Intraventricular Cerebrospinal Fluid Turbulence in Pediatric Communicating Hydrocephalus

Author(s):
Phan Q Duy, B.S. \(^1\); Kristopher T Kahle, M.D., Ph.D. \(^1\)

Corresponding Author:
Kristopher T Kahle
kristopher.kahle@yale.edu

*Neurology*® Published Ahead of Print articles have been peer reviewed and accepted for publication. This manuscript will be published in its final form after copyediting, page composition, and review of proofs. Errors that could affect the content may be corrected during these processes.
A 3-year-old girl presented with progressive macrocephaly and a history of open myelomeningocele surgically repaired at birth. She had no history of intracranial hemorrhage or meningitis. Physical examination showed head circumference >99th percentile (54 cm.) and decreased lower extremity motor function. Neuroimaging revealed extreme communicating ventriculomegaly and strikingly turbulent intraventricular CSF flow in the setting of diffuse cortical atrophy (Figure A-C). A ventriculoperitoneal shunt was placed. Intra-operatively, her intracranial pressure was 18 cm CSF (13.2 mm Hg) (nml in children: 3 – 7 mm Hg). Post-operative imaging showed complete resolution of intraventricular CSF turbulence with a mild decrease in ventriculomegaly (Figure D-F). The patient continued to exhibit mild neurocognitive impairments with arrest of progressive macrocephaly.
Figure: T2 brain MRI of a 3-year-old patient with communicating ventriculomegaly in the setting of CSF flow turbulence and diffuse cortical atrophy. A-C) Pre-operative imaging. D-F) Post-operative imaging seven weeks after shunt placement demonstrating resolution of intraventricular CSF turbulence with mild attenuation of ventriculomegaly. Note the catheter tip in (F).

| Appendix 1. Authors |
|----------------------|------------------|--------------------------------------------------|
| Name                | Location         | Contribution                                      |
| Phan Q. Duy         | Yale University, New Haven | Drafting/revision of the manuscript for content (including medical writing for content), analysis and interpretation of data |
| Kristopher T. Kahle | Yale University, New Haven | Drafting/revision of the manuscript for content (including medical writing for content), major role in the acquisition of data, analysis and interpretation of data |
Intraventricular Cerebrospinal Fluid Turbulence in Pediatric Communicating Hydrocephalus

Phan Q Duy and Kristopher T Kahle

Neurology published online May 24, 2021
DOI 10.1212/WNL.0000000000012237

This information is current as of May 24, 2021