A Rare Variant of Posterior Circulation Stroke

R Legha[a], Vosto Steny[b]

a. Department of Medicine, Government TD Medical College, Alappuzha*

ABSTRACT

Published on 30th December 2014

Artery of Percheron is a rare variant of the posterior cerebral circulation. Infarcts in this arterial territory account for 0.1 to 0.3% of all ischemic strokes and 22 to 35% of all thalamic infarcts. We report a case of Artery of Percheron infarct in a 31 year old male.

Keywords: Artery of Percheron, Posterior Circulation Stroke

*See End Note for complete author details

CASE REPORT

Our patient was a 31 year old male, chronic smoker, who presented with giddiness & altered sensorium of 1 day duration. He woke up from sleep, had a mild holocranial headache and dizziness, vomited twice, following which he became increasingly sleepy and was having altered talk. No history suggestive of any cranial nerve involvement/ motor weakness. No history of trauma/fever. Except for being treated for alopecia areata, his past history was insignificant.

On initial examination he was drowsy, disoriented with no focal deficits or meningeal signs. But his condition worsened over a time period of 12 hours. He developed bilateral ptosis, complete restriction of extraocular movements in right eye and partial restriction in left eye, especially the vertical gaze. However his sensorium improved, was answering questions well, but remained increasingly sleepy with very frequent yawning.

Initial routine blood parameters were within normal limits. In view of the bilaterality of the signs we were considering the possibility of a "top of the basilar artery syndrome" and proceeded with an MRI Brain which revealed infarct in paramedian aspect of anterior thalami and midbrain bilaterally, extending to mesodiencephalic junction on right side (Figure 1 & 2). Infarcts in inferomedial aspect of Lt cerebellar hem isphere (Lt P ICA territory) were also present. Non contrast MRA was also done which came to be normal.

So, our final diagnosis was young stroke- Artery of Percheron infarction. Thrombophilia & vasculitis workup was negative. Except for chronic smoking, no other significant risk factor could be identified. He was treated with dual antiplatelets and statin and advised lifestyle modification. He was lucky enough to have an almost full recovery within 5 days.

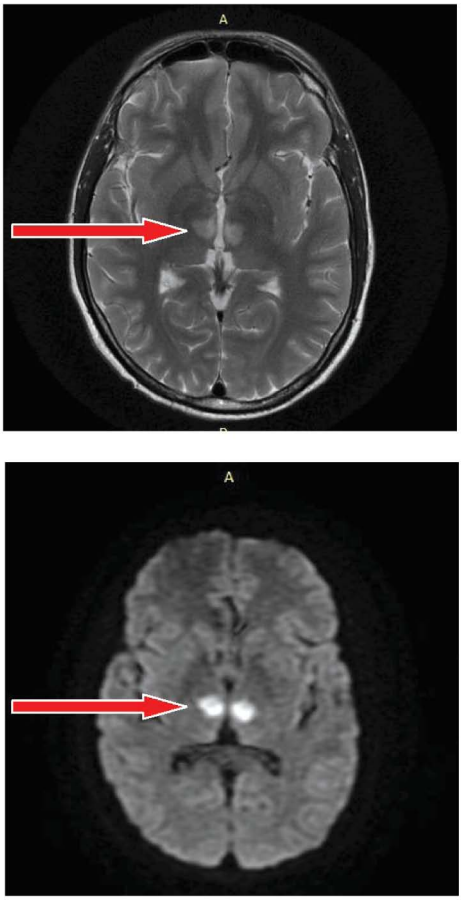

Figure 1 & 2. **MRI Brain showing infarct in the Artery of Percheron territory**

Corresponding Author:
Dr. R Legha, Department of Medicine, Government TD Medical College, Alappuzha, Kerala.
E-mail : drvostosteny@gmail.com

