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Title

Location of Periventricular Nodular Heterotopia Is Related to the Malformation Phenotype on MRI

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Authors

González, G
Vedolin, L
Barry, B
[et al.](#)

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Figures

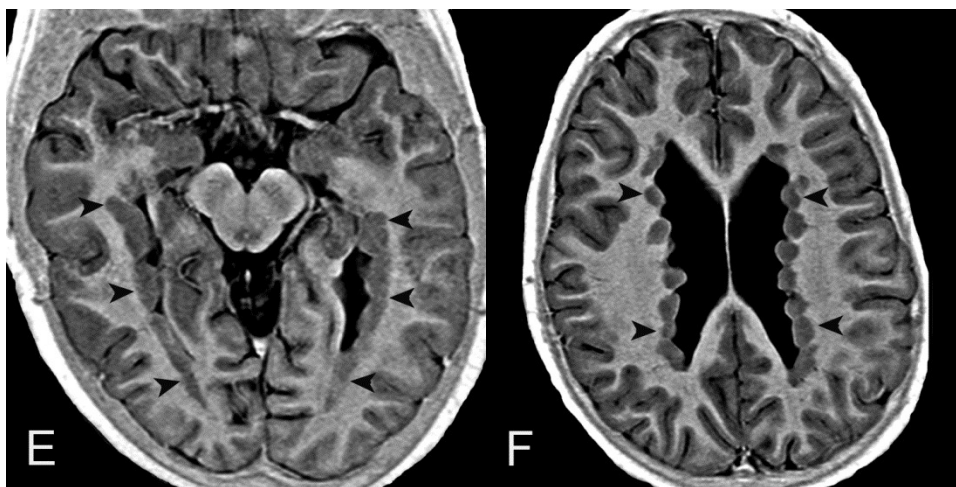
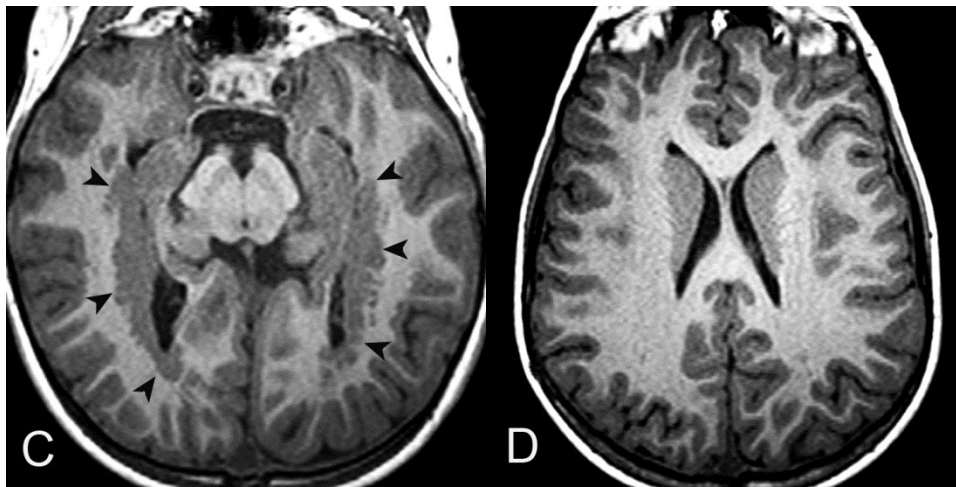
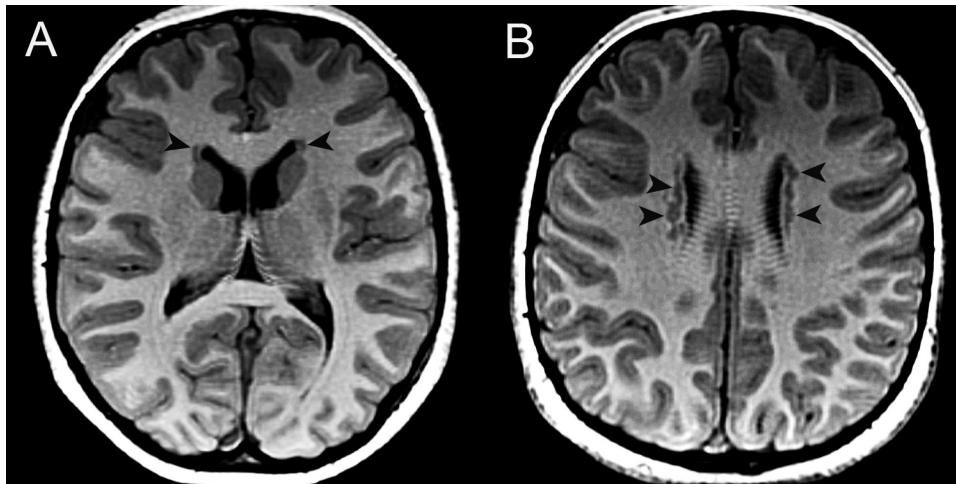


