



Endoscopic evaluation during the COVID-19 pandemic

Observational study of the experience in community practices

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Abstract

Endoscopic screening is used widely to minimize the rates of colorectal cancer cases and deaths. During highly virulent infectious disease pandemics such as the coronavirus disease 2019 (COVID-19) pandemic, it is essential to weigh the risks and benefits of receiving endoscopy, especially in regions with moderately high viral infection rates. An observational study was conducted to assess the number of patients seen for endoscopic procedure at 2 of our surgery centers. Reasons for their procedure were collected in addition to information regarding any positive COVID-19 cases. This study considers the rate of severe acute respiratory syndrome coronavirus 2 infection along with the number of colorectal cancer cases encountered at a community endoscopy center to suggest that the benefits of undergoing endoscopic evaluation may outweigh the risks of attending an endoscopy procedure during the COVID-19 pandemic. One of the main reasons patients underwent endoscopic procedure was for colon cancer screenings (41.9%), and 5 of 1020 patients seen during the observation period were diagnosed with cancer. Of these 1020 patients, 8 were found to have positive tests for COVID-19 within 2 to 4 weeks after their procedure.

Abbreviation: CRC = colorectal cancer.

Keywords: colonoscopy, COVID-19, EGD, screening

1. Introduction

In the United States alone, there are projected to be 104,610 new cases of colorectal cancer (CRC) in the year 2020, with an incidence rate of 27.6 cases per 100,000 persons.^[1] Age is a significant factor in the risk for colon cancer development: the incidence rate for CRC approximately doubles for each age group until age 50, then subsequently decreases between ages 50 to 59 years. This drop in incidence rate may be a result of the preventative screening protocols recommended by the center for disease control (CDC) for individuals >50 years old. Despite these reports, incidence rates have recently increased in younger age groups (<50 years, 2.2% annual growth) and in those aged 50 to 64 years (1% annual growth).^[1]

Similarly, the mortality rate due to CRC has been decreasing over the past 3 decades due to improved screening, changing risk factors, and better treatment options. However, recent trends have shown that rates of CRC-related mortality in certain age groups may be increasing. For those 50 to 64 years of age, the rate of decline has slowed from a 1% annual decrease to a 0.6% annual decrease. For those older than 65 years, mortality rate slowed from 3.3% annually to 2.6% annually.^[1]

The increased mortality rates due to CRC are compounded by the current coronavirus disease 2019 (COVID-19) pandemic, which has resulted in patients choosing to delay or decline appointments with their physicians.^[2–4] As a result, recent statistics show that standard cancer screening for CRC has dropped 84.5% (through May 2020), potentially leading to later cancer diagnoses and increased risk for CRC-related death. In fact, in a modeling study using data from the National Health Service, investigators estimate a 15.5% to 16.6% increase in CRC deaths over the next several years.^[5] This research suggests that the COVID-19 pandemic has affected community health in ways other than direct infection, by delaying voluntary colorectal screening and therefore delayed CRC diagnosis and treatment.

Given these disturbing trends, our goal was to weigh the risk of contracting COVID-19 (based on our practice quality assurance assessment) with the benefits gained for patients undergoing an endoscopy and/or colonoscopy at our community-based outpatient surgery center where routine rapid testing for severe acute respiratory syndrome coronavirus 2 was not accessible, especially earlier in the pandemic. To ensure safety for patients undergoing procedures at the

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The datasets generated during and/or analyzed during the current study are not publicly available, but are available from the corresponding author on reasonable request.

The authors have no potential competing interests.

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surgery center, several precautions recommended by the CDC and American Society for Gastrointestinal Endoscopy (ASGE) for patients and healthcare workers in gastroenterology clinics were taken. The ASGE guidelines recommend that in addition to COVID-19 screening questionnaires for patients 72 hours before their procedure, surgery centers should conduct room cleaning, utilize proper personal protective equipment (PPE), and require physical distancing by patients and staff. Patients should also be surveyed 1 to 2 weeks postprocedure to assess for any COVID-19 symptoms or positive test results. Should any patient or staff experience any COVID-19 symptoms or test positive, contact tracing should be initiated.^[6] It should be noted that precautionary testing for COVID-19 prior to gastrointestinal (GI) endoscopy and colonoscopy procedures was not officially recommended by the ASGE at the time of this quality assurance assessment.

2. Methods

In correspondence with ASGE guidelines, the community endoscopy center in this study utilized COVID-19 screening surveys before and after scheduled procedures, proper PPE, physical distancing among staff and patients, in addition to proper room air exchange ventilation, preparation, and cleaning.

In this study, we reported results of our quality assurance data in which patients were contacted approximately 2 weeks after their clinic visit for an endoscopy or colonoscopy procedure to determine if they had any symptoms of or a positive test for COVID-19. We utilized data already collected and analyzed for quality assurance assessment for our practice from patients who underwent an upper GI endoscopy or colonoscopy procedure from September 2020 to December 2020 at our clinics. From September through December of 2020, a total of 2099 patients were seen at our outpatient surgery centers for colonoscopy and endoscopy procedures. Each of these 2099 patients was contacted by phone 2 weeks postprocedure to complete a questionnaire that assessed whether they had experienced any symptoms or tested positive for COVID-19 since their procedure at our centers (Table 1). Of the 2099 patients seen at our centers during the reported time frame, we were able to collect survey information from 1020. From this data, we calculated the percentage of patients who visited our surgery centers who tested positive for COVID-19 within 2 weeks after, in addition to patient outcomes and

the percentage of patients who received a CRC diagnosis following their procedure. For any patients who tested positive for COVID-19, any evidence for where or from whom they contracted infection was reported. We reported completely de-identified aggregate data of 5 patients to inform other community practices. No identifiable protected health information was accessed in the conduct of this report; therefore, institutional review board approval or waiver of approval was not required.

