

**E-091 INFLUENCE OF ANATOMIC LOCATION AND RACE ON RUPTURED CEREBRAL ANEURYSM SIZE**

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**Introduction** Potentially fatal unruptured intracranial aneurysms are often incidentally discovered from the occurrence of subarachnoid hemorrhage. Unfortunately, there is a paucity of research on early indicators of rupture risks. Procedural intervention by aneurysmal clipping or endovascular coiling is based on 1998 ISUIA trial results which suggest that aneurysm diameters < 7 mm have a low risk of rupture. Recent studies indicate that rupture risk is multifaceted and observed trends in clinical practice are different from the outlines described in published literature. This Chicago-based study aims to provide insight into unruptured intracranial aneurysm risk assessment accuracy by focusing on the influence of anatomic location on ruptured aneurysm size with a subgroup analysis of patients self-reporting as African-American.

**Methods** In this IRB-approved retrospective cohort study, consecutive adult patients presenting to Rush University Medical Center with subarachnoid hemorrhage were evaluated for cerebral aneurysm anatomic location and dome diameter. They were classified into groups of 3 mm, > 3 mm and 7 mm, and > 7 mm and data was further stratified by self-identified African American race. Classifications of anatomic location were based on currently known areas of common aneurysm growth and rupture-likelihood. All calculated group percentages were compared to evaluate the relationship between ruptured aneurysm size, anatomic location, and race.

**Results** From Aug 2012 - Aug 2015, Jan - Apr 2019, and Dec 2021 - Apr 2022, 293 of 475 patients had ruptured aneurysms leading to subarachnoid hemorrhage. For all patients, anatomic distribution varied based on size with smaller ruptured aneurysms (< 3 mm; > 3 mm and 7 mm) located at ACOM (32.4%; 31.5%) and MCA (14.9%; 16.9%) and larger ruptured aneurysms (> 7 mm) at PCOM (33.3%) and ACOM (20.4%) (p-value: 0.002). When separating by race, a strong ruptured aneurysm size and location relationship in 3 mm (30.3%) and > 3 mm and 7 mm (30.3%) at ACOM as well as > 3 mm and 7 mm (28.8%) and > 7 mm (50%) at PCOM was found in self-identifying African-Americans (p-value: 0.005). A weaker correlation between mean aneurysm size and race as well as anatomic location and race was identified (p-values: 0.1 and 0.25 respectively).

**Conclusion** The average size of ruptured aneurysms varies based on location. This may be helpful in calibrating dome size thresholds used to determine future rupture risk and treatment decision-making based on anatomic location. Cerebral aneurysms among self-identifying African Americans do not rupture at different dome diameters and locations than non-African Americans suggesting a strong possibility for a universal standard of treatment regardless of race. This retrospective cohort study is limited in defining a causal relationship between intracranial size and location; therefore, more data must be collected and assessed from 2015-2022 for the determination of a stronger size, anatomic location, and race relationship significance.

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**E-092 OUTCOMES FOLLOWING SURGICAL AND ENDOVASCULAR TREATMENT OF EXTRACRANIAL VERTEBRAL ARTERY ANEURYSMS (VAA): A SYSTEMATIC EVALUATION OF THE LITERATURE**

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**Introduction** Extracranial vertebral artery aneurysms are rare complications from trauma and multiple diseases. However, the difference between clinical and surgical profiles is not well understood. Our study aims to investigate the clinical and interventional outcomes following extracranial vertebral artery aneurysms (VAA) treatment through a systematic review of the literature to date.

**Methods** Following PRISMA guidelines, an electronic database search for full-text English articles was conducted. The search yielded results on clinical and surgical outcomes for extracranial VAAs. These results included patient-specific risk factors, indications, and techniques.

**Results** Our literature search yielded 561 articles, of which 36 studies were qualified to be included in the analysis. A total of 55 patients with multiple various extracranial VAA incidents were included. The mean age of subjects was 42 years (ranging from 13.0 to 76.0 years), and most patients were males (71%, n = 39). Blunt trauma was the most frequent risk factor for extracranial VAA formation (35%, n = 19). The majority of aneurysms (60%) were dissecting in nature. The most common form of treatment for extracranial VAAs was using a flow diverter (24%, n=13). Overall, five (9%) patients had long-term adverse neurological complications following intervention with 5% (n=3) mortality, 2% (n=1) resulting in unilateral vocal cord paralysis, and 2% (n=1) resulting in a positive Romberg sign. The mortality rate is 15.7% in the surgical group, whereas the endovascular treatment did not result in any mortality.

**Conclusion** The endovascular approach is a safe and effective treatment of extracranial VAAs due to its relatively low overall complication rate and lack of resulting mortality. This contrasts with the surgical approach, which results in a higher rate of complications, recurrence, and mortality outcomes. Understanding the factors and clinical outcomes associated with the incidence of extracranial VAAs is essential for improving patient outcomes.

