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# Teaching Neuroimages: COVID-19 associated acute disseminated encephalomyelitis with corpus callosal hemorrhage

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A 55-year-old male with severe COVID-19 required ventilation and hemofiltration. Central venous catheter thrombosis necessitated heparin infusion. On day 20 post admission, impaired conscious level, complex ophthalmoplegia and hyper-reflexia prompted non-contrast neuroimaging demonstrating corpus callosal and right sub-insular hemorrhage with diffuse white matter signal change (figure 1). CSF analysis was not performed due to clinical concerns regarding raised intracranial pressure. Administration of high dose corticosteroids led to clinical and radiological improvement (figure 1).

The differential diagnosis of infective splenial lesions is presented (table 1).<sup>1</sup> Here, we consider the likely diagnosis to be acute disseminated encephalomyelitis with hemorrhage adding to the clinical spectrum of neurological complications of COVID-19 and highlighting the possibility of favorable outcome.<sup>2</sup>

## Appendix 1 : Authors

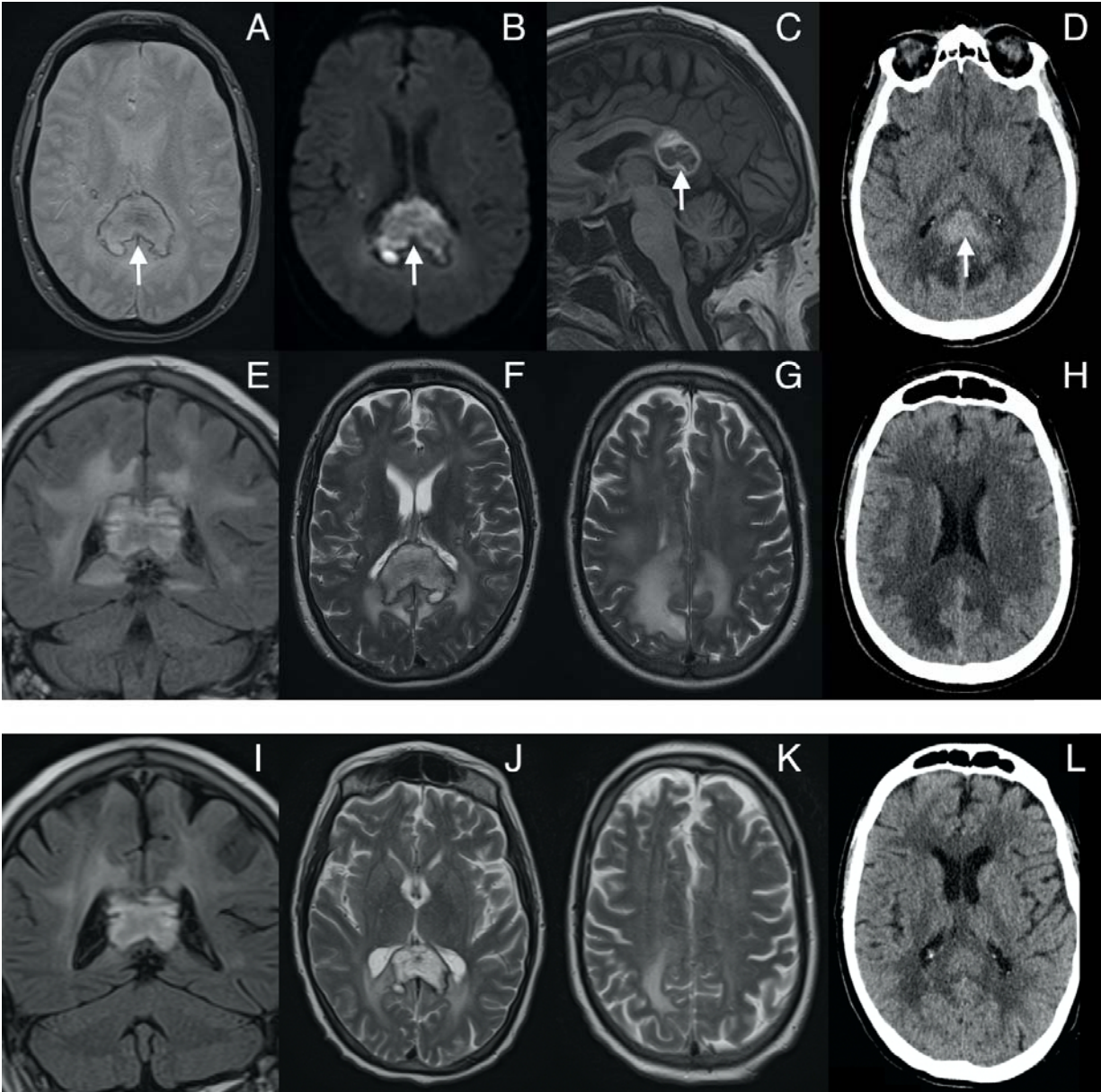
<b>Name</b>	<b>Location</b>	<b>Position</b>	<b>Contribution</b>
Christopher Green, FRCR	Gloucestershire Royal Hospital, UK	Radiology Registrar	Report drafts and final submission
Hamish Morrison, MRCP	Gloucestershire Royal Hospital, UK	Neurology Registrar	Report drafts and final submission
Paul Smith, FRCR	Gloucestershire Royal Hospital, UK	Consultant Neuroradiologist	Reported imaging and manuscript revision
Farhad Golestani, FRCP MD	Gloucestershire Royal Hospital, UK	Consultant Neurologist	Clinical care of patient and manuscript revision
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Elizabeth Coulthard, FRCP PhD	North Bristol NHS Trust, UK	Consultant Neurologist	Clinical care of patient and manuscript revision
Julie Searle, FRCR	Gloucestershire Royal Hospital, UK	Consultant Radiologist	Revision of manuscript
Iain Lyburn, FRCR	Gloucestershire Royal Hospital, UK	Consultant Radiologist	Revision of manuscript

**Figure 1:** Initial MRI and CT with arrows highlighting peripheral low signal on T2\* (A), abnormal diffusion (B), high T1 (C) and increased attenuation (D) within the corpus callosum splenium. Confluent high FLAIR (E) and T2 (F & G) abnormality and low attenuation (H) within deep cerebral white matter. Improved appearances at 2 weeks (I – L).

