prognostic factors for a good outcome are available, although mechanical thrombectomy has significantly advanced over the last 5 years. The aim of this study is to investigate good prognostic factors for an acute occlusion of a major cerebral artery using mechanical thrombectomy.

Methods A single center retrospective analysis of 37 consecutive patients with acute occlusion of a major cerebral artery treated by mechanical thrombectomy with stent retrievers was conducted. Collaterals were assessed by the Thrombolysis in Myocardial Infarction (TIMI), and recanalization was assessed by the Thrombolysis in Cerebral Infarction (TICI) score. Outcome was assessed by National Institutes of Health Stroke Scale (NIHSS) and modified Rankin Scale (mRS) at 90 days.

Results Most patients (27/37) demonstrated good recanalization (TICI 2b or 3) after thrombectomy. At the 90-day follow up, 19 patients had good (mRS, 0−2), 14 had moderate (mRS, 3−4) and four had poor outcomes (mRS, 5−6). Early recanalization, high TIMI, and low baseline NIHSS were closely related to 90-day mRS, whereas high TICI was related to both mRS and the decrease in the NIHSS.

Conclusions NIHSS decreased markedly when recanalization was successful. A good mRS was related to low initial NIHSS and good collateral and early and successful recanalization.

Disclosures S. Park: None.

E-035 SUPERIOR OUTCOMES IN THROMBECTOMY FOR ANTERIOR CIRCULATION LARGE VESSEL OCCLUSION STROKE AMONG LATE MR-SELECTED CANDIDATES COMPARED WITH EARLY CANDIDATES NOT SCREENED WITH MR

B Cristiano, M Pond, U Oyoyo, S Basu, J Jacobson. *Neuroradiology, Loma Linda University Hospital, Loma Linda, CA*

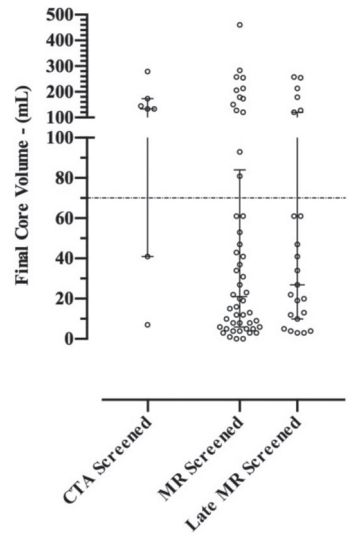
10.1136/neurintsurg-2016-012589.107

Purpose With thrombectomy for anterior circulation large vessel occlusion (ACLVO) stroke time is considered important, but collateral status may be a greater driver of outcome than time. MR screening can identify good candidates for thrombectomy regardless of time from onset. Here we tested the hypothesis that MR-selected patients would show superior outcomes regardless of time compared with early patients screened by CTA alone.

Methods A cohort of 56 ACLVO patients treated with thrombectomy between 11/1/2012 and 5/15/2015 was retrospectively studied. Seven early-presenting patients with contraindication to MRI proceeded immediately to thrombectomy upon CTA confirmation of LVO. Forty-nine patients with CTA-proven LVO but no MR contraindication went next to MRI and were selected for thrombectomy based on low diffusion-restricted infarct volume (non-intervention threshold: core volume > (100 minus patient age) mL). Final infarct volume was measured on post-treatment imaging. Comparisons were made between early CTA-only-screened and MR-screened groups. Additional comparisons were made with the late MR-screened (decision-to-treat >6 hours from symptom onset) subset.

Results Compared to the MR-screened group, the early CTA-only group had a higher median age (81 [IQR 76–83] vs. 71 [57–77]) and NIHSS score (25 [22–26] v. 15 [11–19]) was more likely to have received IV tPA (71.4% vs. 36.7%) and yielded a lower TICI $\geq$ 2 B recanalization rate (57.1% vs. 79.6%, p = 0.36). Despite significantly earlier treatment decision times (3.0 h [2.5–3.6] vs. 6.4 h [2.9–8.7]), median final infarct volume was larger in the early CTA-only group compared with the MR-selected group (134 mL vs. 20 mL, estimated median final infarct difference of 100 mL [95 CI: 1.00–134], p = 0.043). A similar difference in median final infarct volume was observed between CTA-only and the late MR-screened groups (134 mL v. 27 mL [95 CI: –6 – 132], p = 0.069) (Figure 1). The odds of a final core infarct greater than 70 mL, a poor prognostic factor, were significantly lower in the MR-screened group OR 0.013 ([95 CI: 0.022–0.757], p = 0.022).

