

# Cerebral Aneurysm Recanalization and Retreatment after Endovascular Coiling

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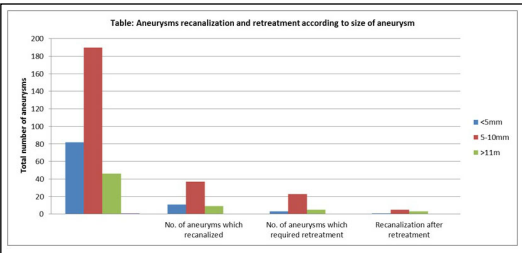


## Introduction

Endovascular embolization of intracranial aneurysms is an effective treatment for aneurysms; however some of these aneurysms recanalize requiring further treatment. This study establishes the rate of recanalization and retreatment of ruptured and unruptured cerebral aneurysms after endovascular coil embolization at one institution.

## Methods

Retrospective study examined endovascularly coiled aneurysms from March 2003 to August 2012. Medical records, angiograms, and a database from the Hartford Hospital Stroke Center were used. 421 aneurysms in 385 patients were treated with endovascular coil embolization in that period. Raymond criteria was used to classify the post coiling neck remnant and followed up for evaluating recanalization and retreatment. Angiographic follow-up was obtained on 318 aneurysms.

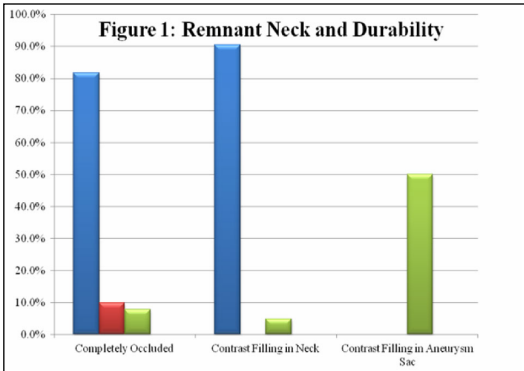
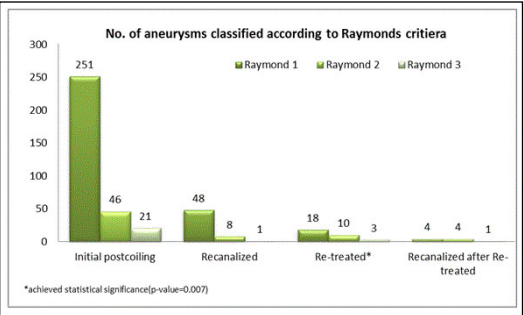


## Results

5.5%(318) aneurysms had follow-up angiography, out of which 62.3%(198)were ruptured and 37.7%(120) were unruptured. Immediate post-coiling angiography showed 78.9%(251) to have complete or near-complete radiographic occlusion, or Raymond class 1, 14.5%(46) were class 2, and 6.6%(21) were class 3. Recanalization occurred in 19.7%(39) of ruptured and 15%(18) of unruptured aneurysms. 84%(48) of the recanalized aneurysms were initially Raymond class 1. Most aneurysms, 73.7%(42), recanalized by the first followup program with the median time to followup being 364 days. 12.6%(25) ruptured and 5%(6) unruptured aneurysms were re-treated, with coiling being the common procedure. Of those re-treated aneurysms, 5(20%) previously ruptured and 4(67%) unruptured subsequently recanalized again. 58.1%(18) of re-treated aneurysms were of Raymond class 1, 32.3%(10) class 2, and 9.7%(3) were class 3(p value=0.007). 7.9%(25) were re-operated once, 1.6%(5) were re-operated twice and 1 was treated three times.

## Conclusions

This study showed an overall recanalization rate of 17.9% following endovascular coiling of ruptured and unruptured aneurysms and retreatment rate of 9.7%. Most aneurysms recanalized by the first follow-up angiogram. Prolonged angiographic follow-up is needed to understand the natural history of recanalization and the need for retreatment.



## Recanalization and retreatment in Ruptured Vs. Unruptured aneurysms

