

Cerebral isthmus

The cerebral isthmus is the [white matter](#) area located between the [periinsular sulcus](#) and the [lateral ventricle](#). Studies demonstrating the fiber tract and topographic anatomy of this entity are lacking in current neurosurgical literature.

A study was divided into 2 parts and included 30 formalin-fixed cerebral hemispheres, 5 of which were injected with colored silicone. In the first part, 15 uncolored specimens underwent the [Klingler method](#) and were dissected in a lateromedial direction at the level of the superior, inferior, and anterior isthmuses, and 10 were used for coronal and axial cuts. In the second part, the injected specimens were used to investigate the surgical significance of the superior isthmus in accessing the [frontal horn](#) of the lateral ventricle.

The microsurgical anatomy of the anterior, superior, and inferior cerebral isthmuses was carefully studied and recorded both in terms of topographic and fiber tract anatomy. In addition, the potential role of the proximal part of the superior isthmus as an alternative safe surgical corridor to the anterior part of the lateral ventricle was investigated.

Using the fiber dissection technique along with coronal and axial cuts in cadaveric brain specimens remains a cornerstone in the acquisition of thorough anatomical knowledge of narrow white matter areas such as the cerebral isthmus. The surgical significance of the superior isthmus in approaching the frontal horn of the lateral ventricle is stressed, but further studies must be carried out to elucidate its role in ventricular surgery ¹⁾.

¹⁾

Koutsarnakis C, Liakos F, Liouta E, Themistoklis K, Sakas D, Stranjalis G. The cerebral isthmus: fiber tract anatomy, functional significance, and surgical considerations. J Neurosurg. 2015 Sep 11:1-13. [Epub ahead of print] PubMed PMID: 26361277.

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