Conclusion Despite a median 3.4 hour-shorter interval from symptom onset to treatment decision, ACLVO patients not screened with MRI had larger median final infarct volumes after thrombectomy compared with MR-screened patients. Importantly, late MR-selected patients also tended to have lower final infarct volumes. Consideration should be given to patient selection strategies incorporating MRI with diffusion weighted sequences rather than time from symptom onset alone.



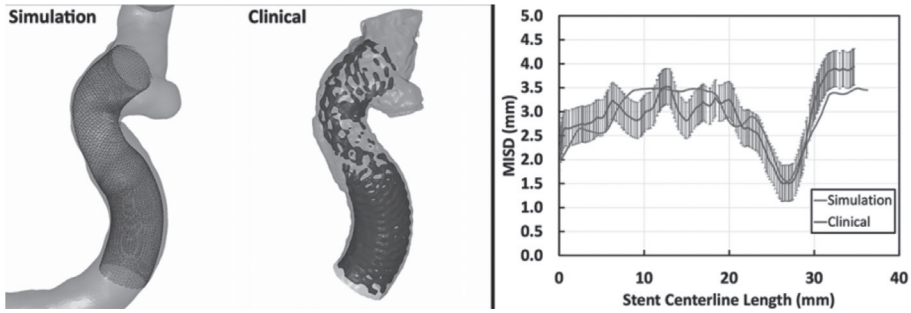
Abstract E-035 Figure 1 Final Infarct volumes in CTA-only versus MR-screened adfter thrombectomy. Median final core volume (mL): CTA-Only, 134; MR-screened, 20; late MR-screened, 27. Proportion of patients with large final core volume (>70 mL): CTA-only, 71.4%; MR-screened, 23.1%; late MR-screened, 26.1%. Dashed line indicates poor outcome final infaract threshold of 70 mL, bars indicate median and IQR.

Disclosures B. Cristiano: None. **M. Pond:** None. **U. Oyoyo:** None. **S. Basu:** None. **J. Jacobson:** 4; C; GeneLux.

E-036 PREDICTING FLOW DIVERTER DEPLOYMENTS AND CLINICAL VALIDATION

[1]**B Chong**, [2]H Babiker, [3]Y Kalani, [4]C Baccin, [2]M Mortensen, [3]M Levitt, [3]C McDougall, [5]D Frakes, [3]F Albuquerque. *[1]Radiology and Neurological Surgery, Mayo Clinic Arizona, Phoenix, AZ; [2]Endovantage, LLc, Scottsdale, AZ; [3]Neurological Surgery, Barrow Neurological Institute, Phoenix, AZ; [4]Radiology, Hospital Israelita Albert Einstein, Sao Paulo, Brazil; [5]School of Biological and Health Systems Engineering, Arizona State University, Phoenix, AZ*

10.1136/neurintsurg-2016-012589.108



Abstract E-036 Figure 1

Introduction Flow diverters (FDs) are sized to the recipient vessel during pre-treatment planning. However, sizing can be challenging because of large changes in vessel curvature and diameter. Further, FDs can elongate by more than 50% of their labeled length after deployment, which complicates sizing. Significant complications can result from over- or under-sized devices. Here we present a finite element (FE) modelling approach for evaluating FD size and compare that approach to clinical deployments to determine its accuracy in predicting device length, diameter, and apposition.

Methods Ten patient cases treated with the pipeline embolization device were acquired from two hospitals. Pre- and post-treatment CT image data were segmented then reconstructed to form computational models of the devices and vessels. A library of pipeline FE models, which was previously validated against physical devices, was used to simulate deployment of the same devices into the pre-treatment vessels. The pipeline models were first navigated via a virtual microcatheter to the landing zones observed in the post-treatment vessels. A "push-pull" algorithm was then used to simulate device unsheathing. Three post-deployment metrics were compared: device apposition to the vessel wall along the vessel centerline, device diameter along the stent centerline, and device length.

