

**Images in Interventional Neurology – Brief Report**

# A Serpiginous Pericallosal Anterior Cerebral Artery

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**Keywords**

Anatomical variant · Diagnostic neuroradiology · Anterior cerebral artery

**Abstract**

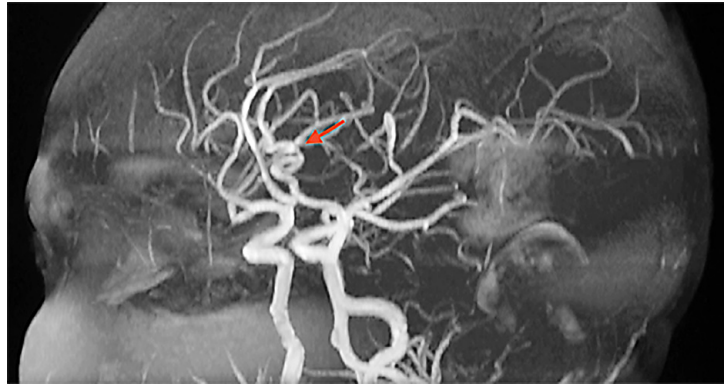
The anterior cerebral artery (ACA) is a unique artery with many important variations with substantial clinical significance. Tortuous intracranial arteries usually occur in basilar, communicating, anterior, posterior cerebral arteries and in the white matter arterioles. This could happen for many reasons including but not limited to ageing, hypertension, patients with Moyamoya disease, congenital malformation, or increased flow associated with elastin degradation. While dolichoectasia of the ACA has been described even in children, to our knowledge, a serpiginous ACA without ectasia has not been reported, especially in the pediatric population.

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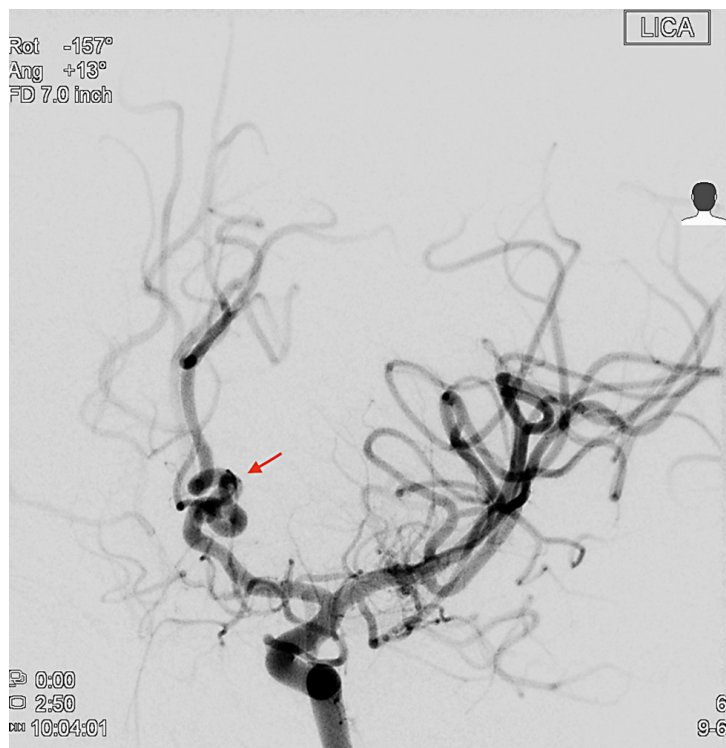
A 7-year-old boy without a significant past medical history presented with dizziness, headaches, and gait imbalance for several weeks. Extensive audiological and ophthalmological work-up was unremarkable. Magnetic resonance imaging of the brain with T2-weighted sequence suggested a vascular tortuosity in the anterior cerebral artery (ACA) territory. Magnetic resonance angiography of the head was performed, which revealed probable severe stenosis within a tortuous left ACA with recommendation for catheter angiography (Fig. 1). The cerebral angiogram with 3D reconstruction demonstrated a tortuous serpiginous left A2 pericallosal ACA without associated stenosis, presumably a congenital variant (Fig. 2–4).

The ACA is a unique artery in many respects. Phylogenetically, it is among the oldest vessels in the telencephalic species. Its early connections with choroidal vasculature and its

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**Fig. 1.** Magnetic resonance angiography suggesting anterior cerebral artery tortuosity and stenosis (red arrow).

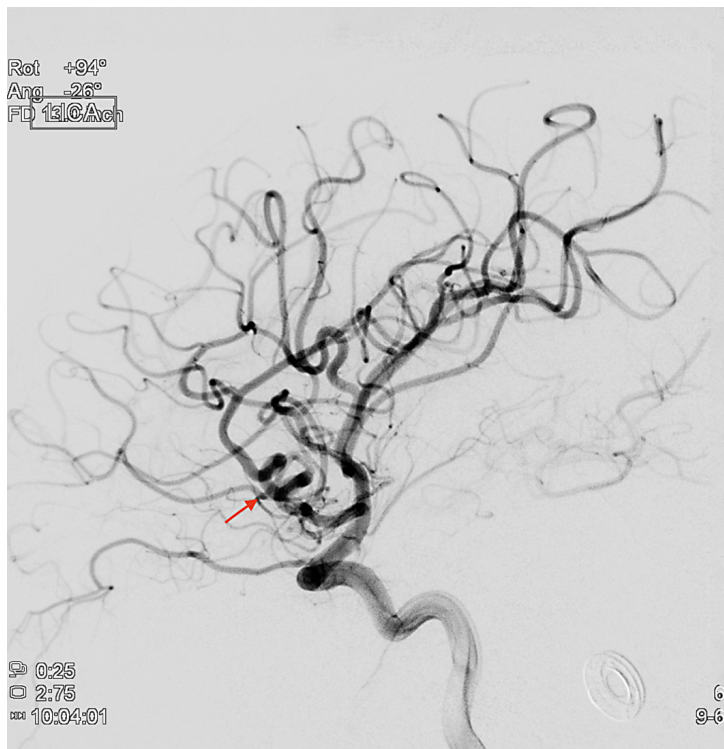


**Fig. 2.** Frontal catheter angiogram from a left internal carotid artery injection demonstrating tortuosity of the left anterior cerebral artery (red arrow).

primary role as a rostral internal carotid artery trunk, embryologically, lead to many important variations with substantial clinical significance [1].

Tortuous intracranial arteries usually occur in basilar, communicating, anterior, posterior cerebral arteries and in the white matter arterioles. This could happen for many reasons including but not limited to ageing, hypertension, patients with Moyamoya disease, congenital malformation, or increased flow associated with elastin degradation. Artery tortuosity syndrome is a rare autosomal recessive disorder (mutation of the *SLC2A10* gene) where there is tortuosity and elongation in arteries due to the disruption of the elastic fiber in the arterial wall [2].

While dolichoectasia of the ACA has been described even in children, to our knowledge, a serpiginous ACA without ectasia has not been reported, especially in the pediatric population.



**Fig. 3.** Lateral catheter angiogram from a left internal carotid artery injection demonstrating tortuosity of the left anterior cerebral artery (red arrow).



**Fig. 4.** Three-dimensional reconstruction from the catheter angiogram demonstrating tortuosity of the left anterior cerebral artery without evident stenosis (red arrow).

### Statement of Ethics

The patient has given his informed consent, and the study protocol has been approved by the institute's committee on human research.

### Disclosure Statement

The authors declare that they have no affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements) or nonfinancial interest (such as personal or professional relationships, affiliations, knowledge, or beliefs) in the subject matter or materials discussed in this paper.

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