



Letter to Editor

Neurosurgical experiences of a Bengaluru teaching hospital during the COVID-19 pandemic

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Dear Editor,

We have read with great interest the letter titled “Experiences of a neurosurgical center in the United Kingdom during the coronavirus disease 2019 (COVID-19) pandemic,”^[1] which detailed how the pandemic transformed several aspects of a neurosurgery center in the UK. That letter has inspired us to detail our own experiences about how the pandemic put our department in a straightjacket. What makes our experience particularly unique is how our case volume dropped significantly due to the lockdown and banning of interstate travel.

COVID-19 is a deadly pandemic first isolated in Wuhan, China, in December 2019.^[16] On January 30, 2020, the first case of COVID-19 was reported in India from Kerala.^[16] Although this case recovered less than a month later, more and more cases from India’s different states and union territories were reported from early March onwards. The first two COVID-19 deaths were recorded on March 14, 2020.^[16] When accessed on November 26, 2021, the WHO website^[18] displayed the following data that India had recorded:

A total of 9,119 new cases in the past 24 hours, a cumulative of 34,544,882 cases, and 466,980 deaths due to COVID-19 from January 3, 2020, to November 25, 2021.

The second wave of COVID began in the middle of March 2021.^[5] India is now continuing through its second wave of COVID and even surpassed over 400,000 confirmed cases/day a couple of times in May 2021.^[4,14]

On March 8, 2020, the first case of COVID-19 was reported in the state of Karnataka.^[8] Bengaluru Urban, a district within Karnataka, as of November 26, 2021, recorded 224 new cases and has the highest number of total cases in the state at 1,255,835. It also has the largest number of COVID-19 deaths in the state at 16,327.^[10] In a 3-month analysis conducted by Kumar *et al.*,^[8] Bengaluru, the capital of Karnataka belonging to the Bengaluru Urban district, recorded the most cases, and was considered an origin for positive cases detected in other cities of the state.

STRUCTURAL ACCOMMODATIONS

Our 1,600 bedded multispecialty institute is located in the center of a busy IT hub in Bengaluru. A couple of months into the pandemic, our institute was configured to accommodate the needs of COVID-19. The outpatient departments (OPDs) of all specialties, previously spread

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across five floors, were crowded into the ground floor to convert the remaining floors into COVID-designated wards and ICUs. The neurosurgery ward and ICU patients were merged into the first-floor wards, where patients from other surgical departments were also placed. Although the initiative created hundreds of beds for COVID-19 patients, the lack of social distancing in the OPD and surgical wards put medical personnel and patients at risk for contracting the virus. Gradually, the departments' OPDs were back in their original locations after a couple of months of achieving a degree of control of the COVID cases within the first wave itself.

WORKFORCE

We immediately noticed that our department was pushed to its limits in terms of workforce. Before the pandemic, in February 2020, our department had four neurosurgery residents. Now, we are left with only one resident due to a delay in entrance examinations because of COVID. In view of this, the staff surgeons have helped the resident take night calls. With the next superspecialty entrance examination in January 2022,^[12] and the new surgeons possibly arriving a couple of months from then, it will be challenging to avoid physician burnout and maintain positive morale.

Even when we had more residents, they were often diverted from their departmental responsibilities and gave up their operating time to assist the residents of anesthesiology and internal medicine to manage COVID-19 patients. Contributions from disciplines nonspecific to COVID-19 were made mandatory by our institute. When our residents performed their COVID-19 duties, they were considered the senior physicians of that ward and had internal medicine along with anesthesiology residents report to them. After performing one week of duty in the COVID-19 wards, they were allowed to quarantine for seven days before returning to the department. This was reduced to three days of working followed by one day of quarantine during the second wave.

Working in a hospital during such a time also created great fear and anxiety. A recent article stated that more than 1000 Indian doctors have died due to COVID.^[9] Several of our out-of-state colleagues have died because of this virus.

CASE VOLUME AND TYPE

Before COVID-19, our department would operate on 40–50 patients/month with a spinal to cranial surgery ratio of 7:3. Surgeries of peripheral nerve lesions are performed to a minimal extent in our institute. The pandemic reduced our daily patient volume from approximately 20–25 patients to just 2–3 patients presenting to our OPD. After the initiation of the national lockdown,^[16] we would operate on approximately 15 patients/month. Although

the local population contributes a fair number of cases to the hospital, the patients from West Bengal, a state located in East India, comprise most of the patient load for all departments, including neurosurgery. This is partly due to the community outreach programs that our hospital has in West Bengal. We strongly believe that halting the railway services from different parts of India, especially West Bengal, directly contributed to our significant case decline.^[11,15,16] Our trauma consultations from the emergency department also decreased due to the lockdown. A neurosurgical group from India quantified how many surgeries they were performing before and during the pandemic, and they also found that their trauma operations decreased.^[3] When the travel restrictions were removed, and the lockdown was lifted, we experienced an increase in our cases but nowhere near the numbers we once used to average. Our case volume continues to increase during the second wave.

PATIENT CARE

In our initial assessment, we now included questions about the patient's travel history, common and uncommon symptoms of COVID,^[2] contact with positive cases, and previous treatment of COVID. Due to the provisions in our hospital, requirements for advanced imaging (MRI and CT) meant establishing timings when only COVID patients were allowed scans. Separate machines were also used to avoid the possible spread of infection. Before patients were allowed to be operated on, a COVID test was mandatory. Performing repeat RT-PCR tests three times consecutively to achieve a high negative predictive value^[6] were out of consideration due to the financial demographic of all of our patients. We performed a single RT-PCR test, when possible, up to 24 hours before the operation. To get admission into the hospital, patients must have had a negative rapid antigen test. When an urgent surgery was planned and not enough time was there to get the RT-PCR results back, a GeneXpert test was performed.^[13] The possibility of operating on a patient with a false-negative RT-PCR or GeneXpert test^[7,17] was combated by donning N95 masks instead of the traditional surgical mask as this was now part of the institute's surgical protocol. When there was not enough time to get a GeneXpert done, the team operated while trusting the rapid antigen test results, wearing personal protective equipment, and an N95 mask.

Concerning ruptured intracranial aneurysms, Goyal *et al.*^[3] concluded that many more would have been operated on if they had access to transport. This may be true for other emergent vascular pathologies. Thus far, three COVID-positive patients developed hypertensive bleeds in our hospital, for which a neurosurgery consultation was done.

These patients had poor Glasgow Coma Scale scores, and thus, conservative treatment was opted for by the relatives. Two of our patients, without emergency indications (one meningioma and one chronic subdural hematoma), had their surgeries postponed because they tested positive while admitted to the hospital.

EDUCATION AND RESEARCH

During the first wave, several eager interns (5th year medical students) interested in neurosurgery could not experience any operations during their brief one week rotation. An opportunity that came with less operating was that more time was dedicated to resident didactics such as journal clubs, presentations, and research. As something that previously happened less frequently due to operating or being at the bedside, we now have academic sessions almost five times/week. We also spend more time with our interns teaching them neurosurgery basics and are more active in conducting various types of research. Interns posted with us during the second wave have gotten good exposure to both spinal and cranial cases.

CONCLUSION

COVID-19 transformed neurosurgical practices across the world in more ways than one. This temporal but prolonged stunting of operating on elective cases only means that we expect our OPD and operating theaters to be filled very soon. As a result, patients may have to wait longer to get the surgery they need, creating a dilemma for the surgeon to prioritize the elective cases. Balancing elective cases with emergency cases will require an advanced level of organization, especially with a short-staffed team. We hope to maintain our commitment to didactics and continue research projects going forward.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest.

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