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**Letter to the Editor Regarding: “Coronavirus Neurosurgical/Head and Neck Drape to Prevent Aerosolization of Coronavirus Disease 2019 (COVID-19): The Lenox Hill Hospital/Northwell Health Solution”**



**LETTER:**

**D**'Amico et al<sup>1</sup> suggest an excellent modification of the draping system to cover eyes, nose, and mouth and thus can be used during intubation and extubation to potentially prevent COVID-19 transmission. We would like take this opportunity to share our novel and inexpensive method to protect against aerosol generated during high-speed drilling. Recently we performed 2 neurosurgical procedures using an ingenious shield made with a thin and transparent plastic sheath while drilling. The first was a case of petrotentorial meningioma who underwent retromastoid suboccipital craniotomy (infratentorial), and the second case was of a pituitary macroadenoma, who underwent pterional craniotomy (supratentorial). In both the cases after endotracheal intubation under general anesthesia with all precautions, the patient was positioned supine with the head fixed using a 3-pin Mayfield skull clamp and the surgical site prepped. After exposing the desired regions of the skull, we used a transparent thin plastic sheet present in the disposable draping set to cover the surgical field. We used the powered high-speed drill at 70,000 rpm with a 5-mm cutting burr for making burr holes and craniotomy. The transparent plastic drape cover was used to cover the operative site (**Figures 1–3**) while drilling. Small aerosol clusters were visible on the inner side of transparent film (**Figure 4**). A suction was continuously placed below the drape to remove maximum aerosols. The clear transparent nature of this film allowed vision of the drilling site, and the light and flexible nature ensured that this sheet did not hinder any maneuvering.

High-speed drills are commonly used in neurosurgical procedures and can spread aerosols a distance of up to 3.5 feet.<sup>2</sup> During high-speed pneumatic drilling, aerosols are being generated that contain small particulate matter which can be inhaled easily and/or be deposited over the conjunctiva.<sup>3</sup> It has been reported that high-speed drills generate aerosols, and their distance of spread depends on the surgical procedure potentially creating a risk of viral transmission, although low.<sup>4</sup> Certain procedures like mastoidectomy have been reported to cause even wider spread of aerosols.<sup>5</sup> SARS-CoV-2 has been shown to survive up to 3 hours in aerosols and 72 hours on the

surfaces.<sup>6</sup> Literature review revealed multiple studies that showed that aerosols containing infective organisms are present in the air and on surfaces even at a distance.<sup>7,8</sup> Although the use of adequate personal protective equipment (PPE) is essential, we cannot ignore that significant self-contamination happens during doffing of PPE<sup>7</sup>; hence, curtailment of aerosol deposition in outer layers of PPE will be beneficial. We observed that there was significant trapping of aerosols to the underside of the plastic sheath, and thus there was potential reduction in aerosols from spreading farther and contaminating the operating room. This modification may not be the ideal alternative and may not be feasible in certain circumstances, but it can be used judiciously in desperate emergency circumstances with due precautions (**Video 1**).



Video available at  
[www.sciencedirect.com](http://www.sciencedirect.com)

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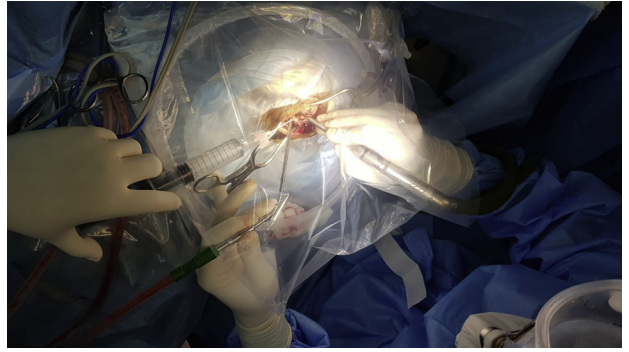
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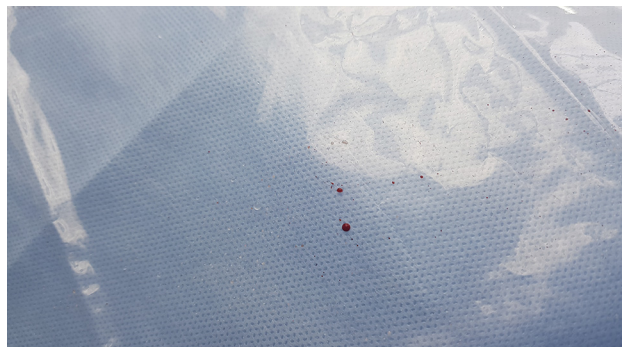
**Figure 1.** The thin and transparent sterile plastic sheet supplied with the disposable draping kit.



**Figure 3.** Drilling the skull bone under the plastic drape. Constant application of suction and irrigation is being done.



**Figure 2.** Applying the plastic drape over the exposed skull bone before drilling.



**Figure 4.** Sprays and aerosols that are trapped on the undersurface of the sheet.