Minerva Chirurgica (New title: Minerva Surgery)
EDIZIONI MINERVA MEDICA

ARTICLE ONLINE FIRST
This provisional PDF corresponds to the article as it appeared upon acceptance.
A copyedited and fully formatted version will be made available soon.
The final version may contain major or minor changes.

The Impact of COVID-19 Pandemic on a Tertiary Referral Proctology Center: No One Should Be Left Behind

Iacopo GIANI, Gaetano GALLO, UGO GROSSI, Cinzia TANDA, CHIARA LINARI, Claudio ELBETTI, Resumption of Proctology Algorithm Working Group

Minerva Surgery 2021 Jun 23
DOI: 10.23736/S2724-5691.21.08897-3

Article type: Original Article

© 2021 EDIZIONI MINERVA MEDICA

Supplementary material available online at http://www.minervamedica.it
Article first published online: June 23, 2021
Manuscript accepted: May 11, 2021
Manuscript received: March 28, 2021

Subscription: Information about subscribing to Minerva Medica journals is online at:
http://www.minervamedica.it/en/how-to-order-journals.php
Reprints and permissions: For information about reprints and permissions send an email to:
journals.dept@minervamedica.it - journals2.dept@minervamedica.it - journals6.dept@minervamedica.it

EDIZIONI MINERVA MEDICA

COPYRIGHT© EDIZIONI MINERVA MEDICA

The Impact of COVID-19 Pandemic on a Tertiary Referral Proctology Center: No One Should Be Left Behind

Iacopo Giani,[1] Gaetano Gallo,[2] Ugo Grossi,[3] Cinzia Tanda,[1] Chiara Linari,[1] Claudio Elbetti,[1] Resumption of Proctology Algorithm Working Group[1*]

1. SOSD Proctologia USL Toscana Centro, Italy

2. Department of Medical and Surgical Sciences, University of Catanzaro, Catanzaro, Italy

3. IV Surgery Unit, Regional Hospital Treviso, DISCOG, University of Padua, Italy

[*] Collaborators to be indexed: Paolo Dreoni, Gianni Rossi, Filippo Caminati, Silvia Grassi, Federico Bettazzi, Francesco Feroci. Affiliation: SOSD Proctologia USL Toscana Centro, Italy

Corresponding author: Ugo Grossi, MD PhD, IV Surgery Unit, Regional Hospital Treviso, DISCOG, University of Padua, Italy; ugo.grossi@aulss2.veneto.it.

ORCID IDs:

Iacopo Giani: 0000-0001-6077-6319

Gaetano Gallo: 0000-0003-1066-4671

Ugo Grossi: 0000-0001-5372-2873

Chiara Linari: 0000-0002-4123-1863

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

COPYRIGHT© EDIZIONI MINERVA MEDICA

ABSTRACT

BACKGROUND: Coronavirus disease 2019 (COVID-19) has disrupted healthcare delivery. We aimed to describe a novel strategy to mitigate the impact of COVID-19 pandemic on a tertiary referral proctology center during the first wave of infection in Italy.

METHODS: All patients booked appointments at the Proctology Unit between March 9th and May 4th 2020 were identified. Patients booked for a first visit underwent a structured remote consultation. Patients with perianal or sacrococcygeal abscesses, major anorectal bleeding, incoercible anal pain and red flags for malignancy were labelled as 'non-deferrable'. A flowchart was designed to comply with adequate assistance of proctologic patients. Demographics, clinical data and outcomes of in-office procedures were collected.

