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Correspondence

Impact of SARS-CoV-2 on a high volume endoscopy center in Italy

Dear editor,

We briefly describe here what happened in March in our endoscopy unit during the peak of the pandemic before any direction from the official societies was given. On March 7th with the lockdown the administration of the Fondazione Policlinico Universitario Agostino Gemelli IRCCS (FPG) hospital decided to dedicate a separate building of the FPG to Covid positive patients, with 102 beds and 59 Intensive Care Unit (ICU) beds, and 300 beds and most of the ICU beds of the main building to Covid positive and suspected patients. All elective activities were stopped by the hospital authorities for all departments and only urgencies and oncology procedures and paths were allowed. As far as digestive endoscopy is concerned, all types of screening programs, routine examinations and scheduled procedures were stopped while urgent GI endoscopies for bleedings, placement of feeding tubes, removal of foreign bodies, ERCP for cholangitis, palliation of cancer and perioperative drainages, and EUS for cancer staging and urgencies were authorized (Table 1). From a general point of view, most of the departments were deactivated and transformed in Covid Units, except for oncological surgery, oncology, cardiology, obstetrics, neurosurgery, neonatology, and pediatrics. The impact on the Endoscopy Unit was dramatic and imposed structural, behavioral, and organizational change. Concerning procedures, all endoscopic procedures in March 2020 suffered a dramatic reduction. It is of note that in 2019 the total number of procedures was 22,126 and only in March 2019, a total of 1811 endoscopies were done, of which 58 were urgencies. For comparison, just in March 2020, the total number of procedures was 291, of which 19 were urgencies. Globally, if we compare March 2019 with March 2020, the reduction is of 84%, and for urgent endoscopies it is of 33%. Regarding the 291 procedures done in March 2020, these were done for all types of urgent endoscopies, cancer staging, palliation, and treatment. The endoscopy unit was reorganized to minimize the risk of personnel infection and virus transmissions. The reductions of procedures led to a more than 50% personnel reduction (doctors, nurses, and technicians) and many of them were transferred to the new Covid Units as support personnel. The hospital provided psychiatric assistance for all the staff dealing with Covid19 positive patients. One of the seven endoscopy rooms in our unit was dedicated to Covid positive patients and only for upper and lower GI procedures. In the outpatient waiting room, seats were reduced to create a safety distance of at least 1 m and clean and dirty paths were created with red lines on the floor. Strict protocols have been adopted for all patients requiring endoscopy and especially for those with symptoms (Flowcharts 1,2). As far as symptoms are concerned, the recent ESGE and ESGENA Position Statement on gastrointestinal endoscopy and the COVID-19 pandemic suggested that before endoscopy patients should be assessed for: history of fever, respiratory symptoms, diarrhea, close contacts with persons with the above symptoms, contacts with a suspicious or confirmed positive person and any recent travel to a high-risk area [1]. Surgical mask and nonsterile gloves are given to all asymptomatic or proven Covid negative patients. Before wearing those, hands are washed with alcoholic gel. Inpatients that are proven Covid negative wear masks and gloves and are prepared in the recovery room before endoscopy. Covid positive patients directly enter the dedicated endoscopy room and wear high protection. For non-transportable patients, endoscopy is done with a mobile endoscopy station in the ICU department or in a dedicated operating room. In case of deep sedation, a special mask is used, and for general anesthesia (in all patients), at extubation the face of the patient is covered with a surgical plastic bag in order to avoid the diffusion of salivary droplets. Repici et al. recently suggested a classification of the patients according to the risk to be infected and proposed the use of types of personal protective equipment (PPE) [2]. Considering that on March 7th all of Italy was declared a red zone, and FPG became a Covid Hospital, it was decided to consider every patient at High Risk. Therefore, high level PPE was adopted for all personnel exposed to patients. At the beginning of March, testing for Covid19 in Italy was done only to symptomatic patients (due to shortage of tests). Considering the presence of asymptomatic positive patients, the limited sensitivity of swab tests [3,4] also in symptomatic patients and the high risk of virus transmission with endoscopic upper GI procedures, FFP2 masks, nonsterile gloves, disposable overshoes, head cap and single use gown are used for all patients, while in case of suspected or positive Covid patients, FFP3 mask, double gloves and wet suit are adopted. All the endoscopy personnel have been trained for dressing and undressing in steps that are rigorously followed. As far as reprocessing is concerned, currently there are no recommendations on which type of disinfection should be used, therefore, standard reprocessing (high level disinfection) is done with Peracetic Acid. Endoscopes are transported in special boxes for both paths “clean” and “dirty”. The personnel are protected also during endoscopes transportation. Regarding training, the endoscopy department of the FPG hospital is an official ESGE Training center and hosts the European Endoscopy Training center. In 2019, 33 doctors and 4 nurses from many different countries were trained in diagnostic and operative endoscopy. In the first quartile of 2020, 12 doctors started their training, but immediately after Italy was declared a red zone all of them left. All endoscopy activities of the, including two Masterclasses, were suspended as well. Moreover, the Endolive workshop (with a mean of 700 participants per year) was canceled. The only training that is still ongoing is in ERCP for one resident

