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Teaching NeuroImages: Neonatal parechovirus encephalitis

Typical MRI findings

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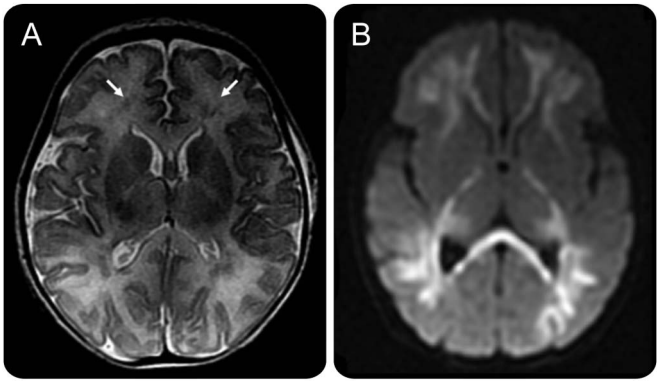
Figure MRI of neonatal parechovirus encephalitis



MRI T2-weighted spin-echo axial section (A) shows punctate white matter lesions (arrows) suggestive of petechial hemorrhages. Diffusion-weighted imaging section (B) shows diffuse excessive high signal intensity. This distinctive pattern of white matter involvement is noteworthy, and these abnormalities extend into the subcortical white matter and involve entire fiber tracts, corpus callosum, optic radiation, and posterior thalamus.

A full-term 9-day-old girl presented with fever, irritability, and seizures. The routine CSF examination, cranial ultrasound, and laboratory tests were normal. Brain MRI showed diffuse white matter abnormality (figure). Human parechovirus (HPeV) type 3 was isolated in both CSF and blood. The neurodevelopmental outcome at 4 months is poor, and MRI shows an extensive cystic leukomalacia in the frontal white matter.

The diagnosis of HPeV infection can be made from a positive HPeV PCR in CSF and blood. Extensive white matter abnormality is a typical MRI finding in neonatal HPeV encephalitis, whereas herpes simplex virus encephalitis exhibits diffuse gray and white matter changes.[1]

AUTHOR CONTRIBUTIONS

Vincenzo Belcastro and Paolo Bini: drafting/revising the manuscript for content, including medical writing for content; analysis or interpretation of data; study supervision or coordination. Mario Barbarini and Roberta Barachetti: analysis or interpretation of data; drafting/revising the manuscript for content, including medical writing.

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DISCLOSURE

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REFERENCE

1. Verboon-Maciolek MA, Groenendaal F, Hahn CD, et al. Human parechovirus causes encephalitis with white matter injury in neonates. Ann Neurol 2008;64:266–273.

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