RESULTS: On a total of 548 booked visits, 198 (36.1%) were cancelled before remote consultation. Of the remaining 350, 112 (32.0%) attended a follow-up visit. Among 238 (68.0%) patients undergoing remote consultation, 88 (25.1%) were deemed 'deferrable' and 148 (42.3%) 'non-deferrable'. 2 (0.6%) were hospitalized for COVID-19 while waiting for an outpatient visit. 25/88 (28.4%) deferrable patients cancelled their appointment as felt no longer necessary. A total of 45/148 (30.4%) non deferrable patients (mean age, 46 years; 31% females) underwent in-office procedures, most often related to anal abscess and/or fistula (48.9%). Final diagnosis of malignancy occurred in 4 cases. A 55% increase in the number of in-office procedures was noted compared to the previous year. None of the attending patients nor staff members resulted COVID-19 positive during the study period.

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

COPYRIGHT© EDIZIONI MINERVA MEDICA

CONCLUSIONS: Despite the uncertainties accompanying the use of remote consultations in proctology, the results of this study may inform the development of strategies for restructuring activities in response to future emergencies of this magnitude.

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

COPYRIGHT© EDIZIONI MINERVA MEDICA

INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has brought about epochal changes to our lives. In late December 2019, a cluster of cases of unexplained viral pneumonia in Wuhan, China,[1] marked the beginning of worldwide concern. As of January 26th 2021, the number of infections passed the 100 million mark.[2]

The first Italian case of Coronavirus disease 2019 (COVID-19) was confirmed on January 30th 2020. Since then, the exponential epidemic growth largely affected the northern regions, with subsequent spread to the rest of the country.[3]

On March 9th 2020, the Italian Prime Minister signed a decree imposing quarantine measures to the entire country followed by a second decree introducing measures to strengthen the national health service.[4] In compliance with the provisions of the Italian Government in response to staff shortages and overwhelming workload, all elective non-cancer procedures and outpatient clinics were suspended.[5]

We were thus forced to reorganize our Proctology Unit in order to avoid discontinuation of practice.[6] This study describes the measures adopted to achieve such goal, providing details on the management of proctologic cases during the lockdown phase.

MATERIALS AND METHODS

All patients booked appointments at our Proctology Unit, between March 9th and May 4th 2020 were identified. The clinical care pathway undertaken during the emergency phase is described in Figure 1. Patients booked for a first visit underwent a digital consultation (by telephone and/or video call in order to first determine the reason for referral and thence assign a degree of priority [Digital Proctologic History – DPH]). This step also allowed to establish the risk of COVID infection

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

(Digital COVID History – DCH) for non-deferrable cases (Appendix 1). Informed consent was obtained from all enrolled participants.

Patients with perianal or sacrococcygeal abscesses, major anorectal bleeding, incoercible anal pain and red flags for malignancy (e.g. strong family history of colorectal cancer, rectal bleeding, unintentional weight loss, suspicious anal or perianal lesions) were labelled as 'non-deferrable'. All other patients were deemed 'deferrable', and as such rescheduled for an in-person appointment within 3 months. They were given practical or pharmacological advices and instructed to contact our unit as needed, while strongly discouraged to attend the local emergency department unless strictly necessary.

COVID-19 negative patients on remote screening were invited to attend a face-to-face visit, while those suspect or confirmed positive were deferred until a second DCH 15 days later, to assess the need for an in-person appointment.

Post-operative visits were carried out upon absence of suspect symptoms and confirmed COVID-19 negativity as certified by the General Practitioner and at hospital triage station before entering the clinic.

All elective surgeries were postponed. Therefore, patients were given instruction to contact the unit by email or phone as for 'deferrable' cases.

In order to unburden hospital capacities, the in-office setting was the preferred modality for surgical procedures. The following disposable personal protective equipment (PPE) were used: gloves, gowns, FFP2 masks, and face shields.

Urgent referrals underwent surgery after testing negative for COVID-19 by oropharyngeal swab.

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

In addition, all patients at high risk of clinical deterioration at the time of DPH or undergoing surgery were given a 24-hour helpline.

A flowchart was designed to comply with adequate assistance of proctologic patients. Phone calls and/or emails served to capture any clinical worsening, the need of an urgent intervention while on the waiting list, or a suspect delayed cancer diagnosis.

