Disclosures A. Paul: None. **J. MacDonell:** None. **N. Field:** None. **P. Entezami:** None. **J. Dalfino:** None. **A. Boulos:** None.

E-061 DELIVERY OF A NOVEL 8F ASPIRATION CATHETER TO THE INTRACRANIAL VESSELS IN A FRESH-FROZEN CADAVER MODEL

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10.1136/neurintsurg-2020-SNIS.97

Introduction/Purpose Larger lumen catheters are associated with improved reperfusion using aspiration for the treatment of stroke. Significant scope remains to improve the rate of first pass effect, which has been associated with significantly improved clinical outcomes. To date, the degree of tortuosity encountered during neurovascular procedures has limited the ability of larger lumen catheters to navigate distally to the target vessels. Perfuze Ltd (Galway, Ireland) have developed a novel aspiration catheter (Millipede 088) which has an 8F OD and 0.088" ID. The purpose of this study was to evaluate the navigability of Millipede 088 to the M1 segment of the MCA in a fresh-frozen cadaver model.

Methods In total six cadavers were investigated, allowing evaluation of navigation to twelve MCAs. Commercially available 6F aspiration catheters (Terumo Sofia Plus, Penumbra ACE 64 and 68) were used as a control for baseline comparison. Slow perfusion using warm water was maintained throughout the procedure. The study was conducted at MERI, Memphis, TN, USA, using Siemens Artis Pheno for imaging.

Control A Penumbra Neuron Max was placed at the petrous segment of the ICA. The 6F aspiration catheter was navigated triaxially over a microcatheter and microwire. Initially, 2.1F microcatheters and 0.014" microwires were used for support. Where additional support was required, microcatheters of up 2.7F or Penumbra 3Max and/or a 0.016" microwire were used.

Test: Via femoral access, an 80 cm long sheath Super Arrow-Flex (Teleflex) or Flexor Shuttle (Cook) was placed in the proximal ICA. Various combinations of internal support were investigated 1) 2.1F microcatheters and 0.014" microwire, 2) 6F aspiration catheters. Where additional support was required to cross the ophthalmic artery, microcatheters of up 2.7F or Penumbra 3Max and/or a 0.016" microwire were used.

Results Varying tortuosity was encountered; aortic-arch (Type I-III, bovine), cervical (s-shaped); siphon (U, C, S, Ω). In 11/12 instances it was possible to navigate to the distal M1 using test (Millipede 088) and control (6F aspiration catheters) devices. In the instance of unsuccessful navigation, both Millipede 088 and the 6F aspiration catheters were unable to cross the ophthalmic artery. In general, navigation of Millipede 088 to the M1 was facilitated by the support of a 6F aspiration catheter.

Conclusions Navigation of the Millipede 088 catheter to the M1 is feasible in a cadaver model. The ophthalmic artery can represent a challenge which in the majority of cases can be overcome using the support of standard neurovascular devices.

Disclosures R. Nogueira: 2; C; Perfuze Ltd. 4; C; Perfuze. **L. Mullins:** 4; C; Perfuze Ltd. 5; C; Perfuze Ltd. **D. Finneran:** 4; C; Perfuze Ltd. 5; C; Perfuze Ltd. **W. Allen:** 4; C; Perfuze Ltd. 5; C; Perfuze Ltd. **J. Thornton:** 2; C; Perfuze Ltd. 4; C; Perfuze Ltd.

E-062 IMPACT OF ANGIOGRAPHIC APPEARANCE OF PROXIMAL MIDDLE CEREBRAL ARTERY OCCLUSION ON FIRST PASS REPERFUSION

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10.1136/neurintsurg-2020-SNIS.98

Background and Purpose The first pass effect (FPE) is a key predictor of clinical outcome after mechanical thrombectomy (MT) for large vessel occlusion stroke (LVOS). We aim to study the impact of initial angiographic appearance of middle cerebral artery (MCA) occlusion on FPE.

Methods A prospectively maintained MT database from January 2018 to December 2019 was reviewed. Patients with M1 segment MCA occlusion were included. FPE was defined as complete reperfusion (mTICI2c-3) after a single pass thrombectomy. Occlusion site angiographic appearance was classified into two categories; regular, when the occlusion is smooth stump with abrupt cut off and irregular which included all other types of occlusion. The primary outcomes were the

Abstract E-062 Table 1 Demographic, risk factors, procedural characteristics and outcome among regular and irregular MCA occlusion

	All patients(n=319)	Regular(n=130)	Irregular(n=189)	P value
Demographics and stroke risk factors				
Age	65.1±16.1	64.4±15.5	65.7±16.5	0.50
Female	168 (52.7)	68 (52.3)	100 (52.9)	0.92
Hypertension	243 (76.2)	101 (77.7)	142 (75.1)	0.60
Diabetes mellitus	85 (26.6)	33 (25.4)	52 (27.5)	0.67
Atrial fibrillation	103 (32.3)	43 (33.1)	60 (31.7)	0.80
Hyperlipidemia	89 (27.9)	40 (30.8)	49 (25.9)	0.34
Current smoking	72 (22.6)	37 (28.5)	35 (18.5)	**0.037**
Stroke etiology Cardioembolic	152 (47.6)30 (9.4)	69 (53.1)10 (7.7)	83 (43.9)20 (10.6)	**0.04**
Large artery disease ICAD Others	31 (9.7)106 (33.2)	6 (4.6)45 (34.6)	25 (13.2)61 (32.3)	
Clinical and procedural characteristics				
LKN-Puncture	394[217–737]	442 [217–726]	379 [211–754]	0.99
Baseline NIHSS score	17 [12–21]	18 [12–21]	17 [13–21]	0.60
ASPECTS	8 [7–9]	8 [7–9]	8 [7–9]	0.24
Prior IV-tPA	95 (29.8)	37 (28.5)	58 (30.7)	0.67
Favorable collaterals	154/205 (75.1)	64/82 (78)	90/123 (73.2)	0.43
Left hemisphere stroke	161 (50.5)	61 (46.9)	100 (52.9)	0.29
Tandem occlusion	13 (4.1)	7 (5.4)	6 (3.2)	0.32
General anesthesia	37 (11.6)	13 (10)	24 (12.7)	0.46
Balloon guide catheter	297 (93.1)	121 (93.1)	176 (93.1)	1.00
First-line technique SR CA Combined Primary intracranial stenting	165 (51.7)43 (13.5)	66 (50.8)46 (35.4)	99 (52.4)63 (33.3)	0.81
Secondary intracranial stenting	109 (43.2)2 (0.6)	18 (13.8)0 (0)	25 (13.2)2 (1.1)	
Puncture to first run	8 [6–12]	8 [6–12]	8 [6–11]	0.98
First run to reperfusion	35[21–59]	37 [21–64]	33 [21–53]	0.14
Number of passes	2 [1–3]	2 [1–3]	1 [1–2]	**0.01**
IA-tPA	3 (0.9)	0 (0)	3 (1.6)	0.27
Outcome				
FPE (mTICI2c-3)	132 (41.4)	45 (34.6)	87 (46)	**0.04**
First pass successful reperfusion (mTICI2-3)	154 (48.3)	52 (40)	102 (54)	**0.01**
Successful reperfusion at the end of the procedure	313 (98.1)	128 (98.5)	185 (97.9)	1.00
Parenchymal hematoma type 2	14 (4.4)	9 (6.9)	5 (2.6)	0.067
90 d mRS 0–2	100 (44.6)	38 (44.2)	62 (44.9)	0.91
90 d mortality	42 (18.8)	14 (16.3)	28 (20.3)	0.45