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Complications Associated with Clipping of Previously Coiled ACOM Aneurysms

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Learning Objectives

Clipping of previously coiled ACOM aneurysms is as safe as clipping primarily.

Introduction

As the paradigm of aneurysm treatment has changed to either coiling or clipping of aneurysms, a common question is whether clipping of previously coiled and recurrent aneurysms is safe. Previously ruptured and embolized ACOM aneurysms have been found to have a high recurrence rate by our group and we have proposed that stent assisted coiling or clipping may be potential ways to retreat these aneurysms. We looked at the complication rate from clipping of previously coiled ACOM aneurysms compared to the complication rate from clipping previously untreated ACOM aneurysms.

Methods

In an IRB approved study, we looked retrospectively at 489 aneurysms clipped from 2007-2015 at the Cleveland Clinic. 84 patients were ACOM aneurysms that were clipped. 6 of these patients had been previously coiled. Complications were measured at time of surgery, <30 days, 6 years, 1 year and 5 years and included stroke, seizures, subdural collections, and wound infections.

Results

1 patient of the 6 with aneurysms that had undergone clipping post embolization had a subdural fluid collection that resolved over time. 14 patients of 78 treated primarily by clipping had complications including 6 wound infections, 1 developed seizures, and 5 strokes with one being atrial fibrillation related. There was no statistical difference between the number of complications in the clipping post coiling group (17%) compared to the primary clipping groups (18%).

Table 1

Demographics		n=67	n=6	
Gender		Clipped	Clipped of previous	p-value
	Female	40	2	0.22
Average Age		56	59	0.36
Risk Factors	Smoking	41	5	0.3
	Hypertension	42	3	0.8
	Drug abuse	6	1	0.6
	Family History	15	1	0.8
	Collagen Tissue Disease	1	0	0.3
	Coronary Artery Disease	7	0	0.003
	Chronic Renal Failure	3	0	0.083
	Stroke	10	1	0.98
	Diabetes	10	0	0.0
Aneurysm Dome Size		6.7	13.7	
Aneurysm Neck Size		3.5	5.5	
Unruptured		46	2	
Ruptured		27	4	
	Hunt and Hess	2.3	2.8	
	Fisher	2.9	3.8	

Table 2 Early and Late Complications	Clipped	Coiled then Clipped
Total Complications	14	1
Subdural Fluid colleciton	0	1
Wound Infections	6	0
Seizures	1	0
Strokes	5	0
Shunt Malfunction	1	0
Died (bladder cancer)	1	1

Conclusions

Though this study is limited by being retrospective and having a small number of patients in the previously coiled group, our data suggests that clipping of previously coiled ACOM aneurysms is as safe as clipping primarily coiled aneurysms.

References

Moore, NZ, M. Lang, A. Bauer, S. John, R. Cerejo, P. Rasmussen, M. Bain. Rehemorrhage and Recurrence Rates of ACOM Aneurysms Post Embolization. Submitted for publication to Journal of Neurosurgery.