The proctologic activity was therefore summarized as follows: a) outpatient clinical visits (including first consultation and follow-up appointments); b) endoanal ultrasound; c) office-based surgeries; d) urgent procedures; and e) video consultations.

Demographic data (age, gender), diagnosis, type of intervention, intra- and post-operative complications, pre- and post-operative (on day 1 and 7) mean pain and post-operative mean satisfaction rate using an 11-point visual analogue scale (VAS), and clinical outcome (descriptive) of patients undergoing in-office procedures were collected. All data were recorded on a prospectively built electronic database (Argos, Dedalus Healthcare System Group, USA) enabling analysis. Where applicable, data were compared to the same period of the previous year, with any change expressed as percentage change over time. Numerical data were expressed as a mean and range, while categorical data as number and percentage.

RESULTS

In total, 548 visits were booked at the beginning of the lockdown: 198 (36.1%) patients cancelled their first appointment or follow-up visit before any DPH. Among the remaining 350 scheduled appointments, 112 (32.0%) were in-person post-operative or follow-up visits.

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

COPYRIGHT© EDIZIONI MINERVA MEDICA

Of the 238 (68.0%) patients undergoing DPH, 88 (25.1%) were deemed 'deferrable' and 148 (42.3%) 'non-deferrable'. Two (0.6%) patients were hospitalized for COVID-19 while waiting for an outpatient visit. Both were clinically assessed in the COVID-19 ward and diagnosed with perianal abscess and hemorrhoidal bleeding, respectively.

Of the 88 'deferrable' patients contacted at the end of the lockdown, 2 (2.3%) needed further telephone advices, 25 (28.4%) refused to attend as they felt it was no longer necessary. None of the remaining 61 (69.3%) patients attending an in-person assessment required surgery. None of the patients awaiting elective surgery attended the emergency department for clinical worsening.

The 3 urgent surgeries (all for perianal abscess) were performed in patients with contact history and oropharyngeal swab positive for COVID-19. None suffered post-operative nor COVID-related complications. All patients were discharged home within 24 hours from the procedure.

On a total of 6 emails and calls to the 24-hour help line recorded during the observation period, 4 were from patients undergoing surgery and 2 from patients undergoing video consultation. None of these resulted in hospitalization or redo surgery.

No delayed diagnoses of malignancy were encountered nor cancer patients found among those who had their visit postponed.

None of the attending patients nor staff members (5 proctologists and 2 specialist nurses) resulted COVID-19 positive during the study period.

Table 1 shows the reduction in medical services compared to the same period of 2019. The reduction in benefits correlated with an increase in cancellations. On the other hand, a 55% increase in the number of in-office procedures was noted (from 29 in 2019 to 45 in 2020).

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

The 45 in-office procedures performed in 2020 are shown in Table 2 (patients' mean age, 46 years [range 15-76]; 14 females).

DISCUSSION

The invested energies of the national health system towards the crisis have led us to a frantic search for alternative solutions to avoid discontinuity of proctologic care.[7-9]

Decisive for this goal was the experience acquired by our group in the last few years in the delivery of outpatient procedures.[6, 10] Furthermore, resilience of employees has allowed us to early recognize telemedicine as a key tool in this scenario.[11] Despite the uncertainties accompanying the use of remote consultations in a field where a thorough in-person assessment is deemed paramount to prevent misdiagnoses, DPH demonstrated effective at least for screening purposes.

The absence of COVID-19 cases among staff members and attendees reflects the adequateness of safety measures. Likewise, the method adopted for patients' selection proved safe and effective. Indeed, more than one fourth of patients initially judged deferrable no longer needed an appointment at the end of lockdown. While having continued treatment, even remotely, patients did not feel abandoned nor in the need to attend the emergency department. Furthermore, given the absence of clinical worsening among deferrable patients who eventually refused the control visit, it is reasonable to assume that none had a malignancy. On the other hand, our experience showed that a complete discontinuation of activities during the lockdown could have resulted in delayed cancer diagnosis in at least 4/350 (1.1%) patients.

