Abstract E-024 Figure 1

2. Benchmark radial access
3. Codman Envoy DA radial access

Primary endpoints include time from radial accessed to target lesion, time from radial access to pipeline embolization deployment, technical failure requiring alternative access, intracranial complications, radial access site complications, occlusion rates at longest available follow-up were delayed neurologic complications.

Results A total of 23 patients were included in this retrospective analysis. Average patient age and male gender were 60.4 years and 22% respectively. A total of 31 devices were used to treat a total of 30 aneurysms. Average aneurysm size was 7 mm. Primary placement of a flow diverting stent was performed in a majority of patients with adjunctive coil placement was performed in 13.1% procedures. Post stent placement balloon angioplasty was performed in 34% procedures. No intracranial complications including dissection, intracranial hemorrhage, symptomatic embolic stroke were identified. Major access site complications and symptomatic delayed radial artery occlusion were not identified in any patients undergoing arm access. Furthest available follow-up was on an average of 9.8 months. Complete occlusion was achieved in 70% patients (we anticipate further occlusion by one year). Additional pipeline embolization devices were required in 1 patient, at 18 months. Foley catheter and arterial line placement, 35% and 22%, respectively.

Limitations Single center retrospective review, short interval follow-up (less than 1 year), and some patients lost to follow-up.

Conclusion 6 French Triaxial Trans-radial (or ulnar access) can be used in placement of a Pipeline Embolization Flex device with low associated complications and high technical success.

Disclosures S. Satti: 2; C; Stryker Neurovascular, Medtronic Neurovascular, Penumbra Neurovascular, Cerenovus Neurovascular, Terumo. T. Eden: None.

E-025 EVALUATION OF A COMPUTER MODELING SYSTEM FOR FLOW DIVERTER TREATMENT PLANNING

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Introduction Flow diversion is an effective treatment option for cerebral aneurysms (CAs). Appropriately sizing flow diverters (FDs) is critical for treatment success.¹ However, FDs can be difficult to size. They can elongate by more than 50% of their nominal length after deployment and vessel diameters may vary considerably along the trajectory of the vessel.² Current convention does not address these challenges well. Here we present our preliminary evaluation of a computer modeling system that uses real-time FD deployment simulations and the three-dimensional (3D) model of the patient's vessel to size FDs.

Materials and methods The computational modeling system was evaluated for a series of 7 CAs that were planned for treatment with the Pipeline Flex (Medtronic, USA) FD. Evaluation was performed retrospectively in 2 CAs and prospectively in 5 CAs. In each case, rotational angiography image data were first uploaded to the SurgicalPreview® (EndoVantage, USA) computational modeling software. The image data were then segmented by the software and used to reconstruct a 3D model of the vessel. Next, FD sizes that were being considered for treatment were virtually deployed into the vessel model in real-time and the appropriate FD size for each vessel was selected. Simulated and clinical FD deployments were then compared using post-treatment angiography images.

Results Good qualitative agreement was observed between simulated and clinical FD deployments based on device length and aneurysmal neck-coverage, as shown in figure 1. In the prospective cases, the simulations helped narrow the list of device sizes being considered and improved confidence in device selection.

Abstract E-025 Figure 1 (a) Pre-treatment angiogram showing 8 mm aneurysm, (b) virtual deployment of 2.75×12 mm Pipeline FD, (c) placement of the same FD size across the aneurysm neck with the vessel opacified.

Conclusion Our early experience with the computational modeling system suggests that the technology can potentially accurately predict FD behavior and facilitate the selection of the optimal FD size for a vessel. The technology has great potential to reduce technical complications during FD treatment and improve treatment outcomes.

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E-026 ENDOVASCULAR TREATMENT OF PERICALLOSAL ARTERY ANEURYSMS: SINGLE CENTER EXPERIENCE WITH EARLY FOLLOW UP

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Traditionally, microsurgical clipping has been the mainstay of treatment for pericallosal artery aneurysms (PAAs). However, this has changed in recent years with advancements in endovascular surgical techniques. We conducted a retrospective cohort study of pericallosal artery aneurysms that underwent endovascular treatment with coiling and flow diversion at our institution. 33 patients with 34 aneurysms were included (25 aneurysms ruptured, 9 unruptured or recurrent). Of the ruptured group, 22 were coiled (88%) and rest treated with flow diversion. Initial angiographic follow up rate was 72% at median of 159 days. Overall recurrence rate was 40% (10/25) at median of 376 days, all among coiled aneurysms. 6 recurrent aneurysms were retreated with further coiling (2) and flow diversion (4). Of the unruptured/recurrent group, 5 were coiled (55%) and remainder treated with flow diversion. Initial angiographic follow up rate was 100% at median of 267

days. Recurrence rate was 22% (2/9), both in coiled aneurysms. Overall, 27 aneurysms were treated with coiling, 9 with flow diversion and 3 with 'partial' flow diversion. All aneurysms treated with pipeline flow diversion achieved 100% occlusion. No re-rupture or new rupture was noted in our series. Good clinical outcome (modified Rankin scale, mRS 0–2) was seen in 79% of patients. Our study demonstrates that endovascular coiling for PAAs is associated with a definite rate of recurrence, which has to be monitored with timely angiography. We also demonstrate the excellent effectiveness of flow diversion for PAAs with either presentation.

Disclosures M. Sattur: None. Y. Li: None. E. Almallouhi: None. J. Lena: 2; C; Penumbra Inc., Alameda, California. A. Spiotta: 2; C; Penumbra Inc., Alameda, California.

E-027 'DONUT' ANEURYSM OF THE ANTERIOR CEREBRAL ARTERY: A RARE VASCULAR PHENOMENON

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Introduction Intracranial aneurysms with a 'donut-shaped' appearance are believed to be the result of laminar flow within large or giant aneurysms leading to central stagnation, intraluminal thrombosis and eventual 'donut' shaped configuration. We present a patient who experienced SAH due to ruptured 'donut' aneurysm focusing on her unique anatomy and repair.

Materials and methods A 55 year old woman presented to the ED after developing a severe headache. CT revealed left-sided SAH with the epicenter in the region of the left carotid terminus. Subsequently she was further evaluated with CTA, and catheter angiogram. Treatment with platinum coils was staged. An initial dome protection at the proposed bleeding site allowed us to further evaluate the anatomy and flow dynamics with further 2D and 3D angiograms, including a carotid cross-compression angiogram. Subsequent treatment options were flow diversion, surgical clipping and coil embolization without or with stent protection. A patent anterior communicating artery allowed us to simply coil the aneurysm resulting