Results The use of the EKOS catheter and TPA infusion restored sufficient venous drainage and ultimately the patient developed good collateral flow. The result was an excellent six-month post-operative neurologic outcome.

Conclusion CVST can be refractory to existing endovascular treatment options. We describe the use of an EKOS catheter, traditionally used in peripheral vascular and pulmonary emboli cases, as rescue therapy in a cerebrovascular case where traditional treatment options failed. Further evaluation is warranted to clarify its safety and efficacy versus other therapeutic modalities.

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E-064

SURPASS EVOLVE FLOW DIVERSION FOR EMBOLIZATION OF UNRUPTURED INTRACEREBRAL ANEURYSMS: EARLY EXPERIENCE OF A SINGLE TERTIARY CENTER

L Verhey*, A Restrepo Orozco, L Lyons, A Sewell, J Tsai, P Mazaris, J Singer. *Neurological Surgery, Spectrum Health, Michigan State University, Grand Rapids, MI*

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Introduction Since initially developed, flow-diverting devices for intracerebral endoluminal reconstruction have rapidly evolved and multiple devices now exist, differing in materials and design. Recently, the Stryker Surpass Evolve flow-diverter (FD) has been approved as a 64-wire cobalt-chromium device with improved ease of deployment, flexibility and conformability compared to its predecessor.

Objective To summarize the clinical applications and procedural outcomes of patients who underwent Surpass Evolve FD embolization of an unruptured intracerebral aneurysm at a tertiary high-volume single center

Methods The first Surpass Evolve FD was deployed at our institution on August 31, 2020. All consecutive patients who presented since this date with a symptomatic or asymptomatic unruptured intracerebral aneurysm and were treated with a Surpass Evolve FD were included. Patients with a ruptured intracerebral aneurysm were excluded. Demographic and clinical features, antithrombotic therapy, aneurysm features, access, procedural factors and outcome, and post-procedural neurologic status were extracted from our departmental neurointerventional database and electronic medical records. Follow-up cerebral angiograms were also reviewed. Summary statistics included frequencies, and measures of central tendency and dispersion as appropriate.

Results Since Aug 31, 2020, 32 patients underwent embolization of an unruptured intracerebral aneurysm with the Surpass Evolve, and have been followed for a mean of 118.9 (SD 62.3) days. Mean age at intervention was 62.5 (13.4) years, and 25 (78%) were female. In 27 (84%) patients, a native aneurysm was flow-diverted, and in 5 (16%) patients, FD was performed for a recurrent aneurysm. Distribution of aneurysm location was: ICA 21 (66%), ACA 2 (6%), AComm 2 (6%), and posterior fossa 7 (22%). Mean aneurysm size was 8.8 (4.7) mm. Access was radial in 23 (72%), femoral in 8 (25%) and ulnar in 1 (3%). FD was successfully deployed to the target in 31 (97%) of cases. Median FD per patient was one; nine patients had two FD devices placed. Balloon angioplasty or J-wire manipulation was used to enhance apposition in 19 (59%) cases. Neurologic deficits were observed in four

patients; 3 (9%) had transient deficits, and 1 (3%) had a permanent deficit. An asymptomatic microperforation was observed in one patient. Migration of the FD was observed in one patient following balloon angioplasty. Early contrast stasis was observed in all patients, and short-term follow-up angiogram for three patients indicated decreased aneurysm size.

Conclusion In our early experience, the Surpass Evolve FD is safe and has an improved ease-of-use profile compared with its Surpass Streamline predecessor. Complication rates are well within the acceptable limits based on published evidence. Serial follow-up angiography will delineate the rate of aneurysm obliteration.

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E-065

STENTING AND FLOW DIVERSION FOR PEDIATRIC INTRACRANIAL ANEURYSMS

H Rai*, F Almayman, M Waqas, A Kalanovic, A Monteiro, A Baig, M Recker, A Siddiqui, E Levy. *Neurosurgery, Uni at Buffalo, Buffalo, NY*

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Background Pediatric intracranial aneurysms (IA) are rare. Literature highlights endovascular treatment yielding favorable outcomes, but long-term follow up outcomes are lacking.

Objective To analyze our institution's experience of endovascular management of pediatric cerebral aneurysms with long-term follow-up.

Methods In the past decade, 4 male and 2 female patients with nine IA were treated with stenting or flow-diversion. We retrospectively reviewed the radiological, hospital and outpatient clinic charts to document clinical presentation, diagnostic methods, treatment strategies, outcome and long-term follow up for each patient.

Results Headache was the presenting symptom in all of the patients except one, which had a traumatic injury. Two of these patients had a ruptured aneurysm. Two patients had multiple aneurysms - 2 and 3 respectively. The aneurysms were most frequently located in the anterior circulation, with the exception of two basilar. Four of the aneurysms were treated with stenting, while 5 with Pipeline flow-diversion. All cases, except one, had a good outcome after the procedure; the latter having a hemorrhage, requiring hematoma evacuation, and later developing in-stent stenosis, for which balloon angioplasty was done and another pipeline flow-diverter was deployed. Long term imaging follow-up demonstrated no issues regarding the durability of flow-diverters and stents, with 0 modified Rankin Score (mRS) reported for 5 patients and a baseline of 2 for one patient.

Conclusion This series demonstrates the safety and effectiveness of endovascular treatment of pediatric aneurysms, with no issues regarding the durability of flow-diverters and stents at continued long-term follow up.

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Claret Medical, GLG Consulting, Guidepoint Global, Imperative Care, Medtronic, Rebound, StimMed. 4; C; NeXtGen Biologics, RAPID Medical, Claret Medical, Cognition Medical, Imperative Care (formerly the Stroke Project), Rebound Therapeutics, StimMed, Three Rivers Medical.

