CASE REPORT

Young COVID 19 presenting as fatal subarachnoid hemorrhage: Association or chance?

Wanjari AK¹, Ayush Dubey², Sourav Chaturvedi², Sunil Kumar¹

¹Professor, Department of medicine, Jawahar Lal Nehru Medical College, Datta Meghe Institute of Medical Sciences, (Deemed to be University), Wardha, Maharashtra, India
²Post graduate Resident, Department of medicine, Jawahar Lal Nehru Medical College, Datta Meghe Institute of Medical Sciences, (Deemed to be University), Wardha, Maharashtra, India.

Corresponding author
Post graduate Resident, Department of medicine, Jawahar Lal Nehru Medical College, Datta Meghe Institute of Medical Sciences, (Deemed to be University), Wardha, Maharashtra, India
Email: drayushdubey23@gmail.com

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ABSTRACT

The coronavirus disease due to severe acute respiratory syndrome-Corona virus 2 emerged in Wuhan city, China in December 2019 and rapidly spread more than 200 countries as a global health Pandemic. While its effects on respiratory symptoms are well...
recognized, neurologic manifestations have been rarer. We report a case of 21-year-old COVID 19 positive female who presented with fatal Sub arachnoid hemorrhage.

Keywords: covid-19, subarachnoid hemorrhage, association, case report

1. INTRODUCTION
The novel corona virus outbreak occurred in December of 2019 in the form of pneumonia cases in Wuhan, China. It spread exponentially and WHO declared it as a pandemic on 11th March 2020 (Whembolua & Tshiswaka, 2020). In India the total number of COVID 19 cases till 1st June 2020 were 1, 90,535 out of which 5394 were died with mortality Rate of 2.83 % (Mohfw.gov.in. 2020). Although the typical clinical picture is mainly related to the respiratory system and usually includes symptoms as fever, shortness of breath, and cough, there are cases with involvement of other body systems. Neurological manifestations have also been reported (Asadi-Pooya & Simani, 2020; Baig et al., 2020; Ye et al., 2020; Moriguchi et al., 2020). A case of novel Corona virus Disease 2019 and Subarachnoid hemorrhage is recently reported (Ye et al., 2020). Probably this may be the first report from India in which a 21-year-old COVID positive female patient succumbed to subarachnoid bleed.

2. CASE REPORT
A 21-year-old female patient came to the casualty with history of fever, headache and altered sensorium since 5 days. She denied any history of hypertension, diabetes mellitus, chronic obstructive pulmonary disease and bronchial asthma. Patient had recent history of travelling from Pune, Maharashtra, a red zone by COVID 19 prevalence standards. On general examination patient was afebrile with pulse of 112 per minute, Blood Pressure of 100/70 mm of mercury and Respiratory rate 26/min. On neurological examination patient was drowsy and stuporous. Neck stiffness was present as well as positive Kernig’s and Brudzinki’s sign. Her both pupils were 3mm and reactive to light. Her deep tendon reflexes were increased with both plantars extensors. Rest cardiovascular, respiratory and per abdominal examination was normal.

Figure 1 normal chest x-ray

Figure 2 Computerized tomography of brain showing Subarachnoid bleeds (Arrow)
Her laboratory investigations revealed Hb-11.6gm/dl, White Blood Counts-11,100/mm³, Platelets-2.44 lac/mm³, Urea-24, Serum Creatinine-0.3, Serum sodium-142meq/l, Serum potassium-4.9meq/l, Alkaline phosphatase-66, Aspartate aminotransferase-34, Alanine transaminase-13, Total bilirubin-0.9, Total Protein-8.9.Her ESR was 50, Her ANA was negative. In view of recent history of travelling from Pune which is a red zone by COVID 19 prevalence standards nasopharyngeal and Throat swab for RT-PCR testing was sent which came out to be positive. Her X ray chest and ECG was normal (figure 1). As patient was stuporus, with signs of meningitis, her Computerized tomography of brain was planned which was suggestive of Subarachnoid bleed with diffuse edema (Figure 2).

Pt was treated with hydroxychloroquine, oseltamivir, injectable mannitol, inj hydrocortisone, Injection vancomycin 1gm thrice a day, Injection ceftriaxone 2gm twice a day. Patient’s consciousness deteriorated on second day in view of which patient was intubated and was taken on mechanical ventilator. Neuro-surgical team denied any surgical intervention in view of Glassgow coma scale 3. During further course of hospital stay on 5th day, patient succumbed probably to subarachnoid hemorrhage.

3. DISCUSSION
Various studies had reported neurological symptoms in 36.4% of patients which consist of acute cerebrovascular events including intracranial bleed, impaired level of consciousness, and injuries to muscle. These symptoms were more commonly seen in patients who were critically ill. One out of the 214 patients included in the study were noted to have an intracranial hemorrhage (Craen et al., 2020). Several hypotheses have been advocated to explain neurological complications in COVID-19. Coronavirus binds with angiotensin-converting enzyme 2 which is responsible for regulation of blood pressure that may lead to direct blood-brain barrier damage hence occurrence of intracerebral bleed (Asadi-Pooya & Simani, 2020).

Another explanation might involve the cytokine cascade. Accumulating evidence has suggested that in a subgroup of patients with severe COVID-19, a secondary hemophagocytic lymphohistiocytosis may develop; this results in a hyperinflammatory syndrome characterized by a fulminant and fatal hypercytokinemia with multiorgan failure (Mehta et al., 2020). Experimentally, it has been demonstrated that the cytokine cascade could cause intracerebral hemorrhage (Ye et al., 2020).

In our case, though exact pathophysiology was not explored, we kept the COVID 19 infection as the only possible etiology from diagnostic assessment asthere was no radiological imaging evidence of head trauma, and possible vascular abnormalities. However, presence of Virus in CSF could not be assessed as lumber puncture was relatively contraindicated due to Sub arachnoid hemorrhage. More studies are required to define exact pathophysiology of subarachnoid hemorrhage due to this deadly covid-19 virus.

4. CONCLUSION
The chances of neurological manifestation should always be kept in mind by physicians treating COVID-19 cases. Symptoms like altered conscious level, headache, and sensory-motor deficits should raise a red flag, prompting to investigations that might detect the occurrence of a possible brain damage and will help in modifying treatment accordingly.

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Conflict of Interest
The authors declare that they have no conflict of interest.

Informed consent
Written & Oral informed consent was obtained from patient’s father as the patient was drowsy.

REFERENCE