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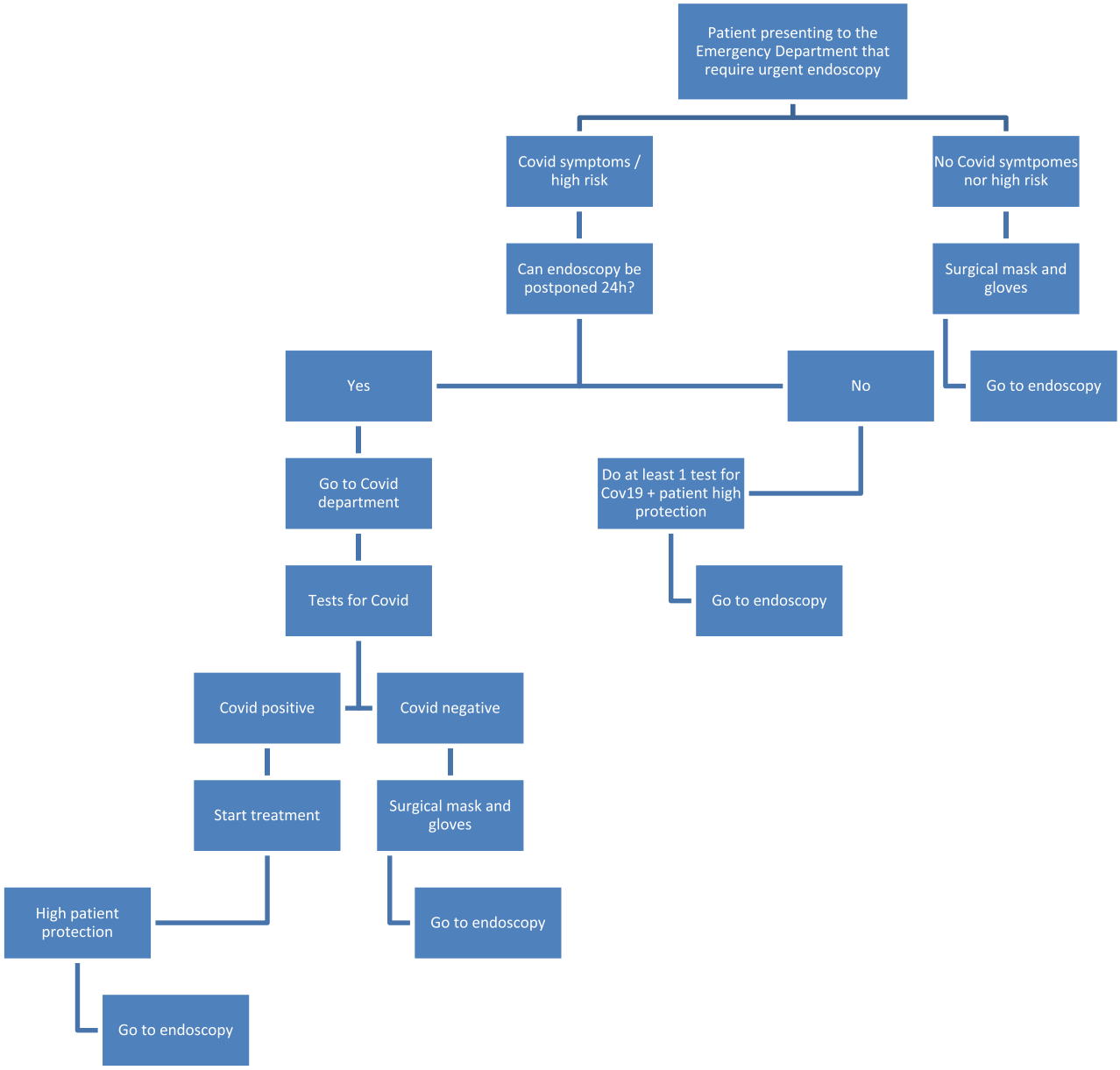
