

# A Suspected Case of Kluver-Bucy Syndrome in an Adolescent Male Following SARS-CoV-2 infection

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## INTRODUCTION AND BACKGROUND

Kluver-Bucy syndrome (KBS) is a rare and complex neurological condition characterized by a distinctive array of behavioural alterations and cognitive deficits. While its precise aetiology remains multifactorial, KBS often emerges as a consequence of bilateral lesions or dysfunction within the temporal lobes of the brain, particularly involving the amygdala. Notably, viral infections that breach the central nervous system (CNS) can precipitate the onset of KBS. Among these, herpes simplex encephalitis (HSE) serves as a prominent example, wherein the herpes simplex virus (HSV) gains access to the CNS, leading to significant damage, particularly in the temporal lobes.

Studies have elucidated the association between HSE and subsequent development of KBS, underscoring the intricate interplay between viral pathogens and neurological sequelae. Other viral infections, such as cytomegalovirus (CMV) and Epstein-Barr virus (EBV), have also been implicated in CNS pathology, potentially contributing to the manifestation of KBS. Understanding the pathogenic mechanisms underlying viral-induced CNS damage and its relationship to KBS is pivotal for advancing diagnostic and therapeutic strategies.

Consequently, exploring the intricate nexus between viral infections and the development of KBS not only broadens our comprehension of neurological disorders but also holds implications for targeted interventions aimed at mitigating its debilitating effects.

We present a case of suspected Kluver-Bucy syndrome in an adolescent male, following a SARS-CoV-2 infection. To the best of our knowledge, KBS has not been associated with COVID-19 before.

## CASE PRESENTATION

A 15-year-old male with a background of autism spectrum disorder (ASD) was reviewed in a children and adolescent mental health outpatient clinic. The young person was non-verbal, and history was taken from his next of kin. In the last four weeks, he had developed acute onset hyperphagia with weight gain (88<sup>th</sup> percentile for age), new onset physical and verbal aggression, and hyperorality, whereby the young person was exploring household objects with his mouth. At the same time, a degree of hypersexuality was noted in the form of rubbing and touching of the genital area.

There was no history of trauma or epilepsy; recent traveling or environmental change; psychosocial stressors or new medications, operations, or immunisations in the past year. The young person had a COVID-19 infection the month before the symptoms started. He had previously been immunised against COVID-19 and this was the second time he contracted the infection, the first being 1 ½ years ago with full recovery.

The sudden onset of hyperphagia, aggression, hyperorality, and hypersexuality with the only known precipitating factor the recent COVID-19 infection, raised clinical suspicion for Kluver-Bucy syndrome. Due to ASD features, visual field testing, brain imaging, or routine blood tests were not possible. Six months later, and while investigations were being arranged with the support of the GP and the Hospital, symptoms persisted to a lesser extent and symptomatic treatment included low-dose antidepressant and antipsychotic medications.

## DISCUSSION

The emergence of COVID-19, caused by the coronavirus SARS-CoV-2, prompted intensive investigation into its wide-ranging clinical manifestations, including its impact on the central nervous system. Evidence suggests that COVID-19 is not solely a respiratory illness but also exerts significant neurological effects. Patients have presented with neurological symptoms ranging from anosmia, ageusia, and headaches to more severe complications such as encephalopathy, stroke, and acute disseminated encephalomyelitis (ADEM).

The underlying mechanisms through which SARS-CoV-2 affects the CNS remain multifaceted and may involve direct viral invasion, neuroinflammation, cytokine storm, endothelial dysfunction, and thrombotic events. Furthermore, neuroimaging studies have revealed evidence of brain abnormalities and neuroinflammation in COVID-19 patients, underscoring the neurotropic potential of the virus.

Kluver-Bucy syndrome is characterised by alterations in one's behavioural repertoire, including hyperorality, hypersexuality, disinhibited behaviour, and visual agnosia. The presentation has been associated with temporal lobe infarcts, epilepsy, and herpes simplex encephalitis.

In this case, the differential diagnosis was based on the fulfilment of clinical criteria for KBS, while other differentials included metabolic causes or behavioural manifestations related to ASD.

Although investigations to further explore the source of symptoms were not possible, clinical suspicion for KBS was based on the presence of diagnostic criteria and the recent viral infection.

To the best of the author's knowledge, an association between COVID-19 and KBS has not been speculated before in literature. As we discover more about the virus, clinicians should be aware of the potential of such manifestations and offer tailored support and treatment.

## CONCLUSIONS

The exploration of the interplay between SARS-CoV-2 and the CNS not only enhances our understanding of COVID-19 pathophysiology but also informs clinical management strategies aimed at mitigating neurological complications and improving patient outcomes. Ongoing research efforts are crucial for unravelling the complexities of COVID-19-related CNS involvement and facilitating the development of targeted interventions to address this critical aspect of the disease.

This case underscores the need for research on potential SARS-related neuropsychiatric manifestations. Clinicians should recognize these complications, fostering awareness and vigilance in post-infection presentations.

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## ACKNOWLEDGMENTS

The authors would like to thank the young person and their family for their patience and collaboration and for consenting to the sharing of our ideas with the rest of the psychiatric and scientific community.

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Approximately **1 in 5 adults** ages 18+ have a health condition that might be related to their previous COVID-19 illness, such as:

- Neurologic and mental health conditions\*
- Kidney failure
- Musculoskeletal conditions
- Cardiovascular conditions
- Respiratory conditions
- Blood clots and vascular issues

Talk to your health care provider if you have symptoms after COVID-19

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MAY 24, 2022  
\* Adults aged 65 and older at increased risk  
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