Abstract E-050 Figure 1

poor prediction for hand ischemia with this test. All access were performed under ultrasound guidance, using single wall technique. After successful access, rest of cerebral angiogram procedure was similar to conventional radial approach. Demographic information, indication, technical details, complications and patient perceptions were collected.

Results Total of 25 cerebral angiography procedures were successfully performed in patients with age ranging 33–78 years, with distal radial access. Once successful access was achieved, intended vessels were catheterized in all patients. One patient had left distal radial access, rest had on Right. On an overage 3.6 (1–6) vessels were catheterized. No major complications were noted. Average procedure end to discharge time was 3 hours and 15 minutes. 2 patient reported prolonged pain at wrist, lasting 1 week. Patients who had prior angiogram with different approach, reported preference for Distal Radial approach. On the other hand, there were 4 failed attempted in the same time period. 2 were converted to conventional radial and 2 transfemoral. These failed attempts were related to severe vasospasm and were in the early part of the learning curve.

Conclusion This single center experience suggests feasibility and safety of distal radial access for cerebral angiography. Most patients in this study who had angiogram by other approach, preferred distal radial approach. In addition, post procedure recovery time is significantly shorter. There should be further large-scale studies to evaluate this potentially useful and in select cases advantageous approach.

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E-051 INTRACRANIAL ANEURYSM CLASSIFICATION SCALE OPTIMIZED FOR TREATMENT DEVICE INDICATIONS AND CONTRAINDICATIONS

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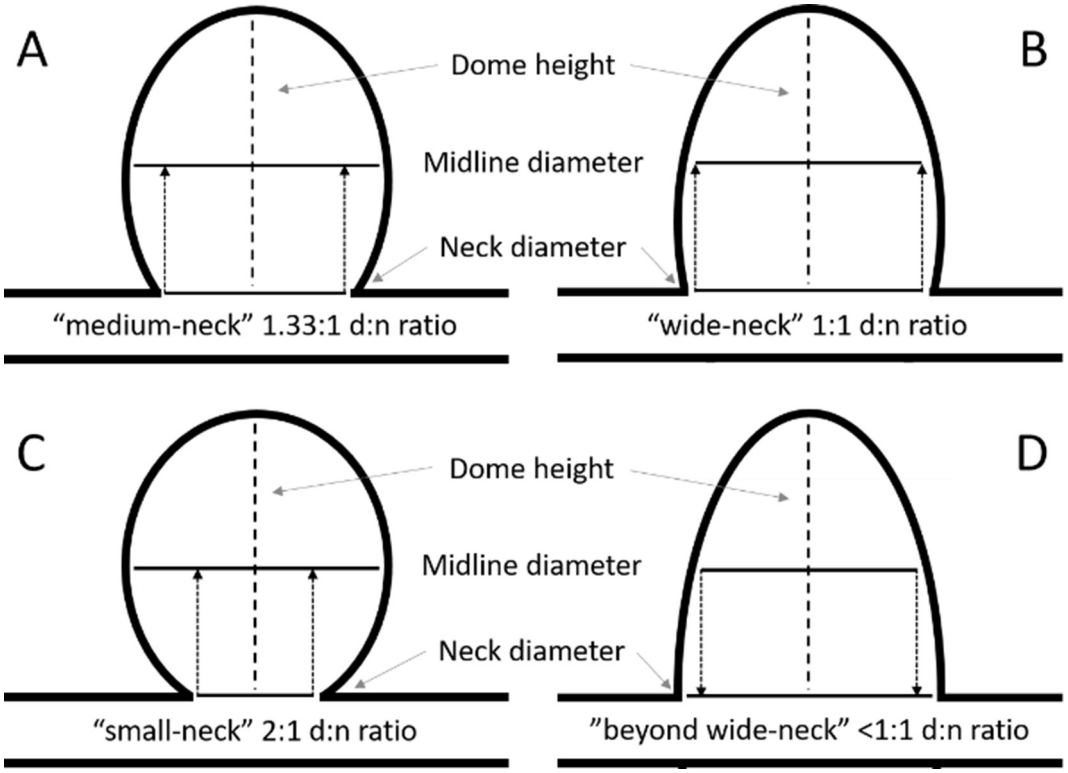
Introduction Aneurysm classification is typically based upon midline-dome diameter (size) and occasionally utilizes other parameters such as midline-dome diameter to neck diameter ratio (d:n ratio) and neck diameter (figure 1). Size classifications are typically oriented around the aneurysm's risk of rupture, and the classification ranges are often inconsistent between sources. While the current classification system still serves a significant role, we propose a more comprehensive and consistent classification system that considers multiple dimensions/parameters and allows surgeons, regulatory bodies, and medical device developers to quickly identify suitable treatment devices for patient-specific aneurysm dimensions and morphologies.

