

## Dural arteriovenous fistula supplied by the artery of Davidoff and Schechter

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Dural arteriovenous fistulae are common intracranial vascular anomalies. They are usually supplied by meningeal branches of the internal or external carotid arteries. When they occur in the posterior fossa, they are usually supplied by the posterior meningeal branches of the vertebral artery, in addition to the external carotid artery. In this case report we highlight a rare meningeal contribution to the dural arteriovenous fistula (DAVF) from the posterior cerebral artery.

### Introduction

Dural arteriovenous fistulae are abnormal arteriovenous shunts in the walls of the dural sinuses. The arterial supply is usually from the adjacent meningeal branches, and venous drainage can be highly variable. The gold-standard investigation for DAVF evaluation is a catheter-based angiogram. The angiogram provides basic information regarding the arterial supply, angioarchitecture of the fistula, and venous drainage. It is also helpful in studying the hemodynamic nature of the DAVF. Most importantly, however, it identifies features associated with aggressive neurological symptoms and/or risk of hemorrhage. This case report highlights a rarely seen meningeal branch of the posterior cerebral artery known as the artery of Davidoff and Schechter (ADS).

### Case report

A 40-year-old female presented with complaints of pressure sensation in the occipital region for the past six months. She was evaluated with an MRI/A, which revealed flow voids along the posterior pericallosal and quad-

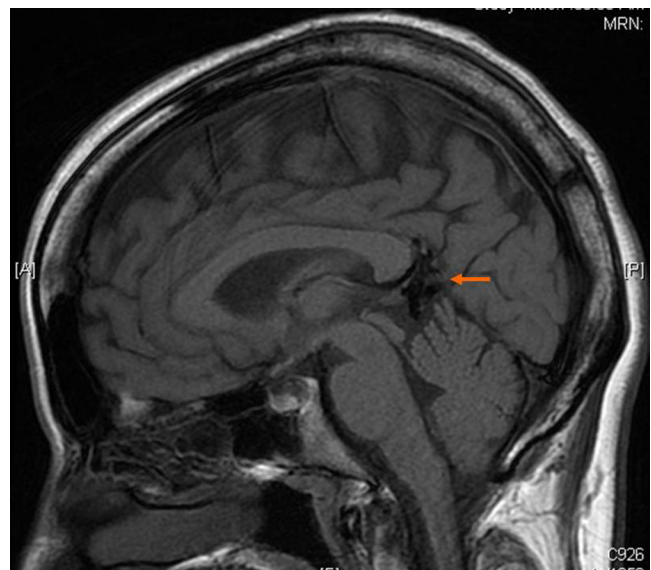


Figure 1. 40-year-old female with dural arteriovenous fistula. Sagittal T1-weighted image demonstrates flow voids (arrow) of the DAVF posterior to the splenium of the corpus callosum.

rigeminal plate cisterns (Figs. 1 and 2). No evidence of hemorrhage or FLAIR abnormality was noted. The patient thereafter underwent catheter-based angiography to further study the angioarchitecture of the DAVF. Angiography revealed a DAVF in the splenic region fed by the right meningohypophyseal artery, left occipital artery, artery of falx cerebelli, and arteries of Davidoff and Schechter on both sides (Figs. 3A and 3B). The venous drainage was into the Galenic system.

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Figure 2. 40-year-old female with dural arteriovenous fistula. TOF-MRA axial view again demonstrates the arterial supply and the venous drainage via the Galenic system and eventually into the right transverse sinus.

The angiogram revealed no dangerous feature like venous ectasia, intracranial pial reflux, or venous stenosis (1). Cognard classification of venous drainage pattern was used to determine the risk from the fistula and to establish a treatment regimen (2). The patient was not treated at that time. Usually, DAVFs can be treated with endovascular means, surgery, radiosurgery, or a combination of the above.

### Discussion

Wollschlaegler and Wollschlaegler were the first to describe this artery in 1965 in cadaver dissection (3). They gave this artery its current name to honor their mentors. This artery is a meningeal branch of the posterior cerebral artery, usually arising from the peduncular or ambient segment of the posterior cerebral artery. This artery supplies the medial aspect of the tentorium and the posterior portion of the falx. This artery is so small that it is rarely seen on angiography. It is seen in cases in which it becomes enlarged, such as when it supplies a posterior fossa DAVF, vascular mass in the posterior part of the septum pellucidum, meningioma of the tentorial incisural region, or cerebellar hemangioblastoma (4). The artery of Davidoff and Schechter extends posteriorly after its origin from the PCA to the falcotentorial angle. The anterior meningeal branch pierces the tentorium and extends along the falx cerebri in an anterior and superior direction. The posterior division arises with the anterior meningeal division and

extends superiorly, forming a 45-degree angle with the anterior meningeal division (5).



Figure 3A. 40-year-old female with dural arteriovenous fistula. Frontal view of the right vertebral angiogram demonstrating the artery of Davidoff and Schechter (ADS) supplying the dural AVF (arrows).

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Figure 3B. 40-year-old female with dural arteriovenous fistula. Lateral view of the right vertebral angiogram demonstrating the artery of Davidoff and Schechter (ADS) supplying the dural AVF (arrows).

### References

1. Brown, R.D., Jr., D.O. Wiebers, and D.A. Nichols, Intracranial dural arteriovenous fistulae: angiographic predictors of intracranial hemorrhage and clinical outcome in nonsurgical patients. *J Neurosurg*, 1994. 81(4): pp. 531-538. [[PubMed](#)]
2. Cognard, C., et al., Cerebral dural arteriovenous fistulas: clinical and angiographic correlation with a revised classification of venous drainage. *Radiology*, 1995. 194(3): pp. 671-680. [[PubMed](#)]
3. Wollschläger PB, Wollschläger G: Eine infratentorielle, meningeale arterie. *Radiologe* 5:451-452, 1965.
4. Uchino, A. and M. Ohno, Cerebellar hemangioblastoma supplied by the artery of Davidoff and Schechter: a case report. *Nippon Igaku Hoshasen Gakkai Zasshi*, 1986. 46(10): pp. 1194-1197. [[PubMed](#)]
5. Weinstein, M.A., P.M. Duchesneau, and D.F. Dohn, Angiographic identification of the meningeal branch of the posterior cerebral artery. *AJR Am J Roentgenol*, 1977. 128(2): pp. 326-327. [[PubMed](#)]