O-036 ASPIRATION TUBING DIAMETER IS ASSOCIATED WITH CONSISTENCY OF INTRALUMINAL ASPIRATION PRESSURE FOR MECHANICAL THROMBECTOMY IN ACUTE ISCHEMIC STROKE: AN EXPERIMENTAL STUDY

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Introduction/Purpose For patients with acute ischemic stroke due to a large vessel occlusion, aspiration-retrieval methods are increasingly becoming standard-of-care. Several parameters of the standard thrombectomy set-up influence procedure success. We studied, in a controlled experimental setting, the effect of various aspiration tubing on consistency of intraluminal pressure between static and dynamic phases of aspiration, static being aspiration with no flow into the distal access catheter and dynamic being aspiration with active catheter flow.

Materials and methods Standard set-up for all trials included a single distal access catheter (ID=0.60 in) immersed in a canister of water connected by a three-way valve to aspiration tubing with an inline digital manometer at the junction (figure 1). A single vacuum pump was used in all trials. Four types of aspiration tubing, differentiated based on diameter, were studied. Two trials were conducted for each type of aspiration tubing in which the pressure (inHg) was measured in static and dynamic phases. The mean pressure over the two trials was computed for each phase. Percent change was computed between the static and dynamic phases. Data was summarized with descriptive statistics. Student's t-test and Analysis of Variance (ANOVA) with Bonferroni post-hoc analyses were used to compare pressures between the various tubing.

Results The mean percent change between the static and dynamic phases for the four types of aspiration tubing were: Type 1 58.3% (22.1 inHg vs. 9.2 inHg), Type 2 18.5% (20.3 vs. 16.5), Type 3 31.6% (25.3 vs 17.3), and Type 4 2.7% (25.3 vs. 24.6) (table 1). Change in pressure between static and dynamic phases was significantly different for tubing Types 1–3 ($p<0.05$). Intraluminal pressure was constant between static and dynamic phases for Type 4 (p 0.152, 95% CI -0.7–2.2).

Conclusion Intraluminal pressure for the aspiration tubing with the largest diameter (Type 4) was constant over static and dynamic aspiration. We suggest that larger diameter aspiration tubing provides less resistance to flow and therefore may permit more reliable distal catheter - thrombus face engagement, which may translate into improved reperfusion outcomes. Future studies will evaluate the relationship between aspiration tubing type and thrombectomy outcome.

Disclosures L. Verhey: None. **O. Rivera:** None. **L. Lyons:** None. **P. Mazaris:** None. **M. Khan:** None. **J. Singer:** 2; C; Stryker, Medtronic.

Abstract O-036 Table 1

Tubing	Internal diameter (in)		Static pressure (inHg)	Dynamic pressure (inHg)	% Change
Type 1	0.088	Trial 1	24.76	9.2	62.8
		Trial 2	19.53	9.27	52.53
		Mean	*22.145*	*9.235*	58.3
Type 2	0.11	Trial 1	20.35	16.45	19.16
		Trial 2	20.15	16.54	17.92
		Mean	*20.25*	*16.495*	18.54
Type 3	0.11	Trial 1	25.05	16.85	32.73
		Trial 2	25.56	17.77	30.48
		Mean	*25.305*	*17.31*	31.59
Type 4	0.218	Trial 1	25.69	24.48	4.71
		Trial 2	25.02	24.66	1.44
		Mean	*25.255*	*24.57*	2.71

Oral poster abstracts

P-001 CAROTID ARTERY STENTING USING OVERLAPPED DOUBLE CLOSED-CELL STENTS FOR UNSTABLE PLAQUE

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Purpose Stent design is one of the risk factors associated with periprocedural ischemic complications during carotid artery stenting (CAS). Closed-cell stents have a lower rate of ischemic complications than open-cell stents, and it has been reported

Abstract O-036 Figure 1

that this is because closed-cell stents have a smaller free cell area, restricting plaque protrusion (PP). Reducing the free cell area of stents may thus reduce the incidence of ischemic complications. We examine whether the use of overlapped (i.e., double) closed-cell stents in CAS for carotid artery stenosis with unstable plaque might inhibit plaque protrusion (PP).

Methods 41 consecutive patients with carotid artery stenosis with unstable plaque diagnosed by magnetic resonance plaque imaging (35 men; [mean 76.3 years]; symptomatic stenosis, 28 lesions; mean stenosis severity, 84.8%) were prospectively analyzed. All CAS procedures were performed by conservative post-dilatation after stent-in-stent placement of two Carotid Wallstents using an embolic protection device. The technical success rate and the incidence of PP, ischemic stroke within 30 days, and new ipsilateral ischemic lesions on diffusion-weighted imaging (DWI) within 48 h after CAS and follow-up results (ipsilateral stroke rate and restenosis rate) were prospectively assessed.

Results The technical success rate was 100% (41/41). No PP and stroke occurred in any patients. New ischemic lesions were observed on DWI in 11 patients (26.8%). During the follow-up period (mean 11.6 months), no ipsilateral strokes occurred. Asymptomatic restenosis (53%) occurred in 1 patient (2.9%); asymptomatic occlusion occurred in 1 patient (2.9%).