Figure 1: PNH main patterns evaluated with T1 IR-WI. Arrowheads show locations of heterotopia. **A-B**, coronal-axial images show a aPNH pattern with nodules restricted to the frontal horns (A) and bodies (B). **C-D**, axial images demonstrate a pPNH pattern. Nodules are lining trigones and temporal and occipital horns bilaterally (C), sparing the frontal horns and bodies (D). **E-F**, axial images show a dPNH pattern with nodules lining all of the walls of the lateral ventricles.

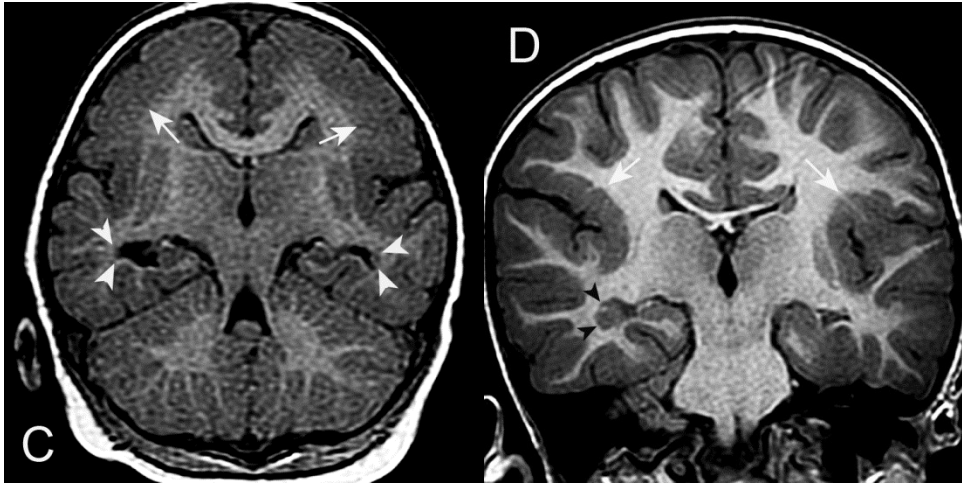
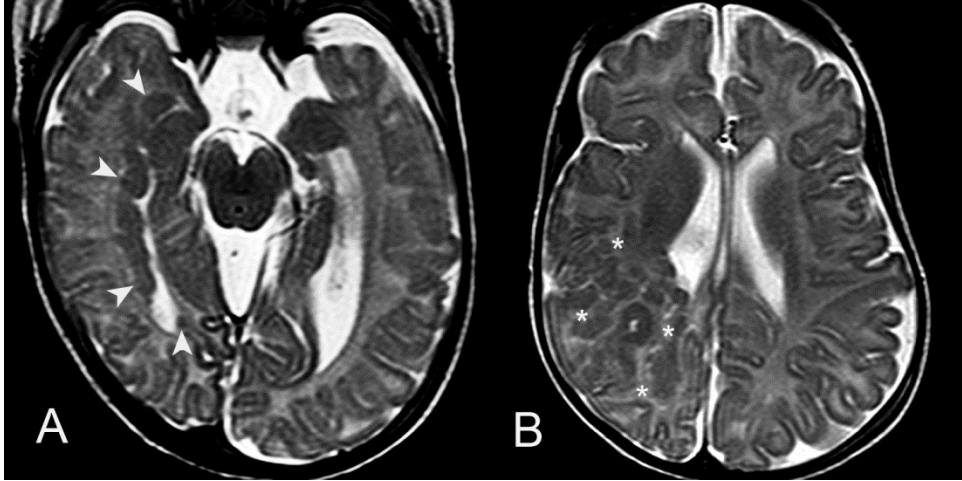


