Taming the cavernous sinus: technique of hemostasis using fibrin glue.

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Abstract:

OBJECTIVE: Improved understanding of the microsurgical anatomy of the cranial base region has made surgery in and through the cavernous sinus safer. However, continuous venous oozing that occurs during cavernous sinus surgery can cause significant blood loss and poor visualization. We describe a technique that will help minimize cavernous sinus bleeding and improve the safety of the surgical steps.

METHODS: The lateral wall of the cavernous sinus is exposed. Cavernous sinus access windows between the V1 and V2 branches of the trigeminal nerve and posterior to the clinoidal internal carotid artery are used to inject fibrin glue into the different cavernous sinus compartments. Postoperative follow-up cerebral angiography in basilar apex aneurysms clipped using the transcavernous approach were evaluated for cavernous sinus patency during the venous phase.

RESULTS: Fibrin glue injection between V1 and V2 obliterated the lateral cavernous sinus compartment. Fibrin glue injection posterior to the clinoidal segment of the internal carotid artery obliterated the medial compartment of the cavernous sinus. These steps were used in 217 surgical procedures (95 benign and 9 malignant neoplastic lesions; 113 aneurysms). There were no significant clinical side effects. Follow-up angiographic controls of basilar aneurysms operated on via the transcavernous approach consistently showed the reestablishment of flow within the cavernous sinus as early as 2 to 3 months postoperatively.

CONCLUSION: Presently, the use of hemostatic agents and the better understanding of the microsurgical anatomy of the cranial base and cavernous sinus enable us to tame the cavernous sinus and operate in and around it with a high degree of safety.