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DEN Video Article

Shielding for patients using a single-use vinyl-box under continuous aerosol suction to minimize SARS-CoV-2 transmission during emergency endoscopy

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BRIEF EXPLANATION

AFTER READING MARCHESE *et al.*'s[1] description of using an anesthetic face mask to minimize the risk of endoscopy staff being infected with SARS-CoV-2 by the patient during endoscopy, we developed an alternative means of achieving this. Personal protective equipment is recommended for protecting endoscopists,[2] whereas there are few tools for shutting in patient-generated aerosols. These staff are close to patients and therefore require protection, single-use equipment being preferable. According to current statements, routine endoscopies should be deferred to prioritize urgent therapeutic endoscopies.[3–5] Endoscopies should be performed in a negative pressure room to turn off air circulation in suspected or confirmed cases of COVID-19.[3] We herein introduce a shield constructed from a vinyl-box to enclose these patients (Fig. 1A; Video S1).

A transparent vinyl bag (60 × 45 × 22 cm, 90 L capacity), a space rack (21 × 19 × 44 cm), a piece of cardboard (13 × 8 cm) with 3 cm hole, and a rubber glove (Fig. 1B) are used to create a shield as follows. First, a glove is wrapped around the cardboard and a 12 mm hole is made in the glove to serve as the scope-access route. Next, the card is taped to a prepared hole in the bag. Then, the bag is open-fixed with clips inside the rack, and the open side is fixed with clips on the middle body. The air leakages between clips are minimal, resulting in the upper body being almost completely shielded by the box (Fig. 2A). Aerosols scattered by vomiting are continuously aspirated via a suction tube inserted into one side of the box. In order to maintain patient respiration, the oxygen-insufflated tube is

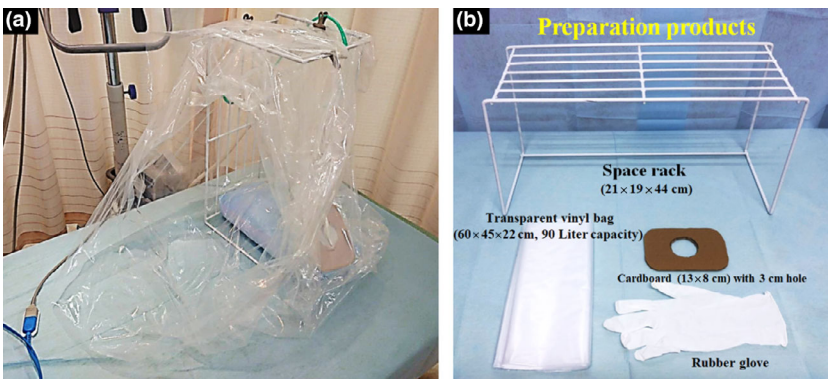

Figure 1 Overview photograph showing the shield for the patient. (A) Required materials, comprising a transparent vinyl bag (60 × 45 × 22 cm, 90 L capacity), a space rack (21 × 19 × 44 cm), a piece of cardboard (13 × 8 cm) with 3 cm hole, and rubber glove.

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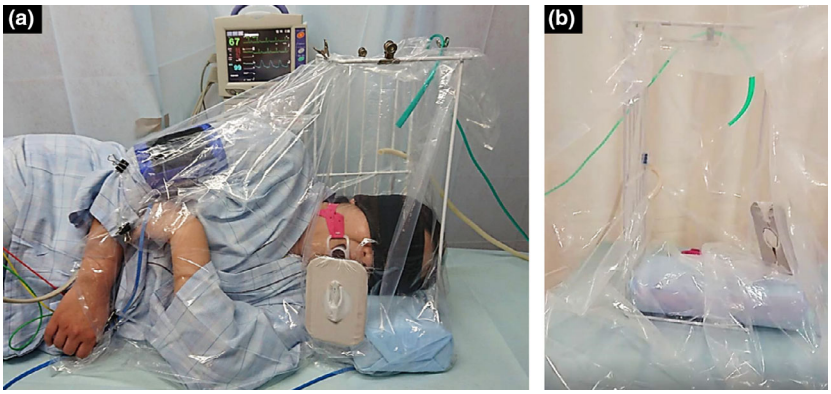

Figure 2 (A) The patient's upper body is almost completely shielded by the box during emergency endoscopy. (B) Inside view: Aerosols are continuously aspirated via a suction tube (white color) inserted into one side of the box, and the oxygen-insufflated tube (green color) is inserted into upper side of the box to maintain patient respiration.

inserted into upper side of the box, monitoring oxygen saturation (Fig. 2B).

This method can be a supportive model for minimizing virus transmission during emergency endoscopy.

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NONE.

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SUPPORTING INFORMATION

ADDITIONAL SUPPORTING INFORMATION may be found in the online version of this article at the publisher's web site.

Video S1 In this video, we introduce an alternative means using a single-use vinyl-box under continuous aerosol suction to minimize the risk of endoscopy staff being infected with SARS-CoV-2 by the patient during emergency endoscopy.