

trial was released in 2013. Based on the extensive literature on flow diverting stents one of the most critical features of stent placement is vessel wall apposition. Examining the cardiology literature, stents placed using intravascular ultrasound (IVUS) show a 50% decreased in-hospital mortality and a 34% decrease in major adverse cardiac events in the 24 months following stent placement. Although the degree of flow diversion and wall apposition in cerebral aneurysm treatments can be assessed on angiography, it often provides an incomplete picture, which can result in the unnecessary placement of multiple overlapping stents. In this study, we assess the utility and feasibility of intravascular ultrasound (IVUS) in determining wall apposition and quantifying flow diversion post stent placement.

Materials and methods Five (5) consecutive patients were selected who underwent angiography with possible flow diverting stent placement for known unruptured cerebral aneurysms at our institution. All five patients underwent full diagnostic angiography, followed by a separate endovascular surgery using flow diverting stents. Prior to stent placement, a Visions PV 0.014P RX (Philips) was introduced through the intermediate catheter past the aneurysm and a pullback recording was performed using Chromaflow for analysis. A Pipeline Flex Embolization Device (Medtronic) was then placed in the standard fashion. After stent placement, the IVUS catheter was re-introduced and another pullback recording obtained. Pre- and post- stent vessel diameter, as well as wall apposition was assessed. Flow diversion was assessed using Chromaflow power Doppler measurements.

Results Intravascular ultrasound was safe and technically feasible in 100% (5/5) of the patients analyzed. Vessel wall dimensions were compared to angiography in these patients, and the IVUS measurements influenced a change in stent size in 60% (3/5) patients. Likewise, Doppler flow measurements influenced the decision to not place additional stents in 60% of patients. Doppler flow decreased in the aneurysms by 60–100% after flow diversion, and 90–100% at the conclusion of

the procedure. Follow up angiography at 3- and/or 6-months post stenting was obtained in 4 of our patients.

Conclusion Intravascular ultrasound is a safe and effective tool in the evaluation and treatment of cerebral aneurysms using flow diverting stents. In our small study our use of this technology improved accuracy of device sizing, wall apposition, and decreases the number of stents need to treat aneurysms.

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Electronic poster abstracts

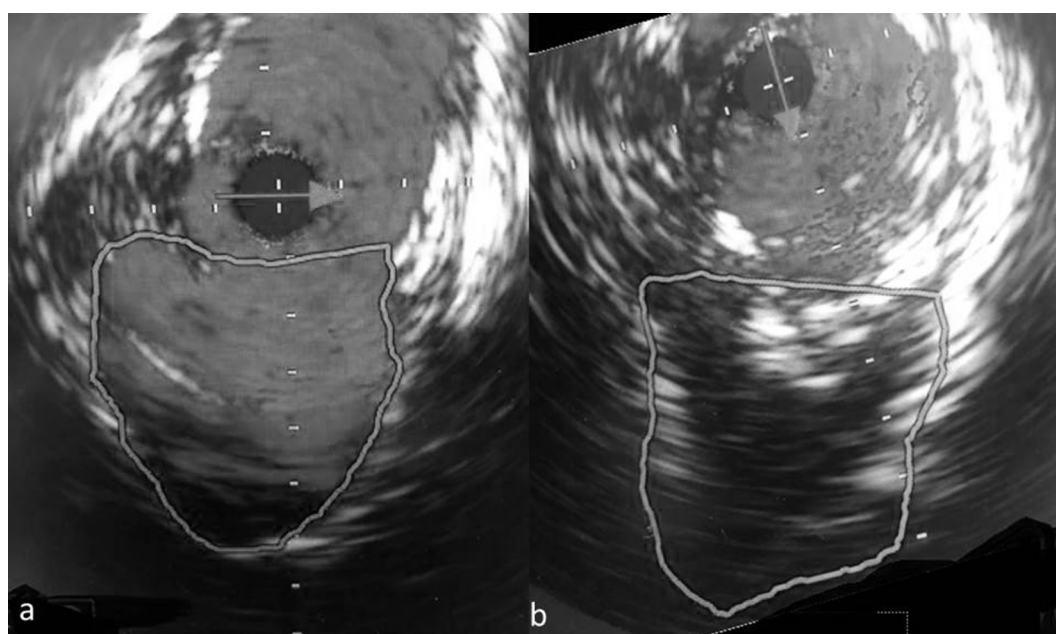
E-001 TRAUMATIC ARTERIOVENOUS FISTULA OF THE MIDDLE MENINGEAL ARTERY MIMICKING A CAVERNOUS SINUS FISTULA DURING INFANCY

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Background Traumatic arteriovenous fistulas (AVFs) involving the middle meningeal artery (MMA) mimicking a cavernous sinus fistula (CSF) are rare lesions that may develop after arterial injury to the MMA in proximity to a meningeal vein or dural sinus. The authors present the unusual case of an infant who sustained a minor head trauma after a short vertical fall.

