Simulations, Microvention, Neurogami, Qapel Medical, RAPID Medical, RAPID.AI, Stryker, Siemens. 6; C; honorarium from Qapel Medicine. **D. Frei:** 2; C; Penumbra, Stryker Neurovascular, Genentech, MicroVention, and Codman. **B. Aagaard-Kienitz:** None. **O. Diaz:** 6; C; proctor for Microvention/Terumo. **A. Malek:** 6; C; Cofounder, investor, and shareholder of CereVasc. **C. Cawley:** None. **A. Puri:** 1; C; Medtronic Neurovascular, Stryker Neurovascular, and Cerenovus. 2; C; Microvention, Agile, Merit, Corindus, QApel, Arsenal, and Imperative Care. **D. Kallmes:** 1; C; Medtronic, MicroVention, NeuroSave, Neurogami, Sequent Medical, NeuroSigma, and Insera. 6; C; President of Marblehead Medical and has patent pending in balloon catheter technologies.

O-055 UNDERLYING AUTOIMMUNE DISEASE IS ASSOCIATED WITH SMALLER ANEURYSM SIZE AT RUPTURE

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Introduction Although the role of inflammation in the development of aneurysms is established, less is known about the development of intracranial aneurysms in the setting of underlying autoimmune disease. The underlying systemic inflammation characteristic of disorders such as systemic lupus erythematosus, rheumatoid arthritis, and Sjogren's syndrome, may influence the development of intracranial aneurysms through common inflammatory pathways. We hypothesize an association between underlying autoimmune disease and aneurysm growth and rupture.

Materials and Methods Medical records of patients who underwent cerebral angiography between August 2018 and August 2021 were manually reviewed to identify autoimmune diseases, comorbid conditions, and aneurysm characteristics. Aneurysm sizes and location were recorded based on the angiography report. Autoimmune diseases as defined for this study included are those known to have systemic inflammatory effects on the central nervous system or multiple other organ systems. In the case of hypothyroidism patient charts were carefully reviewed to ensure that only autoimmune hypothyroidism was included in the autoimmune disease group. Statistical analysis was performed using R v4.1.0 (R Foundation for Statistical Computing). A multiple logistic regression model was built in R to determine the effect of multiple of independent variables, including autoimmune disease, on rupture status as a binary outcome. A multiple regression model was also constructed to determine the effect of multiple variables, including autoimmune disease, on size of an aneurysm at the time of rupture.

Results Chart review identified 194 patients with 273 ruptured and unruptured saccular intracranial aneurysms. There were 31 patients with 44 aneurysms identified as having an autoimmune disease. There were no significant differences in age, sex, smoking status, hypertension, or diabetes between autoimmune and non-autoimmune patients. There was no significant association between autoimmune disease and aneurysmal rupture (p=0.66). Average aneurysm size among patients with autoimmune disease was 5.35 mm compared to 6.38 mm in patients without autoimmune disease (p=0.07). The average size of a ruptured aneurysm was significantly smaller among patients with autoimmune disease compared to patients without autoimmune disease (4.71 mm vs 5.95 mm, p = 0.02). Patients with autoimmune disease also had a lower mean Hunt-Hess score at presentation compared to patients without autoimmune disease (1.78 vs 2.52, p=0.04). The multivariate logistic regression model did not identify any significant association between rupture and autoimmune disease when controlling for other variables (p=0.49). In the multivariate linear regression model autoimmune disease was still significantly associated with a smaller size at rupture (p=0.04) and smoking was associated with a larger size at rupture (p=0.03) when controlling for other variables.

Conclusion In conclusion, autoimmune disease is associated with a smaller aneurysm size at rupture although it is not associated with rupture itself. This association may be due to inflammatory pathways which are common to autoimmune diseases as well as aneurysm wall development. Although we were unable to identify any association between rupture status and the presence of autoimmune disease, the association between smaller size at rupture and autoimmune disease warrants further studies as autoimmune disease may influence the trajectory of aneurysm development and the decision to treat.

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O-056 PREDICTORS OF IN-HOSPITAL MORTALITY AND HOME DISCHARGE IN ANEURYSMAL SUBARACHNOID HEMORRHAGE PATIENTS: A 4-YEAR RETROSPECTIVE ANALYSIS

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Introduction Factors associated with discharge disposition and mortality following aneurysmal subarachnoid hemorrhage (aSAH) are not well-characterized. We utilize a national all-payer database to identify factors associated with home discharge and in-hospital mortality.

Methods The National Inpatient Sample (NIS) was queried for patients with aSAH within a 4-year range. Weighted multivariable logistic regression models were constructed and adjusted for age, sex, race, household income, insurance status, comorbidity burden, NIS-SAH Severity Score (NIH-SSS), disease severity, treatment modality, in-hospital complications, and hospital characteristics (size, teaching status, and region).

