Cavernous Sinus Dural Arterial Venous Fistula – Facial Transvenous Approach

**PATIENT PRESENTATION**

- A 54-year-old female with a history of originally right eye chemosis and proptosis with diplopia who then developed left eye chemosis and proptosis. She still has diplopia as well as some mild decreased visual acuity. On exam there is a left nerve VI palsy. Diagnosis of left cavernous sinus dural arteriovenous fistula was made on clinical and imaging evaluation.

**TREATMENT PLANNING**

- As the symptoms were significant and worsening, treatment was indicated. This worsening is often precipitated by clotting of the outlet veins (the superior ophthalmic vein (SOV) in her case).

- The clotting does make it harder to get to the site of the fistula in the cavernous sinus. However with a small but patent outlet to the facial vein, it was elected to approach from this difficult route.

*Figure 1A: Ap right carotid showing filling from right to left cavernous sinus (arrow) and superior ophthalmic vein (SOV) on left (large arrow).*

*Figure 1B: lateral view with arrow showing cavernous sinus (site of fistula), and large arrow showing superior ophthalmic vein.*

*Figure 2: catheterization from femoral vein to jugular to facial vein to angular vein of face for access to SOV. Arrow shows microcatheter tip. Small arrows outline medial orbit.*
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**Acute Ischemic Stroke**
Acute Thrombectomy/Thrombolysis
Extra/Intracranial Angioplasty/Stenting

**Brain Hemorrhage, Aneurysm/AVM/fistulae**
Aneurysm coiling
Stent/balloon assisted aneurysm coiling
Flow diverter stent device embolization
AVM/Dural fistulae embolization
Venous Sinus Thrombectomy/Thrombolysis
Direct transcutaneous embolization

**Chronic Occlusive Cerebrovascular Disease**
Extra/Intracranial Angioplasty/Stenting
Venous Sinus Angioplasty/Stenting

**Head/neck/orbit tumors & vascular malformations, epistaxis**
Endovascular embolization
Direct percutaneous embolization

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**PATIENT OUTCOME**

- The patient recovered completely with total elimination of the chemosis and recovery of the IV Nerve and elimination of double vision. With a combination of internal and external (manual manipulation) of the microcatheter, we were able to successfully guide the system to the target and treat successfully.