volumes of the core infarct and ischemic penumbra. These imaging derived volumes together with clinical neurological symptom severity are the parameters driving the decision for endovascular therapy in the 6–24 hour time window for large vessel occlusion. As per current AHA guidelines no consideration is taken for the eloquence of the tissue at risk.

Here we show an original machine learning method using perfusion MRI for predicting the expected motor improvement of reperfusing the tissue at risk in acute stroke. The ISLES 2015 data set which included diffusion and perfusion MRI as well as expert delineated core infarct and ischemic penumbra in 30 patients with acute stroke was used to train a Convolutional Neural Network model. The model output label maps indicating core infarct and ischemic penumbra. These maps were subsequently transformed into standard MNI space and overlaid onto a probabilistic map of motor regions. Percent overlap with primary motor, premotor and supplementary motor areas were calculated for the core infarct and ischemic penumbra. External technical performance was evaluated using clinical acute stroke MRI exams from our institution. The model derived volumes closely resembled those of the commercial RAPID software for these patients. Visual examination of the standard MNI space maps showed good anatomical alignment and correspondance of the motor areas. A software prototype generating an automatic report was developed (figure 1).

The results show good technical performance of the Convolutional Neural Network model on acute stroke MRI on an

independent data set. The degree of core infarcts and penumbra involvement of anatomical motor areas could be rapidly calculated using regular commercial computer hardware. Further investigation with a prospective clinical study is required for testing the clinical efficacy and possible improvement in clinical outcome prediction using the model.

Disclosures H. Ullman: None. G. Duckwiler: None.

E-164

INTRAPROCEDURAL MRI DURING ACUTE ISCHEMIC STROKE INTERVENTION CAN GUIDE DECISION FOR INTRACRANIAL STENTING

¹K Narsinh*, ¹B Kilbride, ²K Mueller, ¹J Vitt, ¹J Massachi, ¹M Amans, ¹D Cooke, ¹M Wilson, ¹S Hettis. ¹UCSF, San Francisco, CA; ²Siemens Healthineers, Mountain View, CA

10.1136/neurintsurg-2020-SNIS.196

Introduction Intracranial atherosclerotic disease (ICAD) is sometimes discovered during mechanical thrombectomy for acute ischemic stroke. In the event of partial or failed recanalization, termination of the procedure is typically determined by interpretation of the angiogram. Although some retrospective studies have suggested that rescue intracranial stenting is safe and effective in this setting, others have suggested that intracranial stenting may increase risk of intracranial hemorrhage. In difficult cases that result in partial or failed recanalization, MRI would be helpful to definitively discriminate viable from infarcted cerebral tissue and determine operative course.

Methods We performed a retrospective single institution review of all acute stroke patients who underwent thrombectomy and intraprocedural MRI. From October 2019 to March 2020, eight patients underwent intraprocedural 3 Tesla MRI during mechanical thrombectomy for acute ischemic stroke intervention in a hybrid angiography-MRI suite. Diffusion-weighted (DWI; b-value=1000 s/mm²) and T2-weighted sequences were obtained. The electronic medical record was reviewed to determine clinical outcomes.

Results In all cases, the intraprocedural MRI was obtained to determine the extent of core infarct, and played a pivotal role in decision-making. In particular, operators used the MRI to make decisions regarding intracranial stent placement, administration of antiplatelet medications or heparin, and blood pressure parameters. p { margin-bottom: 0.1in; line-height: 115%; background: transparent } In four patients who underwent partial recanalization (TICI 2a or less), intracranial stents were placed in 2 based on MRI results. In the remaining patients, MRI informed the time course for postoperative initiation of anticoagulant medications and blood pressure parameters.

Functional stroke report

Patient name: test_UCLA

AREA	Core Volume(mL)	Core %	Penumbra Volume(mL)	Penumbra %
Primary motor	0.0	0.0	0.0	0.0
Premotor	0.0	0.0	1.1	2.3
Supplementary motor	0.0	0.0	0.0	0.0
Total	7.0	n/a	97.5	n/a

Abstract E-163 Figure 1 Automatically generated report using a patient with acute stroke, independent from the training sample. Red indicates the core infarct and yellow indicates ischemic penumbra. The probabilistic location of the three motor areas are also displayed

Conclusion Hybrid angiography-MRI units offer a unique capability to inform neurointerventionalists of the viability of the tissue they are attempting to salvage during complex cerebrovascular interventions. Integrating MRI into the stroke treatment angiography suite may thereby improve individual patient selection and treatment selection.

Disclosures K. Narsinh: None. B. Kilbride: None. K. Mueller: 5; C; Siemens Healthineers. J. Vitt: None. J. Massachi: None. M. Amans: 1; C; NIH. D. Cooke: 1; C; Siemens Healthineers. M. Wilson: None. S. Hets: 1; C; Siemens Healthineers, NIH. 2; C; Imperative Medical, MicroVentio Terumo, Route 92 Medical.

