

Intranidal Aneurysms Do Not Increase Risk of Rupture in Patients with Intracranial AVMs

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Introduction

Arteriovenous malformations (AVMs) with intranidal aneurysms often require prompt treatment due to concern for rupture. However, controversial reports have been seen in existing literature regarding impact of intranidal aneurysm on hemorrhagic risk of AVMs. We aim to characterize this risk using our institutional cohort of AVM patients.

Methods

We performed a retrospective chart review of all patients diagnosed with AVM at our institution between 1990 and 2015. Patients with intranidal aneurysms and those without any associated aneurysms were compared. Baseline information, hemorrhage at presentation and follow-up, treatment modality, and functional status were determined. Annual risk of hemorrhage was calculated via the birth to first treatment approach and compared using Poisson rate ratio test.

Results

From a database of 763 AVM patients, 485 patients with intranidal aneurysms (n=25) or without any aneurysms (n=460) were included after excluding patients with missing data. Average age was 36.0±18.2 years with 53.4% female. Average size of all AVMs were 3.03cm. There were no significant differences in AVM grading or ruptured presentation between the two groups (p>0.05). However, patients in the intranidal group were more likely to have speech disturbance at baseline (p=0.021). Those with intranidal aneurysms were more likely to undergo microsurgery compared to radiosurgery (p=0.037). Average follow-up duration was 5.38±7.11 years. There were no significant differences in functional outcomes or follow-up hemorrhages between the two groups (p>0.05). The annual risk of hemorrhage was 1.21% and 1.36% for the no aneurysm and intranidal aneurysm groups respectively (p=0.747).

Conclusions

The finding of no association between hemorrhagic presentation and intranidal aneurysms confirm previous findings. Additionally, no difference in subsequent risk of hemorrhage was found in our study. Therefore, despite general perception that intranidal aneurysms increases hemorrhagic risk of AVMs, our study does not support this presumption.

Learning Objectives

By the conclusion of this session, participants should be able to:

- 1) Appreciate the effect of intranidal aneurysms on AVM hemorrhage risk.
- 2) Understand the AVM treatment approach preferences in presence of intranidal aneurysms.