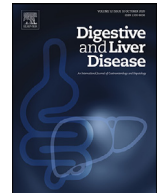




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## Correspondence

### Safety of gastrointestinal endoscopy during the COVID-19 pandemic: A new quality indicator?



Dear Editor,

The Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has had an unprecedented impact on healthcare systems, including endoscopy services [1]. In the first few months of the pandemic, the limited knowledge regarding viral transmission coupled with the surge in cases requiring hospitalization led to a sudden decrease in endoscopic activity, limiting endoscopy services to only emergency and essential procedures [2].

Over a year since the start of the COVID-19 pandemic, pressed by the growing concern relating to delayed cancer diagnosis [2] and armed by better knowledge of viral transmission, evidence-based protective measures and vaccination, there is a clear need to resume endoscopic activity to pre-pandemic levels and maybe even more as to catch up with the waiting times for endoscopy. Alarming data has shown a significant reduction in gastrointestinal cancers diagnosed and a decline in cancer services use following the start of the COVID-19 pandemic [1]. Providing an endoscopic service in the current climate, with new more transmissible variant strains adding to the risks and difficulties [3], while ensuring patient and healthcare professional (HCP) safety, requires the continuous development and re-evaluation of models for endoscopic service as to prevent nosocomial infection. Such measures should be practical, acceptable (for both staff and patients), cost-efficient and effective. Strategies include pre-procedural molecular testing with reverse transcription-polymerase chain reaction (RT-PCR) for COVID-19 infection, screening questionnaires, physical distancing, enforcing mask-wearing at all times and the use of appropriate personal protective equipment (PPEs) by staff during endoscopic procedures [1]. These measures are strictly followed within our Unit.

Our patients are contacted by telephone 1–2 weeks prior to the endoscopic procedure and asked screening questions regarding symptoms pertaining to COVID-19 and about any recent contacts with COVID-19 positive patients. All patients who are asymptomatic and do not have any contact with positive cases in the preceding 2 weeks, are given an appointment. The standard of practice at our endoscopy unit requires all patients to be tested for COVID-19 using a RT-PCR swab test 72 h pre-procedure. If the test is negative, the patient asymptomatic and had no recent contact with COVID-19 positive persons, then the procedure can be performed.

We analysed data from a Gastroenterology team at Mater Dei Hospital, Malta, for patients that had an endoscopy performed between December 2020 and February 2021. This was done prior to the vaccination programme. The aims of this study were to investigate the role of pre-procedural testing for COVID-19 in asymptomatic patients scheduled for an endoscopic procedure at our unit

**Table 1**

Clinical indications for the endoscopic procedures.

Indication for procedure	Percentage of patients (%)
Dyspepsia	9.4
Dysphagia	2.1
Change in bowel habit	7.2
Rectal bleeding	3.8
Abdominal or epigastric pain	11.9
Gastro-oesophageal reflux disease	4.3
Iron deficiency anaemia	8.5
Vomiting	1.7
Upper gastro-intestinal bleeding	0.9
History of upper gastro-intestinal ulcer	0.4
Positive anti-TTG or known coeliac disease	3.4
Known case of cirrhosis or varices	5.1
Barrett's or intestinal metaplasia	3.8
Inflammatory bowel disease	13.6
Family history of colorectal carcinoma	2.6
Surveillance of colonic polyps	8.5
Abnormal or inconclusive CT findings	4.7
History of colorectal carcinoma or other malignancies	2.6
Positive faecal immunochemical test	0.9
Pernicious anaemia	0.4
Perianal pain	0.4
Polypectomy syndrome	0.4
Gastric antral vascular ectasia	0.4
Follow up of gastric polyps	1.3
Inflammatory stricture	0.9

and to assess the safety of undergoing an endoscopic procedure during the pandemic, by determining the incidence of COVID-19 within 14 days of endoscopy.

A total of 268 patients were contacted to undergo an endoscopic procedure. The mean patient age was 54.2 years (95% CI +/- 21.4; range of 16– 89 years). There was practically no gender differences (females: 52.2%). The clinical indications for the endoscopic procedures are demonstrated in Table 1.

Of the endoscopic procedures performed, 48.9% were oesophago-gastro-duodenoscopies (OGD), 43.3% were colonoscopies and 7.8% of underwent bi-directional endoscopy.

Out of the 268 patients who were contacted, 91.8% had a COVID-19 PCR swab taken within 72 h of the procedure, whilst 8.2% ( $n = 22$  patients) did not undergo testing and did not attend the planned endoscopic procedure. From those patients who undertook the swab test and were negative, 2.4% ( $n = 6$  patients) did not attend for the scheduled endoscopic procedure (Fig. 1). The majority (57.1%) of these patients were male with a mean age of 47.8 years.