It should be noted that more than one third of patients cancelled their appointment. One of the reasons to explain such a high cancellation rate (36% in our study) may rely on the fear of contracting COVID-19. Indeed, a recent study exploring the psychosocial factors contributing to

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

the cancellation of medical appointments in Italy during the SARS-CoV-2 outbreak, showed that 35% of individuals cancelled an appointment with their specialist doctor due to fear of COVID-19 in the lockdown phase and 29% in the post lockdown phase.[12]

The in-office setting has certainly helped unburden the health system, while improving COVID-19 infection prevention and control. Supporting the development of in-office pathways of care nurtures several advantages, not only in terms of resource reallocation but also economic benefits. These aspects become increasingly important during the pandemic, which requires savings so as to maximize welfare.

The herein reported experience acquired during the COVID-19 pandemic has the ambition to serve as a reference for restructuring activities in response to future emergencies of this magnitude. Nevertheless, there are a number of limitation to acknowledge. Given its retrospective nature, unobserved potential confounders may exist. Furthermore, the real pandemic's impact on proctologic care cannot be exhaustively determined due to the lack of follow-up data for patients who initially cancelled their appointment. Additionally, formal investigation of patient acceptance of telemedicine was not performed.

In conclusion, the 'No One Should Be Left Behind' motto has allowed us to critically change our way of thinking and develop decision-making strategies to guarantee patient care security and quality.

REFERENCES

1 Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, Ren R, Leung KSM, Lau EHY, Wong JY, Xing X, Xiang N, Wu Y, Li C, Chen Q, Li D, Liu T, Zhao J, Liu M, Tu W, Chen C, Jin L, Yang R, Wang Q, Zhou S, Wang R, Liu H, Luo Y, Liu Y, Shao G, Li H, Tao Z, Yang Y, Deng Z, Liu B, Ma Z, Zhang Y, Shi G, Lam TTY, Wu JT, Gao GF, Cowling BJ, Yang B, Leung GM, Feng Z. Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia. *N Engl J Med* 2020; **382**(13): 1199-1207 [PMID: 31995857 PMCID: PMC7121484 DOI: 10.1056/NEJMoa2001316]

2 https://www.who.int/emergencies/diseases/novel-coronavirus-2019. Accessed January 27 2021

