

Emergency Recommendation

Clinical Questions and Answers on Gastrointestinal Endoscopy during the Novel Coronavirus Disease 2019 pandemic

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Some situations may require endoscopy during the COVID-19 (Coronavirus Disease 2019) pandemic. Here, we describe the necessary precautions in the form of clinical questions and answers (Q&A) regarding the safe deployment of gastrointestinal endoscopy in such situations while protecting endoscopy staff and patients from infection. Non-urgent endoscopy should be postponed. The risk of infection in patients should be evaluated in advance by questionnaire and body temperature. The health of staff must be checked every day. Decisions to employ endoscopy should be based on the institutional conditions and aims of endoscopy. All endoscopic staff need to wear appropriate personal protective equipment (PPE). The endoscope and other devices should be cleaned and disinfected after procedures in accordance

with the relevant guidelines. Optimal management of the endoscopy unit is required. Endoscopy for infected patients or those with suspected infection demands exceptional caution. When a patient who undergoes endoscopy is later found to have COVID-19, the members of staff involved are considered exposed to the virus and must not work for at least 14 days if their PPE is considered insufficient. When PPE resources are limited, some equipment may be used continuously throughout a shift as long as it is not contaminated. Details of the aforementioned protective measures are described.

Key words: COVID-19, gastrointestinal endoscopy, personal protective equipment

INTRODUCTION

CHALLENGING SITUATIONS HAVE been continuing worldwide as a result of the Coronavirus Disease 2019 (COVID-19) pandemic.^{1,2} In such circumstances, gastrointestinal endoscopy procedures are sometimes unavoidable.³ The Japan Gastroenterological Endoscopy Society (JGES) issued an emergency statement regarding gastrointestinal endoscopy during the COVID-19 pandemic on 25 March 2020, aimed at preventing the spread of COVID-19 via gastrointestinal endoscopy.⁴

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Based on this statement, we have created tangible gastrointestinal endoscopy guidelines for gastrointestinal endoscopists and related staff in clinics and small hospitals in the form of clinical questions and answers (Q & A). We hope that this Q & A document will help hospitals and staff to develop optimal and appropriate measures for the prevention of infection in accordance with the situation in each region and each individual clinic or hospital.

REGARDING ENDOSCOPY SCHEDULING

Q1. WHAT ARE the important points about scheduling of gastrointestinal endoscopy?

Answer. Non-urgent endoscopy should be postponed.^{5–7} Similarly, already-scheduled endoscopy should be postponed by contacting patients via phone, email, or postal service.⁸

CQ2. What kinds of endoscopy can be postponed?

Answer. The following non-urgent endoscopic examinations can be postponed.⁸

#1 Screening and surveillance of asymptomatic individuals.

#2 Colonoscopy 1 year after the complete resection of colon polyps.

#3 Endoscopy whereby the result will not significantly affect the treatment policy—for example, asymptomatic peptic ulcer after eradication of *Helicobacter pylori*.

CQ3. What kinds of endoscopy should not be postponed?

Answer. Gastrointestinal endoscopy should not be postponed in the following cases.^{8,9}

#1 Gastrointestinal bleeding or suspected gastrointestinal bleeding.

#2 Swallowing difficulty that may affect oral intake.

#3 Cholangitis, obstructive jaundice, or other symptomatic biliary-pancreatic disease that requires treatment using an endoscope.

#4 When a malignant disease is strongly suspected.

#5 When the treatment plans will change according to the results of endoscopy.

#6 Endoscopy procedure that has been decided upon by the head of the facility.

AT RECEPTION AND IN THE WAITING ROOM

CQ4. WHAT ARE the important precautions in the waiting room?

#1 Reception staff should wear masks and gloves^{8,10} and, if possible, face shields or goggles. The placement of vinyl curtains may also be useful.

#2 Hand sterilization and mask wearing in the waiting room is recommended for all patients.^{11,12} Alcohol disinfectant for hand disinfection must be available in the waiting room.¹¹

#3 Patients should be seated at least 2 meters apart,^{13,14} the chairs being positioned to avoid patients sitting face to face.¹³

#4 Endoscopy appointment times must be arranged in such a way as to reduce congestion and waiting time in the waiting room.

