

Multiple cerebral arteriovenous malformations

Multiple brain arteriovenous malformations (bAVM) are rare neurovascular lesions usually related to genetic syndromes. Its management is not well established given its rarity. The objective of this study was to describe the clinical and angiographic features of published cases and to explore their associations with treatment outcomes. We performed a literature search of published cases in Medline and the Regional Index Medici. Additional cases were searched in our single-center registry. Data on the proportions of patients and clinical and angiographic characteristics were extracted. The study outcomes were nidus instability in patients who underwent staged treatment and radiological cure in patients who underwent treatment using any treatment modality. Logistic regression models for the study outcomes were analyzed. Data on the proportions of multiple bAVM patients were summarized with meta-analyses of proportions. We included 118 patients (reported in 68 studies) from the literature and 6 cases identified in our registry. A total of 124 patients harboring 339 bAVM nodi were included in the analyses. Differences between syndromic and non-syndromic cases were observed. The logistic regression analyses showed that angiographically occult untreated bAVM was associated (OR 14.37; 95% CI 2.17 to 95.4) with nidus instability after staged treatment, and deep (OR 5.11; 95% CI 1.51 to 17.27) and eloquent (OR 3.91; 95% CI 1.22 to 12.52) locations were associated with residual disease after treatment. Inconsistent reporting of relevant data throughout the included studies undermined the planned analyses. Some prognostic factors were found to be related to the study outcomes. Study Registration: The protocol of the systematic review was registered in PROSPERO as CRD42021245814 ¹⁾.

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Basilio-Flores JE, Aguilar-Melgar JA, Zevallos CB, Aguirre-Carbajo R, Ortega-Gutierrez S, Pacheco-Fernandez Baca H. Multiple brain arteriovenous malformations: systematic review and individual patient data meta-analysis. *Neurosurg Rev.* 2023 Jan 28;46(1):44. doi: 10.1007/s10143-023-01951-3. PMID: 36708432.

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