Results Our sample included 37,965 patients; 33,605 were discharged alive and 14,350 were discharged home. After adjusting for baseline covariates, multivariable logistic regression revealed several independent associations with home discharge. Black patients had lower odds of in-hospital mortality compared to White patients (aOR=0.67, 95%CI: 0.52–0.86, p=0.002). Compared to patients with private insurance, those with Medicare were less likely to have a home discharge (aOR=0.58, 95%CI: 0.46–0.74, p<0.001), while those with self-pay (aOR=2.97, 95%CI: 2.29–3.86, p<0.001) and no charge (aOR=3.21, 95%CI: 1.57–6.55, p=0.001) were more likely to have a home discharge. Compared to patients aged under 50 years old, those aged 50–64 years (aOR: 0.55, 95%

CI: 0.47–0.64, p<0.001), 65–79 years (aOR: 0.28, 0.22–0.37, p<0.001), and over 80 years (aOR: 0.10, 95% CI: 0.06–0.18, p<0.001) were less likely to be discharged home. Compared to patients at hospitals in the Northeast, patients in hospitals in the Midwest (aOR: 1.31, 95% CI: 1.05–1.63, p=0.016), South (aOR: 1.73, 95% CI: 1.39–2.15, p<0.001), and West (aOR: 2.21, 95% CI: 1.74–2.81, p<0.001) had increased odds of home discharge. Patient household income percentile, hospital bed size, hospital type/teaching status, and hospital region were not associated with discharge disposition or in-hospital mortality. Clipping, as compared to coiling, was associated with decreased likelihood of home discharge (aOR: 0.69, 95% CI: 0.59–0.80, p<0.001) but no difference in in-hospital mortality. Compared to patients with minor or moderate loss of function, those with major loss of function (aOR=6.95, 95%CI: 2.83–17.09, p<0.001) and extreme loss of function (aOR=33.39, 95%CI: 12.20–83.80, p<0.001) had greater odds of in-hospital mortality. Paradoxically, increased number of Elixhauser comorbidities was associated with significantly lower odds of in-hospital mortality.

Conclusion This work represents the first analysis, adjusted for multiple measures of aSAH disease severity, of patient- and hospital-level factors for home discharge in the aSAH patient population. We demonstrate independent associations with care setting, patient characteristics, and treatment characteristics as related to discharge disposition and in-hospital mortality following aSAH, irrespective of disease severity. Future studies are needed in order to identify drivers of these differences and elucidate avenues by which to mitigate them.

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O-057 SALVAGE FLOW DIVERSION FOR PERSISTENT/RECANALIZED ANEURYSMS AFTER STENT-ASSISTED COILING: MULTICENTER EXPERIENCE

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Introduction There is limited literature regarding the safety and efficacy of salvage flow diversion (FD) in persistent/recanalized aneurysms after stent-assisted coiling (SAC) which can occur in 15–20% of cases, with preliminary data suggesting lower efficacy in this particular subgroup. Therefore, we sought to study this in a large multicenter cohort.

Methods A series of consecutive patients undergoing salvage FD for failed SAC from 16 institutions were included (2011–2021) were included, with a primary outcome of angiographic occlusion and secondary outcomes of safety and complications.

Results Eighty-two patients (median-age 57, 69.5% females) were included. The majority of aneurysms were located in the internal carotid artery (70.7%%), saccular in morphology (81.7%), with a median maximal diameter of 9 mm (IQR 5.6–15), and 51.2% initially presenting as ruptured aneurysms. The median elapsed time between initial SAC and salvage FD was 25.1 months, with Pipeline Embolization Device (PED) being the most commonly utilized FD device (95.1%). At a median follow-up of 19 months after FD, complete angiographic occlusion was achieved in 64.7% of cases, and near-complete occlusion (90–99%) in 17.6% of the cases. Permanent thromboembolic complications were encountered in 2.4% of the patients, and one procedural mortality secondary to hemorrhagic complication (1.2%). A favorable modified Rankin Scale (mRS) of 0–2 was encountered in 94.4% of patients on the last available clinical follow-up.

Conclusions In our data, salvage flow diversion for persistent/recanalized aneurysms after SAC was associated with reasonable safety and efficacy profiles, comparable to de-novo flow-diverted aneurysms.

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O-058 PRECLINICAL VALIDATION OF THE RESOLV™ STENT: A PRIMARILY BIORESORBABLE FLOW DIVERTER FOR ANEURYSM TREATMENT

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Introduction/Purpose Existing metal flow-diverting stents are limited in their use mainly for sidewall aneurysms and restrict re-treatment options should the aneurysm fail to occlude. In this study, we sought to pre-clinically validate a novel hybrid polymer-metal flow-diverting stent ('ReSolv™') in terms of *in vivo* safety and efficacy, deployment in multiple aneurysm types, and an ability to employ adjunctive or re-treatment techniques typically unavailable for metal stents.

Materials and Methods The ReSolv™ stent was deployed in 30 rabbit models, including 24 aortas (with up to 18 months of follow-up) and 6 elastase-induced saccular aneurysms (with at least 6 months of follow-up). Optical coherence tomography (OCT) was used to characterize neointima formation while angiography was used to evaluate parent vessel/jailed side branch patency, as well as aneurysm occlusion at follow-up time points. Patient-specific models of ophthalmic, posterior communicating, cavernous, and basilar tip aneurysms were used to study deployment characteristics, wall apposition (by 3D AngioCT), and mesh crossability of the BRS.