O-069 CSF-VENOUS FISTULA TRANSVENOUS EMBOLIZATION: INCIDENCE OF ONYX MIGRATION AND SUGGESTION OF ONE-WAY FISTULA PHYSIOLOGY

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Introduction Transvenous catheter Onyx (Ethylene vinyl alcohol copolymer) embolization is a new treatment option for CSF-venous fistulas (CVF), the most common cause of spontaneous intracranial hypotension.[1] CVF are abnormal connections between the thecal sac or nerve root sleeve and adjacent foraminal or epidural veins. Potential complications of CVF embolization including unintentional onyx migration into the lungs or subarachnoid space. The purpose of this study was the review post-procedure CT imaging of patients who have undergone transvenous embolization of CVF and evaluate the rate of pulmonary and subarachnoid onyx.

Method A retrospective analysis of 100 patients, 32 male, 68 female, mean age 59.2 years, in which post embolization CT were examined for onyx extravasation into the spine or lung. All patients received spinal venous embolization of CVF between 2020 and 2023 at Mayo Clinic Rochester.

Results Evaluation of post embolization CT of the cervical, thoracic, and lumbar spine, and lungs did not demonstrate any migration or extravasation of onyx.

Conclusion These findings provide valuable insight into the safety of transvenous onyx embolization of CVF. The lack of central reflux into the subarchnoid space suggests one-way CVF physiology.

REFERENCE

1. Brinjikji W, Madhavan A, Garza I, *et al.* Clinical and imaging outcomes of 100 patients with cerebrospinal fluid-venous fistulas treated by transvenous embolization. *J Neurointerv Surg*. Published online October 28, 2023. doi:10.1136/jnis-2023-021012.

Disclosures C. Michaelcheck: None. **W. Brinjikji:** None. **P. Cogswell:** None. **J. Benson:** None. **A. Madhavan:** None. **J. Verdoorn:** None. **J. Cutsforth-Gregory:** None. **I. Mark:** None.

