Imagens em NEUROLOGIA

THE ARTERIAL CIRCLE OF THOMAS WILLIS: PAST AND PRESENT

O CÍRCULO ARTERIAL DE THOMAS WILLIS: PASSADO E PRESENTE

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Anastomosis between arteries at the base of the human brain were recognized by several anatomists (e.g., Vesalius, Falloppio, Casserio, Vesling, Wepfer), and identified as communications between the carotid and the vertebrobasilar systems[1]. However, the dissection by the English physician Thomas Willis (1621-1675) permitted to distinguish a complete arterial anastomotic circle, later named after him. It was accurately depicted by his pupil, the architect Christopher Wren, published in Willis' *Cerebri Anatome*, in 1664, and became the most accepted representation of this vascular structure[1] (Figure - A). Nowadays, the anatomy of this formation can be visualized in vivo with modern neuroimaging techniques, as magnetic resonance angiography, introduced in the 1990s for clinical use[2] (Figure - C). Despite the time, there are not remarkable differences between the representations of this structure.

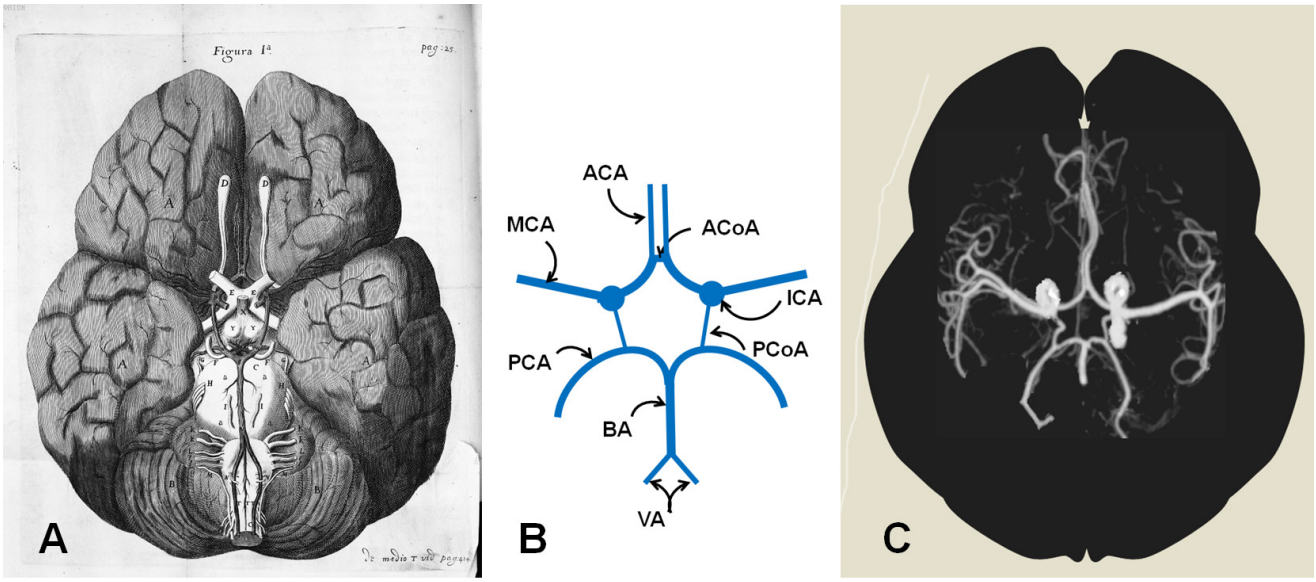

Figure. Circle of Willis: drawings and magnetic resonance angiography (MRA).
A. Wren's drawing of the base of the brain, depicting the circle of Willis and its main branches (Figure I, p 25)[3].
PP=trunk of the carotid artery [internal carotid artery], dividing into an anterior [anterior cerebral artery] and posterior [posterior communicating artery] branches, R=anterior branches of the carotids uniting [anterior communicating artery], in the cerebral fissure, QQ=branches advancing between two cerebral lobes [middle cerebral artery], WW= location where the vertebral and carotid arteries join, S=posterior branches of the carotids uniting, meeting the vertebral trunk [basilar artery], V=vertebral branches merging in the same trunk [basilar artery], TTT=vertebral arteries and its three ascending branches [vertebrals and anterior spinal arteries].
B. Schematic representation of the circle of Willis and its main ramifications.
ACA=anterior cerebral artery, ACoA=anterior communicating artery, MCA=middle cerebral artery, ICA=internal carotid artery, PCoA=posterior communicating artery, PCA=posterior cerebral artery, BA=basilar artery, VA=vertebral arteries.
C. MRA of the circle of Willis – time-of-flight (TOF) sequence.

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CONFLICT OF INTEREST

None

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