

**Background and purpose** Expandable stents have broadened the spectrum of endovascular treatment of intracranial aneurysms. The Neuroform ATLAS, a nitinol self-expanding, hybrid/open-cell stent, is the evolution of the Neuroform EZ supposing to ease the navigability of the system into intra-cranial arteries, through a low-profile 0.017 inch delivery catheter. We present herein our initial experience in the treatment of intracranial aneurysms with this novel stent.

**Materials and methods** We compiled data from consecutive patients of our institution from July 2015 to April 2016 who underwent stent-assisted coiling with the Neuroform ATLAS. Clinical and angiographic results were analyzed retrospectively.

**Results** Twenty-seven intracranial saccular aneurysms (12 MCA, 9 AcoA, 4 ICA bifurcation, 1 basilar tip, 1 vertebral-PICA) in 26 patients (17 women, 9 men, mean age 59 years) were consecutively treated. The stent was used in 23 previously untreated aneurysms, and in 4 cases of recanalization. One single stent was used in 11 aneurysms while 16 aneurysms were treated with 2 stents in a “Y” configuration. The immediate post-treatment angiography showed a complete occlusion in 11 cases (40.7%), a residual neck in 3 cases (11.1%) and a residual aneurysmal contrast filling in 13 cases (48.1%). Two complications occurred (7.4%), the first due to an associated aneurysm perforation (mRs 2), and the second due to parent vessel perforation (mRs 6). Both of them occurred after the stent implantation.

**Conclusion** The Neuroform ATLAS Delivery System is an effective device for treatment of complex intracranial aneurysms, allowing good conformability and stability with a high level of navigability.

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## Electronic Poster Abstracts

### E-001 COMPARISON OF CLINICAL OUTCOMES IN PATIENTS WITH ANTERIOR CIRCULATION ACUTE ISCHEMIC STROKES TREATED WITH MECHANICAL THROMBECTOMY USING THE ADAPT TECHNIQUE ONLY VERSUS ADAPT WITH SOLUMBRA SALVAGE

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**Purpose** To compare procedural and clinical outcomes in patients with anterior circulation acute ischemic strokes treated with mechanical thrombectomy using ADAPT technique only or ADAPT with Solumbra salvage.

**Materials and methods** We retrospectively reviewed a consecutive cohort of patients with anterior circulation acute ischemic strokes treated with mechanical thrombectomy using ADAPT technique only or ADAPT with Solumbra salvage at our institution between March 11th, 2013 and December 31st, 2015. Baseline clinical and radiological characteristics and procedural variables were recorded. Clinical outcomes at 90 days were recorded using the modified Rankin Scale (mRS).

**Results** Fifty-nine patients were included, 33 male (56%). Mean age 67.1 years, mean admission NIHSS 19.1. Forty-six

**Abstract E-001 Table 1** Baseline clinical and radiological characteristics

	All patients (n = 59)	ADAPT only (n = 46)	ADAPT with solumbra salvage (n = 13)	p-value
Mean age, years	67.1	67.3	66.5	0.8
Admission NIHSS	19.1	19.1	19.2	1
iv-tPA	56%	59%	47%	0.5
Atrial fibrillation	39%	37%	46%	0.8
Male Sex	56%	57%	54%	1
Mean NCCT	9.1	9.1	9.2	0.9
ASPECTS				
M1 Thrombus	46%	50%	31%	0.4
ICA terminus thrombus	42%	35%	69%	0.054
Severe tortuosity (≥360 degrees)	31%	28%	39%	0.5

patients were treated with ADAPT only (78%) and 13 with ADAPT with Solumbra salvage (22%). Table 1 summarizes baseline clinical and radiological characteristics. There was a trend towards a higher proportion of patients with ICA terminus thrombi in the ADAPT with Solumbra salvage group (69.2%, p-value 0.054). Table 2 summarizes the procedural variables. There was a significantly-lower mean time from puncture to reperfusion in the ADAPT only group (29.5 minutes) compared to the ADAPT with Solumbra salvage group (85.1 minutes, p-value < 0.001). There was a significantly-higher number of mean thrombectomy device passes in the ADAPT with Solumbra salvage group (5.6) compared to the ADAPT only group (2.3, p-value 0.005). There are a significantly-higher rate of iatrogenic cervical vascular dissection in the ADAPT with Solumbra salvage group (15%) compared to the ADAPT only group (0, p-value 0.046). Table 3 summarizes the clinical outcomes. There was a significantly-higher rate of unfavorable clinical outcome (mRS 4–6) and death at 90 days in the ADAPT with Solumbra salvage group (61.5% and 38.5%, respectively) compared to the ADAPT only group

