Abstract E-025 Table 1

Patient#	Age	Gender	Aneurysm Location	Largest Aneurysm Diameter (mm)	Treatment	LVIS EVO size (mm)	Parent vessel size (mm)	Guide catheter	Intermediate catheter	Microcatheter for stent delivery
1	66	M	AComm	4.3	Stent-assisted coiling	3 × 18	2.1	Ballast	6F Sofia	Headway 17
2	68	M	AComm	3.4	Stent-assisted coiling	2.5 × 22	2.1	Ballast	6F Sofia	Headway 17
3	78	F	Fetal PCA	3	Stent only	2.5 × 12	1.8	Benchmark	5F Sofia	Headway 17
4	50	F	MCA bifurcation	5	Y-Stent-assisted coiling	3 × 24	2.4	Walrus	6F Sofia	Headway Duo

Conclusion The LVIS EVO stent is easily deliverable with excellent stent to vessel wall apposition and conformability, even in more tortuous vessel segments. Visibility of the stent in its entirety enhances operator confidence during the procedure. Sole use of the LVIS EVO stent may suffice for treatment of certain small, sidewall or fusiform intracranial aneurysms not amenable for stent-assisted coiling due to size or flow diversion due to location.

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E-026 DOES SIZE REALLY MATTER? COMPARING PVA PARTICLE SIZE IN MMA EMBOLIZATION

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Introduction/Purpose The efficacy of middle meningeal artery (MMA) embolization for chronic subdural hematoma (cSDH) has been demonstrated. The initial technique was described using polyvinyl alcohol (PVA) particles, but over time, other embolic agents have been applied. Comparative studies have shown polyvinyl alcohol (PVA) particles are as safe and efficacious as liquid embolisate, though a comparison of particle size has yet to be done. The theory behind particle embolization of the MMA relies on penetration and occlusion of neovascularity in subdural membranes. Particle size may be a factor in the embolization of vascular membranes and subsequent reduction in cSDH size. This study aims to assess the efficacy of 45–150 micron particles as compared to 150–250 micron particles for MMA embolization.

Materials and Methods A retrospective review was conducted at a single academic institution. Patients were included who underwent middle meningeal artery embolization for subdural hematoma from 2020–2022. Medical records were reviewed for patient demographics, medical comorbidities, nature of symptoms, and procedural details. Radiographic data was collected from imaging review for thickness of subdural hematoma in greatest dimension prior to the procedure and at most recent follow-up.

Results A total of 63 patients were identified and 59 were included, 15 were female. Thirty-three patients (55.9%) were treated with 45–150 micron particles and 26 patients (46.1%) were treated with 150–250 micron particles. There was not a significant difference in age between groups (74.2 ± 9.9 years in the 45–150 micron group versus 71.9 ± 7.8 years, p=0.345). The 45–150 micron group has a lesser prevalence of stroke history comparatively (p=0.034), but there were no other statistically significant differences in medical comorbidities between groups. The average SDH thickness between groups was similar (16.8 mm ± 5.3 mm in the 45–150 micron group versus 15.2 mm ± 6.8 mm in the 150–250 micron group, p=0.326). Anticoagulant and antiplatelet use was not statistically significant between groups. There were no significant differences between post-procedural adverse events. In the 45–150 micron group, 3 patients (9.1%) required retreatment (defined as rescue surgery) and 3 patients in the 150–250 micron group required retreatment (p=0.836). In the 45–150 micron group, 16 patients (48.5%) had decrease in SDH size by 50% or greater at last follow up, and 17 patients (65.4%) in the 15–250 micron group had decrease in SDH size at last follow up (p=0.212). On univariate analysis, particle size did not show any statistically significant impact on need for retreatment or subdural thickness reduction.

Discussion This single center retrospective study did not show any difference in outcomes in MMA embolization patients when treated with 45–150 micron PVA particles compared to 150–250 micron PVA particles. Though the cost difference between PVA particles is marginal, larger studies should be undertaken to evaluate particle size and outcomes.

