Spetzler Martin grade 1

- Impact of smoking on occlusion rates following stereotactic radiosurgery for Spetzler Martin grade I-III brain arteriovenous malformations - A propensity score matched analysis of the MISTA consortium
- Preliminary experience with the use of a 3D exoscope for excision of unruptured brain arteriovenous malformations: case series and comparative analysis
- Indirect surgical revascularization for management of vascular steal phenomenon in high-grade untreatable brain arteriovenous malformations
- Hypofractionated radiosurgery for intracranial arteriovenous malformations: a systematic review and meta-analysis
- The Dynamics of Seizures After Microsurgical Treatment of Brain AVMs in Patients with Symptomatic Epilepsy: A Single-Center Experience over 10 Years
- Safety and Effectiveness of Flow-Diversion for Flow-Related Aneurysms in Patients With Brain Arteriovenous Malformations: A Case Series and Review of Literature
- Stereotactic radiosurgery treatment of pediatric arteriovenous malformations: a PRISMA systematic review and meta-analysis
- Endovascular treatment of unruptured Spetzler-Martin grade IV and V brain AVMs in a predominantly Hispanic patient cohort

Spetzler-Martin Grade 1 Criteria

A Grade 1 AVM has:

Size: Small (< 3 cm)

Location: Non-eloquent brain

Venous Drainage: Superficial only

Clinical Significance

Low surgical risk: Grade 1 AVMs are considered the safest to remove surgically. Good prognosis: Low morbidity and mortality associated with resection. Treatment options: Surgery is often preferred due to high likelihood of complete resection with minimal neurological deficits.

A study compares the outcomes of microsurgical resection and stereotactic radiosurgery (SRS) for Spetzler-Martin AVM grading system I and IIs. Out of a large multicenter registry, they identified 180 matched patients with SM grade I and II AVMs treated with either microsurgical resection or SRS between 2010 and 2023. The primary outcomes were AVM obliteration rates and complications; secondary outcomes included neurological status and functional outcomes measured by the modified Rankin Scale (mRS). Propensity score matching (PSM) was utilized to ensure comparability between treatment groups. After PSM, 90 patients were allocated to each treatment group. Significant differences were observed in complete obliteration rates, with resection achieving higher rates

compared to SRS in overall cases (97.8% vs. 60.0%, p < 0.001), unruptured AVMs (100% vs. 58.3%, p < 0.001), and ruptured AVMs (95.2% vs. 61.9%, p < 0.001). Functional improvement rates were similar between the groups for overall cases (67.2% in resection vs. 66.7% in SRS, p = 0.95), unruptured AVMs (55.2% in resection vs. 55.6% in SRS, p > 0.9), and ruptured AVMs (78.1% in resection vs. 74.1% in SRS, p = 0.7). Symptomatic complication rates were identical between the groups (11.1% each, p > 0.9), while permanent complication rates were comparable (6.7% in resection vs. 5.6% in SRS, p = 0.8). Resection demonstrated significantly higher complete obliteration rates compared to SRS across all cases, including unruptured and ruptured AVMs. Functional improvement rates were similar between the two treatment groups, with no significant differences in symptomatic or permanent complication rates [1].

1)
Tos SM, Osama M, Mantziaris G, Hajikarimloo B, Adeeb N, Kandregula S, Dmytriw AA, Salim HA, Musmar B, Naamani KE, Ogilvy C, Kondziolka D, Abdelsalam A, Kumbhare D, Gummadi S, Ataoglu C, Erginoglu U, Essibayi MA, Keles A, Muram S, Sconzo D, Riina H, Rezai A, Pöppe J, Sen RD, Alwakaa O, Griessenauer CJ, Jabbour P, Tjoumakaris SI, Burkhardt JK, Starke RM, Baskaya M, Sekhar LN, Levitt MR, Altschul DJ, Haranhalli N, McAvoy M, Aslan A, Abushehab A, Swaid C, Abla A, Stapleton C, Koch M, Srinivasan VM, Chen PR, Blackburn S, Dannenbaum MJ, Choudhri O, Pukenas B, Orbach D, Smith E, Möhlenbruch M, Alaraj A, Aziz-Sultan A, Patel AB, Cuellar HH, Lawton M, Morcos J, Guthikonda B, Sheehan J. Spetzler-Martin grade I and II cerebral arteriovenous malformations: a propensity-score matched analysis of resection and stereotactic radiosurgery in adult patients. Neurosurg Rev. 2025 Feb 28;48(1):276. doi: 10.1007/s10143-025-03431-2. PMID: 40016553.