Conclusion CAS using overlapped double stents for unstable plaque may be useful for preventing PP and ischemic complications.

Disclosures K. Takayama: None. **K. Myouchin:** None. **T. Wada:** None. **S. Kurokawa:** None. **K. Kichikawa:** None.

P-002 SINGLE SHOT INTRA-AORTIC ANGIOGRAPHY FOR WHOLE BRAIN VASCULAR AND PERFUSION IMAGING UTILIZING A HYBRID CT-ANGIOGRAPHY SUITE – POTENTIAL APPLICATION IN ENDOVASCULAR STROKE THERAPY

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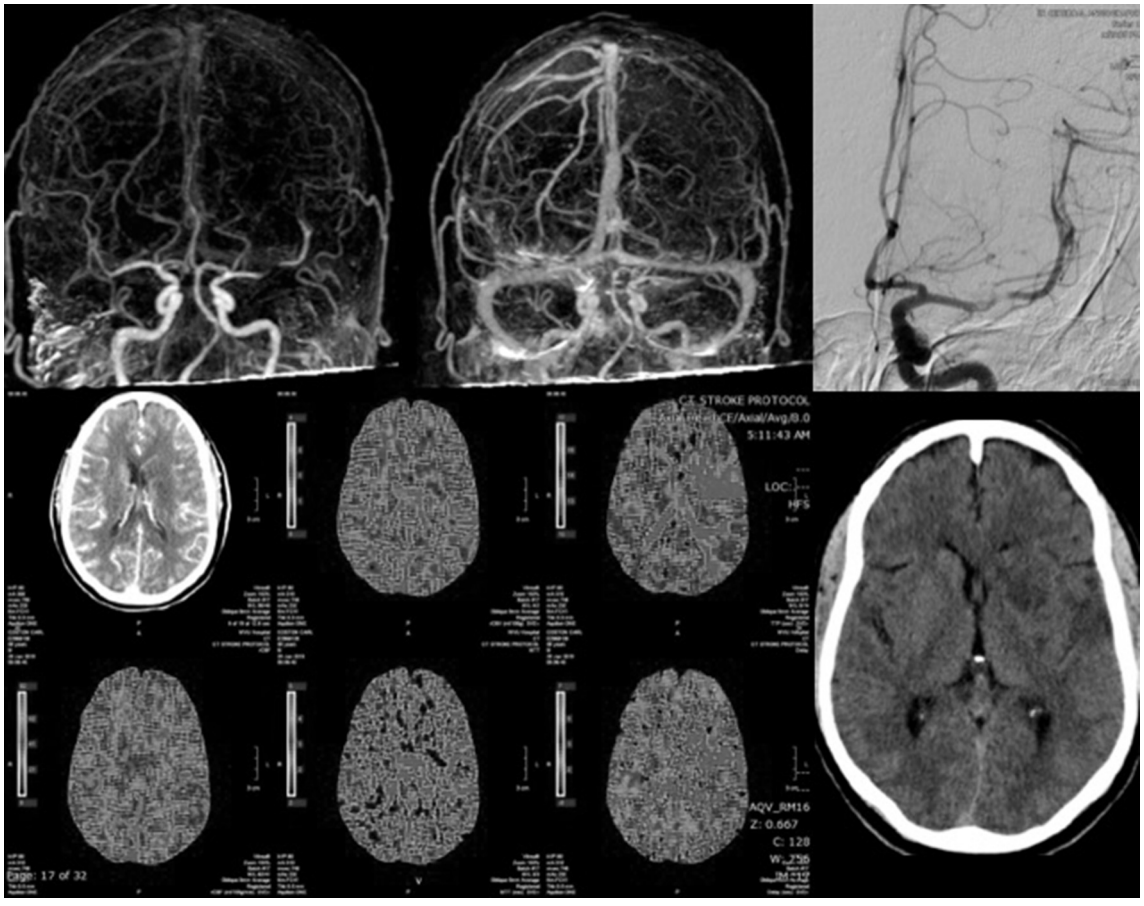
Objective To report the feasibility of a combined imaging and treatment strategy for acute ischemic stroke (AIS) utilizing a hybrid CT-Angiography suite.

Methods A descriptive case report covering the technical aspects of whole-brain vascular and perfusion imaging with a single intra-aortic injection of 7 ml of iodinated contrast for suspected large vessel occlusion (LVO).

Results A middle-aged man was transferred after 20-hours with a suspected LVO on imaging. The NIHSS was 12 with right sided hemiplegia and slurred speech. A 5F pigtail catheter was placed in the aortic arch in the hybrid interventional (Alphenix™) and CT (Genesis™ Aquilion One) suite (Canon Medical Systems, Tustin, CA). A 2-second, intra-aortic injection was performed with 20 ml of 30% contrast-saline mixture at 10 ml/s. Simultaneous triggering of the continuous CT volumetric acquisition was performed with a peak of 80 KVP at a constant 320 mAmp. Volumetric angiography reconstruction of the data set was performed at 0.3s interval (320 images, 0.5 mm thickness with 16cm of coverage). The 12-



Abstract P-002 Figure 1