Vein of Galen malformation complications

Sinus Thrombosis after Endovascular Treatment of Vein of Galen malformation [1].

Meyers et al., report in 2000 on a series of spontaneous intracranial hemorrhages associated with vein of Galen aneurysmal malformations (VGAMs). Thirty-four children with VGAMs have been treated at the Department of Radiology, University of California at San Francisco, since 1986. Eight children (24%) harbored the mural-type malformation, and 26 (76%) had the choroidal-type lesion. Two children (25%) with mural lesions and 1 (4%) with a choroidal lesion suffered hemorrhagic complications. Two presented with acute intracranial hemorrhage. A third child developed acute intracranial hemorrhage due to delayed dural sinus thrombosis after endovascular treatment of his choroidal-type VGAM. The subjects ranged in age from 13 days to 17 months at the time of presentation. Each patient underwent rapid radiological evaluation and treatment with endovascular surgery. Post-procedural arteriography demonstrated complete occlusion of the malformation in each patient. For the 3 patients with hemorrhage, follow-up has taken place over 49-, 107-, and 43-month intervals, respectively. Vein of Galen aneurysmal malformations can present with acute intracranial hemorrhage or develop delayed intracranial hemorrhage but respond to treatment using standard endovascular techniques. The presence of hemorrhage does not de facto portend a poor prognosis [2].

In 667 patients who underwent endovascular embolization to treat vein of Galen malformations. The proportional meta-analysis showed that postembolization mortality and complications were reported in 10% (95% CI 8%-12%; I(2) = 42.8%) and 37% (95% CI 29%-45%; I(2) = 79.1%), respectively. Complications included cerebral hemorrhage, cerebral ischemia, hydrocephalus, leg ischemia, and vessel perforation [3].

In eight children (six infants and two neonates), two asymptomatic complications occurred, including separation of the distal catheter, which was removed with a snare device, and a single platinum coil that embolized to the lung, producing no symptoms in 101 months of clinical follow up. The follow-up period ranged from 3 to 105 months, with a mean of 52 months [4].

1)
Demartini Z Jr, Dos Santos ML, Koppe GL, Cardoso-Demartini AA. Sinus Thrombosis after Endovascular Treatment of Vein of Galen Aneurysmal Malformation. Pediatr Neurosurg. 2017 Jan 17. doi: 10.1159/000452806. [Epub ahead of print] PubMed PMID: 28092907.
2)
Meyers PM, Halbach VV, Phatouros CP, Dowd CF, Malek AM, Lempert TE, Lefler JE, Higashida RT. Hemorrhagic complications in vein of Galen malformations. Ann Neurol. 2000 Jun;47(6):748-55. PubMed PMID: 10852540.
3)
Yan J, Wen J, Gopaul R, Zhang CY, Xiao SW. Outcome and complications of endovascular embolization for vein of Galen malformations: a systematic review and meta-analysis. J Neurosurg. 2015 Oct;123(4):872-90. doi: 10.3171/2014.12.JNS141249. Epub 2015 Jul 31. PubMed PMID: 26230476.
4)
Halbach VV, Dowd CF, Higashida RT, Balousek PA, Ciricillo SF, Edwards MS. Endovascular treatment of mural-type vein of Galen malformations. J Neurosurg. 1998 Jul;89(1):74-80. PubMed PMID: 9647175.