CQ5. What are the important issues regarding environmental management of the waiting room?

#1 Toilet seats and handles of water faucets should be disinfected.¹⁵ Patients should be asked to disinfect the toilet seat before and after use, as well as closing the lid of the toilet before flushing and using a paper towel rather than an air towel.

#2 At patient changeover, the chairs, desks, and handrails should be disinfected with alcohol.⁸

#3 It is recommended that staff members employed to clean the local environment wear gloves, surgical masks, gowns, face shields or goggles, and a hairnet or cap.⁸

INTERVIEW BEFORE EXAMINATION AND THE DECISION TO PROCEED WITH ENDOSCOPY

CQ6. WHAT SHOULD we tell patients who visit for endoscopy?

Answer.

#1 Based on the results of the questionnaire and body temperature, the endoscopy can be cancelled or postponed.^{9,10}

#2 There is a possibility of being exposed to the virus in the endoscopy room and waiting room.¹⁰

CQ7. What questions should be asked of patients?

Answer.

1. Items related to patient status

① Have you had a cough, sore throat, or respiratory problems in the last 14 days?

② Have you had a fever (>37.5°C) in the last 14 days?

③ Have you had any symptoms such as tiredness or general fatigue in the last 14 days?

④ Have you experienced abnormal taste and smell or had nasal problems in the last 14 days?

⑤ Have you had any gastrointestinal symptoms such as diarrhea in the last 14 days?

⑥ How is your current body temperature?

2. Items related to infection risk

① Have you visited a region where the number of infected people has been increasing rapidly (especially the prefectures subject to the emergency declaration) or had contact with someone from there in the last 14 days?

② Have you had contact with a person infected with the virus or a person suspected of infection in the last 14 days?

③ Have you traveled abroad in the last 14 days?

④ Have you had contact with someone who returned from abroad in the last 14 days?

⑤ Have you been to a restaurant with many people, or a live music venue or a nightclub in the last 14 days?

When inquiring directly, maintain a distance of at least 2 m and wear a mask, face shield, gown, etc., for protection.¹⁵ It is recommended that patients are asked these questions by telephone or other means before visiting the hospital.⁸ If the endoscopy cannot be postponed, the patient should be asked to keep a record of body temperature and various symptoms related to COVID-19 every day until the day of the procedure.

CQ8. When infection with the virus cannot be ruled out by interviews and body temperature measurements, what should we do?

Answer.

#1 Postpone the endoscopy if possible.

#2 When the endoscopy cannot be postponed, check whether your clinic is capable of comprehensive infection control and performing the endoscopy.

#3 When the infection control in your clinic is insufficient, refer the patient to another hospital with comprehensive infection control.

#4 Arrange the order of endoscopic procedures so that the suspected patient is seen last, and ensure that the patient with suspected infection does not have contact with other patients.

CQ9. When results of the questionnaire and temperature measurements indicate that the risk of COVID-19 is low, how should we proceed?

Answer. When the patient still wishes to undergo the endoscopy even after explaining about the possibility of exposure to SARS-CoV-2, go ahead and perform it.

OBTAINING INFORMED CONSENT

CQ10. HOW SHOULD we obtain informed consent from patients judged at low or high risk of infection on the day of endoscopy?

Answer. When obtaining consent from low-risk patients, wear a mask and keep distance (at least 2 m).¹⁵ For patients at high risk, all staff must wear a mask, face shield, and gloves.⁷ The patient should be asked to wear a mask and use a disposable pen to sign the consent form.

PRECAUTIONS FOR PRE-MEDICATION

CQ11: WHAT ARE the precautions regarding anesthesia of the pharynx or nasal cavity?

#1 Anesthesia of the pharynx and nasal cavity should be performed separately in the anesthesia room by experienced staff.

