

**INCOMPLETE CIRCLE OF WILLIS**  
**POLÍGONO DE WILLIS INCOMPLETO**

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The intracranial circulation is guaranteed by the interconnections established in the circle of Willis; if the internal carotid artery on one side is occluded for any reason, the blood flow to this side of that brain can be maintained by the other arteries from the circle.

However, defects in the arteries composing the circle is quite common; an article by Merkkola et al, published in The Annals of Thoracic Surgery, in 2006, shows us that 22% of the anterior communicating arteries and 46% of the posterior communicating arteries (left, right, or both) are missing in the general population. Such abnormalities are especially important when performing carotid surgeries, or correction of proximal aortic dissections, as they can provoke brain ischemia, if they are not noticed in time.

Here we present a picture (figure 1) of an incomplete circle of Willis from an autopsy, in which both posterior communicating arteries are missing. The posterior cerebral arteries originated from the internal carotid artery, and there were three thin vases connecting them to the basilar artery. In the second picture (figure 2), we present the arteries dissected from the brain, separated from each other.

In the same patient, we also found an abnormality in the heart circulation; the posterior descending artery was originated from the left, rather than the right coronary, and presented a left pattern of dominance, instead of a right one. A picture, however, is not presented, as this abnormality was only discovered once we dissected each heart blood vessel.

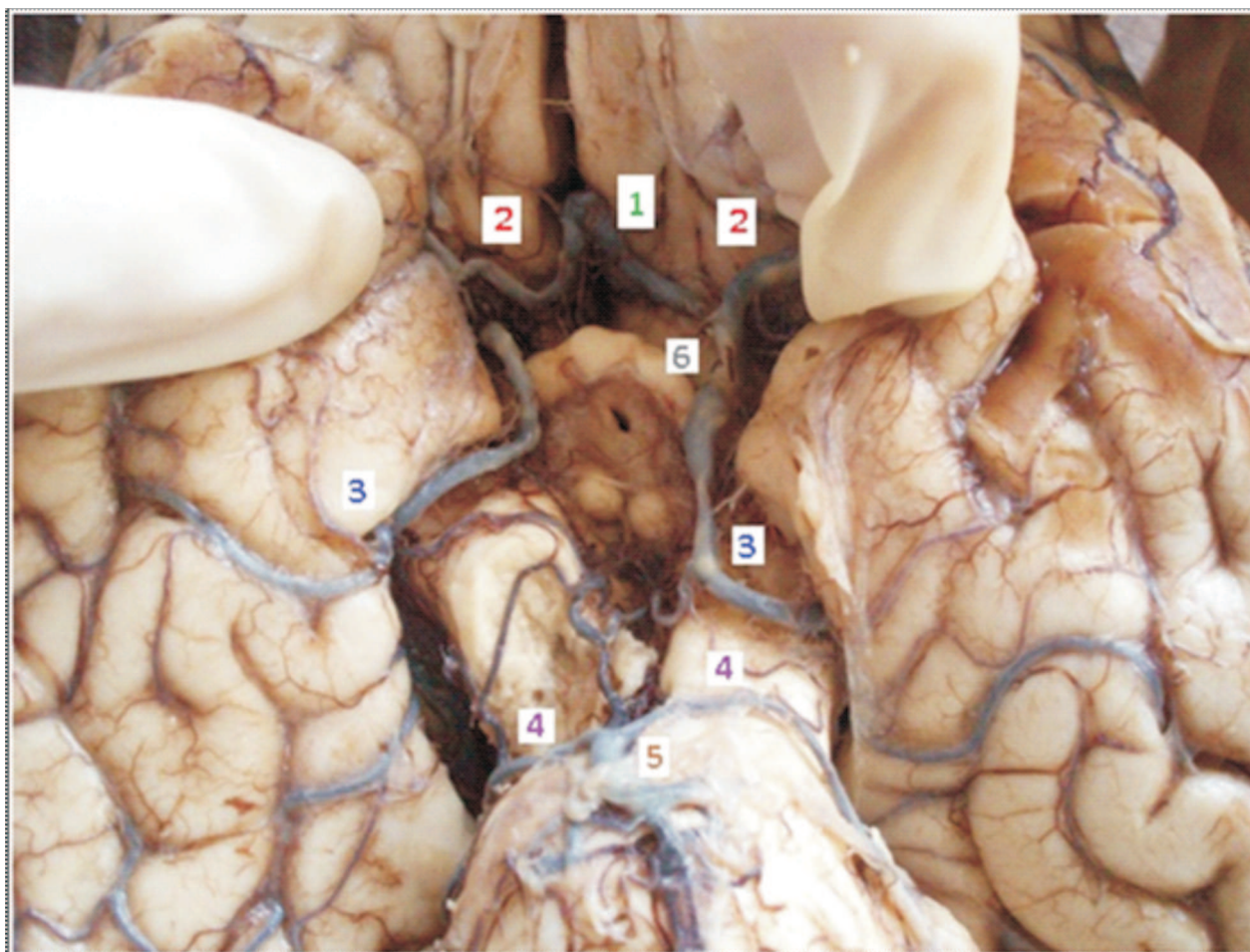


Figure 1. In situ Circle of Willis. 1: Anterior cerebral arteries. 2: Medium Cerebral Arteries. 3: Posterior Cerebral Arteries. 4: Superior Cerebellar Arteries. 5: Basilar Artery. 6: Internal Carotid Arteries (cut).

