

# Teaching NeuroImages:

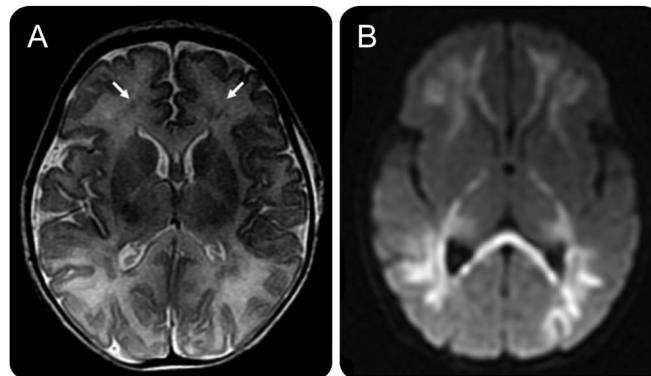
## Neonatal parechovirus encephalitis

### Typical MRI findings

Vincenzo Belcastro, MD,  
PhD  
Paolo Bini, MD  
Roberta Barachetti, MD  
Mario Barbarini, MD

Correspondence to  
Dr. Belcastro:  
vincenzobelcastro@libero.it

**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.<sup>1</sup>

#### 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.

#### STUDY FUNDING

No targeted funding reported.

#### DISCLOSURE

The authors report no disclosures relevant to the manuscript. Go to [Neurology.org](http://Neurology.org) for full disclosures.

#### REFERENCE

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

# Neurology®

## Teaching *NeuroImages*: Neonatal parechovirus encephalitis: Typical MRI findings

Vincenzo Belcastro, Paolo Bini, Roberta Barachetti, et al.

*Neurology* 2014;82:e23

DOI 10.1212/WNL.0000000000000040

**This information is current as of January 20, 2014**

<b>Updated Information &amp; Services</b>	including high resolution figures, can be found at: <a href="http://n.neurology.org/content/82/3/e23.full">http://n.neurology.org/content/82/3/e23.full</a>
<b>Supplementary Material</b>	Supplementary material can be found at: <a href="http://n.neurology.org/content/suppl/2014/01/19/82.3.e23.DC1">http://n.neurology.org/content/suppl/2014/01/19/82.3.e23.DC1</a>
<b>References</b>	This article cites 1 articles, 0 of which you can access for free at: <a href="http://n.neurology.org/content/82/3/e23.full#ref-list-1">http://n.neurology.org/content/82/3/e23.full#ref-list-1</a>
<b>Citations</b>	This article has been cited by 5 HighWire-hosted articles: <a href="http://n.neurology.org/content/82/3/e23.full##otherarticles">http://n.neurology.org/content/82/3/e23.full##otherarticles</a>
<b>Subspecialty Collections</b>	This article, along with others on similar topics, appears in the following collection(s): <b>Encephalitis</b> <a href="http://n.neurology.org/cgi/collection/encephalitis">http://n.neurology.org/cgi/collection/encephalitis</a> <b>MRI</b> <a href="http://n.neurology.org/cgi/collection/mri">http://n.neurology.org/cgi/collection/mri</a>
<b>Permissions &amp; Licensing</b>	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: <a href="http://www.neurology.org/about/about_the_journal#permissions">http://www.neurology.org/about/about_the_journal#permissions</a>
<b>Reprints</b>	Information about ordering reprints can be found online: <a href="http://n.neurology.org/subscribers/advertise">http://n.neurology.org/subscribers/advertise</a>

*Neurology*® is the official journal of the American Academy of Neurology. Published continuously since 1951, it is now a weekly with 48 issues per year. Copyright © 2014 American Academy of Neurology. All rights reserved. Print ISSN: 0028-3878. Online ISSN: 1526-632X.

