Case Report

Stroke — Next Wave of Complications from COVID-19

Jaideep Singh¹, Ayushi Gulati², Smritikhari², Himanshu Chaudhary³, Pritish Mahanta⁴, Atul Verma⁴, T R Sirohi⁵

Since the declaration of COVID-19 infection as Pandemic in March, 2020, There has been rise in Multisystem Complications apart from regular Acute Respiratory Syndrome which is hallmark of COVID-19 infection. As the second wave surge of COVID-19 has occurred, most of the patients already suffered from dyspnoea but also rare complications like CVA (Infarct and Haemorrhage), Seizure and altered sensorium related to Hypoxic Brain Injury. COVID-19 frequently presents with a state of altered coagulability which increases the risk of pulmonary embolism and other Thrombotic events such as Cerebrovascular events. This case report is limited to Neurological complications seen in COVID-19 Infected patients.

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Key words: CVA, Acute Respiratory Distress Syndrome, Coagulability, Neurological.

The COVID-19 infection caused by SARS- CoV-2 virus has been declared Pandemic by World Health Organization since March, 2020¹. The most frequent presentation of the disease is viral pneumonia with fever and dry Cough, Acute Respiratory Syndrome due to COVID-19 infection was primary identified in Wuhan City, China on January, 2020². there is evidence of heterogeneous spectrum of Multisystem involvement due to distribution of ACE receptors over different sites in human body.

COVID-19 frequently presents with a state of altered coaguability which increases risk of Pulmonary embolism and other thrombotic events such as Cerebrovascular events in marked number of COVID patients. Patients present with altered D-dimer, Fibrinogen and Ferritin levels.

Cases discussed in this report were admitted in Lokpriya Hospital (Reg no- RMEE1900995), Meerut – A Primary care facility (COVID Section) in western UP which is primarily a Sugarcane belt of India where most Patients are Uneducated and belong to lower Socio-economic status.

Case 1 :

Hb	13.7	D-Dimer	1084.37	
TLC	12.8	LDH	878	
Neut.	94	FERRITIN	388.18	
Lympho.	6	HBA1C	7.1	
Urea	39	PT/INR	12.4/1.06	
Creat	1.2	CRP	103.7	
Na	136			
Ιĸ	3.9			

Department of General Medicine, Subharti Medical College, Meerut, Uttar Pradesh 250005

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Editor's Comment:

 As COVID pandemic still running Globally so clinician should also aware other manifestations other than Respiratory system.

A Male patient 51 years (UHID-11106) came with c/o difficulty in Breathing x 6days , with vitals, PR 100/min, BP 132/86mmhg, RR 34/min temperature 98.4F Spo2 74% in RA. No history of any comorbidities. Patient's COVID Antigen test was done, which came out to be positive and patient was admitted in COVID Section for further management. Patient was taken on continuous O2 support via NRBM and maintained Spo2 90-92%, Relevant investigations are-

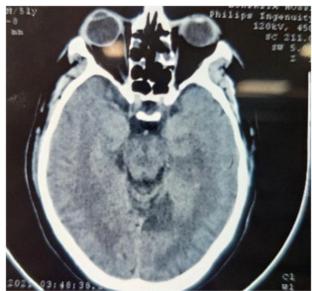


Fig 1 — HRCT chest S/O CTSI 18/25.

During the Course of treatment, On 3rd day, patient started complaining of weakness in Right Upper Limb

¹MD (Gen Medicine), Senior Resident and Corresponding Author ²MD (Gen Medicine), Senior Resident

³MS (Gen Surgery), Senior Resident, Department of General Surgery

⁴MD (Gen Medicine), 3rd Year Junior Resident

⁵MD (Gen Medicine), Professor

and Lower Limb, on examination, plantars were found extensor on right side and flexor on left side, B/L pupil were normal size normal reactive. Power in Right Upper Limb was 3/5 and Lower Limb 4/5. After which immediate NCCT head (Fig 1a) was done. Which were suggestive of SUBTLE HYPODENSE AREA OF MEAN 20HU NOTED INVOLVING LEFT OCCIPITAL, THALAMUS AND CORONA RADIATA REGION/ ISCHEMIC INFARCT, patient's blood thinner were increased after taking Neurology opinion.

Patient was then managed conservatively. Patient was then discharged with stable vitals at room air with COVID RTPCR negative report., with existing Neurological deficit and mild Post COVID symptoms.

3 more Cases are discussed in this Case report showing CNS related complications in Admitted COVID Infected patients.

DISCUSSION

Even though, most common manifestation of COVID-19 is Respiratory Failure, but during the Second wave Patients had constellation of Neurological manifestations like headache, vertigo, dizziness, loss of smell and taste, as mild symptoms and Major complications like Seizures, CVA (infarct / bleed) has been present in COVID-19 patients.

The pathophysiological mechanisms that underlie Cerebrovascular events in COVID-19 could potentially be related to vasculopathy⁴. In addition, there is an increase of conventional Stroke risk during Sepsis⁵, comorbidities, such as Diabetes, Hypertension, Dyslipidemia enhance expression of Angiotensin-converting enzyme2 receptors in the Brain and neurotropism of SARS-CoV-2 virus⁶.

The above cases discussed shows that without any prior Neurological history, patient presented or developed these Neurological complications, attributed to the SARS-CoV2 infection. Therefore, multidisciplinary approach needed in management of COVID-19 patients.

From the beginning of COVID-19 Pandemic, potential Central Nervous System involvement has been hypothesized through various etiological mechanisms, including direct Neuroinvasion⁷, parainfectious autoinflammatory involvement⁸⁻¹¹, endothelial dysfunction¹² and indirect involvement due to altered homeostasis such as altered coagulative states that cause an increase in ischaemic hemorrhagic lesions¹³⁻¹⁸.

Further studies are needed to determine whether these Neurological complications are more due to Thrombo Inflammation caused by SARS-CoV-2 virus due to enhance expression of ACE-2 receptors in the brain or due to Prophylactic/overuse of anticoagulant therapy in hopitalised patients.

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