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Celebrating 35 Years of the AJNR

March 1987 edition

Internuclear Ophthalmoplegia: MR-Anatomic Correlation

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Internuclear ophthalmoplegia is a gaze disorder characterized by impairment on the side of a lesion involving the medial longitudinal fasciculus with nystagmus of the abducting eye. Eleven patients with internuclear ophthalmoplegia (nine with clinical multiple sclerosis, two with clinical infarction) underwent with spin-echo techniques on a 1.5-T system. Nine patients also had CT. focal or nodular areas of high signal intensity on T2-weighted images in the medial longitudinal fasciculus in 10 of 11 patients. In one of four patients with internuclear ophthalmoplegia who had MR after intravenous gadolinium DTPA, a ring lesion was seen in the region of the medial longitudinal fasciculus on T1-weighted images, indicating active blood-brain-barrier disruption, which correlates with this patient's recent-onset internuclear ophthalmoplegia. CT failed to show in all nine patients examined. This report demonstrates the superiority of MR in detecting lesions attributable to brainstem dysfunction, such as internuclear ophthalmoplegia, and correlates MR findings with the relevant neuroanatomy of the longitudinal fasciculus.

Internuclear ophthalmoplegia (INO) is a disorder of eye movement, characterized by impaired adduction on the side of a lesion involving the longitudinal fasciculus (MLF) with dissociated nystagmus of the abducting eye [1, 2]. In young patients, this syndrome is most commonly caused by multiple sclerosis (MS) [1, 2-4]; in fact, INO is the most common oculomotor manifestation of MS [3]. The same eye-movement disorder in an older age group is usually attributed to cerebrovascular disease. MR is a highly sensitive imaging technique for detecting MS plaques [7-10], and it has become the technique of choice for



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The Role of Dural Anomalies in Vein of Galen Aneurysms: Report of Six Cases and Review of the Literature

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It is proposed that the vein of Galen aneurysm is an increased flow (usually caused by a dural arteriovenous fistula) which either directly into the vein of Galen aneurysm associated with obstruction of a dural sinus venous obstruction is to the vein of Galen, if obstructive (noncommunicating) hydrocephalus drainage from the rest of the brain will be unaltered from the vein of Galen aneurysm. The magnitude of the arteriovenous shunt. It may be related to the retrograde venous flow in the healthy brain. Careful attention should be given to the types of dural venous case to case. The term "vein of Galen aneurysm" term "vein of Galen ectasia".

Since concluding our research in infants and children [1], we have been involved in the study of vein of Galen aneurysms (VGA). We report six cases of associated dural anomalies. Careful analysis of deep-seated arteriovenous malformations (AVMs) and their relationship to the VGA is discussed.

The purpose of the present paper is to contribute to the angioanatomic analysis of the VGA, to discuss what may be the primary developmental defect, and to consider the relationship between the anomalies encountered and the clinical outcome of the disease.

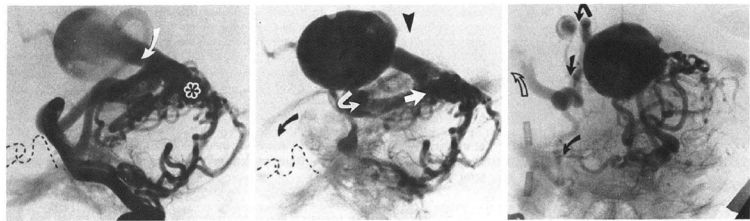
Case Reports

Case 1

A 4-kg newborn girl presented with cardiac failure. Vertebral angiography demonstrated a VGA with agenesis of the straight sinus and high-flow venous collateral circulation from the VGA to the torcula (Fig. 1). There was angiographic evidence of arterial steal, but there was no retrograde venous drainage into the cortical veins or sinuses.

Case 2

A 7-kg infant boy presented with an increase in head circumference. A vertebral angiogram showed a VGA with agenesis of the straight sinus and moderately high-flow collateral circulation from the VGA to the lateral and cavernous sinuses (Fig. 2). Angiographically, no arterial steal was demonstrated, but retrograde venous drainage into the cortical veins was noted.



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