3. Results

As noted in Table 2, the average age of the cohort was 59 years with an approximately equal number of males and females and a majority of Vietnamese patients (53.6%). The 3 main reasons for undergoing procedures were cancer screening (41.9%), a personal history of colon polyps (22.9%), and GI-related symptoms (23.6%). Of the 241 patients who received an endoscopy or colonoscopy due to symptoms such as abdominal pain and weight loss, 4 (1.66%) were diagnosed with colon cancer and 1 with stomach cancer (0.41%). Eight patients (0.78%) were found to test positive for COVID-19 following their visit. Upon further review of the 8 patients who tested positive for COVID-19, most (6) had known contact with people who were sick or later became sick with COVID-19 after their procedure. Rather, these 6 provided information that they contracted the infection from household members or friends. However, 2 of the 8 patients who tested positive had no known sick contacts and therefore their infection could not be traced back to their household. In addition, 4 of our staff members also tested positive for COVID-19 during this time period, but all were confirmed to be a result from at-home exposure to the virus.

4. Discussion

Of the 8 patients who tested positive for COVID-19, at least 6 had no evidence of infection through clinical examination or during procedures at our surgery centers, suggesting that the surgery center's guidelines may have been successfully reducing COVID-19 infection. It is difficult to trace the positive COVID-19 results directly to the clinic because in the time frame during which the patients tested positive, the county where our practice is located was experiencing an outbreak with a 3.1% (94,366/3 million) positivity rate.^[7] Nonetheless, the 0.78% positivity rate at the clinic compared with the 3.1% positivity rate of the

Table 1

Two-week postprocedure questionnaire to assess symptoms and positivity for COVID-19.

Since your procedure 2 weeks ago, have you tested for COVID-19?	YES	NO
Date of test: _____; If tested positive, Date of positive results: _____		
If positive, have you tried contact tracing to find the source of infection?		
Have you developed any of the following symptoms:		
1. Fever to 100 F degrees (37.78°C) or higher	YES	NO
2. Cough	YES	NO
3. Shortness of breath, difficulty breathing, chest pain	YES	NO
4. Sore throat	YES	NO
5. Loss of sense of smell or taste	YES	NO
6. New onset of fatigue or lack of energy	YES	NO
7. New onset nausea with or without vomiting	YES	NO
8. New onset diarrhea	YES	NO
9. Any other significant new or unusual symptom	YES	NO
If YES, what symptoms do you have?	YES	NO
Were you satisfied with the care you received?	YES	NO
Did you have any concern about COVID-19 infection precaution measures while you were at the Outpatient Surgery Center?	YES	NO

COVID-19 = coronavirus disease 2019.

Table 2**Demographic characteristics and findings among 1020 patients who underwent endoscopy procedures from January 2019 to December 2020.**

		Number of patients	Percentage
Demographics	Men	503	49.3%
	Women	517	50.7%
	Average age	1020	59 yr
	Standard deviation of age	1020	12.8 yr
	Patients positive for COVID-19	8	0.78%
Race/ethnicity	Vietnamese	547	53.6%
	White	196	19.2%
	Chinese	85	8.3%
	Hispanic	60	5.9%
	South Asian	48	4.7%
Pre-op	Screening	427	41.9%
	Personal history of colon Polyps	234	22.9%
	Dyspepsia	110	10.8%
	Rectal Bleed	77	7.5%
	Abdominal pain	73	7.2%
Post-op	Change in bowel habit	48	4.7%
	Normal (with/without hemorrhoids)	220	21.6%
	Polyps	509	49.9%
	Gastritis	199	19.5%
	Diverticulosis	195	19.1%
	Cancer (stomach, colon)	5	0.49%

COVID-19 = coronavirus disease 2019.

county, in addition to the 0.49% of patients found with cancer suggest that it is safe and advantageous for patients to undergo their scheduled endoscopy and colonoscopy procedures. While it could be beneficial to test patients for COVID-19 several days prior to their GI procedure, the results of this study suggest that a detailed preprocedure COVID-19 questionnaire, in addition to the use of PPE, physical distancing, room cleaning, and adequate air exchange ventilation may be sufficient to minimize the risk of COVID-19 infection in both patients and healthcare workers in community endoscopy centers without the means to test each of their patients prior to procedure. Our study is limited by the lack of multicenter generalization, recall bias by participants, and selection bias for less busy and more motivated patients who were willing to respond to the phone questionnaire. Further studies will be required to validate our findings, but as the pandemic continues, it is important to maintain CRC prevention measures which may provide reassurance for patients and staff that it is safe to undergo invasive prevention measures when CDC guidance is followed.

Author contributions

Study design and concept: Lindsey Trinh, Treta Purohit
Data collection: Lindsey Trinh, Minh-Khang Vinh, Treta Purohit

Drafting of the manuscript: Lindsey Trinh

Data interpretation, review and revision of the manuscript: All authors

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