

COVID-19 induced hypercoagulability and its impact leading to pituitary apoplexyMuhammad Saad Shabbir¹, Qunoot Ahmed Siddiqui², Muhammad Ahsan Shabbir³

I am writing this letter to address an increasingly high-risk but under-explored complication of pituitary apoplexy in patients who have contracted COVID-19. In light of recent research, we are beginning to understand the magnitude of effects that the COVID-19 virus has had on the human body; one of those effects is the human brain, particularly the pituitary gland, which is more prone to apoplexy after COVID-19 infection. Pituitary apoplexy is a rare but severe condition characterised by sudden haemorrhage or infarction of the pituitary gland. Recent studies have highlighted a potential link between COVID-19 infection and an increased incidence of pituitary apoplexy. This can include direct viral invasion of the pituitary gland, systemic inflammatory responses, and a prothrombotic state induced by the virus.

SARS-CoV-2, the virus responsible for COVID-19, can affect the pituitary gland via ACE2 receptors, leading to inflammation and subsequent damage. This has been demonstrated in several case studies, where patients developed pituitary apoplexy shortly after contracting COVID-19.¹ The hypercoagulable state associated with COVID-19 further exacerbates the risk, as it can lead to vascular events, including haemorrhage within the pituitary gland.²

Multiple case reports and reviews have documented instances of pituitary apoplexy in the context of COVID-19. Common symptoms include severe headaches, visual disturbances, and hormonal imbalances. These cases underscore the importance of considering pituitary apoplexy in the differential diagnosis of COVID-19

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^{1,2}Final Year MBBS Student, Liaquat National Medical College, Karachi, Pakistan; ³Final Year MBBS Student, United Medical and Dental College, Karachi, Pakistan.

Correspondence: Muhammad Saad Shabbir.

Email: shabbirsaad15@gmail.com

ORCID ID: 0000-0002-3137-1862

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patients presenting with acute neurological symptoms.^{1,3}

Furthermore, gender differences have been observed in the presentation of pituitary apoplexy post-COVID-19. Males are more likely to present with larger non-functioning pituitary adenomas and adrenal insufficiency, whereas females may develop hypophysitis or smaller adenomas. This suggests a differential impact of the virus on the pituitary gland based on gender, necessitating tailored clinical approaches.⁴ Given these findings, healthcare providers must maintain a high index of suspicion for pituitary apoplexy in patients with a history of COVID-19, especially those exhibiting new-onset neurological or endocrine symptoms. Early recognition and timely intervention are vital to prevent serious complications and improve patient outcomes.

In conclusion, the emerging evidence linking COVID-19 to pituitary apoplexy highlights the need for further research to understand the pathophysiological mechanisms better and develop targeted therapeutic strategies to tackle the problem.

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