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**In Reply to the Letter to the Editor Regarding “The Return Back to Typical Practice from the ‘Battle Plan’ of the COVID-19 Pandemic: A Comparative Study”**



**W**e appreciate Dr. Mishra's interest and letter to the editor regarding our recent report describing our center's return to typical practice after coronavirus disease 2019 (COVID-19).<sup>1</sup> In this letter, the authors discuss the potential risks associated with performing endoscopic endonasal procedures during COVID-19.<sup>2</sup> In particular, because of the quantity and proportion of endoscopic endonasal procedures performed at our center during the post-COVID-19 period, Mishra et al.<sup>2</sup> have asked us to discuss our experience with these procedures and how we safely manage them in our practice.

First and foremost, we are aware of the increased risk presented by endoscopic endonasal procedures and recognize the American Academy of Otolaryngology-Head and Neck Surgery's recommendation for “extreme caution when advising procedures or surgery occurring through a transnasal or transoral route.”<sup>3</sup> In their guidelines, the Academy also stated that nonemergent surgical procedures, “should only be undertaken after ascertaining the COVID-19 status and then performed using either N95 respirator masks with either goggles or a face shield or PAPR [powered air purifying respirator].”<sup>3</sup> In addition, in a report by D'Amico et al.<sup>4</sup> describing a feasible return to neurosurgical practice, they recommended delaying all nonemergent endoscopic endonasal procedures until preoperative COVID-19 testing can be performed.

During the month reported from the COVID-19 “battle plan” era, we performed 2 neurosurgical endoscopic endonasal procedures (2.2% of all surgical procedures).<sup>5</sup> After the discontinuation of our “battle plan,” in the post-COVID period now encompassing 3 months, we have performed 16 neurosurgical endoscopic endonasal procedures (3.3% of all surgical procedures). For comparison, a control group composed of patients who had undergone neurosurgical intervention during a 6-month period (January 1 to June 30, 2019) was retrospectively collected from the medical records and averaged to a 3-month period. In this cohort of a “typical” volume, 17 neurosurgical endoscopic endonasal procedures (2.6% of all neurosurgical procedures) had been performed within 3 months.<sup>1,5</sup>

Our algorithm for performing neurosurgical endoscopic endonasal procedures safely is as follows. All patients undergoing surgical intervention are required to have a negative COVID-19 test result the day before scheduled surgery. To the best of our knowledge, we have not had to cancel any cases because of any positive test results. For endoscopic endonasal procedures, patients are brought to a negative pressure room for anesthesia

induction and intubation. The endotracheal tube and ventilator possess a high-quality mechanical filter with a viral filtration efficiency of  $\geq 99.99\%$  to reduce aerosol spread. To further reduce potential exposure, only the patient and anesthesiologist, wearing a N95 respirator mask and eye protection, are present for intubation. Afterward, the patient is brought to the operative suite. During the procedure, just as the American Academy of Otolaryngology-Head and Neck Surgery has recommended, all personnel wear N95 respirator masks and eye protection throughout the entirety of the case. After the procedure, the patient is also extubated in the negative pressure room, with only the anesthesiologist, wearing a N95 respirator mask and eye protection, present. The operative suite is then completely sanitized.

The algorithm at our center focuses on reducing potential COVID-19 exposure to all personnel, especially those involved in endoscopic endonasal procedures owing to the high risk of aerosols emanating from patients intraoperatively. In the algorithm described, we follow the recommendations from the American Academy of Otolaryngology-Head and Neck Surgery<sup>3</sup> and reports from colleagues such as the report by D'Amico et al.<sup>4</sup> We hope that by disclosing our algorithm in this response, other centers can use it to safely resume neurosurgical endoscopic endonasal surgeries for patients in need.

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