O-070 ASSESSING THE IMPACT OF RECREATIONAL DRUG USE ON ARTERIOVENOUS MALFORMATION RUPTURE RISK AND HOSPITAL OUTCOMES

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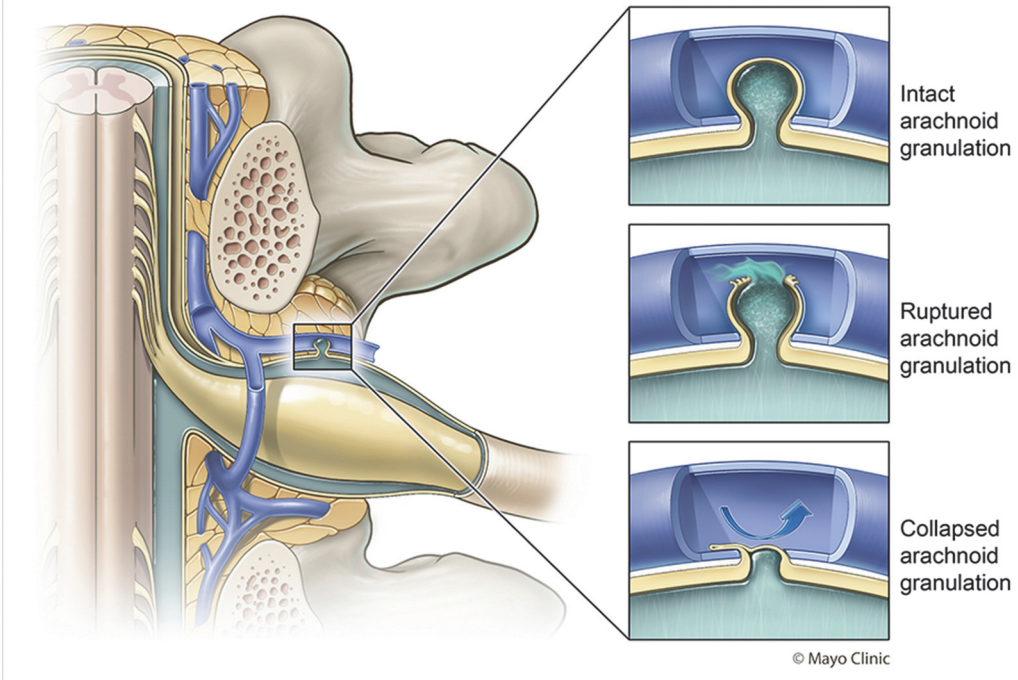
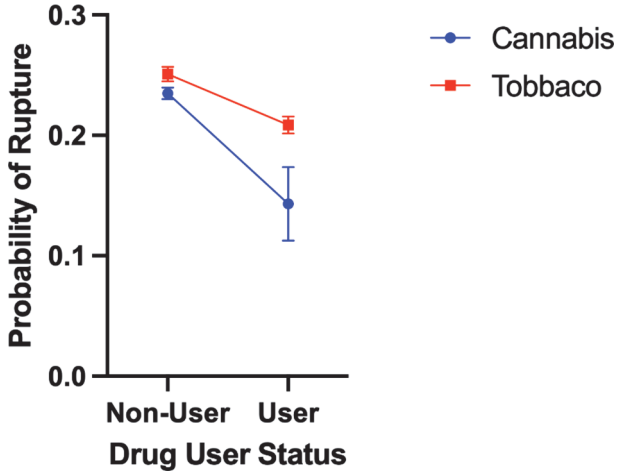
Introduction Recent literature highlights the adverse effects of recreational marijuana on aneurysm conditions. However, its impact on arteriovenous malformation (AVM) outcomes has not been explored. This study investigates the differences in AVM outcomes between marijuana users and non-users, focusing primarily on the likelihood of presenting with rupture and secondarily on the effects of other drugs on in-hospital mortality and complications.

Methods Utilizing the National Inpatient Sample from 2016 to 2020, we identified patients aged 18–89 with arteriovenous malformations. We compared the incidence of hospitalization and rupture between marijuana users and non-users, also examining the effects of alcohol, opioids, hallucinogens, and stimulants. A multivariable logistic regression was conducted to identify independent associations, adjusting for age, sex, race, insurance type, Charlson comorbidity index, and hospital division. A significance level of 0.05 was set with a 9% odds ratio threshold.



Abstract O-069 Figure 1



Abstract O-070 Figure 1

Results We identified 38,585 patients, of whom 9,470 (24.5%) experienced ruptures. Drug use was reported in 3,505 (9.1%) patients: 605 (1.5%) used cannabis, 2,445 (6.3%) alcohol, 515 (1.3%) opioids, 300 (0.7%) stimulants, and 5 (0.01%) hallucinogens. Tobacco and marijuana use were more prevalent among men (P<0.0001). Tobacco users also demonstrated a lower incidence of rupture, 3,325 (22.2%) versus non-tobacco users, 6,145 (26.0%, P<0.0001). Cannabis users showed a lower incidence of rupture at 15.7% (n=95) compared to non-cannabis users at 24.7% (n=9,375, P=0.0227). Multivariate regression indicated that cannabis users were less likely to present with rupture (OR -0.65, CI -1.16 to -0.13, P=0.0141), and tobacco users were similarly less likely (OR = -0.25, CI -0.37 to -0.13, P<0.0001). Patients who smoke were more likely to be routinely discharged, with this trend nearing statistical significance (OR = 0.110, CI -0.002 to 0.222, p=0.0537). Alcohol, opioids, and other drugs did not significantly affect the likelihood of presenting with rupture. Furthermore, cannabis users incurred significantly lower inpatient stay costs compared to non-cannabis users ($25,004 vs. $33,713, p=0.0277), even after adjusting for rupture status.

