non-target embolization and measured the average percent tumor devascularization as 88 ± 7%. No significant differences were noted between Modified Rankin scores pre-embolization and pre-surgery. Tumor resection was successful and considered complete (Simpson Grade 1 or 2) with minimal estimated blood loss for all subjects. All subjects successfully met both the primary feasibility and safety endpoints.

Conclusion Our first-in-human clinical experience has demonstrated the potential of NeoCast, a next-generation embolic material, to provide safe and effective embolization where deep distal penetration is desired.

Disclosure of Interest no.

3.5. Miscellaneous

014 ONE-YEAR SAFETY OF TREATING COMMUNICATING HYDROCEPHALUS WITH THE ESHUNT® IMPLANT

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Introduction The eShunt Implant is a novel, endovascular cerebrospinal fluid (CSF) shunt developed to treat communicating hydrocephalus. The transdural Implant's self-expanding anchor resides within the cerebellopontine angle subarachnoid cistern and tubular body resides within the inferior petrosal dural venous sinus, draining CSF into the internal jugular vein. A differential pressure valve allows 10 cc/hr CSF outflow at physiologic pressures and prevents backflow during transient retrograde pressure spikes.

Aim of Study We present safety results through one-year in the first series of treated patients.

Methods Patients across three different hydrocephalus etiologies were implanted: normal pressure hydrocephalus (NPH), intractable hydrocephalus post-aneurysmal subarachnoid hemorrhage (paSAH), and idiopathic intracranial hypertension (IIH). Radiologic evaluation by MR or CT and modified Rankin Scale (mRS) scoring occurred at one-year and was compared to baseline.

Results Fourteen treated patients completed one-year follow-up: nine NPH (4 female; mean 75.7+/-7.3 years), four paSAH (3 female; mean 57.5+/-16.5 years), and one IIH (1 male, 50 years). No observations of radiologic or symptomatic overdrainage occurred. No instances of procedural or delayed subarachnoid, intraparenchymal or subdural hemorrhage occurred. Cross-sectional imaging immediately post-operatively compared to one-year confirmed Implant stability without antegrade or retrograde migration. mRS scores were either stable or improved compared to baseline.

Conclusion The eShunt Implant was designed as a permanent implant to drain CSF into the venous system. These preliminary results indicate a potentially acceptable long-term safety profile for treating communicating hydrocephalus. A planned clinical trial will provide a comprehensive safety assessment in a large population of patients.

Disclosure of Interest yes BB, CH, AM- CereVasc shareholders.

3.1. Innovation

015 ASSESSMENT OF DISTAL PENETRATION, RADIOPACITY, AND BIOLOGICAL SAFETY RESPONSE OF NEOCAST(TM), A UNIQUE SOLVENT-FREE, NON-ADHESIVE EMBOLIC MATERIAL

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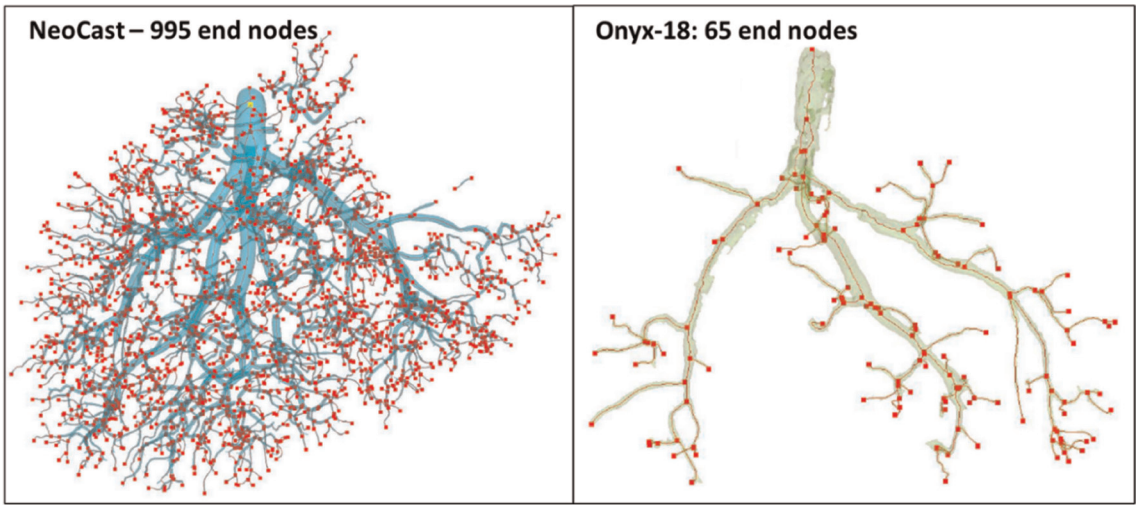
Introduction NeoCast™ is a solvent-free, shear-responsive, *in-situ* curing biomaterial designed for embolization applications where complete casting and occlusion of micron-sized vessel branches is desired.

