arch, and internal carotid artery dolichoarteriopathy categorization - has been shown to be a predictor of prolonged time to reperfusion as well as functional outcome for patients with transfemoral access. We aimed to assess this grading system with consideration to transfemoral versus transradial access. Methods We retrospectively compared transradial versus transfemoral access for acute anterior circulation ischemic stroke requiring mechanical thrombectomy at two high-volume comprehensive stroke centers. Local institutional review board approval was obtained prior to analysis. Bovine arch, aortic arch, and internal carotid artery dolichoarteriopathy categorization was made for every patient, with higher B.A.D. scores defined as a score of 2 or greater. The primary outcome was change in NIHSS grading from admission to discharge as well as at 24 hours post-thrombectomy. Procedural timing analysis included analysis of time from puncture to first pass and reperfusion. Patients requiring crossover between access sites and tandem occlusions were excluded. Univariate analysis used Wilcoxon rank-sum test for continuous outcomes, while chi-square test and Fisher’s exact test were used for categorical comparisons. Significance was defined as p < 0.05.

Results A total of 220 patients were included in the analysis, 161 (73.2%) of which had femoral access. Demographic comparisons and patient presentation did not vary between patients with femoral vs. radial access. Additionally, access site did not show significant difference in B.A.D. scores. The femoral approach had a significantly higher proportion of ASPECT scores less than 9 (39% vs 19%, p = 0.017). A low B.A.D. score was associated with a significantly greater reduction in NIHSS scores from admission to discharge in transfemoral patients (-8 (SD: 8) vs -4 (SD: 7), p = 0.030), however this association was not observed in the transradial patients. No other primary endpoints, including functional outcomes and reperfusion time, showed significant differences in transradial versus transfemoral access or low versus high B.A.D. scores.

Conclusion Our analysis evaluates the prognostic value of the B.A.D. score in the context of varying access sites in predicting outcomes and revascularization time. In contrast to previously published findings in smaller patient cohorts, we demonstrate that B.A.D. score categorization did not show a major association with changes in patient outcomes as well as timing of revascularization. Future research should utilize larger patient samples to enhance preoperative anatomic evaluation models for major stroke outcomes and improve treatment guidance.


Introduction/Purpose Reducing stroke workflow time metrics when performing mechanical thrombectomy (MT) in stroke patients with suspected large vessel occlusion (LVO) has shown an association with improved clinical outcomes. We performed a systematic review and meta-analysis to compare safety and efficacy outcomes between a direct to angiosuite (DTAS) and a standard workflow (SW) strategy among stroke patients with suspected LVO who underwent MT.

Materials and Methods We performed a comprehensive literature search in Medline, Embase, and Web of Science databases between 2015 and 2021. Observational studies and clinical trials that compared DTAS versus SW strategy were assessed, all the studies where at least one outcome of interest was reported were included. The risk of bias was evaluated in all the included publications. We compared the rates of functional outcomes, reperfusion times, symptomatic intracranial hemorrhage, and stroke workflow metrics. Clinical, methodological, and statistical heterogeneity were measured. A random-effects model was used.

Results Twelve studies were included in the systematic review and eight in the meta-analysis with 2890 patients. The DTAS strategy was associated with higher odds of good functional outcome at 90-days (47.3% vs. 34.9%; Odds ratio [OR]: 1.58; 95% confidence interval [CI]: 1.16–2.14) and an average reduction in door-to-puncture time in minutes (mean differences [MD]: -35.09; 95% CI: -49.76 to -20.41) and door-to-reperfusion time in minutes (MD: -32.88; 95% CI: -50.75 to -15.01). There was no significant difference in symptomatic intracranial hemorrhage (OR: 0.80; 95% CI: 0.53–1.20), mortality (OR: 1.00; 95% CI: 0.60–1.67), or successful reperfusion rates (OR: 1.59; 95% CI: 0.99–2.56)). Moreover, the DTAS was associated with greater odds of dramatic clinical improvement at 24 hours (OR: 1.79; 95% CI: 1.15–2.79).

Conclusion Patients who underwent the DTAS strategy had a significant reduction in door-to-puncture and door-to-reperfusion times. These time reductions resulted in an increased rate of early neurological and 90-day functional recovery without compromising safety in LVO patients undergoing MT.

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E-283 TIME IS BRAIN: IMPACT OF ADMISSION TIME ON SUBARACHNOID HEMORRHAGE PATIENT OUTCOMES, A 7-YEAR STUDY

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Introduction In patients with aneurysmal subarachnoid hemorrhage (aSAH), emergent aneurysm securement is performed to minimize complications and optimize outcomes. It is not well characterized how time of admission impacts time to intervention or outcomes.
Methods We conducted a retrospective review of adult aSAH cases between 2013 and 2019 at a single large tertiary medical center. Data extracted included patient demographics, admission time, insurance, aneurysm location, disease severity, time to aneurysm treatment (defined as time in minutes from admission to operating room time-out), hospital length of stay, complications, and final discharge disposition.