#2 Anesthesia staff need reliable protection from infection by wearing dedicated scrubs, surgical mask, gown, gloves, face shield or goggles, and hairnet or cap.¹⁶

#3 Avoid facing the patient during anesthesia. Be careful to generate as little aerosol as possible.

CQ12. How should we perform nasal or pharyngeal anesthesia for patients at suspected risk of infection?

Answer:

#1 It is important to ask patients to sterilize their hands and fingers at the entrance to the anesthesia room.

#2 In addition to the protection already described, an N95 mask should be a basic requirement.

#3 Reconsider the necessity of the endoscopy or referral of the patient to another hospital capable of comprehensive infection control.

#4 For prevention of induced cough and generation of aerosol, the use of jelly or viscous solution instead of spray-type pharyngeal anesthesia is recommended.

PRECAUTIONS WHEN PERFORMING ENDOSCOPY

CQ13. WHAT INFORMATION is essential for staff in the endoscopy unit during the COVID-19 pandemic?

Answer. Comply with the rules of each clinic or hospital regarding personal protection. Protection of the eyes, nose, and mouth is especially important. Minimize the number of staff entering the endoscopy room.¹³

CQ14. Why does endoscopy increase the risk of infection?

Answer. Coughing or vomiting during upper gastrointestinal endoscopy and gas discharge during colonoscopy causes generation of virus-containing droplets and aerosols, which diffuse and increase the risk of infection.^{9,17} Contaminated hands and gloves, the endoscope, and other equipment used can be sources of infection.¹⁸ Keyboards of computers in the examination room may also be a source of infection.

CQ15. What kinds of PPE are needed for endoscopy staff?

Answer.

#1 Eyes, nose, and mouth should be protected by a surgical mask with eye shields or a combination of

surgical mask and goggles, eye shield, or face guard. In addition, staff should wear a cap, sleeved gown, and gloves. When a patient is suspected of infection, wearing an N95 mask and double gloves is recommended.

#2 Promptly dispose of gloves, aprons, etc., and wash and disinfect fingers and elbows thoroughly after each endoscopy.

#3 Rubbing alcohol is also effective for the disinfection of the virus.¹¹

CQ16. How should endoscopy staff monitor their own health?

Answer. We recommend the following:

#1 All staff should have their body temperature monitored every day.

#2 Staff should self-report any of subjective symptoms.

#3 Staff suspected of being infected should not take part in any procedures.⁴

CQ17. What restrictions should be made in terms of physical movement of people and the number of personnel in the endoscopy room?

Answer. The number of people going in and out of the endoscopy room should be minimized. In particular, institutions should in advance determine pathways for patients at high risk of infection.¹⁹ Minimizing the number of staff involved in each procedure is also recommended.

CQ18. How should emergent endoscopy be handled for patients who have or are suspected of having COVID-19?

Answer. We recommend the following:

#1 When a patient who has or is suspected of having COVID-19 needs to undergo a procedure, the infection control measures described above should be followed closely.

#2 Many conditions, including gastrointestinal bleeding and obstructive jaundice, require treatment during emergent endoscopy, which can increase the procedure time. In addition, as patients disperse infected droplets during coughing or emit other gases, endoscopists and other staff are at higher risk of infection, which could lead to in-hospital spread of infection. Therefore, endoscopists and all other staff should wear complete PPE. General protective measures do not require shoe covers, although these should be considered if there is a possibility of contamination by melena or diarrhea.

#3 Patients should be moved to the endoscopy room according to the rules of the institution.

#4 It is recommended that these patients are examined after patients who are unlikely to be infected.

#5 When a patient enters the endoscopy room, ensure that no other patients or staff members who have not taken precautionary measures against infection are present.

#6 During the procedure, the endoscopist in charge and any assistants present are advised to wear long-sleeved gowns, N95 masks, face shields, hairnets, double gloves, and, if possible, shoe covers.¹⁹

#7 Procedures should be performed in a negative-pressure room.^{8,20} If this is not an option, make sure the endoscopy room is sufficiently ventilated. However, to avoid spreading aerosol, the room should not be opened to other rooms or corridors during the procedure and should be properly ventilated after the procedure.^{19,21}

#8 To avoid PPE shortages, the minimum number of staff should take part in procedures.⁹

#9 Owing to the risk of instrument contamination and post-procedural cleaning, the number of items in the endoscopy room should be kept to a minimum.

