COVID-19: Early detection and timely diagnosis in a neurological setup

Sir,

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causes an infectious disease, coronavirus disease 2019 (COVID-19). It was declared as a pandemic by the World Health Organization (WHO) on 11 March 2020. It has affected more than 10 lakh people in India till today.

Early and rapid diagnosis of this disease will help in early management of patients.

Reverse transcriptase polymerase chain reaction (RT-PCR) testing is the tool available at the moment for the definitive diagnosis of COVID-19. As government approval is mandatory and there is a paucity of diagnostic kits of RT-PCR, imaging techniques could be used in selected patients suspected of COVID-19.

We present two case reports wherein both the adult patients aged between 35 and 40 years presented to the emergency department of our non-COVID neurological setup in a drowsy state with history of fever for past two days and convulsions. Both the patients had generalised tonic, clonic seizures.

Sir,

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causes an infectious disease, coronavirus disease 2019 (COVID-19). It was declared as a pandemic by the World Health Organization (WHO) on 11 March 2020. It has affected more than 10 lakh people in India till today.

Early and rapid diagnosis of this disease will help in early management of patients.

Reverse transcriptase polymerase chain reaction (RT-PCR) testing is the tool available at the moment for the definitive diagnosis of COVID-19. As government approval is mandatory and there is a paucity of diagnostic kits of RT-PCR, imaging techniques could be used in selected patients suspected of COVID-19.
at home which lasted for 2–3 minutes. After initial neurological assessment and stabilisation of general condition, the patients were shifted to the imaging department for computerised tomography (CT) brain to rule out neurological reasons for convulsions. CT brain of one patient was normal while that of the other revealed bilateral chronic thin subdural collections.

Because of clinical suspicion of COVID-19 we did high resolution computerised tomography (HRCT) chest for both the patients. In both the patients HRCT revealed classical ground glass opacities suggestive of viral pneumonia. [Figure 1] Laboratory investigations done for both the patients came in favour of COVID-19. RT-PCR assay for both the patients detected SARS CoV2 virus. However, the results were available only after 48 hours. Our setup was declared as non COVID setup by local authorities and to get the RT-PCR done from private labs was a tedious procedure.[2]

Both the patients responded well to anti-seizure medication therapy along with antiviral treatment and were discharged.

COVID-19 is associated with various neurological problems like seizures, headache and loss of consciousness. Patients may develop complications like encephalitis and encephalomyelitis.[3]

Upon nasal infection, entry of corona virus into the central nervous system (CNS) occurs through the cribriform plate causing inflammation and demyelination. In less than 7 days after the infection, the virus affects brain and cerebrospinal fluid causing various neurological symptoms along with lung injury.[4] Cerebrovascular complications can also occur due to hypercoagulable state in COVID-19. These patients with convulsions and other neurological emergencies need immediate neurological intensive care to reduce the morbidity and mortality. At the same time if they are suspected of COVID-19, they need isolation.

The RT PCR test which detects specific viral genetic material still remains a gold standard for diagnosis of COVID-19. However, it has lower sensitivity and test results take more than 24 hours.

False negative test results of RT PCR delay the diagnosis and delay medical management and proper patient isolation. This may increase the risk of infection to the health care workers (HCWs).

Radiological imaging findings may help the clinician in early preliminary diagnosis of COVID-19. High sensitivity and easy availability of these imaging techniques may help in fast track diagnosis of COVID-19 in clinically suspected patients.[5] In both our cases because of high clinical suspicion, HRCT was advised. The findings were suggestive of viral pneumonia. Rapid diagnosis could be made and patients were well managed medically. After 48 hours, nasopharyngeal swab report came positive for COVID-19. Thus, in both our patients, HRCT helped in the rapid diagnosis of COVID-19 and the patients were managed successfully.

In patients who present with altered neurological status with convulsions and fever, testing for SARS – COVID-19 should be conducted.[6] HRCT plays an essential role in the evaluation of COVID-19 in neurological emergencies. It plays a crucial role in patient care and protecting HCWs appropriately.

To conclude, the vigilance of the anaesthesiologist/intensivist in a neurological set-up plays a pivotal role in rapid diagnosis of COVID-19, preventing the risk of HCWs exposure to novel corona virus in the current pandemic of COVID-19.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.
Sir,

Since the government of India elevated its response to unprecedented severe acute respiratory syndrome (SARS-CoV-2) pandemic, Indian Council of Medical Research (ICMR) has asked to postpone elective surgeries till pandemic is over in order to focus on managing SARS-CoV-2 pandemic. As per ICMR guidelines, emergency procedures should be performed even without SARS-CoV-2 testing. [1]

There is a long list of patients waiting for elective surgeries and we need to consider safety of patients and health care workers (HCW). There are American Society of Anesthesiologists and Anaesthesia Patient Safety Foundation recommendations for assessing all patients for SARS-CoV-2 by reverse transcription polymerase chain reaction preoperatively. [2]

These recommendations have been suggested possibly based on current knowledge about SARS-CoV-2. As per latest guidelines by ICMR, rapid antigen test (Std Q COVID-19 Ag) to be done for asymptomatic patients undergoing aerosol-generating surgical/nonsurgical interventions, which includes elective/emergency surgical procedures like neurosurgery, ear-nose-throat (ENT) surgery, dental procedures; nonsurgical interventions like bronchoscopy, upper gastrointestinal endoscopy, and dialysis. [3]

Few retrospective reports from Wuhan, China and other countries have shown higher morbidity in patients undergoing surgical procedures during incubation period. [4,5]

Due to these initial reports, there was reluctance in medical fraternity about going ahead with surgical/nonsurgical interventions. As we are going through a rapidly changing situation that has not been