Within this cohort of asymptomatic patients, 2.03% of patients tested positive for COVID-19.

Within 14 days post-procedure, 42 patients (17.5%) required a COVID-19 swab test, 2 of whom tested positive for COVID-19,

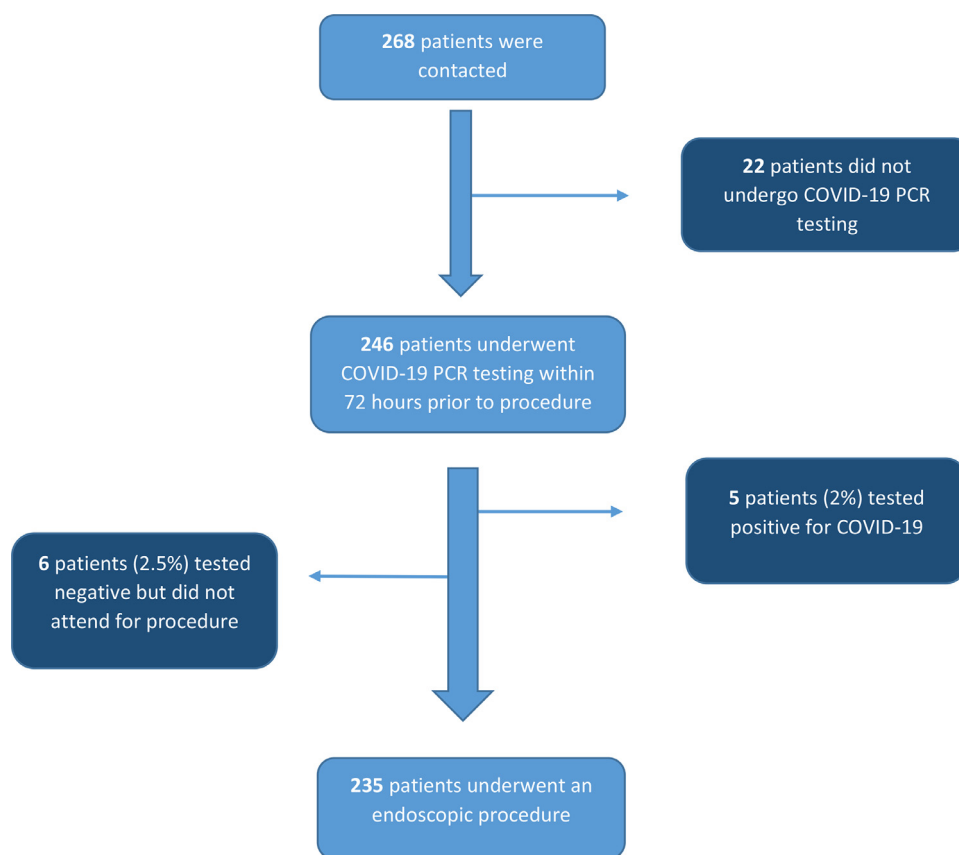


Fig. 1. Flow chart showing COVID-19 testing and test results.

with the testing being done on day 4 and day 12 post-procedure. This represents a post-endoscopy COVID-19 positivity rate of 0.8%. These patients were aged at 32, 56 and 82 years.

A significant endoscopic finding necessitating immediate medical intervention was present in 30.4% of cases. The malignancy rate was 1.7% and the other important findings were the presence and management of patients with peptic erosions (7.8%) and ulceration of the upper GI tract (4.6%), oesophageal varices (5.2%) inflammatory bowel disease (IBD) (9.4%) and angioectasias (1.4%). A further 19% of patients had adenomatous colonic polyps (19%). Table 2 denotes the findings in the procedures performed.

These results support the pre-procedural testing with RT-PCR for COVID-19 infection in all patients scheduled for an endoscopic procedure as a proportion of patients with COVID-19 infection are asymptomatic or presymptomatic [4], implying that screening through self-reported symptoms alone would be unreliable. While this measure will result in higher costs and an increased load on the testing laboratory [1], the benefits of identifying a patient with COVID-19 infection are considerable. Endoscopic procedures are considered high-risk for transmission of infection due to aerosol generation and close contact between patient and HCPs [5]. Cases of superspreading events among HCP following endoscopic procedures on patients positive for COVID-19 have been reported [6].

Our study period coincided with the start of the third and largest wave of local COVID-19 infections, and therefore we predict an even higher COVID-19 pre-procedural positivity rate as the spread of infection in the local population accelerated rapidly in March 2021. During the months of the study, the local average number of cases per day was 25.5 COVID-19 infections per 100,000 population with a 4.8% positivity rate of swabbed patients.

