patients continued to undergo outpatient rehabilitation treatment after the 90 day follow-up visit. Mean time to long-term clinical follow-up was 21.5 months after stroke onset (median 18.8 months, range 6–49 months). The table illustrates the clinical outcomes at the time of long-term follow-up. Between the 90 day and long-term follow-ups, 12 patients (30%) had a reduction of at least 1 point in the mRS, whereas 10 patients (25%) had an increase of at least 1 point in the mRS. At the time of long-term follow-up, 23 patients lived at home (58%), 3 in an assisted living facility (8%), 6 in a skilled nursing facility (15%) and 8 were deceased (20%). Four patients had experienced a recurrent AIS (10%) by the time of long-term follow-up.

Conclusion Among patients with AIS treated with MT who had moderate or moderate severe disability at 90 days, a considerable minority (30%) demonstrated a reduction in long-term disability with continued outpatient rehabilitation.

Abstract E-084 Table 1

Long-term outcomes in Pts w moderate or moderate severe disability after mechanical thrombectomy

	Long-term modified rankin scale				
	2	**3**	**4**	**5**	**6**
All Patients (n = 40)	5 (12.5%)	18 (45%)	7 (17.5%)	2 (5%)	8 (20%)
Patients with Moderate Disability at 90 Days (mRS 3, n = 18)	**4 (22.2%)***	11 (61.1%)	0	0	3 (16.7%)
Patients with Moderate Severe Disability at 90 Days (mRS 4, n = 22)	**1 (4.5%)***	**7 (31.8%)***	7 (31.8%)	2 (9.1%)	5 (22.7%)

***Denotes reduction in degree of disability at long-term follow-up**. mRS: modified Rankin Scale

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E-085 GOOD BASELINE ANGIOGRAPHIC COLLATERAL FLOW CORRELATES WITH SUCCESSFUL RECANALIZATION AND CLINICAL OUTCOME AFTER ENDOVASCULAR TREATMENT FOR ACUTE ISCHEMIC STROKE WITHIN 24 HOURS FROM ONSET

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Background Recanalization status is the strongest predictor of clinical outcome in patients undergoing endovascular treatment (EVT). Although the time to reperfusion remains crucial even with EVT, the previous meta-analysis demonstrated that recanalization up to 24 hours after acute ischemic stroke (AIS) onset is strongly associated with improved functional outcomes and reduced mortality. We evaluated the relationships among angiographic collateral flow, successful recanalization, and clinical outcome after EVT in patients experiencing AIS within 24 hours of onset.

Methods We assessed patients were experiencing acute anterior circulation ischemic stroke who underwent EVT between 2011 and 2015. Patients with large artery occlusion of anterior circulation and clinical diagnosis of AIS, within 24 hours of first found abnormal time (FAT), were included in the study.

Results One hundred seventy-three patients met the inclusion criteria. Mean age was 68.3 ± 12.6 years, and median National Institutes of Health Stroke Scale score was 14 (range, 5–29). Median time from FAT to arrival was 92 minutes. Overall successful recanalization, defined by the Modified Thrombolysis In Cerebral Infarction scale grade 2 b-3, was achieved in 65.3% of patients, and good clinical outcome, as defined by the modified Rankin Scale (mRS 0–2), was achieved in 47.4% of patients. For successful r the angiographic collateral grade was the independent factor. In multiple logistic regression analysis, the angiographic collateral grade was independently associated with clinical outcome after adjusting for other variables (odds ratio, 5.96; 95% CI, 1.76–20.19).

Conclusions Our data showed that angiographic collateral grade was a strong independent predictor of successful recanalization after EVT and good clinical outcome in AIS patients when applied up to 24 hours from FAT. Consequently, the good angiographic collateral flow may help predict successful recanalization and better clinical outcomes after EVT in patients with AIS.

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E-086 MANDIBULAR AVM DIAGNOSIS AND CURATIVE TREATMENT

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Purpose To determine optimal management strategies for the treatment of mandibular AVM.

Materials and methods Twelve patients (9 females, 3 males), age 9–14; mean age 10, underwent endovascular therapy to treat their mandibular AVMs. Nine patients had distinct intraosseous AVMs. Three had multiple facial and intra-maxillary AVMs requiring treatment. Outside institutions recommended massive hemi-facial resections in these patients. Four patients had prior PVA and gel foam embolization, one patient had a lip graft, one had prior mandible surgery, all that had failed.

Results All twelve patients have demonstrated MR and angiographic cure of their AVMs. One patient's therapy is not completed and is on-going. The patients mandibular AVM is cured, a third AVM in this patient in the infratemporal fossa is still undergoing treatment. The follow-up range is 11 months – 41 months, with a mean follow-up of 29 months. No complications were noted in treatment of mandibular AVMS. One patient required a minor gingival surgery after treatment of an additional intramaxillary AVM.

Conclusions Endovascular approaches to manage mandibular AVM can be curative. The intraosseous variety is largely a fistula between artery and vein within the bone. All respond well to endovascular ethanol therapy alone. Surgery was not required in any patient. Surprisingly no complications were encountered in this patient series. Long-term cures are noted in this patient series with endovascular approaches alone. No massive surgical resections in any patient, even in patients with multiple AVMs of the soft tissues, mandible and maxilla,

was required to effect cure. In patients who suffered hemorrhages from floating teeth, bone formed and stabilized the teeth and no further hemorrhages occurred. Ethanol sclerotherapy proved curative in mandibular intraosseous AVMs in patients who had additional facial soft-tissue AVMs and intramaxillary AVMs that were cured as well at long-term follow-up.