Results Simulated and clinical deployments showed good agreement both qualitatively and quantitatively (Figure 1). Simulations captured regions where the device poorly apposed to the vessel wall and poorly covered the aneurysm neck. Mean errors between simulated and clinical deployments (as a percentage of the clinical value) were less than 5% for device length and 9% for device apposition and diameter.

Conclusion FE simulations captured post-deployment FD shape and apposition. Less than a 9% mean error was found between simulated and clinical deployment metrics. These results provide additional support for the use of FE for evaluating device size during pre-treatment planning.

Disclosures B. Chong: 4; C; Endovantage, LLC. **H. Babiker:** 4; C; Endovantage, LLC. **Y. Kalani:** None. **C. Baccin:** None. **M. Mortensen:** 5; C; Endovantage, LLC. **M. Levitt:** None. **C. McDougall:** None. **D. Frakes:** 4; C; Endovantage, LLC. **F. Albuquerque:** 4; C; Endovantage, LLC.

E-037 DIFFUSE FACIAL ARTERIOVENOUS MALFORMATION WITH LIGATED IPSILATERAL ARTERIAL SUPPLY

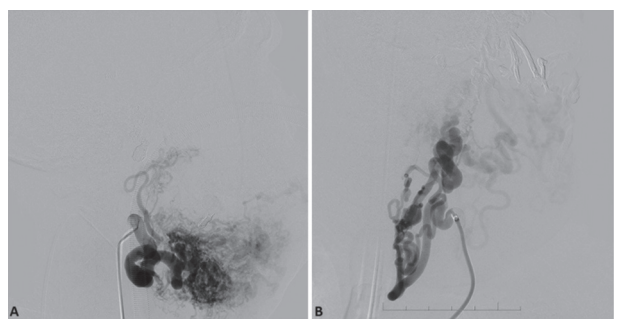
[1]A Dmytriw, [2]J Song, [3]S Power, [3]R Agid. *[1]Department of Medical Imaging, University of Toronto, Toronto, ON, Canada; [2]Department of Otolaryngology, University of Toronto, Toronto, ON, Canada; [3]Department of Medical Imaging, Toronto Western Hospital, Toronto, ON, Canada*

10.1136/neurintsurg-2016-012589.109

Introduction Facial AVMs are associated both with risk of hemorrhage and considerable psychosocial as well as cosmetic distress. Head and neck AVMs are the second most common outside of the brain, but despite being a richly-vascularized area, giant and diffuse lesions of the magnitude reported are rare and typically evolve from iatrogenesis.

Case presentation A 32 year-old male presented with a pulsatile facial mass which had treated unsuccessfully at numerous outside intuitions. Imaging revealed a diffuse facial AVM with extensive bilateral supply, and a ligated left external carotid artery. Though incurable, endovascular treatment was required frequently for hemorrhagic events and palliation were delivered via the contralateral supply due ligation of a direct route to the nidus.

Discussion We report a particularly complicated case of giant facial AVM which initially imparted significant psychosocial morbidity, but as a result of proximal ligation and improper embolization grew into a tremendous lesion the size and extent of which has not been reported previously. It remains absolutely essential that no attempt at palliation or cure be made that cannot directly target the nidus of an AVM, and this ever the more crucial in rich-supplied areas such as the face. Endovascular embolizations remains the first and often only option during when emergent therapy.



Abstract E-037 Figure 1

Disclosures A. Dmytriw: None. **J. Song:** None. **S. Power:** None. **R. Agid:** None.

E-038 3D CONE BEAM COMPUTERIZED TOMOGRAPHY (3D-CBCT) GUIDED SACROILIAC (SI) JOINT INJECTION: A REAL-TIME, INTERACTIVE, ACCURATE, FAST AND REDUCED RADIATION EXPOSURE TECHNIQUE

[1]S Lee, [1]S Ali, [2]J Mok. *[1]Radiology, University of Chicago, Chicago, IL; [2]Orthopedic Surgery, University of Chicago, Chicago, IL*

10.1136/neurintsurg-2016-012589.110