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E-027 INTERVENTIONAL MRI OPPORTUNITIES FOR PATIENTS WITH NEUROSTIMULATORS AND OTHER IMPLANTS AT LOW MAGNETIC FIELD STRENGTHS

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Introduction Interventional MRI (iMRI) is a promising technology with the ability to provide traditional diagnostic imaging and image guidance combined with quantitative physiology and functional imaging before and after therapy. iMRI offers multiple advantages over traditional X-ray imaging modalities that are often used during interventional procedures. Some of these advantages include lack of exposure to ionizing radiation for both the patient and the interventionalist, improved soft tissue contrast and visibility, and quantitative and functional imaging. Despite these technical advantages of iMRI, there are unique safety issues that need to be considered for patients with existing implants and for devices or interventional tools

Abstract E-027 Table 1 RF-induced heating during MRI of a guidewire, neurovascular stent, and neurostimulator lead for MRI systems of various field strengths and corresponding maximum force product

MRI System Field Strength at Isocenter	Maximum Force Product (T^2/m)	Device	Maximum Temperature Rise
0.55 T	0.35	Guidewire	< 1 °C
		Neurovascular stent	1 °C
		Neurostimulator lead	4 °C
1.2 T	47.4	Guidewire	< 6 °C
		Neurovascular stent	1 °C
		Neurostimulator lead	15 °C
1.5 T	2.9	Guidewire	< 6 °C
		Neurovascular stent	5 °C
		Neurostimulator lead	> 60 °C
3 T	13.4	Guidewire	< 6 °C
		Neurovascular stent	4 °C
		Neurostimulator lead	> 60 °C

that may be used during an iMRI procedure. Some examples of potential iMRI procedures include, carotid artery stenting, deployment of neurovascular embolization devices, implanting neurostimulators including deep brain stimulators, and endovascular thrombectomy. The most common MRI safety considerations for implants are magnetically induced force, magnetically induced torque, MR image artifact, and radiofrequency (RF)-induced heating. Interventional devices have similar MRI safety considerations, however visibility or conspicuity of the interventional tools without obscuring the visibility of the surrounding tissue is critical during MR image guidance. For patients with electrically active implants, such as neurostimulators, functionality of the implant must be considered, and RF-induced heating of the metallic leads can be challenging to determine. With regards to RF-induced heating, tangential electric field phase effects cause the temperature rise to be complex since it depends on the path and configuration of the lead.

Methods A hydrophilic coated guidewire used for iMRI procedures, a neurovascular stent, and a neurostimulator lead were evaluated for magnetic force (ASTM F2052–21), torque (ASTM F2213–17), and RF heating (ASTM F2182–19e2 and ISO/TS 10974). A GE Discovery MR750 3T, Siemens Prisma 3T, Siemens Altea 1.5T, Fujifilm Oasis 1.2T, and Siemens Free.Max 0.55T MRI systems were used.

Results A comparison of the maximum force product for each MRI system and the maximum temperature rise of each device is shown in table 1.

Conclusion This study shows that patients with implants can be more safely imaged using low field MRI (LF-MRI) systems. Furthermore, iMRI procedures can take advantage of increased device safety using LF-MRI systems. LF-MRI systems can provide diagnostic image quality while improving MRI safety for patients. LF-MRI systems will provide new opportunities for interventional neurovascular procedures under MRI guidance in addition to providing opportunities to scan patients with implants that may have otherwise been unsafe.

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E-028 COMPARATIVE ANALYSIS OF MECHANICAL THROMBECTOMY OUTCOMES OF MIDDLE CEREBRAL ARTERY M1, M2 SUPERIOR AND M2 INFERIOR OCCLUSION STROKES

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Introduction In about 80% of individuals, the horizontal M1 middle cerebral artery (MCA) bifurcates at the level of the insula into a vertical M2 superior and M2 inferior segment with one of them being dominant. However, the variability of M2 MCA segments with respect to caliber and territory supplied creates a debate on how to classify M2 MCA occlusions. A protocolized approach could harmonize thrombectomy trial inclusion criteria and facilitate understanding of thrombectomy treatment effects in M2 MCA occlusion stroke. Here, we seek to evaluate procedural and outcome parameters among patients who underwent MT for emergent occlusion of the M1, M2 superior or M2 inferior MCA with focus on dominance assessment of the M2 segments.

Materials and Methods Large vessel occlusion strokes undergoing MT between 02/2016–08/2022 were reviewed (n=784). M1 (n=431) and M2 MCA (n=118) occlusions were assessed. Among M2 MCA occlusions, prototypical MCA bifurcation anatomy cases were classified as superior and inferior as well as dominant and non-dominant branches (n=99). Dominance of the M2 segment was allocated to either segment based on temporal lobe supply, proportional contribution to MCA territory perfusion of at least 50%, and proximal M2 segment luminal caliber. Procedural and outcome data was compared between M1, M2 superior, and M2 inferior MCA occlusions.

Results Compared to patients with M1 MCA occlusions (n=431), M2 MCA occlusions (n=99) were older (p=0.024), had lower baseline NIHSS (p=< 0.001), and higher CT-ASPECTS (p=0.021). A stent-retriever was used significantly