Intraventricular hemorrhage diagnosis

- Cranial Ultrasonography-Standards in Diagnosis of Intraventricular Hemorrhage and Ventricular Dilatation in Premature Neonates
- Establishment and evaluation of a novel rat model of the fourth ventricle hemorrhage
- Active Cerebrospinal Fluid Exchange vs External Ventricular Drainage in the Neurocritical Care Unit: An International, Retrospective Cohort Study
- Pharmacological interventions for the prevention of pain during endotracheal suctioning in ventilated neonates
- Congenital cytomegalovirus infection and brain injury in a newborn following maternal non-primary infection: case report of an unexpected diagnosis
- Intraventricular Dissecting Hematoma Diagnosed and Followed up by Multimodality Imaging: A Case Report
- Outcomes Truncated by Death in RCTs: A Simulation Study on the Survivor Average Causal Effect
- Fetal Cytomegalovirus Associated Intraventricular Hemorrhage: A Rare Prenatal Complication

Computed tomography

Noncontrast head computed tomography (CT) is the test of choice to diagnose IVH. CT rapidly and reliably identifies blood within the ventricular system, helps to identify parenchymal intracerebral hemorrhage (ICH) or subarachnoid hemorrhage (SAH) associated with the IVH, and also identifies concurrent hydrocephalus.

Magnetic resonance imaging

CT does not provide significant information about the cerebral vasculature, and it has limited ability to identify malignancies. In the absence of an obvious precipitant such as trauma or coagulopathy, most patients with primary IVH should undergo further neuroimaging, typically to include magnetic resonance imaging (MRI) and magnetic resonance angiography (MRA).

MRI derived Graeb scores may be higher because of better sensitivity for detection of blood products, as has been reported for ICH and was seen here in two cases that were not detected by CT [1)]

Angiography

If the MRI/MRA is unrevealing, conventional angiography should follow. In a prospective observational study of patients with IVH who underwent catheter angiography, vascular lesions were found in 11 of 17 (65 percent), including 10 patients with arteriovenous malformations, and one with aneurysm.

A retrospective review of published case series similarly estimated the yield of angiography at 56 percent, additionally identifying cases of Moyamoya and dural arteriovenous fistula.

If the cause of the IVH remains undetermined, it is reasonable in some cases to consider repeat contrast MRI and possibly catheter angiography one to two months following the initial studies after reabsorption of blood products has occurred.

1)

Kidwell CS, Chalela JA, Saver JL, Starkman S, Hill MD, Demchuk AM, Butman JA, Patronas N, Alger JR, Latour LL, Luby ML, Baird AE, Leary MC, Tremwel M, Ovbiagele B, Fredieu A, Suzuki S, Villablanca JP, Davis S, Dunn B, Todd JW, Ezzeddine MA, Haymore J, Lynch JK, Davis L, Warach S. Comparison of MRI and CT for detection of acute intracerebral hemorrhage. JAMA. 2004 Oct 20;292(15):1823-30. doi: 10.1001/jama.292.15.1823. PMID: 15494579.