

## Acute infarction in the Artery of Percheron: Case Series

Aditi Agrawal<sup>1</sup>, Pritam Gurung<sup>1</sup>, Bishal Shrestha<sup>1</sup>, Saurav Jha<sup>1</sup>, Roshan Kumar Bhatt<sup>1</sup>, Basant Pant<sup>1</sup>

<sup>1</sup>Department of Neurosurgery, Annapurna Neurological Institute and Allied Sciences, Maitighar, Kathmandu, Nepal

### CORRESPONDENCE

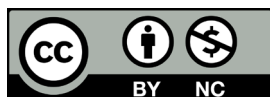
Pritam Gurung  
Department of Neurosurgery,  
Annapurna neurological Institute & Allied  
Sciences, Maitighar, Kathmandu, Nepal  
E-mail: pritamgrg@gmail.com  
ORCID ID: <https://orcid.org/0000-0003-2571-7270>

### ARTICLE INFO

Article History  
Submitted: 2nd July 2025  
Accepted: 20th September 2025  
Published: 08 February 2026

Source of support: None  
Conflict of Interest: None

**Copyright :** ©The Author(S) 2026  
This is an open access article under  
the Creative Common Attribution



### INTRODUCTION

The artery of Percheron (AOP) is a rare anatomical variant in which a single perforating artery arises from the proximal posterior cerebral artery to supply the bilateral paramedian thalami and occasionally the rostral midbrain.<sup>1</sup> Occlusion of this artery results in a distinctive pattern of bilateral thalamic infarction. Although the exact prevalence of this vascular variant remains uncertain, AOP infarction accounts for approximately 0.1–0.3% of all ischemic strokes. Patients typically present with a classical triad of altered mental status, vertical gaze palsy, and memory impairment, although clinical manifestations may vary widely. Due to its rarity and variable presentation, diagnosis is often delayed.<sup>2</sup> Here, we report a case of artery of Percheron infarction and discuss the clinical and radiological findings with a brief review of the literature.

### CASE REPORT

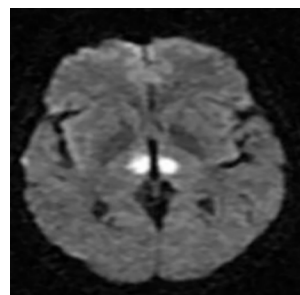
Case 1 : A 65-year-old woman presented to the hospital with headache and altered sensorium for 5 days.

### ABSTRACT

Artery of Percheron (AOP) infarction is a rare subtype of ischemic stroke resulting from occlusion of a single arterial trunk supplying the bilateral paramedian thalami and rostral midbrain. Because of its variable and often nonspecific clinical presentation, early diagnosis can be challenging. We report two cases of artery of Percheron infarction. The first case involved a 65-year-old woman who presented with headache and altered sensorium for five days. Neurological examination revealed ataxic gait, dysdiadochokinesia, and vertical gaze palsy. Magnetic resonance imaging (MRI) demonstrated acute infarcts in the bilateral thalami and midbrain consistent with AOP infarction. The second case involved an 80-year-old hypertensive man who presented with acute left-sided weakness. Neurological examination revealed mild hemiparesis. MRI brain showed artery of Percheron infarction with hemorrhagic transformation. The patient was managed conservatively and showed good clinical recovery at discharge. Increased awareness of this rare vascular variant can help avoid diagnostic delay and improve patient outcomes.

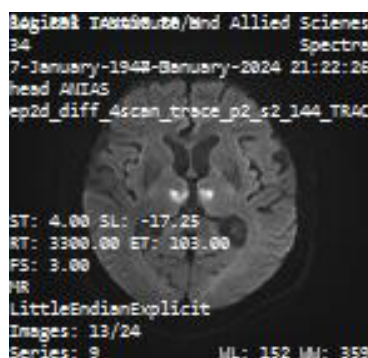
**Keywords:** Artery of Percheron; Infarction; Stroke

There was no remarkable medical or familial history. Surgical history of right eye cataract 10 years back and laproscopic cholecystectomy done 5 years back. On arrival her consciousness was alert without any focal neurological deficits, GCS E4V4M6 and NIHSS 5. Neurological examination revealed an ataxic gait, dysdiadochokinesia and upward gaze palsy. Magnetic Resonance Imaging (MRI) demonstrated evidence of acute infarcts in the bilateral thalami and midbrain. Findings were consistent with an acute artery of Percheron ischaemic infarct. She was discharged on 6th day of admission with mRS score of 1.



**Fig 1 : Acute Infarct in Bilateral Thalami & Mibrain**

Case 2 : A 80-year-old man presented to emergency department with weakness of the left half of body since morning. He was a known case of hypertension under medication. On arrival his consciousness was alert, GCS E4V5M6 and NIHSS 6. Neurological examination showed power of 4/5 on the left side. Magnetic Resonance Imaging (MRI) demonstrated artery of Percheron infarction with hemorrhagic changes. He was managed with triple H therapy. He was discharged on 5th day of admission with mRS score of 1.