In our cohort, 1.7% of patients were found to have a gastrointestinal malignancy. This figure is comparable to cancer detection

Table 2  
Procedural findings.

Endoscopic procedure finding	Percentage of patients (%)
Barrett's oesophagus	3.4
Colorectal carcinoma	1.3
Atrophic gastritis	2.6
Haemorrhoids	4.3
Inflammatory erosions in stomach or duodenum	5.1
Hiatus hernia	8.1
Adenomatous colonic polyps	12.3
Active Inflammatory bowel disease	9.4 (Crohn's disease 3.0 and Ulcerative colitis 6.4)
Diverticular disease	6.4
Peptic gastric ulcer	3.0
Oesophageal carcinoma	0.4
Antral angioectasias	0.4
Rectal ulcer	0.4
Varices	3.4
Coeliac disease	0.9
Oesophageal candidiasis	0.9
Gastric antral vascular ectasia	0.4
Radiation proctitis	0.4
Colonic angiodysplasia	0.9

rates reported in the literature and thus indirectly validates our cohort [1]. Furthermore, 28.7% of patients had significant pathology, these being patients with active IBD prompting optimization of treatment to achieve remission (9.4%); oesophageal varices (3.4%), needing medical and/or endoscopic measures to reduce risk of bleeding; upper GI peptic disease (12.4%) and 1.7% had angioectasias requiring endoscopic therapy. Management of these pathologies may reduce the need for blood transfusions, thereby

alleviating the pressure on blood bank services which have already experienced dwindling reserves of blood products during the pandemic [7]. A further 19% of patients had colonic adenomas, the precursors of colorectal cancer.

An important stumbling block in attempting to increase endoscopic activity to pre-COVID-19 levels will be patient fear and anxiety [8]. Several patients may be hesitant to attend due to fear of being exposed to SARS-CoV-2. In our experience, several patients have asked to postpone their procedures out of fear of contracting COVID-19. In our study, 10.6% of patients who were contacted and scheduled for an endoscopic procedure did not attend. The vast majority of these patients did not even have their scheduled pre-endoscopy COVID-19 swab test. Although reluctance to have a nasopharyngeal swab test for SARS-CoV-2 (eg consequences of testing positive, such as obligatory quarantine) could account in part for those patients who failed to turn up for endoscopy, patient perception on the risk of contracting SARS-CoV-2 through the hospital may also be an important factor. The fact that 2.4% of patients who did not attend had gone for their pre-procedure testing and tested negative but still did not turn up on the day may indicate patient hesitancy. Furthermore, one cannot have an approximately 10% of patients who do not turn up, as this will further lengthen the current endoscopy waiting time.

Only 2 patients (0.8%) who underwent endoscopy tested positive for COVID-19 within the 14 days following endoscopy. One of these tested positive at day 12 post-endoscopy. Most patients develop symptoms approximately four to five days after exposure. Thus it is likely that this cases does not represent nosocomial transmission. The other patient tested positive at day 4 post-endoscopy. This patient had been hospitalized before endoscopy and was still an inpatient at the time of and after endoscopy and coincided with ward outbreaks. It is therefore far likelier that infection was acquired from the ward setting, where other inpatients and staff had also tested positive. There is very little data on COVID-19 infection risk post-gastrointestinal endoscopy in the literature. A small case series of 30 IBD patients [9] undergoing colonoscopy reported that none of these patients tested positive for COVID-19 14 days post-endoscopy while another study demonstrated a low risk of transmission at endoscopy [10].

Limitations in our study include that of being a single centre and patients were not contacted to elicit the main reasons for their absence. However, the fact that the patients were contacted very close to the procedure and that some patients actually attended a swab test but did not attend support the suggestion of patient fear of contracting the infection from hospital.

These findings highlight the need for enhanced protective measures that must be implemented by endoscopy units in order to ensure patient and staff safety. Estimating the post-endoscopy positivity rate may be a useful proxy metric for endoscopy units to evaluate the efficacy of their safety protocols and this can be used as a new safety performance indicator. This can also demonstrate patients the safety of the endoscopy unit thus enabling them to attend their scheduled appointment.

## Conflict of interest

None.

## CRediT authorship contribution statement

**Francesca Gauci:** Visualization, Data curation, Formal analysis, Writing – review & editing. **Ayrton Borg Axisa:** Visualization, Data curation, Formal analysis, Writing – review & editing. **Andrea Vella Baldacchino:** Visualization, Data curation, Formal analysis, Writing – review & editing. **Pierre Ellul:** Visualization, Data curation, Formal analysis, Writing – review & editing.

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