#10 When performing endoscopy under sedation, it may be helpful to adjust the depth of sedation to reduce patient discomfort, including vomiting reflex, which causes aerosolization.

CQ19. Should accompanying persons be allowed to enter the examination room?

Answer. Accompanying persons should not be put at risk of infection.¹⁸ They require the same level of PPE as the endoscopist. If a patient absolutely needs company, this should be limited to one person. The risk of infection in the recovery room after the procedure also needs to be considered for the accompanying person.

MEASURES AFTER THE ENDOSCOPY

CQ20. WHAT ARE the issues to consider for the endoscopist after emergent endoscopy on patients who have or are suspected of having COVID-19?

Answer. Infection prevention measures need to be continued after the procedure. The endoscopist and other staff should discard their PPE when they leave the endoscopy room. Caution must be exercised when discarding PPE to ensure the virus does not spread. Afterward, hands must be washed thoroughly up to the elbow. Scopes and other reusable equipment should be cleaned according to the JGES guidelines.²¹

After endoscopy of an infected patient, although the risk of exposure is low if all the staff participated in the

procedure are careful about personal protective measures, we still recommend that all the staff participated in the procedure leave work for the day. Self-monitoring, ie daily temperature measurement and symptom evaluation, is essential. It is necessary to return to work after confirming that there is no problem in monitoring.

CQ21. What are the issues to consider for the patient with infection or suspected of having infection after emergent endoscopy?

Answer. Patients should wear a mask after the endoscopic procedure. Frequent coughing can possibly occur, especially after per-oral endoscopy. We recommend that patients who have or are suspected of having COVID-19 are placed in a different recovery room from non-infected patients.¹⁰

CQ22. What precautions are needed when handling endoscopic equipment after an emergent endoscopy on a patient who has or is suspected of having COVID-19?

Answer. It is very important to employ strict infection control measures when transporting and cleaning endoscopes after the procedure. Scopes and other items to be cleaned should be placed on a disposable sheet such as a cover cloth on a dolly.^{10,22} The staff in charge of cleaning should also wear complete PPE to prevent contamination or infection from droplets.^{19,23} Cleaning should be performed by experienced staff.¹⁶

CQ23. Is there any special method for cleaning endoscopes/devices after emergent endoscopy on patients who have or are suspected of having COVID-19?

Answer. There should be no problem if scopes are cleaned and disinfected according to the JGES guidelines.²¹ It is important to keep a history of cleaning.

CQ24. What procedures are necessary in the laboratory or elsewhere after an emergency endoscopy on a patient who has or is suspected of having COVID-19?

Answer. After performing the procedure, the room should be ventilated for ample time without opening the doors. Next, the room should be cleaned as usual. Disinfecting the entire room by wiping it down with alcohol or another disinfectant is recommended.^{4,10,19,24–26}

CQ25. How should items other than the endoscope be dealt with in the endoscopy room?

Answer. Disposable items such as forceps should be placed in the infectious waste containers in the endoscopy room, and care should be taken when opening these containers.²⁴ Equipment that involves contact with the patient, such as stethoscopes, thermometers, blood pressure gauges, and pulse oximeters, should be wiped with alcohol or a cloth containing an antiviral agent. The paper sheets, pillowcases, and trolley sheets on the examination table must be changed for every patient. Sheets should be treated as infectious contaminants.

CQ26. A patient who is thought to be at low risk of infection and who underwent examination was later found to have COVID-19. How should this be dealt with?