E-165

CAROTID INTRAPLAQUE HEMORRHAGE IS INDEPENDENT OF THE DEGREE OF CAROTID ARTERY STENOSIS AND IS MORE PREVALENT IN SYMPTOMATIC VERSUS ASYMPTOMATIC PATIENTS WITH STENOSIS LESS THAN 70%: IMPLICATIONS FOR THE UTILITY OF CAROTID PLAQUE IMAGING

¹A Larson*, ²J Benson, ¹G Lanzino, ¹W Brinjikji. ¹Neurosurgery, Mayo Clinic, Rochester, MN; ²Radiology, Mayo Clinic, Rochester, MN

10.1136/neurintsurg-2020-SNIS.197

Background The relationship between the prevalence of intraplaque hemorrhage and degree of carotid artery stenosis has not been well established. It is unclear whether there is a threshold of stenosis/plaque progression during which plaque hemorrhage develops within an atherosclerotic lesion.

Methods In this study, we reviewed our institutional case series of patients with carotid plaque imaging and reported on the prevalence of plaque hemorrhage based on degree of stenosis as well as symptomatic status.

Results The presence of plaque hemorrhage was independent of degree of stenosis. This was true among both asymptomatic carotid arteries ($P=0.31$) and symptomatic carotid arteries ($P=0.11$). For arteries with severe stenosis, there was no

Abstract E-165 Table 1 Degree of carotid artery stenosis and prevalence of intraplaque hemorrhage in all studied vessels

Degree of Stenosis	Prevalence of Plaque Hemorrhage (%)
<30%	34/944 (3.6)
30–49%	17/50 (34.0)
50–69%	34/103 (33.0)
70%+	43/131 (32.8)

Abstract E-165 Table 2 Degree of carotid artery stenosis and prevalence of intraplaque hemorrhage in asymptomatic versus symptomatic patients

Degree of stenosis	Prevalence of Plaque Hemorrhage		P
	Asymptomatic (%)	Symptomatic (%)	
<30%	6/504 (1.2)	17/176 (9.7)	<0.0001
30–49%	4/28 (14.3)	8/17 (47.1)	0.03
50–69%	6/38 (15.8)	23/52 (44.2)	0.009
70%+	10/40 (25.0)	22/69 (31.9)	0.52

difference in prevalence of plaque hemorrhage among symptomatic and asymptomatic patients (22/69 versus 10/40, $P=0.52$). However, for arteries with moderate stenosis (30–69%) the prevalence of plaque hemorrhage was significantly higher among symptomatic arteries versus asymptomatic (31/69 versus 10/66, $P=0.0002$). The same was true for patients with no stenosis (17/176 versus 6/504, $P<0.0001$).

Conclusions The presence of plaque hemorrhage is independent from the degree of carotid artery stenosis. Carotid Plaque Imaging for detection of plaque hemorrhage is likely most helpful in identifying symptomatic lesions among patients with <70% stenosis. Its utility for patients with severe stenosis is less certain.

Disclosures A. Larson: None. J. Benson: None. G. Lanzino: None. W. Brinjikji: None.

E-166

UTILIZATION OF RADIAL ACCESS IN NEUROENDOVASCULAR CASES: A SINGLE-CENTER EXPERIENCE

K Dakay*, G Kaur, J Santarelli, C Gandhi, F Al-Mufti. Neurosurgery, Westchester Medical Center, Valhalla, NY

10.1136/neurintsurg-2020-SNIS.198

Introduction Transradial access is increasingly utilized as an alternative to transfemoral access for neuroendovascular procedures; the radial approach has been widely used for cardiac catheterizations and has been shown to have a lower rate of access site complications and overall complications as compared to femoral access. However, there is a steep learning curve with institution of the transradial method including changes in patient positioning, use of the Simmons catheter, and nursing familiarity with closure devices which can often impact the adoption of this method. We demonstrate our single-center experience with widespread adoption of the transradial approach.

Materials and Methods We prospectively collected data from all neuroendovascular cases from October 2019 – February 2020 including site of approach, type of procedure, and cross-over rate. We dichotomized procedures into diagnostic and interventional procedures, and further divided by the type of intervention.

All interventional cases were performed via proximal radial access with a 6 French Terumo slender sheath, and either a Benchmark or Infinity guide catheter depending on the vessel of interest, patient anatomy and other features. Diagnostic cases were performed with a 5 French Terumo slender sheath and a 5 French Glide Simmons catheter; distal radial access was used in most diagnostic cases unless anatomical difficulty precluded this approach. Closure devices were used to achieve hemostasis in all patients. A spasmolytic cocktail consisting of lidocaine, nitroglycerin, and verapamil was administered in all cases; heparin was added to the cocktail unless otherwise contraindicated. For distal radial access, the Merit distal radial band was applied and kept in place with 5–10 mL of air for two hours prior to deflation. For proximal radial access, the Terumo TR band was utilized with up to 20 mL of air inflated, and kept in place for four hours prior to deflation.

Results A total of 387 cases were performed from October 2019 to January 2020, of which 94 were attempted via radial access. 4 cases were excluded due to transfemoral crossover due to patient anatomy, and 90 cases were successfully