

In Reply: Precautions for Endoscopic Transnasal Skull Base Surgery During the COVID-19 Pandemic

To the Editor:

Since the initial conception of our original letter to the editor,¹ the COVID-19 pandemic has unfortunately progressed to infect over 900 000 individuals resulting in over 45 000 deaths,² and is growing exponentially. Well-documented analysis has traced the travel of infected individuals from Wuhan, China, to New York, Milan, Tehran, and Madrid, cities in countries that in the last week have seen infection levels approach, if not exceed, levels at the initial epicenter in China.³ Indeed, over half of all the world's documented infections are in Europe (450 000), and the United States is the country most plagued with over 200 000 cases.²

It was with that concern in mind that, when colleagues from China alerted us to the potential spread of COVID-19 to operating room staff, and with increasing reports of significant morbidity and mortality among otolaryngologists in several countries, we were motivated to rapidly share our concerns with the surgical community. The primary purpose of our Letter,¹ as the title suggests, was to alert the international readership of *Neurosurgery* that precautions for endoscopic transnasal skull base surgery during the COVID-19 pandemic were warranted. If our Letter¹ potentially prevented *one* infection, we would feel we have succeeded in our primary purpose.

The Wuhan group (Huang et al⁴), in their recent reply, raised an issue with our report that suggested the likelihood of intraoperative transmission. They confirmed that 14 individuals in their hospital, involved with the care of a COVID-19 patient undergoing transnasal surgery, indeed became infected, but raised the possibility that the infections were from direct contact outside the operating room and not from aerosolization of viral particles in the operating room. We thank them for their response and welcome their report. We acknowledge the difficulties in dealing with the earliest stages of the outbreak in Wuhan, and the controversy and/or challenges regarding its initial management.

Despite the absence of direct knowledge by the authors of the Reply Letter,⁴ we did confirm that the second case of COVID-19 transmission from a patient who underwent emergent transnasal surgery for pituitary apoplexy, as documented in our report,¹ did occur at a different hospital in Wuhan, where providers in the operating room became infected despite the use of N95 personal protective equipment (PPE). Interestingly, the anesthesiologist in that case, who wore a powered air-purifying respirator (PAPR), was not infected. As we acknowledged in our Letter,¹ anecdotes and personal communications alone cannot provide the definitive evidence we need to make the best decisions regarding PPE in these cases. However, we feel it is unwise to ignore the evidence

we do have: that viral load is high within the nasal cavity, that when performing endoscopic surgery we are working within and through that corridor, and that surgical maneuvers can aerosolize mucus particles along with any virus therein.

The concerns for potential spread during endonasal surgery in a COVID-19 patient remain high, and our recommendations for preoperative COVID-19 testing and use of PPE are strong. While we agree there is no hard data at this point proving that endonasal surgery in COVID-19 patients can cause widespread infection of operating room personnel, we feel that until further evidence becomes available the recommended precautions should remain in place: COVID-19 testing should be performed when possible, PPE should be employed for all endoscopic cases and for all involved personnel, surgery should be delayed when possible, consideration should be given to transcranial approaches for certain locations where possible, and PAPR use should be encouraged in the rare occurrence of a symptomatic COVID-19-positive patient needing emergent endonasal surgery.

We look forward with optimism towards the future of endonasal surgery, as COVID-19 testing becomes more rapid and widely available, which should help to inform our understanding of the immune response and immunity of both patients and providers. Similarly, worldwide efforts to control the pandemic, as demonstrated in China and South Korea, among others, will hopefully reduce the incidence of this disease in health care providers and in our potential patients.

We applaud the efforts of all physicians and surgeons serving in Wuhan and other corners of the globe, without whom the toll from this virus would have undoubtedly been much greater. We thank the authors for their response to our Letter, as we always welcome open scientific discourse and any information that can be shared globally regarding COVID-19-related cases in order to best protect our hospital teams, our patients, and ourselves.

Disclosures

The authors have no personal, financial, or institutional interest in any of the drugs, materials, or devices described in this article.

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