Unruptured pericallosal artery aneurysm

Rupture risk

Compared with intracranial aneurysms (IAs) at other locations, pericallosal artery aneurysms (PAAs) have demonstrated an extremely high risk of rupture. The morphological characteristics of PAAs are unique. Compared with other anterior circulation IAs, PAAs have significantly increased aspect ratio (AR), size ratio (SR), and inflow angles, which, ultimately, promote their high propensity toward rupture ¹⁾

Case series

A total of 12 patients with 12 unruptured pericallosal artery aneurysms, treated with coil embolization, were retrospectively investigated. Predictors for silent ischemias were evaluated by comparing diffusion-weighted imaging (DWI)-positive and DWI-negative patients.

Silent ischemic events detected on DWI were observed in eight aneurysms (66.7%). A comparison of the morphological characteristics of aneurysms between the two groups showed a significantly smaller global outflow angle (GOA) in the DWI-positive group than in the DWI-negative group (172.6 \pm 17.7° vs. 216.8 \pm 16.8°, P < 0.01). A multivariate analysis showed that GOA <195° was a significant predictor of silent ischemic events (P = 0.04; odds ratio: 23.62; 95% confidence interval: 1.11-490.39).

A small GOA was a significant predictor of silent ischemic events after coil embolization for unruptured DACA aneurysms. While some patients can be treated safely with minimally invasive coil embolization, it is necessary to consider surgical clipping in patients at high risk of thromboembolic events with coil embolization²⁾.

In a retrospective study of patients treated endovascularly for PAAs from December 2007 to January 2019. a total of 33 patients with 34 aneurysms were included (25 aneurysms ruptured, 9 unruptured or recurrent). Of the ruptured group, 22 were coiled (88%) and rest treated with flow diversion. The initial angiographic follow up rate was 72%, a median of 159 days. The overall recurrence rate was 40% (10/25) at median of 376 days, all among coiled aneurysms. 6 recurrent aneurysms retreated with further coiling (2) and flow diversion (4). Of the unruptured/recurrent group, 5 were coiled (55%) and the remainder treated with flow diversion. The angiographic follow-up rate was 100% at a median of 267 days. The recurrence rate was 22% (2/9), both in coiled aneurysms. Overall, 27 aneurysms were coiled, 9 treated with flow diversion and 3 with "partial" flow diversion. All aneurysms treated with pipeline flow diversion achieved 100% occlusion. No re-rupture or new rupture was observed. Good clinical outcome (modified Rankin Scale 0-2) was seen in 79% of patients.

This study demonstrates that endovascular coiling for PAAs is associated with a definite rate of recurrence, which has to be monitored with timely angiography. They also demonstrates the excellent effectiveness of flow diversion for PAAs with either presentation 3 .

Unclassified

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