E-066

STRUCTURED REPORTING OF ANEURYSM RUPTURE RISK UTILIZING GEOMETRIC AND HEMODYNAMIC ANALYSIS (STARR) – A SOPHISTICATED APPROACH TOWARDS PATIENT COUNSELING

¹D Behme*, ²I Reinitz, ³O Beuing, ¹M Thormann, ⁴B Neyazi, ⁴E Sandalcioğlu, ¹A Mpotsaris, ⁵B Preim, ⁶P Berg, ⁷S Saalfeld. ¹Neuroradiology, University Clinic Magdeburg, Magdeburg, Germany; ²Research Campus Stimulate, University Magdeburg, Magdeburg, Germany; ³Neuroradiology, AMEOS Hospital Bernburg, Bernburg, Germany; ⁴Neurosurgery, University Clinic Magdeburg, Magdeburg, Germany; ⁵Department of Simulation and Graphics, University Magdeburg, Magdeburg, Germany; ⁶Research Campus Stimulate; Department of Fluid Mechanics and Technical Flows, University Magdeburg, Magdeburg, Germany; ⁷Research Campus Stimulate; Department of Simulation and Graphics, University Magdeburg, Magdeburg, Germany

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Introduction/Purpose Counseling of patients harboring unruptured intracranial aneurysms (UIAs) has remained challenging despite the availability of several risk scores assessing the aneurysm rupture risk for individual patients. However, besides aneurysm size and simple morphological features no advanced hemodynamic or geometric factors have been used in every patient counselling so far, although recent research has identified several of these factors to be associated with aneurysm rupture risk. The structured report of several geometric and hemodynamic aneurysm features was developed to amend counseling of patients with UIAs in everyday clinical practice.

Material and Methods Based on current state-of-the-art and experiences from daily clinical practice a selection of morphological and hemodynamical parameters (5 parameters each, figure 1) that have been associated with aneurysm rupture risk was generated. Next, a structured report was designed such that these parameters are presented in an intuitive and clear manner. Color legends from red to green are used to visualize patient specific rupture risk. Special care was taken to account for non-uniform parameter distributions. The design study was evaluated with a clinical expert. For the extraction of these parameters customized software tools were used that can be carried out remotely. The patient image data is semi-automatically processed yielding the structured report.

Results We developed a semi-automatic workflow to incorporate current state-of-the-art aneurysm rupture risk analysis into a structured report such that the information is available in the daily clinical use without dedicated hardware or engineers required at the hospital. All listed parameters were extracted based on recent literature.

Conclusion Structured reporting of geometric and hemodynamic analysis of IAs is feasible and can be combined for an aneurysm specific rupture risk stratification amending a more sophisticated tool to patient counseling harboring UIAs. Figure legend: Illustration of the structured report comprising patient specific information (e.g. age, sex,...), the PHASES and UIATS scores as well as five different views showing the shape of the aneurysm from different angles as well as the aneurysm and its parent artery. Five morphological parameters are combined, as well seven hemodynamical parameters. All parameters are

ANEURYSM RUPTURE RISK ASSESSMENT

Abstract E-066 Figure 1

presented in a structured manner. Tool tips allow for explanation for the clinical expert as well as the patients.

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E-067

IMPORTANCE OF FIRST PASS REPERFUSION IN ENDOVASCULAR STROKE CARE – INSIGHTS FROM STAR

¹I Maier, ²M Psychogios, ¹J Liman, ³S Al Kasab, ⁴E Almallouhi, ⁵A Alawieh, ⁶S Wolfe, ⁶K Fargen, ⁷A Arthur, ⁸N Goyal, ⁹T Dumont, ¹⁰P Kan, ¹¹J Kin, ¹²R De Leacy, ¹³J Osbun, ¹⁴A Rai, ¹⁵P Jabbour, ¹⁶J Grossberg, ¹⁷M Park, ¹⁸R Starke, ¹⁹R Crosa, ⁴A Spiotta, ²⁰D Behme*. ¹Neurology, University Clinic Göttingen, Göttingen, Germany; ²Neuroradiology, University Basel, Basel, Switzerland; ³Neurology and Neurosurgery, Medical University of South Carolina, Charleston, SC; ⁴Neurosurgery, Medical University of South Carolina, Charleston, SC; ⁵Neurosurgery, Emory University School of Medicine, Atlanta, GA; ⁶Neurosurgery, Wake Forest School of Medicine, Winston Salem, NC; ⁷Neurosurgery, University of Tennessee Health Science Center, Memphis, TN; ⁸Neurology, University of Tennessee Health Science Center, Memphis, TN; ⁹Neurosurgery, University of Arizona Health Science, Tucson, AZ; ¹⁰Neurosurgery, Baylor School of medicine, Houston, TX; ¹¹Neurology, Chonnam National University, Seoul, Korea, Democratic People's Republic of; ¹²Neurosurgery, Mount Sinai Health System, New York, NY; ¹³Neurosurgery, Washington University School of Medicine, St. Louis, MO; ¹⁴Radiology, West Virginia School of Medicine, Morgantown, WV; ¹⁵Neurosurgery, Thomas Jefferson University Hospital, Philadelphia, PA; ¹⁶Neurosurgery, Emory University School of Medicine, Charleston, SC; ¹⁷Neurosurgery, University of West Virginia, Charlottesville, WV; ¹⁸Neurosurgery, University of Miami Health System, Miami, FL; ¹⁹Neurosurgery, Endovascular Neurological Center, Montevideo, Uruguay; ²⁰Neuroradiology, University Clinic Magdeburg, Magdeburg, Germany

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