Novel mouth guard for safe endoscopy in the COVID era

COVID-19 is a disease caused by a novel coronavirus (SARS-CoV-2), which is chiefly transmitted through respiratory secretions, aerosols, and contaminated surfaces [1]. Endoscopy is an aerosol-generating procedure and thus carries a significant risk of transmission of aerosol-borne diseases to the endoscopist and staff [2]. During endoscopic procedures, a wide open space is left between the mouth guard and the endoscope, through which large quantities of aerosols escape, increasing the risk of infection.

We have made a few changes in the mouth guard to prevent exposure to aerosols and allow endoscopy to be carried out safely. The elements of the novel mouth guard are: a standard mouth guard, a baby feeding bottle, a feeding bottle nipple, and a triple-layer mask (Video 1).

Take a plastic feeding bottle and cut off the upper end at the neck. Fix this upper end of the bottle to the mouth guard (Fig. 1). Then take the nipple and make a small slit across its top (Fig. 2). Invert the nipple (Fig. 3), place it in the bottle neck, and screw down the collar tightly (Fig. 4). Then take a surgical mask, cut a hole in the middle of it, and fix the assembly into the mask (Fig. 5).

Place the novel mouth guard inside the patient’s mouth and perform endoscopy with all due precautions and necessary protective equipment. The nipple inside the device acts as a perfect valve and prevents aerosols from escaping (Video 1). We have been able to carry out both diagnostic and therapeutic endoscopies with
these changes. We have demonstrated the efficacy of our device by performing a simple experiment simulating endoscopy and aerosol generation (▶Video 1). Our device is cheap, easy to make, reusable, and allows us to do endoscopy more safely during this COVID era.

Endoscopy_UCTN_Code_TTT_1AO_2AN

Acknowledgments
We thank Mr. Kuldeep Singh Katiyar for editing the video.

Competing interests
The authors declare that they have no conflict of interest.

The authors
Sachin Dev Munjal¹, Yogita Munjal²
1 Department of Gastroenterology, Gastro Liver Care Hospital, Saharanpur, Uttar Pradesh, India
2 Department of Histopathology, Gastro Liver Care Hospital, Saharanpur, Uttar Pradesh, India

Corresponding author
Sachin Dev Munjal, MD
Department of Gastroenterology, Gastro Liver Care and Saksham Hospital, Saharanpur, 247001 Uttar Pradesh, India
gastro.liver.help@gmail.com

References

Fig. 5 Novel mouth guard in place in a triple-layer mask, ready for use.