

Circle of Willis

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The main sources of blood for the brain are a. carotis interna dextra et sinistra and a. vertebralis dextra et sinistra which together with other vessels create the **circle of Willis (*circulus arteriosus cerebri*)**. This circle is named after English physician Thomas Willis. The circle is located in the subarachnoidal space - in the area around *fossa interpeduncularis, corpora mammillaria* and *chiasma opticum*. It made of five arteries, which connect together through anastomoses. The circle of Willis is not identical in all people. Anomalies appear in up to 50% of cases.

It is created by:

a. carotis comunis dx. et sin. → a. carotis interna dx. et sin. →

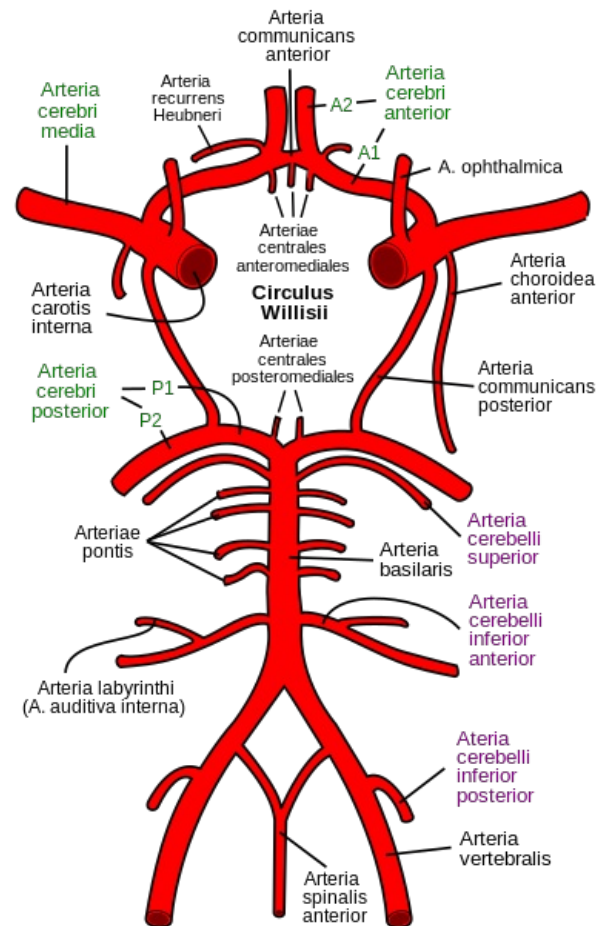
- **a. cerebri anterior dx. et sin.**
- **a. communicans anterior**
- **a. cerebi media dx. et sin.**
- **a. communicans posterior dx. et sin.**

a. vertebralis → a. basilaris → **a. cerebri posterior**

The circle of Willis branches into:

- **Cortical arteries**, which is generally branching of *a. cerebri anterior, media et posterior*. They branch into short (cortical) and long (medullary) branches.
- **Aa. centrales**, which branch into *aa. centrales anteromediales, aa. centrales anterolaterales, aa. centrales posterolaterales*.
- **Aa. choroideae** - *capsula interna*, brain stem

The function of the circle of Willis is equalization of pulse waves from afferent vessels and equivalent filling of the arteries leaving the circle. The circle of Willis can partially substitute the function of blood supply to the brain of an afferent artery if it happens to get occluded.



Links

Relevant articles

- Arteries of the brain
- Ischemia of the brain

External links

- Circle of Willis Anatomy, Medscape (<https://emedicine.medscape.com/article/1877617-overview>)
- Circle of Willis, MedlinePlus (<https://medlineplus.gov/ency/imagepages/18009.htm>)

Used literature

- ČIHÁK, Radomír. *Anatomie III. 2., upr. a dopl edition*. Grada Publishing, spol. s r. o., 2004. 673 pp. ISBN 80-247-1132-X.

Recomended literature

- ČIHÁK, Radomír – GRIM, Miloš. *Anatomie. 2. upr. a dopl edition*. Grada Publishing, 2002. 470 pp. ISBN 80-247-0143-X.
- PETROVICKÝ, Pavel. *Anatomie s topografií a klinickými aplikacemi. 1. edition*. Osveta, 2001. 560 pp. ISBN 80-8063-047-X.
- NAŇKA, Ondřej – ELIŠKOVÁ, Miloslava. *Přehled anatomie. 2. edition*. vydavatel, 2009. 0 pp. ISBN 978-80-7262-612-0.



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