



Delirium in a Male Patient Following Recovery from Mild COVID-19 Infection

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

COVID-19 has had a worldwide impact that is unprecedented and catastrophic. Infection with COVID-19 can cause various neuropsychiatric complications, including delirium, which is commonly reported with the acute phase of illness with COVID-19 infection. However, delirium after complete recovery from mild COVID-19 infection has never been reported. Here we present the first case for a 58-year-old male diagnosed with a positive COVID-19 infection with a PCR test

after a 1-day history of headaches and loss of taste and smell. By 10 days after the positive PCR test, the patient recovered completely without any recurrence of symptoms. However, the patient was observed to be unaware of their surroundings and displayed changes in their behaviour 11 days after recovery from mild COVID-19 infection. Physical examinations were abnormal, while the lab tests and the brain images showed normal results. The patient started to improve on the second day of admission without presenting any decline in health. Delirium that develops after recovering from COVID-19 infection should be investigated thoroughly to determine the reason; if no clear cause can be identified, the delirium may be secondary to COVID-19 infection.

Keywords: Delirium; Post-Covid Symptoms; COVID-19; SARS-CoV-2.

1. INTRODUCTION

COVID-19 is a respiratory disease caused by SARS-CoV-2. The route of transmission in COVID-19 is thought to be mainly via respiratory droplets. People who get an infection from COVID-19 can be asymptomatic, but the illness also ranges from mild to moderate and severe symptoms [1-3].

The most common symptoms following COVID-19 infection are cough, fever, myalgias, and headache [4]. impaired or loss of taste and smell are also common [5].

Psychiatric disorders in relation to COVID-19 infection have been reported in many studies, both in those diagnosed with mild COVID-19 infection and in critically ill patients in terms of anxiety, post-traumatic stress disorder, depression, and delirium [6].

Delirium is reported mainly in the acute phase of infection in critically ill patients with COVID-19 who required ICU admission. Up to 87% of patients admitted to the ICU because of COVID-19 infection will develop delirium [7-8].

We reviewed the literature but could not find examples of patients developing delirium after recovery from COVID-19 infection. Delirium in the context of COVID-19 infection seems to be associated with critically ill patients who required ICU admission in acute settings. Therefore, the main objective of this paper was to introduce a case study of delirium in a male patient following recovery of COVID-19 infection.

2. CASE PRESENTATION

This was a male patient diagnosed with mild COVID-19 infection as confirmed by PCR. The patient's history was taken from him and his family.

This 58-year-old male was medically healthy and came with a 1-day history of headache and loss of taste and smell. PCR for COVID-19 was positive. He was symptomatically managed at home; during treatment, he did not have or develop a fever, cough, chest pain, shortness of breath, or have any gastrointestinal symptoms.

Ten days after the positive PCR test, the patient completely recovered without any remaining symptoms. On day 15, he resumed his normal daily activity and work.

On day 21, the family noticed that he became unaware of time and place and started to think that someone was going to hurt him. A few hours later, he became aggressive towards his family, so they brought him to the emergency department. There was no family or personal history of psychiatric or neurological diseases.

The patient had no history of smoking, alcohol drinking, or substances abuse.

2.1 Physical Exam

2.1.1 Vital signs

Blood pressure 132/76 mmHg

Pulse rate 105 beat/min

Respiratory rate 22 breath/min

Temperature 36.7 °C

Random blood glucose 118 mg/dL

Appearance: Adult male, looks his stated age, average body built with poor hygiene and grooming, looks distressed.

Behaviour: Partially cooperative with poor eye contact and increased psychomotor level of activity with no abnormal movement or posture.

Speech: Coherent with irrelevant answers; he repeated the same words ("covid positive, do not touch").

Mood and affect: The mood was not assessed with anxious affect.

Thought: no formal thought disorder.

Perception: the patient was smelling a foul odour (olfactory hallucination). No other abnormal perceptual disturbances.

2.1.2 Cognitive function

The patient was conscious, alert, and disoriented to time; he was oriented to place and person. The cranial nerve exam was intact.

Motor and sensory exams were normal in all four limbs.

