



# Accessory posterior cerebral artery (PCA): a rare variant of PCA

Youngchan Jung, MD<sup>1</sup>; Sang Won Han, MD<sup>1</sup>; Hyun-jeung Yu, MD, PhD<sup>2</sup>

<sup>1</sup>Department of Neurology, Sanggye Paik Hospital, Inje University College of Medicine, Seoul, Korea

<sup>2</sup>Department of Neurology, Bundang Jesaeng General Hospital, Seongnam, Korea

IMAGES IN  
NEUROCRITICAL CARE

Received: January 16, 2024

Accepted: February 01, 2024

Corresponding Author:

Hyun-jeung Yu, MD, PhD

Department of Neurology, Bundang

Jesaeng General Hospital, 20

Seohyeon-ro 180beon-gil, Bundang-

gu, Seongnam13590, Korea

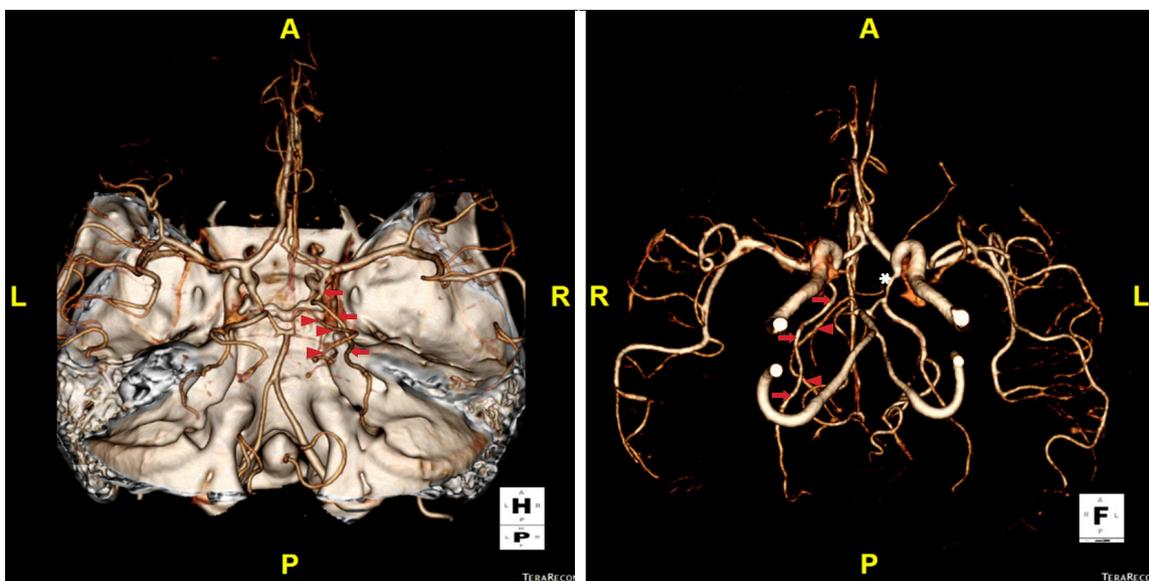
Tel: +82-31-779-0216;

Fax: +82-31-779-0897;

E-mail: yhj314@dmc.or.kr

In addition to hypoplasia or aplasia of the P1 segment of the posterior cerebral artery (PCA), rare variations of PCA include fenestration, early bifurcation, duplication of PCA, and hyperplastic anterior choroidal artery (AChA). One study found the prevalence

of PCA fenestration, early bifurcation, duplication, and hyperplastic AChA to be 0.34%, 0.34%, 0.05%, and 0.55%, respectively [1]. Hyperplastic AChA, accessory PCA, and replaced PCA refer to the same variation, which depends on the part of the PCA territo-



**Fig. 1.** Three-dimensional volume rendering view of the circle of Willis obtained using computed tomography angiography (CTA). Brain CTA showing the presence of the right posterior cerebral artery (arrowheads) and hyperplastic right anterior choroidal artery (AChA; arrows). The right AchA supplies the areas of the parieto-occipital and calcarine branches. Unlike the left side (asterisk), there was no posterior communicating artery at the right.

ry that they supply [1-3]. Accessory PCA describes hyperplastic AchA that supplies a part of the PCA territory, and replaced PCA refers to hyperplastic AchA that supplies to all branches [1].

The three-dimensional study of the circle of Willis in 28-year-old woman with migraine revealed that both PCAs and superior cerebellar arteries originated normally from the basilar artery (Fig. 1). The right AchA was hyperplastic and covered areas of the parieto-occipital and calcarine branches. The left AchA was not visualized. In contrast to left side, there was no right posterior communicating artery. Our patient had an accessory PCA that supplied a portion of the PCA territory. It is essential to understand the anatomic variants of cerebral arteries when planning surgical or endovascular treatment.

## ARTICLE INFORMATION

### Ethics statement

This study was approved by the Clinical Trial Review Committee of Sanggye Paik Hospital (No. SGPAIK 2023-03-011), and written informed consent was obtained from the patient.

### Conflict of interest

No potential conflict of interest relevant to this article.

### ORCID

Youngchan Jung <https://orcid.org/0009-0004-8243-6971>  
Sang Won Han <https://orcid.org/0000-0002-9503-1883>  
Hyun-jeung Yu <https://orcid.org/0000-0002-9081-4846>

### Author contributions

Conceptualization: all authors. Data curation: all authors. Supervision: HJY. Validation: SWH, HJY. Visualization: JY. Writing—original draft: JY, SWH; Writing—review & editing: all authors.

## REFERENCES

1. Uchino A, Saito N, Takahashi M, Okano N, Tanisaka M. Variations of the posterior cerebral artery diagnosed by MR angiography at 3 tesla. *Neuroradiology* 2016;58:141-6.
2. Takahashi S, Suga T, Kawata Y, Sakamoto K. Anterior choroidal artery: angiographic analysis of variations and anomalies. *AJNR Am J Neuroradiol* 1990;11:719-29.
3. Rusu MC, Vrapciu AD, Lazăr M. A rare variant of accessory posterior cerebral artery. *Surg Radiol Anat* 2023;45:523-6.