Abstract E-096 Figure 1

Disclosures Y. Senol: 6; C; Microvention. **M. Asghariahmadabad:** 6; C; Microvention. **N. Krishnan:** None. **A. Orscelik:** None. **L. Savastano:** 4; C; Endovascular Horizons. 5; C; Endovascular Engineering, VerAvanti.

E-097 THE IMPACT OF DELIVERY TECHNIQUE ON WOVEN ENDOBRIDGE DEPLOYMENT AND DETACHMENT IN AN IN VITRO ANEURYSM MODEL

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Background The Woven EndoBridge (WEB) device is increasingly used for treatment of wide-neck bifurcation aneurysms. However, WEB deployment is associated with a high rate of incomplete 'sticky' detachment from the delivery wire leading to imprecise placement. Optimal techniques for WEB manipulation and delivery are poorly defined. The relationship between technical factors like WEB stickiness and deployment success is also unclear. This study aimed to evaluate standard WEB deployment techniques and determine the impact of delivery techniques and WEB stickiness on procedural success.
Methods An in vitro study assessed WEB deployment using forward load, neutral, and tension techniques in identical silicone middle cerebral artery aneurysm models (n=32). The WEB device (6×2 mm) was delivered through a VIA 17 microcatheter by a single operator. Forward load involved gradual pushing while maintaining forward tension. Neutral technique reduced load after deployment. Tension technique applied backward tension on the delivery system after deployment. Microcatheter position was standardized in the M1 segment. WEB stickiness was graded as: active detachment, slightly sticky, sticky, or very sticky based on marker movement during detachment attempts. Primary outcomes were sticky incomplete detachment and number of detachment attempts. Fisher's exact test compared outcomes between techniques.
Results The tension technique resulted in significantly fewer sticky detachments and detachment attempts compared to forward load or neutral techniques ($p<0.001$). With tension, 8% of cases required multiple attempts versus 100% with forward load. Stickiness was dramatically lower with tension (0% sticky) versus forward load (42% sticky, 8% very sticky) ($p<0.001$). Forward load had a 50% rate of stickiness versus 0% with tension and neutral ($p<0.001$). Forward load required multiple attempts in 100%, compared to 57% with neutral and 8% with tension ($p<0.001$). Higher stickiness grades increased the need for multiple attempts ($p<0.001$). No complications occurred.
Conclusion The tension technique significantly reduces incomplete WEB detachment compared to standard techniques. Applying tension to the delivery system results in precise, single-attempt detachment. Adopting this technique could optimize WEB delivery precision. Further in vivo study should confirm these findings clinically.
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E-098 COMPARISON OF CLINICAL AND RADIOGRAPHIC OUTCOMES IN ANTERIOR CIRCULATION BALLOON GUIDE CATHETER THROMBECTOMY FOR PROXIMAL AND DISTAL VESSEL OCCLUSIONS: A MULTICENTER RETROSPECTIVE STUDY

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Introduction Several studies have demonstrated safety and efficacy of balloon guide catheters (BGC) in stroke thrombectomy. While studies suggest that BGC utilization may lead to better radiographic and clinical outcomes in cases of large vessel occlusion, its efficacy in distal medium vessel occlusion is largely unexplored. Here, we aimed to compare the radiographic and clinical outcomes between patients who underwent anterior circulation BGC thrombectomy for proximal (intracranial internal carotid artery and middle cerebral artery (MCA) M1) and distal (M2 and above) vessel occlusion.
Methods We performed a multicenter retrospective study including all adult (≥ 18 years) patients treated with BGC for intracranial anterior circulation occlusion at our institutions. Patient demographic information, clinical presentation, procedural details, and clinical and radiographic outcomes were extracted. Outcome metrices such as first pass effect (FPE), modified FPE (mFPE), thrombolysis in cerebral infarction

(TICI) score, discharge mortality, and favorable clinical outcomes (measured by modified Rankin Scale (mRS) of 0–2 at 90 day follow up) were compared between distal and proximal groups.

