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Positivity Rate of Universal PCR Screening for COVID-19 Pre-Endoscopy and its Impact on Diagnosis and Management of New Cancer Patients at a Cancer Centre in Pakistan

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ABSTRACT

Objective: To determine the positivity rate of COVID-19 on pre-procedure screening and its impact on diagnosis and management of new cancer patients.

Study Design: Cross-sectional study.

Place and Duration of Study: Shaukat Khanum Memorial Cancer Hospital, Lahore Pakistan, from Sep 2020 to Aug 2021.

Methodology: Data was retrospectively collected from electronic medical records of the patients, including their age, gender, PCR test result, date of first visit to the gastroenterology clinic, date of multidisciplinary team meeting and any adverse event reported due to delay in endoscopy procedure.

Results: A total of 1273 patients underwent endoscopy procedures in the study period. Fifty-two patients were found to be COVID-positive (4.1%), and only one was symptomatic. The percentage of positivity in newly diagnosed 22 cancer patients was 1.72%. Of 52 patients, 31 were male (59.61%), and 21 were female (40.39%). Only 1 patient was presented with abdominal pain and revealed concealed perforation. No other adverse event was reported in any patient, and no new imaging was required before discussion in a multidisciplinary team meeting.

Conclusion: The hospital policy of COVID PCR test 48 hours before the endoscopy procedure effectively isolates the asymptomatic positive COVID-19 patients. The two-week delay due to COVID-PCR positivity in newly diagnosed cancer patients was not associated with any adverse event, and no new imaging was required.

Keywords: COVID-19, Endoscopy, Gastroenterology, PCR.

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INTRODUCTION

The COVID-19 pandemic has posed new challenges to healthcare delivery around the world. In many countries, it has overwhelmed available healthcare resources and, in particular, has significantly impacted the provision of elective services.[1] With limited treatment options of proven efficacy for COVID-19, preventive measures to limit the spread of the virus are key.[2]

As the COVID-19 virus is detectable in the gastrointestinal tract and endoscopy procedures, generate aerosols, endoscopy staff is potentially at increased risk for acquiring infection.[3] It is believed that COVID-19 is three times more contagious than the flu virus, and recent reports estimate that around 44% of transmissions can occur through asymptomatic patients.[4] If not tested before the endoscopy procedure, the asymptomatic patients can expose endoscopy staff to serious health consequences.[5,6] Shaukat Khanum Memorial Cancer Hospital is a national cancer centre with a busy endoscopy unit. The endoscopy unit at Shaukat Khanum Hospital Lahore has adopted the universal screening policy for COVID-19 with PCR testing within 48 hours before all endoscopy procedures. This practice is supported by the joint American Gastroenterology Association/Digestive Health Physician Association guidance.[7] This testing is especially important as asymptomatic patients carrying the virus can act as vectors to spread infection.[8,9] Delaying endoscopy procedures poses a risk for cancer patients who need diagnostic evaluation, and this could result in an extra burden on the health system and an increased number of deaths.[10] Therefore, we evaluated the impact of delay in the treatment planning of these cancer patients due to the postponement of the procedure for two weeks due to COVID-19 positivity. Our study aimed to see the rate of COVID-19 polymerase chain reaction (PCR) positivity in newly diagnosed cancer patients before gastrointestinal endoscopy procedures and its impact on delay in treatment planning in multidisciplinary team meetings (MDT).

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METHODOLOGY

The cross-sectional study was conducted from September 2020 and August 2021 at Gastroenterology Department, Shaukat Khanum Memorial Cancer Hospital and Research Centre Lahore, after taking approval from the Institutional Review Board (IRB No, Ex-03-05-21-02).

Inclusion Criteria: Patients aged 18 and above, of either gender, with cancer-related diagnosis and valid COVID-19 testing within 48 hours of endoscopy were included.

Exclusion Criteria: Patients not undergoing endoscopy for cancer-related diagnosis were excluded.

During the COVID pandemic, the endoscopy units at Shaukat Khanum Hospital, Lahore Pakistan have adopted the universal screening policy for COVID-19 with PCR testing 48 hours before all endoscopy procedures. In case of positivity, their procedures were postponed for two weeks. All cancer patients at our hospital are discussed in MDT for treatment planning once diagnostic and staging workup is complete. According to our institutional policy, the investigations, particularly the imaging, should not be more than six weeks old when discussed in MDT for treatment planning. We retrospectively reviewed COVID-19-positive patients who underwent diagnostic endoscopy procedures after a delay of 2 weeks. We recorded if this delay resulted in the need for repeat investigations, including staging scans, thereby delaying treatment planning via MDT. In addition, we documented any adverse impact on patient outcomes due to this delay.

The patient demographic for age, gender, area of residence and relevant history, including tumour site, procedure being performed, duration of delay in endoscopy if PCR positive, time to MDT from initial assessment in clinic, need to repeat scans or other workups due to delay, and change in stage on imaging between scans were extracted from the electronic medical records. Data was analyzed using Statistical Package for Social Sciences (SPSS) version 24.0. The rate of COVID-19 PCR positivity in newly diagnosed cancer patients and its impact on delay in treatment planning in multidisciplinary team meetings were analyzed using frequency and percentages.

