

42.64 months were included. Chemosis, ptosis, and diplopia were the most frequent symptoms, and most of the patients were classified as Barrow classification type D based on angiographic features (30/58). In terms of EVT, most of the patients (54/59) underwent transvenous embolization, and liquids (Onyx 34 and 18) were the most frequent materials that were used for embolization (55/59). Also, in 34 cases, additional coiling was performed. Overall, the procedural success rate was 84% (50 out of 59), and a complete resolution of symptoms was observed in 46 cases at the follow-up, with the occurrence of eight complications overall (13.5%), including two strokes, two alopecia, one seizure, one cranial nerve palsy, one diplopia and one worsening of symptom events. Multiple logistic regression showed that the use of Onyx 34 was associated with procedural success.

**Conclusion** Our results showed that EVT might be a safe and effective option for the treatment of patients with CS-DAVF. Also, the results showed that the application of Onyx 34 might associate with the procedural success rate.

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E-085

#### THE SCEPTER MINI CATHETER ALLOWS FOR IMPROVED PENETRATION OF FINE VASCULAR NETWORKS AND FACILITATES CURATIVE EMBOLIZATION IN VEIN OF GALEN MALFORMATIONS

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**Introduction** Patients with Vein of Galen malformations (VOGM) can develop significant angiogenesis leading to hemodynamic and structural remodeling. This results in an extensive fine angiogenic network with fistulous connections to the vein of Galen. In patients with angiogenic networks, transarterial embolization (TAE) with liquid embolic agents (LEA) is challenging due to poor penetration and access, while transvenous approaches carry a risk of hemorrhage from pathologic vasculature. Dual-lumen balloon microcatheters such as the Scepter Mini (Microvention, Aliso Viejo, CA) improve navigability and distal pedicle access in small vessels. Here, we report on the novel use of the Scepter Mini for TAE of angiogenic VOGM.

**Methods** A single-institution retrospective chart review identified all patients with VOGM treated with Scepter Mini balloon microcatheters. Clinical data, angioarchitecture pre-embolization and post-embolization, and technical parameters including complications and embolization success were reviewed.

**Results** 17 Scepter Mini catheters were used in 12 embolizations of seven patients with VOGM. The median patient age at embolization was 2.10 years old. Patients presented with hydrocephalus (n=7, 100%) and gross motor and speech delays (n=4, 57.14%). Anatomically, fine vascular networks

developed extra-axially into the subependymal zone from the posterior choroidal, posterior cerebral, and thalamoperforator arteries. Distal access to the network and VOGM was most commonly achieved within posterior choroidal branches (n=5/17, 29.41%). Successful embolization with Onyx-18 was achieved in 17/17 (100%) uses with all patients angiographically demonstrating significant network penetration. Near tip entrapment of the Scepter Mini with concurrent significant LEA cast displacement on removal occurred in 1/17 uses. One patient experienced postprocedural intraventricular hemorrhage requiring third ventriculostomy without permanent neurologic deficit.

**Conclusions** The Scepter Mini provided excellent distal access with penetration to the fistula and subsequent extra-axial network reduction with few complications. The Scepter Mini provides a means for successful treatment of angiogenic VOGM who present early and symptomatically, facilitating curative embolization.

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E-086

#### THE EFFECT OF COVID-19 VACCINES ON STROKE OUTCOMES: A SINGLE-CENTER STUDY

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**Background** One of the defining narratives of the COVID-19 pandemic has been the acceptance and distribution of vaccine. **Objective** Compare the outcomes of COVID-19 positive vaccinated and unvaccinated stroke patients.

**Methods** This is a single-center retrospective study of COVID-19-vaccinated and unvaccinated stroke patients between April 2020 and March 2022. All patients presenting with stroke regardless of treatment modalities were included. NIHSS was used to assess stroke severity. The primary outcome was functional capacity of the patients at discharge.

**Results** The study cohort comprised 203 COVID-19 positive stroke patients divided into 139 unvaccinated and 64 fully vaccinated patients. At discharge, the mRS score was significantly lower in the vaccinated cohort (3[1-4] vs 4[2-5], OR=0.508, p=0.011). At 3 months of follow-up, the median mRS score was comparable between both cohorts.

**Conclusion** Although vaccination did not show any significant difference in stroke patient outcomes on follow-up, vaccines were associated with lower rates of morbidity and mortality at discharge among stroke patients during the pandemic.

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**Abstract E-086 Table 1** Comparison of outcomes between COVID-19-positive unvaccinated vs. fully vaccinated patients presenting with stroke. \*Adjusted for hypertension, atrial fibrillation, PVD, admission NIHSS, ASPECTS, tandem occlusion, and thrombectomy