Results Total of 150 patients treated with BGC (58% male; median age: 66 years, median NIHSS at presentation: 14) were included. 104 (69%) of these patients had proximal occlusion (58.7% male, median age: 65 years, median presenting NIHSS=16), while 46 (31%) had distal occlusion (56.5% male; median age: 67 years, presenting NIHSS: 13). 32 (30.8%) of patients with proximal occlusion were treated with intravenous thrombolysis prior to thrombectomy, compared 17 (37.0%) of patients in distal group (p=.467). Stent retriever plus local aspiration thrombectomy was performed in 67 (64.4%) of patients with proximal occlusion and 23 (50.0%) of the distal occlusion group (p=.067). No significant differences were observed between proximal and distal occlusion groups in FPE (35.6%, 0.4%, p=.540), mFPE (53.8% vs 50.0% p=.708), TICI ≥2c (59.6% vs 20.0% p=.273), discharge mortality (20.8% vs 12.5% p=.253), and favorable clinical outcome at 90 day follow up (48.5% vs 56.8% p=.358), embolization to new territory (3.8% vs 0.0% p=.178), or perioperative complications (11.5% vs 4.4% p=.173). Similarly, after excluding patients with tandem occlusions, no significant difference in outcomes was observed. However, in a sub analysis comprising patients treated with aspiration plus stent retriever, a significant difference in discharge mortality was noted between proximal (24.6%) and distal (4.8%) occlusion (p=.048).

Conclusion Our preliminary analysis suggests there is no difference in clinical and radiographic outcomes between proximal and distal vessel occlusion treated with BGC. However, in sub-analysis consisting of patients treated with stent retriever and local aspiration, lower discharge mortality was observed among those with distal occlusion. Further analysis with larger patient cohort and propensity matched analysis to account for confounding variables is planned.

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E-099 DIRECT STA-MCA BYPASS IN MOYAMOYA DISEASE: PREDICTING POST-OPERATIVE CONTRALATERAL STROKE USING CLINICAL CHARACTERISTICS AND ANGIOGRAPHIC COLLATERALIZATION PATTERNS

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Background Moyamoya disease (MMD) is a rare cerebrovascular disorder marked by internal carotid artery narrowing, collateral neovascularization, and symptomatic cerebral ischemia. Select patients can benefit from direct bypass (STA-MCA bypass) by restoring blood flow to hypoperfused territories. Contralateral stroke (CS) following STA-MCA bypass is a devastating, poorly understood complication. We investigate clinical and radiographic risk factors influencing CS incidence after bypass surgery.

Methods A retrospective review of bilateral MMD patients undergoing STA-MCA bypass at our institution (2018–2022) included demographic details, comorbidities, average pre-operative systolic blood pressure (SBP), post-operative SBP goal, and angiographic patterns. Pre-operative diagnostic angiograms were analyzed for collateral vascular patterns. Post-operative clinical course was recorded. Statistical analyses employed parametric and non-parametric tests for small sample size.

Results Six of 39 patients (15.4%) experienced CS post-bypass. No baseline demographic differences were identified between patients with and without CS. CS patients had higher pre-operative SBP (146.2 vs. 131.1, p<0.05), were more likely to have post-operative SBP goals below their average pre-operative SBP (66.7% vs 15.2%, p=0.018) and had longer time from symptom onset to surgery (51.8 vs 13 months, p=0.039). There were no differences in specific angiographic patterns in either hemisphere for CS patients versus those without CS.

Conclusions CS patients following bypass had significantly higher pre-operative SBP, post-operative SBP goals below their average pre-operative SBP, and longer time from symptom onset to surgery compared to patients without CS. Patient-specific post-operative SBP management and timely surgical revascularization are crucial for preventing CS in MMD patients undergoing STA-MCA bypass.

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E-100 INTRAVENOUS THROMBOLYSIS IN DISTAL MEDIUM MIDDLE CEREBRAL ARTERY OCCLUSION PATIENTS WITH UNSUCCESSFUL MECHANICAL REPERFUSION

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Background The efficacy and safety of intravenous thrombolysis (IVT) in acute ischemic stroke (AIS) patients undergoing mechanical thrombectomy (MT) for distal, medium vessel occlusions (DMVO) is not well established. This study investigates whether IVT impacts outcomes in DMVO patients, particularly in those with unsuccessful or partial recanalization after MT.

Methods We conducted a retrospective, multicenter study using data from the Multicenter Analysis of primary Distal medium vessel occlusions: effect of Mechanical Thrombectomy (MAD-MT) registry. The study population included acute ischemic stroke patients with DMVO in the M2, M3, and M4 segments of the MCA, treated with or without IVT followed by MT and a final modified Thrombolysis in Cerebral Infarction (mTICI) score of 0, 1, or 2a. The primary outcome was functional independence, assessed by the 90-day modified Rankin Scale (mRS) of 0–1 or 0–2.