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

3 Grossi U, Zanus G, Felice C. Coronavirus disease 2019 in Italy: The Veneto model. *Infect Control Hosp Epidemiol* 2021; **42**(2): 236-237 [PMID: 32389164 PMCID: PMC7248594 DOI: 10.1017/ice.2020.225]
4 https://www.gazzettaufficiale.it/eli/id/2020/03/09/20G00030/sg. Accessed January 12 2021
5 Gallo G, La Torre M, Pietroletti R, Bianco F, Altomare DF, Pucciarelli S, Gagliardi G, Perinotti R. Italian society of colorectal surgery recommendations for good clinical practice in colorectal surgery during the novel coronavirus pandemic. *Tech Coloproctol* 2020; **24**(6): 501-505 [PMID: 32291566 PMCID: PMC7154569 DOI: 10.1007/s10151-020-02209-6]
6 Giani I, Elbetti C, Trompetto M, Gallo G. Proctology in the COVID-19 era: handle with care. *Br J Surg* 2020; **107**(8): e243 [PMID: 32410223 PMCID: PMC7273076 DOI: 10.1002/bjs.11676]
7 Gallo G, Sturiale A, De Simone V, Di Tanna GL, Giani I, Grossi U, ProctoLock Working G. A worldwide survey on proctological practice during COVID-19 lockdown (ProctoLock 2020): a cross-sectional analysis. *Colorectal Dis* 2020 [PMID: 33025724 PMCID: PMC7675501 DOI: 10.1111/codi.15394]
8 Gallo G, Sturiale A, De Simone V, Di Tanna GL, Bianco F, Perinotti R, Giani I, Grossi U. The impact of COVID-19 on proctologic practice in Italy. *Tech Coloproctol* 2020; **24**(10): 1103-1104 [PMID: 32778974 PMCID: PMC7416796 DOI: 10.1007/s10151-020-02319-1]
9 Gallo G, Sturiale A, De Simone V, Mancini S, Di Tanna GL, Milito G, Bianco F, Perinotti R, Giani I, Grossi U, ProctoLock Working G, Aiello D, Bianco F, Bondurri A, Gallo G, La Torre M, Milito G, Perinotti R, Pietroletti R, Serventi A, Fiorino M, De Simone V, Grossi U, Manigrasso M, Sturiale A, Zaffaroni G, Boffi F, Bellato V, Cantarella F, Deidda S, Marino F, Martellucci J, Milone M, Picciariello A, Bravo AM, Vigorita V, Cunha MF, Leventoglu S, Garmanova T, Tsarkov P, El-Hussuna A, Frontali A, Ioannidis A, Bislenghi G, Shalaby M, Porzio FC, Wu J, Zimmerman D, Elbetti C, Mayol J, Naldini G, Trompetto M, Sammarco G, Santoro GA. Deadlock of proctologic practice in Italy during COVID-19 pandemic: a national report from ProctoLock2020. *Updates Surg* 2020; **72**(4): 1255-1261 [PMID: 32770466 PMCID: PMC7414270 DOI: 10.1007/s13304-020-00860-0]
10 Elbetti C, Caminati F, Giani I, Feroci F, Zalla T, Calussi M, Dreoni P, Talamo G. Tailored anal block (TAB): a new anesthesia procedure for surgical treatment of hemorrhoids in an outpatient setting. *Tech Coloproctol* 2019; **23**(5): 497-500 [PMID: 31102013 DOI: 10.1007/s10151-019-01998-9]
11 Gallo G, Grossi U, Sturiale A, Di Tanna GL, Picciariello A, Pillon S, Mascagni D, Altomare DF, Naldini G, Perinotti R, TPIWG. E-Consensus on Telemedicine in Proctology: a RAND/UCLA-Modified Study. *Surgery (In press)* 2021
12 Deledda G, Riccardi N, Gori S, Poli S, Giansante M, Geccherle E, Mazzi C, Silva R, Desantis N, Giovannetti AM, Solari A, Confalonieri P, Grazzi L, Sarcletti E, Biffa G, Biagio AD, Sestito C, Keim R, Gangi Hermis AMRD, Mazzoldi M, Failo A, Scaglione A, Faldetta N, Dorangricchia P, Moschetto M, Soto Parra HJ, Faietti J, Profio AD, Rusconi S, Giacomelli A, Marchioretto F, Alongi F, Marchetta A, Molon G, Bisoffi Z, Angheben A. The Impact of the SARS-CoV-2 Outbreak on the Psychological Flexibility and Behaviour of Cancelling Medical Appointments of Italian Patients with Pre-Existing Medical Condition: The "ImpACT-COVID-19 for Patients" Multi-Centre Observational Study. *Int J Environ Res Public Health* 2021; **18**(1): 340 [PMID: PMC7794735 DOI: 10.3390/ijerph18010340]

FIGURE LEGEND

Figure 1. Flowchart. KEY: DPH, digital proctologic history; DCA, digital COVID anamnesis.

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

COPYRIGHT© EDIZIONI MINERVA MEDICA

DECLARATIONS

Ethics approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards

Funding: none

Conflicts of interest/Competing interests: none

Availability of data and material: available on request

Authors' contributions: Iacopo Giani, Gaetano Gallo, Ugo Grossi, and Claudio Elbetti contributed to the study conception and design. Material preparation and data collection were performed by Cinzia Tanda and Chiara Linari. Iacopo Giani performed the analysis. The first draft of the manuscript was written by Iacopo Giani, Gaetano Gallo, and Ugo Grossi. All authors commented on previous versions of the manuscript, and read and approved the final manuscript.

