Covid-19 and pituitary apoplexy

Kamel et al. reported a case of pituitary apoplexy associated with COVID-19 infection. Based on a patient's clinical findings, review of the other reported cases, as well as the available literature, they put forth a multitude of pathophysiological mechanisms induced by COVID-19 that can possibly lead to the development of pituitary apoplexy. In their opinion, the association between both conditions is not just a mere coincidence. Although the histopathological features of pituitary apoplexy associated with COVID-19 are similar to pituitary apoplexy induced by other etiologies, future research may disclose unique pathological fingerprints of COVID-19 virus that explains its capability of inducing pituitary apoplexy [1)].

A 75-year-old man who presented with a headache and was later diagnosed with hypopituitarism secondary to pituitary apoplexy. This occurred 1 month following a mild-to-moderate COVID-19 infection with no other risk factors commonly associated with pituitary apoplexy. This case, therefore, supplements an emerging evidence base supporting a link between COVID-19 and pituitary apoplexy [2)].

Martinez-Perez et al. identified 3 consecutive cases of PA and concomitant COVID-19 infection. The most common symptoms at presentation were headache and vision changes. The included patients were successfully treated with surgical decompression and medical management of the associated endocrinopathy, ultimately experiencing improvement in their visual symptoms at the latest follow-up examination. COVID-19 infection in the perioperative period was corroborated by polymerase chain reaction test results in all the patients.

With the addition of our series to the literature, 10 cases of PA in the setting of COVID-19 infection have been confirmed. The present series was limited in its ability to draw conclusions about the relationship between these 2 entities. However, COVID-19 infection might represent a risk factor for the development of PA. Further studies are required. [3)].

A review underlines that there could be a specific involvement of the pituitary gland which fits into a progressively shaping endocrine phenotype of COVID-19. Moreover, the care for pituitary diseases need to continue despite the restrictions due to the emergency. Several pituitary diseases, such as hypopituitarism and Cushing disease, or due to frequent comorbidities such as diabetes may be a risk factor for severe COVID-19 in affected patients. There is the urgent need to collect in international multicentric efforts data on all these aspects of the pituitary involvement in the pandemic in order to issue evidence driven recommendations for the management of pituitary patients in the persistent COVID-19 emergency. [4)].

Pituitary apoplexy attributed solely to COVID-19 in the absence of other identifiable causes. While much remains to be discovered and understood regarding COVID-19, they discuss the potential pathophysiology of COVID-19-associated pituitary apoplexy and raise awareness of this clinical

complication [5)]

A neuro-ophthalmic presentation of pituitary apoplexy under the setting of COVID-19 infection in a middle-aged man who presented to ophthalmic emergency with sudden bilateral loss of vision along with a history of fever past 10 days. There was sluggishly reacting pupils and RT-PCR for COVID was positive. Imaging pointed the diagnosis as pituitary macroadenoma with apopexy. In view of pandemic situation, patient was given symptomatic treatment as per the protocols and stabilized. Vision also showed improvement to some extent and the patient is awaiting neurosurgery [6)].

A case of a previously healthy woman with severe acute respiratory syndrome coronavirus 2 infection associated with pituitary apoplexy. The plausible pathophysiological mechanisms of pituitary apoplexy in infectious coronavirus disease 2019 are discussed. [7)].

A 27-year-old male patient case with progressive decrease in visual acuity, associated with respiratory symptoms and intense headache. Multilobar infiltrate with a reticulonodular pattern is evident on chest CT scan. Brain CT scan with pituitary macroadenoma apoplexy was shown. SARS-Cov2 was confirmed, and respiratory support initiated. However, the patient died shortly afterward, secondary to pulmonary complications.

The angiotensin-converting enzyme (ACE) II receptor is expressed in circumventricular organs and in cerebrovascular endothelial cells, which play a role in vascular autoregulation and cerebral blood flow. For this reason, is rational the hypothesize that brain ACE II could be involved in COVID-19 infection. Underlying mechanisms require further elucidation in the future [8)].

A 28-year-old G5P1 38w1d female presented with 4 days of blurry vision, left dilated pupil, and headache. She tested positive for SARS-CoV-2 on routine nasal swab testing but denied cough or fever. Endocrine testing demonstrated an elevated serum prolactin level, and central hypothyroidism. MRI showed a cystic-solid lesion with a fluid level in the pituitary fossa and expansion of the sella consistent with pituitary apoplexy. Her visual symptoms improved with corticosteroid administration and surgery was delayed to two weeks after her initial COVID-19 infection and to allow for safe delivery of the child. A vaginal delivery under epidural anesthetic occurred at 39 weeks. Two days later, transsphenoidal resection of the mass was performed under strict COVID-19 precautions including use of Powered Air Purifying Respirators (PAPRs) and limited OR personnel given high risk of infection during endonasal procedures. Pathology demonstrated a liquefied hemorrhagic mass suggestive of pituitary apoplexy. She made a full recovery and was discharged home two days after surgery.

They demonstrate the first known case of successful elective induction of vaginal delivery and transsphenoidal intervention in a near full term gravid patient presenting with pituitary apoplexy and acute SARS-CoV-2 infection. Further reports may help determine if there is a causal relationship or if these events are unrelated. Close adherence to guidelines for caregivers can greatly reduce risk of infection. [9)].

A 25 year old male presented with dyspnoea, cough and high fevers for 4 days. He was commenced on broad-spectrum antimicrobials and oxygen therapy. His respiratory function deteriorated in spite of these measures and he required mechanical ventilation. CT showed left upper lobe consolidation as well as multifocal ground-glass opacification. Case 2: A 43 year-old male presented with headache and was found incidentally to have pneumonia. He was recently diagnosed with pituitary apoplexy secondary to an adenoma with resultant pituitary insufficiency but MRI brain was stable. His respiratory function deteriorated in spite of antibiotics and he required mechanical ventilation. CT showed likely atypical infection with resultant ARDS. Outcome Both underwent nasopharyngeal RT-PCR testing for SARS-CoV-2. Patient 2 was positive. Patient 1 was extubated and made a good recovery. Patient 2 was transferred to another centre for ECMO therapy. He died 27 days after transfer. Conclusion Given the atypical presentations in generally otherwise young and healthy individuals, the decision was made outside of national guidance to perform testing for SARS-CoV-2. This diagnosis had far-reaching implications for the SARS-CoV-2 pandemic within Ireland [10].

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