Answer. If staff have adopted personal protective measures and post-procedural handwashing, there should be low risk. However, considering that someone may have been exposed without realizing it, the staff should self-monitor by recording their temperature every day and assessing their symptoms. They can return to work after confirming they are asymptomatic. Risk is elevated if there are even small lapses in personal protective measures (e.g., touching the eyes, nose, or mouth when not wearing a face shield or a gown with sleeves) or if hands are not washed properly. If this happens, the staff in question should not work for at least 14 days after the last exposure. Of course, thorough disinfection of the endoscopy room is necessary.

OTHERS

CQ27. SHOULD INEXPERIENCED endoscopists be allowed to perform examinations of patients who have or are suspected of having COVID-19?

Answer. If the endoscopist is inexperienced, he or she may not be able to insert the scope smoothly during a transoral examination, which can cause aspiration or a reflexive cough that increases the risk of droplet infection. Inexperienced endoscopists also have a tendency to use too much air in performing colonoscopy, which increases the frequency of gas emission, also raising the risk of droplet infection.¹⁸ It is also presumed that the overall examination time will be longer, which will increase the risk of infection in all aspects. Therefore, we recommend that inexperienced endoscopists do not perform examinations.²¹

CQ28. Changing aprons and other equipment for each patient will quickly deplete stocks. Is it really necessary to change PPE between each patient?

Answer. Yes, it is necessary because PPE can be a source of infection. However, if this is difficult because of inventory issues, consider reuse as a last resort. Note that equipment should not be used continuously beyond each shift, even if it is not contaminated.⁸ Nevertheless, be sure to change masks that may be contaminated or after endoscopy for a patient who has or is suspected of having COVID-19.⁸ Please refer to the following instructions:

#1 Gloves should be changed between each patient.

#2 Gowns should be replaced for each patient but, if this is impossible, judgments on successive use should be made based on the degree of contamination.

#3 Masks should also be changed for each patient, if possible; if not possible, a single mask can be used for the entire shift (i.e., morning or afternoon) if it is not contaminated.

#4 Face shields should also be changed after each patient, but if this is impossible they can be disinfected with alcohol.

#5 Hairnets and shoe covers should also be changed after each patient, if possible; if not possible, they can be used for a whole shift if they are not contaminated.

CQ29. Can we reuse an N95 mask?

Answer. Because endoscopy is likely to generate aerosol and it is desirable to use an N95 mask, such masks will be used frequently. Disposable is preferable, but given that the supply of N95 masks is currently uncertain, the Ministry of Health, Labor and Welfare in Japan has suggested that an N95 mask can be reused under the following protocol. “Sterilization method”: replace once a day, and after use sterilize the N95 mask using hydrogen peroxide water plasma sterilizer, which is also used for surgical instruments. Because mask performance deteriorates when sterilized three times, an N95 mask can be used “up to twice.”

CQ30. What are the measures/inventions for PPE shortage?

Answer. The following options are available.

#1 Face shields can be wiped with alcohol after examining each patient. The transparency of some materials decreases when wiped with alcohol. Hence, these materials must be washed with a neutral detergent before being reused.

#2 Reusing masks by disinfecting them is not recommended. In addition, while self-made masks are half as effective as medical masks, they do have some effect. These may be considered if absolutely necessary and depending on the risk level.

CQ31. Which endoscopic procedure has a higher risk of COVID-19, transnasal or transoral?

The answer is not clear. Transnasal endoscopy produces less coughing and vomiting reflex than oral endoscopy, and the risk of infection resulting from aerosolization may be kept low. However, the virus has been established in the sinuses and nasal cavities since the early phase of infection,²⁵ which is why swabs from the nasal cavity are being tested. In addition, for transnasal endoscopy it is necessary to pay sufficient attention to pretreatment sneezing and coughing caused by reflexes. We also recognize that the endoscope used is likely to be contaminated, and it is

thus necessary to give due consideration to the handling (especially transportation) of the endoscope. If postponement of the endoscopic procedure is difficult, it is necessary to pay attention to the symptoms of the nasal cavity other than the clinical signs of infection such as odor abnormality. In addition, one must be aware that there is a risk of infection both nasally and orally. In any case, appropriate protective measures must be undertaken as a matter of course.²⁷

CONFLICT OF INTERESTS

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