RESULTS

Of 1273 patients who underwent endoscopy procedures, 52(4.1%) were found to be COVID-19 positive on screening 48 hours before the procedure. The endoscopy procedures of COVID-positive patients (52/1273) were postponed for two weeks (Table-I). Of 52 patients, 31 were males (59.61%) and 21 were females (40.39%). Only one was symptomatic with a fever, while the rest (51/52) were asymptomatic. 22 out of 52 patients were new patients who were booked from the gastrointestinal (GI) clinic, and they were planned for discussion in MDT, while 30 were referred from other specialities. The percentage of positivity in newly diagnosed cancer patients was 1.72% (22/1273). Out of these 22 patients, 13 were males, and 9 were females; however, 12 patients were in the age range of 18-50 and 10 patients in the age range of 51-85. Only one patient (1.92%) presented in emergency after ten days of initial presentation with worsening abdominal pain and revealed concealed perforation on imaging (Table-II).

Table-I: Characteristics of COVID-19 Patients undergoing Endoscopy (n =1273)

Variables	n (%)
Gender	
Male	527(41.4)
Female	746(58.6)
PCR Findings	
COVID Positive Patients	52(4.1)
COVID Negative Patients	1221(95.9)
COVID positivity in newly diagnosed patients	22(1.72)

Table-II: Clinico-demographic Characteristics of PCR positive Cancer Patients prior to Endoscopy (n =52)

	n (%)
Gender	
Male	31(59.61)
Female	21(40.39)
Age	
18-45	22(42)
45-60	24(46.15)
61-85	6(11.53)
COVID positive patients	
Symptomatic	1(1.92)
Asymptomatic	51(98.08)
COVID positive GI patients	
New patients	22(42.31)
Referred patients	30(57.69)
Adverse event from GI clinic to MDT	1(1.92)

DISCUSSION

COVID-19, since its start in 2019, has hugely affected the lives of people worldwide and posed new challenges to the safe provision of healthcare facilities. Pakistan also faced the challenge of preventing the spread of disease and, at the same time, continuing to provide other health care services.[10] Once COVID-19 is

transmitted to a person, it is highly contagious and can infect other people in several modes.[11,12] So preventive measures are necessary for the smooth provision of medical services.[13] Pre-procedure PCR testing was reported to be an effective strategy for resuming endoscopy,[14] and it was endorsed by subsequent guidelines. This is the first comprehensive study to see the positivity rate of PCR screening tests for COVID-19 pre-endoscopy and its impact on diagnosing and managing new cancer patients. Various studies evaluated the infection in asymptomatic patients referred for endoscopy. The prevalence of asymptomatic infection ranged from 0.0% to 1.5%.[15] The frequency of 1.7% among new patients in our study was almost similar to that mentioned in these studies. In contrast, the rest of the patients were asymptomatic, suggesting that the pre-procedure screening questionnaire alone is insufficient for COVID-19 screening, which a few centres are practising. Therefore, pre-procedure COVID PCR testing should be done as well. This is also supported by the study conducted by Kidambi *et al*.[16]

The pre-procedure endoscopy prevents infection transmission in endoscopy staff and reduces their fear and anxiety of acquiring COVID-19 infection. The local survey conducted in our endoscopy unit demonstrated a significant decrease in the anxiety level among endoscopy staff due to the implementation of universal pre-procedure COVID-19 PCR testing. This evidence was supported by the findings of research conducted by Podboy *et al*.[17]

Although COVID-19 PCR testing causes a logistical burden on the patients and the hospital, the high positive sensitivity of this test showed that it effectively reduces infection in asymptomatic patients.[18]

Our initial hypothesis that a delay in endoscopy procedure could result in disease progression and may require repeat imaging and staging was not proved right. This could be because, in our patients, available imaging was within six weeks, even after a weeks delay. Only one patient presented in emergency with abdominal pain and revealed concealed perforation. As no previous imaging of this patient was available for comparison, it was impossible to consider an adverse effect. Further studies or more data from other cancer centres can help to evaluate our findings further.

LIMITATIONS OF STUDY

It is a single-centre study. Local and international data on this needs to be more extensive. Future studies should include data from multiple centres.

CONCLUSION

The pre-procedure endoscopy screening effectively isolates asymptomatic patients, and this practice should continue. In our study, the two-week delay in endoscopy after the positive COVID PCR was not associated with any adverse event, and no new imaging was required in any patient. However, in exceptional situations, the procedure can be done under proper protective measures before two weeks based on the clinician's clinical judgment.

Conflict of Interest: None.

Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

MK: & SS: Conception, study design, drafting the manuscript, approval of the final version to be published.

WUH: & MZS: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

MS: & MAY: Critical review, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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