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**E-093 CAROTID WEBS AND STROKE: A COMPREHENSIVE OVERVIEW OF CLINICAL CHARACTERISTICS, RISK FACTORS, AND TREATMENT MODALITIES**

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**Introduction** Carotid Webs (CW) are an atypical manifestation of fibromuscular dysplasia, affecting the intimal layer of the carotid artery. This leads to a shelf-like projection within the

carotid artery, disrupting blood flow and increasing the risk of thrombus formation in young patients without known cardiovascular risk factors. The relative lack of literature regarding CWs may cause this dangerous pathology to be largely underdiagnosed. The goal of this study is to provide clarity regarding the demographic and clinical characteristics of CWs.

**Methods** A literature search using the keyword 'Carotid Web' was performed using PubMed, Google Scholar and Embase. Variables extracted included, but were not limited to, age, ethnicity, characteristics of the carotid web, symptoms, stroke score, treatment, and outcome.

**Results** After screening, 111 studies were included featuring a total of 850 patients. The mean age was 46.26 +/- 10.46 years with 60.29% of patients being female. Among patients for whom ethnicity was reported, 373/494 patients were of African American descent. Risk factors for CW were reported in 613 patients: 32.30% of patients had co-existing hypertension, 20.72% were smokers, and 8.97% had been diagnosed with hyperlipidemia. Among patients who experienced a stroke, 67.43% of the CWs were ipsilateral to the stroke. The average reported NIHSS score was 10.79 +/- 5.17. Insofar as treatment is concerned, 45 patients received stent only, 68 received endarterectomy only, 27 received thrombectomy only and 122 received medical management only, with symptom improvement rates of 100%, 100%, 96.30%, and 75.41%, respectively. The overall rate of stroke recurrence was 19.50%.

**Conclusion** This is the largest systematic review of CWs to date. This study provides novel information not only about risk factors and common treatment modalities for CWs, but also the relationship between CWs and stroke. This data may aid physicians in diagnosis of CWs in younger patients who present with stroke-like symptoms and no cardiovascular risk factors. Furthermore, medical treatment alone may not be as effective as stenting or surgical options.

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E-094

#### HIGHER INTRACRANIAL POSITIONING OF 8FR-GUIDE CATHETER IMPROVES EFFICACY OF ASPIRATION THROMBECTOMY IN LARGE VESSEL OCCLUSION STROKE

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**Introduction** Previous report from a single-center study has demonstrated that intracranial positioning of the guide catheter can improve final reperfusion rates, increase the first-pass effect, and reduce the time needed to achieve final reperfusion in patients with emergent large vessel occlusion. Positioning the guide catheter closer to the clot face can reduce the risk of clot shearing and distal embolism during mechanical thrombectomy. To further investigate the benefits of intracranial guide catheter positioning in aspiration thrombectomy procedures, we conducted a retrospective analysis from prospectively maintained databases in a multicenter setting.

**Method** To be eligible, patients had to present with intracranial ICA, M1 and M2 occlusions, be over 18 years old, and

have been treated with thrombectomy. The three participating centers were asked to include consecutive patients with data confirming guide catheter positioning during clot engagement and treated between January 2020 and January 2023. Participants were allocated into two groups: the intracranial group (n=271), in which the distal tip of the guide catheter was positioned in the petrous segment or further distal, and the control group (n=157), in which the distal tip of the guide catheter was positioned in the cervical ICA or more proximal. The primary outcomes were the rate of final excellent reperfusion (TICI 2C or better), first-pass effect (TICI 2C or better after one pass), and access to final reperfusion time. Data were presented as mean (standard deviation) or median (IQR) and percentage (counts). The unpaired t-test, Mann-Whitney U Test, and Fisher's exact test were used to compare the means, medians and proportions of the two groups, respectively. P values <0.05 were considered statistically significant.

**Results** A total of 428 patients were included in the analysis. The intracranial and control group were well matched at entry. Patients with a guide catheter location in the petrous segment or further distal had a significantly higher first pass effect than those with a more proximal location (117/271, 43.2% vs. 40/157, 25.5%, p<0.001). A guide catheter location in the petrous segment or further distal was associated with better rates of final excellent recanalization (193/271, 71.2% vs. 102/157, 65.0%, p=0.194). Furthermore, intracranial positioning of guide catheter was associated with significantly shorter times from groin puncture to final recanalization [median 21.0 (13.0-44.0) minutes vs. 35.5 (21.0-65.0) minutes, p<0.001], and a lower total number of passes [median 2 (1-3) vs. 3 (1-4) passes, p=0.013].

**Conclusion** Positioning a large bore guide catheter within the petrous segment or further distal resulted in significantly higher rates of first pass effect, lower procedural times, lower total number of passes, and better rates of excellent recanalization.

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E-095

#### SERIAL DILATION TECHNIQUE FOR ULNAR ARTERY ACCESS IN NEURO-ENDOVASCULAR PROCEDURES: TECHNICAL REPORT AND SYSTEMATIC REVIEW OF THE LITERATURE

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**Background** For rare neuro-endovascular cases in which transfemoral access is not feasible and the palmar circulation is insufficient for radial artery access, ulnar artery access may be considered.

**Materials and Methods** Prior to catheterization, nitroglycerine paste was applied along the distribution of the right ulnar artery. Heparin and verapamil were administered to the ulnar artery via the microdilator. Subsequent serial dilation to 7-French was performed. The 7-French radialsheath was advanced into the ulnar artery over the Nitrex wire. A