

The impact of COVID-19 pandemic on IBD surgery: a single center experience

D. PASTENA¹, M. GIAMBUSSO¹, A.E. POTENZA¹, P. CAPRINO¹, F. SACCHETTI¹, A. ARMUZZI², L. SOFO¹

¹Abdominal Surgery Unit, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome, Italy

²IBD Center, IRCCS Humanitas Research Hospital, Rozzano, Milan, Italy

Abstract. – OBJECTIVE: The spread of COVID-19 pandemic forced the national healthcare system to reorganize almost all surgical services, in order to maintain an adequate therapeutic offer. At General Surgery department of Fondazione Policlinico Gemelli in Rome, surgical procedures were progressively reduced to provide beds and personnel for COVID-19. The aim of our study was to analyze the effect of one year of COVID-19 pandemic on Inflammatory Bowel Disease (IBD) surgery in a cohort of patients and evaluate post-operative short-term complications.

PATIENTS AND METHODS: Our team retrospectively analyzed the records of IBD patients who were referred to an IBD-related resective surgery from January 2020 to December 2020. These patients were compared to a comparable group of IBD patients who were operated from January 2019 to December 2019.

RESULTS: A total of 160 patients were included in the study. Median age was 44 (range 15-77). Patients were referred for Ulcerative colitis (23.1%) and Crohn's disease (76.9%). Eighty-three patients underwent surgery from January 2020 to December 2020, which constitutes a 4.6% increase in the number of patients compared to the same period in 2019. Median post-operative hospital stay increased (7 days in 2019 vs. 6 days in 2020). Laparoscopic was the most frequently performed procedure during both periods (49% in 2019 and 59% in 2020). Complication rates, reported as Clavien-Dindo score 3 or 4, slightly decreased in 2020 (6.5 in 2019 vs. 4.8 in 2020). PCR test for detection of COVID-19 infection was conducted in all the patients before the hospitalization. Two patients out of 70 were tested positive for COVID-19 and their surgeries were rescheduled.

CONCLUSIONS: There was no significant reduction in IBD resective surgeries at our center in 2020, nor a deterioration of the outcomes. A reduction of other elective surgical procedures had to be carried out and adequate protective measures for both patients and healthcare workers were established.

Key Words:

IBD, Crohn, Ulcerative colitis, COVID-19.

Introduction

The unprecedented worldwide occurrence of the coronavirus SARS-CoV-2 (COVID-19) pandemic¹ had a profound effect on National Italian Health care system, impacting patients and reducing healthcare activities for a time period that is yet to be accurately estimated. Moreover, the high contagiousness of the virus leaves the medical caregivers exposed and at high-risk of a contamination, which may seriously limit healthcare capacities².

From the very beginning of the pandemic Italy was one of the most affected countries. The brutal speed of COVID-19 transmission placed significant burden on the healthcare system, testing its strength and adaptability. Surgical wards were drastically reduced over this period and converted into intensive care units. Non-essential and non-oncologic procedures were cancelled, and a number of beds used for surgical patients had to be reduced in favor of COVID-19 units. Personnel was reallocated.

In the context of these unprecedented events, patients with inflammatory bowel disease (IBD), such as Ulcerative Colitis (UC) and Crohn's Disease (CD), are prescribed immunosuppressive medications such as corticosteroids, immunomodulators, biologic therapies, and Janus-kinase inhibitors, which are linked with a higher risk of infections³. It must also be considered that Crohn Disease and Ulcerative Colitis are chronic relapsing inflammatory diseases of the gut, resulting in a partial loss of homeostasis between the intestinal immune system and the gut micro-

biome⁴. This lack of balance may contribute to an increased risk of infections and complications for IBD patients⁵.

In the current study, we aimed to investigate whether or not the resective surgical treatment in IBD patients was influenced by the COVID-19 pandemic (Figure 1), comparing two different time periods (from January 1st to December 2019 and from January 1st to December 2020).

Patients and Methods

This was a single center retrospective study carried out in the Abdominal Surgery Department of Fondazione Policlinico Gemelli IRCCS, Rome, Italy. We reviewed the records of patients undergoing IBD-related resective surgery from January to December 2019 and from January to December 2020. All data were obtained from electronic medical data records. Information collected included the patient's age, gender, type of surgery, postoperative complications and postoperative length of hospital stay.

Results

A total of 160 patients were included in the study. Median age was 44 (range 15-78). Patients were referred for UC (37 patients, 23.1%), Crohn

disease (123 patients, 76.9%). A total of 83 patients underwent surgery from January to December 2020, and this represents a 4.6% increase in the number of patients compared to the same period of 2019. Median post-operative hospital stay increased (7 days in 2019 vs. 6 days in 2020), due to a single patient long lasting hospital stay for enteric fistula. Laparoscopic was the most used procedure in both periods (49% in 2019 and 59% in 2020). Complication rates, reported as Clavien-Dindo score 3 or 4, slightly decreased in 2020 (6.5% in 2019, 4.8% in 2020) (Figure 2). PCR test for detection of COVID-19 infection was conducted in all these patients before the hospitalization. Two patients out of 160 were tested positive for COVID-19, their surgeries were rescheduled as soon as their test turned out negative. None of the patients who underwent surgery turned COVID-19 positive during the hospital stay.

