospectivo, de corte transversal. Se incluyeron pacientes mayores de 18 años, con diagnóstico anatomopatológico de cáncer de colon o recto, que acudieron al servicio entre los meses de abril del 2022 a diciembre del 2024, para cirugía programada. **Resultados:** se incluyeron 85 pacientes, 47 del sexo femenino, con media de edad de 65,6 años; 10 presentaron complicaciones postoperatorias, siendo la dehiscencia de la anastomosis la más frecuente. **Conclusión:** se ha descrito que la cirugía colorrectal por videolaparoscopia es una técnica segura, en el estudio se reporta una tasa de complicaciones del 11,7%, siendo la dehiscencia de la anastomosis la más frecuente, mayor a lo reportado a nivel mundial. La aparición de complicaciones aumentó significativamente la estancia hospitalaria de 7,8 a 21,5 días.

**Palabras claves:** neoplasias colorrectales, complicaciones postoperatorias, procedimientos quirúrgicos.

## INTRODUCTION

Colon cancer represents 9.4–10.6% of all tumors, in men and women respectively<sup>(1)</sup>. It is the most common neoplasm of the digestive tract, whose treatment involves surgical resection, whether curative or palliative, either through conventional approach or minimally invasive surgery<sup>(2)</sup>.

Similar complication rates have been described between the conventional and laparoscopic approaches, with the latter currently recommended, as they are associated with shorter hospital stays and therefore reduced hospital costs<sup>(3)</sup>. Minimally invasive surgery has become the method of choice for the treatment of non metastatic colon cancer, with even greater benefits when performing an intracorporeal anastomosis

\*3rd Year General Surgery Resident, Instituto de Previsión Social

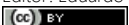
\*\*Room Chief of General Surgery Services, Instituto de Previsión Social.

**Corresponding author:** Luz Janina Franco - E-mail: luzjanina98@gmail.com

Received: 09/09/2025 - Revised: 21/09/2025 - Accepted: 20/11/2025

Revisor: Carlos Arce Aranda MSP y BS

Editor: Eduardo González Miltos Universidad Nacional de Asunción; San Lorenzo, Paraguay

 This is an open access article published under a Creative Commons License

compared to an extracorporeal one. Although disadvantages such as the risk of intraoperative contamination and technical difficulties during its performance are mentioned, it entails less intraoperative bleeding, earlier release of flatus and intake of a soft diet, and shorter hospital stay <sup>(4)</sup>.

The objective of the study was to describe the postoperative complications that occurred in colorectal videolaparoscopic surgeries performed on patients with oncological pathologies at the Instituto de Previsión Social – INGAVI, from April 2022 to December 2024.

## MATERIAL AND METHOD

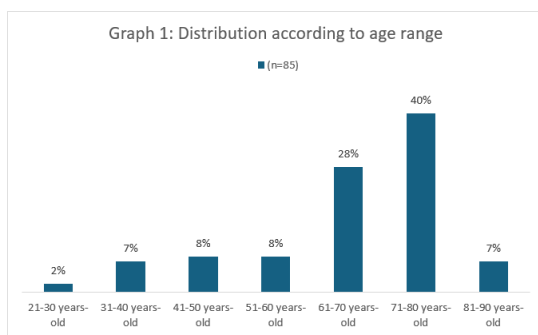
Observational, descriptive, retrospective, cross sectional study. Patients of both sexes, over 18 years of age, with a preoperative anatomopathological diagnosis of colon or rectal cancer, who attended the General Surgery service of the Instituto de Previsión Social – INGAVI between April 2022 and December 2024 for scheduled surgery, were included. Patients with incomplete clinical and anatomopathological records were excluded.

The variables studied were sex, age, postoperative anatomopathological diagnosis, surgery performed, number of lymph nodes resected, days of hospitalization, and complications. The data was collected through the Hospital Information System (HIS), loaded in an Excel spreadsheet prepared for this purpose. Statistical analyses involved absolute frequency and percentage.

## RESULTS

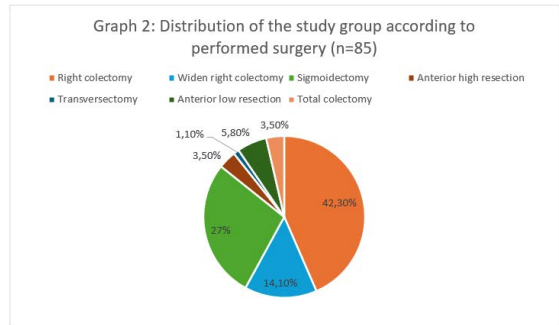
A total of 85 patients with diagnosed colon and/or rectal cancer admitted for scheduled surgery at the General Surgery Service of the Instituto de Previsión Social – INGAVI, between April 2022 and December 2024, were included; of these, 47 (55%) were female and 38 (45%) were male, with a mean age of 65.68 years (range 28–87 years) (*Graph 1*).

