

Magnetic resonance imaging for hydrocephalus diagnosis

- [MPDZ Pathogenic Variants Cause Obstructive Ventriculomegaly Related to Diencephalosynapsis and Third Ventricle Atresia](#)
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[Magnetic resonance imaging protocol](#) should always include sagittal high-resolution T2-weighted images.

When an inflammatory [etiology](#) is suspected, imaging with contrast agent administration is necessary.¹⁾

Hydrocephalus causes transependymal resorption of spinal fluid that in turn produces periventricular interstitial [transependymal edema](#).

Idiopathic normal pressure hydrocephalus magnetic resonance imaging

[Idiopathic normal pressure hydrocephalus Magnetic resonance imaging](#)

Phase contrast magnetic resonance imaging

[Phase contrast magnetic resonance imaging for idiopathic normal pressure hydrocephalus](#)

Magnetic resonance imaging cisternography

In a study, Roth et al., described the experience with [Magnetic resonance imaging cisternography](#) (MRIC) or [ventriculography](#) (MRIV) for diagnosing or excluding intra- and extraventricular obstructions. Such a differentiation may have a significant impact on choosing the optimal surgical solution.

They retrospectively collected data on patients undergoing MRIC/MRIV for diagnosing or excluding obstructions in patients with ventriculomegaly. All patients had MRI suggesting an obstruction, but without a clear cause.

Five children aged 1-17 years were included (3 females). Four underwent an MRIV, and 1 underwent an MRIC. Three children presented with headaches and had a suspected prior endoscopic third ventriculostomy (ETV) failure, and 2 presented with macrocephalus and increasing head circumferences. MRIV showed a patent ETV stoma in 2 cases, one of which had a T2 SPACE MRI showing no flow void through the stoma, and a closed stoma in 1 case with a flow void above and below the stoma on T2 SPACE MRI. MRIV and MRIC differentiated between two cases with panventriculomegaly, one of which had an obstruction at the level of the Liliequist membrane, and another with no identifiable obstruction.

MRIC and MRIV have a complementary role to MRI in assessing selected patients with hydrocephalus suspected of being secondary to an obstruction, but with no clear obstruction location ²⁾.

¹⁾
Langner S, Fleck S, Baldauf J, Mensel B, Kühn JP, Kirsch M. Diagnosis and Differential Diagnosis of Hydrocephalus in Adults. Rofo. 2017 May 16. doi: 10.1055/s-0043-108550. [Epub ahead of print] PubMed PMID: 28511266.

²⁾
Roth J, Constantini S, Ben-Sira L, Shiran SI. The Added Value of Magnetic Resonance Imaging Cisternography and Ventriculography as a Diagnostic Aid in Pediatric Hydrocephalus. Pediatr Neurosurg. 2019 Mar 14:1-8. doi: 10.1159/000497147. [Epub ahead of print] PubMed PMID: 30870836.

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