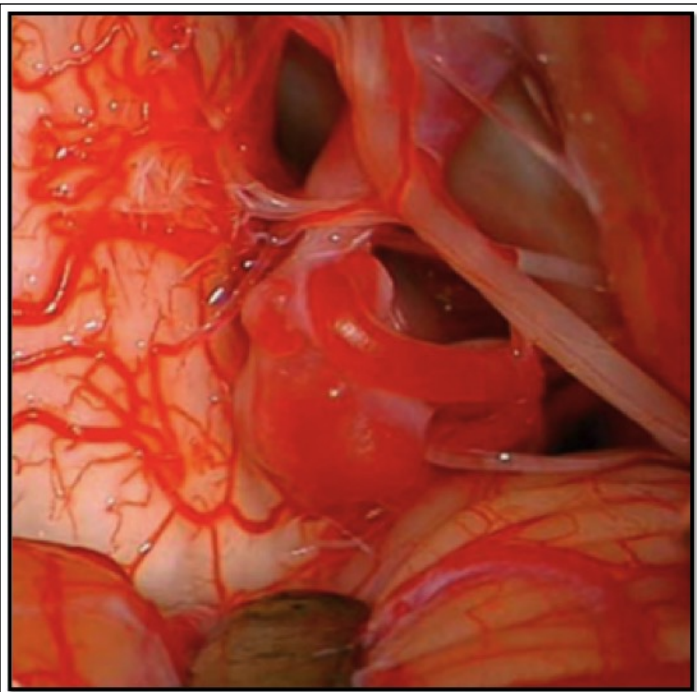


## Multi-center experience with surgical and endovascular management of ruptured and unruptured posterior inferior cerebellar artery aneurysms

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### INTRODUCTION

Posterior inferior cerebellar artery (PICA) aneurysms are uncommon. There are no comparative studies of surgical vs. endovascular treatment modalities for these lesions, which may hinder therapeutic decision making. Here we offer a multicenter series of surgical and endovascular treatment of PICA aneurysms by two dual trained neurosurgeons and an interventional neuroradiologist.

### METHODS

Demographic and clinical data for 18 consecutive patients (age=61.2±13.1y, 14F/4M) who underwent surgical or endovascular treatment of PICA aneurysms at MMC or VUMC between 2009 and 2013 were analyzed.

### RESULTS

Nine patients (50%) presented in the setting of acute subarachnoid hemorrhage (Hunt and Hess: III=2, III=4, IV=3). Two were clipped, five were coiled, and two were embolized with Onyx. Coiling failed in one case, which required surgical trapping. There were no procedure related complications, and 8/9 (88.9%) achieved complete occlusion at last angiographic followup (5.5±7.9mo). In the 9 unruptured cases, five were clipped, two were coiled primarily, one was stentcoiled, and one underwent flow diversion. The stent-assisted case required a three staged embolization to avoid stent prolapse into the wideneck aneurysm. The only complication was pseudomeningocele (requiring revision) in a clipped aneurysm. Of unruptured cases, 8/9 (88.9%) achieved complete occlusion at last angiographic followup (12±16.9 mo). All unruptured cases were at modified Rankin scale 0-1 at last clinical followup.

Pt.	Age	Sex	Aneurysm Anatomy	SAH H&H	Treatment	Complications	Angiographic occlusion	Clinical Followup
1	48	F	3 mm	IV	Clip	None	Complete at 6 months	mRS 1, GOS 5 at 1 year
2	38	M	Giant fusiform, distal	Unruptured	Clip	None	Complete at 6 months	mRS 1, GOS 5 at 4 weeks
3	69	F	5 mm	Unruptured	Clip	None	Complete at 1 year	mRS 1, GOS 5 at 1 year
4	81	F	10 mm	Unruptured	Surveillance	---	N/A	Lost to follow-up
5	81	M	Feeding AVM	I	Onyx	None	Complete post-op	mRS 3, GOS 3 at 2 months
6	38	F	8 mm	III	Coil	None	Complete at 6 months	mRS 0, GOS 5 at 6 months
7	51	F	3 mm	Unruptured	Clip	None	None	Pending
8	84	F	Fusiform, distal	III	Coiling attempted. Trapping the next day.	None	None	mRS 3, GOS 3 at 1 month
9	69	F	3 mm, distal	IV	Coil	None	Complete post-op	mRS 1, GOS 5 at 2 months
10	76	F	6.5 mm	III	Coil	None	Complete at 2 years	GOS 5 at 1 month
11	65	F	7 mm	Unruptured	Coil	None	Complete at 4 years	GOS 5 at 1 month
12	74	F	20 mm wide-neck	Unruptured	PED	None	Complete post-op	mRS 0, GOS 5 at 1 week
13	50	F	Coiled 8 mo prior	II	Clip	None	None	mRS 0, GOS 5 at 6 weeks
14	60	F	7 mm, 4 mm neck	Unruptured	Stent coil, staged repeat coil x 2	None	Complete at 15 months	mRS 0, GOS 5 at 18 months
15	60	F	5 mm, 4 mm neck	Unruptured	Clip	Pseudomeningocele	Complete post-op	mRS 0, GOS 5 at 2 months
16	60	M	3 mm dissecting	III	Clip	None	Complete at 4 months	mRS 1, GOS 4 at 4 months
17	60	M	Fusiform, feeding AVE, distal	II	Onyx, fatula resected 4 months later	None	Complete at 4 months	mRS 1, GOS 5 at 5 months
18	60	F	6 mm, 2 mm neck	IV	Coil	Hydro requiring VPSI, VPSR, Aspiration PNA	90% post-op	mRS 4, GOS 3 at 6 months

### CONCLUSIONS

In this highly selective series, both coiling and clipping had high safety and effectiveness, with no significant differences between the two groups. Anatomically, aneurysms occurred at the medullary, tonsillar, and hemispheric segments of the PICA. Using a diverse group of techniques including primary coiling, clipping, stent coiling, flow diversion and trapping, no bypasses were needed and all patients achieved good clinical outcomes. Large prospective studies are warranted to determine the best intervention.

