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Letter to the Editor Regarding “Early Changes to Neurosurgery Resident Training During the COVID-19 Pandemic at a Large United States Academic Medical Center”



LETTER:

We read with great interest the article entitled “Early Changes to Neurosurgery Resident Training During the COVID-19 Pandemic at a Large United States Academic Medical Center.”<sup>1</sup> In this article, Burks et al.<sup>1</sup> described the impact of the 2019 novel coronavirus disease (COVID-19) pandemic on neurosurgery resident training. The authors analyzed the resident and institutional case totals for their residency program in Miami-Dade County, Florida, USA, from January 1, 2019, to June 30, 2020. They observed significantly lower cases logged in by the residents during the months of April and May in 2020 compared with 2019. This corroborated with the reductions in the surgical volume of the department during the COVID-19 pandemic in Miami in April and May 2020. While all specialties decreased during the ongoing COVID-19 pandemic, the maximum decline was observed concerning cases of thoracic/lumbar laminectomy with or without instrumentation, functional/epilepsy, and neuroendovascular cases.

Burks et al.<sup>1</sup> stated that theirs is the first report on relative changes in surgical numbers during the ongoing pandemic by case type. We would like to bring to their attention our experience from the All India Institute Medical Sciences, Rishikesh, India, where we described the change in volume and spectrum of cases during the ongoing COVID-19 pandemic during the lockdown period in the country (March 25 to May 31, 2020) and compared it with that from the same period of time in 2019.<sup>2</sup> During the lockdown period in 2020, we performed 53 surgeries (47 emergency, 6 routine) compared with 111 surgeries (47 emergency, 64 routine) during the same time period in 2019, indicating an overall decline of 52.2%.<sup>2,3</sup> Furthermore, as the number of COVID-19 cases rose in the state, the number of surgeries performed per week declined steadily ( $R_{S8} = -0.914$ ,  $P = 0.000$ ). On comparing our operative workload per specialty with the pre-COVID-19 era, a decrease in number of cases was noted across all specialties. We observed that the number of neuro-oncology cases decreased from 36 (30 cranial, 6 spinal) in the pre-COVID-19 era to 14 (12 cranial, 2 spinal) during the COVID-19 period. Of these, only 1 case was done by the transsphenoid route during the COVID-19 period compared with 3 cases in the pre-COVID-19 era. Neurotrauma cases also decreased from 27 (21 head injuries, 6 spinal injuries) in this time period in 2019 to 15 (12 head injuries, 3 spinal injuries) during the pandemic. There were 2 cases of surgical clipping of intracranial aneurysms during the COVID-19 lockdown compared with 5 cases during the same time period last year. No patients underwent surgery for congenital conditions or degenerative spinal disorders during the lockdown period, whereas 7 congenital conditions and 9 degenerative spinal disorders were surgically treated during the same time period in 2019. The number of cerebrospinal fluid diversion procedures was

least affected during the pandemic (18 in the time period in 2019 vs. 16 during COVID-19).<sup>2,4,5</sup> Neurosurgical centers from across the world have been forced to restrict their operative and outpatient volumes and change from physical outpatient encounters to telemedicine, which is likely to have an adverse impact on resident training.<sup>6-25</sup>

Decrease in operative volumes has reduced surgical opportunities for residents. Regarding resident training, we have observed findings very similar to Burks et al.<sup>1</sup> at our center as well as all over India. At our center, we have taken various measures to prevent infections in the residents by restricting physical outpatient encounters, canceling elective cases during the peak of the pandemic, working with reduced staffing, and providing all health care workers with adequate personal protective equipment.<sup>26,27</sup> With these changes, we have been able to maintain our emergency neurosurgery services and have not had a single case of COVID-19 in any of our residents.<sup>28</sup> Similar measures were taken at the institution of Burks et al.,<sup>1</sup> but they have reported that 2 residents in their program were infected with COVID-19, as Miami was badly impacted at the time their study was conducted.

Burks et al.<sup>1</sup> expressed concern about the effect of the pandemic on residents' surgical training. They reported that their residents logged in an average of 15 (58%) and 5 (20%) fewer cases in April 2020 and May 2020, respectively, and this result was statistically significant. In a nationwide survey conducted among 118 neurosurgery residents from India from May 7, 2020, to May 16, 2020,<sup>29</sup> we observed a significant decline of 67.5% in the surgical exposure of residents since the onset of the pandemic, with the average number of surgeries performed by a resident decreasing from 39.9 to 12.3 per month ( $P = 0.000$ ). In addition, three fourths of respondents reported hampering of research activities, and the number of academic sessions had decreased by 32.6% from a median of 5 per week to 2 per week ( $P = 0.000$ ).<sup>5,30,31</sup> Departments of >60% of our respondents had transitioned from physical classroom teaching to video conferencing platforms to conduct academic sessions. During the pandemic, most neurosurgery residents resorted to self-study (83.89%), scientific writing (43.22%), and attending online educational programs (73.72%) in the extra time available. Other authors from across the world have voiced their concerns regarding neurosurgery training during the COVID-19 pandemic.<sup>32-36</sup> Zoia et al.<sup>32</sup> from Italy reported that surgical exposure during the pandemic decreased for 78.6% of residents, while 16.1% did not operate at all. Burks et al.<sup>1</sup> suggested increasing the number of residents scrubbing in each case to at least partially make up for the loss in surgical exposure. Training is a time for neurosurgery residents to learn as much as they can from their patients, colleagues, attending consultants, and staff in terms of learning clinical and operative skills as well as focusing on research and academics. These years of intensive training are “make or break” time in the life of every neurosurgeon. No stone must be left unturned to ensure that the training of neurosurgery residents does not suffer during the ongoing pandemic. Various neurosurgery societies have taken on the responsibility and are conducting online educational programs to ensure continued neurosurgery training.<sup>37-39</sup>

## CRediT AUTHORSHIP CONTRIBUTION STATEMENT

**Nishant Goyal:** Conception and design of the study; Writing-original draft; Visualization; Writing-review and editing. **Jitender Chaturvedi:** Data curation. **P. Prarthana Chandra:** Writing-original draft; Visualization. **Amol Raheja:** Writing-review and editing.

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