**Fig 2 : MRI showing artery of Percheron Infraction with hemorrhagic changes**

## DISCUSSION

The artery of Percheron is a rare anatomical variant. It was first described in 1973 in which a single dominant vessel arising from the P1 segment of either posterior cerebral artery (PCA) supplies to bilateral thalamus.<sup>1</sup> The vascular territory of thalamus has been described by Percheron which is divided into four types. These are the tuberothalamic, inferolateral, paramedian, and posterior choroidal vessels. Lazzaro et al. identified 4 distinct patterns of AOP infarction: bilateral paramedian thalamic with rostral midbrain (43%), bilateral paramedian thalamic without midbrain (38%), bilateral paramedian and anterior thalamic with midbrain (14%), and bilateral paramedian and anterior thalamic without midbrain (5%). Initial CT scan may be normal. Indeed, MRI DWI and FLAIR is helpful in diagnosing acute infarction of artery of Percheron. In addition to that MRA will give clear pattern of bilateral supply to thalamus. Lazzaro et al. noticed distinctive imaging finding of a V-shaped hyperintense signal intensity on axial FLAIR and DWI images along the pial surface of midbrain in the interpeduncular fossa. A classical triad of vertical gaze palsy, memory impairment and alteration of mental status has been explained<sup>3</sup>; however presentation may vary. Kumral et al. reported 0.1-2% of all ischemic strokes involve the artery of Percheron in their studies.<sup>4</sup> Lazzaro et al. found the variable involvement of the rostral midbrain manifesting as hemiplegia, ataxia and movement disorders.<sup>5</sup>

Thrombolysis and heparin have been used for AOP occlusion in window period of 4.5 hr.<sup>6-8</sup> The first known case of treated AOP occlusion was treated with tissue plasminogen activator thrombolysis delivered via catheterization, recovered fully with residual absence of upgaze and downgaze, and skew deviation.<sup>6</sup> Li et al. made an algorithm for the treatment of AOP occlusions.<sup>8</sup> Emergent cases of AOP stroke should initially be treated with intravenous (IV) heparin and tPA if not contraindicated followed by subsequent long-term anticoagulation. Nonemergent cases not involving the midbrain may be treated by rehabilitation and unspecified oral anticoagulation, which is administered mainly to prevent future obstructions. Those involving the midbrain are treated with IV heparin. The role of mechanical thrombectomy in cases of acute artery of Percheron infarcts has yet to be documented.<sup>9</sup>

## CONCLUSION

The rarity and diverse neurological presentations of artery of Percheron infarcts make diagnosis challenging. Careful clinical history-taking and thorough neurological examination are crucial in guiding accurate imaging interpretation. Heightened awareness among clinicians and radiologists of the full spectrum of associated findings is essential to reduce patient morbidity and mortality.

## REFERENCES

1. Percheron G. The anatomy of the arterial supply of the human thalamus and its use for the interpretation of the thalamic vascular pathology. *Z Neurol.* 1973. doi:10.1007/BF00315956.
2. Uz A. Variations in the origin of the thalamoperforating arteries. *J Clin Neurosci.* 2007. doi:10.1016/j.jocn.2006.01.047.
3. Schmahmann JD. Vascular syndromes of the thalamus. *Stroke.* 2003. doi:10.1161/01.STR.0000087786.38997.9E.
4. Tucha O, Naumann M, Berg D, Alders GL, Lange KW. Bilateral thalamic infarction: Clinical, etiological and MRI correlates. *Acta Neurol Scand.* 2001. doi:10.1034/j.1600-0404.2001.00141.x.
5. Lazzaro NA, Wright B, Castillo M, et al. Artery of percheron infarction: Imaging patterns and clinical spectrum. *Am J Neuroradiol.* 2010. doi:10.3174/ajnr.A2044.
6. Kostanian V, Cramer SC. Artery of Percheron thrombolysis. *Am J Neuroradiol.* 2007.
7. Cao W, Dong Q, Li L, Dong Y. Bilateral Thalamic Infarction

and DSA Demonstrated AOP after Thrombosis. *Acta Radiol Short Reports*. 2012. doi:10.1258/arsr.2012.110004.

8. Li X, Agarwal N, Hansberry DR, Prestigiacomo CJ, Gandhi CD. Contemporary therapeutic strategies for occlusion of the artery of Percheron: A review of the literature. *J Neurointerv Surg*. 2015. doi:10.1136/neurintsurg-2013-010913.
9. Meyers PM, Schumacher HC, Connolly ES, Heyer EJ, Gray WA, Higashida RT. Current status of endovascular stroke treatment. *Circulation*. 2011. doi:10.1161/CIRCULATIONAHA.110.971564.