

## Intraoperative Parent Vessel Thrombosis and Rehemorrhage in Patients Treated with Systemic Heparinization vs. None During Coiling of Ruptured Aneurysms.

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### Introduction

Thromboembolic events causing neurologic deficits are the most common neurologic complication of coiling ruptured aneurysms. Systemic heparinization is sometimes used to avoid thrombosis, though concern exists this could increase the risk of re-rupture or intracerebral hemorrhage. Few studies have examined the impact of systemic heparinization vs. none in coiling of ruptured aneurysms.

### Methods

We performed a retrospective review of a prospectively maintained database of all consecutive aneurysmal subarachnoid hemorrhage (SAH) treated with coiling over a 10-year period at our tertiary care center. Operative reports and anesthesia records were searched for use of periprocedural systemic heparinization, as well as parent vessel thrombosis or re-rupture noted intraoperatively. Patients were classified into those treated with systemic heparinization and those treated without.

### Results

We identified 226 patients who underwent coiling of ruptured aneurysms during the study period, including 73 (32%) with periprocedural systemic heparinization and 153 (68%) without (Table 1).

**Table 1** Characteristics of the Heparin vs No Heparin Patients

	Systemic Heparin n = 73	No Systemic Heparin n = 153	p-value
Mean Aneurysm Size (mm)	8.3	6.8	0.02
Pre-Operative Ventriculostomy Placement	46 (63%)	114 (75%)	0.05
Intraoperative Parent Vessel Thrombosis	1 (1.4%)	7 (4.6%)	0.26
Intraoperative Re-Ruptures	0 (0.0%)	3 (2.0%)	

### Conclusions

SAH coiling patients treated with systemic heparinization had larger aneurysms and were less likely to have pre-procedural ventriculostomy placement. Systemic heparin during SAH coiling does not appear to increase re-rupture rate and may decrease thrombotic events, though further studies are needed to demonstrate efficacy.

### Learning Objectives

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

- 1) Discuss parent vessel thrombosis rates for coiling of ruptured aneurysms with and without systemic heparin.
- 2) Discuss the risk of rehemorrhage with systemic heparin use during coiling of ruptured aneurysms

### References

van Rooij WJ, Sluzewski M, Beute GN, Nijssen PC. Procedural complications of coiling of ruptured intracranial aneurysms: incidence and risk factors in a consecutive series of 681 patients. *American Journal of Neuroradiology*. 2006;27:1498–1501.