# Pediatric hydrocephalus classification

- Optimizing outcomes in intracranial ependymoma: a contemporary review
- GLAPAL-H: Global, Local, And Parts Aware Learner for Hydrocephalus Infection Diagnosis in Low-Field MRI
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- Radiological Predictors of Cognitive Impairment in Paediatric Brain Tumours Using Multiparametric Magnetic Resonance Imaging: A Review of Current Practice, Challenges and Future Directions
- Long-term outcomes of intraventricular baclofen therapy for medically refractory generalized secondary dystonia
- Automated Detection of Hydrocephalus in Pediatric Head Computed Tomography Using VGG 16 CNN Deep Learning Architecture and Based Automated Segmentation Workflow for Ventricular Volume Estimation
- Burden of pediatric hydrocephalus in a Latin American upper-middle-income country: a nationwide ecological study in Colombia
- Pediatric diffuse intrinsic pontine gliomas- a prospective observational study from a tertiary care neurosurgical center

## Acquired vs. developmental (congenital)

In infants, hydrocephalus without an obvious extrinsic cause is usually referred to as congenital hydrocephalus, since it is often present at birth. When hydrocephalus occurs as a complication of another condition such as hemorrhage, infection or neoplasm, it is usually called acquired or secondary hydrocephalus. However, forces such as hemorrhage and infection can act prenatally and also cause “congenital” hydrocephalus. Moreover, some genetic forms of hydrocephalus are not evident at birth, but develop over time. Therefore, we prefer to distinguish between acquired (extrinsic) and developmental (intrinsic) forms of hydrocephalus.

## Obstructive vs communicating

One of the earliest classifications for hydrocephalus was the obstructive/communicating dichotomy devised by neurosurgeon Walter Dandy in 1913. This binary system remains in common use, but a more nuanced system that takes advantage of tremendous advances in imaging is now possible. In the neurosurgical literature, a multifactorial classification system that incorporates the exacts point of CSF obstruction has been introduced. However, developmental forms of hydrocephalus often have multiple points of obstruction, and so have proved resistant to classification within a precise obstruction-based system. In children with hydrocephalus, we have found it helpful to specify whether the primary point of obstruction is proximal (at the level of the third ventricle or aqueduct), distal (at the level of the fourth ventricle, fourth ventricular outflow tracts, or foramen magnum), or whether there is no apparent source of obstruction (communicating hydrocephalus).

## Syndromic vs non-syndromic

Hydrocephalus has traditionally been divided by geneticists into syndromic and non-syndromic forms,

depending on whether additional congenital anomalies are present. However, no consensus exists about how to classify patients with defined genetic syndromes that lack major clinical features outside the brain. For example, the hydrocephalus associated with mutations in L1CAM has been classified both as non-syndromic and as syndromic. We prefer to distinguish between hydrocephalus in which the clinical phenotype is characterized predominantly by brain findings, and hydrocephalus that is only one part of a condition characterized by major physical abnormalities or clinical signs. When a particular clinical syndrome or genetic basis can be identified, we describe the hydrocephalus as being associated with that syndrome (e.g., L1CAM-associated hydrocephalus).