included mechanical thromboaspiration in addition to mechanical thrombectomy with stent-retrievers, and one of the procedures included intra-arterial TPA and thromboaspiration in between stent-retriever attempts. Two cases required Y-stenting due to recalcitrant clot burden at the bifurcation of a large vessel (MCA bifurcation into superior and inferior M2 divisions, and distal basilar artery into bilateral P1 segments; mRS at 30 days was 0 and 1, respectively). The average time from last seen well to recanalization with acute intracranial stenting was 317 min $\pm$ 187 min. Recanalization rates were AOL 2 in 85% (6/7) and AOL 3 in 15% of cases (1/7). Reperfusion rates were TICI 3 in one case, TICI 2 B in 4 and TICI 2 A in 2 cases. Supraselective intra-arterial eptafibatide was used either before or immediately after stenting in 42% of cases (3/7); daily aspirin after stenting was used in all cases (7/7); and a combination of aspirin and clopidogrel was used in 71% of cases (5/7). There were two deaths: One as a result of hemorrhagic transformation of the ischemic stroke with subsequent malignant edema and the second one due to progression of stroke and withdrawal of care at the request of the family. Modified Rankin Scale mRS ≤2 at 30 days was achieved in 42% of the cases (3/7).

Conclusion Initial results suggest that acute intracranial stenting may be beneficial in a subset of patients who present with an ELVO and who have failed recanalization by means of mechanical thrombectomy with stent-retrievers and/or thromboaspiration with large bore intracranial catheters.

Disclosures J. Lozano: None. **M. Howk:** None. **A. Kuhn:** None. **F. Massari:** None. **K. de Macedo Rodrigues:** None. **C. Brooks:** None. **M. Perras:** None. **M. Gounis:** 1; C; NIH, Medtronic Neurovascular, Microvention/Terumo, Cerevasc LLC, Gentuity, Codman Neurovascular, Phillips Healthcare, Stryker Neurovascular, Tay Sachs Foundation, InNeuroCo Inc.. 2; C; Codman Neurovascular, Stryker Neurovascular. 4; C; InNeuroCo Inc.. **D. Rex:** None. **A. Wakhloo:** 1; C; NIH, Phillips Healthcare, Wyss Institute. 2; C; Codman Neurovascular, Stryker Neurovascular. 3; C; Harvard Postgraduate Course. 4; C; InNeuroCo Inc., EpiEb, Pulsar Medical. **A. Puri:** 1; C; Stryker Neurovascular, Covidien. 2; C; Codman Neurovascular, Stryker Neurovascular, Covidien. 3; C; Miami Cardiovascular Institute. 4; C; InNeuroCo Inc.

E-021 QUANTITATIVE EVALUATION OF METAL ARTIFACT REDUCTION FOR COILED ANEURYSMS IN CONE-BEAM CT

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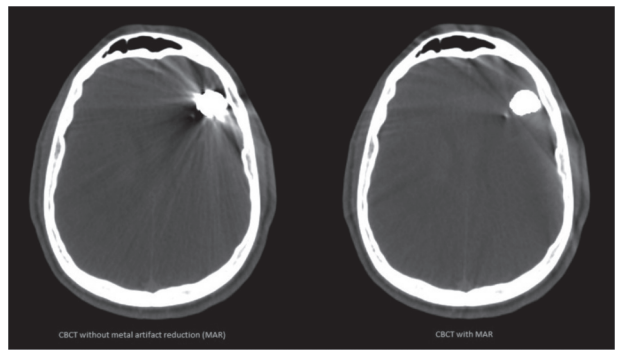
10.1136/neurintsurg-2016-012589.93

Purpose During minimally invasive embolization of brain aneurysms the aneurysm sac is filled with metal coils. The post-coiling cone-beam CT image quality is impaired by artifacts originating from the radiopaque metal mass. The artifact streaks run through the brain parenchyma, which hampers their inspection for hemorrhages and other events. Metal artifact reduction improves the image quality of cone-beam CT affected by streak artifacts. While several metal artifact reduction schemes have been described in the literature, there is little objective quantitative evaluation on clinical data. In this article we use pre- and post-coiling cone-beam CT data, and apply a metric (peak signal-to-noise ratio) to quantify the improvement in image quality.



