

sessions. During imaging workup, a magnetic resonance angiography (MRA) of the head and neck demonstrated an AVF between the left distal cervical VA and the left paravertebral plexus, at the level of C2.

Results Dual lumen balloon catheters allowed for localization of the fistula point as well as assistance for coil embolization. In both cases the balloon was inflated with angiograms performed proximal or around the balloon to locate and isolate the VA segment containing the fistula. Furthermore, temporary vessel occlusion was useful not only to find the fistulous rent but also to reduce the venous outflow and maintain flow control during coiling. Complete closure of the VV-AVF was obtained in both cases, with rapid improvement in clinical outcome.

Conclusions VV-AVF dual lumen balloon-assisted coiling is a feasible solution both in adult and pediatric patients. Temporary balloon inflation in the fistula helps to locate the fistulous point, to isolate the segment of the fistula preventing coil protrusion in the parent vertebral artery, to reduce the venous outflow and maintain flow control during coiling. The use of dual lumen balloon catheter allow for maintenance of patency of the vertebral artery and targeted coil embolization at the fistula point resulting in angiographic cure for both cases.

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INTRAPROCEDURAL HYPOTENSION IN DIAGNOSTIC CEREBRAL ANGIOGRAPHY VIA A TRANSRADIAL APPROACH

¹K Nandoliya, ¹A Alwakeal, ¹R Khazanchi, ¹J Klein, ¹E Winterhalter, ²R Abdalla, ³S Ansari, ⁴D Cantrell, ³A Shaibani, ³B Jahromi, ³M Potts. ¹Neurological Surgery, Northwestern Feinberg School of Medicine, Chicago, IL; ²Radiology, Northwestern Feinberg School of Medicine, Chicago, IL; ³Neurological Surgery, Radiology, and Neurology, Northwestern Feinberg School of Medicine, Chicago, IL; ⁴Radiology and Neurology, Northwestern Feinberg School of Medicine, Chicago, IL

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Background Transradial access (TRA) is gaining increasing popularity over transfemoral access (TFA) for diagnostic cerebral angiography. TRA, however, often involves the administration of vasodilatory medications, raising concerns over intraprocedural hypotension. Our objective was to determine whether there are any differences in intraprocedural vital signs between TRA and TFA in diagnostic cerebral angiograms performed under conscious sedation.

Methods We retrospectively reviewed 145 transradial and 333 transfemoral cerebral angiograms conducted under conscious sedation between March 2018 - February 2022 for patient and procedural characteristics, including medications administered and intraprocedural vital signs (mean and minimum heart rate and systolic and diastolic blood pressures). Conscious sedation was performed with intravenous fentanyl and midazolam. All TRA procedures received topical nitropaste applied to the forearm overlying the radial artery as well as intraarterial nitroglycerin (200 mcg), verapamil (5 mg), and heparin (weight-based dosing) upon arterial access.

Results Mean patient age was 54.8 ± 1.3 and 54.3 ± 0.7 for the TRA and TFA groups, respectively ($p = 0.74$). Fifty-one percent of TRA and 60% of TFA patients were taking antihypertensive medications at the time of the procedure ($p = 0.11$). The mean dose of fentanyl administered during cerebral angiography via TRA was 65.8 ± 5.4 mcg versus 64.2 ± 3.2

mcg via TFA ($p = 0.79$). The mean dose of midazolam administered via TRA was 1.8 ± 0.2 mg compared to 1.5 ± 0.04 mg via TFA ($p = 0.21$). The mean intraprocedural heart rate was 69.5 ± 0.9 bpm for TRA and 70.9 ± 0.7 bpm for TFA ($p = 0.22$). The mean systolic blood pressures were 123.7 ± 1.5 and 131.3 ± 1.0 mmHg for patients in the TRA and TFA groups, respectively ($p < 0.001$). The mean diastolic blood pressures were 68.5 ± 0.73 and 73.6 ± 0.54 mmHg for patients in the TRA and TFA groups, respectively ($p < 0.0001$). Twenty percent of patients undergoing TRA cerebral angiograms developed intraprocedural hypotension (defined as systolic < 90 mmHg or diastolic < 60 mmHg) compared to 8% undergoing TFA cerebral angiograms ($p < 0.001$). Multivariate logistic regression modeling with midazolam dose, fentanyl dose, history of anti-hypertensive medications, and access route demonstrated TRA patients were significantly more likely to experience intraprocedural hypotension (adjusted odds ratio = 2.78, 95% CI: 1.57 - 4.91, $p < 0.001$). A history of outpatient anti-hypertensive medications at the time of procedure (AOR = 0.60, 95% CI: 0.34 - 1.05, $p = 0.07$), intraprocedural dose of fentanyl (AOR = 1.00, 95% CI: 0.99-1.01, $p = 0.65$) and intraprocedural dose of midazolam (AOR = 0.91, 95% CI: 0.59 - 1.40, $p = 0.93$) were not associated with greater incidence of intraprocedural hypotension in the patient cohort.

Conclusion Patients undergoing a transradial approach for cerebral angiography in which topical nitropaste and intraarterial nitroglycerin and verapamil are administered are significantly more likely to develop hypotension than via a standard transfemoral approach.

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PERFORATOR VESSEL EMBOLIZATION FOR GALENIC ARTERIOVENOUS MALFORMATION AS A SAFE AND FEASIBLE THERAPY

¹M Bazil, ²T Shigematsu, ²A Berenstein, ²J Fifi. ¹Neurosurgery, Icahn School of Medicine at Mount Sinai, New York, NY; ²Neurosurgery, Mount Sinai Health System, New York, NY

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Introduction Vein of Galen Malformations (VOGMs) are a rare, congenital, cerebrovascular disorder which accounts for as little as 1% of vascular malformations (VMs), but a far greater portion of pediatric VMs. Tectal/thalamic AVMs can often present similarly to VOGM and the treatment course is similar. The simplest treatment for this modality is transarterial embolization (TAE).

Methods We performed a retrospective review of a prospectively maintained database of cases in the practice. VOGMs and tectal/thalamic AVMs in which embolization of perforator branches occurred were selected for detailed review. Preferred technique and clinical outcomes throughout the procedure period were described. We outline patient demographics, VOGM/AVM subtype, angiographic outcomes, clinical outcomes, complications, and important use of utilizing provocative testing with amytal and lidocaine.

Results A total of 28 patients at our practice were treated for a VOGM (20/28; 71.4%) or tectal/thalamic AVM (8/28; 28.6%) via trans-arterial embolization (TAE) of a perforator