Dural Arteriovenous Fistula Involving the Posterior Condylar Canal

H. Kiyosue, M. Okahara, Y. Sagara, S. Tanoue, S. Ueda, C. Mimata and H. Mori

*AJNR Am J Neuroradiol* 2007, 28 (8) 1599-1601
doi: https://doi.org/10.3174/ajnr.A0606
http://www.ajnr.org/content/28/8/1599
CASE REPORT

H. Kiyosue
M. Okahara
Y. Sagara
S. Tanoue
S. Ueda
C. Mimata
H. Mori

Dural Arteriovenous Fistula Involving the Posterior Condylar Canal

SUMMARY: Although dural arteriovenous fistulas (DAVFs) occur in any structure that is covered by the dura mater, DAVFs at the posterior condylar canal have not been reported. We present a DAVF that involves the posterior condylar canal and drains into the posterior condylar vein and the occipital sinus, which was treated by selective transvenous embolization. Knowledge of venous anatomy of the craniofacial junction and careful assessment of the location of the arteriovenous fistula can contribute to successful treatment.

The posterior condylar canal is one of the important canals that communicate between the intracranial and extracranial space. Intracranial dural arteriovenous fistulas (DAVFs) can involve any structure that is covered by dural or meningeal matter. However, to the best of our knowledge, no case of DAVF involving the posterior condylar canal has been reported. We present the case of a patient with a DAVF that involves the posterior condylar canal. We also discuss the venous structures related to the posterior condylar canal.

Case Report

A 54-year-old man presented with a pulse-synchronous bruit for 3 months. He had no history of head trauma or cerebrovascular disease. Neurologic examinations showed no abnormal findings except for the bruit around the left ear. MR angiography showed an abnormal signal intensity, which suggested a DAVF locating inferiorly to the sigmoid sinus and draining into the posterior condylar vein and the occipital sinus. An angiogram of the left external carotid artery showed that the arteriovenous fistula (AVF) was fed by the left ascending pharyngeal artery and the left external carotid artery, and it drained through the posterior condylar vein into the sigmoid sinus and the paravertebral vein and into the occipital sinus (Fig 1A, B). The AVF was also supplied by the dorsal clival artery of the left internal carotid artery and the left occipital artery, and it drained through the posterior condylar vein into the sigmoid sinus and the paravertebral vein and into the occipital sinus (Fig 1A, B). The AVF was also supplied by the dorsal clival artery of the left internal carotid artery and the left occipital artery, and it drained through the posterior condylar vein into the sigmoid sinus and the paravertebral vein and into the occipital sinus (Fig 1A, B).

Transvenous embolization was performed with the right femoral venous approach. A 5F/7F coaxial guiding catheter was advanced into the left jugular vein, and a microcatheter (Excelsior; Boston Scientific, Tokyo, Japan) was advanced through the guiding catheter. The microcatheter was introduced via the sigmoid sinus and the posterior condylar vein into the fistulous pouch, and then 3 detachable coils were placed in the pouch. Immediately after the procedure, angiography showed complete occlusion of the AVF. CT after embolization showed coils at the left posterior condylar canal (Fig 3). The symptoms resolved, and no complications were observed during and after the procedure. A follow-up MR angiogram 3 months after embolization showed no recurrent AVF, and no symptoms recurred 14 months after the procedure.

Discussion

The posterior condylar canal contains the posterior condylar vein and meningeal branches of the occipital artery. The posterior condylar vein originates from the occipital artery at the level of the jugular foramen and courses posteriorly and laterally to the sigmoid sinus, becoming one of the most medial portions of the jugular vein. The posterior condylar vein originates from the jugular bulb and courses posteriorly and laterally to the sigmoid sinus, becoming one of the most medial portions of the jugular vein. The posterior condylar vein is located at the level of the jugular foramen, and it is one of the most medial portions of the jugular vein. The posterior condylar canal contains the posterior condylar vein and meningeal branches of the occipital artery. The posterior condylar vein originates from the occipital artery at the level of the jugular foramen and courses posteriorly and laterally to the sigmoid sinus, becoming one of the most medial portions of the jugular vein. The posterior condylar vein originates from the jugular bulb and courses posteriorly and laterally to the sigmoid sinus, becoming one of the most medial portions of the jugular vein.

Although a few authors reported DAVFs that involve the posterior condylar canal, 4, 5 DAVFs of the posterior condylar vein have not been reported. All published cases of DAVFs of the posterior condylar canal could be treated successfully with transvenous embolization of the fistulous venous pouch. Treatment strategy for DAVF at the posterior condylar and anterior condylar veins could be similar. Ernst et al10 mentioned that source images of MR angiography were useful for description of the fistulous pouch. In the presented case, source images of MR angiography were useful, but axial reconstructed images of rotational angiography could demonstrate more clearly the relationship be-
Fig 1. Frontal (A) and lateral (B) views of an angiogram of the left external carotid artery show the AVF (white arrow) being fed by the left ascending pharyngeal artery and the left occipital artery, draining through the posterior condylar vein (black arrows) into the posterior cervical vein and sigmoid sinus and into the occipital sinus (arrowheads). Frontal (C) and lateral (D) views of an angiogram of the left vertebral artery show the AVF (white arrow) being fed by the left anterior meningeal artery. Black arrows indicate the posterior condylar vein, and arrowheads indicate the occipital sinus. Angiogram of the right vertebral artery (E) demonstrates the shunted venous pouch (white arrow) being fed by the right anterior meningeal artery. Angiogram of the left internal carotid artery (F) shows the AVF being fed by the dorsal clival artery.

Fig 2. Axial reconstructed images of rotational angiogram of the left external carotid artery show the fistulous pouch (white arrow) draining through the posterior condylar vein (PCV) into the posterior cervical vein inferiorly and the occipital sinus (OS) posterosuperiorly. The occipital sinus and the posterior condylar vein form a common trunk (arrowheads) that joins into the sigmoid sinus (SS).
between the fistulous pouch and the drainage veins and was useful for determination of the easiest route of transvenous access into the fistulous pouch. Knowledge of venous anatomy of the craniocervical junction and probing evaluation of the location and drainage veins of the DAVF can contribute to successful endovascular treatment of this AVF at the craniocervical junction.

References


Fig 3. CT after embolization shows coils at the left posterior condylar canal.