

(n=8 injections/timepoint). Onyx-18<sup>®</sup> (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.