Figure 2: pPNH and malformations of cortical development. **A-B**, axial T2 FSE images show PNH lining the wall of the right temporal and occipital horns and trigone (arrowheads in A) and a large region of subcortical heterotopia in the right frontoparietal region (asterisks in B). **C**, coronal T1 IR demonstrates bilateral PNH in the temporal horns (arrowheads) and bilateral parietal pachygyria (arrows). **D**, coronal T1 IR shows right temporal PNH (arrowheads) and bilateral perisylvian polymicrogyria (white arrows). **E-F**, axial T1 IR images demonstrate a bilateral posterior pattern of PNH (arrowheads) and a left occipital schizencephaly (asterisk in E). White arrows in **F** show the thickness of WM band measured between the most posteromedial margin of Sylvian fissure and the lateral border of the ventricular trigone. In this case it was diminished (5 mm).

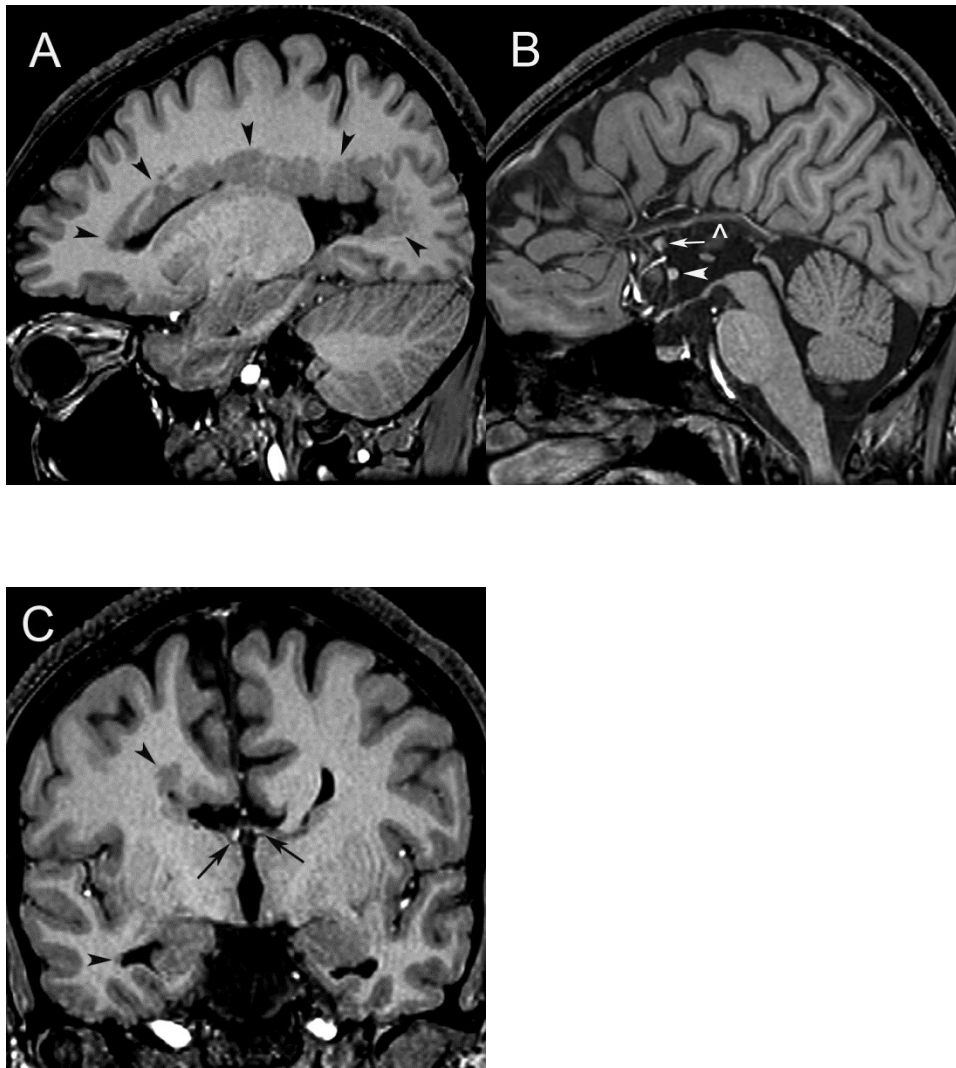


Figure 3: Heterotopia and commissure anomalies. T1 IR-weighted images in a 12 year-old male with dPNH on the right cerebral hemisphere. **A**, Right parasagittal image shows multiple PNH lining the entire margin of the lateral ventricle. **B**, Sagittal image demonstrates agenesis of the corpus callosum with a thick anterior commissure (arrowhead) and an anteriorly positioned hippocampal commissure (~~seen to run from fornix to fornix on axial image~~ arrow). A vascular structure is running along of the top of the third ventricle (open arrowhead). **C**, Coronal image shows moderate white matter volume reduction in the right hemisphere. The fornices are properly located at the roof

of the third ventricle (arrows). PNH is seen in the margin of the frontal and temporal horns (arrowheads).