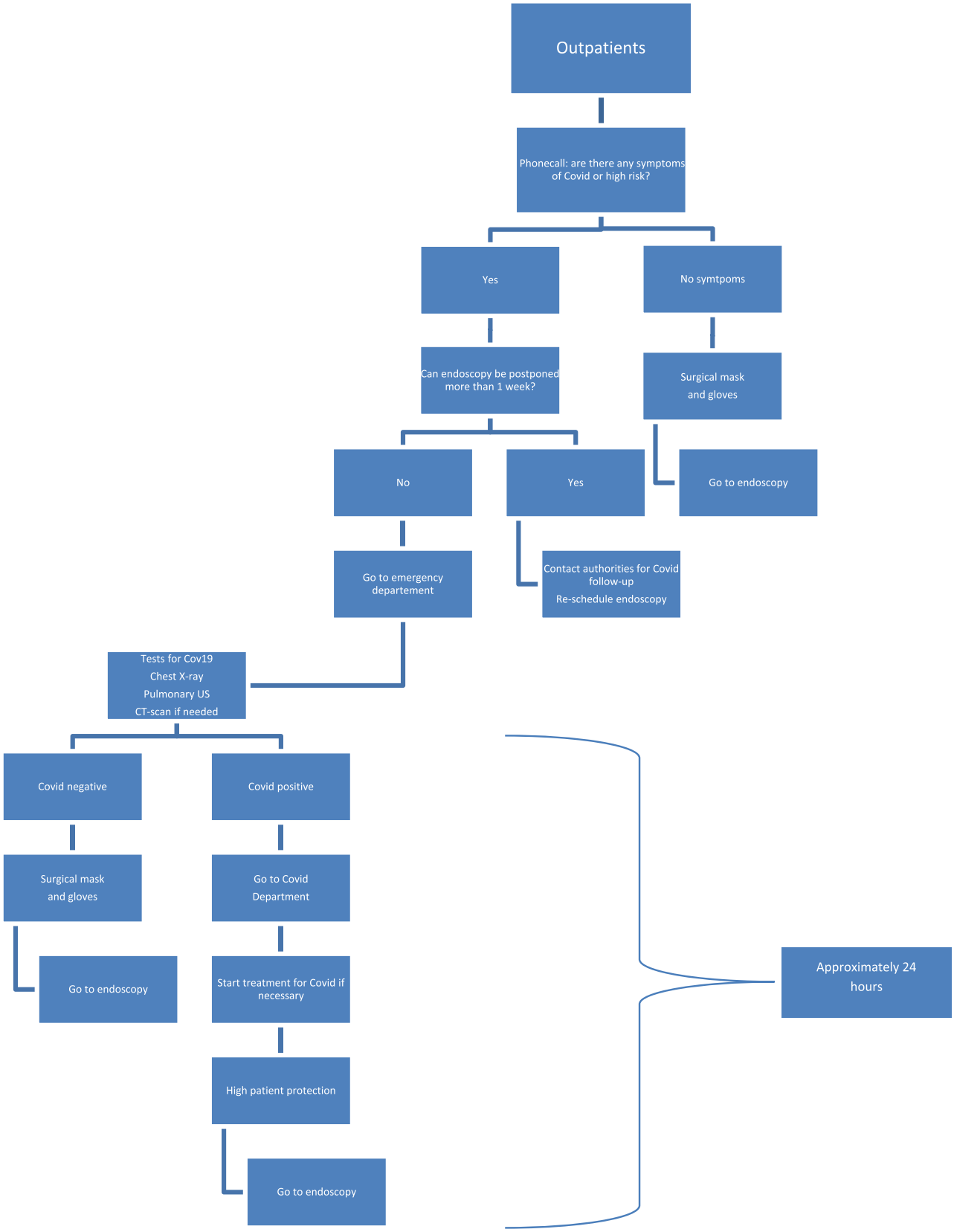
Table 1
Indications to endoscopy after the lockdown.