Cardiovascular, abdominal, and chest examination was unremarkable.

2.1.3 Lab and imaging results are shown in Tables 1 and 2

During the hospital stay, the patient was admitted to a high dependency unit for observation and further assessments on the first day. Initially, Haloperidol lactate (2 mg, intramuscular stat) was given for the psychosis. Then, after 4 h, haloperidol (2 mg orally) was given, to be orally Q8H.

Table 1. Labs

Test - Unit	Result
WBC count -{*10 ⁹ /L}	9.34
Platelet count - (*10 ⁹ /L}	349
Haemoglobin-(g/dl)	12.9
Pracaleitonin -(ng/mL)	< 0.05
Sodium ~(mmol/L)	135
Potassium - (mmol/L)	4.3
Chloride - (mmol/L)	102
HCO ³ (mEq/L)	31
Calcium - (mmol/L)	2.23
Creatinine – (umol/L)	70.66
BUN -{mmol/L}	5.33
ESR-(mm/h)	22
CRP – (mg/L)	1.2
Liver function tests	Normal
Urine analysis	Normal

On the second day, the patient showed improvement in terms of orientation, agitation, and hallucination. A lumbar puncture for CSF analysis was planned but was cancelled when the patient showed improvement. After the patient shows improvement, haloperidol (2 mg

was stopped. The patient was then shifted to the medical ward for observation.

The day after, the patient was discharged when he returned to his normal wellbeing condition with a 1-week follow-up. He came after 1 week at the clinic; the patient was reviewed systematically with no findings, and the patient and his family were satisfied regarding his general condition.

Table 2. Imaging studies

Text	Result
CT and MRI brain	No acute brain insult nor abnormality

3. DISCUSSION

Delirium is a condition characterized by disturbance in awareness, attention, and cognition for a short period. It can be the primary presentation of COVID-19 infection in the absence of common COVID-19 infection symptoms, such as fever, cough, and shortness of breath [9].

Multiple psychiatric conditions were linked to post COVID-19 infection after 14 to 90 days of recovery, including anxiety disorders, insomnia, and dementia [10].

One of the most common consequences of severe COVID-19 is delirium. This conclusion is based on a cohort study that involved 2088 patients admitted to the ICU because of COVID-19 infection; delirium was seen in 55% of patients [8].

Although COVID19 infection is characterized by fever and respiratory symptoms, there is also an atypical presentation of COVID-19, like the case reported by Alkeridy(2020) from Saudi Arabia, showing that falls and delirium were unique presentations in asymptomatic COVID-19 [11].

Post recovery from non-critical COVID-19 infection was observed in a 2-month study by Carvalho-Schneider; in conclusion, they observed 150 adult patients with non-critical COVID-19. On day 30, the most reported symptoms were anosmia/loss of sense of taste, and at day 60 was lack of energy; in the same study and other studies that follow up patients of COVID-19 after recovery, delirium was not one of the noted complications in the recovery period [12-13].

To our knowledge, this is the first report that linked delirium with mild COVID-19 in a patient after full recovery from the infection by doing extensive workup with laboratory tests and imaging studies, which includes brain CT and MRI.

Our literature review did not find any data showing a connection between delirium and mild COVID-19 infection, either in the acute setting or post-recovery.

4. CONCLUSION AND RECOMMENDATIONS

We present a patient post-COVID-19 with delirium with normal laboratory tests and imaging studies, including brain CT and MRI. It is unclear whether the delirium after recovery from COVID-19 infection is a sequel of COVID-19 or not.

Delirium that occurs after recovery from COVID-19 infection should be taken seriously, and all workup should be done to find the cause of the delirium; if no definitive cause is found, then the delirium could be secondary to COVID-19 infection. We encourage other clinicians to publish case reports of delirium associated with COVID-19 infection to help determine whether delirium could be a sequel to COVID-19.

CONSENT AND ETHICAL APPROVAL

The researchers' obtained written consent from the patient recruited in this study. In addition, due to the psychological status of the patient, written consent was obtained as well from the patient's family to ensure compliance with the research ethical considerations.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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