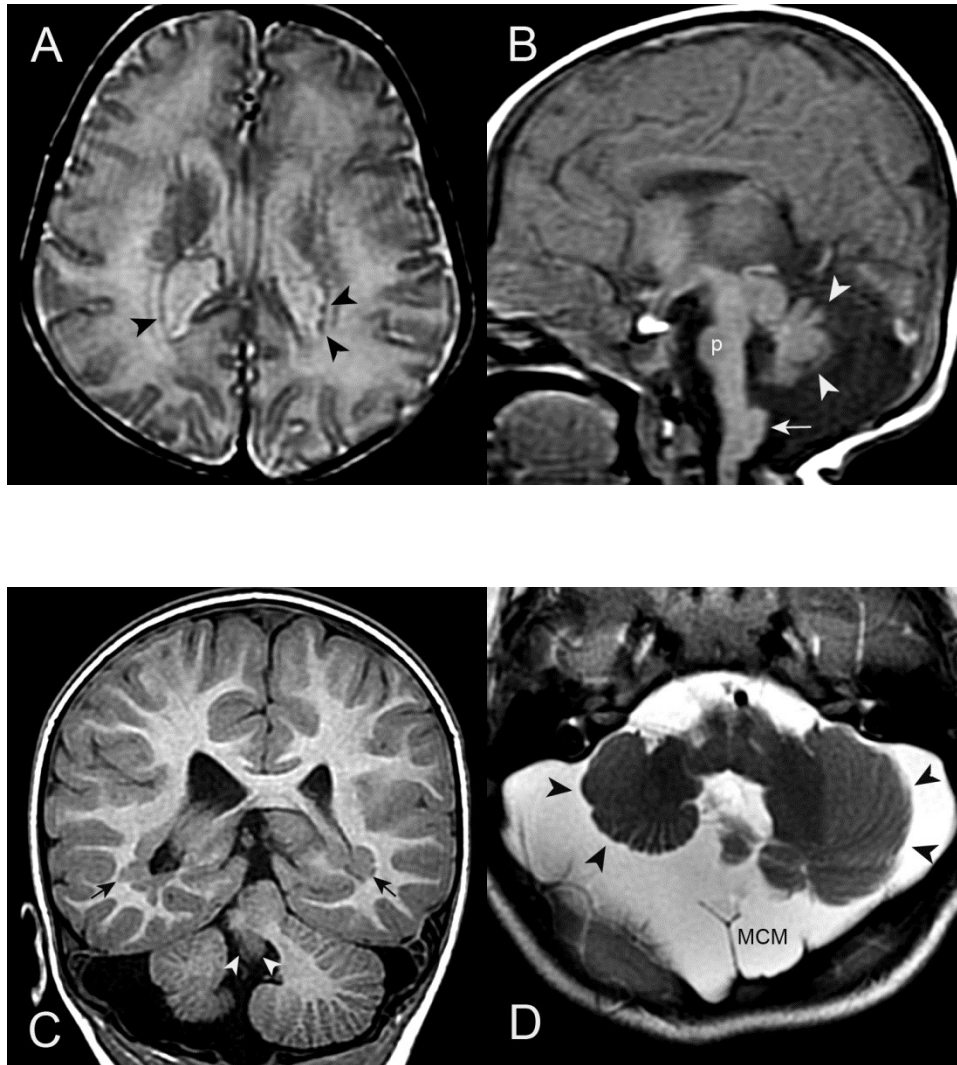


Figure 4: pPNH and posterior fossa anomalies. **A-B.** An 11 day-old male with microcephaly. Small PNH are present in trigones (black arrowheads in A [axial T2 SE-WI]). Other findings include a small pons (p in B [sagittal T1 SE-WI]), a hypoplastic and dysmorphic vermis (white arrowheads) and a large inferior cerebellar peduncle (arrow). **C-D.** A 2 year-old male with PNH in trigones (black arrows in C [coronal T1 IR]), a very

small vermis (white arrowheads), dysplastic and small cerebellar hemispheres (black arrowheads) and mega cisterna magna (MCM).

Supplementary Figure

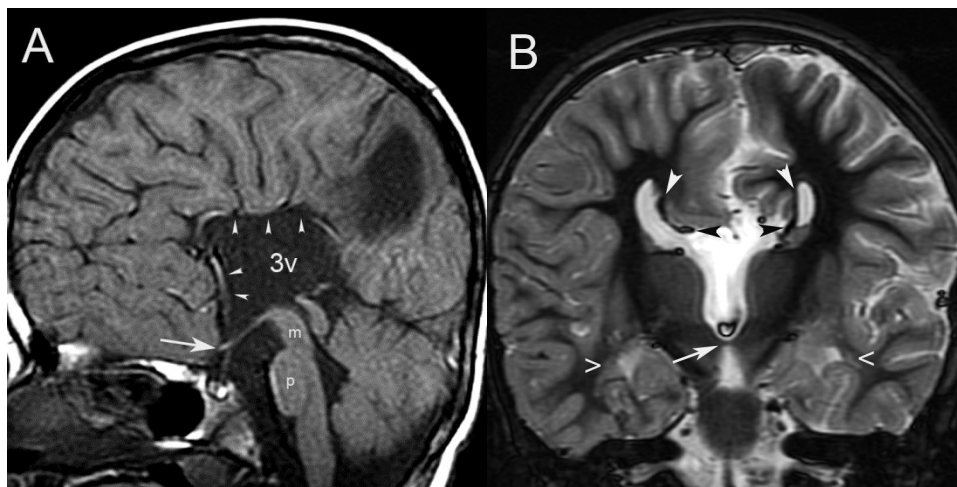


Figure S1: A 13 year-old male with bilateral PNH ~~and more than 10 PNH (not shown)~~.

A, Sagittal T1 SE shows an enlarged third ventricle (3v) without commissural structures along either its roof or anterior wall (white arrowheads). Only the optic chiasm (white arrow) is seen in the floor of the third ventricle. A small midbrain (m) and pons (p) are also observed. **B**, Coronal T2 FSE through the anterior aspect of third ventricle shows bilateral PNH in the margins of temporal horns (open arrowheads). Agenesis of the corpus callosum with very small Probst's bundles are seen along the medial aspect of frontal horn (white arrowheads); fornices are seen at their inferomedial margins (black arrowheads). A very tiny anterior commissure could be present at the anterior wall of the third ventricle (white arrow).