Type of patients	Indications	Notes
Outpatients	- alarm symptoms - diagnosis and staging of malignancy - severe anemia	- FIT not possible due to National lockdown
Inpatients	- macroscopically visible red blood in stool - symptoms of malignancy - melena - feeding tubes - diagnosis and staging of malignancy - obstructive jaundice	
Patients presenting to the Emergency Department that require urgent endoscopy	- macroscopically visible red blood in stool - symptoms of malignancy - melena - foreign bodies - acute dysphagia - obstructive jaundice	

FIT: fecal immunochemical test.



Flowchart 1. Patients presenting to the emergency department requiring urgent endoscopy.



Flowchart 2. Flow of outpatients that require endoscopy.

in gastroenterology. This implies costs in terms of closings for protection and risks for infection. The general administration of the hospital also stopped all types of scientific studies, patient screenings, follow-up, and enrollment in protocols. Recapitulating everything, the stop of elective procedures has a tremendous impact on patients. In the first place, the number of patients with positive fecal immunochemical test waiting to undergo colonoscopies will progressively rise with consequent delay in cancer diagnosis. Second, scheduled operative procedures such as ERCP, RFA for Barrett's esophagus, POEM, ESD etc. might undergo complications in the meantime and need to be rescheduled as soon as possible. How will we manage this situation with the overbooking of all diagnostic procedures? Even if a priority order will be established, a network between hospitals should probably be the best solution to reduce the waiting lists. These numbers are probably similar in all endoscopy units in the world, where lockdowns are actuated. It is also interesting that urgent endoscopic procedures suffered a 33% reduction. This data is difficult to explain and can mean several things: in the face of the lockdown many endoscopic urgencies may have been postponed; alternatively, patients who stay at home may be bleeding less from ulcers, varices etc. or even are afraid to come to the hospital for the high risk of infection. As far as costs are concerned, the lockdown will be disastrous in terms of incomes from endoscopic procedures and cost of the PPE equipment. The drop in endoscopy training, workshops and master programmes will damage all those that were supposed to be trained in endoscopy. The consequence of this will be reduction of quality of endoscopy in the countries where trainees come from. Until now it was stated that the Covid19 virus can be found in feces, saliva and urine [5], but just few days after, Wölfel et al. published their data on virologic analysis of replicative RNA of the Covid19 and showed that active virus can be found in upper respiratory tract tissues, but not in feces, urine, and blood [6]. Does this mean that colonoscopy is safer than upper GI endoscopy? And if yes, will this change our approach to Covid positive patients? There are many questions regarding the current situation and the future. The ESGE and ESGENA position statement was published in April and gave clear indications and directions, but during the peak of the pandemic we, like many other endoscopy centers in the world, were obliged to take decisions alone [7]. In the aftermath we realized that all the adopted measures are similar to those suggested by the ESGE/ESGENA position statements [7]. The pandemic already changed our lives and the way of thinking. Pandemics are recurrent; therefore we should be prepared in case of a massive return.

Disclosures

Professor Guido Costamagna is consultant for Cook Medical, Boston Scientifc and Olympus. Dr. Ivo Boškoski is consultant for Apollo Endosurgery, Cook Medical, Boston Scientific and Endo Tools, and is Apollo Endosurgery Research Grant Holder. Prof. Vincenzo Perri and Dr. Silvia Pecere have nothing to disclose.

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