

Anterior condylar vein

The venous outlet of anterior [condylar arteriovenous fistulas](#) (AC-AVFs) often empties into the [anterior condylar vein](#) (ACV). [Hypoglossal nerve palsy](#) is one of the major complications after [transvenous embolization](#) (TVE) for the AC-AVF within the [hypoglossal canal](#). However, no studies have investigated the route of the [hypoglossal nerve](#) within the hypoglossal canal in AC-AVF.

The aim of a study of Oishi et al. from the Department of Neurosurgery, Department of Anatomy, Keio University School of Medicine, Shinjuku, [Tokyo](#), Japan, was to retrospectively verify the anatomical route of the hypoglossal nerve within its canal using dynamic [computed tomography angiography](#) (CTA) in order to facilitate the safe TVE for AC-AVF.

They included five patients with AC-AVF from 2011 to 2017. Dynamic [CTA](#) was performed on all patients. When the [ACV](#) was well-visualized by dynamic CTA, the [hypoglossal nerve](#) could be recognized as a less-intense structure within the surrounding enhanced vasculatures and the nerve route within the canal was analyzed. They also analyzed the location of the fistulas by digital subtraction angiography and cone-beam computed tomography.

In all five patients, the filling defect of the hypoglossal nerve ran through the most caudal portion of the hypoglossal canal. The fistulous pouches were located in the hypoglossal canal in three cases, and in the jugular tubercle venous complex in two cases. In all three cases with AC-AVF in the hypoglossal canal, the fistulous pouches were located in the superior wall of the hypoglossal canal, which means superior to the ACV. We performed TVE in four patients and none developed post-therapeutic hypoglossal nerve palsy.

In the current study, dynamic CTA is useful for detecting the hypoglossal nerve within the hypoglossal canal. The hypoglossal nerve usually ran the bottom of its canal and the fistulous pouches were usually located at the superior aspect of the canal opposite side to the hypoglossal nerve. Accordingly, the selective embolization within the fistulous pouch located in the superior aspect of the ACV including jugular tubercle venous complex can reduce the risk of hypoglossal nerve palsy ¹⁾.

¹⁾

Oishi Y, Akiyama T, Mizutani K, Horiguchi T, Imanishi N, Yoshida K. An analysis of the anatomic route of the hypoglossal nerve within the hypoglossal canal using dynamic computed tomography angiography in patients with anterior condylar arteriovenous fistulas. Clin Neurol Neurosurg. 2018 Sep 24;174:207-213. doi: 10.1016/j.clineuro.2018.09.033. [Epub ahead of print] PubMed PMID: 30278296.

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