Conclusions Contrary to existing literature, our findings suggest a potential protective effect of both tobacco and marijuana use against AVM rupture. These results underscore the need for a nuanced understanding of drug use impacts on vascular anomalies and highlight the potential for targeted interventions.

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O-071 EVALUATING THE EVOLUTION OF ENDOVASCULAR THERAPY IN ARTERIOVENOUS MALFORMATION MANAGEMENT: A FIVE-YEAR NATIONAL ANALYSIS OF EFFICACY, COST, AND OUTCOMES

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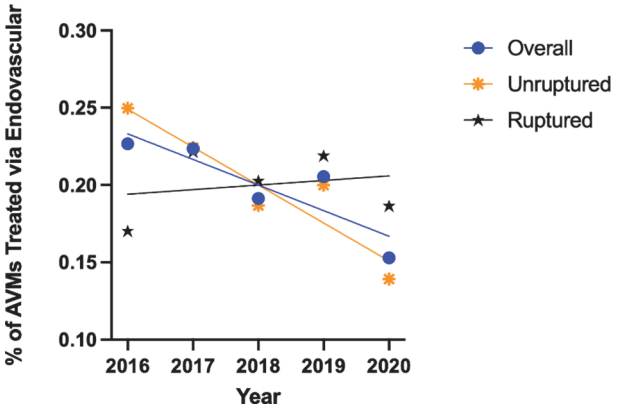
Introduction Advancements in cerebral arteriovenous malformations (AVMs) treatment, including endovascular therapy, have transformed management options. While surgical resection and radiosurgery are standard, endovascular therapy offers a minimally invasive alternative. The ARUBA trial highlighted outcomes of conservative vs. interventional management for unruptured AVMs. Our study examines the trends in endovascular treatment usage for unruptured and ruptured AVMs.

Methods The National Inpatient Sample provided data on 18–89 year-olds with AVMs from 2016–2020. Endovascular interventions were noted.

Results A total of 6,360 patients from 2016–2020 received endovascular treatment for AVMs nationwide, 1,844 (29.0%) presented with ruptured AVMs. A total of 555 (8.7%) underwent concurrent surgical excision. There was a notable decline in endovascular treatments from 1,445 (22.7%) in 2016 to 975 (15.3%) in 2020 (p<0.001). However, usage increased among ruptured patients (p<0.001). Mean overall length of stay was 7.4 (CI: 6.83 to 7.94) days. In-hospital complications were reported in 1,325 (20.8%) patients. Of these, 920 (49.7%) of ruptured patients experienced a complication, while only 409 (9.1%) of unruptured patients experienced a complication (p<0.0001). The in-hospital mortality rate was 3.0%, with the majority of moralities in patients with ruptured AVMs(180, 90.0%). Non-home discharges were observed in 2,055 (32.2%) patients, predominantly to skilled nursing facilities or intermediate care facilities (1315, 20.7%). Subgroup analysis showed that 3,665 (81.0%) unruptured patients had routine discharge, while only 640 (34.6%) of ruptured patients had routine discharge (p<0.0001). The mean treatment cost was $57,545 (CI: $54,652 to $60,438), with the highest costs in the West ($78,535.99, CI: $70,638 to $86,433) and the lowest in the Northeast ($45,375, CI: $40,600.85 to $50,151). Ruptured cases costed 2.35x more than unruptured patients (97,306 vs. 41,332, p<0.0001). Costs increased by 39.4% from $50,323 in 2016 to $70,134 in 2020. The cost for treating unruptured AVMs rose by 27.6% (p=0.037), ruptured rose by 17.9% (p=.291). Multivariate regression, controlling for demographics and comorbidities, indicated that African American patients had a higher likelihood of presenting with ruptured AVMs (.65, CI: .25 to 1.04), and being female was a predictor of non-home discharge (0.30, CI: 0.03 to 0.58)



Abstract O-071 Figure 1