

Bilateral carotid cavernous sinus fistula

Carotid cavernous fistulas (CCF) are anatomically complex vascular lesions. Treatment via the venous approach has been previously described and is highly dependent on the patency of the drainage pathways. The use of a unilateral approach to contralateral or bilateral shunts is technically challenging and not commonly described. Nossek et al. presented the **experience** with the unilateral across-the-midline approach to both cavernous sinuses to treat shunts according to anatomical compartments to achieve anatomical cure.

Patients included in this study presented with either bilateral or unilateral shunts with unilateral venous drainage. We used a trans-arterial guiding catheter for road mapping and control angiography. A venous tri-axial system was used to achieve support for distal navigation across the midline via the coronary sinus to the contralateral cavernous sinus. Coils were favored for embolization with occasional complementary liquid embolic material.

Five patients underwent complete occlusion in a single session. One patient required additional complimentary trans-arterial embolization. Despite a successful unilateral approach to bilateral cavernous sinuses, one patient needed an additional ipsilateral trans-ophthalmic vein approach to obliterate the anterior compartment of the cavernous sinus. No complications were encountered. Complete angiographic cure was observed in all patients by the end of the final procedures, with persistent occlusion in their follow up imaging.

Careful inspection of the venous anatomy and fistulization sites is critical when treating unilateral or bilateral Carotid Cavernous shunts. The contralateral venous route can serve as a safe approach when visualized. Crossing the midline via the anterior or posterior coronary sinuses is feasible and efficacious ¹⁾.

¹⁾

Nossek E, Lombardo K, Schneider JR, Kwan K, Chalif DJ, Setton A. Unilateral Venous Approach to Contralateral or Bilateral Carotid Cavernous Shunts. World Neurosurg. 2019 Sep 18. pii: S1878-8750(19)32484-2. doi: 10.1016/j.wneu.2019.09.054. [Epub ahead of print] PubMed PMID: 31541756.

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