Introduction Evaluating the final length and positioning of flow diverting (FD) stents inside patient arteries for optimal device size selection remains a challenging, yet crucial, task in complex aneurysm treatment.

Aim This study reports the accuracy of PreSize Neurovascular software in predicting FD deployed length and impact of PreSize's use on device size selection. PreSize (Oxford Heartbeat Ltd) is a visualisation/simulation software for neurovascular FD intervention planning in aneurysm treatment.

Methods Imaging data from 80 FD cases using Derivo Embolisation Device (Acandis GmbH), collected from University Medical Center Hamburg-Eppendorf, were retrospectively analysed. Prediction accuracy was defined as agreement between PreSize simulation and actual deployed FD length measured in angiography. Two experienced Interventional Neuroradiologists (INRs), blinded to post-deployment angiographies, selected optimal sizes using PreSize in a subset of 25 cases. PreSize-informed device choices (diameter/length) were compared to deployed devices (informed by conventional planning).

Results Investigated FDs had a mean nominal length of 26.9 mm (15–50 mm). PreSize predicted deployed FD length with a mean accuracy of 94% (95% confidence interval [93%,95%]). PreSize-informed devices were shorter (Wilcoxon signed-rank test, $Z=21.5$, $p<0.01$) by 5.2 mm on average (up to 20 mm) compared to conventionally chosen devices. In 32% of cases, shorter PreSize-informed devices would have resulted in fewer FD-covered vessel bends while achieving sufficient aneurysm coverage. In 88% of cases, PreSize's automatic size suggestion was INR's selection.

Conclusions PreSize predicted deployed FD lengths with high accuracy. Results indicate INRs' propensity to select shorter devices with PreSize, supported by its precise deployment simulation and visualisation.

Disclosure Outside of the submitted work Dr. Fiehler reports grants and personal fees from Acandis, grants and personal fees from Cerenovus, grants and personal fees from Medtronic, grants and personal fees from Microvention, personal fees from Penumbra, and personal fees from Phenox outside the submitted work; shareholder Tegus, CEO Eppdata. Outside of the submitted work Dr. Bester reports personal fees as proctor and consultant from Acandis.

EP11

A POSSIBLE FOLLOW-UP PROTOCOL FOR THE NOVEL CONTOUR NEUROVASCULAR SYSTEM FOR INTRACRANIAL ANEURYSM TREATMENT IN MRI AND SPECTRAL CT

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Introduction The Contour Neurovascular System (CNS) is a new intrasaccular flow diverting device, designed for treatment of intracranial wide-necked aneurysms. Metal artifacts are limiting MRI assessability after implantation.¹

Aim The purpose of this in vitro study was to evaluate non-invasive imaging alternatives to DSA.

Methods Three aneurysms of patients originally treated with CNS within a premarket study were 3D-printed. The 7 mm, 9 mm and 11 mm CNS were implanted under fluoroscopic

control into the 3D-models. Post implantation 2D-DSA, flat panel CT, MRI, conventional and spectral CT angiography (CTA) were performed. DSA and flat panel CT were assumed as the gold-standard.

Results Time of flight-angiography and T1 weighted sequences showed large susceptibility artifacts at the detachment zone of the devices. A thin sliced T2-weighted sequence in cross-sectional orientation to the aneurysm allowed visualization of the aneurysm dome, but the aneurysm neck and the parent vessel still could not be assessed. Conventional focused CTA and especially spectral CTA with metal artefact reduction algorithm showed only minor artifacts. A very similar result to DSA and flat panel CT could be achieved, by thus making possible the assessment of the device structure, aneurysm perfusion and parent vessel perfusion.

Conclusions Focussed CTA, especially with spectral technology and metal artifact reduction, appeared to be a sufficient non-invasive alternative to the gold standard DSA. MRI can be valuable for larger aneurysms to assess the aneurysm dome, but is not suitable for the evaluation of the parent vessels and the aneurysm neck after CNS implantation.

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Disclosure Nothing to disclose

EP12

PCONUS 2 HPC IN THE TREATMENT OF WIDE NECKED INTRACRANIAL ANEURYSMS- MEDIUM TERM RESULTS

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Introduction pCONUS 2 HPC (Hydrophilic Polymer Coating) are novel bifurcation stents designed to assist endovascular coil occlusion of wide necked aneurysms (WNAs). They are neck bridging devices that prevent coil extrusion into the parent vessel.¹ It innovates on the previous generation by increasing the number of wire petals in the crown of the device from four to six, increasing stability of the implant, and shortening the length of the device shaft.

Aims To summarise periprocedural outcomes, 6-month and 2-year follow-up results following its introduction in a tertiary centre.

Methods This prospective study reviewed total of 24 patients with 24 WNAs treated over 42 months between 01/11/17 and 18/05/2021. All patients with wide necked intracranial aneurysms (ruptured and unruptured) with dome to neck ratio <2 with pCONUS-2 or HPC device were included in the study.