Clinical history A 6-month-old girl initially presented with a bruit over the left temple. Symptoms progressed with increasing proptosis and enlarged conjunctival vessels on her left eye. Due to lacking clear evidence of a sufficient trauma in her history, an orbital tumor or vascular malformation were



Abstract P-039 Figure 1 Intravascular ultrasound (IVUS) with Chromaflow power doppler assessment of a posterior communicating artery aneurysm [outlined in green] pre-(a) and post- (b) flow-diverting stent placement.

initially suspected. Magnetic resonance imaging (MRI) showed a left-sided enlarged middle meningeal artery (MMA) with filling of the cavernous sinus (CS) and superior ophthalmic vein (SOV) suggesting a cavernous sinus fistula (CSF). While conservative management was initially attempted, slowly progressing symptoms were observed during the following months and prompted endovascular treatment (EVT).

Procedure The right femoral artery was accessed using a 4F sheath and 4F diagnostic catheter. Right external carotid artery (ECA) injections revealed a single-channel high-flow AVF with connection between the left MMA and a short, irregular venous channel draining into the ipsilateral CS and dilated left SOV. A microcatheter was navigated to the initial segment of the fistulous connection and two detachable coils were deployed. Control runs after 20 minutes demonstrated complete occlusion of the fistula. The post procedural course was uneventful and the girl showed beginning clinical improvement after a few days with almost complete clinical recovery after 2 months. Follow-up MRI after seven weeks showed no signs of recurrence.

Summary Traumatic AVFs of the MMA mimicking a CSF in the pediatric population are extremely rare with this being the youngest reported case to date. Non-invasive vascular imaging and possible endovascular management should be considered early to prevent potential complications.

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E-002 **TRANSRADIAL APPROACH FOR PEDIATRIC NEUROINTERVENTIONS: A CASE SERIES**

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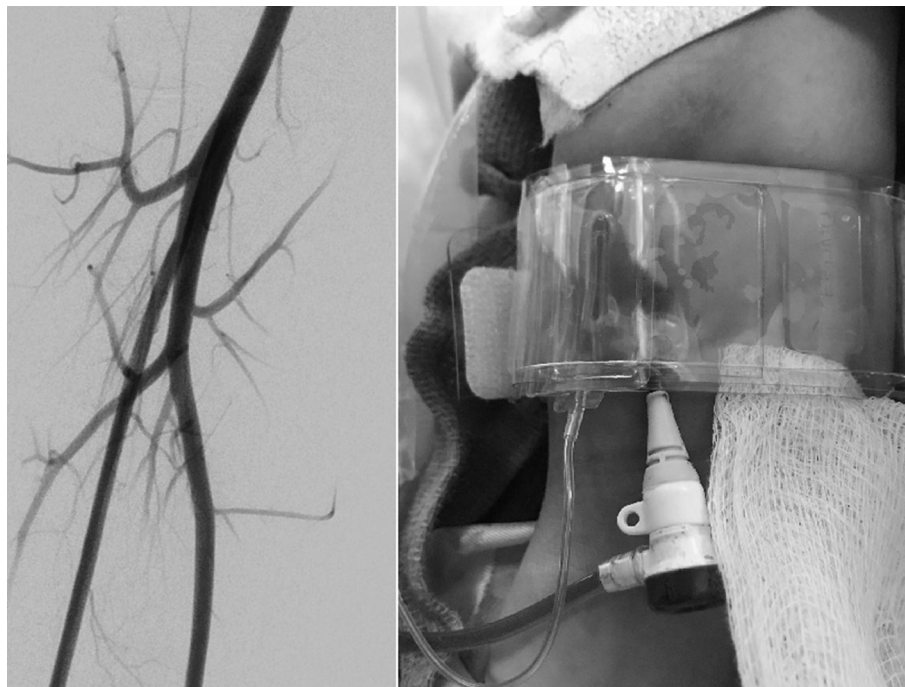
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Introduction/Purpose The Transradial approach (TRA) for Neurointerventional procedures has recently garnered interest as an alternative to the traditional transfemoral approach (TFA) in adult patients. While the benefits of the TRA have been well reported in adult patients, there are a paucity of reports in the literature regarding its use in the pediatric and adolescent populations. The paucity of literature regarding the TRA for Neurointerventional procedures in the pediatric population is likely due to fear of spasm in the narrow caliber radial artery as well as the perceived difficulty in navigating the cerebrovasculature through the TRA. At our institution we have implemented the radial first approach in most adult diagnostic and interventional cases. More recently, we have transitioned to the use of the TRA in pediatric patients as well. Here we present the first reported case series utilizing the TRA in the pediatric population, demonstrating its safety and efficacy for both diagnostic and neuro interventional procedures.

Materials and methods We retrospectively collected data on patient undergoing trans radial intervention from July 2018 to Feb 2019. Pertinent details collected include demographics, indication, technique, radial artery diameter, and complications.

Abstract E-002 Table 1

Age	Gender	Indication/Procedure	Radial Artery Diameter
13	Male	Juvenile Nasopharyngeal Angiofibroma- Pre operative embolization	2.4 mm
14	Male	Right cerebellar AVM-pre operative embolization	2.3 mm
15	Female	Progressing right ICA pseudoaneurysm which failed medical management- Flow diverting stent placement	2.1 mm
15	Male	Juvenile Nasopharyngeal Angiofibroma- Pre operative embolization	2.4 mm



Abstract E-002 Figure 1