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

COPYRIGHT© EDIZIONI MINERVA MEDICA

Table 1. Proctologic activities

Clinical activities	Year		Difference
	2019	2020	
Scheduled Visits at the beginning of lockdown	0	350	-
Post-operative visits / Medications	221	112	–49%
Digital Consultation	0	238	-
Deferrable Visits	0	88	-
Not deferrable	0	148	
Outpatient Clinic Visits Patients' mean age (range)	553 55 (14-85)	148 42 (15-76)	–73%
Cancelled Visits	77	198	+61%
Endoanal ultrasound	42	6	–86%
Elective procedures	132	0	-
Urgent procedures	5	3	–40%
In-office procedures	29	45	+55%

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

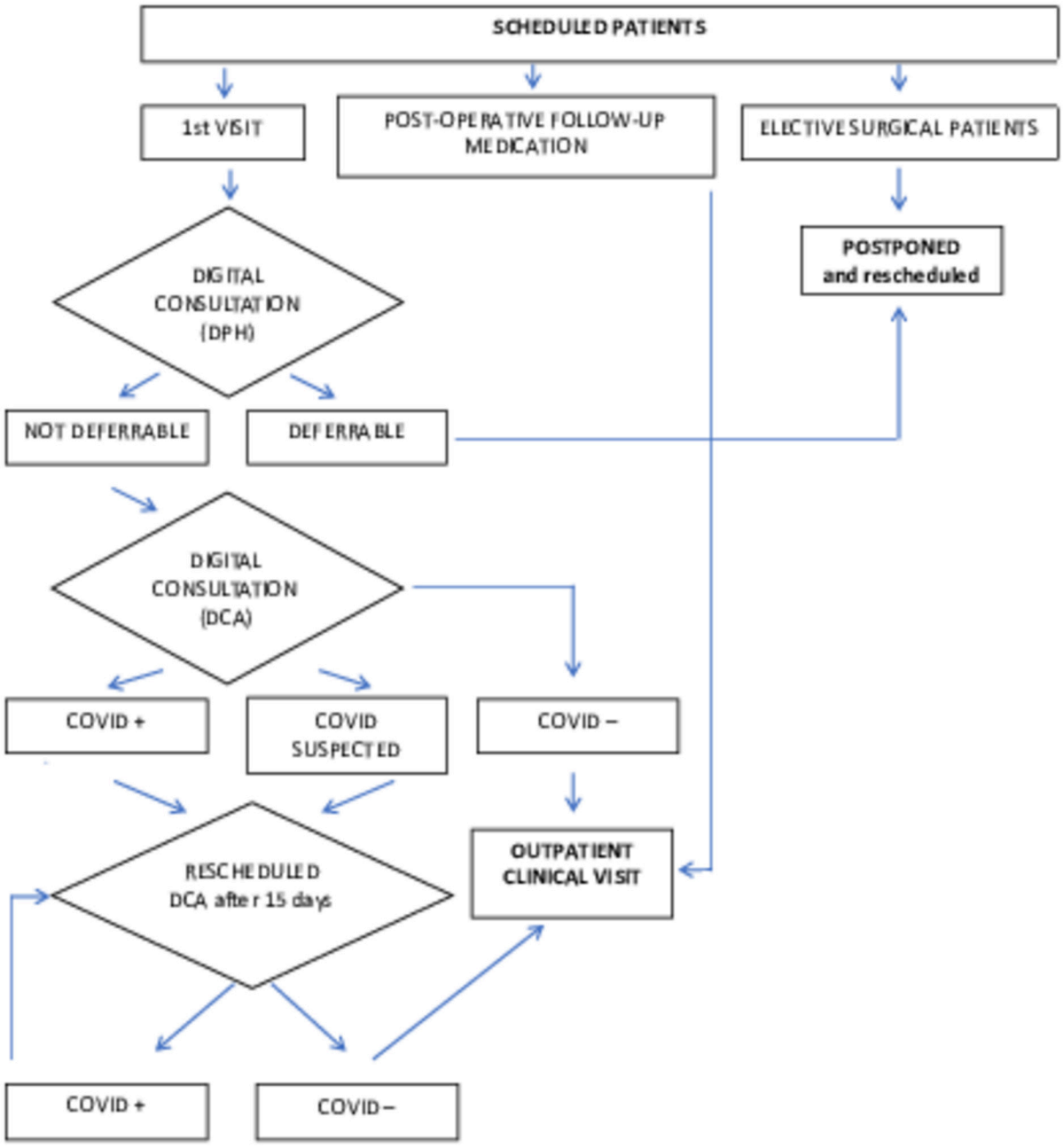
COPYRIGHT© EDIZIONI MINERVA MEDICA

Table 2. Types of procedure and clinical outcome in 45 patients undergoing surgery in 2020.

Diagnosis (N)	Type of procedure (N)	Intra-operative complications	Post-operative complications	Pre-op – Post-op days 1 - 7 Pain (VAS 0-10)	Post-op Satisfaction (VAS 0-10)	Clinical outcome
Perianal abscess (10)	Surgical Drainage (5)	None	None	6 - 3 - 1	8	Effective drainage
	Surgical Drainage + Setone (5)	None	None	6 - 3 - 3	7	Bridge to cutting or sphincter saving procedure
Fistula-in-ano (12)	Fistulotomy (8)	None	1 minor bleeding	0 - 2 - 2	8	Effective
	Seton placement (4)	None	None	0 - 0 - 3	7	Bridge to cutting or sphincter saving procedure
Hemorrhoidal disease (2)	Strangulated Prolapse Repositioning (1)	None	None	10 - 3 - 5	8	Effective Repositioning
	External Hemorroids Trombosis Drainage	None	None	10 - 4 - 2	10	Effective resolution
Anorectal polyp (1)	Polipectomy	None	None	0 - 0 - 0	10	Effective
Anorectal neoplasia (1)	Endoanal ultrasound + Biopsy	None	None	5 - 5 - 5	10	Effective
