Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Images in gastroenterology

Underwater endoscope cleaning method for use during COVID-19

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Although few reports have described methods for cleaning endoscopes that can be used during the coronavirus disease 2019 (COVID-19) pandemic, many reports regarding personal protective equipment (PPE) and caution during endoscopic procedures have been published [1–3]. Some guidelines recommended flushing and brushing all accessible channels to remove all organic and other residues [4,5], but brushing can create droplets and aerosols that can increase the risk of infection with SARS-CoV-2.

Here, we introduce a safer underwater cleansing and brushing technique that can minimise the spread of aerosols when cleaning endoscopes that have been used for patients with COVID-19 (Video S1). After endoscopic procedures, the endoscope is wrapped in a plastic bag, which is immersed in an enzymatic detergent solution in a sink cabinet (Fig. 1A). The endoscope is then removed from the plastic bag and placed in the solution (Fig. 1B). Next, a syringe is used to flush accessible channels with the enzymatic detergent solution, after which the endoscope is brushed while submerged in the solution (Fig. 1C). The endoscope surface is cleaned with a neutral detergent using a sponge before an automatic flushing device is used (Fig. 1D). We have not tested aerosol spread ranges for this method, but this appears to be a safe, easy, and quick method to prevent infection during COVID-19. In addition, this technique may be useful even when appropriate PPE is unavailable.

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Fig. 1. A: The endoscope is wrapped in a plastic bag, which is immersed in an enzymatic detergent solution. B: The endoscope is removed from the plastic bag. C: The endoscope is brushed while submerged in the enzymatic detergent solution. 1D: The endoscope surface is then cleaned with neutral detergent using a sponge.

Declaration of competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ajg.2021.12.007.

References

[1] Gralnek IM, Hassan C, Beilenhoff U, Antonelli G, Ebigbo A, Pellisè M, et al. ESGE and ESGENA Position Statement on gastrointestinal endoscopy and the COVID-19 pandemic. Endoscopy 2020;52(06):483–90.

[2] Irisawa A, Furuta T, Matsumoto T, et al. Gastrointestinal endoscopy in the era of the acute pandemic of coronavirus disease 2019: Recommendations by Japan Gastroenterological Endoscopy Society (Issued on April 9th, 2020). Dig. Endosc. 2020. https://doi.org/10.1111/den.13703.

[3] Soetikno R, Teoh AYB, Kaltenbach T, Lau JYW, Asokkumar R, Cabral-Prodigalidad P, et al. Considerations in performing endoscopy during the COVID-19 pandemic. Gastrointest Endosc. 2020;92(1):176–83. https://doi.org/10.1016/j.gie.2020.03.3758.

[4] Calderwood AH, Day LW, Muthusamy VR, Collins J, Hambrick RD, Brock AS, et al. ASGE guideline for infection control during GI endoscopy. Gastrointest Endosc. 2018;87(5):1167–79.

[5] Iwakiri R, Tanaka K, Gotoda T, Oka S, Ohtsuka T, Sakata Y, et al. Guidelines for standardizing cleansing and disinfection of gastrointestinal endoscopes. Dig. Endosc. 2019;31(5):477–97.