	Unvaccinated	Vaccinated	Effect Variable	Unadjusted Value (95% CI)	Unadjusted p-value	Adjusted Value (95% CI)*	Adjusted p-value*
<i>Primary Outcome</i>							
mRS at discharge, median (IQR)	4 (2–5)	3 (1–4)	Common Odds Ratio	0.508 (0.301–0.859)	<b>0.011</b>	0.490 (0.211–1.139)	0.098
<i>Secondary Outcomes</i>							
mRS 0–1 at discharge, n (%)	32/134 (23.9)	24/64 (37.5)	Odds Ratio	1.913 (1.005–3.639)	<b>0.048</b>	1.733 (0.583–5.149)	0.322
mRS 0–2 at discharge, n (%)	41/134 (30.6)	29/64 (45.3)	Odds Ratio	1.879 (1.017–3.473)	<b>0.044</b>	2.278 (0.757–6.858)	0.143
NIHSS at 24 hours, median (IQR)	6 (1–19)	3 (1–8)	Beta	-4.062 (-7.072– -1.053)	<b>0.008</b>	-1.919 (-4.362–0.524)	0.122
NIHSS at discharge, median (IQR)	6 (1–21)	2 (0–6)	Beta	-6.882 (-11.363– -2.401)	<b>0.003</b>	-3.589 (-8.490–1.312)	0.149
Mortality at discharge, n (%)	27/134 (20.2)	5/64 (7.8)	Odds Ratio	0.336 (0.123–0.918)	<b>0.033</b>	0.556 (0.069–4.479)	0.581
mRS at 3 months, median (IQR)	6 (3–6)	6 (1–6)	Common Odds Ratio	0.872 (0.251–3.035)	0.830	0.882 (0.110–7.085)	0.906
mRS 0–1 at 3 months, n (%)	10/55 (18.2)	3/11 (27.3)	Odds Ratio	1.688 (0.379–7.513)	0.492	2.365 (0.167–33.495)	0.524
mRS 0–2 at 3 months, n (%)	12/55 (21.8)	4/11 (36.4)	Odds Ratio	2.048 (0.512–8.181)	0.311	3.177 (0.246–40.962)	0.376
Mortality at 3 months, n (%)	28/55 (50.9)	6/11 (54.6)	Odds Ratio	1.157 (0.316–4.243)	0.826	3.646 (0.184–72.275)	0.396
NIHSS at 3 months, median (IQR)	42 (5–42)	42 (0–42)	Beta	-1.756 (-15.762–12.251)	0.802	4.187 (-17.203–25.576)	0.690
Decompressive craniectomy, n (%)	6/136 (4.4)	0/62 (0)	—	—	0.180	—	—
Length of hospital stay, median (IQR) days	6 (3–14)	5 (3–10)	Beta	-3.761 (-6.577– -0.944)	<b>0.009</b>	-4.364 (-8.895–0.168)	0.059

Gooch: 2; C; Stryker. N. Herial: None. R. Rosenwasser: None. H. Zarzur: None. R. Schmidt: None. M. El Ghanem: None. P. Jabbour: 2; C; Medtronic, Microvention, Balt, Cerus Endovascular.

E-087

### PEDIATRIC INFECTIOUS ANEURYSMS: A POOLED ANALYSIS OF PRESENTATION, MANAGEMENT AND OUTCOMES

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**Introduction** Infectious intracranial aneurysms (IIAs) are a rare complication of infective endocarditis as well as systemic and intracranial infections. Outcome and management of IIAs in the pediatric population remain under-investigated, with insufficient management guidelines. In this work, we perform a systematic review and pooled analysis of published series of IIAs in the pediatric population with respect to presentation, management strategy, technical success, and outcomes.

**Methods** A systematic review of IIAs in pediatric populations was performed in accordance with the PRISMA guidelines. Publications in MEDLINE, SCOPUS, or Web of Science that included references to 'Infectious Aneurysms' or 'Mycotic aneurysms' were reviewed and screened for the presence of pediatric patients. Individual data were curated from the original literature and analyzed using univariate and multivariate analysis.

**Results** A total of 2548 publications were screened, of which 76 studies included at least one pediatric patient with IIAs. A total of 150 patients (191 IIAs) were reviewed with median age of 11, and 15% were infants (< 2 years old). The most common predisposing factor was meningitis/CNS infections in

infants compared to infective endocarditis in older children (> 2 years old,  $p < 0.05$ ). Among reported cases, *Staphylococcus Aureus* was the most common pathogen (15%); 61% presented with rupture, 18% had multiple aneurysms, and 5% had concurrent infarcts from septic emboli. The MCA (50% of IIAs) was the most common location, while 18% occurred in the posterior circulation. The average size of reported aneurysms was 13.8mm (+/- 7). Medical management (antibiotics and serial imaging) was used as a primary treatment in 71% of cases (68% of ruptured IIAs) and as the only treatment in 41% of IIAs. The antibiotic failure rate (IIA progression, re-hemorrhage, or need for delayed surgery) was 48% of all IIAs (50% of ruptured). There was no difference in failure rate of medical management or mortality between the different pediatric age groups. Open microsurgical management was used in 43% of cases (20% as primary approach and 23% as rescue for medical failure). Endovascular management was used in 18% of cases (9% as primary and 9% as rescue treatment). Investigating the trend in management over time was notable for a significant decrease in the rate of primary medical management from 50-60% before 1990 to 30% after 2010, with an increase in rate of endovascular management from 0% before 1990 to 35% after 2010. This correlated with significant improvement in 1-year survival rate from 56% by 1990 to 88% after 2010. The 1-year mortality rate was highest for medically managed children (25%) compared to endovascular (10%) and open microsurgical treatment (9%).

**Conclusions** Management of pediatric infectious aneurysms has shifted over the past two decades with an increased preference toward early aneurysm securement via open or endovascular approaches with concurrent improvement in overall survival. Medical management alone (antibiotics) is associated with a relatively high failure rate and the need for delayed surgical or endovascular intervention secondary to aneurysm progression or re-rupture.

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