Results 880 patient records were reviewed, and 205 patients met inclusion criteria. 48 patients were admitted between 12AM-8AM (‘Shift 1’), 77 patients were admitted between 8AM-4PM (‘Shift 2’), and 86 patients were admitted between 4PM-12AM (‘Shift 3’). There was no difference in length of stay between the three groups (p=0.959, mean length of stay: 18.61 days). Black patients comprised a greater proportion of patient admitted in Shift 1 (42.2%) compared to Shifts 2 (19.7%) or 3 (23.8%), (p=0.019). There was a significant difference in median time to aneurysm treatment (652 minutes in Shift 1, 1248 minutes in Shift 2, 972 minutes in Shift 3; p<0.001). There was no difference between the three shifts in percentage coiled versus clipped (p=0.567) or discharge disposition (p=0.404; overall 68% favorable disposition and 32% poor disposition). There was no difference in rebleed (p=0.242), vasospasm (p=0.369), or additional intervention (p=0.667) between the admission shifts. Time to aneurysm securement under versus over 1440 minutes (1 day) was not associated with discharge disposition (p=0.342). However, time to aneurysm securement greater than 2880 minutes (2 days) was associated with poor discharge disposition (p=0.030).

Conclusion Admission time for aSAH patients is associated with time to aneurysm securement; patients admitted in the night or early morning receive aneurysm securement faster, but there is no difference in outcomes. Aneurysm securement over 2 days after admission is associated with poor discharge disposition.


E-284 RETRIEVAL OF FRACTURED BALLOON MICROCATHER DURING EMBOLIZATION OF CEREBRAL AVM: A TECHNICAL CASE REPORT

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Introduction Retained microcatheter is a rare but dreaded complication after Onyx embolization. We describe a modified monorail snare technique for retrieval of retained microcatheter.

Materials and Methods PubMed search of case reports and review articles.

Results A 21-year-old female presented with intraventricular hemorrhage. Cerebral angiography revealed left frontoparietal parasagittal AVM supplied by left pericallosal ACA and left PCA branches and drainage into VoG and SSS with nidus measuring 2 x 2 cm² (SM grade 3). She underwent coil-assisted Onyx embolization with occlusion of large fistulous components via L-ACA and L-PCA. She was brought back at a later date for embolization of residual nidus. After baseline DSA, a 6Fx90 cm NeuronMAX guiding sheath with a 5Fx125 cm (ID-0.55) SOFIA intermediate catheter were positioned in L-VA. A 1.6Fx165 cm (2.2x9mm) Scepter Mini balloon microcatheter was advanced over a 0.007/0.014x215 cm Traxcess Mini microwire to P3/P4 segment with SOFIA advancement to L-P2 segment. Onyx-18 was injected via balloon microcatheter after balloon inflation until reflux was noted with total injection time ∼5 minutes. Balloon was deflated and excessive resistance was noted during microcatheter withdrawal. The distal ∼20 cm of microcatheter then inadvertently stretched and fractured from proximal shaft and was retained in L-PCA stretching back proximally to inside the distal portion of SOFIA in L-V3 segment. Movement of SOFIA didn’t appear to pull microcatheter, suggesting it was free-floating inside it. Attempt to remove retained microcatheter by advancing a second Scepter Mini and inflating it to tether retained microcatheter within SOFIA was unsuccessful due to SOFIA inner diameter limitation. We decided to track a snare device over SOFIA in a mono-rail fashion and then sliding over and onto the exposed distal portion of retained microcatheter. Proximal hub of SOFIA was cut for snare passing. Attempt to track 2mmx175cm microSNARE with it’s microcatheter (2.3-3Fx150cm) over SOFIA was first unsuccessful due to NeuronMAX inner diameter limitation. We decided to exchange out NeuronMAX. A 3.8Fx160cm 3MAX catheter was wedged in proximal segment of cut SOFIA to lengthen, and avoid movement of SOFIA during exchange. NeuronMAX was exchanged out and 3MAX was removed from SOFIA. A 0.035x145 cm Amplatz super stiff guidewire was inserted inside SOFIA for proximal support. A coaxial system of 9Fx11cm sheath (dilator removed) over 6Fx23cm sheath was prepared (6F sheath acted as dilator for 9F sheath and hub of 6F was cut so it can pass over SOFIA). This was advanced over SOFIA and inserted at R-CFA access site. 6F sheath was exchanged out leaving SOFIA inside a 9F sheath at the groin. A 4mm snare device with its microcatheter was then passed over SOFIA through sheath hub and tracked along the outer shaft of SOFIA to L-V3 segment ensuring the snare is now encircling the retained microcatheter. Proximal aspect of fractured microcatheter was captured and removed along with SOFIA. Repeat DSA images showed no residual microcatheter. Patient was extubated with intact neurological exam. A 4mm x 150cm Amplatz super stiff guidewire was then passed over SOFIA and distally to the L-P2 segment encircling the retained microcatheter. Proximal aspect of fractured microcatheter was captured and removed along with SOFIA. Repeat DSA images showed no residual microcatheter. Patient was extubated with intact neurological exam.

Conclusions Retained fractured microcatheter during Onyx embolization can be removed in the presence of an intermediate catheter utilizing a snare device and a mono-railing technique.

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E-285 TRANSIENT MECHANICAL NARROWING AFTER EMBOLIZATION WITH THE PIPELINE FLOW-DIVERTER

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Introduction We have occasionally noted elongation and narrowing of the Pipeline embolization device (PED) on initial follow up imaging in comparison to its immediate post-deployment configuration. These changes appear to often be transient, with resolution typically noted on subsequent imaging. As the phenomenon may go unrecognized or be misdiagnosed as intimal hyperplasia, we elected to better evaluate its...