

Azygos anterior cerebral artery

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An azygos [anterior cerebral artery](#) is an uncommon to rare variant of the [circle of Willis](#) where the two [A1 segment of the anterior cerebral artery](#) (ACA) join to form a single trunk. As a result, there is no [anterior communicating artery](#). This organization is similar to that seen in lower primates ¹⁾.

Key features

A single unpaired A2 segment supplies both hemispheres

Incidence: 0.3–2%

Risk: high association with aneurysms at bifurcation

Clinical impact: bilateral infarcts if injured

Epidemiology

They are present in approximately 0.4–1% of the population ²⁾.

Classification

The classification of azygos anterior cerebral artery (ACA) is based on the specific anatomical variations observed. Different classifications have been proposed to describe the variations in the azygos ACA. Here are a few commonly used classifications:

Al-Rodhan classification:

Type I: Complete absence of one ACA with contralateral ACA supplying the territory of the missing ACA. Type II: Hypoplastic ACA with ipsilateral posterior cerebral artery (PCA) supplying the territory of the missing ACA. Type III: Hypoplastic ACA with contralateral ACA supplying the territory of the missing ACA. Type IV: Complete absence of both ACAs with bilateral PCAs supplying the territories of

the missing ACAs. Yasargil classification:

Type A: Complete absence of one ACA with contralateral ACA supplying the territory of the missing ACA. Type B: Azygos ACA with contralateral ACA supplying the territory of the missing ACA, but the ACoA is present. Type C: Azygos ACA with contralateral ACA supplying the territory of the missing ACA, and the ACoA is absent. Lasjaunias and Berenstein classification:

Type I: Complete absence of one ACA with contralateral ACA supplying the territory of the missing ACA. Type II: Azygos ACA with contralateral ACA supplying the territory of the missing ACA and the ACoA is present. Type III: Azygos ACA with contralateral ACA supplying the territory of the missing ACA and the ACoA is absent. These classifications help in describing and categorizing the variations observed in the azygos ACA. They assist in understanding the vascular anatomy and potential implications during diagnostic and therapeutic procedures.

Pathology

Associations It is associated with numerous abnormalities, including ³⁾

dysgenesis of the corpus callosum

lobar holoprosencephaly ⁴⁾

septo-optic dysplasia

porencephalic cysts

arteriovenous malformations (AVM)

Berry aneurysms are often seen at the eventual bifurcation of the single vessel, due to either altered hemodynamics or congenitally abnormal wall, or both. The reported incidence varies widely, from 13 to 71% ⁵⁾.

As there is frequent hypoplasia of the anterior communicating artery and supply of the medial surface of the hemispheres by contralateral ACA branches, confirmation of an azygos ACA can be difficult on angiography ⁶⁾

Cross compression views can be helpful.

Clinical Significance

Aneurysm risk: High at the distal bifurcation of the azygos ACA.

Surgical consideration: Injury to this vessel can cause bilateral medial frontal lobe infarcts, leading to severe deficits (e.g., akinetic mutism, paraparesis).

It can be found incidentally or in association with midline anomalies like agenesis of the corpus callosum.

Case reports

A woman suspected to have an [anterior cerebral artery aneurysm](#) that was ultimately found to have an azygous ACA shield. This benign entity highlights the importance of thorough investigation with cerebral [digital subtraction angiography](#) (DSA). This 73-year-old female initially presented with [dyspnea](#) and [dizziness](#). [Computed tomography angiography](#) of the head suggested an incidental 5 mm [anterior cerebral artery aneurysm](#). Subsequent [DSA](#) demonstrated a Type I azygos ACA supplied by the left [A1 segment of the anterior cerebral artery](#). Also noted was a focal dilatation of the [azygos](#) trunk as it gave rise to the bilateral pericallosal and [callosomarginal artery](#). Three-dimensional visualization demonstrated a benign dilatation secondary to the four vessels branching; no [aneurysm](#) was noted. Incidence of aneurysms at the distal dividing point of an azygos ACA ranges from 13% to 71%. However, careful anatomical examination is imperative as findings may be a benign dilatation for which case intervention is not indicated ⁷⁾.

Cadaveric anatomical case report and morphometric studies

Reyes Soto et al. attempts to highlight “clinical implications” of a rare anatomical variant but merely reports **a single cadaveric observation** without correlating it to any imaging, neurosurgical, or pathological context ⁸⁾.

□ No actual patient case, no angiographic illustration, and no surgical relevance is demonstrated.

2. □ Scientifically unoriginal

Although it presents itself as a “morphometric study,” the azygos anterior cerebral artery (ACA) has been documented for decades. The paper adds nothing novel, failing to generate hypotheses or explore functional significance.

□ Using a digital caliper and red latex is not innovation — it's textbook-level anatomy disguised as research.

3. □ Methodologically trivial

This is a **single-case dissection** without statistical analysis, control group, or clinical translation. It merely measures diameters and lengths with no evaluation of variability, risk, or surgical implication.

□ No insight is provided on how this variant would affect surgical strategy or patient outcomes.

4. □ Rhetorical overreach

The manuscript inflates its significance with phrases like “important clinical implications” and “vascular health understanding” without substantiating any of these claims.

□ This is a textbook case of **rhetorical inflation** — dressing up mundane facts with pseudo-academic flair.

5. ☐ Poor contextualization

The authors fail to discuss this variant's known implications for interhemispheric approaches, clipping of ACoA aneurysms, or the risks of bilateral infarction. No comparison is made with operative series or radiological data.

☐ The discussion is devoid of clinical depth — it's anatomically narrow and surgically irrelevant.

6. ☐ Final verdict: Academic filler

This paper represents what could be called “**decorative neuroanatomy**” — an exercise in publication without real contribution to the field. It belongs to the genre of **curriculum padding** rather than scientific progress.

☐ **Warning to neurosurgeons:** This is not actionable knowledge. Skip it. Focus on data that improves patient care or surgical planning.

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