## **Arteriovenous malformation obliteration**

Arteriovenous malformations (AVMs) are a major cause of intracerebral hemorrhage in children, resulting in significant morbidity and mortality. Moreover, the rate of AVM recurrence in children is significantly higher than in adults. The aim of this study was to define the risk of delayed pediatric AVM (pAVM) recurrence following confirmed radiological obliteration. Further understanding of this risk could inform the role of long-term radiological surveillance.

Methods: The authors conducted a retrospective review of ruptured and unruptured pAVM cases treated at a single tertiary care referral center between 1994 and 2019. Demographics, clinical characteristics, treatment modalities, and AVM recurrence were analyzed.

Results: A total of 102 pediatric patients with intracranial AVMs, including 52 (51%) ruptured cases, were identified. The mean patient age at presentation was  $11.2 \pm 4.4$  years, and 51 (50%) patients were female. The mean nidus size was  $2.66 \pm 1.44$  cm. The most common Spetzler-Martin grades were III (32%) and II (31%). Stereotactic radiosurgery was performed in 69.6% of patients. AVM obliteration was radiologically confirmed in 68 (72.3%) of 94 patients with follow-up imaging, on angiography in 50 (73.5%) patients and on magnetic resonance imaging in 18 (26.5%). AVM recurrence was identified in 1 (2.3%) of 43 patients with long-term surveillance imaging over a mean follow-up of 54.7  $\pm$  38.9 months (range 2-153 months). This recurrence was identified in a boy who had presented with a ruptured AVM and had been surgically treated at 5 years of age. The AVM recurrence 54 months after confirmed obliteration on surveillance digital subtraction angiography. Two other cases of presumed AVM recurrence following resection in young children were excluded from recurrence analysis because of incomplete sets of imaging available for review.

Arteriovenous malformation recurrence following confirmed obliteration on imaging is a rare phenomenon, though it occurs more frequently in the pediatric population. Regular long-term follow-up with dedicated surveillance angiography is recommended even after obliteration following resection <sup>1)</sup>.

## 1)

Oushy S, Gilder HE, Nesvick CL, Lanzino G, Pollock BE, Daniels DJ, Ahn ES. Delayed recurrence of pediatric arteriovenous malformations after radiologically confirmed obliteration. J Neurosurg Pediatr. 2022 May 27:1-8. doi: 10.3171/2022.4.PEDS21471. Epub ahead of print. PMID: 35623369.

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