Anal fissure (10)	Fissurectomy + Methylen Blue Infiltration (10)	1 minor bleeding	None	8 - 2 - 2	10	Pain resolution
Pilonidal disease (2)	Sinusectomy (2)	1 minor bleeding	1 minor bleeding	0 - 2 - 6	8	Effective
HPV-related lesion (7)	Condyloma removal (4)	None	Minor Pain	0 - 2 - 5	10	Effective
	HRA + Biopsy (3)	None	None	0 - 2 - 5	8	Effective

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

COPYRIGHT© EDIZIONI MINERVA MEDICA



This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.

COPYRIGHT© EDIZIONI MINERVA MEDICA

Supplementary Digital Material

Download supplementary material file: Minerva Surg-8897_Supplementary Digital Material1_V1_2021-04-02.doc

This document is protected by international copyright laws. No additional reproduction is authorized. It is permitted for personal use to download and save only one file and print only one copy of this Article. It is not permitted to make additional copies (either sporadically or systematically, either printed or electronic) of the Article for any purpose. It is not permitted to distribute the electronic copy of the article through online internet and/or intranet file sharing systems, electronic mailing or any other means which may allow access to the Article. The use of all or any part of the Article for any Commercial Use is not permitted. The creation of derivative works from the Article is not permitted. The production of reprints for personal or commercial use is not permitted. It is not permitted to remove, cover, overlay, obscure, block, or change any copyright notices or terms of use which the Publisher may post on the Article. It is not permitted to frame or use framing techniques to enclose any trademark, logo, or other proprietary information of the Publisher.