Conclusions

Our retrospective study showed that we were able to safely treat our patients during the COVID-19 pandemic, avoiding delays which may have led to a worse outcome. In the very beginning of the pandemic, most of the hospitals in our region exceeded their capacities to admit patients. Moreover, many doctors, nurses and other staff

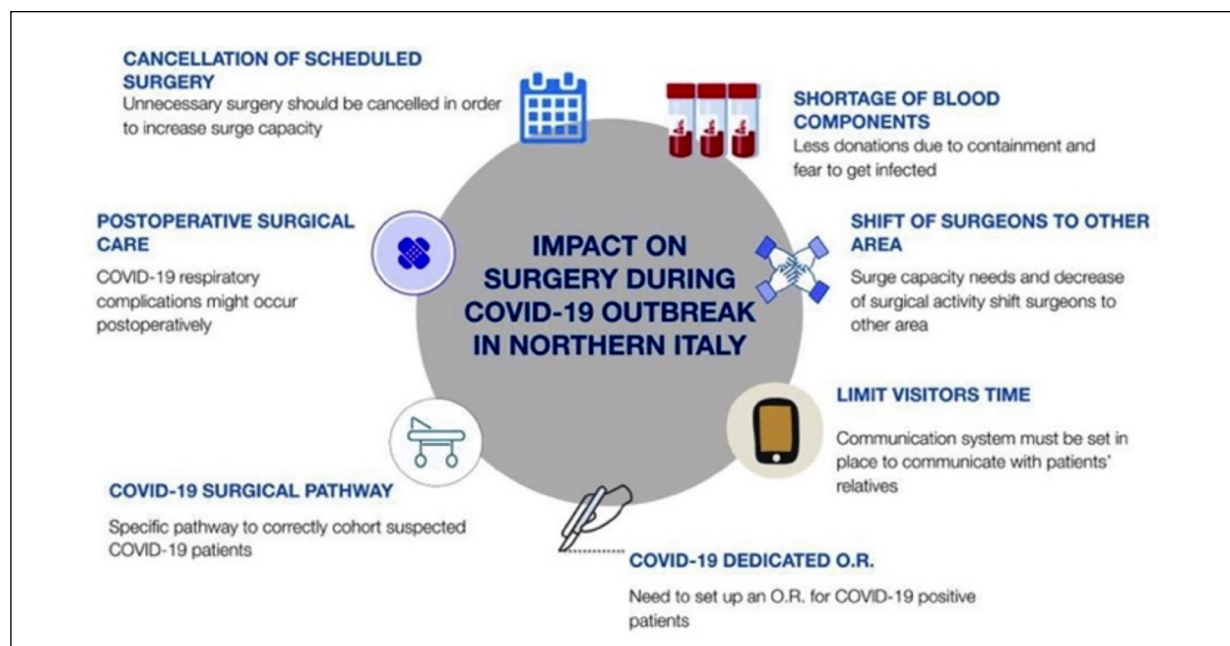


Figure 1. Consequences of COVID-19 infection on surgical activity in Northern Italy.

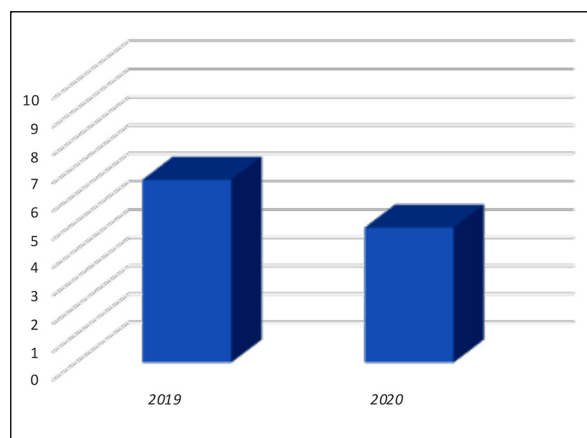


Figure 2. Complication rates, reported as Clavien-Dindo score 3 or 4, slightly decreased in 2020 (6.5 in 2019, 4.8 in 2020).

were reassigned to COVID-19 wards. In our center we were forced to cancel elective surgeries, such as stoma closure, cholecystectomy and hernia repair, but not those with curative intent, such as cancer surgery and IBD-related surgery, which could not be delayed⁶. Starting from March 4th 2020, when Italian Authorities introduced social restrictions, all the patients had to be tested PCR negative and were asked to wear a mask before the hospitalization. The infection risk for healthcare workers was also a concern. In laparoscopic surgery, the pneumoperitoneum may produce an increased risk of aerosol exposure for the operation team⁷. Previous studies found out how papillomavirus, corynebacterium and HIV have been detected in surgical smoke produced by electrical scalpels^{8,9} and several doctors contracted a rare papillomavirus¹⁰ suspected to relate to the exposure. The risk of COVID-19 infection may be analogically increased. To reduce the exposure, the sudden release of trocar valves was avoided, the pneumoperitoneum was reduced before small abdominal extractions, smoke evacuators and filters were used, and all the surgical team members wore an FFP2 mask during the surgery. None of the members of our surgical team were infected (0 out of 9). In the end, adequate care standard for IBD patients requiring surgery was maintained and did not compromise healthcare workers' safety.

Conflict of Interest

The Authors declare that they have no conflict of interests.

Acknowledgements

None.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

Authors' Contribution

All the authors have made substantial contributions to the conception and design of the study, data acquisition, or data analysis and interpretation, drafting of the article or critically revising it for important intellectual content, final approval of the version to be submitted.

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Ethical Approval

All the study was based on hospital data obtained consulting clinical records, therefore ethical disclosure was not necessary.

ORCID ID

Mauro Giambusso: 0000-0003-1656-6861.

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