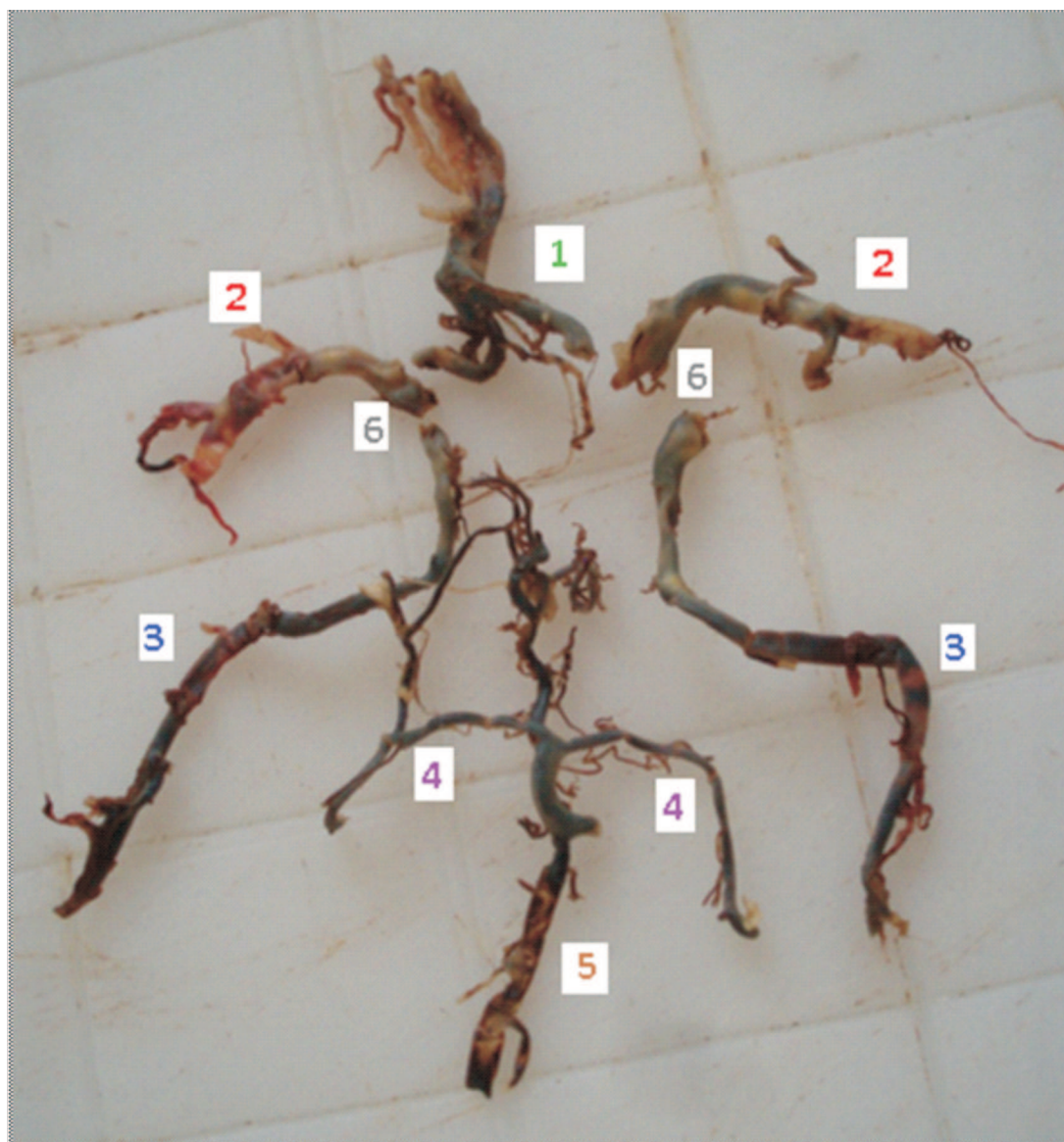


Figure 2. Dissected Circle of Willis. 1: Anterior cerebral arteries. 2: Medium Cerebral Arteries. 3: Posterior Cerebral Arteries. 4: Superior Cerebellar Arteries. 5: Basilar Artery. 6: Internal Carotid Arteries (cut).

### Acknowledgments

We would like to thank Mr. Claudio Theodoro and Mr. Fernando Longhini, autopsy technicians from Centro

de Ciências Médicas e Biológicas of PUC-SP, who have been helping us throughout our work.