Aim of Study Assess the preclinical performance of NeoCast with respect to distal penetration, radiopacity, and biological (vascular and brain tissue) safety response.

Methods NeoCast embolization and safety performance was evaluated in a swine kidney model at 7, 30, and 90 days



Abstract O15 Figure 1

(n=8 injections/timepoint). Onyx-18® (Medtronic) and polyvinyl alcohol particles (PVA, Cook 90-180 micron) were used as controls (n=6 injections/timepoint). Distal penetration and radiopacity were assessed via micro-computed tomography imaging of explanted kidneys. Histopathology consisted of assessing fibrosis, necrosis, and inflammatory local vascular responses. Neurotoxicity was assessed at 7 (n=4) and 90 (n=8) days by injecting NeoCast directly into rabbit brain parenchyma allowing *in-situ* cure. High density polyethylene rods were used as negative controls. Neuropathological evaluation consisted of characterizing inflammatory response and necrosis.

Results NeoCast occluded ~5.2x more vessel branches compared to Onyx-18 (p=0.006). Histologically, NeoCast was present more frequently in smaller arteries (<200µm) compared to PVA (64% vs 15%, p<0.001). Radiographically, NeoCast embolic casts exhibited a homogeneous appearance with minimal artifact. NeoCast local vascular response was similar to Onyx-18 and PVA: inflammation was mild and stable throughout 90 days, indicative of a non-degrading, bioinert material. NeoCast elicited a benign neurotoxic response with minimal inflammation and no necrosis.

Conclusion NeoCast exhibits superior distal penetration and radiopacity compared to commercially available embolics and elicits safe vascular and brain tissue responses in animal models. Future studies evaluating NeoCast in human subjects are warranted.

Disclosure of Interest no.

Case Reports

Brain AVM/AVF, spinal vascular malformations

016 DE-NOVO HIGH-GRADE DAVFS FOLLOWING POSTERIOR FOSSA SURGERY: REPORT OF TWO CASES

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Introduction The etiology of dural arteriovenous fistulas (DAVFs) is largely attributed to the neovascularization of thrombus in sinus venous thrombosis (SVT). Surgery in the posterior fossa is associated with sigmoid sinus occlusion in 4-11% of cases. We present two cases of aggressive, high-grade DAVFs that developed after tumor surgery in the posterior fossa.

Case Description A 47-year-old male presented with a right vestibular schwannoma that was removed using a trans-labyrinthine approach. The patient's one-year FU MRI showed dilated cortical veins; a DSA demonstrated a DAVF. A 60-year-old female underwent a sub-occipital retrosigmoid approach for removal of a right petroclival meningioma. The patient presented four years later with headaches and balance problems; her MRI suggested a vascular malformation in the operated region which DSA confirmed.

Both patients had high-flow AV shunting involving the sigmoid and transverse sinuses (SS, TS) with severe stenosis of the distal SS in one and occlusion of the SS in the other patient, and reflux into cortical and deep veins. The fistulous connections were approached by a transvenous cross-over technique allowing for staged coil occlusion. Complete occlusion of AV shunting was achieved without complications.

Results Posterior fossa surgery is associated with SVT leading to secondary complications such as DAVFs. Although rare and clinically obscure in some patients with concomitant hearing loss, these fistulas are typically of a high-grade and aggressive nature, and therefore should be diagnosed and treated as early as possible. Routine late imaging FU in patients who underwent posterior fossa surgery should be considered.

Disclosure of Interest no.

Other

3.1. Innovation

017 GEOGRAPHY OF PERIDURAL SPACE: A MAP FOR NAVIGATORS

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Introduction Anesthesiologists navigate the epidural space up to the upper dorsal location in a blind and uncontrolled fashion, to deliver drugs. The combination of anesthesiologist and angiographic technologies allows selectively reaching any location, from sacral to cervical, anterior to posterior, left to right. This may be useful for diagnostic and therapeutic purposes.

Aim of Study To show how epidural navigation works; to depict difficulties, tips and tricks, and materials used, with some examples of diagnostic and therapeutic possibilities.

Methods Based on the Interventional Neuroradiology group experience in Turin, Italy, during the last two years, 32 epidural catheterisms.

Results Epidural structures are not visible; contrast injection gives little information. Navigation is mainly based on the analysis of the behavior of the materials, and on the feedback of the patient. Main obstacles for navigation were the venous Batson plexus, prone to rupture, and nerve roots, causing physical obstacles and pain; further difficulties were frequently encountered in the cervico-dorsal junction. Moreover, for unknown reasons, large inter-individual differences were found.

Conclusion Epidural navigation was feasible in the vast majority of patients. Some embolics were deliverable (blood, coils, acrylic, and sometimes fibrin glue), with variable efficiency, but without a single clinical complication. Understanding was the key.