

Cerebritis secondary to EBV reactivation following COVID-19 Infection

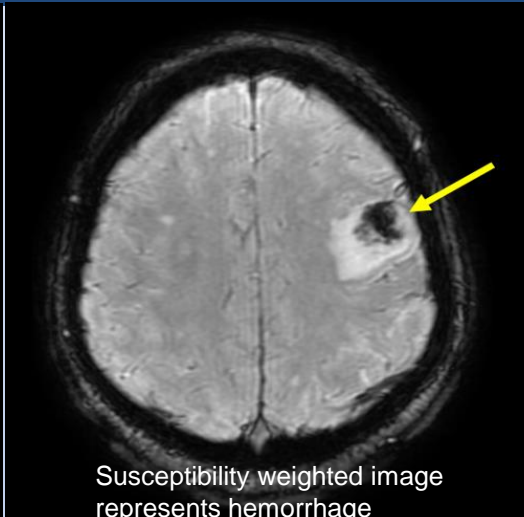
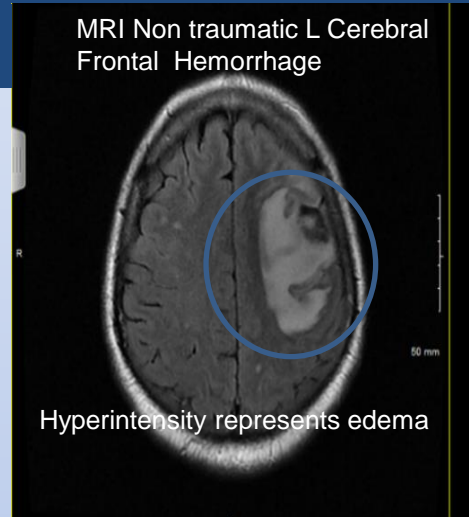
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Case Presentation

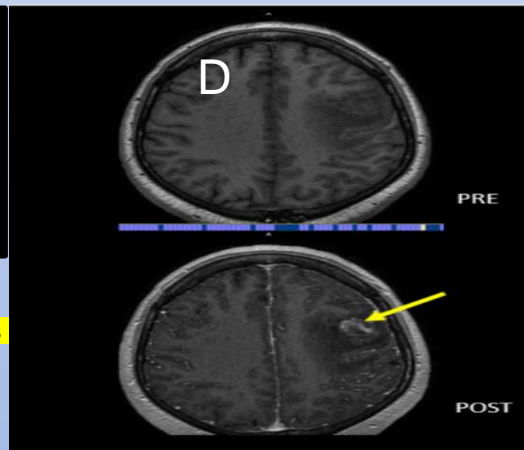
- 62 yo M with HTN, BPH, resolved Covid-19 infection with Covid-19 positive antibodies presents to ED with right hemiparesis, dysarthria, BLE numbness.
- Brain MRI showed marked increase in enhancement, vasogenic edema, and acute microhemorrhages associated in the L frontoparietal lobe consistent with L frontoparietal cerebritis.
- Lumbar puncture: CSF-positive for EBV with pleocytosis.
- EBV infection was also confirmed on brain biopsy.
- Patient had worsening lethargy throughout admission.
- Admitted to acute inpatient rehab after left frontal craniotomy to treat worsening brain swelling. His hospital course was significant for multiple episodes of altered mental status and a clinical deterioration with worsening right hemiparesis.
- Hospital course was complicated by SIADH, cardiomyopathy and thrush. He was also found to be coxsackie A IGG positive.
- Ganciclovir was discontinued due to chills and chest pain 2 days after starting medication.
- Dexamethasone was tapered due to consistently elevated residual blood sugars.
- Residual symptoms included right hemiparesis and facial droop, fatigue, dysarthria and transient altered mental status.



LABS:

LP: CSF Glc 81, protein, 600, WBC 420, EBV(+) pleocytosis
CRP: 8.8 (nl 0-5)
Lymphocyte %: 16.7 → 5.4 in 6 days
Coxsackie A IGG (+)
Ferritin: 365

D. T1 weighted imaging, interval enlargement of hypointense focus with increased enhancement Post-contrast



References:

- EBV DNA increase in COVID-19 patients with impaired Lymphocyte subpopulation count. Stefania Paolucci, Irene Cassaniti, et. al. San Matteo Pavia COVID-19 Task Force Int J Infect Dis. 2020 Dec 21; S1201-9712(20)32575.
- Alteration in COVID-19 Pneumonia. Characteristics of Peripheral Lymphocyte Subset. Fan Wang, Jiayan Nie et. al J Infect Dis. 2020 May 11;221(11):1762-1769.
- Epstein-Barr Virus and Cytomegalovirus Reactivation in Patients with COVID-19, Jae Hyoung Im, Jin-Soo Lee et. al <https://jvi.asm.org/content/93/24/e00980-19>

Discussion

- Several published reports highlight that in severe Covid-19 infection a significant decrease in lymphocytes, particularly in CD8+ T cells, has been observed.
- Reactivation of Epstein-Barr virus (EBV) and Cytomegalovirus (CMV) may relate to immune dysfunction and follow COVID-19 infection.
- NK and CD8+ T cell reduction correlates with the severity of COVID-19 infection.
- There is also a correlation between reduced CD8+ T cells and NK counts as well as EBV DNA levels.
- Neurological complications may result from an imbalance of inflammatory mediators/markers and immunological dysfunction allowing viral transformation and a predisposition to opportunistic viral infections seen in this patient.
- Cerebritis can occur secondary to an inflammatory response to EBV reactivation.
- Hemorrhagic strokes are a potential neurological complication of cerebritis or various forms of vasculitis.
- Many of the neurologic complications seen in this case can be explained by a host inflammatory response causing cerebritis and brain edema.
- Physiatrists should be aware of and anticipate complications associated with the Novel Sars-Cov-2/Covid-19 infections.