Results The mean age of the cohort was 57.9 years. 20 unruptured and 4 ruptured aneurysms were treated. 11/24 aneurysms were located at the MCA bifurcation, 8/24 basilar tip, 3/24 in ICA terminus, 1 AnCom and 1 pericallosal locations. No immediate mortality. There was one periprocedural retroperitoneal bleed and one minor stroke (4.1%). At 6 months, satisfactory Raymond-Roy occlusion was achieved in 85.7%(18/21). At 2 years, satisfactory Raymond-Roy occlusion

was achieved in 87.5%(7/8). There was one delayed death at 2-year from an unrelated cause.

Conclusions pCONUS 2 and pCONUS 2-HPC have good medium-term safety profiles with no procedure-related mortality and acceptable morbidity. Good occlusion rates was noted at 6-months (85.7%) and 2 years (87.5%).

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Disclosure Nothing to disclose

EP13

PCONUS-2 HPC IN THE TREATMENT OF RUPTURED WIDE NECKED INTRACRANIAL ANEURYSMS WITH SINGLE ANTIPLATELET USE- SHORT TERM RESULTS

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Introduction pCONUS 2-HPC (Hydrophilic Polymer Coating) are novel bifurcation aneurysm implants designed to support the endovascular coil occlusion of wide necked bifurcation aneurysms. Use of pCONUS-2 HPC in ruptured intracranial aneurysm using single antiplatelet loading dose is controversial. The device innovates on the previous generation by increasing the number of wire petals in the crown of the device from four to six, increasing stability of the implant and shortening the length of the device shaft. This allows the pCONUS-2 HPC device to be used in cases where there is a larger angle between the parent vessel and the aneurysm.¹

Aims of the Study To summarise device intraprocedural complications, periprocedural outcomes and 6-months follow-up of pCONUS-2HPC with pre procedure single antiplatelet loading dose.

Methods This prospective, single-arm study reviewed a total of 4 patients with 4 wide necked aneurysms treated over 1 year period, between 13/05/2020 and 18/05/2021 at our tertiary centre. All patients with acute ruptured wide necked intracranial aneurysms were included in the study. All patients were preloaded with prasugrel 4 hours before procedure.

Results The mean age of the cohort was 55.7 years. All patients received loading dose of 30–60 mg prasugrel 4 hours before the procedure. There was no mortality or stroke in the series. At 6 months, satisfactory occlusion was achieved in 75% (3/4) aneurysms. There was 1 early coil impaction recurrence that was retreated.

Conclusions pCONUS 2-HPC with single antiplatelet loading dose is feasible with no immediate complications in our series.

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Disclosure Nothing to disclose

EP14

CONTOUR® PLUS COILING WITH JAILED MICROCATHETER FOR BETTER OCCLUSION (COCOJAMBO) IN WIDE-NECKED INTRACRANIAL ANEURYSMS: PROOF OF PRINCIPLE AND ANGIOGRAPHIC RESULTS

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Purpose Wide-necked bifurcation aneurysms, partially thrombosed, and giant aneurysms are challenging to treat. We report our preliminary experience with a Contour®-assisted coiling technique and discuss the periprocedural safety, feasibility, and effectiveness of the approach.

Methods We retrospectively reviewed consecutive patients who received endovascular treatment for intracranial aneurysms with an intra-aneurysmal flow disruptor (Contour) between October 2018 and December 2020 and identified patients treated with a combination of Contour and platinum coils. Clinical and procedural data were recorded.

Results For this analysis, 5 patients treated with CoCoJaMBO were identified (2 female). The mean age was 62.4 ± 7.4 years. Four of 5 aneurysms were associated with previous acute subarachnoid hemorrhage (SAH). The mean dome height was 12 ± 8.5 mm, the mean dome width 10.2 ± 6.3 mm and the mean dome to neck ratio 2.5 ± 1.2 . Adequate occlusion at the end of procedure was achieved in 4 of 5 cases. In one SAH patient, a parent vessel was temporarily occluded but could be reopened rapidly. One device detached prematurely without any sequelae. No other procedural adverse events were recorded. Six month follow up data will be available for presentation but were not available at the time of completion of this abstract

Conclusion From this initial experience, Contour with adjunctive coiling is a safe and technically feasible method for endovascular treatment of large, wide-necked, partially thrombosed, or ruptured bifurcation aneurysms. Further studies with larger numbers of patients and longer follow-up are needed to confirm our results.

Disclosure FW and OJ are consulting for Cerus Endovascular. JH and SP have no Conflicts of interest.

EP15

STENT-ASSISTED COILING OF THE ACUTE RUPTURED CEREBRAL ANEURYSMS

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Introduction Aneurysmal subarachnoid hemorrhage is a serious threat to life of patients, with a risk of unfavorable outcomes of up to 80%. An international ISAT study (Molyneux, 2002) proved the preference of endovascular treatment of aneurysms in the acute period of rupture, but the issue of incomplete occlusion and recanalization of aneurysms has not been fully resolved.

The study aims at showing the efficacy and safety of stent-assisted coiling of acute ruptured aneurysm as compared with balloon-assisted coiling.