**Graph 1:** Distribution according to age range (n=85).

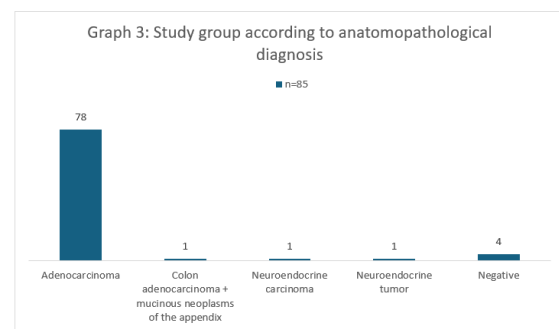


Regarding the surgery performed, right colectomy was the most frequent with 36 cases (42.3%), followed by sigmoidectomy in 23 cases (27%) (*Graph 2*). As for the anatomopathological diagnosis, the presence of adenocarcinoma was confirmed in 78 cases (91.7%), while it was negative in 4 cases (*Graph 3*).

**Graph 2:** Distribution of the study group according to performed surgery (n=85).



**Graph 3:** Study group according to anatomopathological diagnosis (n=85).



The average number of resected lymph nodes was 18.3 (minimum of 7 and maximum of 49). Ten patients (11.7% of the cases in the series) presented postoperative complications: 6 cases of anastomotic dehiscence, 3 cases of surgical site infection, 1 patient with necrosis of the transverse colon, 1 case with intra abdominal collections, and 3 patients ultimately died.

The mean hospital stay was 7.8 days in those patients who did not present postoperative complications, and 21.5 days in those who did.

## DISCUSSION

Colorectal cancer represents the third leading cause of cancer related death worldwide, of which colon cancer accounts for 60% of cases, and up to 15% of these are diagnosed at a locally advanced stage <sup>(5)</sup>. In a study conducted in the country, it was found that most cases of colon cancer were diagnosed in patients aged 60 to 71 years, which does not coincide with what was described in our study, in which a predominance was found between 71 and 80 years <sup>(6)</sup>.

Videolaparoscopic surgery is the approach of choice in most referral centers; however, it is accompanied by variable morbidity ranging from 6–30% and mortality between 0–4.5%. A complication rate of up to 11.8% has been reported in

countries of the region, consistent with what was observed in our study <sup>(7)</sup>. In a study conducted in the country, up to 9% anastomotic dehiscence was described in the treatment of colon cancer, which is higher than that of our center at 7% <sup>(8)</sup>, and this, in turn, is higher than what has been reported in studies carried out in high complexity centers worldwide, at 4.9% <sup>(9)</sup>.

Worldwide, the use of fluorescence angiography with indocyanine green has been described as an auxiliary method for reducing anastomotic leaks, highlighting an absolute reduction of 4.7% in leaks with its implementation <sup>(10)</sup>.

The presence of lymph node metastasis is key for the initiation of postoperative adjuvant therapy and, likewise, for predicting long term overall survival; although it has been demonstrated that a wide resection is accompanied by a greater number of resected lymph nodes, this does not translate into a higher rate of positivity for malignancy. The average number of lymph nodes resected in our study was 18.3, which corresponds to the minimum of 12 lymph nodes recommended by the American Joint Committee on Cancer <sup>(11)</sup>.

Oncological and survival outcomes have been described as similar between minimally invasive surgery and the open approach, but short term complications have been reduced with the former <sup>(12)</sup>. In our study, although the morbidity mortality rate is consistent with what has been reported at the regional level, it remains higher than what has been described worldwide <sup>(13)</sup>.

The occurrence of complications significantly increased the hospital stay from 7.8 to 21.5 days.

Although the incidence of postoperative complications described falls within the range reported at the regional level, it suggests the need for a review of surgical, technical, and perioperative care protocols, considering the direct impact of morbidity on healthcare resources, reflected in the increase in the mean hospital stay.

Long term complications that may occur, such as intestinal obstruction, incisional hernias, and recurrences, fall outside the scope of this study.

## CONCLUSION

It is concluded that videolaparoscopic colorectal surgery constitutes a safe and effective technique, in accordance with the available evidence; however, in the studied population a complication rate of 11.7% was observed, with anastomotic dehiscence being the most frequent and with an incidence higher than that reported worldwide. The occurrence of complications had a relevant clinical and healthcare impact, evidenced by the significant increase in the average hospital stay from 7.8 to 21.5 days, with the consequent implications for patient outcomes and the use of healthcare resources; in this sense, the findings highlight the importance of optimizing strategies for prevention, early detection, and timely management of complications, as well as promoting prospective studies that allow the identification of risk factors and improvement of the outcomes of videolaparoscopic colorectal surgery in the local context.

## CONFLICT OF INTERESTS

The authors declare that they have no conflicts of interest related to the conduct of the present study, its analysis, interpretation of the results, or the publication thereof.