**Abstract E-001 Table 2** Procedural variables

	All patients (n = 59)	ADAPT only (n = 46)	ADAPT with solumbra salvage (n = 13)	p-value
Number of devices passes	3.1	2.3	5.6	0.005
5 Max ACE use	70%	63%	92%	0.084
ACE 64 use	30%	37%	8%	0.084
TICI 2 b/3 reperfusion	90%	91%	85%	0.6
Carotid stent deployment	12%	13%	8%	1
Embolus to new territory	5%	4%	8%	1
Iatrogenic cervical dissection	3%	0	15%	0.046
Puncture to Reperfusion, minutes	41.7	29.5	85.1	0.0001
Last Known Well to Reperfusion, minutes	271	259	316	0.17

(28.3% and 10.9%, p-value 0.047 and 0.033, respectively). There was a trend towards a higher rate of favorable clinical outcomes (mRS 0–2) at 90 days in the ADAPT only group (54%) compared to the ADAPT with Solumbra salvage group (31%, p-value 0.21).

**Conclusion** Among patients treated with mechanical thrombectomy using an ADAPT-first approach, those requiring Solumbra salvage had significantly-higher rates of unfavorable clinical outcome and death at 90 days.

**Abstract E-001 Table 3** Clinical outcomes

	All patients (n = 59)	ADAPT only (n = 46)	ADAPT with solumbra salvage (n = 13)	p- value
Symptomatic intraparenchymal hemorrhage	1.7%	2.2%	0	1
Symptomatic subarachnoid h	1.7%	0	7.7%	0.22
Neuro-ICU length of stay, days	3.1	2.6	4.6	0.11
Hospital length of stay, days	6.6	6.2	8	0.22
Discharge to home:	22%	26%	8%	0.26
In-Hospital Mortality / Discharge to Hospice	14%	9%	31%	0.06
90 day Mortality	17%	11%	39%	<b>0.033</b>
90 day mRS 4–6	36%	28%	62%	<b>0.047</b>
90 day mRS 0–2	49%	54%	31%	0.21

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**E-002** **PROLONGATION OF POLYMETHYLMETHACRYLATE CEMENT WORKING TIME DURING PERCUTANEOUS KYPHOPLASTY WITH ICE BATH COOLING**

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**Aim** To study the effect of cooling of polymethylmethacrylate dough in an ice bath to prolong working time of cement during percutaneous kyphoplasty.

**Materials and methods** Polymethylmethacrylate dough filled cement cartridges were placed in a saline ice bath for varying lengths of time to study the effect of cooling cartridges on working time of cement during percutaneous kyphoplasty using the Kyphon® (Medtronic Spine, Sunnyvale, CA, USA) Balloon Kyphoplasty system.

**Results** Cement dough was easily injectable through the bone filler with the injection gun immediately after removal from an ice bath at 15, 30, and 60 minutes of storage. Consistency of the mixture was ideally doughy at all time points. After 15 minutes at room temperature, the mixture continued to be injectable with slightly more resistance at these time points. The mixture was more firm yet maintained a doughy consistency. Cement dough could not be injected after 120 minutes



**Abstract E-002 Figure 1**

of storage, either immediately after removal or after 15 minutes at room temperature.

**Conclusion** We demonstrate the prolongation of working time of polymethylmethacrylate cement in percutaneous kyphoplasty using ice bath cooling of dough filled cement cartridges. Cement dough was injectable after storage in an ice bath for up to 60 minutes. In the clinical setting, intraprocedural cooling using this simple, low cost technique may extend the working time of polymethylmethacrylate for the operator and may improve the utility of a single Balloon Kyphoplasty kit when treating multiple vertebral compression fractures.

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**E-003** **EVALUATION OF STRATEGIES TO REDUCE TIME TO REVASCULARIZATION IN ACUTE ISCHEMIC STROKE**

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**Background** Stroke is significant cause of morbidity, disability and mortality in the United States today. There is growing support for the need for process improvement, specifically, reducing time to reperfusion in endovascular stroke therapy (EVT) to improve functional outcomes. It is suggested that every 30 minutes delay in revascularization of acute ischemic stroke leads to a 10.6% decrease in the potential for a good functional outcome (Khatri et al., 2009).

**Purpose** To identify the impact on specific hospital based process improvement strategies in the acute ischemic stroke patient population undergoing endovascular therapy with specific intent to decrease median arrival to revascularization time, thus increasing the potential for good functional outcome. We