Materials and methods A meta-analysis of both intracranial aneurysm studies and papers outlining aneurysm classification systems provided data regarding aneurysm dimensions, correlation of aneurysm dimensions to treatment failure rates of endovascular devices, and the current state of aneurysm classification systems. This data was then used to create an intracranial aneurysm classification system that is optimized to help predict the success or failure of certain types of endovascular intracranial aneurysm treatments.

Results and discussion While there is a correlation between aneurysm size and the outcome of certain aneurysm treatment devices, there are other parameters that are equally as impactful on the treatment outcome, such as midline diameter (d), neck diameter (n), and the ratio between them (d:n ratio) (Figure 1). Neck diameter and d:n ratio both had significant effects on treatment outcome for certain devices, even though aneurysm size (dome height) is often the only dimension referenced.

Conclusions While aneurysm size can be an important indicator for both aneurysm rupture and treatment outcome, there are other parameters that also have a significant impact on treatment success. These additional parameters, such as midline diameter, neck diameter and the d:n ratio, should be carefully considered when choosing a device for treatment, developing a device, or approving devices into the market. The proposed classification system in this study has the potential to help close the research gap between the different



Abstract E-051 Figure 1 An illustration depicting the different d:n ratio classifications that may be possible. From the illustration, it can be inferred how certain devices may perform poorly in certain dome to neck diameter ratio classifications.

classification systems that practitioners, developers, and regulators may apply to intracranial aneurysms.

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E-052 ARTIFICIAL NEURAL NETWORK CT PERFUSION PREDICTION OF ISCHEMIC CORE

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Background and purpose Computer Tomography Perfusion (CTP) is a useful tool in the evaluation of acute ischemic stroke, where it can provide an estimate of the ischemic core and the ischemic penumbra. The optimal CTP parameters to identify the ischemic core remain undetermined.

Methods We utilized Artificial Neural Networks (ANNs) to optimally predict the ischemic core in acute stroke patients, using diffusion-weighted imaging as the gold standard. We first designed an ANN based on CTP data alone and next designed an ANN based on clinical and CTP data.

Results The ANN based on CTP data predicted the ischemic core with a mean absolute error of 13.8 ml (SD 13.6 ml) compared to DWI. The area under the receiver operator characteristic curve (AUC) was 0.85. At the optimal threshold, the sensitivity for predicting the ischemic core was 0.90 and the specificity was 0.62. Combining CTP data with clinical data available at time of presentation resulted in the same mean absolute error (13.8 ml) but lower SD (12.4 ml). Furthermore, the AUC, sensitivity, and specificity were 0.87, 0.91, and 0.65, respectively. The maximal Dice coefficient was 0.48 in the ANN based on CTP data exclusively.

Conclusions An artificial neural network that integrates clinical and CTP data predicts the ischemic core with accuracy.

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E-053 RADIAL ARTERY CATHETERIZATION FOR NEUROENDOVASCULAR PROCEDURES: CLINICAL OUTCOMES AND PATIENT SATISFACTION MEASURES

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Background and purpose The majority of neuroendovascular procedures are still performed via transfemoral access. Radial artery catheterization is an alternate route of access that has started to gain more widespread use for neuroendovascular procedures, and there have been few studies that describe its safety and efficacy. We present our institution's experience in performing neuroendovascular interventions via a transradial approach, with excellent clinical outcomes and patient satisfaction measures.

Methods We conducted a retrospective analysis and identified 223 patients who underwent 233 consecutive neuroendovascular interventions via radial artery access at our institution. The