Hypertrophic anterior choroidal artery: images and brief embryological overview

Deep Das ^{1b},¹ Rahul Kumar,² Arpan Dutta ^{1b}¹

¹Neurology, Institute of Postgraduate Medical Education and Research Bangur Institute of Neurology, Kolkata, West Bengal, India

²Neurology, G S Neuroscience Clinic and Research Centre Pvt, Patna, Bihar, India

Correspondence to

Dr Deep Das;
deepdas1974@gmail.com

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DESCRIPTION

During the embryological stage of humans when the vertebrobasilar system has not been developed fully, the cortical regions of the temporal, parietal and occipital lobes are supplied by the anterior choroidal artery (AChA).¹ Once the vertebrobasilar system develops, this territory is gradually taken over by the posterior cerebral artery (PCA).¹ However, in some cases, AChA continues to supply these regions.^{1 2} More commonly, the territory supplied by the inferior temporal branch of PCA is captured by the AChA.² These cases are often misinterpreted as duplicated posterior communicating artery (PComA) or duplicated AChA. Rarely, the entire cortical territory of the PCA is supplied by the AChA.^{1 2} The PComA-PCA system is usually hypoplastic in such cases, but rarely can

be prominent again giving the false impression of a duplicated PComA.² Connection between the AChA and the PComA-PCA system can also be present.² Here is the MR angiography images of a 30-year-old man, who presented with migrainous headache and underwent routine imaging. On the left side, a fetal origin of PCA is visible. (figure 1) On the right side, the PComA and the P1 segment of the right PCA are well developed, but the right PCA territory distal to the P1 segment is entirely annexed by the right AChA (figures 1 and 2). There is a connection between the right AChA and the right PCA just distal to the P1 segment. This type of anatomical variants should not be misidentified as a duplicated PComA because embryologically there can be only one PComA and only one AChA.

Figure 1 Collage depicting the hypertrophied right anterior choroidal artery, anteroposterior view (left) and axial reconstruction of source images of time of flight sequences with the artery marked out with a solid arrowhead (right) view.

Figure 2 The hypertrophied right anterior choroidal artery course has been marked out with white dots.

Learning points

- ▶ The anterior choroidal artery can sometimes retain its embryological cortical territory, partially or completely, which is usually annexed by the developing posterior cerebral artery in the developing embryo.
- ▶ Proper identification of the anatomical variants of the anterior choroidal artery is necessary to avoid misinterpretations.

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ORCID iDs

Deep Das <http://orcid.org/0000-0003-1948-9136>

Arpan Dutta <http://orcid.org/0000-0001-6685-5739>

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