Abstracts

consideration of EVT. Of those transferred, 130 (59.9%) underwent EVT at the CSC. Transferred patients were more likely to receive t-PA (24.4% vs 10.9%) and have an anterior circulation LVO (86.0% vs 63.0%) than patients not transferred. Median distance to CSC for patients transferred from PSC was not significantly different to patients not transferred (21 miles vs 20 miles).

Conclusions LVO patients who presented to PSCs were less likely to receive EVT than patients directly presenting to a CSC. Anterior circulation LVOs were more likely to be transferred for EVT evaluation. Despite a higher NIHSS, and similar other baseline characteristics, female patients were less likely to be routed to a CSC.

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O-035 HYPERACUTE INFLAMMATORY PROFILE IN PATIENTS WITH ACUTE ISCHEMIC STROKE (AIS)

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Introduction Inflammation is an important mechanism of ischemic brain injury. It is characterized by inflammatory mediators and molecules including cytokines and interleukins. This inflammatory mechanism and its interaction among these Ischemic Stroke (IS) patients is still ambiguous. The aim of this investigation is to elucidate and characterize the early inflammatory response at the site of occlusion among these IS patients.

Methods Large vessel occlusion acute ischemic stroke (LVO-AIS) patients eligible for Mechanical Thrombectomy (MT) were recruited within 24 hours from their symptom onset. Blood samples were collected proximal and distal to the occlusion site during the procedure. Control samples were collected from the femoral artery and median cubital vein. 20-Plex assay and ELISA was used for the analysis of cytokines and chemokines. Graph-pad prism and R-software was used for evaluating the differences among the molecules across the site of occlusion and control.

Results A total of 19 (male: 13 and female: 6) patients were included. Cytokine quantification observed a significant increase in MMP-9 and IFN-g proximal to the occlusion,

whereas, there was a decrease in IL-2, IL-4, IL-5, IL-6, IL-7, IL-15, IL-17, GM-CSF, TNF- α , IP-10, VEGF, MIP-1a, and MIP-1b distal to the clot. The levels of IL-8, MCP-1, and MIG were comparable across the sites.

Conclusion Our results characterized the local environment and immediate inflammatory molecules, within few hours of the ischemic brain injury. These observations indicate the evidence of initial activation of inflammatory response. This will help better understand the molecular patho-physiology and identify molecular biomarkers of ischemic stroke progression and subsequent modulating therapeutic interventions.

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O-036 DIRECT PUNCTURE OF THE SUPERIOR OPHTHALMIC VEIN FOR CAROTID CAVERNOUS FISTULAS: A 20-YEAR EXPERIENCE AND REVIEW OF LITERATURE

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Introduction Carotid Cavernous Fistulas (CCF) can be challenging and may require unconventional approaches for treatment. The superior ophthalmic vein (SOV) is an alternative approach for embolization of CCFs. However, only a few case series have been published on the direct cannulation of the SOV for CCFs. The present study analyses the single largest series to date of direct SOV puncture for treatment of CCFs, as well as a review of literature.

Methods All patients treated for a CCF with direct SOV cannulation from 1/1/2000 to 12/31/2020 were retrospectively analyzed at a single quaternary center. Patient demographic, characteristics, and outcomes were analyzed. An additional review of literature for all case series for direct puncture of the SOV for CCF treatment was performed.

Results During the 20-year study period, direct cannulation of the SOV for treatment of a CCF was attempted on 17 patients, with one patient (6%) having the procedure aborted due to inability to navigate the wire. In the 16 patients with direct SOV CCF treatment, the average age was 54 (s.d 21.9) and 8 (50%) were female. The most common

Abstract O-036 Table 1 Demographics and clinical characteristics of CCF patients undergoing embolization via direct puncture of the SOV

CASE ID	AGE	SEX	SIGNS/Symptoms	Laterallization	Pathology	Cause	Prior Failed Procedures
1	84	Female	Diplopia (VI palsy), Ptosis, Periorbital Swelling	Right	Indirect CCF	Trauma	Yes
2	59	Female	Diplopia (VI palsy), Periorbital Swelling, Ophthalmoplegia, Headache, Chemosis	Left	Indirect CCF	Unknown	Yes
3	51	Female	Diplopia (IV palsy), Visual Loss, Proptosis, Chemosis	Left	Indirect CCF	Unknown	Yes
4	75	Male	Diplopia (IV palsy), Proptosis, Pain, Chemosis	Left	Indirect CCF	Unknown	Yes
5	35	Male	Visual Loss, Pain, Periorbital Swelling, Chemosis, Diplopia (IV palsy), Ptosis	Right	Indirect CCF	Trauma	Yes
6	60	Female	Chemosis, Proptosis, Periorbital swelling, Blurriness, Diplopia (IV palsy)	Left	Indirect CCF	Unknown	Yes
7	48	Male	Headache, Diplopia (VI), Ophthalmoplegia, Periorbital swelling, Visual Loss, Pain	Right	Indirect CCF	Unknown	Yes
8	71	Female	Visual loss, Proptosis, Chemosis, Ophthalmoplegia	Right	Indirect CCF	Unknown	Yes
9	80	Female	Chemosis, Proptosis, Diplopia (VI palsy)	Left	Indirect CCF	Trauma	Yes
10	57	Male	Headache, Diplopia (VI), Chemosis	Left	Indirect CCF	Trauma	Yes
11	20	Male	Bruit, Chemosis, Proptosis	Left	Indirect CCF	Trauma	Yes
12	79	Female	Pain, Periorbital Edema, Ophthalmoplegia, Ptosis	Right	Indirect CCF	Unknown	Yes
13	43	Male	Chemosis, Proptosis, Visual Loss	Left	Indirect CCF	Unknown	Yes
14	49	Female	Headache, Visual Loss, Diplopia (IV palsy)	Left	Indirect CCF	Unknown	Yes
15	74	Female	Periorbital Edema, Pain, Tinnitus, Diplopia (VI palsy), Visual Loss	Right	Indirect CCF	Trauma	Yes
16	27	Male	Chemosis, Visual Loss, Diplopia (IV palsy)	Left	Indirect CCF	Trauma	Yes
17	17	Male	Bruit, Ptosis, Tinnitus, Visual Loss, Diplopia (VI palsy)	Left	Indirect CCF	Trauma	Yes