Abstract E-021 Figure 1

Materials and methods For 22 retrospective aneurysm coiling cases, cone-beam CT acquisitions prior and post embolization were available. The former dataset was used as gold standard reference to evaluate the latter without and with metal artifact reduction. To this purpose the pre- and post-coiling datasets were co-registered, and the brain cavity and coiling mass were segmented. The metric was then applied to the non-coiled brain parenchyma.

Results The mean squared error improved for 20 out of 22 patients after metal artifact reduction was applied. The average mean squared error was reduced by 264 HU. The peak signal-to-noise ratio was improved by 6.8 dB. The average additional computation time for the metal artifact reduction algorithm amounted 20 seconds.

Conclusion Metal artifact reduction has been found to objectively improve the image quality quantified by the peak signal-to-noise ratio for most patients. It is therefore considered a useful tool for interventional use when the image contains metal parts.

Disclosures D. Ruijters: 5; C; Philips Healthcare. **P. van de Haar:** 5; C; Philips Healthcare. **G. Kaila:** None. **T. Grünhagen:** 5; C; Philips Healthcare. **J. Moret:** None. **L. Spelle:** None.

E-022 THE SURPASS™ INTRACRANIAL ANEURYSM EMBOLIZATION SYSTEM PIVOTAL TRIAL TO TREAT LARGE OR GIANT WIDE NECK ANEURYSMS (SCENT TRIAL)

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10.1136/neurintsurg-2016-012589.94

Introduction Stroke is the fourth leading cause of death in the United States and the most common life-threatening neurological disease.[1] Hemorrhagic stroke occurs in 13% of stroke patients with the majority of these events being related to the rupture of intracranial aneurysms.[2] As many as 6% of the general population may have an unruptured intracranial aneurysm which, if left untreated, may lead to a neurological event or death. The Surpass™ Flow Diverter was developed to treat aneurysms not amenable to surgical or current standard endovascular treatment.

Materials and methods The Surpass™ Flow Diverter System is comprised of the Surpass™ Flow Diverter, the Surpass Delivery Catheter and Pusher, a second microcatheter that resides

within the delivery catheter. The Surpass™ Flow Diverter is preloaded on the delivery catheter and is available in diameters ranging from 3 to 5 mm and lengths of 15 to 50 mm. The SCENT Trial is an international, multi-center, prospective, non-randomized trial comparing the outcomes of Surpass™ Flow Diverter treatment to a historical control. It is designed to evaluate the safety and efficacy of the Surpass™ Flow Diverter in the treatment of large or giant wide neck intracranial aneurysms. Subjects between the ages of 19 to 80 years having a single targeted intracranial aneurysm that is located in the internal carotid artery (ICA) distribution up to the terminus with a neck $\geq$4 mm or no discernible neck and an aneurysm size $\geq$10 mm (including saccular, fusiform, and dissecting aneurysms) are eligible for participation in the study. The primary safety endpoint is the percent of subjects experiencing neurologic death or major ipsilateral stroke through 12 months. The primary effectiveness endpoint is the percent of subjects with 100% occlusion (Raymond Class 1) without clinically significant stenosis (defined as ≤50% stenosis) of the parent artery and any subsequent treatment of the target aneurysm at 12 months.

Results and Conclusion The enrollment of 180 subjects in the SCENT trial was completed on November 30, 2015. Up to 30 sites were targeted for participation in the study. All 12 month primary-endpoint follow-up visits are expected to be completed in November 2016.

Disclosures P. Kan: 2; C; Stryker Neurovascular, Medtronic. **P. Meyers:** None. **R. Hanel:** 2; C; Stryker Neurovascular, Covidien, Codman Neuro, MicroVention. 4; C; Blockade.

