The circle of Willis (circulus arteriosus cerebri) is an anastomotic system of arteries that sits at the base of the brain. It was named after Thomas Willis by his student Richard Lower. Furthermore, vertebral artery dominance may also contribute to basilar artery curvature and posterior circulation infarctions.

Uncommonly, persistence of fetal anastomoses involving the circle of Willis is found, including persistent trigeminal, otic, and posterior cerebral artery aneurysms.

The microvascular anatomy of the posterior part of the circle of Willis, important in surgery of pituitary tumors and basilar aneurysms, was defined in 50 cadaver brains. Significant findings were as follows: 1) Anomalies of the posterior half of the circle of Willis were found in 46% of cases. 2) Hypoplastic P-1 (posterior cerebral segment) and posterior communicating segments gave origin to the same number and size of perforating arteries, having the same termination as normal-sized segments. Thus hypoplastic segments should be handled with care and divided to aid in exposure of the basilar bifurcation only after careful consideration. 3) An average of four perforating branches arose from P-1; most from the superior and posterior surfaces. No branches arose from the anterior surface of the basilar bifurcation. The most proximal P-1 branch originated 2 to 3 mm distal to the basilar bifurcation. It was most commonly a thalamoperforating artery. The largest P-1 branch was usually a thalamoperforating or a posterior choroidal artery. 4) An average of seven branches emerged from the superior and lateral surfaces of the posterior communicating artery. The anterior half was a richer source of perforators than the posterior half. The largest communicating branch in 80% of specimens supplied the pre-mammillary area. 5) The anterior choroidal artery originated from the carotid artery on both sides in all cases. A double anterior choroidal artery was present in 4% of cases.
hypoglossal, and proatlantal arteries. These arteries more or less unite the internal carotid trigeminal artery (TA) is the most common of the persistent fetal anastomoses (83%), and cc
Rhoto AL Jr (1977) Microsurgical anatomy of the upper basilar artery and the posterior circ
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