

Middle cerebral artery region cerebral arteriovenous malformation

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A [middle cerebral artery](#) (MCA) region cerebral arteriovenous malformation (AVM) is an abnormal tangle of blood vessels in the brain located in the area supplied by the middle cerebral artery. This type of AVM can cause a range of symptoms including headache, seizures, weakness or paralysis on one side of the body, and vision changes. Treatment for MCA region AVMs typically involves either surgical removal, endovascular treatment (using catheter-based procedures to occlude or remove the AVM), or a combination of both. The choice of treatment will depend on several factors such as the size, location, and characteristics of the AVM, as well as the patient's overall health and medical history. It is important for individuals with an MCA region AVM to be closely monitored by a neurologist or neurosurgeon to ensure appropriate management and to reduce the risk of complications.

Few studies have investigated the use of [endovascular treatment](#) (EVT) for [brain arteriovenous malformations](#) (BAVMs) in the supplying area of the [middle cerebral artery](#) (MCA). Moreover, no suitable classification was aimed at EVT for MCA-BAVMs. Therefore, a study of Su et al. proposed a new classification.

This study retrospectively collected 135 MCA-BAVMs. They were classified into four types: Type I BAVMs located above the M1 segment; Type II BAVMs located in the region around the [Sylvian fissure](#); and Type III BAVMs located in the supplying region of the M4 segment and subdivided into types IIIa and IIIb. The relevance of various types of MCA-BAVMs and their imaging characteristics and EVT outcomes was analyzed by ordinary one-way ANOVA, [Tukey's multiple comparisons test](#) and the [chi-squared test](#).

The 135 patients averaged 33.8 ± 14.7 years and included 75 females (55.6%, 75/135). Among them, 15 (11.1%, 15/135), 16 (11.9%, 16/135), 54 (40%, 54/135), and 50 (37%, 50/135) MCA-BAVMs were type I, II, IIIa and IIIb, respectively. After EVT, a good outcome was achieved in 97% of patients. Statistical analysis showed that type I BAVMs were smaller than type II and IIIb BAVMs (P value < 0.05), and type IIIb BAVMs were larger than type I and IIIa BAVMs (P value < 0.05). Deep vein involvement in type I and IIIb BAVMs was more common than in other types (P value < 0.05), and intraventricular hemorrhage (IVH) was also more common (P value < 0.05). The normal morphology

in type IIIb was less than that in the other types (P value < 0.05). Type IIIa BAVMs had a higher degree than other types (P value < 0.05).

The present study demonstrated that the new [classification](#) of MCA-BAVMs can be used to evaluate imaging characteristics and EVT outcomes in different types. In addition, EVT may be a safe treatment modality for MCA-BAVMs ¹⁾

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Su H, Yu J. Brain arteriovenous malformations of the middle cerebral artery region: image characteristics and endovascular treatment based on a new classification system. BMC Neurol. 2023 Jan 25;23(1):41. doi: 10.1186/s12883-023-03084-y. PMID: 36698107.

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Last update: 2024/06/07 02:51

