



Image Report

Cerebral microhemorrhages in severe COVID-19 pneumonia

Melvin Parasram¹, Shamelia Y. Loiseau

Department of Neurology, Weill Cornell Medicine, New York City, New York, United States.

E-mail: *Melvin Parasram - melvin.parasram@gmail.com; Shamelia Y. Loiseau - syloiseau9@gmail.com



*Corresponding author:

Melvin Parasram,
Department of Neurology, Weill
Cornell Medicine, New York
City, New York, United States.
melvin.parasram@gmail.com

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ABSTRACT

Background: Cerebral microhemorrhages are a complication in patients with severe COVID-19 pneumonia.

Case Description: A 50-year-old woman presented to the hospital with shortness of breath due COVID-19 (SARS-CoV-2, alpha variant) pneumonia. Her hospital course was complicated by hypoxic respiratory failure requiring intubation and severe acute respiratory distress syndrome. She received a tracheostomy for ongoing ventilator support after prolonged intubation. Her mental status was notable for disorientation and severe agitation for which a magnetic resonance imaging (MRI) of the brain was obtained. MRI revealed numerous microhemorrhages predominantly at the gray-white matter junctions.

Conclusion: Cerebral microhemorrhages in severe COVID-19 pneumonia are associated with critical illness, increased mortality, and worse functional outcome. The pathophysiology of cerebral microhemorrhages in COVID-19 is unknown.

Keywords: Cerebral microhemorrhages, COVID-19, Endotheliopathy, Hypoxia, SARS-CoV-2

IMAGE REPORT

A 50-year-old woman with medical history of hypertension presented to the hospital with shortness of breath due COVID-19 (SARS-CoV-2, alpha variant) pneumonia. Her hospital course was complicated by hypoxic respiratory failure requiring intubation. She was treated with convalescent plasma and remdesivir. The intensive care course was notable for severe acute respiratory distress syndrome requiring proning. She received a tracheostomy for ongoing ventilator support after prolonged intubation. Her mental status was notable for disorientation and severe agitation for which a magnetic resonance imaging (MRI) of the brain was obtained. MRI revealed numerous microhemorrhages predominantly at the gray-white matter junctions [Figure 1, arrows]. The patient died due to complications of COVID-19 1 month after MRI imaging.

Cerebral microhemorrhages in COVID-19 have been associated with critical illness, increased mortality, and worse functional outcome.^[1] The pathophysiology of cerebral microhemorrhages in COVID-19 is unknown. It is postulated that hypoxia-induced effects at the blood-brain barrier

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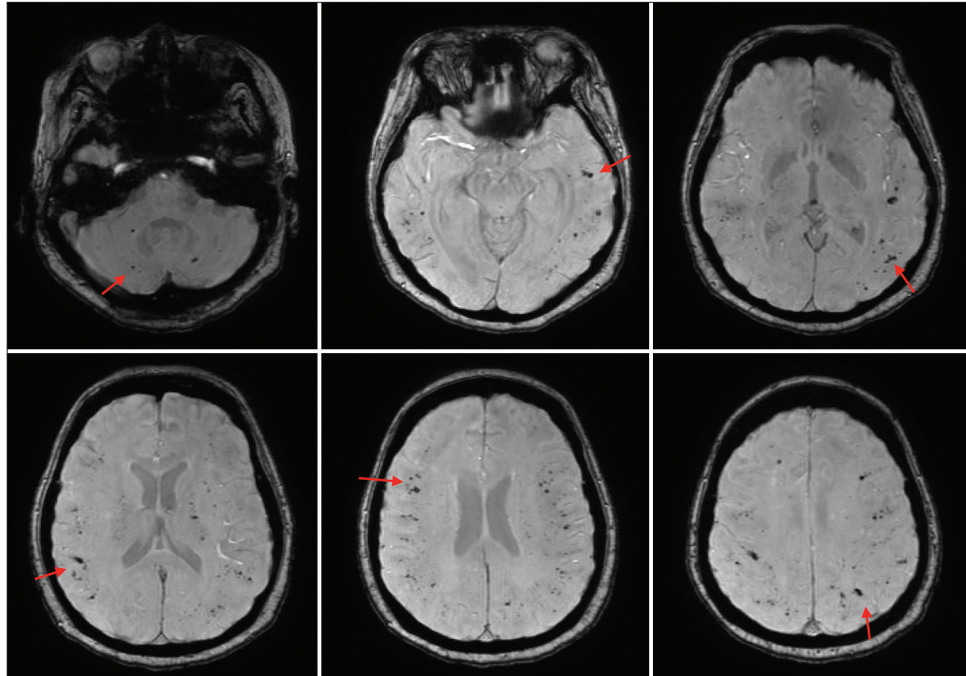


Figure 1: Axial susceptibility weighted imaging MRI sequences revealing numerous microhemorrhagic foci, predominantly at the gray-white matter junction, with curvilinear cortical superficial siderosis (arrows).

can lead to extravasation of red blood cells.^[2] In addition, COVID-19 can lead to a viral-induced endotheliopathy resulting in microbleeds.^[3]

Declaration of patient consent

Patient's consent not required as patient's identity is not disclosed or compromised.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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