The novel coronavirus disease (COVID-19) has become prevalent worldwide. As of July 2020, more than 10 million persons were reported to be infected worldwide, and the number of deaths exceeded 500,000. Infection of medical staff continues to be a major problem. Endoscopic procedures in particular pose risk of droplet and aerosol infection, and adequate infection control is therefore essential. Many organizations have proposed measures for infection control. Current infection control protocol consists of the following 3 steps: (1) before the procedure—disinfecting the hands of medical staff before endoscopic examination; (2) during the procedure—wearing appropriate personal protective equipment; and (3) after the procedure—washing the endoscope room and equipment and disinfecting the hands of medical staff. In addition to these steps, a new step of shielding patients during endoscopic procedures is considered to be necessary.

There have been some reports of infection control measures that shield patients, but these measures have many associated problems, such as the need for special equipment and disinfection effects on the operability of the endoscope. Here, we introduce a new safety measure for the endoscopic procedures, which we call New STEP, to prevent droplet and aerosol infection during endoscopic procedures.
NEW SAFETY MEASURE FOR THE ENDOSCOPIC PROCEDURES: NEW STEP

Required materials include the following: a transparent plastic bag (equivalent to 90 L), a condom, an 18-gauge needle, and packaging tape. The additional cost of this safety measure is approximately U.S.$1.

First, the plastic bag is attached to the monitor before the endoscopic procedure. The edges of the plastic bag that are not attached to the monitor are cut off (Fig. 1). When cutting the plastic bag, the side near the endoscopist should be longer. The patient lies on the examination bed in the left lateral position, as is usual for endoscopic procedures. The patient then places his or her head inside the hanging plastic bag, and the plastic bag is taped to the examination bed (Figs. 2 and 3). The patient is instructed to bite on the mouthpiece, and the condom is attached to the mouthpiece through the plastic bag (Fig. 4). We then create an insertion port using an 18-gauge needle. When attaching the condom to the mouthpiece, it is vital not to apply excessive tension to the plastic bag. The endoscope is inserted through the insertion port, and the endoscopic procedure is performed as usual (Fig. 5). Droplet and aerosol infection can be prevented by the barrier formed by the condom and plastic bag (Fig. 6). Oxygen monitoring is necessary during procedures performed with this method. The patient’s medical history regarding latex allergy should be investigated before the procedure (Video 1, available online at www.VideoGIE.org).

CONCLUSIONS

When the procedure is performed in this manner, the patient’s head remains within the plastic bag. Dissemination of droplets from patients, such as by coughing, sneezing, or vomiting, can be prevented by the condom and plastic bag. Because the shielded plastic bag is fixed to the mouthpiece, it does not affect the operability of the endoscope. Moreover, this safety measure is simple and cost effective. All of the materials for this safety measure are disposable. Importantly, it does not significantly affect the operability of the endoscope.

DISCLOSURE

All authors disclosed no financial relationships.
REFERENCES

1. World Health Organization. Coronavirus disease (COVID-2019) situation reports. Situation report – 77, 2020. Available at: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200406-sitrep-77-covid-19.pdf?sfvrsn=21d1e632_2. Accessed April 7, 2020.

2. Chiu PWY, Ng SC, Inoue H, et al. Practice of endoscopy during COVID-19 pandemic: position statements of the Asian Pacific Society for Digestive Endoscopy (APSDE-COVID statements). Gut. Epub 2020 Apr 2.

3. British Society of Gastroenterology. Endoscopy activity and COVID-19: BSG and JAG guidance. Available at: https://www.bsg.org.uk/covid-19-advice/endoscopy-activity-and-covid-19-bsg-and-jag-guidance/. Accessed April 7, 2020.

4. Irisawa A, Furuta T, Matsumoto T, et al. Gastrointestinal endoscopy in the era of the acute pandemic of COVID-19: recommendations by Japan Gastroenterological Endoscopy Society (Issued on April 9th, 2020). Dig Endosc. Epub 2020 Apr 26.

5. Liu XY, Cai MY, Wang P, et al. How to manage an endoscopy unit during a COVID-19 pandemic. VideoGIE 2020;5:229.

6. Sagami R, Nishikiori H, Sato T, et al. Endoscopic shield: barrier enclosure during the endoscopy to prevent aerosol droplets during the COVID-19 pandemic. VideoGIE. Epub 2020 May 11.

7. Martin DM, Corso C, Fuentes C, et al. Use of a new face shield for patients of the endoscopy unit to avoid aerosol exchange in the COVID-19 era. VideoGIE. Epub 2020 July 4.

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