## AUTHOR'S CONTRIBUTIONS

The authors jointly and complementarily participated in the different stages of the study. Some contributed to the conception of the idea and the methodological design of the research, as well as to the critical review of the content and the drafting and approval of the final version of the manuscript. Others were involved in the search for information, data collection, and analysis of the results. Likewise, there were relevant contributions in the interpretation of the data, the critical review of the work, and the preparation of the final report, ensuring the scientific quality and coherence of the document presented for publication.

## REFERENCES

1. Podda M, Pisanu A, Morello A, Segalini E, Jayant K, Gallo G, et al. Laparoscopic versus open colectomy for locally advanced T4 colonic cancer: meta-analysis of clinical and oncological outcomes. *Br J Surg*. 2022 Apr 2;109(4):319-31. doi:10.1093/bjs/znac030.
2. Elizeche PES, Scavone EMS, Escurra MNF, Martínez M, Aguilera GMR, Sanabria G, et al. Comparación de las características y morbilidad en cirugías oncológicas colorrectales con anastomosis primarias en pacientes de edad avanzada según vía de abordaje. *Rev Cir Parag*. 2024 Jun 27;48(1):12-5. doi:10.18004/rdc.2024.junio.12-5.
3. Lygre KB, Eide GE, Forsmo HM, Dicko A, Storli KE, Pfeffer F. Complications after open and laparoscopic right-sided colectomy with central lymphadenectomy for colon cancer: randomized controlled trial. *BJS Open*. 2023 Aug 29;7(4):zrad074. doi:10.1093/bjsopen/zrad074.
4. Zheng Z, Du Q, Huang L, Yang L, Zhou Z. Laparoscopic assisted colectomy versus laparoscopic complete colectomy: a cost analysis. *Updates Surg*. 2024;76(6):2151-62. doi:10.1007/s13304-024-01813-7.
5. Chen P, Zhou H, Chen C, Qian X, Yang L, Zhou Z. Laparoscopic vs. open colectomy for T4 colon cancer: a meta-analysis and trial sequential analysis of prospective observational studies. *Front Surg*. 2022;9:1006717. doi:10.3389/fsurg.2022.1006717.
6. Montiel Roa AJ. Clínica presentación asociada con la ubicación de colon cancer in the General Surgery Service of the IPS Central Hospital. *Period January 2017–December 2018*. *Rev Cir Parag*. 2020 Aug 30;44(2):16-8. doi:10.18004/rdc.2020.agosto.16-8.
7. Gellona VJ, Miguéles CR, Espinola MD, Urrejola SG, Molina PME, Inostroza LG, et al. Factores asociados a morbilidad precoz en cirugía colorrectal laparoscópica. *Rev Chil Cir*. 2013 Sep;65(5):415-20. doi:10.4067/S0718-40262013000500007.
8. Aguilera P, Fretes Alvarenga D, Insrán S, Lezcano R, Verdecchia C. Tratamiento quirúrgico del cáncer de colon en el Hospital Militar Central de las Fuerzas Armadas. *Periodo febrero 2017 a febrero 2019*. *Rev Cir Parag*. 2021 Abr;45(1):16-19. doi: 10.18004/sopaci.2021.abril.16.
9. Sahakyan AM, Aleksanyan A, Batikyan H, Petrosyan H, Sahakyan MA. Standard and multivisceral colectomy in locally advanced colon cancer. *Radiol Oncol*. 2020 May 28;54(3):341-6. doi:10.2478/raon-2020-0041.
10. Kazi M, Ajith A, Bhojar A, Yelamanchi R. Fluorescence imaging in reducing anastomotic leak after left-sided colorectal resections: a systematic review and updated meta-analysis. *ANZ J Surg*. 2024 Dec;94(12):2128-36. doi:10.1111/ans.18948.
11. Lavy R, Madjar-Markovitz H, Hershkovitz Y, Sandbank J, Halevy A. Influence of colectomy type and resected specimen length on number of harvested lymph nodes. *Int J Surg*. 2015 Dec;24:91-4. doi:10.1016/j.ijssu.2015.10.016.
12. Huang Z, Li T, Zhang G, Zhou Z, Shi H, Tang C, Yang L, Lei X. Comparison of open, laparoscopic, and robotic left colectomy for radical treatment of colon cancer: a retrospective analysis in a consecutive series of 211 patients. *World J Surg Oncol*. 2022;20:345. doi:10.1186/s12957-022-02796-8.
13. Wilson MZ, Dillon PW, Hollenbeak CS, Stewart DB. How do risk factors for mortality and overall complication rates following laparoscopic and open colectomy differ between inpatient and post-discharge phases of care? A retrospective cohort study from NSQIP. *Surg Endosc*. 2014;28(12):3392-3400. doi:10.1007/s00464-014-3609-4.