Abstract O-036 Table 2 Procedure and outcomes of CCF patients undergoing direct SOV puncture for embolization

CASE ID	Direct Approach Technique	Embolysate	Closure?	Complication	Angiographic Result	Symptom Results	Follow-up Time (mo)	Notes
1	Fluoro-guided	Coils	Particle slurry	None	Cured	Slightly improved	7	Some residual symptoms, but no residual visualized on angiography
2	Fluoro-guided	Coils	Particle slurry	Small asymptomatic hemorrhage	Not Cured	Unimproved	8	Required retreatment via Facial Vein
3	Fluoro-guided	Coils	Compression	None	Cured	Improved	3	NA
4	Stereo-tactic guided	Coils	Particle slurry	None	Cured	Improved	15	NA
5	Fluoro-guided	Coils	Compression	None	Cured	Improved	6	NA
6	Fluoro-guided	NA	NA	NA	NA	NA	NA	Unable to advance microwire, cured via facial vein at a later date
7	Fluoro-guided	Onyx	Compression	None	Cured	Slightly improved	3	Some residual symptoms, but no residual visualized on angiography
8	Fluoro-guided	Coils	Compression	None	Cured	Improved	4	NA
9	Fluoro-guided	Coils	Compression	None	Cured	Improved	1	NA
10	Fluoro-guided	Coils	Compression	None	Cured	Improved	2	NA
11	Fluoro-guided	Coils	Compression	None	Cured	Improved	7	NA
12	Fluoro-guided	Coils	Compression	None	Cured	Improved	1	NA
13	Fluoro-guided	Onyx and Coils	Compression	None	Cured	Improved	3	NA
14	Fluoro-guided	Onyx and Coils	compression	None	Cured	Improved	12	NA
15	Fluoro-guided	Coils	compression	None	Cured	Improved	19	NA
16	Fluoro-guided	Coils	compression	None	Cured	Improved	7	NA
17	Fluoro-guided	Coils	Compression	None	Cured	Improved	1	NA

presentation was a cranial nerve six palsy (N=12, 75%) with 50% (N=8) of patients with history of a trauma. All patients failed at least one prior treatment. Fluoroscopy guided direct puncture of the SOV was utilized in 15 (94%) patients and coil embolization (with and without Onyx) was performed in 15 (94%) patients. One patient (6%) suffered a minor complication with an asymptomatic postoperative hemorrhage. Angiographic cure and improvement of symptoms was achieved in 15 (94%) patients with an average follow-up time of 7 months (sD 5.3). In the review of literature an additional 44 patients were found to have had direct cannulation of the SOV for CCF treatment, with angiographic cure in 42 patients (95%) and one patient (2%) with reported decrease visual acuity.

Conclusion Direct SOV cannulation for the treatment of CCFs is safe and effective. Although, typically reserved following failed treatment, SOV access for CCF treatment may be warranted as a first line treatment in select patients.

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Oral poster abstracts

P-001 NON-CONTRAST CT ALONE VERSUS COMBINED CT PLUS CTA OR MRA SELECTION FOR THROMBECTOMY IN ACUTE ISCHEMIC STROKE: ANALYSIS OF THE ANGEL-ACT REGISTRY

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Background In addition to non-contrast computed tomography (CT), CT angiography (CTA) or magnetic resonance

angiography (MRA) is commonly included in the initial triage in the emergency department (ED) to select the acute ischemic stroke (AIS) patients with large vessel occlusion (LVO) for mechanical thrombectomy (MT). The goal of this study was to determine how the choice of initial imaging modalities performed in the ED influences the workflow and outcomes after MT.

Methods We compared the characteristics, technical and clinical outcomes of AIS patients undergoing MT with CT head alone (due to variable reasons for CTA/MRA unavailability) versus patients with CT plus CTA or MRA from the ANGEL-ACT registry. ANGEL-ACT is a nationwide prospective registry of consecutive adult patients with AIS caused by LVO treated with MT at 111 hospitals in China between November 2017 and March 2019. Eligibility criteria for this study include: (1) admitted to hospital within 6 hours from symptom onset (or last known well); (2) performed non-contrast CT as an initial brain imaging; and (3) received MT.

Results Of 1793 patients enrolled in the ANGEL-ACT trial, 894 patients met the eligibility criteria for this analysis. Of these 894 patients, 476 (53%) patients had CT-only, and 418 (47%) patients performed CT + CTA or MRA. In the CT-only group, the door-to-reperfusion time workflow was shortened by 47 minutes compared with the CT+CTA/MRA group (median, 219 [IQR, 171-287] vs 266 [IQR, 204-331] minutes; $P < .001$). In multivariable analyses, after adjustment for both patient-level and hospital-level confounders, the two groups did not differ in 3-month functional independence defined as mRS 0-2 (aOR, 1.25; 95% CI, 0.95-1.64; $P = .109$), any ICH (aOR, 0.85; 95% CI, 0.62-1.17; $P = .324$), symptomatic ICH (aOR, 1.27; 95% CI, 0.76-2.12; $P = .372$), and 3-

Abstract P-001 Figure 1 Changes in functional independence with continuous onset-to-door time