

Aneurysm Recanalization

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Embolization coil made of soft and thin platinum wire called the “Guglielmi Detachable Coil (GDC)” enables safer treatment for brain aneurysms. However, patients may experience aneurysm recurrence because of incomplete coil filling or compaction over time. Unsatisfactory recanalization rates and incomplete occlusion are drawbacks for endovascular embolization. So, fabrication new medical devices and methods for usage at less invasive surgical techniques is mandatory to enhance long-term therapeutic performance of existing endovascular procedures ¹⁾

Large [aneurysm neck](#) size, wide neck morphology, large aneurysm diameter and ruptured aneurysm are significant predictors for [recanalization](#) of [coiled aneurysms](#). Following endovascular treatment, [ruptured intracranial aneurysms](#) had a significantly increased risk of recanalization compared to matched [unruptured intracranial aneurysms](#). The degree of recanalization of ruptured aneurysms is more significant and a higher percentage require retreatment. It takes a significantly shorter time for recanalization to occur in ruptured aneurysms compared to unruptured aneurysms. After endovascular treatment earlier, more frequent imaging follow-up is required for ruptured aneurysms compared to unruptured aneurysm ²⁾.

Endovascular treatment of [intracranial aneurysms](#) can be technically challenging in cases of wide [aneurysm necks](#) or unfavorable [aneurysm dome-to-neck](#) ratio. [Coils](#) deployed without supporting devices may herniate from the aneurysm sac into the parent artery, causing thromboembolic complications or vessel occlusion. Therefore, alternative strategies for managing wide-necked aneurysms have been introduced such as [Stent-assisted coiling](#) (SAC), [balloon assisted coiling](#) (BAC), and double-catheter coil embolization (DCC).

Aneurysm size remains the most important predictor of aneurysm recanalization and retreatment after stent-assisted coiling. Although higher packing densities were associated with increased rates of aneurysm occlusion in unadjusted statistical comparisons, this finding was no longer significant after adjusting for confounders ³⁾.

Stent implantation reduced the overall recanalization of the coiled cerebral aneurysms ⁴⁾.

Scales

see [Aneurysm Recanalization Stratification Scale](#).

Treatment

The drawback of endovascular treatment is aneurysmal remnants or recurrences, which is safely and durably amenable to [flow diversion](#) ⁵⁾.

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³⁾

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