E-023 PATIENT OUTCOMES, ANEURYSM OCCLUSION, AND CEREBRAL INFARCTION FOLLOWING ENDOVASCULAR TREATMENT OF DISSECTING VERTEBRAL ARTERY ANEURYSMS

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10.1136/neurintsurg-2016-012589.95

Introduction Subarachnoid hemorrhage (SAH) secondary to rupture of an intradural dissecting vertebral artery aneurysm (DVAA) results in significant morbidity and mortality. Prior studies suggest favorable outcomes following endovascular treatment of ruptured DVAA by parent vessel occlusion or stent-assisted coil embolization, but post-procedural cerebral infarction related to endovascular treatment is less well characterized. We determined patient outcomes and cerebral infarction following endovascular treatment of ruptured DVAA.

Materials and methods We retrospectively reviewed all consecutively patients presenting to our neurovascular referral center over a 10 year period with with SAH due to a ruptured DVAA. Patient demographic, treatment, and outcome data were determined from the medical record. DSA, CT, and MRI studies were reviewed for DVAA characteristics and cerebral infarction.

Results Ruptured DVAA were identified in 30 patients with an average age of 56 years (range 35–86 years). DVAA affected the right vertebral artery in 20 patients (67%; $p = 0.2$), the non-dominant vertebral artery in 18 patients (60%; $p = 0.4$). Parent vessel occlusion was performed in 25 patients, stent-assisted coiling in 4 patients, and flow diversion in 1 patient. Aneurysm occlusion was achieved in 27 patients (90%). Symptomatic vasospasm requiring endovascular treatment occurred in 12 patients (35%). Cerebral infarction occurred in 9 patients (30%) following endovascular treatment, which were secondary to vasospasm in 5 patients (56%), parent vessel occlusion in 2 patients (22%), and a combination of vasospasm and parent vessel occlusion in 2 patients (22%). No other complications were identified. 8 patients (27%) had a good clinical outcome (mRS 2) at discharge, which increased to 18 patients (60%) at 3 months of follow-up. 5 patients (17%) died as a result of their ruptured DVAA. Presenting Hunt and Hess scale greater than 3 ($p = 0.003$) was associated with a poor clinical outcome (mRS > 2 or death). Patient sex, age, hypertension, hyperlipidemia, diabetes, coronary artery disease, smoking, illicit drug use, alcohol abuse, a family history of aneurysms, presenting Fisher grade, and the development of vasospasm requiring endovascular treatment did not correlate with clinical outcome.

Conclusions Endovascular DVVA treatment results in a high rate of aneurysm occlusion and good clinical outcome in a majority of patients. The rate of cerebral infarction related to endovascular parent vessel occlusion is high. Further studies should determine if ruptured DVVA treatment by flow diversion results in acceptable rates of aneurysm occlusion and lower rates of post-treatment cerebral infarction compared to endovascular parent vessel occlusion.

Disclosures J. Heit: None. **R. Dodd:** None. **H. Do:** None. **G. Steinberg:** None. **S. Chang:** None. **M. Marks:** None.

E-024 PRIMARY INTRACRANIAL STENTING FOR REFRACTORY REOCCLUSION DURING STENT-BASED MECHANICAL THROMBECTOMY FOR ACUTE ISCHEMIC STROKE INTERVENTION

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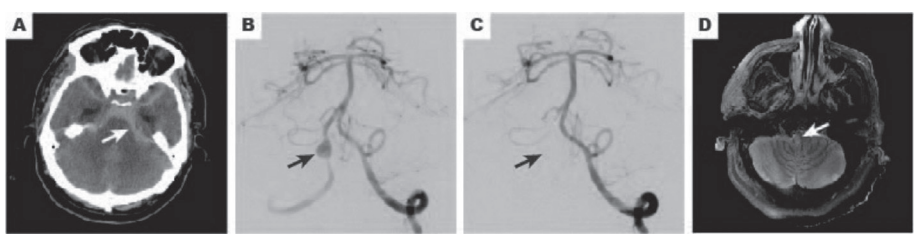
10.1136/neurintsurg-2016-012589.96

Purpose To evaluate clinical and radiologic outcomes of primary intracranial stenting for refractory re-occlusion during stent-based mechanical thrombectomy for acute ischemic stroke intervention.



Abstract E-023 Figure 1