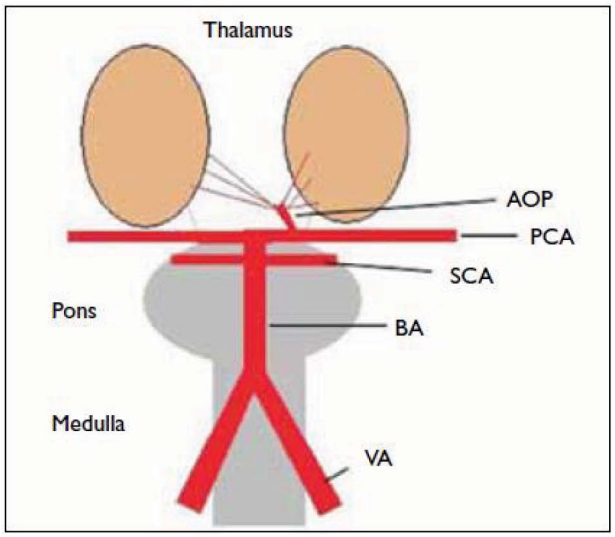

Figure 3. **A schematic diagram illustrating the artery of Percheron (AOP), PCA denotes posterior cerebral artery, SCA superior cerebellar artery, BA basilar artery, and VA vertebral artery**

DISCUSSION

Artery of Percheron is a solitary arterial trunk that branches from one of the proximal segments of either PCA (Posterior Cerebral Artery). Supplies the paramedian thalami an d the rostra l midbrain bilaterally Medial part of the thalamus is usually supplied by the paramedian arteries that arise from the first segment of PCA on both sides. In about one third of humans, these arteries arise from a single artery known as the artery of Percheron (AOP). (Figure 3). AOP is too small to be visualised by MRA and can only be detected on angiograms. In our patient also the MRA came normal.

The classical triad of AOP infarction include

- Altered mental status
  - (Due to involvement of RAS and the disrupted connections between the thalamus and the anterior, orbitofrontal and medial prefrontal cortices.)
- Memory impairment
  - (involvement of mammillothalamic tract, anterior nucleus and dorsomedial nucleus)
- Vertical gaze palsy
  - (disruption of the cortical input that traverses the thalamus to reach the rostral interstitial MLF)

All the components of the triad were present in our patient. If a midbrain involvement also occur, as in our case, occulomotor nerve palsy and even hemiplegia can occur. The most common etiology of bilateral thalamic infarctions is cardioembolism, which was absent in our patient. Early diagnosis is best made by a diffusion-weighted imaging (DWI) sequence using MRI.

Decreased conscious level, lack of focal deficit, and bithalamic hypodensities in CT of the brain are unusual in typical stroke syndromes. Hence the diagnosis may be delayed and the therapeutic window for thrombolytic therapy can be missed, and result in significant neurological damage. For patients presenting with altered sensorium, vertical gaze palsy should be looked for and consideration given to undertaking an MRI with DWI sequencing, in order to diagnose AOP infarction when thrombolytic therapy might still be feasible. In case of thrombolytic therapy not being feasible, Heparin, dual antiplatelets and long term oral anticoagulants are the possible options. Careful evaluation of the patient's history, clinical presentation together with imaging findings facilitates in making the correct diagnosis.

END NOTE

Author Information

1. Dr. R. Legha, Professor & HOD,
   Department of Medicine,
   Government TD Medical College,
   Alappuzha
   E-mail: drvostosteny@gmail.com
2. Dr. Vosto Steny, Post Graduate Student,
   Government TD Medical College,
   Alappuzha

Conflict of Interest: None declared

Cite this article as: R Legha, Vosto Steny. A Rare Variant of Posterior Circulation Stroke. 107-108

REFERENCES

1. Shea YF, Lin OY, Chang RSK, Luk JKH. Artery of Percheron infarction. Hong Kong Med J. 2012 Oct;18(5):446.e1–2.
2. Lazzaro NA, Wright B, Castillo M, Fischbein NJ, Glastonbury CM, Hildenbrand PG, et al. Artery of percheron infarction: imaging patterns and clinical spectrum. AJNR Am J Neuroradiol. 2010 Aug;31(7):1283–9.
3. Krampla W, Schmidbauer B, Hruby W. Ischaemic stroke of the artery of Percheron (2007: 10b). Eur Radiol. 2008 Jan;18(1):192–4.
4. Kostanian V, Cramer SC. Artery of Percheron Thrombolysis. AJNR Am J Neuroradiol. 2007 May 1;28(5):870–1.
5. López-Serna R, González-Carmona P, López-Martínez M. Bilateral thalamic stroke due to occlusion of the artery of Percheron in a patient with patent foramen ovale: a case report. J Med Case Rep. 2009;3:7392.