**Table 1 :** Differential diagnosis for infective splenial lesions

## References

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**Viral**

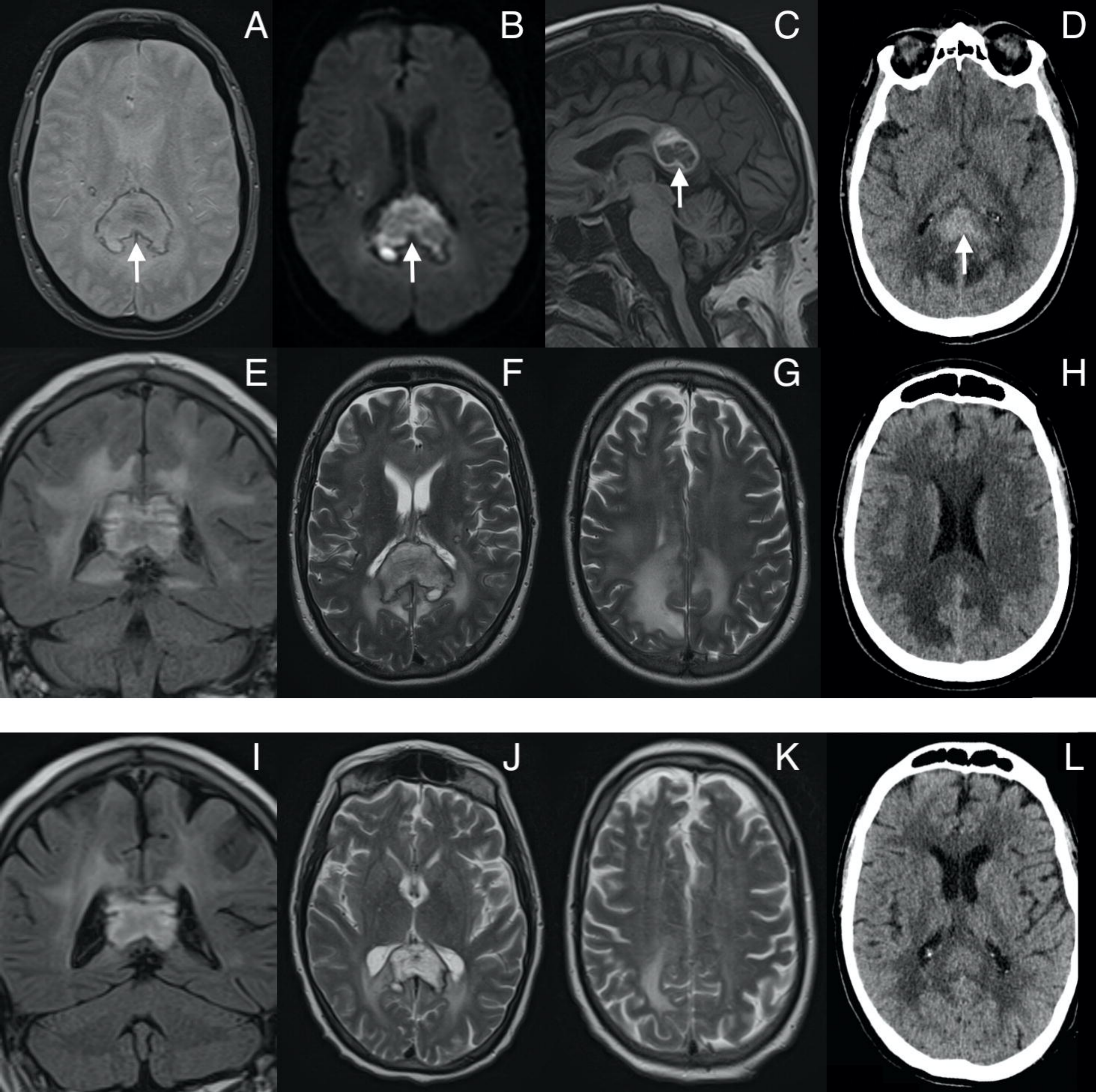
Influenza, coronavirus, rotavirus, measles, adenovirus, human parvovirus B19, cytomegalovirus, varicella-zoster, adenovirus, rubella, human herpesvirus-6, human herpes virus-7, human immunodeficiency virus, mumps, parainfluenza, enterovirus, Epstein-Barr virus

**Bacterial:**

Legionella pneumophila, Streptococcus pneumoniae, Salmonella enteritidis, Escherichia coli, Enterococcus faecalis, Klebsiella pneumoniae (febrile urinary tract infection), Campylobacter jejuni

**Other:**

Mycoplasma pneumoniae, malaria, dengue fever



## **Viral**

Influenza, coronavirus, rotavirus, measles, adenovirus, human parvovirus B19, cytomegalovirus, varicella-zoster, adenovirus, rubella, human herpesvirus-6, human herpes virus-7, human immunodeficiency virus, mumps, parainfluenza, enterovirus, Epstein–Barr virus

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