Disclosures W. Yakes: None.

E-087 VIRTUAL ANGIOGRAPHIC RECONSTRUCTED PROJECTIONS FROM FOUR-DIMENSIONAL DIGITAL SUBTRACTION ANGIOGRAPHY ACQUISITION, A FEASIBILITY STUDY

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Introduction/purpose Digital subtraction angiography (DSA) remains the gold standard for the evaluation of extra- and intracranial vascular pathology. Typically, acquisition of multiple angiographic projections is needed to either elongate the vessel(s) of interest or to separate overlapping vessels. Acquiring multiple projections for each selected vessel is costly in terms of time, contrast load, and radiation exposure. Three dimensional digital subtraction angiography (3 DDSA) enabled angiographers to evaluate single vessel injections in multiple projections. Four dimensional digital subtraction angiography (4 DDSA) provides time-resolved 3D acquisition of both the arterial and venous phases of angiography. The aim of this paper is to evaluate the overall quality of processed 4 DDSA to discriminated vascular pathology from normal anatomy.

Materials/methods 3 D DSA acquisition was performed to capture primarily arterial phase (260 deg, 1.5 deg/f, rotation duration: ~6 s, 172 projections, 0.36 μGy/projection) or both arterial and venous phases (260 deg, 0.85 deg/f, rotation duration: ~12 s, 304 projections, 0.36 μGy/projection). Projection images obtained from the rotational acquisition were combined with the constraining 3D-DSA vascular volumes in order to form a time resolved 4 DDSA. Using an edge enhanced reconstruction kernel, the 4 DDSA volume was visualized with either a smooth or sharp image characteristic with a slice matrix of 512 × 512. This was then reconstructed into a Virtual Angiography image (Siemens). A secondary reconstruction of the mask phase of each DSA run was also performed to obtain soft tissue and bone anatomical information, from which standard biplane angiographic projections of the 4 DDSA were reconstructed. Windowing, contrast, brightness and opacity levels were adjusted.

Single frame images of processed 4 DDSA acquisitions were then evaluated by our Inerventional Neuroradiology staff, as were the corresponding standard biplane projections. Images were graded on overall quality (0 = nondiagnostic, 1 = poor, 2 = acceptable, 3 = good) and ability to discriminate pathology from normal vascular anatomy. Results were compared using standard multivariate two-sample t-test.

Results Four internal carotid artery and one vertebral artery injection were evaluated. All vessels had positive findings. Evaluators identified all positive findings on both 4 DDSA and standard DSA images. There was no significant difference in ability to clear the key branch points or vessels between standard and 4 DDSA (3.84 vs. 3.65, $p = 0.220$). The standard DSA image quality was significantly better than 4 DDSA (20.0 vs. 11.2, $p < 0.001$) in composite quality scoring.

Conclusions Pathology was clearly delineated from normal vascular anatomy on 4 DDSA. However, the quality of the processed 4 DDSA images remains inferior to standard DSA projections. 4 DDSA image quality may may be improved by optimizing acquisition parameters and injection rates, but this work illustrates significant limitations in the current post-processing algorithm as the source data demonstrates better quality and resolution prior to processing. As the acquisition and post-processing software improve, single injection 4 DDSA offers distinct advantages of decreased study time, contrast dose, and radiation exposure.

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E-088 A FOLLOW-UP TO TRANSRADIAL ACCESS FOR ACUTE INTERVENTIONAL STROKE THERAPY – A FEASIBILITY STUDY

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Introduction Interventional stroke therapies are quickly becoming the new standard of care for acute large vessel occlusions. Stentrievers and aspiration catheters, while significantly improving recanalization rates, have increased the need for better catheter tracking and stable positioning within the neurovasculature. Difficulties in accessing the target vessel occlusion results in delays and a potential for poor outcome. The main intra-procedural cause for treatment delay and failure-to-treat includes unfavorable vascular anatomy. Type III or bovine aortic arch, extreme tortuosity, aortic aneurysms or severe peripheral vascular disease presents challenging obstacles in access. These anatomical abnormalities can make safe and timely transfemoral access difficult, even impossible at times. Alternative access modes, including transradial access, have proven effective in cardiovascular intervention and may provide advantages in circumventing tortuous vascular anatomy. This modality has been adapted for access in stroke intervention; herein, we present additional results from our previous experience with transradial access for endovascular stroke therapy.

Methods A retrospective review of our stroke database was conducted between January 2013 to February 2016 to identify all patients treated endovascularly through transradial access both as first or second intention. The primary outcome of this study measured the success of radial access in ischemic stroke therapy. Secondary outcome evaluated procedural time between cohorts where radial access was primary versus secondary, and procedural adverse events.

Results In total, 34 patients were identified, 17 were treated transradially as primary, 16 as secondary, and 1 was a tertiary attempt; the median age was 86 years [IQR 74–90].

In patients where radial access was first intentions, the median time from puncture to clot engagement was 69 minutes [IQR 28.5–78] (mean = 70.7 ± 52.4), with successful revascularization