



# Rate of Periprocedural Thromboembolic vs Hemorrhagic Complications following Guglielmi Detachable Coil Embolization of Aneurysms in the Setting of Subarachnoid Hemorrhage

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## Introduction

Coil embolization has become accepted as a safe and effective alternative therapy to surgical clipping in the treatment of aneurysmal subarachnoid hemorrhage. Antiplatelet agents have not been conclusively shown to improve or worsen outcomes. Such therapies straddle the line between under-treatment resulting in thromboembolic events and over-treatment resulting in hemorrhagic events. A direct, single institution comparison of thromboembolic to hemorrhagic complications may be helpful in determining the need for more aggressive post-coiling antiplatelet therapy.

## Methods

We retrospectively reviewed our institutional neurointerventional database from 1999 to 2010. The presence of complications as seen on post-procedural computed tomography or magnetic resonance imaging was recorded as well as which of the complications were symptomatic as described in the patients' medical records.

## Results

A total of 438 patients were reviewed, 308 (70.3%) had anterior circulation aneurysms while 130 (29.7%) had posterior circulation aneurysms. The total rate of complications was higher in posterior circulation aneurysms than in anterior circulation aneurysms (20.8% vs 12.7%,  $p=0.043$ ) and the rate of thromboembolic events was higher in posterior circulation aneurysms than in anterior circulation aneurysms (20.0% vs 10.1%,  $p=0.004$ ) while the rate of hemorrhagic events was not significantly different (anterior 2.6% vs posterior 0.8%,  $p=0.39$ ). Of the 412 patients who had available medical records for review, there were more thromboembolic than hemorrhagic complications (11.7% vs 1.9%,  $p<0.0001$ ), but there was no difference proportion of thromboembolic and hemorrhagic events which were symptomatic (58.3% vs 50%,  $p=0.96$ ).

## Conclusions

Upon retrospective comparison of thromboembolic to hemorrhagic periprocedural complications, it appears that the majority of them are thromboembolic in nature which may support the routine use of post-procedural antiplatelet regimens. However, there was no statistically significant difference between the proportions of either complication type with regard to symptoms.

## Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of periprocedural complications following coil embolization of aneurysms presenting with subarachnoid hemorrhage, 2) Discuss, in small groups how implementation of routine, aggressive antiplatelet regimens may play a role in the medical management of subarachnoid hemorrhage, 3) Identify an effective treatment for potentially reducing the rate of symptomatic complications following endovascular treatment of ruptured cerebral aneurysms.

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